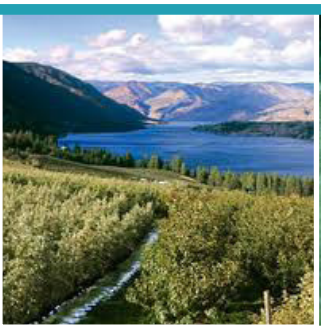
Work Plan

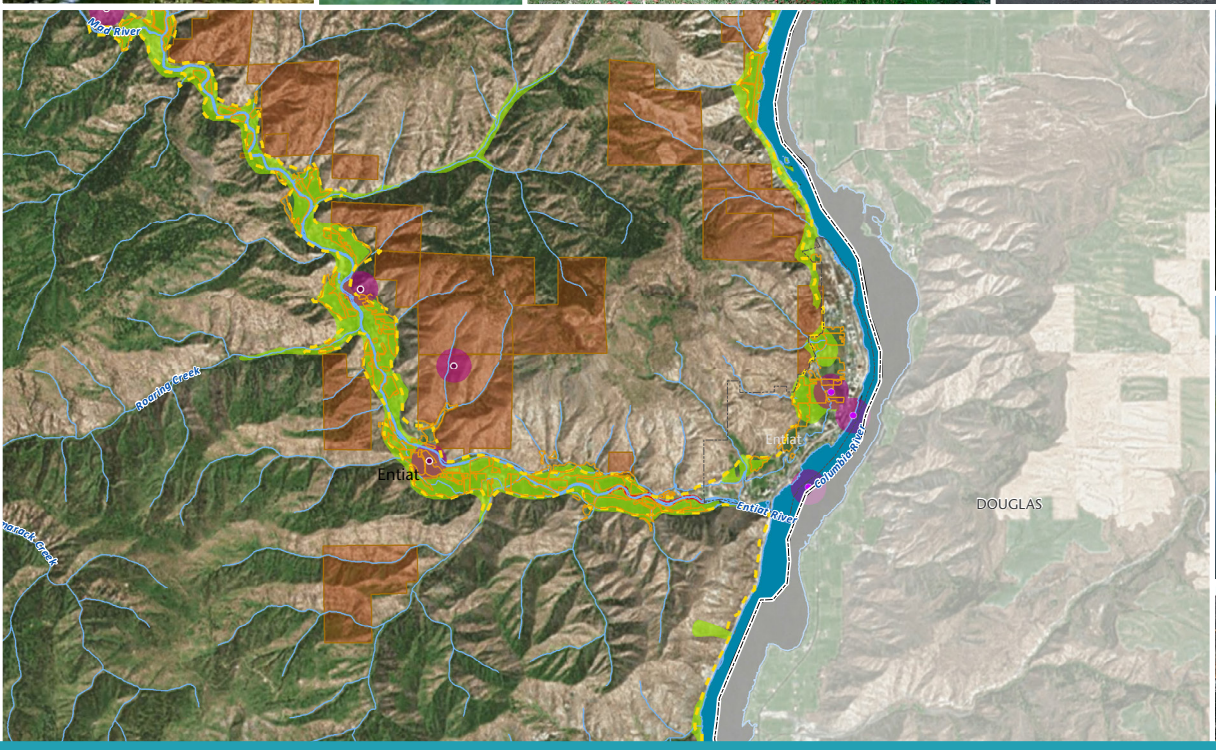
Chelan County Work Group

VOLUNTARY STEWARDSHIP PROGRAM

Approved Work Plan APPENDICES B-J | April 2017







APPENDIX B.
SUMMARY OF GEOGRAPHIC INFORMATION SYSTEM SOURCES AND METHODS

Feature	Data Sources and Methods	Limitations or Data Gaps
Agriculture	**Wenatchee Basin:** Cascadia Conservation District, 2013 **Chelan, Entiat, and Squilchuck-Stemilt:** The agriculture data was created manually in ArcGIS using several sets of aerial base map images, Washington State Department of Agriculture (WSDA), and United States Department of Agriculture (USDA) datasets as references. The WSDA crop section layer was used to define the extent for visual identification of agricultural production (i.e. a guide for which sections contain agriculture); we then used aerial imagery to visually scan each section for agriculture. General crop categories (e.g., orchard/vineyard, pasture, fallow, etc.) were assigned based primarily on the aerial imagery, as well as in reference to parcel agriculture current use taxation status, and USDA and WSDA designations. A comparison of the VSP Agriculture Mapping produced based on the above methods is compared to the WSDA 2011 and 2015 Agricultural Lands mapping following this table.	The Chelan, Entiat, and Squilchuck-Stemilt results should be verified by the Working Group and Stakeholders given the scale of the USDA and WSDA resources and use of aerial photos. Rangeland data is based on Washington State Department of Natural Resources (DNR), Washington Department of Ecology (Ecology), and US Bureau of Land Management (BLM) sources.
Fish and wildlife habitat conservation areas	Class I Fish and Wildlife Habitat Conservation Areas. • Habitat which have a primary association with species listed by federal agencies as endangered or threatened or species listed by state agencies as endangered: Priority Habitats and Species Maps, via Washington Department of Fish and Wildlife (WDFW) (2014). Also the Stemilt-Squilchuck Community Vision habitat mapping has been included. • State natural area preserves (NAPs) and natural resource conservation areas: Not shown. There are three NAPs, Camas Meadows, Entiat Slopes, Upper Dry Gulch. Class II Fish and Wildlife Habitat Conservation Areas:	State natural area preserves (NAPs) and natural resource conservation areas: Not shown. The Washington State DNR has provided GIS layers for high quality terrestrial and wetlands habitats, but use restrictions allow creation of a map for the County alone, and it cannot be published.

Feature	Data Sources and Methods	Limitations or Data Gaps
	• Naturally occurring ponds under twenty acres; waters of the state; lakes, ponds, streams, and rivers planted with game fish: DNR Watercourse (2006) and DNR Waterbody (2006) layers provide by Chelan County. • Priority habitats and species, including priority fish distribution and riparian zones: Priority Habitats and Species Maps, via Washington Department of Fish and Wildlife (WDFW) (2014). Also the Stemilt-Squilchuck Community Vision habitat mapping has been included. • Mule deer and/or elk winter range and migration corridors: Priority Habitats and Species Maps, via Washington Department of Fish and Wildlife (WDFW) (2014). Also the Stemilt-Squilchuck Community Vision habitat mapping has been included.	
Wetlands	National Wetland Inventory (2014) downloaded from USFWS website.	The data set underlying the layer is dated.
Frequently Flooded Areas	FEMA (1996) downloaded via Ecology's website.	
Geologically Hazardous Areas	Erodible Soils: NRCS (USDA) (2013) from Chelan County. NRCS delineations of "Severe" and "Very Severe" erosion hazard are shown. Steep Slopes: NRCS (USDA) (2013) from Chelan County. Potential Landslide Hazard: DNR (2008) and via DNR website. Mapped Landslides: DNR (2010) and via DNR website. Channel Migration Zones (not included in County code; included as referenced in WAC 365-190-120 – not mapped in the Squilchuck-Stemilt basin): Source: The Watershed Company and Ecology 2011.	
Critical Aquifer Recharge Areas	Public Wells: Department of Health (2013) via Chelan County FTP. Potential Wellhead Protection Zone: BERK (2014) using recommended area per State of Washington Department of Ecology (Ecology) Critical Aquifer Recharge Areas Guidance Document. January 2005, Publication Number 05-10-028: https://fortress.wa.gov/ecy/publications/publications/0510028.pdf. The Department of Health indicates 1,000 foot is used in their mapping sets for all Group B water systems, and any small Group A systems that have not calculated	Information depicted represents suggested data layers per the Ecology published CARA Guidance document (2005). CARA mapping depicted is potentially representative of physical features related to CARA but it is not a substitute for a certified

Feature	Data Sources and Methods	Limitations or Data Gaps
	fixed radii or delineations for their sources. State law sets requirements for wellhead protection area zones (WAC 246-290-130 and 246-290-135). Possible Aquifer Borders: BERK (2014) per Ecology CARA Guidance (2005). Contour lines downloaded from County FTP and USGS Topo maps were used as reference in digitizing possible aquifer borders. Surficial Alluvial Geology: Division of Geology and Earth Resources (DGER), a part of DNR (2010) and downloaded via DGER site.	geohydrologist created and DOE approved map.
Other Informational Layers	Hydrologic Study Area (100 Ft as mapped; 25, 50 and 100 feet in table data): BERK (2014) using Streams, Waterbodies, and Wetlands datasets. Watershed Boundaries: Ecology (2011) 303d Waters: Ecology (2012) Zoning: Chelan County (2014)	

Comparison of VSP Agricultural Mapping and WSDA Agricultural Mapping

The VSP Agriculture mapping was developed by the CCD and consultants using the methods described on page 1. At the time the mapping was created in 2013 and 2014, WSDA crop type information was not available publicly at scales less than the section level. Thus, multiple methods and sources were used including aerial photos before and after 2011 to help determine fallow land and other factors.

In 2016, crop level data for 2011 and 2015 was available publicly from WSDA, and a comparison could be made. Since 2011 is the VSP baseline it is the focus in this analysis below. Based on cumulative acreage, the two data sources are similar, with uniquely mapped areas "washing" out; there are about 2,384 uniquely identified acres in the VSP Agricultural mapping set and 2,713 uniquely identified acres in the WSDA map set.

Agricultural Lands Included in VSP Agricultural Mapping Baseline Data not Reflected in WSDA (2011)

Type	Acres
Orchard/Vineyard	807.35
Pastureland	27.84
Other Cropland	1,548.47
Total	**2,383.66**

Agricultural Lands Included in WSDA 2011 Data not Reflected in VSP Agricultural Mapping Baseline

Type	Acres
Berry	2.17
Cereal Grain	20.09
Commercial Tree	1.10
Green Manure	-
Hay/Silage	78.24
Nursery	2.26
Orchard	840.95
CRP/Conservation	801.20
Fallow	790.03
Pasture	150.93
Vegetable	-
Vineyard	26.29
Total	**2,713.26**

An aerial photo comparison for the Chelan basin (Bear Mountain vicinity) is shown below to illustrate some differences. In some instances, the two mapping sets call the same area, something different – e.g. VSP mapping shows rangeland and WSDA shows cropland. In other cases, one or the other data source picks up cropland and the other doesn't. Both datasets are provided to the Work Group for consideration. Going forward, the WSDA mapset can be used and adapted to reflect local information, e.g. rangeland that is not collected by the WSDA.

VSP Agricultural Mapping 2011

- VSP Agricultural mapping shows cropland to the west and south that does not appear in WSDA mapping.
- VSP Agricultural mapping shows rangeland to the southeast whereas WSDA mapping shows cropland.
- WSDA shows more cropland to the north which is not visible in the aerial.

Unique Agricultural Mapping 2011

- Pink areas – uniquely mapped in VSP Agricultural Mapping
- Yellow areas – uniquely mapped in WSDA Mapping
- Orange boundary with no color – similar mapping of agriculture in both sets.
- Brown boundary – VSP Agricultural Mapping rangeland data. WSDA does not map rangeland.

APPENDIX C. VSP WORK PLAN DEVELOPMENT – JOBS AND SIDEBOARDS

COUNTY	VSP GROUP	COMMMISSION AND TECHNICAL PANEL	STATE ADVISORY COMMITTEE
DO	**DO**	**DO**	**DO**
Opt-in Designate Participating Watersheds Nominate Priority Watersheds Solicit Letters of Interest for VSP Group Accept $ / Contract from CC Director Confer with Tribal Governments and Stakeholders Designate VSP Work Group(s) Designate Administration Entity Protect Critical Areas under Section 9 if Plan not approved within 3 years of funding	Develop 10-Year Plan to ***protect critical areas while maintaining and enhancing the viability of agriculture*** Seek input from tribes, agencies, and stakeholders Determine planning area, where Agricultural activities overlap with designated Critical Areas Designate Tech Assist Provider & Producer Participation TA Process Ensure Technical Assistance Provided to Operators Develop Individual Stewardship Plan Approach Set Protect & Enhance Goals & Benchmarks designed to result in protection of critical areas and voluntary enhancement of critical areas within 10-Years of funding	Technical Panel has 45 days after plan submission to make recommendation to Director on Approval *Approve if*--at end of 10 Years, considering Work Plan and other plans and regs: a) *Critical Areas* will be *Protected*; and b) *Ag Viability* will be *Maintained* and *Enhanced* If SAC recommends Approval Director Must Approve. Director determines whether Work Plan Goals & Benchmarks are being met for: a) Protection and b) Enhancement	Determine Priority Watersheds. Resolve Approval Disagreements—If Plan not approved within 2 Yrs, 9 months of funding, Plan goes to Statewide Advisory Committee for Resolution Consult with Director on whether Goals & Benchmarks are being met

DO (cont'd)	DO (cont'd)	DO (cont'd)	DO (cont'd)
Protect Critical Areas under Section 9 if Plan Goals and Benchmarks not met after adaptive management efforts	Incorporate Development Regs into Plan (existing as of Opt-in date) Review, rely upon and incorporate existing programs, plans and data related to water quality, watershed management, farmland protection and species recovery Establish CA Protection baseline and *baseline monitoring* plan Ensure ISP process contributes to meeting goals and benchmarks Submit Biennial Status Reports to County and Commission on VSP Plans and Accomplishments; and 5-Year Goals & Benchmarks Report to County and Director Do Adaptive Mgmt if Protection Goals & Benchmarks not being met Determine additional Voluntary Stewardship actions and funding needed if VSP enhancement goals and benchmarks not being met Account for potential withdrawals when establishing goals and benchmarks.		

DON'T	DON'T	DON'T	DON'T
Don't regulate critical areas on lands used for ag activities (unless narrow exceptions apply) Don't require ag operations to discontinue ag activities legally existing before July 11, 2011 Don't prevent an operator from withdrawing from the program Don't require operator to continue voluntary measures after expiration of applicable contract VSP doesn't interfere with/supplant ability of operator to work with CD or participate in conservation programs; VSP doesn't prohibit voluntary sale or lease of land for conservation purposes; VSP doesn't limit authority of a state agency, local government or landowner to carry out obligations under any other federal, state or local law; VSP doesn't grant counties or state agencies additional authority to regulate critical areas on lands used for agricultural activities	Don't develop stewardship practices that may have unintended adverse consequences for other habitats, species and critical areas. Don't administer the program in a manner that prevents eligibility for environmental incentives Don't require operators to implement additional practices if watershed group determines that additional or different practices are needed to achieve goals and benchmarks: Operators implementing individual stewardship plans are presumed to be working toward protection and enhancement of critical areas Operators may volunteer to implement such additional or different practices, and are eligible for funding to revise practices upon volunteering;		

APPENDIX D

List of Conservation Practices in Use in Chelan County

NATURAL RESOURCE CONSERVATION SERVICE PRACTICES

In Exhibit 1, use of Natural Resources Conservation Service (NRCS) Conservation Practices is identified. Practices employed during a 2011-2014 period after the Voluntary Stewardship Program baseline date of July 22, 2011.

Exhibit 1. NRCS Practices 1996-2014

Program	Range of Practices	Year Start	Year End	Approx. Acreage - Can Overlap Multiple Periods
Environmental Quality Incentives Program (EQIP) 1996 1999-2007	Irrigation System, Microirrigation Irrigation Water Management Nutrient Management Pest Management	1999	2007	2,192
EQIP 2002 Sign Up 2004	Critical Area Planting Irrigation System, Microirrigation Irrigation Water Management Nutrient Management Pest Management Pond Pond Sealing or Lining, Flexible Membrane Pumping Plant Structure for Water Control Tree/Shrub Establishment Tree/Shrub Site Preparation	2004	2009	6,495
EQIP 2002 Sign Up 2005	Forest Stand Improvement Irrigation System, Microirrigation Irrigation Water Management Nutrient Management Pest Management Spring Development Tree/Shrub Establishment Upland Wildlife Habitat Management Wildlife Watering Facility Windbreak/Shelterbelt Establishment	2005	2010	1,022
EQIP 2002 Sign Up 2006	Irrigation System, Microirrigation Irrigation Water Management Nutrient Management Critical Area Planting Forest Stand Improvement Pest Management Pipeline	2006	2010	2,607

Program	Range of Practices	Year Start	Year End	Approx. Acreage - Can Overlap Multiple Periods
	Pond			
	Pond Sealing or Lining, Flexible Membrane			
	Spring Development			
	Structure for Water Control			
	Tree/Shrub Establishment			
	Tree/Shrub Site Preparation			
	Upland Wildlife Habitat Management			
	Wildlife Watering Facility			
	Windbreak/Shelterbelt Establishment			
EQIP 2002	Forest Slash Treatment	2008	2010	139
Sign Up 2008	Forest Stand Improvement			
	Irrigation System, Sprinkler			
	Irrigation Water Management			
	Nutrient Management			
	Pest Management			
	Restoration and Management of Rare and Declining Habitats			
	Tree/Shrub Pruning			
	Upland Wildlife Habitat Management			
Conservation Security Program (CSP) 2002	Enhancement - Energy Management	2005	2014	4,979
	Enhancement - Forestry			
2005-2014	Enhancement - Grazing Management			
	Enhancement - Habitat Management			
	Enhancement - Nutrient Management			
	Enhancement - Pest Management			
	Enhancement - Soil Management			
	Enhancement - Water Management			
EQIP 2008	Forest Stand Improvement	2011	2013	1,189
	Irrigation Water Management			
	Nutrient Management			
	Pest Management			
	Prescribed Grazing			
	Tree/Shrub Establishment			
	Tree/Shrub Site Preparation			
EQIP 2008	Forest Slash Treatment	2011	2013	305
2009 Sign Up Year	Forest Stand Improvement			
	Hedgerows			
	Irrigation System, Microirrigation			
	Mulching			
	Nutrient Management			
	Pest Management			
	Tree/Shrub Pruning			
	Upland Wildlife Habitat Management			
EQIP 2008	Forest Slash Treatment	2011	2014	377
2010 Sign Up Year	Forest Stand Improvement			

Program	Range of Practices	Year Start	Year End	Approx. Acreage - Can Overlap Multiple Periods
	Hedgerows Irrigation System, Microirrigation Mulching Nutrient Management Pest Management Tree/Shrub Pruning Upland Wildlife Habitat Management			
EQIP 2008 2011 Sign Up Year	Forest Slash Treatment Forest Stand Improvement Hedgerows Irrigation System, Microirrigation Irrigation Water Conveyance Mulching Nutrient Management Pest Management Seasonal High Tunnel Tree/Shrub Pruning Upland Wildlife Habitat Management	2012	2014	220
EQIP 2008 2012 Sign Up Year	Forest Slash Treatment Forest Stand Improvement Irrigation System, Microirrigation Irrigation Water Conveyance Pumping Plant Seasonal High Tunnel Tree/Shrub Pruning	2013	2014	107
EQIP 2008 / 2013 Sign Up Year	Farm Energy Plan (1 Site)	2013		
EQIP 2008 /2014 Sign Up Year	Prescribed Grazing	2014	2014	1,575
Wildlife Habitat Incentive Program (WHIP) / 2011 Sign Up	Restoration and Management of Rare and Declining Habitats	2014	2014	200

CONSERVATION PRACTICES FUNDED BY CASCADIA CONSERVATION DISTRICT

All NRCS practice standards are eligible for cost sharing. The Conservation District annually ranks their highest natural resource priority. As a result there is some fluctuations as to which practice standards are funded. For example, Practices 595 – Integrated Pest Management and 590 – Nutrient Management do not typically rank high (and are subsequently not funded). The last three years (as of spring 2015) Forest Health has been Chelan County's highest resource concern. This is reevaluated annually. Therefore if practice standards specific or supportive of VSP are ranked higher, then those practices would rank higher and have a higher likelihood of funding. The Conservation District funding application and criteria could include a question and point in the ranking of applications that is specific to VSP.

The NRCS practices eligible for 75% cost share include:

106 CAP - Forest Management Plan

666 – Forest Stand Improvement

660 – Tree/Shrub Pruning

384 – Woody Residue Treatment

391 – Riparian Forest Buffer

612 – Tree/Shrub Site Preparation

490 – Tree/Shrub Establishment

734 – Fish & Wildlife Structures

The NRCS practices eligible for 50% cost share include:

449 – Irrigation Water Management

441 – Irrigation System, Micro irrigation

442 – Irrigation System, Sprinkler

430 – Irrigation Pipeline

533 – Pumping Plant

Since July 2011 CCD has assisted landowners with installing the following acres of riparian restoration in the identified Watershed Resource Inventory Areas (WRIAs), some of which may represent projects accounted in the Habitat Work Schedule where salmon recovery actions are tracked:

- WRIA 45: 6 acres
- WRIA 46: 9.4 acres

DESCRIPTIONS OF CONSERVATION PRACTICES

See Section IV in eFOTG to access all of Washington Conservation Practices with the standards and specifications: http://efotg.sc.egov.usda.gov/treemenuFS.aspx

The listed practices have been used in Washington State. See descriptions above for practices applied in Chelan County as shown in the Exhibits above. Others may be used informally outside of the program.

1. Agricultural Energy Management Plan-Landscape (AgEMP) (124)
2. Access Control (AC) (472)
3. Access Road (FT) (560)
4. Agrichemical Handling Facility (NO) (309)
5. Air Filtration and Scrubbing (NO) 371
6. Alley Cropping (AC) (311)
7. Amendments for Treatment of Agricultural Waste (AU) (591)
8. Anaerobic Digester (NO) (366)
9. Animal Mortality Facility (NO) (316)
10. Anionic Polyacrylamide (PAM) Application (AC) (450)
11. Aquaculture Ponds (AC) (397)
12. Aquatic Organism Passage (Mi.) (396)
13. Atmospheric Resources Quality Management (AC) (370)
14. Bedding (AC) (310)
15. Brush Management (AC) (314)
16. Building Envelope Improvement (NO) (672)
17. Channel Bank Vegetation (AC) (322)
18. Channel Bed Stabilization (FT) (584)
19. Clearing and Snagging (FT) (326)
20. Combustion System Improvement (NO) 372
21. Composting Facility (NO) (317)
22. Conservation Cover (AC) (327)
23. Conservation Crop Rotation (AC) (328)
24. Constructed Wetland (NO) (656)
25. Contour Buffer Strips (AC) (332)
26. Contour Farming (AC) (330)
27. Contour Orchard and Other Fruit Areas (AC) (331)
28. Cover Crop (AC) (340)
29. Critical Area Planting (AC) (342)
30. Cross Wind Ridges (AC) (588)
31. Cross Wind Trap Strips (AC) (589C)
32. Dam (NO. and AC-FT) (402)
33. Dam, Diversion (NO.) (348)
34. Deep Tillage (AC) (324)
35. Dike (FT) (356)
36. Diversion (FT) (362)
37. Drainage Ditch Covering (FT) (775)
38. Drainage Water Management (AC) (554)
39. Dry Hydrant (NO) (432)
40. Dust Control from Animal Activity on Open Lot Surfaces (AC) 375
41. Dust Control on Unpaved Roads and Surfaces (FT2) 373
42. Early Successional Habitat Development/Management (AC) (647)
43. Farmstead Energy Improvement (NO) 374
44. Feed Management (AU) (592)
45. Fence (FT) (382)
46. Field Border (FT) (386)
47. Filter Strip (AC) (393)
48. Firebreak (FT) (394)
49. Fish Raceway or Tank (FT) (398)
50. Fishpond Management (NO) (399)
51. Forage and Biomass Planting (AC) (512)
52. Forage Harvest Management (AC) (511)
53. Forest Stand Improvement (AC) (666)
54. Forest Trails and Landings (AC) (655)
55. Fuel Break (AC) (383)
56. Grade Stabilization Structure (NO) (410)
57. Grassed Waterway (AC) (412)
58. Grazing Land Mechanical Treatment (AC) (548)
59. GroundwaterTesting (NO) (355)
60. Heavy Use Area Protection (AC) (561)
61. Hedgerow Planting (FT) (422)
62. Herbaceous Weed Control (Ac.) (315)
63. Herbaceous Wind Barriers (FT) (603)
64. Hillside Ditch (FT) (423)
65. Integrated Pest Management (IPM) (AC) (595)
66. Irrigation Canal or Lateral (FT) (320)
67. Irrigation Ditch Lining (FT) (428)
68. Irrigation Field Ditch (FT) (388)
69. Irrigation Land Leveling (AC) (464)
70. Irrigation Pipeline (FT) (430)
71. Irrigation Reservoir (AC-FT) (436)
72. Irrigation System, Microirrigation (AC) (441)
73. Irrigation System, Surface and Subsurface (AC) (443)
74. Irrigation System, Tailwater Recovery (NO) (447)
75. Irrigation Water Conveyance, Ditch and Canal Lining, Flexible Membrane (FT) (428B)
76. Irrigation Water Conveyance, Ditch and Canal Lining, Galvanized Steel (FT) (428C)

77. Irrigation Water Conveyance, Pipeline, Aluminum Tubing (FT) (430AA)
78. Irrigation Water Conveyance, Pipeline, High-Pressure, Underground, Plastic (FT) (430DD)
79. Irrigation Water Conveyance, Pipeline, Low-Pressure, Underground, Plastic (FT) (430EE)
80. Irrigation Water Conveyance, Pipeline, Nonreinforced Concrete (FT) (430CC)
81. Irrigation Water Conveyance, Pipeline, Reinforced Plastic Mortar (FT) (430GG)
82. Irrigation Water Conveyance, Pipeline, Steel (FT) (430FF)
83. Irrigation Water Management (AC) (449)
84. Land Clearing (AC) (460)
85. Land Reclamation, Abandoned Mined Land (AC) (543)
86. Land Reclamation, Landslide Treatment (NO and AC) (453)
87. Land Reclamation, Toxic Discharge Control (NO) (455)
88. Land Smoothing (AC) (466)
89. Lighting System Improvement (NO) (670)
90. Lined Waterway or Outlet (FT) (468)
91. Livestock Pipeline (FT) (516)
92. Mine Shaft and Adit Closing (NO) (457)
93. Mole Drain (FT) (482)
94. Monitoring Well (NO) (353)
95. Mulching (AC) (484)
96. Multi-Story Cropping (AC) (379)
97. Nutrient Management (AC) (590)
98. Obstruction Removal (AC) (500)
99. On Farm Secondary Containment Facility (NO) (319)
100. Open Channel (FT) (582)
101. Pond (NO) (378)
102. Pond Sealing or Lining, Bentonite Sealant (NO) (521C)
103. Pond Sealing or Lining, Compacted Clay Treatment (NO) (521D)
104. Pond Sealing or Lining, Flexible Membrane (NO) (521A)
105. Pond Sealing or Lining, Soil Dispersant (NO) (521B)
106. Precision Land Forming (AC) (462)
107. Prescribed Grazing (AC) (528)
108. Pumping Plant (NO.) (533)
109. Range Planting (AC) (550)
110. Recreation Area Improvement (AC) (562)
111. Recreation Land Grading and Shaping (AC) (566)
112. Residue and Tillage Management, No-Till (AC) (329)
113. Residue and Tillage Management, Reduced Till (AC) (345)
114. Residue Management, Ridge Till (AC) (346)
115. Residue Management, Seasonal (AC) (344)
116. Restoration and Management of Rare or Declining Habitats (AC) (643)
117. Riparian Forest Buffer (AC) (391)
118. Riparian Herbaceous Cover (AC) (390)
119. Road/Trail/Landing Closure and Treatment (FT) (654)
120. Rock Barrier (FT) (555)
121. Roof Runoff Structure (NO) (558)
122. Roofs and Covers (NO) (367)
123. Row Arrangement (AC) (557)
124. Salinity and Sodic Soil Management (AC) (610)
125. Seasonal High Tunnel System for Crops (FT2) (798)
126. Sediment Basin (NO.) (350)
127. Shallow Water Management for Wildlife (AC) (646)
128. Short Term Storage of Animal Waste and Byproducts (CY) (318)
129. Silvopasture Establishment (AC) (381)
130. Sinkhole and Sinkhole Area Treatment (NO) (527)
131. Spoil Spreading (AC) (572)
132. Spring Development (NO) (574)
133. Sprinkler System (AC) (442)
134. Storm Runoff Control (NO and AC) (570)
135. Stream Crossing (NO) (578)
136. Stream Habitat Improvement and Management (AC) (395)
137. Streambank and Shoreline Protection (FT) (580)
138. Stripcropping (AC) (585)
139. Structure for Water Control (NO) (587)
140. Structures for Wildlife (NO) (649)
141. Subsurface Drain (FT) (606)
142. Surface Drain, Field Ditch (FT) (607)
143. Surface Drain, Main or Lateral (FT) (608)
144. Surface Roughening (AC) (609)
145. Terrace (FT) (600)
146. Trails and Walkways (FT) (575)
147. Tree/Shrub Establishment (AC) (612)
148. Tree/Shrub Pruning (AC) (660)
149. Tree/Shrub Site Preparation (AC) (490)
150. Underground Outlet (FT) (620)
151. Upland Wildlife Habitat Management (AC) (645)
152. Vegetative Barrier (FT) (601)
153. VegetativeTreatment Area (AC) (635)
154. Vertical Drain (NO) (630)
155. Waste Facility Closure (NO) (360)
156. Waste Recycling (Tons) (633)
157. Waste Separation Facility (NO) (632)
158. Waste Storage Facility (NO) (313)
159. Waste Transfer (NO) (634)
160. Waste Treatment (NO) (629)

161. Waste Treatment Lagoon (NO.) (359)
162. Water and Sediment Control Basin (NO.) (638)
163. Water Harvesting Catchment (NO) (636)
164. Water Well (NO) (642)
165. Watering Facility (NO) (614)
166. Waterspreading (AC) (640)
167. Well Decommissioning (NO) (351)
168. Wetland Creation (AC) (658)
169. Wetland Enhancement (AC) (659)
170. Wetland Restoration (AC) (657)
171. Wetland Wildlife Habitat Management (AC) (644)
172. Wildlife Watering Facility (648)
173. Windbreak/Shelterbelt Establishment (FT) (380)
174. Windbreak/Shelterbelt Renovation (FT) (650)
175. Woody Residue Treatment (AC) (384)

Exhibit 2. NRCS Practices included in Chelan County Voluntary Stewardship Checklist

Conservation Practice Examples	NRCS #	Definition	Related Critical Areas	Protective or enhancement elements
FireWise: wildfire protection plans to maintain cover/reduce soil loss	See CCD[1]	Wildfire Preparedness for Farmers, Ranchers and Growers	Geologic hazards (erosion), Fish and wildlife conservation areas	Measures on and off farms/ranchers designed to reduce fire fuel and increase defensible space in order to avoid: increased water flows, loss of water control, increase sediment delivery, increased debris flow, establishment of invasive weeds, and habitat degradation. [2]
Avoid permanent changes in floodplain areas such as buildings, roads, and fill. Where alteration of floodplain is necessary, follow flood hazard regulations	See RCW 86.16 Chelan County Code Ch. 3.20	See: 3.20.100 regarding definitions.	Flood hazard areas	Retains critical areas regulations for flood hazard areas, particularly Chapter 3.20 of the Chelan County Code in order to "minimize public and private losses due to flood conditions in specific areas." There are limits on fill for any use including agriculture: "No fill, including fill for roads, and levees; grading; or excavating that unduly affects the efficiency or the capacity of the channel or floodway, or unduly decreases flood storage or increases flood heights, shall be permitted." Also, RCW 86.16.190 requires that the code allow for the establishment of livestock flood sanctuary areas.
Brush management to manage or remove plants that are invasive or noxious	314	The management or removal of woody (nonherbaceous or succulent) plants including those that are invasive and noxious.	Fish and wildlife conservation areas, Wetlands	Restore or release desired vegetative cover to protect soils, control erosion, reduce sediment, improve water quality or enhance stream flow. Maintain, modify, or enhance fish and wildlife habitat. Improve forage accessibility, quality and quantity for livestock and wildlife.

[1] See Cascadia Conservation District: http://cascadiacd.org/community-wildfire-protection-planning_291.html See national information: Ranching, farming, timber and logging operations, species management, and development can impact wildfire risk. Learn more about your role in forestland management, healthy fire behavior on managed land, and farm/ranch fire guidance.

[2] Effects of fire on sedimentation and soils that affect species and farms: http://www.co.chelan.wa.us/files/public-works/documents/baer_assessment_update_10-19-2012.pdf.

Conservation Practice Examples	NRCS #	Definition	Related Critical Areas	Protective or enhancement elements
Irrigation canal or lateral*	320	A permanent channel constructed to convey irrigation water from the source of supply to one or more irrigated areas.	Fish and wildlife conservation areas	To facilitate the efficient distribution and use of water on irrigated land. Practice considerations include using buffers or filters to remove sediment from runoff water.
Conservation cover: to provide permanent vegetative cover to reduce soil erosion and sedimentation, improve soil quality, etc.	327	Establishing and maintaining permanent vegetative cover.	Geologic hazards (erosion), Fish and Wildlife Conservation Areas	Reduce sheet, rill, and wind erosion and sedimentation. Reduce ground and surface water quality degradation by nutrients and surface water quality degradation by sediment. Enhance wildlife, pollinator and beneficial organism habitat.
Cover crop: Plant crops between rows of trees, vines, or other row crops for cover and conservation. Cover crops include grasses, legumes, and forbs for seasonal cover and other conservation purposes.	340	Crops including grasses, legumes, and forbs for seasonal cover and other conservation purposes.	Geologic hazards (erosion), Fish and wildlife habitat conservation areas.	Reduce erosion from wind and water. Increase biodiversity: For example, attract beneficial insects, attract pollinators, increase soil biological diversity, serve as a trap crop for damaging insects, and/or provide food and cover for wildlife habitat management.
Groundwater testing to determine the quality of a groundwater supply	355	Testing the physical, biological, and chemical quality of groundwater from a water well or spring.	Critical aquifer recharge areas	Determine the quality of a groundwater supply used for agricultural or wildlife purposes.
Fence: browsing animal management or wildlife movement management	382	A constructed barrier to animals.	Fish and wildlife habitat conservation areas, Wetlands	Prevent damage to riparian and wetland areas, and avoid streambank erosion.
Hedgerows that provide food, cover, and corridors for wildlife or improve water quality	422	Establishment of dense vegetation in a linear design to achieve a natural resource conservation purpose.	Fish and wildlife habitat conservation areas	• Food, cover and corridors for terrestrial wildlife. • Food and cover for aquatic organisms that live in streams with bankfull width less than 5 feet. • Improvement of water quality and aquatic habitat in ditches and channels modified for agricultural uses with bankfull widths less than 15 feet.

Conservation Practice Examples	NRCS #	Definition	Related Critical Areas	Protective or enhancement elements
Irrigation pipeline*	430	A pipeline and appurtenances installed to convey water for storage or application, as part of an irrigation water system.	Fish and wildlife habitat conservation areas	Conveyance losses in an open channel can be reduced by installing a closed pipeline Considerations include effect on water budget, aquifers, erosion, and wetlands.
Irrigation system, microirrigation*	441	An irrigation system for frequent application of small quantities of water on or below the soil surface: as drops, tiny streams, or miniature spray through emitters or applicators placed along a water delivery line.	Fish and wildlife habitat conservation areas, Geologic hazards (erosion)	• Efficiently and uniformly apply irrigation water and maintain soil moisture for plant growth. Design the system to uniformly apply water and chemicals without excessive water loss, erosion, reduction in water quality, etc. • Prevent contamination of ground and surface water by efficiently and uniformly applying chemicals. • Establish desired vegetation (e.g., windbreaks), riparian forest buffers, and wildlife plantings.
Sprinkler system	442	A distribution system that applies water by means of nozzles operated under pressure.	Fish and wildlife habitat conservation areas	• Efficient and uniform application of water on irrigated lands. • Prevent the entry of excessive nutrients, organics, and other chemicals in surface and groundwater.
Irrigation water management*	449	The process of determining and controlling the volume, frequency, and application rate of irrigation water.	Fish and wildlife habitat conservation areas	• Improve irrigation water use efficiency • Minimize irrigation induced soil erosion • Decrease degradation of surface and groundwater resources • Manage air, soil, or plant micro-climate
Access control to exclude animals, people, vehicles, and/or equipment from an area	472	The temporary or permanent exclusion of animals, people, vehicles, and/or equipment from an area.	Fish and wildlife habitat conservation areas, Wetlands	Achieve and maintain desired resource conditions by monitoring and managing the intensity of use by animals, people, and vehicles to help achieve goal of conservation plan. For example, livestock exclusion from riparian areas or wetlands.
Mulching to control erosion and conserve soil moisture	484	Applying plant residues or other suitable materials produced off site, to the land surface.	Fish and wildlife habitat conservation areas, Geologic hazards (erosion)	Conserve soil moisture (reduce water use) Provide erosion control Facilitate the establishment of vegetative cover

Conservation Practice Examples	NRCS #	Definition	Related Critical Areas	Protective or enhancement elements
Prescribed grazing to reduce erosion and manage fuel loads	528	Managing the harvest of vegetation with grazing and/or browsing animals.	Fish and wildlife habitat conservation areas, Geologic hazards (erosion)	• Improve or maintain riparian and watershed function. • Reduce accelerated soil erosion, and maintain or improve soil condition. • Improve or maintain the quantity and quality of food and/or cover available for wildlife.
Access road: Locate and build to control or reduce erosion; position away from water bodies and water courses	560	An access road is an established route for equipment and vehicles.	Fish and wildlife habitat conservation areas, Wetlands, Geologic hazards (erosion)	Provide a fixed route for vehicular travel for resource activities involving the management of livestock, agriculture, wildlife habitat, etc. Locate the access road to serve the purpose intended, to facilitate the control and disposal of surface and subsurface water, to control or reduce erosion, and to make the best use of topographic features. Design the layout of the road to follow natural contours and slopes to minimize disturbance of drainage patterns. Locate the access road where it can be maintained and where water management problems are not created. To reduce potential pollution, position the road as far as possible from water bodies and watercourses.
Heavy use area protection to stabilize ground surface	561	Heavy Use Area Protection is used to stabilize a ground surface that is frequently and intensively used by people, animals, or vehicles.	Fish and wildlife habitat conservation areas, Geologic hazards (erosion)	Heavy Use Area Protection is used: • To provide a stable, non-eroding surface for areas frequently used by animals, people or vehicles • To protect or improve water quality
Streambank and shoreline protection	580	Treatment(s) used to stabilize and protect banks of streams or constructed channels, and shorelines of lakes, reservoirs, or estuaries.	Fish and wildlife habitat conservation areas	• To prevent the loss of land or damage to land uses, or facilities adjacent to the banks of streams or constructed channels, shoreline of lakes, reservoirs, or estuaries including the protection of known historical, archeological, and traditional cultural properties. • To maintain the flow capacity of streams or channels. • Reduce the offsite or downstream effects of sediment resulting from bank erosion. • To improve or enhance the stream corridor for fish and wildlife habitat, aesthetics, recreation.

Conservation Practice Examples	NRCS #	Definition	Related Critical Areas	Protective or enhancement elements
Tree/shrub establishment for habitat, energy conservation, long-term erosion control and water quality improvement	612	Establishing woody plants by planting seedlings or cuttings, direct seeding, or natural regeneration.	Fish and wildlife habitat conservation areas, Geologic hazards (erosion)	Establish woody plants for: • wildlife habitat • long-term erosion control and improvement of water quality • reduce energy use • improving or restoring natural diversity
Watering facility for wildlife	614	A watering facility is a means of providing drinking water to livestock or wildlife.	Fish and wildlife habitat conservation areas	To store or provide designated access to drinking water for livestock or wildlife to: • supply daily water requirements • improve animal distribution • provide a water source that is an alternative to a sensitive resource
Water well	642	A hole drilled, dug, driven, bored, jetted or otherwise constructed into an aquifer for water supply	Critical aquifer recharge areas, Fish and wildlife habitat conservation areas	To provide access to a groundwater supply suitable for livestock watering, fire control, wildlife, and other agricultural uses.
Wetland Wildlife Habitat Management	644	Retaining, developing or managing wetland habitat for wetland wildlife.	Wetlands, Fish and wildlife habitat conservation areas	To maintain, develop, or improve wetland habitat for waterfowl, shorebirds, fur-bearers, or other wetland dependent or associated flora and fauna.
Upland wildlife habitat management	645	Provide and manage upland habitats and connectivity within the landscape for wildlife.	Fish and wildlife habitat conservation areas	Treating upland wildlife habitat concerns identified during the conservation planning process that enable movement, or provide shelter, cover, food in proper amounts, locations and times to sustain wild animals that inhabit uplands during a portion of their life cycle.
Structures for wildlife: Raptor and bat nesting box for predator patrol	649	A structure installed to replace or modify a missing or deficient wildlife habitat component.	Fish and wildlife habitat conservation areas	To provide structures, in proper amounts, locations and seasons to: • Enhance or sustain non-domesticated wildlife; or • Modify existing structures that pose a hazard to wildlife.
Wetland Restoration	657	The return of a wetland and its functions to a close approximation of its original condition as it	Wetlands, Fish and wildlife habitat conservation areas	To restore wetland function, value, habitat, diversity, and capacity to a close approximation of the pre-disturbance conditions by restoring: • Conditions conducive to hydric soil maintenance.

Conservation Practice Examples	NRCS #	Definition	Related Critical Areas	Protective or enhancement elements
		existed prior to disturbance on a former or degraded wetland site.		• Wetland hydrology (dominant water source, hydroperiod, and hydrodynamics). • Native hydrophytic vegetation (including the removal of undesired species, and/or seeding or planting of desired species). • Original fish and wildlife habitats.
Wetland Creation	658	The creation of a wetland on a site location that was historically non-wetland	Wetlands, Fish and wildlife habitat conservation areas	To establish wetland hydrology, vegetation, and wildlife habitat functions on soils capable of supporting those functions.
Wetland Enhancement	659	The augmentation of wetland functions beyond the original natural conditions on a former, degraded, or naturally functioning wetland site; sometimes at the expense of other functions.	Wetlands, Fish and wildlife habitat conservation areas	To increase the capacity of specific wetland functions (such as habitat for targeted species, and recreational and educational opportunities) by enhancing: • Hydric soil functions (changing soil hydrodynamic and/or bio-geochemical properties). • Hydrology (dominant water source, hydroperiod, and hydrodynamics). • Vegetation (including the removal of undesired species, and/or seeding or planting of desired species). • Enhancing plant and animal habitats.
Forest stand improvement	666	Manipulation of species composition, stand structure and stocking by cutting or killing selected trees and understory vegetation.	Fish and wildlife habitat conservation areas, Geologic hazards (erosion)	• Initiate forest stand regeneration. • Reduce wildfire hazard. • Improve forest health reducing the potential of damage from pests and moisture stress. • Restore natural plant communities. • Achieve or maintain a desired native understory plant community for special forest products, grazing, and browsing. • Improve wildlife habitat. • Alter water yield.
Vegetative barrier	601	Permanent strips of stiff, dense vegetation established along the general contour of slopes	Geologic hazards (erosion)	• Reduce sheet and rill erosion. • Improve water quality by trapping sediment.

Conservation Practice Examples	NRCS #	Definition	Related Critical Areas	Protective or enhancement elements
		or across concentrated flow areas.		
Riparian herbaceous cover	390	Grasses, sedges, rushes, ferns, legumes, and forbs tolerant of intermittent flooding or saturated soils, established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats.	Fish and wildlife habitat conservation areas, Flood hazard areas	• Provide or improve food and cover for fish, wildlife and livestock, • Improve and maintain water quality. • Establish and maintain habitat corridors. • Increase water storage on floodplains. • Reduce erosion and improve stability to stream banks and shorelines. • Enhance pollen, nectar, and nesting habitat for pollinators. • Restore, improve or maintain the desired plant communities. • Dissipate stream energy and trap sediment. • Enhance stream bank protection as part of stream bank soil bioengineering practices.
Riparian forest buffer	391	An area predominantly trees and/or shrubs located adjacent to and up-gradient from watercourses or water bodies.	Fish and wildlife habitat conservation areas, Flood hazard areas	• Create shade to lower or maintain water temperatures to improve habitat for aquatic organisms. • Create or improve riparian habitat and provide a source of detritus and large woody debris. • Reduce excess amounts of sediment, organic material, nutrients and pesticides in surface runoff and reduce excess nutrients and other chemicals in shallow ground water flow. • Reduce pesticide drift entering the water body. • Restore riparian plant communities.

Conservation Practice Examples	NRCS #	Definition	Related Critical Areas	Protective or enhancement elements
Seasonal high tunnel system for crops (soil moisture)	325	An enclosed polyethylene, polycarbonate, plastic, or fabric covered structure that is used to cover and protect crops from sun, wind, excessive rainfall, or cold, to extend the growing season in an environmentally safe manner.	Fish and wildlife habitat conservation areas	Control runoff, save water, limit pesticide use, reduce nutrient and pesticide transportation, and engage in other conservation measures.

*Note: Irrigation practices such as micro irrigation may or may not be appropriate depending on crop/plants irrigated, water quality, design/location, etc. Consider whether water use appears to be reasonable and beneficial.

APPENDIX E. SUMMARY OF WATERSHED RESOURCE INVENTORY AREA PLANS

Chelan, Entiat, Wenatchee and Squilchuck/Stemilt Watersheds

INTRODUCTION & PURPOSE

The Voluntary Stewardship Program (VSP) is an optional, incentive-based approach to protecting critical areas while promoting agriculture. The VSP is allowed under the Growth Management Act (GMA) as an alternative to traditional approaches to critical areas protection, such as "no touch" buffers. A goal is to promote plans to protect and enhance critical areas where agricultural activities are conducted, while maintaining and improving the long-term viability of agriculture and reducing the conversion of farmland to other uses. In order to establish the program, a watershed work program is required and must contain goals and benchmarks for the protection and enhancement of critical areas. The work program must be approved by the Washington State Conservation Commission Director and the Departments of Fish and Wildlife, Ecology, and Agriculture.

The work plan must include several items, including applicable existing water quality, watershed management, farmland protection, and species recovery data and plans. It must also create measurable benchmarks through voluntary, incentive-based measures. As well, individual stewardship plans described in the program law are to contribute to the goals and benchmarks of the work plan; for the purposes of its efforts, Chelan County and partners intent to develop "stewardship checklists" to focus on simplicity and rely on many available conservation practices rather than detailed stewardship plans.

Chelan County has developed watershed plans for each Watershed Resource Inventory Area (WRIA) in the county including Chelan, Entiat, Wenatchee, and Squilchuck/Stemilt. These plans are a source of potential objectives and strategies that can be incorporated into the VSP Plan and the individual VSP "stewardship checklists" to be produced.

This document provides a high-level summary of WRIA defined issues and strategies, intending to focus on those relevant to critical areas, agriculture, and general watershed issues. For each watershed, a summary table is provided. For complete context and details on the strategies, each plan should be consulted.

LIST OF REFERENCES

Watershed plans and associated reports reviewed for this summary include:

- Entiat Watershed
  - Entiat WRIA 46 Management Plan, October 2004.
  - Chelan County Conservation District, February 2006. Detailed Implementation Plan Entiat Water Resource Inventory Area (WRIA) 46, prepared for Entiat Watershed Planning Unit.
  - Upper Columbia Salmon Recovery Board, May 28, 2004. Entiat Subbasin Plan, Prepared for the Northwest Power and Conservation Council

- Lake Chelan Watershed
  - Upper Columbia Salmon Recovery Board, May 28, 2004, Lake Chelan Subbasin Plan, Prepared for the Northwest Power and Conservation Council
  - RH2 Engineering, Inc. January 2012, Lake Chelan Watershed Plan (WRIA 47) Final Draft. Prepared for Lake Chelan Watershed Planning Unit.
- Squilchuck/Stemilt Watershed
  - RH2 Engineering, Inc. MAY 2007. WRIA 40A Watershed Plan Final. Prepared for WRIA 40A – Squilchuck/Stemilt Planning Unit.
  - Trust for Public Land, Core GIS, and The Stemilt Partnership Chelan County, September 2008. Stemilt-Squilchuck Community Vision.
  - Upper Columbia Salmon Recovery Board, May 28, 2004. Upper Middle Mainstem Subbasin Plan, Prepared for the Northwest Power and Conservation Council.
- Wenatchee Watershed
  - WRIA 45 Planning Unit, April 26, 2006, Final Wenatchee Watershed Management Plan.
  - Wenatchee Watershed Planning Unit, April 2008 Wenatchee Watershed Planning Phase IV – Detailed Implementation Plan
  - Upper Columbia Salmon Recovery Board, May 28, 2004. Wenatchee Subbasin Plan, Prepared for the Northwest Power and Conservation Council.

ENTIAT WATERSHED

Issues	Strategies/Objectives	Monitoring Plans or Recommendations	Implementation Status / Actions (highlights)
Water Quality			
• As of 2006, Entiat River was listed as water quality impaired for pH - on 303(d) list	• Promote and implement projects that improve water temperature conditions for aquatic species • Educational events about Best Management Practices related to herbicide and pesticide application, nutrient management, and potential water quality issues associated with farming and livestock. • Reassess and map areas of livestock access to streams • Maintain current efforts and practices.	• Continue ambient water quality monitoring of all water quality parameters (nutrients, nitrates, pH, temperature, fecal coliform, etc.) at Ecology site 46A070 • Monitor toxics bioaccumulation levels in fish • Use existing FLIR data to help evaluate cold-water influences as thermal refugia for salmonids during periods of high water temperature within the system	• Water quality monitoring of all water quality parameters (nutrients, nitrates, pH, temperature, fecal coliform, etc.) at Ecology site 46A070 • See 2009 Report on monitoring activity

Issues	Strategies/Objectives	Monitoring Plans or Recommendations	Implementation Status / Actions (highlights)
Water Quantity			
• Disparity between actual water use and the amount of water represented by rights and claims. • Documentation that most closely reflects actual water use is necessary for effective water resource management. • Some water right holders in the Entiat River watershed may not currently be exercising some/all of their water rights, yet while others need water. • Water conservation in the Entiat River watershed will help meet management goals and provide additional water for in stream and out-of-stream uses.	• Create a water resource management program that includes a reserve of water for future uses prioritized by use type • Implement Planning Unit Instream Flow recommendations and associated habitat and water quality actions. • Reserve water for new commercial, agricultural and light industrial enterprises should be limited to use in the lower Entiat River. • Establish tracking system with County for wells associated with new construction. • Track water rights applications, permits, claims, etc. and associated geographic and water volumes. • Address uncertainties in the water rights and claims records. • Share information about WRIA 46 water rights and claims data. • Ecology should continue to provide technical assistance and cost share on equipment for water metering. • CCCD should establish a reporting mechanism. • Develop a detailed water conservation, trust water, and water acquisition program for the Entiat River subbasin. • The NRCS and other partners should continue to provide technical and financial assistance to improve on-farm irrigation application efficiency, scheduling, and promote/improve water conservation.	• Streamflow monitoring • Promote community water metering to record actual water use and monitor gains and efficiency and losses attributable to new uses or changes in system operation.	Program took effect in Sept. 2005 which established administrative instream flows to protect aquatic resources in the Entiat and Mad River watersheds. These flows are monitored at three control points: • Entiat River near Entiat (Keystone gage) • Entiat River near Ardenvoir (Stormy gage) • Mad River at Ardenvoir (Mad near Mill Camp gage)

Issues	Strategies/Objectives	Monitoring Plans or Recommendations	Implementation Status / Actions (highlights)
Habitat			
• Channel geometry in the lower Entiat River (RM 16.2 to mouth) has been modified by past human activities including bank armoring, channelization, woody debris removal.	• Restore channel shape, width-to-depth ratios, and aquatic habitat complexity through strategic implementation of instream structures and Large Woody Debris complexes, and reconnection of side-channel habitats and floodplain where feasible. • Continue active restoration work in the "Bridge to Bridge" reach (~RM 3.2 - 4.5) to capitalize on connectivity to existing instream habitat restoration sites, and proceed upstream from there.	• Cooperative monitoring of existing instream structures, associated channel geometry, and fish species utilization on an annual basis.	• Installation of instream structures including rock cross-vanes, rock and wood clusters, barbs, and engineered log jams to restore aquatic habitat complexity, reduce accelerated bank erosion, and improve channel width-to-depth ratios; • Construction of two (2) new off-channel areas and a rearing pond to benefit juvenile salmonids
• Some existing surface water diversions and culverts in the Entiat River watershed are problematic for fish.	• Prioritize replacing surface water diversions and culverts that present fish passage problems, and address unscreened or inadequately screened pumps and diversions as necessary.		
• Riparian condition and bank stability has been altered by natural (fire) and human disturbances (agricultural encroachment, overgrazing, timber harvesting, recreation, timber road construction, and removal of vegetation). Riparian vegetation is necessary for bank stabilization, large woody debris recruitment, and stream temperature moderation.	• Implement targeted riparian restoration and enhancement projects, based on priorities (see Entiat Ch. 9- Recommendations table- General stream bank planting recommendations from 1995 NRCS study). • Restore riparian habitat through streamside revegetation projects with willing landowners. • Perform public outreach to inform community members about benefits of maintaining riparian vegetation, Conservation Reserve Enhancement Program (CREP) and other options for cost share on revegetation projects or easement renting.	• Abundance and distribution studies of native fish species of interest • Macroinvertebrate community composition and population in the Entiat subbasin • Continue annual fine sediment monitoring (via McNeil core samples) using existing reaches and transect sites.	• Annual fine sediment monitoring (via McNeil core samples) using existing reaches and transect sites. • Native shrub and tree planting along > 1000 feet of stream bank to help restore riparian function and shading.

Issues	Strategies/Objectives	Monitoring Plans or Recommendations	Implementation Status / Actions (highlights)
• Past grazing and land use activities have resulted in extreme bank instability and exacerbated rates of erosion and sediment delivery.	• Pursue conservation easement, lease, and options other than outright property acquisition with willing landowners to protect larger, undisturbed riparian areas. • Pursue funding and/or use existing partnerships to monitor new habitat improvement projects. • Monitoring results should be used to refine management recommendations as necessary. • Coordinate road management with major land owners in intermingled ownership areas to help reduce erosion and sediment from road sources.		
• Winter habitat conditions have been identified as a factor limiting salmonid survival in the Entiat River watershed. Of particular concern are the effects of cold water temperatures and anchor ice on egg and fry survival.	• Pursue grant funding to implement riparian planting and channel geomorphology restoration projects in the bridge-to bridge reach and other areas where enhancement of riparian and geomorphic condition might significantly enhance over-winter and other salmonid habitat conditions.	• Thermograph deployment and monitoring of winter temperatures and the effects of anchor ice on salmonid survival. • Monitor the effects of additional riparian vegetation and in-channel projects on winter water temperatures and anchor ice formation.	

Issues	Strategies/Objectives	Monitoring Plans or Recommendations	Implementation Status / Actions (highlights)
• The Entiat subbasin is utilized by salmonids protected as threatened and endangered under the Endangered Species Act (ESA).	Goal: • Protection and restoration of fish habitat sufficient to assure adequate habitat for salmonid recovery and to provide certainty for land and water users in the watershed under the ESA. Strategies: • Assure that actions are taken to implement channel geometry and riparian restoration recommendations, irrigation diversion structure improvements, and screening improvements. • Develop a Habitat conservation Plan (HCP) and/or salmon recovery plan to gain certainty under the ESA.	• Continue habitat and species monitoring. • Annual salmon carcass collection and DNA sampling. • Monitor salmonid outmigration via smolt traps • Probabilistic habitat monitoring consistent with Upper Columbia Salmon Recovery Board (UCSRB) Regional Technical Team (RTT) "Monitoring Strategy for the Upper Columbia Basin" (Hillman 2004, draft) or revised guidance	• Integrated Status and Effectiveness Monitoring Program – Entiat River[1]
• Wetlands along the upper mainstem Entiat River adjacent to the reach above the Potato Creek moraine serve important hydrologic and biologic functions in the Entiat River. • Wetlands along the lower reach of the river have been modified by flood control work and development and only a few wetlands exist.	• Assure that land use actions comply with existing regulations related to wetlands protection. • Local, state, federal, and other partners should assist landowners with voluntary maintenance of existing wetlands, or enhancement of the few remaining wetlands and their function. • Community outreach about benefits of wetlands, etc.		

[1] http://www.fws.gov/midcolumbiariverfro/pdf/2011_USFWS_Final_BPA_Report_01-31-2012.pdf

Issues	Strategies/Objectives	Monitoring Plans or Recommendations	Implementation Status / Actions (highlights)
• Fish habitat in the Entiat River watershed is adversely affected by excessive fine sediment, which can suffocate redds and cause substrate embeddedness.	• Use monitoring results to refine management recommendations as necessary.	• USFS and partners should continue annual fine sediment monitoring (via McNeil core samples) using existing reaches and transect sites.	
• Watershed and riverine resource management is driven by a number of natural processes including sediment. The sediment budget, bedload transport dynamics, and its relationship to channel geomorphology in the mainstem Entiat River are not completely understood.	• Initiate sediment budget, sediment transport, and/or analysis of bedload dynamics using acceptable methods (e.g. scour chains) to improve our understanding of this aspect of the system. • Continue its support of the ongoing assessment of gravel clusters, and results of the study should be presented to the EWPU.		
• Noxious weed infestations are common in disturbed areas throughout the WRIA, especially along roads and right of ways, and in abandoned pastures and cultivated fields. Noxious weeds reduce the biotic integrity and diversity in the watershed effecting quality of life for people, fish, and wildlife.	• Develop a comprehensive weed control program with landowners, the County Weed Control Board, and State and other federal agencies. • Encourage voluntary landowner efforts to control noxious weeds on their properties. • Explore potential for use of biological agents (e.g., weevils) for noxious weed control.		

Issues	Strategies/Objectives	Monitoring Plans or Recommendations	Implementation Status / Actions (highlights)
Wildlife			
Wildlife species protected as threatened or endangered under the Endangered Species Act use habitat on public lands and some private lands within the Entiat WRIA. Known species in the Entiat subbasin: *Threatened (Federal designation):* • Bald eagle • Canada lynx • Gray wolf • Grizzly bear • Marbled murrelet • Northern spotted owl *Designated:* • Critical habitat for the northern spotted owl	• Provide guidance to landowners in the Entiat River subbasin to promote land practices that are beneficial for wildlife; protect and restore riparian and terrestrial lands; and provide information about how to mitigate land use actions such that riparian and terrestrial species thrive. • Continue to apply for grant funds for priority riparian and terrestrial habitat projects.	• Monitor the success of habitat improvement projects.	
Mule deer inhabit the watershed and are a focal species of interest due to significant economic, recreational, and cultural value. Maintaining populations is limited in part by habitat loss due to development and overgrazing and deer control efforts necessitated by agricultural damage.	Objective: • The population management objective for mule deer will be to increase or maintain populations within the limitations of available mule deer habitat and landowner tolerance (agricultural damage). Strategies: • Model the Chelan PMU mule deer population (which extends beyond the subbasin border).	• Monitor harvest level of bucks and antlerless deer using mandatory hunter report system. • Use winter aerial and ground surveys to classify mule deer to determine post-hunt buck/fawn to doe ratios, spring fawn to adult ratios, and population size trends.	
Plant species that are listed under the ESA and/or are species of concern for State and Federal agencies are present within the Entiat WRIA. Plants with cultural resource significance also exist.	• Provide information to the public regarding the identification, significance, and protection of plant resources in the Entiat WRIA.		

LAKE CHELAN WATERSHED

Issues	Strategies/Objectives	Monitoring Plans or Recommendations	Implementation Status / Actions
Water Quality			
• Elevated concentrations of organochlorine pesticides, PCBs, and dioxins/furans in fish tissues, and elevated water quality constituents including phosphorous, pH, dissolved oxygen, and invasive exotic plants.	• Minimize movement of contaminants in Lake Chelan and Roses Lake and its tributaries (residues persist in soils, most often agricultural lands) • Meet Lake Chelan Total Maximum Daily Load for DDT/PCB • Meet Lake Chelan Total Maximum Daily Load for Total Phosphorous • Managing irrigation drain return flows that discharge to surface water • Develop Long Term Monitoring Plan	• Monitor fish tissue concentrations	
Water Quantity			
• Need additional data and analysis to quantify beneficial use and return flow estimates to support water quality modeling, water use planning, and watershed management. • Most available water used is discharged through Lake Chelan and used for power generation. • Conversion of lands and beneficial uses of water in the Wapato, Manson and lower Lucerne sub-basins from irrigation to domestic use will affect groundwater recharge, base flow, and water quality in these sub-basins.	• Improve the documentation of beneficial water use • Use improved water balance estimates • Promote joint comprehensive analysis and prioritization of future municipal/domestic use • Evaluate regional growth patterns • Evaluate potential future irrigation demand	• Initiate surface water and groundwater monitoring	

Issues	Strategies/Objectives	Monitoring Plans / Recommendations	Implementation Status / Actions
Habitat			
• Shrub steppe: Degradation of mule deer and Brewer's sparrow habitat from intensive grazing • Eastside Riparian wetlands: Beaver and red-eyed vireo habitat degradation from livestock overgrazing which can widen channels, raise water temperatures, reduce understory cover • Ponderosa pine: Habitat diversity and function has been lost from invasion of exotic vegetation and grazing • Fish: Fish population impacts include habitat degradation and loss; land development, conversion, and management; agricultural practices; fish-passage barriers; dam operations; flooding; species introductions; interspecific breeding; competition for resources; disease; harvest; and hatchery and stocking operations. Development of barriers at tributary mouths has negatively affected spawning and subsequent fry survival of WSCT (trout).	*Objectives* • Maintain and/or enhance habitat by improving agricultural practices, livestock grazing practices, and road construction in/on/adjacent to habitat • Provide sufficient quantity and quality shrubsteppe habitat to support the diversity of wildlife as represented by sustainable focal species populations *Strategies* • Implement habitat stewardship projects with private landowners • Develop and implement a coordinated, cross-jurisdictional comprehensive weed control • Develop and implement a coordinated, cross-jurisdictional road management plan • Support the Lake Chelan Fishery Plan (LCFP) objectives • Support habitat restoration efforts to improve limiting factors for both fish and wildlife. • Support developing a detailed implementation plan that includes prioritized fish and wildlife actions.	• Support the monitoring and understanding of habitat and species interactions and reproduction by coordinating LTMP activities with Lake Chelan Fishery Forum (LCFF)	

SQUILCHUCK/STEMILT WATERSHED

Issues	Strategies/Objectives	Monitoring Plans / Recommendations	Implementation Status / Actions
Water Quality			
Primary concerns include levels of dissolved gases, changes in stream temperatures, turbidity levels and exposure to environmental contaminates above biological thresholds for fish species utilizing the river.			
Water Quantity			
• The need for adequate water supplies (including storage) to provide reliable supplies for existing out-of-stream (domestic, **agriculture**, municipal, commercial, industrial and fire suppression) needs; • The need for adequate water supplies (including storage) for future uses of water in the watershed, including domestic, **agriculture**, municipal, commercial, industrial;	• Monitor stream flow and groundwater levels to update water balance of the quantities of runoff, recharge, water use and return flow • Document water diversion, storage and actual water use to update water balance estimates and increase the benefits of new storage opportunities		
Water Storage			
• Over half of total storage capacity in the watershed is lost due to seepage from active reservoirs in WRIA 40A • Water lost to free water evaporation • Water lost from leakage of water in ditches and evaporation in ditches	• Significant storage opportunities exist to minimize storage system loss • Improve diversion, storage and conveyance monitoring • Improve storage and conveyance efficiency • Improve reliability of water supplies • Expand existing storage capacity • Rehabilitate inactive reservoirs • Modify storage operations		

	• Construct new reservoirs • Collaboration with WDFW		
Habitat and Wildlife Resources			
Focal habitats are impacted by land use and human actions. Public and private land management should support conservation of wildlife resources—including focal habitats.	Objectives: • Maintain and/or enhance the function of focal habitats by improving agricultural practices, fire management, weed control, livestock grazing practices, and road management • Provide biological and other conservation measures to sustain focal species populations Strategies: • Conduct studies to determine the necessary amount, quality, and connectivity of focal habitats • Work with CCNRD and other State and local agencies to protect identified wetland, riparian and ground water recharge areas • Implement habitat stewardship projects with private landowners • Consider using conservation easements to limit development and provide for sustainable harvest and forestry practices to enhance habitat and provide for wildlife resources protection. • Implement federal, state, and tribal management plans, other conservation plans, or recovery plans to conserve the focal species • Develop and implement a coordinated, cross-jurisdictional comprehensive weed control management plan (e.g., Moses Coulee Cooperative Weed Management Area) • Develop and implement a coordinated, cross-jurisdictional road management plan	• Select survey protocol and measure abundance of focal species • Select survey protocol and measure diversity and richness of species assemblages • Use probabilistic sampling procedure to determine selection of monitoring and evaluation sites • Establish permanent census stations to monitor bird population and habitat changes	

Aquatic/Fish			
Three ESA listed fish species can be found in the Columbia River and middle Columbia watershed. Human activities impact the habitat for these focal species.	Objectives: • Ensure (and reduce threats to) the long-term persistence of self-sustaining, complex interacting groups (or multiple local populations that may have overlapping spawning and rearing areas) of bull trout distribution across the species' native range, so that the species can eventually be delisted	Develop a monitoring plan that addresses: • Current habitat conditions; abundance, distribution, life-stage survival, and age-composition of ESA-listed fish in the Upper Columbia Basin (status monitoring); • How these factors change over time (trend monitoring); • Effects that tributary habitat actions have on fish populations and habitat conditions (effectiveness monitoring)	

WENATCHEE WRIA WATER BASIN

Issues	Strategies	Monitoring Plan / Recommendations	Implementation Status/Actions
Water Quality			
Stream temperature exceeds state/fed water quality-on 303(d)) list		• Continued monitoring	• Lake Wenatchee Water Quality Monitoring program[2] • Monitoring station on Wenatchee River at Wenatchee[3] • Monitoring station on Wenatchee River at Levenworth[4]
Dissolved oxygen (DO) exceed federal water quality standards (303(d))	• Consider/implement management practices		
Fecal coliform exceeds state/fed standards - on 303(d) list	• Identify and mitigate sources	• Continued monitoring	
pH exceeds state or federal water quality standards - on 303(d) list	• Consider/implement management practices		
DDT exceeds fed/state water quality standards- on 303(d) list	• Preventing bank erosion and limiting transport of soils to streams, particularly when developing old orchards • Filtration by riparian areas and wetlands • Phased monitoring approach • Comprehensive groundwater monitoring		
Water Quantity			
Low to non-existent instream flows (either seasonal or year-round)	• Implementation of the instream flow rule • Management of reservation • Continued monitoring • Track water availability and meter new uses		• Six active water quantity monitoring stations.[5]

[2] http://www.co.chelan.wa.us/nr/water_resources/resources_management/waterquality.htm

[3] http://www.ecy.wa.gov/apps/watersheds/riv/station.asp?sta=45A070

[4] http://www.ecy.wa.gov/apps/watersheds/riv/station.asp?theyear=&tab=notes&scrolly=0&sta=45A110

[5] https://fortress.wa.gov/ecy/wrx/wrx/flows/station.asp?wria=45

Issues	Strategies	Monitoring Plan / Recommendations	Implementation Status/Actions
	• Increase water availability for instream flows • Maintain instream flows • Exempt wells: assess the influence of groundwater withdrawals on surface water		
Habitat			
• Riparian and off-channel habitat have been significantly lost or degraded • Floodplain function has been impaired • Loss of stream sinuosity • Loss of channel sinuosity • Loss of floodplain function	Objectives: • Maintain and/or enhance the function of focal habitats by improving agricultural practices, fire management, weed control, livestock grazing practices, and road management • Provide biological and other conservation measures to sustain focal species populations Strategies: • Conduct studies to determine the necessary amount, quality, and connectivity of focal habitats • Restore watershed, riparian, wetland, habitat diversity (e.g. riparian plantings) • Emphasize conservation connectivity of high-quality riparian wetlands habitat • Achieve permanent protection of riparian wetlands through acquisition, conservation easement, cooperative agreements, etc • Increase riparian vegetation where needed (methods: control noxious weeds, use livestock fencing) • Protect existing stream banks, floodplain and riparian vegetation, upland and wetland habitat • Promote local planning and zoning to maintain or enhance riparian wetlands habitat	• Establish permanent census stations to monitor bird population and habitat changes. • Use rigorous sampling methods to establish links between habitat enhancement prescriptions, changes in habitat conditions, and target wildlife population responses	•
• Channelization- any activity that moves,	• Implement channel migration zone, channel connectivity,		

Issues	Strategies	Monitoring Plan / Recommendations	Implementation Status/Actions
straightens, shortens, cuts off, diverts, or fills a stream channel, whether naturally or previously altered • Roads and railroads cut off habitat	off-channel study projects		
• Barriers to Fish migration (culverts, etc.)	• Provide improved fish passage		• Fish passage: Dual-frequency Identification Sonar (DIDSONTM) camera at Leavenworth National Fish Hatchery6
• Increased sedimentation • Sediment delivery	• Reduce sediment inputs/sedimentation		
Large woody debris and gravel recruitment	• Enhance woody debris		

Note: See Wenatchee Tributary Issues/Strategies in Attachment

[6] http://www.fws.gov/midcolumbiariverfro/pdf/Fish%20Passage%20Report%202013_Final.pdf

ATTACHMENT: STRATEGIES FOR TRIBUTARIES IN THE WENTACHEE WATERSHED

Strategies	Lower Wenatchee	Mission (AG)	Peshastin (AG)	Chumstick	Icicle (AG)	Upper Wenatchee/ Chiwaukum	Chiwawa	Nason	White, Little Wenatchee, Lake Wenatchee
Water Quality									
Stream temperature: continued monitoring	x	x	x	x	x				
Dissolved oxygen : consider/implement BMPs	x								
Fecal coliform: continued monitoring		x		x					
Fecal coliform: identify and mitigate sources				x					
pH: consider/implement BMPs	x								
DDT									
Phosphorous levels									
Water Quantity									
Implementation of the instream flow rule									
Management of reservation									
stream flow: continued monitoring	x		x		x				
Track water availability and meter new uses		x	x	x	x				
Increase water availability for instream flows		x	x	x	x				
Maintain instream flows						x			
Habitat									
Restore watershed, riparian, wetland, habitat diversity (e.g. riparian plantings)	x	x	x	x	Category 2 for salmon recovery		Category 1		
Increase riparian vegetation where needed (methods: control noxious weeds, use livestock fencing)	x	x	x	x	x				
Protect existing stream banks, floodplain and riparian vegetation, upland and wetland habitat	x	x	x	x	x	x			
Implement channel migration zone, channel connectivity, off-channel study projects	x								
Reduce sediment inputs/sedimentation				x	x				
Provide improved fish passage					x				
Enhance woody debris						x			
Policy, Education									
Educate the public/Public outreach on water limitations, water conservation, water quality issues	x			x					
Coordinate interaction with landowners and public		x							

APPENDIX F. EXISTING REGULATIONS AND VOLUNTARY PROGRAMS

1.0 FEDERAL REGULATIONS

Federal laws including the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Food Quality Protection Act regulate use of pesticides. The Clean Water Act (CWA), Safe Drinking Water Act (SDWA), and National Pollution Discharge Elimination System (NPDES) regulate water quality, though most regulatory actions are the responsibility of Washington State.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Label use restrictions and registration requirements from EPA put limitations on pesticide usage, storage, and disposal.

http://www.epa.gov/agriculture/lfra.html

Clean Water Act (CWA), Safe Drinking Water Act (SDWA), and National Pollutant Discharge Elimination System (NPDES)

The CWA, SDWA, and NPDES regulate water quality, although most regulatory actions are the responsibility of Washington State and are implemented by the state Department of Ecology. For example, NPDES Permits are required for concentrated animal feeding operations, Dredge and Fill permits for activities on wetlands, etc. A federal general NPDES permit restricts pesticide application near waterbodies. No federal biosolid application permit is required, though state requirements and water quality standards do apply. Farms must meet regulatory requirements for pollutant limits, reporting, and other requirements.

http://water.epa.gov/lawsregs/guidance/wetlands/section402.cfm

Endangered Species Act (ESA)

ESA prohibits the “take” of species listed as threatened or endangered and protects their habitats. Specific limitations imposed though ESA consultation requirements include pesticide no-spray buffers of twenty to one hundred yards (depending on application) from salmon bearing waterways. In Chelan County, this rule applies to propagate application.

http://www.fws.gov/endangered/laws-policies/

US Department of Agriculture (USDA) Farm Bill

The 2014 Agricultural Act (formerly 1985 Food Security Act) includes a “Swampbuster” conservation compliance provision to prohibit agricultural land owners participating in Farm Bill programs from converting wetlands to cropland. A “Sodbuster” provision also requires participating producers to maintain specified levels of conservation. The CWA also prohibits wetland conversion, however agricultural operations farming wet areas converted to cropland prior to the act are generally exempt from federal permitting requirements under “prior converted cropland” provisions.

http://www.usda.gov/wps/portal/usda/usdahome?navid=farmbill

Environmental Protection Agency Laws

The U.S. Environmental Protection Agency (EPA) produced a document in 2007 that highlights existing EPA laws and programs that may have an impact on farmers and agricultural producers. It provides a summary matrix of essential environmental laws and regulations pertinent to agriculture and agricultural practices.

EPA. 2007. "Major Existing EPA Laws and Programs that Could Affect Agricultural Producers" Available at: http://www.epa.gov/oecaagct/agmatrix.pdf.

2.0 WASHINGTON STATE REGULATIONS

Revised Code of Washington (RCW)

RCW Title 15: Agriculture and Marketing

Regulates agricultural practices generally, with specific reference to pest and disease control, fertilizers, and crop-specific commissions.

15.08 RCW- Horticultural Pests and Diseases

Horticultural premises include orchards, vineyards, berry farms, vegetable farms, and others (see section for more explicit detail). This section outlines regulations for the disinfection of fruit trees, the disposal of cuttings, records of premises disinfected, and prohibits the dumping of any infected products. See section for more details.

- **15.08.020- Disinfection of fruit trees**
    - Methods for disinfecting fruit trees shall follow official published recommendations of the Washington State University for proper prevention, control and eradication of pests and diseases of fruit trees

15.28.015 RCW- Regulating Soft Tree Fruits

Provides information on the regulation of soft fruit trees, the creation of the Washington state fruit commission, and applicable laws that apply to the production of soft fruit trees. 15.28.015 (6) letters (a) through (v) highlight federal and state regulations and restraints applicable to the soft fruit tree industry.

http://apps.leg.wa.gov/rcw/default.aspx?cite=15.28

15.58.020 RCW- Washington Pesticide Control Act

Regulates the formulation, distribution, storage, transportation, and disposal of any pesticide and the dissemination of accurate scientific information as to the proper use, or nonuse, of any pesticide in the interest of maintaining a high level of public health and welfare both immediate and future.

(http://apps.leg.wa.gov/RCW/default.aspx?cite=15.58.020)

RCW Title 16: Animals and Livestock

Regulates livestock practices generally, including stock on state or federal lands, fence practices, etc.

16.60 RCW- Fences

Regulates the type of fence, erection, removal, value, damages to and from fences.

http://apps.leg.wa.gov/rcw/default.aspx?cite=16.60&full=true

RCW Title 17: Weeds, Rodents and Pests

Establishes and regulates pest control, agricultural pest districts, etc.

17.12 RCW- Agricultural Pest Districts

Allows the board of county commissioners of any WA State county to create a pest district(s) for the purpose of destroying or exterminating various animal pests that may destroy or interfere with crops, fruit trees, and other agricultural products.

http://apps.leg.wa.gov/rcw/default.aspx?cite=17.12.010

17.21 RCW- Washington Pesticide Application Act

Regulates the application and the control of the use of various pesticides to maintain a high level of public health and welfare both immediate and future.

(http://apps.leg.wa.gov/RCW/default.aspx?cite=17.21)

RCW Title 70: Public Health and Safety

Establishes and regulates issues that affect public health and safety standards and includes provisions of the Washington Clean Air Act.

70.94 RCW- Washington Clean Air Act

Preserves and protects air quality for current and future generations by regulating air pollution and complies with the requirements of the federal clean air act.

70.94.6514 RCW- Outdoor burning-Areas where prohibited-Exceptions

Allows for burning that is normal, necessary and customary to ongoing agricultural activities. Allows for outdoor burning of cultivated orchard trees as an ongoing agricultural activity.

http://apps.leg.wa.gov/rcw/default.aspx?cite=70.94.6514

70.94.6528 RCW- Agricultural burning practices

Fires related to agricultural activities need a permit from an air pollution control authority, the department of ecology, or a local entity delegated permitting authority.

http://apps.leg.wa.gov/rcw/default.aspx?cite=70.94.6528

RCW Title 77: Fish and Wildlife

Establishes Department of Fish and Wildlife including enforcement code, hydraulic project approval permits, salmon recovery, and invasive species.

http://apps.leg.wa.gov/rcw/default.aspx?Cite=77

RCW 86.16: Floodplain Management

http://apps.leg.wa.gov/rcw/default.aspx?cite=86.16

Statewide floodplain management regulation shall be exercised through: (1) Local governments' administration of the national flood insurance program regulation requirements, (2) the establishment of minimum state requirements for floodplain management that equal the minimum federal requirements for the national flood insurance program, and (3) the issuance of regulatory orders. This regulation shall be exercised over the planning, construction, operation and maintenance of any works, structures and improvements, private or public, which might, if improperly planned, constructed, operated and maintained, adversely influence the regimen of a stream or body of water or might adversely affect the security of life, health and property against damage by flood water.

RCW Title 87: Irrigation

Establishes and regulates irrigation and rehabilitation districts.

http://apps.leg.wa.gov/rcw/default.aspx?Cite=87

RCW Title 89: Reclamation, Soil Conservation, and Land Settlement

Establishes conservation districts, farmland preservation, watershed restoration, and farm plans.

89.10 RCW- Farmland Preservation

Recognizes the importance of farmland preservation to long-term sustainability of the state's people and economy and also recognizes the need and desire to retain agricultural land and ensure the future opportunities to farm these lands. Also creates the office of farmland preservation.

http://apps.leg.wa.gov/rcw/default.aspx?cite=89.10

RCW Title 90: Water Rights – Environment

Regulates water rights, water use and flow levels, water pollution, nutrient management, wetlands mitigation, shoreline management, aquatic rehabilitation, and Columbia River basin waters.

90.48 RCW Water Pollution Control

The federal CWA requires all states to restore their waters to be "fishable and swimmable." The state Water Pollution Control Act's policy statement sets the goal of maintaining "the highest possible standards to insure the purity of all waters of the state." The State standards implement portions of the CWA by specifying the designated and potential uses of water bodies. They set water quality criteria to protect those uses. The standards also contain policies to protect high quality waters (antidegradation) and in many cases specify how criteria are to be implemented. State water pollution law prohibits the discharge of any polluting matter into the surface or groundwater of the state, and requires "the use of all known available and reasonable methods … to prevent and control the pollution of the waters of the state of Washington." Additionally, the water quality standards establish the basis for a water quality based approach to regulating waters that fail to meet water quality standards despite the use of effluent limitations and other pollution control requirements.

See: Ecology Publication Number 13-10-030 The Voluntary Stewardship Program and Clean Water at: https://fortress.wa.gov/ecy/publications/publications/1310030.pdf, and http://app.leg.wa.gov/rcw/default.aspx?cite=90.48.

90.66 RCW- Family Farm Water Act

In order to preserve necessary water for agriculture, Washington state voters enacted this act in 1977 mandating that among potential agricultural water users only the family farm will be given priority status. Although irrigated large-scale landholdings will remain intact, their future expansion is curtailed.

http://apps.leg.wa.gov/rcw/default.aspx?cite=90.66

RCW 90.58 Shoreline Management Act

The Shoreline Management Act (SMA) addresses shoreline uses, conservation, and public access along shoreline waterbodies that meet certain size or flow criteria in the Shoreline Management Act (SMA). These shorelines include rivers and streams with mean annual flow over 20 cubic feet per second. The shoreline jurisdiction extends 200 feet landward of these waters and additionally includes associated wetlands, floodways, and up to 200 feet of floodway-contiguous floodplains. In Chelan County these include numerous waterbodies (80 streams/rivers and 53 lakes), most prominently Lake Chelan, Lake Wenatchee, Wapato Lake, Dry Lake, Roses Lake, Cortez Lake, Meadow Lake, Columbia River, Wenatchee River, Icicle Creek, Peshastin Creek, Entiat River, Mad River, and Colockum Creek and many others that run through and along agricultural and rangeland areas.

The SMA requires local agencies including Chelan County to prepare Shoreline Master Programs (SMPs). When SMPs are comprehensively updated they include regulations to address critical areas [WAC 173-26-221(2)]. The GMA clarifies that critical area regulations transfer to the SMP after a comprehensive update (RCW 36.70A.480(3)(d)). GMA-based critical area~~s~~ regulations are either incorporated by reference or adapted for inclusion into SMPs. However, the SMA does not allow updated SMPs to require modification of or limit agricultural activities on agricultural lands (RCW 90.58.065(1)). The SMP only applies to agriculture when new land is brought into production (relatively rare) or when a new development is added (WAC 173-26-241(3)(a). SMPs do not apply to replacement, maintenance, or repair of existing agricultural facilities [RCW 90.58.065(2)a)].

The SMP does not need to incorporate the VSP work plan. The SMP cannot limit or modify agricultural activities as defined in the SMA (essentially existing, ongoing agriculture). The VSP should apply wherever agriculture and critical areas exist inside or outside of shoreline jurisdiction.

3.0 WASHINGTON STATE ADMINISTRATIVE CODE

WAC Title 16: Department of Agriculture (WSDA)

Regulates many aspects of agriculture including marketing, standards, fertilizer and pesticide use, nutrient management, etc. WACs 16-200 through 16-232 set general and location-specific standards for fertilizer and pesticide usage. Regulations of particular importance to Chelan County include:

16-201 WAC Fertilizer Bulk Storage and Operational Area Containment Rules.

Regulates the primary and secondary containment of liquid bulk fertilizers; operational area containment of liquid bulk fertilizers; dry bulk fertilizer storage and handling; backflow prevention; fertilizer spills; maintenance, inspection and recordkeeping requirements; and spill response plan.

http://apps.leg.wa.gov/WAC/default.aspx?cite=16-201&full=true

16-202 WAC Application of Pesticides and Plant Nutrients through Irrigation Systems

Establishes the performance standards of chemigation that are protective of existing and future uses of surface water and groundwater quality.

http://app.leg.wa.gov/WAC/default.aspx?cite=16-202-1001

Chapters 16-228-1238, 16-228-1264, and 16-228-1266 WAC General Pesticide Rules

Outline the restrictions and requirements for use of pesticides specific to fruit orchards and vines.

- Specific to fruit orchards and vines:
    - **16-228-1238** outlines the restrictions on application of ziram to Bosc pears.
    - **16-228-1264 and 16-228-1266** outlines the restrictions and requirements of use of pesticides containing active ingredient thiamethoxam (including use on apples and pears)
- http://app.leg.wa.gov/WAC/default.aspx?cite=16-228

16-230 WAC (600-675) Use of Chemicals and Chemically Treated Materials in Certain Counties

Establishes restricted herbicides- their use, sale, mixing, loading, conditions, storage, etc. in Eastern Washington (including Chelan County).

Chapter 16-231-800 Restrictions for herbicide use in Douglas and Chelan counties

restricts specific herbicide usage within Chelan and Douglas counties. Outlines that the distribution, use, and application of use restricted herbicides shall comply with rules relating to the use of pesticides in chapter **16-228** (see above), **16-230-600** through **16-230-675** (see above).

http://app.leg.wa.gov/WAC/default.aspx?cite=16-231-805

WAC Title 173: Department of Ecology (DOE)

Responsible for regulation of numerous relevant environmental features including floodplains, shorelines, ground and surface waters, biosolids, and air quality.

Chapters 173-18 through 173-27

Define and designate the Shoreline Management Act (SMA). The County currently implements a Shoreline Master Program (SMP) and will be updating it in the next couple of years. See the discussion under RCW 90.58 regarding applicability to agricultural activities. The most relevant rules include those guiding the development of Shoreline Master Programs, here:

http://apps.leg.wa.gov/WAC/default.aspx?cite=173-26

Chapter 173-152 and 173-153 Water Rights

Regulate water rights; chapters 173-166, 173-170 and 173-173 describe drought relief, agricultural water supply, and water use reporting requirements.

http://app.leg.wa.gov/WAC/default.aspx?cite=173-152

Chapter 173-158 Flood Plain Management

Regulates floodplain management and includes restrictions regarding farm infrastructure within floodplains and recommendations for wetland management.

http://app.leg.wa.gov/WAC/default.aspx?cite=173-158

Chapter 173-200 WAC - Water quality standards for groundwaters of the state of Washington

Regulates groundwater water quality and application of best management practices (BMPs) to comply with water quality regulations under the federal Clean Water Act.
http://apps.leg.wa.gov/WAC/default.aspx?cite=173-200

Chapter 173-201A Water Quality Standards for Surface Waters of the State of Washington

Regulates surface water quality and application of best management practices (BMPs) to comply with water quality regulations under the federal Clean Water Act.

http://app.leg.wa.gov/WAC/default.aspx?cite=173-201A

Chapter 173-430 Agricultural Burning

Regulates agricultural burning practices.

http://app.leg.wa.gov/WAC/default.aspx?cite=173-430

Chapter 173-500 Water Resources Management Program

Water resource and instream management regulations for state waterways including the Columbia and Wenatchee rivers are described in chapters 173-500 through 173-591.

http://app.leg.wa.gov/WAC/default.aspx?cite=173-500

WAC Titles 220 and 232 – Department of Fish and Wildlife (WDFW).

Responsible for regulating marine and freshwater fisheries (220) and other wildlife (232) throughout the state.

http://app.leg.wa.gov/WAC/default.aspx?cite=220

http://app.leg.wa.gov/WAC/default.aspx?cite=232

Chapter 220-660 WAC Hydraulic Code Rules

Now Replaced with Chapter 220-660 as of December 2014. WDFW regulates construction projects or activities (e.g. bank protection, culvert replacement, outfalls, water diversions) in or near state waters through an environmental permit called the Hydraulic Project Approval (HPA).

http://app.leg.wa.gov/WAC/default.aspx?cite=220-660

Chapter 220-140 Regional Fisheries Enhancement Groups

Defines Voluntary Cooperative Fish and Wildlife Enhancement Programs, including the Upper Columbia Regional Fisheries Enhancement Group.

http://app.leg.wa.gov/WAC/default.aspx?cite=220-140

Chapter 232-36 Wildlife Interaction Regulations

Describes wildlife interaction rules, including those governing commercial crop and livestock damage.

http://app.leg.wa.gov/WAC/default.aspx?cite=232

Selected Manuals and Guides

The following are selected manuals and guides produced by Washington state agencies that offer technical assistance in navigating some of the regulations listed above.

Orchard Pesticide Use Restriction Information

Several currently used orchard pesticides have label statements that restrict their use near water. These restrictions are legal requirements that must be followed. This technical assistance bulletin is being distributed to inform applicators of these restrictions, and to prevent pesticides from getting into water.

(http://agr.wa.gov/PestFert/Pesticides/docs/OrchardUseRestrAsst.pdf)

Washington Pesticide Laws and Related Regulations Hand-Out Booklet

Describes the license and application requirements of pesticide use.

http://agr.wa.gov/PestFert/Pesticides/docs/PesticLawsBooklet.pdf

WSDA Pesticide/Pest Inspector Licensing and Fact Sheet

These fact sheets contain information about the licensing program administered by WSDA.

http://agr.wa.gov/pestfert/docs/Form4375.pdf

http://agr.wa.gov/pestfert/licensinged/licensing.aspx

Washington State University Extension: 2014 Crop Protection Guide for Tree Fruits in Washington

This guide provides information on pesticide safety, management strategies, bee protection, pesticide resistance management, specific information for apple and pear crop protection programs, nutrients, bioregulator sprays, weed control, and additional topics.

http://www.tfrec.wsu.edu/pages/cpg/Home

Washington State University Extension: Orchard Pest Management (OPM) Online

This guide explains the concepts of integrated pest management (IPM), which rooted in the principles of ecology. In practice, it aims to minimize harmful effects on the environment while also avoiding crop loss.

http://jenny.tfrec.wsu.edu/opm/displaySpecies.php?pn=-10

4.0 WASHINGTON STATE PROJECTS

WA State Department of Fish and Wildlife (WDFW)

Priority Habitats and Species (PHS)

The Washington Department of Fish and Wildlife publishes a Priority Habitats and Species (PHS) list. The PHS List is a catalog of habitats and species considered to be priorities for conservation and management.

Priority species require protective measures for their survival due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority species include State Endangered, Threatened, Sensitive, and Candidate species; animal aggregations (e.g., heron colonies, bat colonies) considered vulnerable; and species of recreational, commercial, or tribal importance that are vulnerable.

Numerous individuals and groups use the PHS List as well as associated PHS products (e.g., PHS Data) to inform conservation-related activities. Typical users include cities and counties that use PHS to fulfill planning requirements under the **Growth Management Act** and **Shoreline Management Act**, non-profit organizations such as land trusts that use PHS information to prioritize habitat protection, community groups working on local biodiversity planning initiatives, as well as other state and federal government agencies.

http://wdfw.wa.gov/conservation/phs/list/)

WA State Department of Ecology (DOE)

Water Quality Improvement Projects (WQIs)

The Department of Ecology works to make measurable improvements in water quality. These projects identify pollutions problems and develop a total maximum daily load (s) and implementation strategies.

For specific Chelan County WQIs, visit:

http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyCounty/chelan.html

Manuals and Guides

Clean Water on Agricultural Lands

This section of the DOE website provides information specific to agriculture and agricultural activities that affect water quality.

(http://www.ecy.wa.gov/programs/wq/nonpoint/Agriculture/agnpssolutions.html)

5.0 CHELAN COUNTY REGULATIONS

The following County Code chapters are pertinent to agriculture and agricultural practices.

Chapter 3: Building Regulations

Chapter 3.20 Flood Hazard Development

The purpose of this chapter is to promote public health and safety by minimizing losses from flooding and flood conditions in specific areas by providing design standards. Normal agricultural practices, except structures, are exempt (see below).

3.20.030 (4) Exemptions

Normal agricultural practices, such as plowing, storing materials, etc. normal to farm operation, but not including structures, are exempt from the provisions of 3.20.

http://www.codepublishing.com/wa/chelancounty.html

Chapter 5: Business Regulations and Licenses

Chapter 5.36 Right to Farm

"A farm operation shall not be found to be a public or private nuisance if the farm or farm operation conforms to generally accepted agricultural and management practices."

Chapter 11: Zoning

Chapter 11.30 Commercial Agricultural Lands

Outlines the permitted, accessory and conditional uses in this district. This includes development and design standards such as lot size, building height, lot coverage, setbacks, parking, landscape standards, etc.

Chapter 11.84 Frequently Flooded Areas Overlay District (FFOD)

Those areas located within the one-hundred-year floodplain as defined by the Federal Emergency Management Agency are classified as frequently flooded areas. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

Chapter 11.88.170 (1A) Accessory uses and structures (fences)

Fences shall not exceed a height of 6 feet in side and rear yard area and 4 feet in front yard, except corner lots.

Chapter 11.88.170 (8 and 9) Accessory uses and structures (Agricultural worker housing)

Both temporary and permanent agricultural worker housing, occupied seasonally or year-round, is permitted following consistency with zoning and that additional conditions are met. See code for further details.

Chapter 11.88.170 (11-E) Governing Standards

Accessory buildings that are barns or similar agricultural buildings shall not exceed 50 feet in height.

Chapter 11.88.260 (2) Roadside Stands

Roadside stands, nurseries, and value-added operations less than 1,000 square feet are permitted provided additional criteria are met. See code for further details.

Chapter 11.88.030 Livestock

Describes regulations associated with livestock including fences, animal densities, accessory and housing structures for livestock, sanitation conditions and maintenance, etc.

6.0 VOLUNTARY PROGRAMS

Agricultural producers participate in numerous voluntary industry programs that may contribute to the protection or enhancement of critical areas. It is important to note that these programs are dynamic and influenced by changing federal regulations, industry norms, and market conditions.

- **Global G.A.P.** is a voluntary certification program for agricultural producers around the world. The program encourages use of safe and sustainable agricultural practices. Specific certification requirements include waste management protocols and the development of wildlife and habitat conservation plans, though the measures are broadly stated. (http://www.globalgap.org/uk_en/for-producers/crops/FV/)
- **Safe Quality Food Institute (SQF-I)** provides certification in food safety and quality. The code includes requirements for several relevant good agricultural and livestock practices including water management, the storage of hazardous chemicals, soil management and use of fertilizers, and waste disposal. (http://www.sqfi.com/)
- **PrimusLabs GAP** provides tools and audit programs (checklists) to support good agricultural practices relating to site selection, adjacent land use, fertilizer usage, water sourcing and usage, pest control and pesticide monitoring, and harvesting practices. (http://www.primuslabs.com/Services/StandardGAP.aspx)
- **USDA Harmonized Produce GAPs** consist of audit checklists to ensure food safety standards. Relevant topics include water quality and chemical use. (http://www.ams.usda.gov/AMSv1.0/HarmonizedGAP)

Beyond these existing programs there are industry specific programs.

For example, in California there is the following:

- **California Sustainable Winegrowing Program (Voluntary Sustainable Practices):** www.sustainablewinegrowing.org

7.0 INCORPORATED AQUIFER AND FLOOD HAZARD REGULATIONS

Chapter 7 of the Work Plan identifies that aquifer and flood hazard regulations are to remain effective in areas with agricultural activities.

Chapter 11.82 AQUIFER RECHARGE AREAS OVERLAY DISTRICT (AROD)

Sections:

11.82.010 Classification.

(1) Classification is based on an evaluation of the potential for contaminant loading of a proposed land use, and the susceptibility of the proposed site. These factors identify a range, which shall be used to determine the relative vulnerability to contamination of an area.

(2) Sites identified by this chapter as having a medium or high vulnerability rating shall be subject to the protection measures of this chapter. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

11.82.020 Designation.

(1) There is insufficient scientific data at this time, to determine with any specificity the location of areas having a critical recharging effect on aquifers used for potable water within the boundary of Chelan County. However, the best available science suggests that a susceptibility determination will allow Chelan County to designate critical aquifer recharge areas using a conservative approach, which provides a worst case scenario for contaminant movement in the subsurface. Therefore, any area found via this chapter to be an area having a high susceptibility rating shall be designated a critical aquifer recharge area, and a map or maps maintained by the Chelan County department of building/fire safety and planning shall set forth such areas.

(2) In addition, sole source aquifer recharge areas designated pursuant to the Federal Safe Drinking Water Act, areas established for special protection pursuant to a groundwater management program, Chapters 90.44, 90.48 and 90.54 RCW, and Chapters 173-100 and 173-200 WAC; areas designated for wellhead protection pursuant to the Federal Safe Drinking Water Act, and aquifer recharge areas mapped and identified by a qualified groundwater scientist shall also be designated as critical aquifer recharge areas. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

11.82.030 Procedure.

(1) An applicant seeking to develop property which requires a development permit, not otherwise exempted from the requirements of this chapter, shall submit with the application a certified statement, on a form provided by the Chelan County department of building, fire safety, and planning, which lists each of the criteria as set forth in Section 11.82.040 and indicate whether the criteria applies or does not apply to the site or development. Any development application that fails to contain this statement or fails to indicate whether any one of the criteria applies or does not

apply, shall be rejected and only accepted upon resubmission of the completed statement. "Unknown" or similar responses will not be accepted.

(2) If the development meets criterion (1), (2), (3), or (4) under Section 11.82.040 or if the site or development meets any two of the remaining criteria in Section 11.82.040, the department shall direct the applicant to determine the vulnerability rating for the development pursuant to Section 11.82.050. If the development has a high or medium vulnerability rating, the development shall be subject to the performance standards of Section 11.82.060.

(3) If an applicant's statement asserts that the criteria of Section 11.82.040 do not apply to the development, the department will accept the statement and proceed with the permitting or approval process. Except, if the department has or obtains information prior to the permit or approval being finalized, which clearly establishes the applicant's statement is incorrect. In which case, the applicant will be advised in writing of the inconsistent information and advised to either (A) provide an amended statement adding the evaluation criteria as being applicable and determine the vulnerability rating of the development pursuant to Section 11.82.050, or (B) present sufficient countering information clearly establishing that the basis for the department's concern is incorrect. If the applicant selects to proceed under (B), upon receipt of the applicant's information, the department shall review the information and obtain whatever additional assistance may be required to resolve the issue. The final determination as to whether a determination of vulnerability is required shall be made by the administrator. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

11.82.040 Evaluation criteria.

The applicant shall be required to determine the vulnerability rating for any development permit, not otherwise exempted from this chapter, if the site or development meets criterion (1), (2), (3), or (4) or meets two or more of the remaining criteria below:

(1) Within a wellhead protection area designated under Chapter 246-290 WAC;

(2) Within an aquifer recharge area mapped and identified by a qualified groundwater scientist;

(3) The site will be utilized for hazardous substance (as now or hereafter defined in RCW 70.105D.020(7)) processing, storage or handling in applications or quantities larger than is typical of household use;

(4) The site will be utilized for hazardous waste treatment and storage as set forth in Chapter 70.105 RCW, Hazardous Waste Management, as now or hereafter amended;

(5) The site contains highly permeable soils, which include soil types 1a, 1b and 2a under WAC 246-272-11001, Table II;

(6) Within a sole source aquifer recharge area designated pursuant to the Federal Safe Drinking Water Act;

(7) Within an area established for special protection pursuant to a groundwater management program, Chapters 90.44, 90.48 and 90.54 RCW, and Chapters 173-100 and 173-200 WAC;

(8) The development involves a major or short subdivision and includes present or future plans to construct three or more dwelling units where the dwelling units will not be connected to a public sewer system and any of the lots are less than one net acre in size;

(9) The proposed commercial and industrial site is not on a public sewer system and the main structure exceeds four thousand square feet;

(10) The proposed use is as a commercial feedlot;

(11) The development is within two hundred feet of the ordinary high water mark of a perennial river, stream, lake or pond. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

11.82.050 Determining vulnerability rating.

(1) General. The vulnerability matrix is used to determine the vulnerability of the development and to rate it as a high, medium or low rating. This can be done by determining the "contaminant loading potential" of a proposed land use as outlined in subsection (4) of this section and the natural "susceptibility" of the site as outlined in subsection (3) of this section. A vulnerability rating is determined by numerical value for a proposed land use based on contaminant

loading potential and susceptibility factors. When a proposed use is determined to have a medium or high vulnerability rating, protection measures, as specified in Section 11.82.060, shall be implemented that protect the potable water supply.

(2) Determining Susceptibility. The three basic components to determine a site's susceptibility are:

— Permeability of the vadose zone;

— Depth to groundwater;

— Slope.

(A) Permeability of the Vadose Zone. The vadose zone is composed of both the soil and the geologic materials underlying the soil. To adequately determine the overall ease with which water will travel from land surface to the aquifer, it is necessary to determine the overall permeability of both soil and geologic media. Soil permeability can be determined through use of the Chelan County soil survey developed by the USDA Soil Conservation Service, Table 6, pp. 66-73. The values shown on these pages are given in the inches per hour that water moves downward through a saturated soil. A determination of the permeability of the geologic material underlying the soil is more problematic.

(i) Incrementally, the permeability of local soils (upper vadose zone) is grouped into four ranges, and can be assigned a relative value to be used for determining susceptibility on the matrix. These are:

Soil Permeability Table Based on Soil Survey

Condensed Description	Soil Survey Description	Permeability (in./hr.)	Permeability (cm./sec.)	Rating
Very slow	Very slow	<0.06	<0.00453	0
Slow	Slow	0.06 – 0.20	0.00453 – 0.1041	1
	Moderately slow	0.20 – 0.60	0.0131 – 0.0423	
Moderate	Moderate	0.60 – 2.0	0.0423 – 0.1411	2
	Moderately rapid	2.0 – 6.0	0.1411 – 0.4233	
Rapid	Rapid	6.0 – 20	0.4233 – 1.411	3
	Very rapid	>20	>1.411	

Where conclusive information does not exist for permeability of the soil, a relative value of 3 will be assigned.

(ii) Permeability of the lower vadose zone can be estimated using the geologic matrix table below by determining the material type and assigning the appropriate permeability range for the material(s) overlying the uppermost aquifer. In cases where heterogeneous materials are encountered, the least permeable layer with a thickness of not less than five feet shall determine the overall permeability to be applied to the entire vadose zone, excluding the soil layer.

Geologic Matrix Table

Condensed Description	Geologic Matrix	Permeability (cm./sec.)	Rating
Very slow	Unfractured Igneous or Metamorphic Bedrock, Shale	10-13 – 10-9	0

	Marine Clay, Clay, Dense Sandstone, Hardpan	10-9 – 10-7	
Slow	Loess, Glacial Till, Fractured Igneous or Metamorphic Bedrock	10-8 – 10-5	1
	Silt, Clayey Sands, Weathered Basalt	10-7 – 10-3	
Moderate	Silty Sands, Fine Sands, Permeable Basalt	10-4 – 10-1 (0.0001 – 0.1)	2
	Clean Sands, Karst Limestone	> 0.1 – 1.0	
Rapid	Sand and Gravel	> 1.0 – 10	3
	Gravel	> 10 – 100+	
Where conclusive information does not exist for permeability of the geologic matrix, a relative value of 3 will be assigned.			

(B) Depth to Groundwater. Depth to groundwater can be determined by utilizing local well log information or specific well information for the site. Depth to groundwater is also assigned a relative value used for determining susceptibility on the matrix. These are:

Depth to Groundwater Table

Condensed Description	Depth to Water (Feet)	Rating
Very Low	Confined Aquifer	0
	> 50	
Low	25 – 50	1
Moderate	10 – 25	2
High	0 – 10	3
Where conclusive information does not exist for depth to groundwater, a relative value of 3 will be assigned.		

(C) Slope. Slope, or gradient, is related to the infiltration characteristics of an area. The steeper the slope, the less infiltration of surface waters occur. Slope is assigned a relative value used for determining susceptibility on the matrix. These are:

Slope—As a Percent	Slope Relative Value
>45%	0
>30% – 45%	1

15% – 30%	2
<15%	3

Where conclusive information does not exist for slope, a relative value of 3 will be assigned.

(3) Determining the Susceptibility Rating. A susceptibility rating is determined by adding the relative values of permeability of the soils and geologic matrix of the vadose zone, depth to groundwater and slope. This is a baseline determination for susceptibility. The range of values are as follows:

High susceptibility rating = total range from	8 – 12	High
Medium susceptibility rating = total range from	4 – 7	Medium
Low susceptibility rating = total range from	0 – 3	Low

Low Susceptibility	Medium Susceptibility	High Susceptibility
0 – 3	4 – 7	8 – 12

(4) Determining the Contaminant Loading Rating.

(A) Contaminant loading potential is dependent on the presence of critical materials on the site. A critical material is a substance present in sufficient quantity that its accidental or intentional release would result in the impairment of the aquifer water to be used as potable drinking water. For the purpose of administration of this section, the critical materials use activity list in Annex A is established.

(B) This is a list of commercial and industrial activities known to use critical materials, coupled with the names of critical materials normally associated with the activity. Proposed activities fitting one of the general business descriptions provided or having one of the specified standard industrial classification (SIC) codes should be assumed to have critical material on-site with a high contaminant loading potential unless the proponent provides assurance otherwise. Activities with a high contaminant loading potential have a high contaminant loading rating.

Contaminants in addition to those listed on the critical material activities list may be found on some sites. In some cases SIC codes other than those listed may be associated with a general category. Sites or uses which the Department believes would be utilized for hazardous substance (as now or hereafter defined in RCW 70.105D.020(7)) processing, storage or handling in applications or quantities larger than is typical of household use or sites which the Department believes will be utilized for hazardous waste treatment and storage as set forth in Chapter 70.105 RCW, Hazardous Waste Management, as now or hereafter amended, but may not be covered in the critical materials use activity list, shall also be considered to be a critical material or critical material use activity with a high contaminant loading potential and rating, unless the proponent provides assurance otherwise.

Those uses or activities not determined to have a high contaminant loading rating are considered to have a low contaminant loading potential and rating.

(C) The following process shall be used to determine whether or not critical materials are involved.

(i) An initial screening will be performed by the department by comparing the proposed use, and upon request by said department, other pertinent information as provided by the proponent at his/her expense with the critical materials use activity list. The department will exercise any discretion in judgment in the favor of aquifer protection.

(a) If the proposed use is judged to be on the critical materials use activity list, the department shall require the applicant to provide the department with a list of materials, including quantities, to be used, stored or transported as associated with the proposed activity. Additional information shall also be provided by the proponent at his or her expense if requested by the department.

(b) After the review of the information supplied by the applicant, the department may confirm the designation as a critical materials use activity or nullify the tentative designation.

(c) The applicant may respond by accepting the designation as a critical materials use activity or may appeal to the board of adjustment, in writing, within twenty calendar days.

(I) The DOE, DOH, and the Chelan County health district shall be notified of all hearing proceedings and legal advertising consistent with that for appeals to the hearing examiner.

(II) The hearing examiner shall have authority to request additional information from either the appellant or the applicant, as appropriate, and at their expense.

(d) If the proposed use is not on the list, the department may designate the activity as not involving critical materials or may exercise subsection (4)(C)(i)(e) of this section.

(e) If a proposed use or contaminant, which the department believes will be present on the site, is not located on the critical materials use activity list but meets the criteria under subsection (4)(B) or (C) of this section, the department shall act to designate the proposed use as a critical materials use activity and proceed as in subsection (4)(C)(i)(a) of this section. The department may consult with such persons as may be appropriate to assist in the determination. The department may eventually designate the activity as a critical materials use activity. The process would then proceed as in subsection (4)(C)(i)(b) of this section, and the applicant may respond as in subsection (4)(C)(i)(c) of this section.

(5) Vulnerability Matrix.

(A) A determination of a high, medium, or low vulnerability rating is determined from the vulnerability matrix by identifying susceptibility and contaminant loading ratings.

	Susceptibility	
High susceptibility rating = Total range from	8 – 12	High
Medium susceptibility rating = Total range from	4 – 7	Medium
Low susceptibility rating = Total range from	0 – 3	Low

	Contaminant Loading
High Contaminant Loading Rating =	High
Low Contaminant Loading Rating =	Low

(B) After determining the susceptibility and contaminant loading ratings for the proposed use and site, check the appropriate box on each axis of the vulnerability matrix located in Annex B to determine the vulnerability rating. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

11.82.060 Performance standards for uses determined to have a medium or high vulnerability rating.

(1) General. All development regulated by this chapter which has a high or medium vulnerability rating, as determined by this chapter, shall be required to meet the requirements of this section.

(2) Application of Aquifer Recharge Area Performance Standards.

(A) Residential dwelling units and their accessory uses are exempt from the aquifer recharge area regulations under this chapter. New residential subdivisions are subject to the provisions of subsection (9) of this section.

(B) The standards for approval of development regulated by this chapter shall be defined in subsequent sections.

(C) The assurance that these standards are applied to development regulated by this chapter is the responsibility of the administrator.

(i) Appropriate standards for approval as applied to development regulated by this chapter shall be the responsibility of the Chelan County department of building, fire safety, and planning and hearing examiner as otherwise described in agency rules.

(ii) Appropriate safeguards, to be included in the design of buildings newly constructed or remodeled, shall be the responsibility of the Chelan County department of building, fire safety and planning.

(iii) Site planning and other considerations for areas outside of buildings shall be the responsibility of the appropriate office or agency as may be elsewhere described in agency rules.

(iv) Appropriate sanitary, industrial and solid waste disposal practices employed shall be the responsibility of the Chelan-Douglas health district or other appropriate agency (e.g., DOH, DOE).

(v) When the occupancy of a building changes, any new commercial or industrial occupant shall not operate without a certificate of occupancy as issued by the Chelan County department of building, fire safety and planning; such certificate of occupancy is subject to review pursuant to subsection (2)(C) of this section.

(D) If the applicant does not have a specific proposal, the department shall recommend that the action be conditioned, or shall so condition a license/permit, with the performance criteria of subsections (3) through (11) of this section.

(E) Even though an activity is permitted in the underlying zone classification, any activity which, following review in accordance with this chapter, is determined to have a medium or high vulnerability rating shall be required to conform to the conditions set forth in subsections (3) through (11) of this section.

(3) Agricultural Activities. Agricultural activities shall incorporate best management practices concerning waste disposal, fertilizer use, pesticide use, and stream corridor management. If necessary, farmers shall seek technical assistance from the Chelan County Conservation District, WSU cooperative extension agent and local fieldmen.

(4) Landfills. Landfills, junkyards, salvage yards and auto wrecking yards are prohibited within designated critical aquifer recharge areas. Landfills, junkyards, salvage yards and auto wrecking yards which are proposed to be located outside of designated critical aquifer recharge areas and which have a high or medium vulnerability rating must satisfactorily demonstrate that potential negative impacts to the groundwater would be overcome in such a manner as to prevent adverse impacts to groundwater.

(5) Parks, Schools and Recreation Facilities. Fertilizer, herbicide and pesticide management practices of schools, parks, golf courses and other nonresidential facilities that maintain large landscaped areas shall be evaluated in relation to best management practices as recommended by the cooperative extension service.

(6) Commercial, Industrial and Mining Uses.

(A) For the purposes of this section, all forms of mining activities shall be considered an industrial use.

(B) Contingency Plans.

(i) All commercial and industrial uses that are rated as having a medium or high vulnerability shall submit a contingency plan that identifies:

(a) Types of hazardous wastes that would be used for the proposed land use;

(b) On-site containment facilities designed to handle accidental releases of critical materials;

(c) Spill response and notification procedures.

(C) Changes in occupancy of an existing site and/or expansions of existing activities are subject to complete evaluation by the county under the provisions of this chapter.

(D) All activities designated as critical materials use activities shall only be approved as conditioned so that:

(i) Facilities will be designed and built so that any spilled or leaked materials are contained on-site; and

(ii) Facilities will be designed and built so that any spilled or leaked materials cannot infiltrate into the ground; and

(iii) No permanent disposal of any waste containing critical materials shall be allowed on-site.

(E) Commercial or industrial activities designated as critical materials use activities shall have specially designed and installed storm runoff drainage facilities in areas where spills might occur. Such facilities shall be designed and installed to:

(i) Prevent the comingling of storm runoff and critical materials spills; and

(ii) Enhance spill cleanup procedures.

(F) Mining activities in areas determined to have a medium or high vulnerability shall comply with the following conditions:

(i) Six-foot fencing shall be provided and maintained in good condition at all times in the following locations:

(a) Exterior boundary of any portion of any site on which active operations exist; and

(b) Exterior boundary of any portion of the site which has been mined and not yet rehabilitated;

(ii) No excavation within one hundred feet of a well or surface water used for potable drinking water;

(iii) No excavation into an aquifer used for potable drinking water is allowed;

(iv) The operators shall comply with all existing water quality monitoring regulations of WSDOE and the Chelan-Douglas health district;

(v) A drainage channel shall be constructed around active gravel pit areas to keep surface runoff from outside the pit excavation from entering the pit areas;

(vi) Fuel storage areas and service facilities shall incorporate provisions to prevent lubricants and petroleum products from contaminating either pit areas or drainage channels;

(vii) No liquid, asphalt, cement, or water used in a mining operation shall be disposed of in the bottom of a pit;

(viii) A protective eight-foot-high berm or retaining wall shall be required adjacent to property lines where the edge of a pit is within one hundred feet of a street or railroad right-of-way;

(ix) The use of fertilizers, pesticides, herbicides, and critical materials shall not be allowed within fifty feet of an active pit;

(x) A sufficient amount of topsoil or suitable material shall be retained on-site for re-vegetation/rehabilitation purposes;

(xi) Reclamation plans for these sites shall include:

(a) A specification of the amount of materials to be left between the aquifer high water mark (or elevation) and the final grade of the reclaimed site;

(b) Physical barriers, as required in subsection (6)(F)(viii) of this section, shall remain unless they are specifically permitted to be removed in a subsequent land use decision by the hearing body; and

(c) Provisions shall be made for limitations of access to, and activities within, the rehabilitated site until the use of the land is changed;

(xii) In rehabilitated gravel pits over an aquifer used for a potable water source, new uses requested for the property may be limited or specifically conditioned as determined by the appropriate hearing body;

(xiii) All mining activities shall be reclaimed per a reclamation plan approved by the Washington State Department of Natural Resources.

(7) Utilities. Utility facilities shall be reviewed and approved consistent with the requirements of subsection (6) of this section.

(8) Aboveground Application of Sewage or Sludge. Projects which involve application of sewage or sludge in areas determined to have a medium or high susceptibility to groundwater contamination shall provide hydrologic information and a management plan that identifies measures that effectively mitigate the threat to contamination; and shall conform to all other applicable state regulations.

(9) Residential Land Subdivisions. Residential land subdivisions regulated by this section shall be evaluated for their impact on groundwater quality. One or more of the following measures shall be required upon recommendation of the Chelan-Douglas health district:

(A) An analysis of the potential nitrate loading to the groundwater may be required to assess the impact on groundwater quality;

(B) Alternative site designs, phased development and/or groundwater quality monitoring will be required to reduce contaminant loading where site conditions indicate that the proposed action will measurably degrade groundwater quality;

(C) Open spaces may be required on development proposals overlying areas highly susceptible for contamination of groundwater resources;

(D) Community/public water systems, community drainfields, and hookup to public sewer systems (in conformance with the Chelan-Douglas health district requirements, the provisions of the sewer purveyor, and Chapter 36.70A RCW) are encouraged and may be required where site conditions indicate a high degree of potential contamination to individual wells from on-site or off-site sources. Where required, community systems shall be placed in the most favorable location for the prevention of groundwater contamination;

(E) Where wells are required to be abandoned, the applicant shall ensure that they are abandoned according to state guidelines;

(F) Known contaminants shall be removed from stormwater runoff prior to their point of entry into surface or groundwater resources using available and reasonable best management practices.

(10) Wood Treatment Facilities. Wood treatment facilities shall conform to the provisions of subsection (6) of this section. Wood treatment facilities that allow any portion of the treatment process to occur over permeable surfaces, both natural and manmade, are prohibited.

(11) Underground Injection Wells. Class I, III and IV injection wells are prohibited. Class II injection wells are permitted under Chapter 173-218 WAC by the Washington State Department of Ecology in conjunction with the Washington State Department of Natural Resources. Class V injection wells, involving the injection of critical materials, may be prohibited by the Washington State Department of Ecology or a permit may be required by said agency. In addition, commercial or industrial uses proposing the injection of critical materials are subject to the provisions of subsection (6) of this section. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

11.82.070 Subdivision notation.

In the event the applicant is dividing property through the short subdivision, major subdivision, binding site plan, plat alteration or amendment process, a notation shall appear on the face of the final plat mylar referencing the requirements of this chapter, as amended. (Res. 2007-97 (part), 7/2/07).

11.82.080 Reasonable use exemption.

Nothing in this chapter is intended to preclude reasonable use of property, or to effect a taking in violation of the U.S. Constitution, the State of Washington Constitution and substantive due process. Any landowner requesting relief from the performance standards in this chapter has the option to apply for a variance. The hearing examiner may grant variances as set out in Chapter 11.95 of this title. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

Annex A Critical materials use activity list.

Updated: June 15, 1999.

Type of Business	SIC Codes	Possible Critical Materials
Agricultural chemicals warehousing and distribution	2879	Ammonium
		Nitrate
		Sulfate
		Chloride
		Pesticides and herbicides
Aluminum manufacturing	3334 3341	Acetylene
		Alumina
		Aluminum fluoride
		Aluminum skim/dross
		Anthracite coal
		Asbestos
		Boiler additives
		Calcium carbonate
		Calcium fluoride
		Cast iron
		Chlorine
		Coal tar pitch

		Copper
		Diethylene glycol
		Ethylene glycol
		Ferro phosphorous
		Ferro silicon
		Gasoline and diesel fuels
		Hall cell bath
		Hydrocarbon solvents
		Kerosene
		Magnesium
		Mapp gas
		Methyl napthalene
		Miscellaneous cement constables, refractor
		Miscellaneous oils and waste oils
		Molten aluminum
		Paint thinners
		PCB oils
		Petroleum coke
		Potlining carbon w/ cryolite
		Reacted alumina
		Silicon
		Sodium
		Sodium carbonate
		Sodium hydroxide
		Spent potlining

Aluminum manufacturing (Continued)		Stoddard solvents
		Strontium
		Zinc
Asphalt paving companies	9999	Waste neugenic solvent, water and asphalt
Auto and home supply stores	5531	Evaporating wastewater
Chemical manufacturers	2813 2899	Chlorine
		Calcium oxychloride
		Sodium dichloroisocyanurate
		Trichloroisocyanuric acid
Concrete batch plants	3273	
Crop preparation services	0723	Liquid nitrogen
Deciduous tree fruit packing and storage	0175	Lab pack
		Liquid nitrogen
Dehydrated fruits, vegetables, soups processing	0715	Liquid nitrogen
Drycleaning and laundry establishments	7215 7216 7217	Drycleaning filters
		Drycleaning perc.
		Trichloroethene
		Tetrachloroethene
		Hydrocarbon solvents
Educational institutions	8221 8222	All chemicals that may be present in laboratory quantities
		Contaminated debris
		Cleaning solvents
		Lab pack
		Maintenance shop waste
		Mineral spirits

		Mixed lab bulk wastes
		Pesticide waste
		Shop bulks
Electrical and electronic industries and businesses	3612	Metal salts
	4911	3D supreme, breakthrough, sodium hydroxide
		Floor stripper
		Lead
		Mercury
		Mixed solvent/paint
		Solvent/paint waste
Electronic components and accessories companies	3677 3679 3825 3993 3678	Acetone
		Contaminated solvent
		Dehydrated rinse water and fire water
		Lead powder and ceramic manufacturing debris
		Residual liquids from solvent distillation
Farm supply distributors	5191	Farm chemicals and minerals used in the soil and on trees
		Gasoline and diesel fuel
		Petroleum distillates
		Kerosene
Forestry sciences lab	0811 0831 0851	Ammonium hydroxide
		Formaldehyde
		Hydrochloric acid
		Nitric acid
		Perchlonc acid
		Sodium hydroxide

Furniture reupholstery and repair businesses	7641	Methylene chloride
		Acetone
		Hydrocarbon solvents
		Paint-related products
Gasoline distribution	5541	Gasoline
		Diesel fuel
		Lubricating oils
		Ethylene glycol
		Methyl alcohol
General government, NEC	9199 9121 9111	Chlorine Lab pack
Gold and silver ore mining operations	1041	Dilute picric acid
		Hydrofluoric acid
		Monethanel amine
		Petroleum grease, 1,1,1—trichloroethane
		Petroleum naphtha
		Tetrabromoethane, arsenic solution
		Thiourea, lead acetate
		Waste bromine
		Waste corrosive solid
		Waste cyanides
		Waste flammable liquid
		Waste oxidizing substance
		Waste perchloric acid
		Waste substance which in contact with water emits flammable gases

Hardwood dimension and flooring mills industries	2646	NALKAT 7607
		NALSIZE 7542
		NOLCO 625
		NALSIZE 7541
		BUSPERSE 2168
		BL 2066
		BASF BASAZOL VIOLET 49L
		CASCAMID C-20
Hot mix asphalt plants	2951	
Industrial gases industries	2813	Chlorine
Land, mineral, wildlife conservation agencies	9512	Formaldehyde
Logging, commercial	2411	Spent parts washing solvent
		Spent Safety-Kleen Stoddard solvent
Machinery, equipment and supplies sales and repair	5082 5084 7699	Mineral spirits, parts cleaning solvent
Manufacturing industries, NEC	3999	Paint-related material, stains, lacquers, latex coatings
		Paint sweepings
		Still bottoms
		Waste solvent from Safety-Kleen and painting operations
Medical and veterinary facilities	0742 8062 8069 8071	Mono and polycyclic Prescription drugs Biological contaminants
Metal fabrication	3441 3442 3444	Metal salts (Cr, Cu, Ni and Zn)
		Hydrochloric acid

		Sulfuric acid
		Hydrocarbon solvents
		Xylene
		Caustic soda
		Sodium phosphate
		Sodium hydroxide
New and used car sales and repair shops	2992 5511 753	Benzene
		Evaporating waste water
		Lead
		Oil
		Paint booth filters
		Paint materials and waste bottoms
		Paint waste and bottoms
		Solvent mineral spirits
		Solvent tank cleaner—Parts washer
		Tetrachloroethylene
		Xylene
Paint distributors	2851	Phthalate esters
		Methylene chloride
		Methyl ethyl ketone
		Hydrocarbon solvents
Petroleum products production and storage: bulk distribution of petroleum products	5171 5172	Diesel fuel and heating oil
		Lubricating oils
		Ethylene glycol
		Methyl alcohol

Photo copying and duplicating services	7333 7334 7335	Silver salts
		Phenols
		Cyanide
		Aromatic hydrocarbons
Plastics foam products packaging	3086	Absorbent for ink
		Acetone
		Aqueous cleaner
		Electrical transformer waste
		Lead
		Lighting ballasts (non-PCBs)
		Mercury
		Paint-related material
		Petroleum naphtha
		Polypropylene absorbent for oil and paint
		Toluene
		Waste ink
		Waste oils and solvents
		Waste pentane
		Xylene
Printing establishments	2711 2752 2761	Silver salts
		Phenols
		Cyanides
		Tetrachloroethene
Research and testing services	8734	Inorganic waste leaf, soil, and water analysis
		Lab solvents, pesticide residue analysis

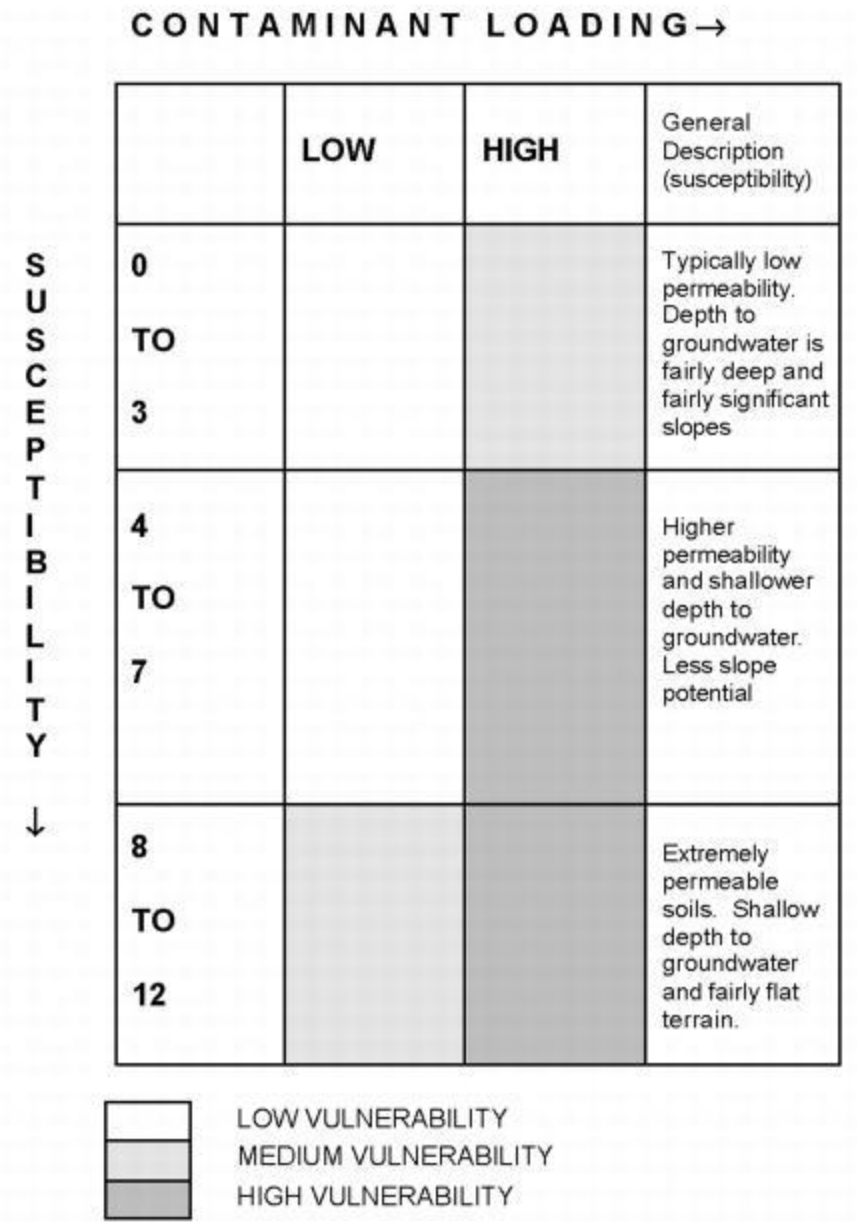
		Sample vials, pesticide residue analysis
		Solvent wastes from glassware prep and pesticide residue analysis
		Soil and sludge sample retains pesticide residue and metals analysis
Sand and gravel mines	1442	
Saw mills and planing mills	242	Spent parts washing solvent
		Spent Safety-Kleen Stoddard solvent
Secondary metals refining	3341	Metal salts (Al, Cr, Zn)
		Chloride
		Sulfate
Solvent recycling	2911	1.1.1-Trichloroethane
		Trichloroethene
		Tetrachloroethene
Trucking companies and bus terminal and service facilities	4171 4172 4231	Gasoline and diesel
		Hydrocarbon solvents
		Ethylene glycol
		Caustic soda cleaning solution
		Hydrocarbon solvents
Quarries	1429	

Source: WSDOE Tier 2, RCRIC and Hazardous Waste Handlers Lists for Chelan County. Lists transmitted by WSDOE May—June, 1998.

(Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

Annex B Vulnerability matrix.

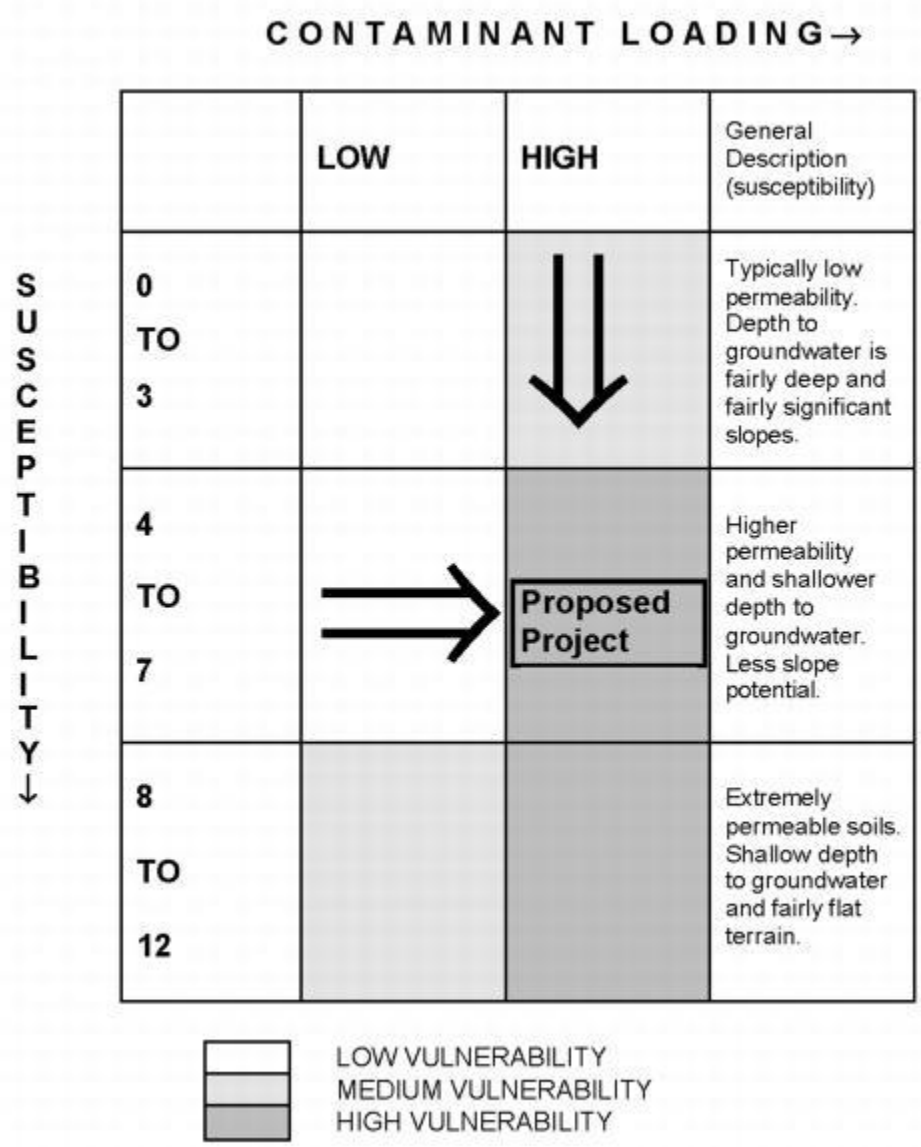
Table I



The susceptibility and contaminant loading ratings for the proposed use and site should be marked at each axis. The vulnerability of the site is then determined by the intersection of the susceptibility rating and the contaminant loading rating to be either low, medium, or high. For example, the project site has a susceptibility rating of six and the proposed use has a high contaminant loading rating. The intersection of those two factors shows that the proposed project would have a medium vulnerability rating. See Table II for a graphic display of the example.

Vulnerability Matrix Example

Table II



(Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

Chapter 11.84 FREQUENTLY FLOODED AREAS OVERLAY DISTRICT (FFOD)

Sections:

11.84.010 Classification.

Those areas located within the one-hundred-year floodplain as defined by the Federal Emergency Management Agency are classified as frequently flooded areas. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

11.84.020 Designation.

Best available science will be used in the designation of the county's frequently flooded areas. The flood insurance rate maps (FIRM) and floodway maps along with the Flood Insurance Study—Chelan County prepared by the National Flood Insurance Program (NFIP) are adopted as the formal designation for frequently flooded areas. Upon review and approval by the county, subsequent studies delineating the boundaries of the floodways and floodway fringe areas of the one-hundred-year floodplains for the county, or portion thereof, shall constitute the best available science and be utilized as the official designation information for frequently flooded areas. A review committee comprised of the directors of the department of building, fire safety and planning, and the public works department shall review each set of new information to make a recommendation to the Chelan County board of commissioners whether it should be adopted as new designation criteria. Before final adoption, this will be distributed for public and agency review.

When base flood elevation data is not available from the above information to designate frequently flooded areas, the above-defined review committee shall obtain, review and reasonably utilize any base flood elevation data and floodway data available from federal and state governmental agencies or other sources including but not limited to historical data, high water marks or photographs of past flooding to make the appropriate designations. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

11.84.030 Protection measures.

(1) New lots may be created within frequently flooded areas, provided:

(A) A designated buildable area in each lot is provided for outside the floodway and is identified on the face of the final plat, short plat or binding site plan mylar;

(B) All improvements, including parking areas, are located outside the floodway;

(C) Roads necessary to access permitted improvements may cross the floodway if no reasonable route exists outside the floodway;

(D) Open space lots may be located within the one-hundred-year floodplain.

(2) No residential structures may be built or placed within a designated floodway;

(3) Development in frequently flooded areas within Chelan County currently must comply with the development regulations contained within this section~~, Chapter 11.78, Chapter 11.80~~ and the provisions below. Where there is a conflict between any of these regulations, the more restrictive standards shall apply: [Stricken sections do not apply where VSP applies.]

(A) Chelan County Code, "Chapter 3.20: Flood Hazard Development," Resolution 96-22 (part), February 27, 1996, as amended;

(B) Chelan County shoreline master program, as amended. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00). [See Section 4.3 of Work Plan for applicability of VSP in shoreline jurisdiction.]

11.84.040 Subdivision notation.

In the event the applicant is dividing property through the short subdivision, major subdivision, binding site plan, or plat alteration process, a notation shall appear on the face of the final plat referencing the requirements of this chapter, as amended, and the delineated floodway and floodway fringe of the one-hundred-year floodplain shall be shown. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

11.84.050 Reasonable use exemption.

Nothing in this chapter is intended to preclude reasonable use of property, or to effect a taking in violation of the U.S. Constitution, the State of Washington Constitution and substantive due process. (Res. 2007-97 (part), 7/2/07: Res. 2000-129 (part), 10/17/00).

Chapter 3.20 FLOOD HAZARD DEVELOPMENT*

Sections:

Article VIII. Enforcement, Variances and Penalties

* Prior resolution history: Res. 81-11, 2/3/81.

Article I. General Provisions

3.20.010 Title.

This resolution and amendments thereto shall be known and may be cited as "The Chelan County Flood Hazard Development Code." (Res. 99-91 (part), 7/6/99: Res. 89-56 § 100, 5/30/89).

3.20.020 Applicability.

The provisions contained herein shall be applicable to land within the unincorporated areas of Chelan County that have been designated as flood hazard areas as defined in Article II of this chapter. (Res. 99-91 (part), 7/6/99: Res. 89-56 § 102, 5/30/89).

3.20.030 Exemptions.

The following uses and activities are exempt from the provisions of this chapter:

(1) The alteration or substantial improvement of any structure listed on the National Register of Historic Places or a state inventory of historic places.

(2) The maintenance of aboveground utility transmission lines and poles.

(3) Private driveways, fences, and other accessory activities and/or uses that do not include structures which the administrator determines will not: unduly decrease flood storage or capacity, significantly restrict floodwaters, create a substantial impoundment of debris carried by floodwaters, and will resist flotation and collapse.

(4) Normal agricultural practices that do not include structures involving plowing, storing of materials, etc., normal to operation of a farm. (Res. 2003-70 (part), 5/27/03; Res. 99-91 (part), 7/6/99: Res. 89-56 § 104, 5/30/89).

3.20.040 Purpose.

It is the purpose of this chapter to promote the general public health, safety, and welfare, and to minimize public and private losses due to flood conditions in specific areas, by providing standards designed to:

(1) Protect human life and health;

(2) Minimize expenditure of public moneys and reduce the need for uneconomical flood control projects;

(3) Minimize the need for rescue and relief efforts associated with flooding and usually undertaken at the expense of the general public;

(4) Minimize prolonged business interruptions;

(5) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, and sewer lines; and streets and bridges located in flood hazard areas;

(6) Help maintain a stable tax base by providing for the sound use and development of flood hazard areas so as to minimize future flood loss;

(7) Ensure that potential buyers are aware that the property is located in a flood hazard area;

(8) Ensure that those who occupy the flood hazard areas assume responsibility for their own actions; and

(9) Satisfy the requirements established by the Federal Emergency Management Agency as failure to do so would jeopardize federal financial support to the county and its citizens. (Res. 99-91 (part), 7/6/99: Res. 89-56 § 106, 5/30/89).

3.20.050 Warning and disclaimer of liability.

This chapter does not imply that the lands outside of flood hazard areas, or uses permitted within such areas, shall be free from flooding or flood damage, nor does this chapter imply that the compliance herewith or related resolutions will in all instances protect property from flood damage. This resolution shall not create liability on Chelan County, or any officer or employee thereof, for any flood damage that results from reliance on this resolution or any administrative decision lawfully made thereunder. (Res. 99-91 (part), 7/6/99: Res. 89-56 § 108, 5/30/89).

3.20.060 Interpretation.

In the interpretation and application of this resolution, all provisions shall be considered as minimum requirements, shall be liberally construed in favor of Chelan County, and deemed neither to limit or repeal any other powers granted under state statutes. Further, this resolution is not intended to repeal, abrogate, or diminish the effect of any existing easement, covenant, or deed restriction. However, where conditions imposed by this resolution are less restrictive than comparable conditions imposed by any other resolutions or regulations, the provisions which are more restrictive shall apply. (Res. 99-91 (part), 7/6/99: Res. 89-56 § 110, 5/30/89).

3.20.070 Administrator.

The director of the Chelan County department of community development, or designated representative, hereinafter referred to as the administrator, is vested with the duty of administration of the provisions of this chapter within the unincorporated area of Chelan County, and shall prepare and require the use of such forms deemed appropriate for the proper administration of these requirements. (Res. 2016-18 (Att. A) (part), 3/1/16: Res. 99-91 (part), 7/6/99: Res. 89-56 § 112, 5/30/89).

3.20.080 Flood hazard areas established.

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report titled “The Flood Insurance Study for Chelan County” dated February 4, 1981, and revised September 30, 2004, with accompanying flood insurance rate maps dated February 4, 1981, June 5, 1989, July 2, 2002, and September 30, 2004, and any subsequent revisions thereto are hereby adopted by reference and declared to be part of this chapter. The flood insurance study is on file at the Department of Community Development, 316 Washington Street, Suite 301, Wenatchee, Washington 98801.

The board of county commissioners adopts the Federal Emergency Management Agency’s modified BFEs and revised map panels 5300115 0625 D, 0779 D, 0800 D, 2730 D, 2740 D, 2745 D, 2763 D, 2764 D, and 2768 D, dated September 30, 2004, for the unincorporated areas of Chelan County, Washington. (Res. 2016-18 (Att. A) (part), 3/1/16: Res. 2004-114, 9/27/04: Res. 2003-70 (part), 5/27/03: Res. 2002-92, 7/1/2002: Res. 99-91 (part), 7/6/99: Res. 89-56 § 114, 5/30/89).

3.20.090 Severability.

Should any section, paragraph, sentence, or word of this chapter, or of any of the code and resolutions herein referenced, or the application to any person or circumstances be held invalid in a court of competent jurisdiction for any reason, the remainder of this chapter or the application of the provision to other persons or circumstances shall not be affected. (Res. 99-91 (part), 7/6/99: Res. 89-56 § 700, 5/30/89).

Article II. Definitions

3.20.100 Definitions.

Whenever the following words and phrases appear in this chapter, they shall be given the meanings attributed to them by this section. When not inconsistent with the context, words used in the present tense shall include the future; the singular shall include the plural, and the plural the singular; the word “shall” is always mandatory and the word “may” indicates a use of discretion in making a decision.

"Administrator" shall mean the director of the Chelan County department of building, fire safety and planning, or his designated representative, who is vested with the duty of administering the provisions of this chapter.

"Appeal" means a request for review of the administrator's interpretation of any provisions of this chapter.

"Area of shallow flooding" shall mean a designated AO zone on the flood insurance rate map (FIRM). Those areas are characterized by base flood depths ranging from one to three feet; the lack of a clearly defined channel; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident.

"Area of special flood hazard" is the land in the floodplain within Chelan County subject to a one percent or greater chance of flooding in any given year. Designation on flood insurance rate maps (FIRMs) always includes the letter A.

"Base flood" means the flood having a one percent chance of being equaled or exceeded in any given year.

"Base flood elevation (BFE)" means that elevation determined by the Federal Emergency Management Agency to which floodwater can be expected to rise during a base flood.

"Basement" means any area of the building having its floor subgrade (below ground level) on all sides.

"Crawl space" is an area defined as having an unfinished floor, ranging between one and four feet in height, located beneath the lowest habitable floor of a structure and intended to provide access for foundation and plumbing inspections or repairs.

"Critical facility" means a facility for which even a slight chance of flooding may be too great. Critical facilities include but are not limited to schools, nursing homes, hospitals, police, fire and emergency response installations, installations which produce, use, or store hazardous materials or hazardous waste.

"Development" means any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard.

"Excavation" is the mechanical removal of earth material.

"Fill" is a deposit of earth material placed by artificial means.

"Flood or flooding" means the general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of waters and/or the unusual rapid accumulation of surface runoff.

"Flood Insurance Rate Map (FIRM)" means the official map on which the Federal Insurance Administration has delineated both the flood hazard areas and the risk premium zones applicable to Chelan County.

"Flood Insurance Study (FIS)" means the official report provided by the Federal Insurance Administration that includes flood profiles, flood boundary and floodway maps, and the water surface elevation of the base flood.

"Floodway" means the channel of the river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

"Highest adjacent grade" means the highest natural elevation of the ground surface prior to construction next to the proposed walls of the structure.

"Lowest floor" means the lowest floor of the lowest enclosed area, including basement. An unfinished or flood resistant enclosure, useable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered the lowest floor of a building; provided, that such enclosure is not built so as to render the structure in violation of the applicable nonelevation requirements of Section 3.20.210.

"Manufactured home" means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities and certified as approved as such by the state of Washington Department of Labor and Industries as evidenced by the attachment of a

red seal (or a Department of Housing and Urban Development (HUD) black and white label if built on or after June 15, 1976). The term "manufactured home" does not include a "recreational vehicle."

"Manufactured home park" means a lot, parcel, or tract of land, improved or unimproved, upon which two or more manufactured homes occupied for dwelling or sleeping purposes are located in compliance with the Chelan County zoning Resolution 153-E.

"Manufactured home subdivision" means a parcel or parcels of land divided in conformance with Title 12 of the Chelan County Code into two or more manufactured home lots for rent or sale.

"Recreational vehicle" means a vehicle which is: (1) built on a single chassis; (2) four hundred square feet or less when measured at the largest horizontal projection; (3) designed to be self-propelled or permanently towable by a light duty truck; and (4) designed primarily not for use as a permanent dwelling but as a temporary living quarters for recreational, camping, travel, or seasonal use.

"Start of construction" includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within one hundred eighty days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

"Structure" is that which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner. This term shall include manufactured homes and gas or liquid storage tanks that are principally above ground.

"Substantial improvement" means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty percent of the market value of the structure either before the improvement or repair is started, or if the structure has been damaged by any means and is being restored, before the damage occurred. For the purposes of this definition "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term can exclude the following: (1) any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the administrator and which are the minimum necessary to assure safe living conditions, or (2) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places; provided, that the alteration will not preclude the structure's continued designation as a historic structure.

"Variance" means a grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise by prohibited by this chapter.

"Water dependent" means a structure for commerce or industry which cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations. (Res. 2016-18 (Att. A) (part), 3/1/16; Res. 2003-70 (part), 5/27/03; Res. 99-91 (part), 7/6/99: Res. 96-22 (part), 2/27/96; Res. 89-56 § 200, 5/30/89).

Article III. Conformance with Adopted Standards

3.20.110 Compliance required.

A development permit shall be obtained before construction or development begins within any area of special flood hazard established in this chapter. The permit shall be for all structures including manufactured homes, as set forth in Section 3.20.100, Definitions, and for all development including fill and other activities, also set forth in Section 3.20.100, Definitions. (Res. 2003-70 (part), 5/27/03: Res. 99-91 (part), 7/6/99: Res. 89-56 § 300, 5/30/89).

3.20.120 Information to be submitted.

The following information shall be submitted to the administrator in order to apply for a development permit prior to undertaking any development or substantial improvement in the flood hazard area. These items shall be submitted in addition to that information necessary to obtain other permits, as well as for those developments and substantial improvements which require no other permit approvals.

(1) The nature, location, dimensions, and elevations of the project site;

(2) Typical cross-sections showing both existing ground elevations, proposed ground elevations, height of existing structures, and height of proposed structures;

(3) Where appropriate, proposed land contours if development involves grading, cutting, filling or other alterations of land contours. When required, contours shall be at two-foot intervals for land with a slope of zero to five percent and five-foot intervals for land with a slope of five percent and greater;

(4) Dimensions and locations of existing structures which will be maintained;

(5) Dimensions and locations of proposed structures;

(6) Identify the source, composition and volume of fill materials;

(7) Identify composition and volume of any excavated materials and identify proposed disposal area;

(8) Location and proposed utilities such as sewer, septic tank, drainfield, water, gas and electricity;

(9) The elevation in relation to mean sea level of the lowest habitable floor of all structures as certified by a registered professional engineer, architect, or licensed land surveyor;

(10) Description of the extent to which any watercourse is proposed for alteration or relocation as the result of a proposed development;

(11) Location and elevation of the floodway and base flood. (Res. 99-91 (part), 7/6/99: Res. 89-56 § 302, 5/30/89).

3.20.130 Administrative review.

The administrator shall review information submitted for development permits to determine the following:

(1) The requirements of this chapter have been satisfied;

(2) All necessary permits which require prior approval have been obtained from federal, state or local government agencies;

(3) If the proposed development is located in the floodway, assure that the provisions of Chapter 11.84, as amended, of the Chelan County Zoning Code, and Chelan County Subdivision Resolution, Section 12.40.080 are met. (Res. 2003-70 (part), 5/27/03; Res. 99-91 (part), 7/6/99: Res. 96-22 (part), 2/27/96: Res. 89-56 § 304 5/30/89).

Article IV. Administration and Appeals

3.20.140 Administrator's responsibilities.

It shall be the duty of the administrator or the administrator's designee to grant or deny development permits; make interpretations as to the exact location of the boundaries of flood hazard areas, and to:

(1) Obtain and record the actual (as-built) elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.

(2) For all new or substantially improved floodproofed nonresidential structures:

(A) Verify and record the actual elevation (in relation to mean sea level); and

(B) Maintain the floodproofing certifications required in this chapter.

(3) Maintain for public inspection all records pertaining to the provisions of this chapter.

(4) Notify adjacent communities and the Washington State Department of Ecology prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration. The administrator shall require that provisions are made for maintenance within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished. (Res. 2016-18 (Att. A) (part), 3/1/16: Res. 2003-70 (part), 5/27/03: Res. 99-91 (part), 7/6/99: Res. 89-56 § 400, 5/30/89).

3.20.150 Appeals.

A request for review may be filed with the administrator when it is alleged that there is an error in a requirement, decision or determination made by the administrator in the enforcement or administration of this resolution. The Chelan County hearing examiner shall consider such a request at a public meeting. In passing upon such applications, the hearing examiner shall consider all technical evaluations, all relevant factors, standards specified in other sections of this chapter, and the provisions of Article VIII, Section 3.20.320(2)(A)(i) through (xi). (Res. 2003-70 (part), 5/27/03: Res. 99-91 (part), 7/6/99: Res. 89-56 § 402, 5/30/89).

Article V. Improvement Standards

3.20.160 General.

The standards contained herein are the minimum consistent with the protection of the general public health, safety, and welfare and shall apply to all designated flood hazard areas. (Res. 99-91 (part), 7/6/99: Res. 89-56 § 500, 5/30/89).

3.20.170 Anchoring.

All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure, and shall be installed using methods and practices that minimize flood damage. All manufactured homes shall be anchored to resist flotation, collapse, or lateral movement by providing over-the-top and frame ties to ground anchors; provided however, that double-wide units having a width of seventeen feet or more from end to end, and any units manufactured since 1976 that have been certified in compliance with the construction standards of the Department of Housing and Urban Development, require only frame ties.

Anchoring requirements for manufactured homes are as follows:

(1) Over-the-top ties shall be provided at the end of each manufactured home. Two additional over-the-top ties shall be provided at intermediate locations for manufactured homes greater than fifty feet in length while those units less than fifty feet in length shall require one additional over-the-top tie.

(2) Frame ties shall be provided at each corner of a manufactured home. Five additional frame ties shall be provided at intermediate locations for manufactured homes greater than fifty feet in length while those units less than fifty feet in length shall require four additional frame ties.

(3) All components of the anchoring system shall be capable of carrying a force of four thousand eight hundred pounds as certified by a registered professional engineer or manufacturer’s specifications.

(4) Any additions to a manufactured home shall be similarly anchored. (Res. 2016-18 (Att. A) (part), 3/1/16: Res. 99-91 (part), 7/6/99: Res. 89-56 § 502, 5/30/89).

3.20.180 Construction materials and methods.

All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage and shall be constructed with materials and utility equipment resistant to flood damage. Electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding. (Res. 99-91 (part), 7/6/99: Res. 89-56 § 504, 5/30/89).

3.20.190 Utilities.

The following standards shall apply to all utilities within the flood hazard area:

(1) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system. Proposed water wells shall be located on high ground that is not in the floodway;

(2) Manhole covers shall be designated so as to seal themselves, thereby preventing infiltration of floodwaters;

(3) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration by floodwaters into the system and prevent the discharge from the sewage systems into floodwaters and contamination during flooding. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding. The compliance with these requirements shall be as directed by the Chelan Douglas Health District;

(4) All utility systems shall be underground except where the presence of bedrock or other obstructions makes undergrounding prohibitive; provided, that electric transmission lines in excess of fifteen KV are exempt from undergrounding. (Res. 2016-18 (Att. A) (part), 3/1/16: Res. 99-91 (part), 7/6/99: Res. 89-56 § 506, 5/30/89).

3.20.200 Use of other base flood data.

When base flood elevation data has not been provided in accordance with Section 3.20.080, Flood hazard areas established, the administrator shall obtain, review and reasonably utilize any base flood elevation data and floodway data available from a federal, state or other source, in order to administer Article V, Improvement Standards, Sections 3.20.160 through 3.20.250, including Section 3.20.240, Regulatory floodways. (Res. 2003-70 (part), 5/27/03: Res. 99-91 (part), 7/6/99: Res. 96-22 (part), 2/27/96).

3.20.210 Construction activities.

(a) Residential Construction. New construction or substantial improvement of any residential structure shall require the lowest floor including basement to be elevated to three feet or higher above the base flood elevation (BFE). Where new construction or substantial improvement is to occur in a flood hazard area designated as an AO zone, the lowest floor including basement shall be elevated above the highest adjacent grade of the building site, to one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified). Where hazardous velocities are noted on the FIRM consideration shall be given to mitigating the effects of these velocities in proper construction techniques and methods. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

(1) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

(2) The bottom of all openings shall be no higher than one foot above grade.

(3) Openings may be equipped with screens, louvers or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters.

(4) In an AO zone adequate drainage paths shall be provided on slopes to guide floodwaters around and away from proposed structures.

(b) Nonresidential Construction. New construction or the substantial improvement of any commercial, industrial or other nonresidential structure shall require the lowest floor, including basement, to be elevated to or above one foot higher than the base flood elevation (BFE). Where new construction or substantial improvement is to occur in a flood hazard area designated as an AO zone, the lowest floor including basement shall be elevated above the highest adjacent grade of the building site, to one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified). Where hazardous velocities are noted on the FIRM consideration shall be given to mitigating the effects of these velocities in proper construction techniques and methods. As an alternative to the elevation of nonresidential structures, such structures, with attendant utility and sanitary facilities, shall:

(1) Be floodproofed so that below one foot above the base flood level the structure is watertight with walls substantially impermeable to the passage of water;

(2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;

(3) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions of this section based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to and maintained by the administrator;

(4) Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as provided in subsection (a)(1) through (3) of this section;

(5) Applicants who are floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g., a building floodproofed to the base flood level will be rated as one foot below). (Res. 2016-18 (Att. A) (part), 3/1/16: Res. 99-91 (part), 7/6/99: Res. 96-22 (part), 2/27/96; Res. 89-56 § 510, 5/30/89).

3.20.220 Grading and filling.

No fill, including fill for roads, and levees; grading; or excavating that unduly affects the efficiency or the capacity of the channel or floodway, or unduly decreases flood storage or increases flood heights, shall be permitted. Any fill proposed to be deposited in a flood hazard area shall not be contrary to the need for storage of floodwater nor shall the amount of fill proposed be greater than is necessary to achieve the purpose for which the fill is intended. Fill materials shall be clean with a minimum potential for degrading water quality. All fill materials shall be protected against erosion with retaining walls or other mechanisms to deter erosions. If vegetative cover is chosen, the side slopes of the fill should not exceed two units of horizontal distance to one unit of vertical distance. (Res. 99-91 (part), 7/6/99: Res. 89-56 § 512, 5/30/89).

3.20.230 Manufactured homes and recreational vehicles.

The following standards shall be applicable for all new or replacement manufactured home installations and for any existing manufactured home which has incurred substantial damage as the result of flood.

(1) Manufactured homes in designated zones A1 through A30, AH, AE and AO shall be elevated on a permanent foundation consisting of a minimum of reinforced concrete footings and piers such that the lowest floor of the manufactured home is elevated to at least three feet above the base flood elevation and adequately anchored to resist flotation, collapse and lateral movement. In flood hazard areas designated as an AO zone the lowest floor of the manufactured home shall be elevated above the highest adjacent grade of the building site, to one foot or more above the depth number specified on the FIRM. Where hazardous velocities are noted on the FIRM, consideration shall be given to mitigating the effects of these velocities through engineering design.

(2) All recreational vehicles located in designated zones A1 through A30, AH, AE and AO shall not be located in the flood hazard area for more than one hundred eighty consecutive days unless parked at an occupied single-family residence and must be licensed and ready for highway use, on its wheels or jacking system, attached to sites only by quick disconnect type utilities and security devices, and have no permanently attached additions. Recreational vehicles that do not meet these requirements must meet the elevation and anchoring requirements for manufactured homes. (Res. 2016-18 (Att. A) (part), 3/1/16: Res. 2003-70 (part), 5/27/03: Res. 99-91 (part), 7/6/99: Res. 96-22 (part), 2/27/96: Res. 89-56 § 514, 5/30/89).

3.20.240 Regulatory floodways.

Development within a regulatory floodway is prohibited as follows:

(1) Encroachments are prohibited, including fill, new construction, substantial improvements, or other development unless certification by a registered professional engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment will not result in any increase in flood levels during the occurrence of the base flood discharge.

(2) Construction or reconstruction of residential structures is prohibited within designated floodways, except for (A) repairs, reconstruction, or improvements to a structure which do not increase the ground floor area; and (B) repairs, reconstruction or improvements to a structure, the cost of which does not exceed fifty percent of the market value of the structure either (i) before the repair or reconstruction is started, or (ii) if the structure has been damaged, and is being restored, before the damage occurred. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the administrator and which are the minimum necessary to assure safe living conditions, or to structures identified as historic places, may be excluded in the fifty percent.

(3) If subsection (1) of this section is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of this article. (Res. 2016-18 (Att. A) (part), 3/1/16: Res. 2003-70 (part), 5/27/03: Res. 99-91 (part), 7/6/99: Res. 89-56 § 516, 5/30/89).

3.20.250 Critical facilities.

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the base floodplain. Construction of new critical facilities shall be permissible within the base floodplain if no feasible alternative site is available. Critical facilities constructed within the base floodplain shall have the lowest floor elevated to three feet or more above the level of the same flood elevation at the site. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base floodplain shall be provided to all critical facilities to the extent possible. Compliance with these requirements must be certified by a registered professional engineer or architect. (Res. 99-91 (part), 7/6/99: Res. 89-56 § 518, 5/30/89).

Article VI. Subdivision Proposals

3.20.260 Subdivisions.

(a) All subdivision proposals shall be consistent with the need to minimize flood damage;

(b) All subdivision proposals shall locate and construct public/private utilities to minimize flood damage;

(c) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and

(d) Where base flood elevation data has not been provided or is not available from another authorized source, it shall be generated for subdivision proposals and other proposed developments.

(e) Pursuant to Section 12.40.080 of this code, no subdivision or part thereof shall be approved if related improvements such as levees, fills, or other features will individually or collectively significantly increase flood flows, heights, velocities or potential for damage. All subdivisions shall be consistent with and in conformance with the requirements of this chapter.

(f) If a subdivision or portion thereof lies within the one-hundred-year floodplain, conformance with all applicable local, state and federal requirements shall be required including, but not limited to, this chapter, the Chelan County zoning resolution, the Chelan County subdivision resolution, and the Chelan County shoreline master program. (Res. 2003-70 (part), 5/27/03).

Article VII. Review of Building Permits

3.20.270 Building permits.

Where elevation data is not available either through the flood insurance study or from another authoritative source identified in this chapter, applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. (Res. 2003-70 (part), 5/27/03).

Article VIII. Enforcement, Variances and Penalties

3.20.280 Violations and fines.

It is unlawful for a person, firm, or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, equip, use, occupy, or maintain any building, structure, or activity or cause or permit the same to be done, in violation of this chapter. (Res. 2003-70 (part), 5/27/03; Res. 99-91 (part), 7/6/99: Res. 89-56 § 600, 5/30/89. Formerly 3.20.260).

3.20.290 Action to restrain violations.

Whenever any development is being undertaken contrary to the provisions of this chapter, the administrator shall order the work stopped on the development by serving notice in writing on any persons engaged in or causing such work to be done; and any such person shall stop such work until authorized by the administrator to proceed. If the violation still continues or is still in effect, the matter shall be referred to the Chelan County code enforcement officer, hearing examiner, and/or prosecuting attorney who shall commence action to restrain and enjoin further activities in violation of this chapter. (Res. 2003-70 (part), 5/27/03: Res. 99-91 (part), 7/6/99: Res. 89-56 § 602, 5/30/89. Formerly 3.20.270).

3.20.300 Permits prohibited.

No building permit, septic tank permit, or land use permit shall be issued, nor shall service from the Chelan County Public Utility District #1 be connected, to any development or activity in violation of this chapter. (Res. 2003-70 (part), 5/27/03; Res. 99-91 (part), 7/6/99: Res. 89-56 § 604, 5/30/89. Formerly 3.20.280).

3.20.310 Penalties.

Any person, firm or corporation violating any provisions of this chapter shall be subject to enforcement action and penalties pursuant to the enforcement and violation provisions of the Chelan County Code. (Res. 2003-70 (part), 5/27/03: Res. 99-91 (part), 7/6/99: Res. 89-56 § 606, 5/30/89. Formerly 3.20.290).

3.20.320 Variance procedure.

The hearing examiner is authorized to grant variances from the requirements of this chapter subject to the following general and specific requirements. The hearing examiner may attach such conditions to the granting of variances as deemed necessary to further the purposes of this chapter.

(1) General Requirements. No variance shall be granted unless it can be shown that all of the following conditions exist:

(A) The variance is necessary for the preservation of a property right of the applicant substantially the same as is possessed by owners of other property in the same neighborhood or district and shall not constitute a grant of special privilege.

(B) The plight of the applicant is due to unique circumstances such as topography, lot size or shape, or size of buildings, over which the applicant has no control.

(C) The hardship asserted by the applicant is not the result of the applicant's or the owner's action.

(D) The authorization of the variance shall not be materially detrimental to the public welfare and safety, to the purposes of this chapter, be injurious to the property in the same district or neighborhood in which the property is located, or be otherwise detrimental to the objectives of the comprehensive plan.

(E) The hardship asserted by the applicant results from the application of this chapter to the property.

(2) Specific Requirements.

(A) Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing that the following items have been fully considered:

(i) The danger that materials may be swept onto other lands to the injury of others;

(ii) The danger to life and property due to flooding or erosion damage;

(iii) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

(iv) The importance of the services provided by the proposed facility to the community;

(v) The necessity to the facility of a waterfront location, where applicable;

(vi) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;

(vii) The compatibility of the proposed use with existing and anticipated development;

(viii) The relationship of the proposed use to the comprehensive plan and floodplain management program for the area;

(ix) The safety of access to the property in times of flood for ordinary and emergency vehicles;

(x) The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and

(xi) The costs of providing government services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

(B) Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in this section.

(C) Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.

(D) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

(E) Variances shall only be issued upon:

(i) A showing of good and sufficient cause;

(ii) A determination that failure to grant the variance would result in exceptional hardship to the applicant;

(iii) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

(F) Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.

(G) Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry-flood proofing, where it can be determined that such action will have low damage potential, complies with all variance criteria and the general standards of this chapter.

(H) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with the lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation. (Res. 2003-70 (part), 5/27/03).

APPENDIX G. ROLE OF TECHNICAL PROVIDERS

1.0 OVERVIEW

The Voluntary Stewardship Program (VSP) places emphasis on outreaching through technical assistance providers that support agricultural operators in the watersheds as a work plan is prepared to develop goals and benchmarks to protect critical areas and maintain and enhance agriculture.

Work plans created under the program are in turn required to designate one or more entities to provide technical assistance to help operators develop or implement individual stewardship plans to contribute to the goals and benchmarks of the work plan. (RCW 36.70A.720). Though their participation is voluntary, "Agricultural operators implementing an individual stewardship plan consistent with a work plan are presumed to be working toward the protection and enhancement of critical areas." RCW 36.70A.750. Some of the goals and benchmarks will address participation. Some will address protecting critical areas (avoiding further degradation of critical area functions and values existing as of July 22, 2011 for a particular critical area). Some will address promotion of voluntary incentive-based critical area enhancements (to improve upon the July 22, 2011 protection baseline). Some will address maintaining and enhancing a viable agricultural industry.

Key federal, state, county, and nonprofit technical providers operating in Chelan County, include, but are not limited to:

- Cascadia Conservation District
- Chelan County Natural Resources Department
- United States Department of Agriculture, Natural Resources Conservation Service
- Washington State University Extension

These providers provide direct assistance to agricultural operators in the County to address conservation practices that improve the environment and help productivity. The following table summarizes the key technical assistance the listed agencies provide.

Table 1. Summary of Key Technical Assistance Providers in Chelan County

Agency	Highlighted Technical Assistance Programs
Cascadia Conservation District (CCD) http://cascadiacd.org/	Landowner Assistance Program - Countywide: CCD can pay up to 50% of the total project cost for irrigation-related projects and up to 75% of the total project cost for forest health and riparian practices. Wenatchee Watershed Water Quality Improvement Program: Soil testing and associated technical assistance for nutrient planning for citizens with livestock, agricultural land or residential lawns; riparian plantings of native trees and shrubs; pasture health and riparian livestock exclusion fencing. CCD is the designated Lead Agency for administering and coordinating the watershed planning processes for the Entiat Basin (WRIA 46).

Agency	Highlighted Technical Assistance Programs
Chelan County Natural Resources Department (CCNRD) http://www2.co.chelan.wa.us/nr/	Chelan County is the designated Lead Agency for administering and coordinating the watershed planning processes for the Stemilt/Squilchuck (WRIA 40a), Wenatchee (WRIA 45) and Chelan (WRIA 47) Watersheds. CCNRD develops and implements with willing landowners fish passage barrier removal and habitat complexity projects coordinated with Upper Columbia Salmon Recovery Planning Board.
United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) http://www.usda.gov/wps/portal/usda/usdahome	NRCS offers the Natural Resource Conservation Planning Program, where its staff work with agricultural operators to assess conditions on their property, help identify conservation practices that can ameliorate environmental conditions affecting the operation (e.g. erosion), and monitor practices. Conservation practices are designed for local property conditions following a site specific assessment. The NRCS has developed objectives and standards for numerous conservation practices addressing common agricultural activities or environmental conditions. NRCS offers financial assistance to help agricultural producers install and maintain conservation improvements on their land.
Washington State University Extension (WSU) http://county.wsu.edu/chelan-douglas/agriculture/Pages/default.aspx http://county.wsu.edu/chelan-douglas/agriculture/treefruit/Pages/default.aspx	WSU Extension maintains a local office in Chelan County. WSU provides the following services: • Education and research, turning results into best practices regarding irrigation, weed management, pesticide application, pest management, • Opportunities for certifications, such as pesticide application certification, online certificate in organic farming, and • Training and outreach such as Hort Days.

Additionally, there are industry associations and state commissions providing education and training as well as advocacy for the local agricultural industries. These include:

- Washington State Tree Fruit Association
- Washington Tree Fruit Research Commission
- Washington Association of Conservation Districts
- Washington Conservation Commission
- Washington Association of Wheat Growers
- Washington Cattlemen's Association
- Washington Dairy Federation
- Washington Farm Bureau
- North Central Washington Fieldmen's Association

Sections 2 and 3 provide more information on the key technical assistance providers and other associations that assist landowners with practices that could benefit critical areas protection and agricultural production.

2.0 TECHNICAL ASSISTANCE PROVIDERS: DETAILS OF MISSION AND PROGRAMS

2.1 Cascadia Conservation District (CCD)

Mission or Role

We are a non-regulatory political subdivision of the State of Washington. Our district includes all of Chelan County except for the incorporated cities of Wenatchee and Chelan. Our mission is to encourage wise stewardship and conservation of all natural resources for current and future residents of Chelan County. We work toward cooperative solutions that result in the greatest benefit for the greatest number of people.

Website

http://cascadiacd.org/

Range of Services

Education & Outreach: Educational programming and outreach materials help to demonstrate how natural environments function, how our activities can impact those environments, and how we can best mitigate those impacts. Cascadia Conservation District (CCNRD) participates in a number of education and outreach efforts including the annual Kids in the Creek program and the Wenatchee River Salmon Festival. We also produce a seasonal Newsletter and other outreach materials.

GIS Mapping & Soils Reports: Links to federal soil survey and agricultural map products. The CCD also prepared geographic information system data regarding agricultural lands in the Wenatchee watershed.

Landowner Assistance: Private landowners within the boundary of CCD are eligible for the Landowner Assistance Program to install best management practices to minimize impacts on fish and wildlife as well as conserve fragile natural resources. Landowners with 2.5 acres or more who are within CCD are eligible to apply for cost share. Cascadia Conservation District can pay up to 50% of the total project cost for irrigation-related projects and up to 75% of the total project cost for forest health and riparian practices. Landowners would submit a cost-share application, photos of the project, an estimated budget, and any corresponding planning documents and specifications such as a forest stewardship plan and forest health management specifications as appropriate. Landowners install the project after it is approved by the CCD board of supervisors and you have signed a contract/agreement. They are reimbursed following an inspection. The project must be installed by June 15 and the landowner would provide appropriate financial documents at that time. The CCD Example projects include:

- Forest Management Plan
- Forest Stand Improvement
- Tree/Shrub Pruning, Site Preparation, Establishment
- Woody Residue Treatment
- Riparian Forest Buffer
- Irrigation Water Management
- Irrigation System, Microirrigation
- Irrigation System, Sprinkler

- Irrigation Pipeline and/or Pumping Plant
- *Other projects may also be eligible

All NRCS practice standards are eligible for cost sharing. The Conservation District annually ranks their highest natural resource priority.

Since July 2011 CCD has assisted landowners with installing the following acres of riparian restoration in the identified Watershed Resource Inventory Areas (WRIAs), some of which may represent projects accounted in the Habitat Work Schedule where salmon recovery actions are tracked:

- WRIA 45: 6 acres
- WRIA 46: 9.4 acres

CCD's Wenatchee Watershed Water Quality Improvement Program helps to implement the federal Water Cleanup Plan or TMDL [Total Maximum Daily Load]. CCD supports water quality improvements in the Wenatchee watershed through information, coordination of cleanup activities, and funding through the above landowner assistance programs. The range of offerings include:

- **Education:** Irrigation Information Packet.
- **Coordinating river cleanup activities.** Local watershed associations, landowners, citizens, businesses, and public officials are engaging in cleanup efforts. The Wenatchee watershed TMDLs are being coordinated with other water resources and fish recovery efforts.
- **Landowner assistance with:**
    - Soil testing and associated technical assistance for nutrient planning for citizens with livestock, agricultural land or residential lawns
    - Riparian plantings of native trees and shrubs
    - Pasture health and riparian livestock exclusion fencing

An example project highlighted by CCD includes:

> *Cascadia CD was awarded funding from the Department of Ecology's Husseman Account for a riparian restoration project on Colockum Creek.*
>
> *This project works to help a local landowner recover (restore his property) from the 80,000-acre wildfire and large-scale flood events last fall by: re-building pasture fence, improving water quality, removing invasive weed species, restoring wildlife habitat, and reducing erosion.*

Native Plants

CCD sponsors an annual native plant sale. In 2015 the offering includes 14 different plant species suitable for a variety of planting projects, and which are also fire resistant to support the FireWise program.

CCD also provides a "Native Planting 101" Workshop that free workshop features local plant and natural resource experts and covers: restoration, yardscaping, pollinator generating plants, weed law, weed identification, and integrated weed management

Entiat Enhanced Stream Flow Monitoring

The CCD notes that

> *"Stream flow data are essential to determining the amount of water available to meet in-stream and out-of-stream resource needs. Discharge data are also an important part of water quality and flood emergency monitoring efforts.*

After working with the State Department of Ecology (Ecology) to install eight continuous recording gages and six staff gages in the Entiat River watershed, the CCD continues with funding to assist Ecology with the operation and maintenance of the Entiat gaging network, and collection of stream flow data. The flow data are automatically imported into a stream flow database and published to the Department of Ecology's flow monitoring website.

Watershed Planning

CCD is the Lead Agency for the Entiat, or WRIA 46, watershed planning effort. CCD also participates in the watershed planning for other basins in the County.

As lead entity in the Entiat Watershed the CCD helps coordinate meetings of the Entiat Watershed Planning Unit, a collaborative body of landowners, tribes, and agencies, and helps implement watershed plans through priority monitoring and restoration projects. The Entiat Watershed Planning Unit has successfully implemented a variety of important habitat, water quality and water quantity restoration projects in the watershed. CCD is often the sponsoring entity that carries out the planning unit's priority implementation projects. Examples include:

- CCD 2008 Lower Entiat Riparian Restoration (03-LER-2008-02). Started on Dec 14, 2007 | Completed on Sep 30, 2009. CCD worked with eight landowners to develop this project into two separate sites along the Entiat River to improve riparian habitat and reduce water temperature exceedences.
- CCD Entiat ARRA Surface to Wells Conversion (03-LER-2010-3). Started on Jan 04, 2010 | Completed on Jun 01, 2011. The ARRA surface water to wells conversion replaced a 1.5 cfs surface water diversion for the Gaines Ditch in the lower Entiat River with four irrigation wells. Replacing the surface water diversion avoids fish entrainment and mortality, as well as providing water savings through higher delivery efficiencies. The conversion also keeps surface water in stream during low flow, peak irrigation use periods in late summer and fall.

In 2010 additional habitat improvement projects and monitoring efforts began and will continue through to 2020:

> *The Entiat Valley is legendary for its natural beauty and strong sense of community and a healthy river is a fundamental part of this beauty. That's why public agencies and Entiat landowners are working together to protect and restore the Entiat River. These activities include: providing new habitat for juvenile steelhead and Chinook salmon, planting miles of new riparian vegetation and assisting agricultural producers with irrigation efficiencies.*
>
> *In order to determine whether these efforts are providing the benefits they were designed for, in particular salmon habitat, a program of restoration and monitoring began in the Entiat in 2010. This program established a schedule of habitat restoration project location and timing coordinated with intensive monitoring efforts. This strategy is referred to as an Intensively Monitored Watershed, or IMW, and relies heavily on the cooperation of project partners and private landowners.*
>
> *Under the Entiat IMW approach, construction of habitat restoration projects and monitoring are tightly coordinated to maximize the ability to detect responses of the fish to changes in their habitat. Project implementation will occur in batches, with all actions in a given year focused in selected reaches. The IMW will accelerate project*

implementation above past levels and help partners to determine what types of habitat restoration actions did and didn't work. All in all, this information will help ensure that future funding is directed toward restoration actions that provide the "biggest bang for our buck".

The first focus of the Entiat IMW will be the upper Entiat and Stillwater reaches when construction of three large habitat restoration projects will be constructed this summer. Ongoing monitoring efforts will continue until project implementation is completed in 2020 and beyond if necessary.

Wildfire Preparedness

CCD develops both individual community and county-wide wildfire protection plans to help avoid the spread of fire from trees and vegetation to structures and to plan on evacuation routes. As funding permits, CCD offers free wild fire risk assessments to interested landowners, participates in wildfire education and outreach efforts, and provide support to neighborhoods seeking FireWise Communities/USA recognition. Completed Community Wildfire Protection Plans can be used by communities to acquire grant funding for wildfire prevention and protection projects.

2.2 Chelan County Natural Resources Department (CCNRD)

Mission or Role

The Natural Resource Department administers watershed planning and salmon recovery efforts within Chelan County through a variety of state, federal, and local project and planning grants. The Natural Resources Department also supports a regional salmon recovery effort, the Upper Columbia Salmon Recovery Board, and staffs the Chelan County Water Conservancy Board.

Website

http://www2.co.chelan.wa.us/nr/

Range of Services

Watershed Planning and Project Implementation

Chelan County is the designated Lead Agency for administering and coordinating the watershed planning processes for the Stemilt/Squilchuck (WRIA 40a), Wenatchee (WRIA 45) and Chelan (WRIA 47) Watersheds.

For the Wenatchee and Entiat Watersheds, development and implementation of the watershed plans are closely coordinated with Upper Columbia Salmon Recovery Planning.

Since 2005, the Chelan County Natural Resources Department (CCNRD) has implemented a series of fish passage barrier removal and habitat complexity projects listed below. Example projects led by Chelan County that implement watershed plans and salmon recovery efforts include:

- CCNRD Chumstick/Eagle Riparian Restoration 2007 (04-CSK-2006-1). Started on Mar 01, 2006 | Completed on Nov 01, 2007. Riparian enhancement planting along Chumstick and Eagle Creek to address water quality issues. Native plants were installed on private properties with 16 different willing landowners.
- CCNRD Wenatchee River Riparian Enhancement RM 1.4 (04-LWR-2009-3). Started on Sep 27, 2009 | Completed on Sep 26, 2010. The project site is located near Wenatchee, Washington along the right

bank of the Wenatchee River at river mile 1.4. The project is located on private property that is currently managed by the landowner as an apple and pear orchard. The current landowner is the third generation owner of the property and intends to remain managing the parcel for agriculture uses over the long term. The project consisted of installing native plants, an irrigation system and herbivory protection (exclusion fencing) along 5 separate planting areas where the existing riparian vegetation was minimal or non-existing. The combination of the five planting areas totals approximately 1,375 linear feet (or 1.26 ac) with an average planting buffer width of 35 feet, although some of the planting areas may have a buffer ranging from 50 to 75 feet. The 5 planting areas were planted with 679 native trees and shrubs in early April 2010 by the Washington Conservation Crew (WCC). The WCC replaced and fixed portions of the wildlife exclusion fence by adding in additional fence posts and fence fabric as needed. The purpose of the fence is to minimize the impacts of beaver activity to the riparian planting project and the landowner's adjacent orchard.

- CCNRD Peshastin Irrigation Pipeline Schedule B (04-PES-2011-4). Started on Jan 01, 2011 | Completed on Dec 31, 2011. In 2010, approximately 6000 ft of Peshastin Irrigation District Canal was converted from an open canal to a closed pipeline (Schedule A). In 2011, another 3300 ft of the ditch will be converted from an open canal to a closed pipeline. The construction of this pipeline will eliminate seepage in that reach. The upstream end of the proposed pipeline ties into a pipeline constructed in 2005 by Peshastin Irrigation District. Once completed, with Schedule A &B, this project will save a conservatively estimated 1.2 cfs which is a significant amount during low flows in Peshastin Creek that can go down to 3.5 cfs in late summer. This water savings will reduce diversions from Peshastin Creek and increase instream flow for fish passage.

The County works to implement the water resource recommendations in watershed plans including conducting water quality and water quantity (stream flow) monitoring studies to fill critical data gaps. For example, the County and Ecology operate and maintain streamflow monitoring gauges throughout the Wenatchee watershed.

Additionally, the County works with the watershed planning units and other agencies and stakeholders to achieve conservation:

- In spring 2007, Chelan County established the Stemilt Partnership (Partnership) which is a broad coalition of agriculture, wildlife, recreation, development, and conservation interests working together to prevent privatization of 2,500 acres of public land in the Stemilt basin. Protecting this land, currently owned by the Washington Department of Natural Resources (DNR), would ensure a healthy water supply, protect wildlife habitat, and provide recreation access in this growing community. The Partnership and Chelan County worked with DNR to stop the sale and pursue an alternate approach: creating a plan for the landscape based upon the needs and wants of the community.
- Chelan County and Washington Department of Ecology's (DOE) Office of Columbia River have co-convened the Icicle Work Group to work collaboratively to identify and provide input on opportunities that would address Icicle Creek water resource and fisheries concerns. The Icicle Work Group has been meeting regularly since December 2012 on this effort.

Education and Outreach

CCNRD works with several other non-profit organizations and government agencies within the County to staff outreach events held throughout the year. The County also coordinates the Wenatchee Watershed Planning Unit and Habitat Sub-committee meetings which bring stakeholders together to plan and implement watershed stewardship activities within the County. Recent events include:

- Spring 2014 Community Meetings

- Wenatchee River Clean Up Saturday August 9, 2014 9-12
- Large Wood Workshop, November 30 - December 1, 2011, CTC, Wenatchee

The County has also provided information and guidance on stewardship, including:

- Icicle Stewardship Guide
- Icicle Creek Riparian Plant list
- Riparian Plant Guide
- Riparian Plant Care Guide

2.3 Natural Resources Conservation Service (NRCS)

Mission or Role

> *NRCS is an agency committed to "helping people help the land"—our mission is to provide resources to farmers and landowners to aid them with conservation. Ensuring productive lands in harmony with a healthy environment is our priority. With operations in the United States, the Virgin Islands, Puerto Rico, and Guam, our agency touches the lives of a diverse range of individuals.*

Websites

http://www.usda.gov/wps/portal/usda/usdahome

http://offices.sc.egov.usda.gov/locator/app?service=page/ServiceCenterSummary&stateCode=53&cnty=007

Technical Assistance

Natural Resources Conservation Service (NRCS) offers voluntary Farm Bill conservation programs created to benefit both agricultural producers and the environment. Below are the three categories of assistance:

- Financial and technical assistance is provided to help agricultural producers make and maintain conservation improvements on their land.
- Easement programs to eligible landowners to conserve working agricultural lands, wetlands, grasslands and forestlands.
- NRCS works with partners to leverage additional conservation assistance for agricultural producers and landowners in priority conservation areas.

The Natural Resources Conservation Service (NRCS) offers assistance with planning, funding, and implementing conservation activities. Each category of activities is described below.

NRCS field staff work with agricultural operators to assess conditions on their property, help identify conservation practices that can ameliorate environmental conditions affecting the operation (e.g. erosion), and monitor practices.

> *Financial and technical assistance is the help NRCS and its partners provide to land users to address opportunities, concerns, and problems related to the use of natural resources and to help land users make sound natural resource management decisions on private, tribal, and other non-federal lands.*
>
> *This assistance can help land users:*

- *Maintain and improve private lands and their management*
- *Implement better land management technologies*
- *Protect and improve water quality and quantity*
- *Maintain and improve wildlife and fish habitat*
- *Enhance recreational opportunities on their land*
- *Maintain and improve the aesthetic character of private land*
- *Explore opportunities to diversify agricultural operations and*
- *Develop and apply sustainable agricultural systems*

This assistance may be in the form of resource assessment, practice design, resource monitoring, or follow-up of installed practices.

Conservation practices are designed for local property conditions following a site specific assessment. The NRCS has developed objectives and standards for numerous conservation practices addressing common agricultural activities or environmental conditions, available here:

http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/technical/references/?cid=nrcs143_026849

Examples include:

- Conservation cover: Establishing and maintaining permanent vegetative cover, such as to reduce sedimentation
- Filter strip: A strip or area of herbaceous vegetation that removes contaminants from overland flow
- Fencing: This practice facilitates the accomplishment of conservation objectives by providing a means to control movement of animals and people, including vehicles
- Irrigation pipeline: A pipeline and appurtenances installed to convey water for storage or application, as part of an irrigation water system.

2.4 Washington State University Extension Service

Mission or Role

Overview Mission Statement

Washington State University Extension engages people, organizations and communities to advance knowledge, economic well-being and quality of life by fostering inquiry, learning, and the application of research.

Agriculture

It's a partnership that has made the state of Washington one of the largest and most successful agriculture enterprises in the world. From the beginning, Washington farmers and Washington State University Extension have joined forces to bring the power of research-based information to bear to improve the productivity, efficiency, and safety of products coming from the state's fields and pastures, orchards, processing plants, and vineyards and wineries.

WSU Extension educators are the critical link between science and research generated at Washington State University and the hands-on work of growing food, fuel, and fiber.

Because our educators are located in every county of the state, they ensure that new information is locally relevant and applicable. They test and translate research results into best practices that benefit the bottom line by increasing profits and cutting costs. Our educators also inform new research by sharing the challenges farmers face with the University's scientists spawning new research leading to additional relevant solutions.

Washington State is the second most agriculturally diverse state in the union, growing everything from potatoes to peppermint, apples to azaleas, wine grapes to wheat. Agriculture is the state's largest employer and the largest single sector of its economy. WSU Extension's goal is to enhance economic opportunities for the state's agricultural industries while ensuring that Washington's precious natural resources are sustained and enhanced for future generations.

Websites

http://county.wsu.edu/chelan-douglas/agriculture/Pages/default.aspx

http://county.wsu.edu/chelan-douglas/agriculture/treefruit/Pages/default.aspx

Range of Services

Washington State University (WSU) Extension maintains a local office in Chelan County. WSU provides the following services:

- Education and research, turning results into best practices regarding irrigation, weed management, pesticide application, pest management,
- Opportunities for certifications, such as pesticide application certification, online certificate in organic farming, and
- Training and outreach such as Hort Days.

Each effort is described below.

Education and Research

Example research provides recommendations on irrigation, nutrient application, pest management, and other aspects of production that are designated to improve productivity and also conserve resources:

Irrigating_Tree_Fruits_for_Top_Quality

Estimating_Usable_Water_Applied

Soil Water-Holding

Scheduling Irrigation Based on Average Water Use

Irrigating_Tree_Fruits_for_Top_Quality

Estimating_Usable_Water_Applied

Long-Term_Record_of_Yearly_Water_Use

Drought_Spot_of_Apple

Irrigation_and_Iron_Chlorois_in_Orchards

SchedulingIrrigationBasedonAverageWaterUse

Planting_and_Care_of_New_Orchards

Irrigation_and_Iron_Chlorois_in_Orchards

Nutrients_for_Fruit_Color_Enhancement

Compost_Trials_in_Newly_Planted_Orchards

Late-Summer_Early-Fall_Nitrogen_Applications_to_Apple

Orchard_Soil_Fumigation

Lime_and_Orchard_pH_Management

Rootstock Effects on Deficit-Irrigated Winegrapes in a Dry Climate: Grape and Wine Composition

Irrigation Basics for Eastern Washington Vineyards

Certifications and Training

WSU Extension offers or sponsors testing, training or certification. Pesticide license testing is offered at extension offices:

Pesticide License Testing

Education on IPM and pesticide application is provided:

WSU Urban IPM and Pesticide Safety Education Program

Internet Recertification Courses

Online coursework towards a certification is also provided, including:

Online organic farming certificate

Sustainable agriculture graduate certificate

3.0 OTHER SOURCES OF TECHNCIAL ASSISTANCE

This section provides additional agencies that may assist in education or recruiting of voluntary stewardship participants.

Washington State Tree Fruit Association. http://www.wahort.org/. The mission of the Washington State Tree Fruit Association is to advance the tree fruit industry by providing education and training programs to meet the changing needs of the industry. WSHA also serves as the advocate on issues affecting the tree fruit industry, particularly legislation and regulation.

Example training opportunities include food safety training classes addressing:

- HACCP for Agriculture and Produce Operations
- Basics of SQF Systems for Produce
- Understanding GLOBALG.A.P.
- Internal Auditor Training

Washington Tree Fruit Research Commission. The Washington Tree Fruit Research Commission was established by the Washington legislature in 1969 to "promote and carry on research and administer specific industry service programs, . . . which will or may benefit the planting, production, harvesting, handling, processing or shipment of tree fruit of this state . . . " The act further provides for coordination with other state, federal, and private agencies conducting similar research. To read the complete act, Chapter 15.26 RCW, link to the Washington State web page at

http://apps.leg.wa.gov/RCW/default.aspx?cite=15.26. The Research commission has a searchable database where website visitors can search through commission-funded projects by crop, disorder or researcher.

Washington Association of Conservation Districts. http://www.wadistricts.org/. The Association provides support to conservation districts including technical capacity development, leadership training, government relations, planning, funding, legislation and other activities. The support to the districts allows the districts to meet their missions to work with governments and willing landowners to implement conservation practices and provide technical assistance. The Association manages a Plant Materials Center growing conservation grade plants and shrubs that can be ordered.

Washington Conservation Commission. http://scc.wa.gov/. The Commission is the coordinating state agency for all 45 conservation districts in Washington State. In addition to encouraging intergovernmental coordination and collaboration and advising on operations and elections, the Commission determines the distribution of state funds to conservation districts and monitors their expenditures. Programs include the following, largely implemented through the local conservation districts:

- The Conservation Reserve Enhancement Program (CREP) is a joint federal and state funded program that restores riparian (streamside) habitat for salmon and protects that habitat for 10-15 years. Most of the funding (80%) comes from the Farm Service Agency with the remainder through the Conservation Commission. The landowners are paid rent for allowing their land to be used for fish and wildlife improvements and receive a monetary bonus for signing up.
- Washington's Irrigation Efficiencies Grant Program (IEP) restores instream flows in rivers and streams determined to not have enough water for fish populations and other competing needs. The Washington State Conservation Commission (SCC) works with conservation districts to provide financial incentives – up to 85 percent of total project costs – to landowners willing to install irrigation systems that save water.
- The Professional Engineering Services Grants Program is a partnership between the Washington State Conservation Commission (SCC) and Washington's 45 conservation districts to help support safe, effective conservation practices. A group of conservation districts covering a geographic area coordinate a grant application to the SCC to hire and share the services of a professional engineer. Engineering services include investigations, feasibility studies, assessments, evaluations, surveys, designs, construction management, inspection, and engineering contract oversight and management. These services may address streambank stabilization, culverts and bridges, Livestock and waste management practices to protect water quality, and others.
- The Water Quality Implementation Grants Program is a partnership between the Conservation Commission and Washington State's 45 Conservation Districts that promotes and supports local water quality protection efforts. Based on local long-range and annual planning, conservation districts utilize the funding appropriated to the Commission by the Legislature to conduct outreach activities, provide technical and financial assistance to landowners for implementation of best management practices, participate in watershed planning, and coordinate water quality monitoring activities.

Washington Association of Wheat Growers. http://wawg.org/wawg. This non-profit trade association provides education and outreach to wheat farmers. Workshops are provided through the Agricultural Marketing and Management Organization, and address safety, hazardous materials compliance, marketing and other matters. The association also provides research guides and other information.

Washington Cattlemen's Association. http://www.washingtoncattlemen.org/. This non-profit association promotes agriculture and the cattle industry. The agency promotes protection of water rights, and works to resolve water quality issues for livestock operators.

Washington State Dairy Federation. http://wastatedairy.com/. This trade association provides information and advocates for initiatives that support dairy farmers. Information and resources addressing livestock management are found on the website.

Washington State Farm Bureau. http://wsfb.com/. The Washington State Farm Bureau is a "an independent, non-governmental, voluntary organization governed by and representing farm and ranch families united for the purpose of analyzing their problems and formulating action to achieve educational improvement, economic opportunity and social advancement and, thereby, to promote the national well-being." The organization promotes policies supporting farmers, and provides educational resources. The convene meetings to prepare a legislative agenda. They hold workshops in the winter season focusing on safety training.

North Central Washington Fieldmen's Association, which is an association of persons who are liaisons between fruit packing operations or agricultural assocations and growers, to help improve fruit quality and expand practices that improve produce (e.g. pest management). The Fieldman's Association sponsors Hort Days along with WSU and other organizations.

STEWARDSHIP CHECKLIST

Promoting Agriculture Viability and Protecting Critical Areas

The Voluntary Stewardship Program (VSP) is an optional, incentive-based approach to protecting critical areas while promoting agriculture. This checklist serves as an individual stewardship plan referenced in the VSP law to help each farmer contribute to the goals and benchmarks of the Chelan County VSP work plan. **Work together with other farmers to promote volunteerism versus additional regulatory controls. This means more certainty and fewer regulations. Fulfill related requirements for farm practices in other programs (e.g. Global GAP and others).** See [project website] for more information.

Step 1: General Location Information

Provide Location Information

1. What basin is your agricultural property located within?
   a. Chelan ☐
   b. Entiat ☐
   c. Wenatchee ☐
   d. Squilchuck-Stemilt ☐

2. Identify potential critical areas intersecting with agriculture:

Types of potential critical areas on, or near, property:

   a. fish and wildlife habitat conservation areas ☐
   b. wetlands ☐
   c. frequently flooded areas ☐
   d. geologically hazardous areas ☐
   e. critical aquifer recharge areas (wellheads ☐

Instructions: Use online tools to review critical area and agriculture maps: [County website or link to VSP-specific maps]. Visually review potential critical areas on or near your property, such as ponds, streams, wetlands, steep slopes, etc.

Note: Checking one or more critical areas that may *potentially* be located on or adjacent to the property does not constitute an official determination of such a feature. It is helpful in filling out the rest of the checklist.

Consider Other Programs that Protect Critical Areas

2. Identify participation in producer programs that address environmental quality (e.g. nutrient management, integrated pest

a. Global Gap [Good Agricultural Practices]: http://www.scsglobalservices.com/globalgap-certification ☐

b. Safe Quality Food (SQF) Institute: http://www.sqfi.com/ ☐

c. PrimusLabs GAP: http://www.primuslabs.com/services/standardgap.aspx ☐

d. Harmonized GAP: http://www.scsglobalservices.com/harmonized-gap-audit ☐

e. Salmon Safe: http://www.salmonsafe.org/ ☐

f. Other: _____ ☐

Federal and state laws regarding the use and storage of pesticides and standards for water quality continue to apply. ☐

Consult Technical Providers

Contact Technical Advisors to advise you or in order to apply for funding to establish conservation practices.

Lead Technical Assistance Provider: Cascadia Conservation District http://cascadiacd.org/

Supporting Technical Assistance Providers:

USDA Natural Resources Conservation Service http://www.usda.gov/wps/portal/usda/usdahome

Washington State University Extension http://county.wsu.edu/chelan-douglas/agriculture/Pages/default.aspx

Chelan County Natural Resources Department http://www2.co.chelan.wa.us/nr ***(VSP Program Administration)***

Step 2: Ideas for Voluntary Practices to Enhance Agriculture Viability and protect Critical Areas

Agriculture Intersecting with Fish and Wildlife Habitat Areas

Definition of Fish and Wildlife Habitat Conservation Areas: Land and waters managed to maintain populations of fish and wildlife species in suitable habitats within their natural geographic distribution over the long term within connected habitat blocks and open spaces. **Includes:**

- Ranges and habitat elements where federal and state listed endangered, threatened and sensitive species have a primary association
- Lakes, rivers, ponds, streams, inland waters, and underground waters

Does not include (when no salmonids are present): Artificial features such as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches maintained by a port district or an irrigation district or company (based on RCW 36.70A, WAC 365-190)

VSP Fish and Wildlife Habitat Goals

- Protect fish and wildlife populations and their associated habitats.
- Promote voluntary restoration and enhancement of fish and wildlife populations and their associated habitats.

VSP Agriculture Viability Aims:

- Protect orchards and vineyards from wildlife and pest damage.
- Promote economical water, soil, pest, and nutrient management that maximizes produce quality.

Conservation Practice Examples	NRCS #	Global Gap	FSMA	I do this	I'm interested in this	Does not apply	Not interested
WILDLIFE HABITAT							
Access control to exclude animals, people, vehicles, and/or equipment from an area	*472*	AF 7.1	4: Domesticated & Wild Animals	o	o	o	o
Brush management to manage or remove plants that are invasive or noxious	*314*	AF 7.1		o	o	o	o
Conservation cover to provide permanent vegetative cover	*327*	AF 7.2 ,CB 3		o	o	o	o
Forest stand improvement practices that improve wildlife habitat	*666*	AF 7.1		o	o	o	o
Fence: browsing animal management or wildlife movement management	*382*	AF 7.1	4: Domesticated & Wild Animals	o	o	o	o
Hedgerows that provide food, cover, and corridors for wildlife or improve water quality	*422*	AF 7.1		o	o	o	o
Structures for wildlife: Raptor and bat nesting box for predator patrol	*649*	AF 7.1		o	o	o	o
Riparian herbaceous cover or Riparian forest buffer	*390, 391*	AF 7.2		o	o	o	o
Tree/shrub establishment: for forest products, habitat, energy conservation, erosion control	*612*	AF 7.1		o	o	o	o
Upland wildlife habitat management	*645*	AF 7.1	4: Domesticated & Wild Animals	o	o	o	o
Watering facility for wildlife	*614*	AF 7.1	4: Domesticated & Wild Animals	o	o	o	o
Wildlife and pollinator habitat planting	327, 422	AF 7.2		o	o	o	o
Fire wise: wildfire protection to maintain cover	*CCD*	AF 7.1		o	o	o	o
My ideas to meet the goal: _____				o	o	o	o

Conservation Practice Examples	NRCS #	Global Gap	FSMA	I do this	I'm interested in this	Does not apply	Not interested
FISH HABITAT							
Access road: position away from water bodies and water courses	560			O	O	O	O
Conservation cover	327	AF 7.2 ,CB 3		O	O	O	O
Irrigation canal or lateral*	320	CB 5		O	O	O	O
Irrigation pipeline*	430	CB 5		O	O	O	O
Irrigation system, microirrigation*	441	CB 5		O	O	O	O
Irrigation water management*	449	CB 5	1. Agricultural Water	O	O	O	O
Prescribed grazing	528	AF 7.1	4: Domesticated & Wild Animals	O	O	O	O
Riparian herbaceous cover or Riparian forest buffer	390, 391	AF 7.2		O	O	O	O
Seasonal high tunnel system for crops (soil moisture)	325	CB 3		O	O	O	O
Sprinkler system	442	CB 5		O	O	O	O
Streambank and shoreline protection	580	AF 7.1		O	O	O	O
Tree/shrub establishment for forest products, habitat, energy conservation, erosion control	612	CB 3		O	O	O	O
My idea to meet the goal: _____				O	O	O	O

*Note: Irrigation practices such as micro irrigation may or may not be appropriate depending on crop/plants irrigated, water quality, design/ location, etc. Consider whether water use appears to be reasonable and beneficial.

Micro-irrigation

Soveredi

Installation of Solid Set from Hand Lines

Source: NRCS Wenatchee Field Office

Seasonal High Tunnel

Source: NRCS Wenatchee Field Office

Riparian Restoration & Wildlife Exclusion

Source: Chelan County Natural Resources Department

Livestock Holding, Exclusion Fence

Source: Cascadia Conservation District

Raptor Pole with Nesting Box

Source: NRCS Wenatchee Field Office

Agriculture Intersecting with Geologically Hazardous Areas

Definition of Geologically Hazardous Areas: Areas susceptible to erosion, sliding, earthquake, or other geological events, where development is not suitable due to public health or safety concerns. (based on RCW 36.70A, WAC 365-190)

VSP Agriculture Viability Aims

- Protect agricultural activities from geologic hazards such as erosion and landslides.

VSP Geologic Hazard Goals: Protect geologic hazard functions and values due to agricultural activities existing as of July 22, 2011. The purposes of Geologic Hazard protection are to:

- Avoid increases in erosion.
- Avoid steep slopes or help to stabilize steep slopes where practical.
- Avoid irrigating unstable slopes.

Conservation Practice Examples	NRCS #	Global Gap	FSMA	I do this	I'm interested in this	Does not apply	Not interested
Access road: Locate and build to control or reduce erosion	*560*		*4: Domesticated & Wild Animals*	O	O	O	O
Conservation cover: to provide permanent vegetative cover to reduce soil erosion and sedimentation, improve soil quality, etc.	*327*	*AF 7.2 ,CB 3*		O	O	O	O
Cover crop: Plant crops between rows of trees, vines, or other row crops for cover and conservation. Cover crops include grasses, legumes, and forbs for seasonal cover and other conservation purposes.	*340*	*AF 7.2 ,CB 3*		O	O	O	O
Fuel management: wildfire protection plans to maintain cover/reduce soil loss	*See CCD*			O	O	O	O
Forest stand improvement	*666*			O	O	O	O
Heavy use area protection to stabilize ground surface	*561*			O	O	O	O
Mulching to control erosion and conserve soil moisture	*484*	*CB 3*		O	O	O	O
Prescribed grazing to reduce erosion and manage fuel loads	*528*	*AF 7.1*	*4: Domesticated & Wild Animals*	O	O	O	O
Tree/shrub establishment for long-term erosion control and water quality improvement	*612*	*CB 3*		O	O	O	O
Vegetative barrier	*601*	*AF 7.1*		O	O	O	O
My ideas to meet objective:_____				O	O	O	O

Tree/Shrub Establishment

Tree and shrub planting after 3 - 4 seasons of growth
Source: NRCS Wenatchee Field Office

Replanting after a Fire

Source: NRCS Wenatchee Field Office

Cover Crop

Planting a cover crop between tree rows of forbs and grasses for beneficial pollinators and bugs and erosion control
Source: NRCS Wenatchee Field Office

Agriculture Intersecting with Wetlands

Definition of Wetlands: Areas that are inundated or saturated by surface water or groundwater supporting a prevalence of vegetation adapted for life in saturated soil conditions.

Includes

- Swamps, marshes, bogs, and similar areas

Excludes Artificial wetlands per WAC 365-190-030(22)

VSP Critical Area Protection Goals

- Protect the ecological and environmental functions of wetlands and protect the public health, safety and welfare benefits provided by wetlands by preventing loss of wetlands.
- Where practical, encourage voluntary enhancing or restoring wetland functions and values.

Seek information about **Prior Converted Cropland** for wetlands cleared, drained or manipulated prior to December 23, 1985.

Possible Conservation Practice Examples	NRCS#	Global Gap	FSMA	I do this	I'm interested in this	Does not apply	Not interested
Wetland Creation	*658*	*AF 7.2*		O	O	O	O
Wetland Enhancement	*659*	*AF 7.1*		O	O	O	O
Wetland Restoration	*657*	*AF 7.2*		O	O	O	O
Wetland Wildlife Habitat Management	*644*	*AF 7.1*	*4: Domesticated & Wild Animals*	O	O	O	O
See Selected Fish and Wildlife Habitat Conservation Measures	*314, 382, 472. 560*	*AF 7.1*	*4: Domesticated & Wild Animals*	O	O	O	O
My idea to meet the goal: _____				O	O	O	O

Agriculture Intersecting with Frequently Flooded Areas

Definition of Frequently Flooded Areas: Lands in the flood plain subject to at least a one percent or greater chance of flooding in any given year, or within areas subject to flooding due to high groundwater. **Includes** Streams, rivers, lakes, wetlands, and areas where high groundwater forms ponds on the ground surface (based on RCW 36.70A, WAC 365-190)

VSP Agriculture Viability Aims

- Avoid water contamination, damage to crops, loss of livestock, increased susceptibility of livestock to disease, and damaged farm machinery due to flooding.

VSP Critical Area Protection Objectives:

- Avoid environmental damage due to flooding such as from loss of floodplain storage or due to agricultural chemicals.
- Maintain floodplain capacity.
- Support voluntary floodplain restoration activities such as levee setbacks to improve floodplain functions and support other critical area restoration activities.

Possible Conservation Practice Examples	NRCS #	Global Gap	FSMA	I do this	I'm interested in this	Does not apply	Not interested
Avoid permanent changes in floodplain areas such as buildings, roads, and fill. Where alteration of floodplain is necessary, follow flood hazard regulations.	See RCW 86.16 See Chelan County Code Ch. 3.20			O	O	O	O
See measures to protect wetlands and riparian areas that help flood storage	See Above Checklist Sections	*AF 7.1*		O	O	O	O
My idea to meet the objective:_____				O	O	O	O

Flooding causes many impacts to agricultural production, including water contamination, damage to crops, loss of livestock, increased susceptibility of livestock to disease, flooded farm machinery, and environmental damage to and from agricultural chemicals. ~Agriculture: Natural Events and Disasters, http://www.epa.gov/agriculture/tned.html.

Agriculture Intersecting with Critical Aquifer Recharge Areas

Definition of Critical Aquifer Recharge Areas: Areas with a critical recharging effect on aquifers used for potable water, including areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water, or is susceptible to reduced recharge. (based on RCW 36.70A, WAC 365-190)

VSP Critical Area Protection Objectives:

- Protect water quality and water quantity in areas having a critical recharging effect on aquifers used for potable water.

Possible Conservation Practice Examples	NRCS	Global Gap	FSMA	I do this	I'm interested in this	Does not apply	Not interested
Water well: provide access to a groundwater supply suitable for livestock watering, fire control, wildlife, and other agricultural uses	*642*		*1. Agricultural Water*	O	O	O	O
Groundwater testing to determine the quality of a groundwater supply	*355*		*1. Agricultural Water*	O	O	O	O
My idea to meet the objective: _____				O	O	O	O

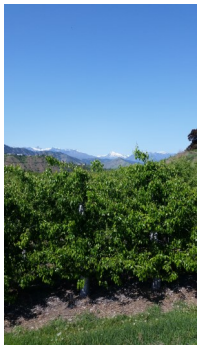
Step 3: Monitoring

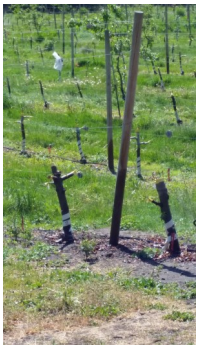
A technical assistance provider, coordinated by the Cascadia Conservation District, will contact you annually about the conservation practices installed. To assist with monitoring, you may be asked to provide additional information. You may request a field visit to obtain advice on improving the effectiveness of the conservation practices.

Ideas for Agriculture Viability Incentives and Outcomes

The VSP is designed to promote the viability of agriculture over the long term and to avoid unnecessary local critical area regulations due to the prevalence of conservation practices undertaken by willing producers. Producers may find cost-matching programs with technical providers (see contact information below).

What incentives could help you achieve your goals for your farm?





Agricultural Activities, Wenatchee and Entiat Valleys

For Information & Assistance

Lead Technical Assistance Provider: Cascadia Conservation District http://cascadiacd.org/, Name of Contact and Phone Number

Chelan County Natural Resources Department http://www2.co.chelan.wa.us/nr ***(VSP Program Administration)***

Appendix I. Chelan County Voluntary Stewardship Program (VSP) Adaptive Management Matrix

This adaptive management matrix is provided in three parts: 1) critical area protection benchmarks; 2) voluntary enhancement measures; and 3) agricultural viability aims and outcomes.

	Critical Area Goals	Critical Area Benchmark	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
Row Num	High level goal of project. There are just a handful.	Specific environmental conditions desired from project	What will be measured to know if adaptive management objective is achieved	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 for every Objective Listed Below)	Person or organization responsible for adaptive management objective monitoring	When monitoring will occur	Person or organization responsible for implementing adaptive management action including all elements of contracting and fiscal responsibility if threshold is reached.	Organization with funding available to assist agricultural owner
Critical Area Protection Benchmarks: RCW 36.70A.720 (1) (e) Create measurable benchmarks that, within ten years after the receipt of funding, are designed to result in (i) the protection of critical area functions and values										
1.	CA Goal-I. In areas of critical area intersect with agricultural activities, and at the watershed level: Prevent the degradation of critical area functions and values, due to agricultural activities, existing as of July 22, 2011 including: •Geologically hazardous areas •Fish and wildlife habitat conservation areas (e.g., streams, wildlife corridors, etc.) •Wetlands •Frequently flooded areas •Critical aquifer recharge areas	Benchmark-A. In areas of critical area intersect with agricultural activities, and at the watershed level: Protect critical area functions and values through voluntary measures in areas of intersection with agricultural activities across watersheds.	P-1 Area of cover of natural or managed vegetation in areas subject to sheet and rill erosion. P-2 Footprint of agriculture in relation to areas of riparian vegetation. P-3 Footprint of agriculture in relation to areas of wetland habitat. P-4 Continued application of critical area regulations for designated flood hazard areas incorporated into work plan. P-5 Continued application of groundwater quality critical area regulations for designated critical aquifer recharge areas incorporated into work plan.	M-1 Repeat baseline critical area mapping for each reporting period to determine significant changes in extent, amount, or quality of critical areas intersecting agriculture identified similar to Appendices A and B and Table 7.	5% net reduced critical areas in areas of intersect due to agricultural activities. (% double the mapping error rate)	Evaluate if changed mapping or aerial interpretation is due to quality of mapping data or due to on-the-ground loss of critical area due to agricultural activities in areas of intersect.	CCNRD Type A.	Type 2	Chelan County	See budget
				M-2 Cumulative percent of acreage of conservation practices in areas of intersect by basin based on direct and indirect VSP participation, using Tracking Tool. Identify changes with and without enhancement projects that have been implemented.	10% net decrease in direct participation by acreage in areas of intersect with agriculture in existence as of 2011. Participation is measured per Benchmark I below. 10% net decrease in percent of acres of indirect participation in areas of intersect with agriculture in existence as of 2011. Indirect participation is measured per Benchmark I below.	Seek willing landowners in areas of intersect to reestablish or add new conservation practices.	CCNRD: Type B	Type 1	Chelan County	See budget
				M-3 Percent of acres of agricultural activities with direct participation in conservation practices related to intersecting critical areas is documented using self-certification (e.g. checklist in Appendix H), or phone, mail, or online surveys.	10% net reduction of conservation practices in areas of intersect.	Seek willing landowners in areas of intersect to reestablish conservation practices.	CCD Type A and B. CCNRD Type B, D and E. Other Technical Providers support with willing landowners per Work Plan.	Self-certification: Type 1. Phone, mail, or online survey: Type 2.	Cascadia Conservation District	See budget

PRIORITY GOALS, BENCHMARKS, VOLUNTARY MEASURES, OR AIMS

Receive priority when determining available resources.

WHO MONITORS

Cascadia Conservation District (CCD)

CCD Type A: Educate, facilitate, and/or implement conservation practices with willing landowners

CCD Type B: Collect follow-up monitoring information from willing landowners through phone, email, and/or site visits, based on available funding

CCD Type C: Annual Report

Chelan County Natural Resources Department (CCNRD)

CCNRD Type A: Mapping

CCNRD Type B: Tracking Tool / Database Management and Review available Census of Agriculture

CCNRD Type C: High Resolution Change Detection (HRCD)

CCNRD Type D: Producer Survey (Field Sample, Phone, or Online)

CCNRD Type E: Educate, facilitate, and/or implement conservation practices with willing landowners

CCNRD Type F: Convene expert panel; rapid watershed assessment may be used as an alternative for or supplement to CCNRD Type C based on assessment need and available funding

CCNRD Type G: Annual Summary of Watershed Meetings and 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 each 5-year reporting period, with review time by Work Group. Reports to Work Group: •10/31/2018 •7/1/2019 •7/1/2021 •10/31/2023. Stagger activities where periods are close (e.g. 2018/2019).

	Critical Area Goals	Critical Area Benchmark	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
2.	CA Goal-II. Geologic hazard goals: In areas of critical area intersect with agricultural activities, and at the watershed level Protect geologic hazard functions and values existing as of July 22, 2011 from degradation due to agricultural activities. The purposes of Geologic Hazard protection are to: •Avoid increases in erosion. •Avoid steep slopes or help to stabilize steep slopes where practical. •Avoid irrigating unstable slopes.	Benchmark-B. No net increase at the watershed level in sheet and rill erosion due to agricultural activities in areas of critical area intersect with agricultural activities. • Conservation practices are retained for existing orchards, vineyards, and rangeland. • Conservation practices are implemented for new or altered orchards, vineyards, and rangeland. • Fire danger is managed with conservation practices such as fuel reduction projects to limit damage to soils, grazing land, and downstream agricultural operations and critical areas.	P-6 Percent cover of natural or managed vegetation in areas subject to sheet and rill erosion in basins with areas of intersect. Focus is on 40% slopes and 15%+ slopes that have a severe/very severe erosion hazard % slopes.	M-4 Sample areas subject to erosion for vegetative cover using aerial photography and site visits by technical assistance providers with participating landowners. Surrogates for monitoring include conservation practice implementation tracking.	Net loss of more than 5% vegetation due to agricultural activities in areas of intersect between 5-year reporting periods: •July 22, 2011-July 22, 2018 •July 22, 2011 and July 22, 2023	Provide education and information to VSP participants. Implement conservation practices to reestablish lost vegetation with current and added VSP Participants.	CCD Type A and B CCNRD: Type D and E; secondarily Type B.	Type 2	Cascadia Conservation District	See budget
				M-5 The number and extent of conservation practices in basins that are intended to reduce erosion potential. Direct evaluation based on site visits by technical assistance providers with participating landowners. Aerial photography for indirect participation.	10% net reduction in acres where conservation practices are applied in areas of intersect.	Implement conservation practices to reestablish lost vegetation with current and added VSP Participants.	Same as above.	Type 2	Cascadia Conservation District	See budget
				M-6 To address soil loss through erosion and effects on fish habitat, evaluate water quality monitoring of sediments in hydrologic study areas as defined in Appendix B, where such results can be attributed to agricultural activities. Existing or new water quality sampling locations may be used.	Measurable decrease in water quality below State standards where results can be attributed to agricultural activities.	Implement conservation practices to reestablish lost vegetation. Where appropriate, conduct water quality assessments and identify control programs or improvement projects.	Same as above.	Type 2	Cascadia Conservation District	See budget

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	Critical Area Goals	Critical Area Benchmark	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
3.	CA Goal-III. In areas of critical area intersect with agricultural activities, and at the watershed level: Protect fish and wildlife habitat conservation areas, including associated species populations and their associated habitats.	Benchmark-C. In areas of intersect with agricultural activities, and at the watershed level: Protect remaining riparian vegetation at baseline or better conditions along waterbodies. • Maintain interface between agriculturally-managed areas and existing riparian areas. Retain riparian vegetated conditions, except for noxious weeds. Recognize changes to riparian areas may occur due to erosion and natural events; allow riparian areas to reestablish. • Promote actions to avoid conversion of riparian areas to agricultural uses.	P-7 Percent cover of natural vegetation (tree and shrub) in hydrologic study areas intersecting agriculture.	M-7 Preferred: Sample areas using aerial photography and site visits by technical assistance providers with participating landowners. Alternative: Surrogates for aerial monitoring include conservation practice implementation (tracking tool) and/or periodic rapid watershed assessments by fish and stream habitat experts with a focus on relevant critical area functions and values and agricultural intersect.	Loss of more than 5% vegetation due to agricultural activities in areas of intersect between 5-year reporting periods: •July 22, 2011-July 22, 2018 •July 22, 2011 and July 22, 2023	Implement conservation practices to reestablish lost vegetation with current and added VSP Participants.	CCD Type A and B. CCNRD: Preferred: Type C. Alternative: B, D and F.	Type 2	Chelan County	See budget
				M-8 The number and extent of conservation practices that protect riparian areas are maintained in areas of agriculture-critical area intersects.	10% reduction in percent of intersecting acres where conservation practices are applied.	Implement conservation practices to reestablish lost vegetation with current and added VSP Participants.	CCD: Type A and B. CCNRD: Type B.	Type 1	Chelan County	See budget
		Benchmark-D. In areas of critical area intersect with agricultural activities, and at the watershed level: Miles of fencing and its proper management for wildlife exclusion is maintained or improved. • Avoid animal “hang ups” such as with plastic fencing; protect young trees/crops during establishment.	P-8 Percent in miles of exclusion fencing with material that avoids animal hang-ups in areas of intersect. P9 Percent in length or area of alternative wildlife management measures that protect trees/crops and protect wildlife in areas of intersect.	M-9 Preferred: Sample areas using aerial photography and conduct brief survey (mailed, phone, or online). Alternative: Conservation practice implementation (tracking tool).	Miles of fencing or area of management practices is reduced more than 10% due to agricultural activities.	Implement conservation practices to maintain or increase type of fencing or alternative management techniques current and added VSP Participants.	CCD: Type A and B. CCNRD: Preferred: Type D and E. Alternative: Type B.	Type 2	Chelan County	See budget
				M-10 Length or area of conservation practices that install or replace wildlife exclusion fencing or other management techniques in areas of intersect during monitoring period using tracking tool.				Type 2	Chelan County	See budget
		Benchmark-E In areas of critical area intersect with agricultural activities, and at the watershed level: Maintain livestock management measures that protect riparian functions and values. Where appropriate to the critical area function allow	P-10 Maintain or increase length or area of livestock management measures in hydrologic study areas.	M 11 Sample areas using aerial photography and conduct brief survey (mailed, phone, or online).	Miles of fencing or area of management practices is reduced more than 10% due to agricultural activities.	Implement conservation practices to maintain or increase type of fencing or alternative management techniques current and added VSP Participants.	Same as above.	Type 2	Chelan County	See budget
				M-12 Conservation practices that manage livestock access to riparian areas.				Type 2	Chelan County	See budget

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	Critical Area Goals	Critical Area Benchmark	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
		managed or flash grazing or other appropriate agricultural practices.								
		Benchmark-F. In areas of critical area intersect with agricultural activities, habitat for complementary wildlife species is maintained (e.g., pollinators, raptors, bats, and other species), and there is no net loss in designated critical area habitat at the watershed level. One type of habitat may change to another.	P-11 Percent of wildlife habitat in areas of agriculture intersect.	M-13 Extent of mapped or documented Priority habitat as a percent of acres in areas of intersect.	5% net reduced priority habitat in areas of intersect due to agricultural activities.	Evaluate if changed mapping is due to quality of mapping data or due to on-the-ground loss of habitat due to agricultural activities in areas of intersect.	CCNRD: Type A.	Type 2	Chelan County	See budget
				M-14 Conservation practices that maintain complementary species or habitat (e.g., pollinators, raptors, bats, etc.) in areas of intersection during monitoring period.	10% net reduction in intersecting acres where conservation practices are applied.	Implement conservation practices to reestablish lost vegetation with current and added VSP Participants.	CCNRD: Type B.	Type 1	Chelan County	See budget
4.	CA Goal-V. In areas of critical area intersect with agricultural activities, and on a watershed basis: Protect the ecological and environmental functions of wetlands and protect the public health, safety, and welfare benefits provided by wetlands by preventing loss of wetlands.	Benchmark-G. In areas of critical area intersect with agricultural activities, and at the watershed level: Protect existing wetlands. •Maintain baseline or better interface between agriculturally-managed areas and existing wetlands. Retain wetland vegetation conditions, except for noxious weeds. •Maintain use of conservation practices by ongoing agricultural activities in or abutting wetlands. •Avoid negative changes to hydrology of natural wetlands such as through changes to drainage patterns or facilities. •Avoid conversion of natural wetlands to agricultural uses. (See regulatory backstop.)	P-12 Percent of wetlands is in hydrologic study areas intersecting agriculture.	M-16 Sample areas using aerial photography and site visits by technical assistance providers with participating landowners.	Loss of more than 5% wetland area due to agricultural activities in areas of intersect between 5-year reporting periods: •July 22, 2011-July 22, 2018 •July 22, 2011 and July 22, 2023	Implement conservation practices to reestablish wetlands with current and added VSP Participants.	CCD: Type A and B. CCNRD Type D, and E.	Type 2	Chelan County	See budget
				M-17 The number and extent of conservation practices that protect wetlands.	10% reduction in acres where conservation practices are applied in areas of intersect.	Implement conservation practices to reestablish lost vegetation with current and added VSP Participants.	CCNRD: Type B.	Type 1	Chelan County	See budget
		Benchmark-H. In areas of critical area intersect with agricultural activities, and at the watershed	P-13 Percent change in length or area of livestock management measures	M 18 Sample areas using aerial photography and conduct brief survey (mailed, phone, or online).	Miles of fencing or area of management practices is reduced more than 10% on	Implement conservation practices to maintain or increase type of fencing	CCD: Type A and B. CCNRD Type B, D, E.	Type 2	Chelan County	See budget

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	Critical Area Goals	Critical Area Benchmark	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
		level: Maintain livestock management or exclusion measures that protect wetland functions and values. Where appropriate to the critical area function allow managed or flash grazing or other appropriate agricultural practices.	protecting wetland areas in locations of intersect.	M-19 Extent of conservation practices that manage livestock access to wetland areas.	intersecting acres due to agricultural activities.	or alternative management techniques current and added VSP Participants.		Type 2	Chelan County	See budget
5.	CA Goal-VII. In areas of critical area intersect with agricultural activities, and at the watershed level: Avoid environmental damage due to flooding such as from loss of floodplain storage or due to agricultural chemicals. CA Goal-VIII. In areas of intersect and at the watershed level: Maintain floodplain capacity.	Intersect areas are protected by the regulatory backstop including flood hazard management regulations and pesticide regulations. No benchmarks or measurement required.	P-14 Continued application of critical area regulations for designated flood hazard critical areas incorporated into work plan.	Not applicable.	Not applicable.	Not applicable.	Chelan County implementation of flood hazard regulations incorporated into work plan from Critical Areas Ordinance.	Not applicable.	Not applicable.	Not applicable.
6.	CA Goal-X. In areas of critical area intersect with agricultural activities, and at the watershed level: Protect water quality and water quantity in areas having a critical recharging effect on aquifers used for potable water.	Intersect areas are protected by the regulatory backstop including pesticide regulations. No benchmarks or measurement required.	P-15 Continued application of groundwater quality critical area regulations for designated critical aquifer recharge areas incorporated into work plan.	Not applicable.	Not applicable.	Not applicable.	Chelan County implementation of Aquifer regulations incorporated into work plan from Critical Areas Ordinance.	Not applicable.	Not applicable.	Not applicable.
7.	CA Goal-XI. Promote volunteerism and stewardship of agricultural land and critical areas.	Benchmark-I. Sufficient active participation by commercial and non-commercial agricultural operators (farmers and ranchers) over 10 years that achieves the protection of critical area functions and values across WRIA basins.	P-16. Minimum annual outreach events held or education opportunities provided reported each biennium. P-17. Landowners contacted within 2 years of plan approval.	M-21 Indicators of active participation include: • Number of outreach events • Number/percentage of landowners contacted • Number of event attendees	5% reduction in participation in VSP program, by WRIA basin	Increase outreach and education events. Identify who drops out and why to modify outreach.	CCD: Type C CCNRD: Type B and G	Type1	Cascadia Conservation District	See budget

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Critical Area Goals	Critical Area Benchmark	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
		Annually, include County Assessor mailer to current use tax participants. Annually information is provided to past and current VSP participants by Technical Providers. P-18. Technical assistance sought by cumulative number of calls, meetings, applications, and contracts is maintained or increased. P-19. VSP participants in each WRIA basin by each biennium is maintained or increased. P-20. 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. First biennium goal is participation acreage within areas of intersect that equals or exceeds acreage participating in conservation practice cost-share programs or voluntary enhancement projects with Technical Providers between 2011 and 2016.	• 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) • Self-certification: See Appendix H for a checklist.					

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	Critical Area Goals	Critical Area Benchmark	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
		Benchmark-J. Passive participation by commercial and non-commercial agricultural operators in VSP conservation practices is maintained or increased over 10 years on agricultural land (including but not limited to those listed in Appendices D and H).	P-21 Acres of collective conservation practices applied. P-22 Survey demonstrates an increase in understanding of VSP in agricultural households.	M-22 Passive participation in common stewardship practices may be tracked and reported using one or more methods: • Mapping and aerial photo or evaluation and/or rapid watershed assessment of practices in place, and • Random sampling of farmers and ranchers in the field by technical assistance providers with willing landowners, or • Phone, mail, or online surveys.	5% reduction in acres where conservation practices are applied in areas of intersect.	Seek willing landowners in areas of intersect to reestablish conservation practices	CCD: Type A and B. CCNRD: Type A, B, D and E.	Type 1	Cascadia Conservation District	See budget
					5% reduction in awareness of VSP program	Increase outreach and education events.	See above.	Type 1	Cascadia Conservation District	See budget
Voluntary Enhancement or Restoration Measures: RCW 36.70A.720 (1) (e) Create measurable benchmarks that, within ten years after the receipt of funding, are designed to result in: (ii) the enhancement of critical area functions and values through voluntary, incentive-based measures										
8.	CA Goal-IV. Promote voluntary enhancement of fish and wildlife habitat conservation areas, associate species populations and their associated habitats in areas of intersect with agricultural activities.	Voluntary Meas I. Encourage voluntarily enhancement riparian areas to: • Improve partially functioning riparian areas with poor existing vegetative cover that has an ability to recover. • Enhance impaired riparian vegetation. • Consider selecting heights and varieties to achieve proper microclimate and to avoid agricultural pests. Priority is given to basins where the benchmark of riparian area protection of functions and values is at risk of degrading compared to baseline. Second priority is other areas of focus per county, state, regional, tribal priorities for enhancement.	P-23 Percent of acres with enhancement or restoration projects in riparian areas within hydrologic study areas intersecting agriculture in areas of first and second priority.	M-15 The number and extent of riparian enhancement projects in areas of agriculture-critical area intersect in areas of first and second priority. Implemented activities show intactness and survival based on specifications of installed projects.	10% reduction in number of interactions promoting restoration or enhancement projects. .	Seek willing landowners in areas of intersect.	CCD Type A and B. CCNRD: First Order: Type C and D. Second Order: B and F.	Type 2	Chelan County	See budget

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Critical Area Goals	Critical Area Benchmark	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
	Voluntary Meas-II Promote voluntary increase in livestock management measures that protect the functions and values of riparian areas.	P-24 Length or area of livestock management measures in hydrologic study areas.	M 11 Sample areas using aerial photography and conduct brief survey (mailed, phone, or online).	Miles of fencing or area of management practices is reduced more than 10% on intersecting acres due to agricultural activities.	Implement conservation practices to maintain or increase type of fencing or alternative management techniques current and added VSP Participants.	CCD: Type A and B. CCNRD: Type A, B, D and E.	Type 2	Chelan County	See budget
			M-12 Conservation practices that manage or reduce livestock access to riparian areas.				Type 2	Chelan County	See budget
	Voluntary Meas-III Promote voluntary enhancement of habitat for complementary wildlife species (e.g., pollinators, raptors, bats, and other species).	P-25 Percent of acres with wildlife habitat enhancement or restoration projects in areas of agriculture intersect.	M-13 Extent of mapped or documented Priority habitat as a percent of areas of intersect.	5% reduced priority habitat on intersecting acres due to agricultural activities.	Evaluate if changed mapping is due to quality of mapping data or due to on-the-ground loss of habitat due to agricultural activities in areas of intersect.	CCNRD: Type A..	Type 2	Chelan County	See budget
			M-14 Conservation practices that add complementary species or habitat (e.g., pollinators, raptors, bats, etc.) in areas of intersection during monitoring period.	10% reduction in acres where conservation practices are applied in areas of intersect.	Implement conservation practices to reestablish lost vegetation with current and added VSP Participants.	CCNRD: Type B	Type 1	Chelan County	See budget

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9.	CA Goal-VI. Where practical, encourage voluntary enhancing of wetland functions and values.	Voluntary Meas IV. Wetland areas voluntarily enhanced in areas of intersect. Voluntary Meas V. Livestock management or exclusion measures that reduce livestock access to wetland areas.	P-26 Percent of wetland areas within hydrologic study areas intersecting agriculture.	M-20 The number and extent of wetland enhancement projects in areas of agriculture-critical area intersect.	10% reduction in number of interactions promoting enhancement projects.	Seek willing landowners in areas of intersect.	CCNRD: Type B.	Type 2	Chelan County	See budget
10.	CA Goal-IX. Support voluntary floodplain enhancement activities such as levee setbacks to improve floodplain functions and support other critical area enhancement activities.	Intersect areas are protected by the regulatory backstop including flood hazard management regulations and pesticide regulations. No benchmarks or measurement required. See Fish and Wildlife benchmarks and voluntary measures for related activities to support restoration in floodplains.	P-27 Continued application of critical area regulations for designated flood hazard areas incorporated into work plan.	Not applicable.	Not applicable.	Not applicable.	Chelan County implementation of flood hazard regulations incorporated into work plan from Critical Areas Ordinance. Implementation of Watershed Plan for voluntary restoration.	Not applicable.	Not applicable.	Not applicable.
Agricultural Viability Aims, Incentives and Activities: RCW 36.70A.720 (1) A watershed group designated by a county under RCW 36.70A.715 must develop a work plan to protect critical areas while maintaining the viability of agriculture in the watershed.										
11.	AG Aim-I. Protect agricultural activities from geologic hazards such as erosion and landslides.	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	AG Track-1. Increased agricultural crop production and economic value annually. AG Track-2. Designated agricultural land in Comprehensive Plan	AG Track-1 Evaluation: Production and value: Review agricultural economy data: Census of Agriculture, WSU Extension reports, and other industry AG Track-2 Evaluation: Land in agriculture: See M-1.	Reduction in production, value, or percent of acres of agricultural land designated for long-term protection.	Determine if due to natural causes or regulatory causes. If regulatory in nature, conduct study to determine how to protect land and improve production.	Production and Economic Value: WSU Extension. Information provided to Chelan County for Work Group review purposes. Land base: Chelan County – Type A.	Type 2	Cascadia Conservation District: Outcome 1 Chelan County: Outcome 2	See budget

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CCNRD Type F: Convene expert panel; rapid watershed assessment may be used as an alternative for or supplement to CCNRD Type C based on assessment need and available funding

CCNRD Type G: Annual Summary of Watershed Meetings and 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 each 5-year reporting period, with review time by Work Group. Reports to Work Group: •10/31/2018 •7/1/2019 •7/1/2021 •10/31/2023. Stagger activities where periods are close (e.g. 2018/2019).

	Critical Area Goals	Critical Area Benchmark	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
		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.	continues to be protected.				Water resources: Chelan County – Type G.			
12.	AG Aim-II. Promote economical water, soil, pest, and nutrient management that maximizes produce quality.		See AG Track-1 and 2 above. AG Track-3. Water resources necessary for producers are available and reliable.	AG Track-3 Evaluation: WRIA Plan implementation results.	Reduced availability of water unforeseen in WRIA plans or state rules.	Update watershed plans to address water uses and resources.	See above.	Type 2	Cascadia Conservation District: AG Track-1 Chelan County: AG Track-2 and 3	See budget
13.	AG Aim-III. Protect orchards and vineyards from wildlife and pest damage.		See AG Track-1 and 2 above.	See above.	See above.	See above.	See above.	Type 2	Cascadia Conservation District: AG Track-1 Chelan County: AG Track-2	See budget
14.	AG Aim-IV. Avoid water contamination, damage to crops, loss of livestock, increased susceptibility of livestock to disease, and damaged farm machinery due to flooding.		See AG Track-1 and 2 above.	See above.	See above.	See above.	See above.	Type 2	Cascadia Conservation District: AG Track-1 Chelan County: AG Track-2	See budget
15.	AG Aim-V. Promote the prevalence of conservation practices to help avoid unnecessary local critical area regulations.		See AG Track-1 and 2 above.	See above.	See above.	See above.	See above.	Type 2	Cascadia Conservation District: AG Track-1 Chelan County: AG Track-2	See budget

PRIORITY GOALS, BENCHMARKS, VOLUNTARY MEASURES, OR AIMS

Receive priority when determining available resources.

WHO MONITORS

Cascadia Conservation District (CCD)

CCD Type A: Educate, facilitate, and/or implement conservation practices with willing landowners

CCD Type B: Collect follow-up monitoring information from willing landowners through phone, email, and/or site visits, based on available funding

CCD Type C: Annual Report

Chelan County Natural Resources Department (CCNRD)

CCNRD Type A: Mapping

CCNRD Type B: Tracking Tool / Database Management and Review available Census of Agriculture

CCNRD Type C: High Resolution Change Detection (HRCD)

CCNRD Type D: Producer Survey (Field Sample, Phone, or Online)

CCNRD Type E: Educate, facilitate, and/or implement conservation practices with willing landowners

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	Critical Area Goals	Critical Area Benchmark	Performance Metric	Monitoring Method	Adaptive Management Action Threshold	Adaptive Management Action	Who Monitors	When	Party Responsible for An Action	Funding source for Adaptive Management Action
16.	AG Aim-VI Increase the viability of the agricultural industry in Chelan County.		See AG Track-1, 2, and 3 above. AG Track-4 Producers have more regulatory stability in Chelan County. AG Track-5 On-farm and commercial storage, aggregation, and distribution services are available. AG Track-6 Necessary supplies, equipment, and other farm inputs are accessible and available. AG Track-7 Producers have access to farm business expertise, training, and practical research that advances farm profitability and conservation.	See above. AG Track -4 Evaluation: Continued applicability of VSP. AG Track 5 Evaluation: Number of Storage and Food Distribution Establishments serving the county, and volume of storage and distribution; Covered Employment and Businesses AG Track 6 Evaluation: 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. AG Track 7 Evaluation: Number of producers using business planning and technical assistance services.	VSP Program is at risk of being discontinued. Storage, food distribution, and access to markets is reduced. Decrease in use of practices that reduce inputs and associated costs. Decrease in number of producers using business planning and technical assistance services.	VSP Program: Follow GMA Critical Area provisions if VSP Work Plan is not in effect. Additional outreach and education on conservation practices and available technical assistance.	Outcomes 1, 2, and 3: See above. Outcome 4: VSP Program Implementation Status: CCD: Type C and CCNRD Type G Outcomes 5 and 6: Economic and land use regulation study. Outcome 7: Roundtable with technical service providers and study to identify solutions.	Type 2	Cascadia Conservation District: AG Track-7 Chelan County: AG Track-3, 4, 5, and 6	See budget

PRIORITY GOALS, BENCHMARKS, VOLUNTARY MEASURES, OR AIMS

Receive priority when determining available resources.

WHO MONITORS

Cascadia Conservation District (CCD)

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Draft VSP Implementation Budget *Mar-17*

Monitoring Activity	Frequency Type	Cost (2017$)	*Biennium* 2017	2018	*5-Year* 2019	2020	*Biennium* 2021	2022	*Biennium* 2023	*10-Year* 2024	Total	Projected Sources	Cost Notes
Cascadia Conservation District (CCD) Subtotal			$29,250.00	$29,250.00	$85,750.00	$129,750.00	$129,750.00	$129,750.00	$129,750.00	$129,750.00	$812,750.00		
CCD Type A: Educate, facilitate, and/or implement conservation practices with willing landowners	1	$22,000.00	$22,000.00	$22,000.00	$66,000.00	$110,000.00	$110,000.00	$110,000.00	$110,000.00	$110,000.00	$660,000.00	SCC	2017 CCD Budget. Demand for cost share in 2016-17 was for $168K, and only $22K (1 project) was funded. Demand for cost share in 2015-2016 was $255K and $70K (3 projects) were funded. Budget assumes moving from 1 to 3 to 5 cost shares per year minimum.
CCD Type B: Collect follow-up monitoring information from willing landowners through phone, email, and/or site visits, based on available funding	1	$3,750.00	$3,750.00	$3,750.00	$3,750.00	$3,750.00	$3,750.00	$3,750.00	$3,750.00	$3,750.00	$33,750.00	SCC	Assume monitoring of cost-shares, plus 3 site visits per year, summary report.
CCD Type C: Annual Report	1	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$31,500.00	CCD	
CCD Agricultural Viability: Incentive-1 Priority funding set aside and made available by federal, state, and local sources to support VSP Program participation by farmers and ranchers. Applications for conservation practices could score higher for VSP participants such as through CCD, NRCS, and other agencies.	1	See Type A and B above	See Type A and B above	See Type A and B above	See Type A and B above	See Type A and B above	See Type A and B above	See Type A and B above	See Type A and B above	See Type A and B above	See Type A and B above	See Type A and B above	
CCD Agricultural Viability:Incentive-11 Explore a "farmbudsman" program where farmers and ranchers can obtain objective and comprehensive advice on federal, state, and local laws that affect agricultural activities, e.g. water rights.	2	$12,500.00			$12,500.00	$12,500.00	$12,500.00	$12,500.00	$12,500.00	$12,500.00	$87,500.00	SCC, CCD	Assume 0.25 FTE
Chelan County Natural Resources Department (CCNRD) Subtotal			$17,250.00	$69,500.00	$52,000.00	$38,000.00	$87,000.00	$38,000.00	$67,000.00	$58,000.00	$426,750.00		
CCNRD Type A: Mapping	2	$20,000.00		$20,000.00			$20,000.00			$20,000.00	$60,000.00	SCC, Other State and Federal	Consultant estimate based on similar VSP mapping efforts and likely available data. WSDA maps available every 3-5 years.
CCNRD Type B: Tracking Tool / Database Management and Review available Census of Agriculture	1	$7,500.00	$7,500.00	$7,500.00	$7,500.00	$7,500.00	$7,500.00	$7,500.00	$7,500.00	$7,500.00	$60,000.00	SCC, Other State and Federal	Consultant estimate.
CCNRD Type C: High Resolution Change Detection (HRCD)	2	$5,000.00	$0.00		$5,000.00		$5,000.00		$5,000.00		$15,000.00	SCC	WDFW original 2017 request. Analaysis follows aerial photos every 2 years (2009, 2011, 2013, and forward).
CCNRD Type D: Producer Survey (Field Sample, Phone, or Online)	2	$11,000.00		$11,000.00		$11,000.00		$11,000.00		$11,000.00	$44,000.00	SCC	Consultant estimate - assumes 12 sites visits (3 each basin), summary report, and an online survey.
CCNRD Type E: Educate, facilitate, and/or implement conservation practices with willing landowners	1	$12,500.00	$6,250.00	$12,500.00	$12,500.00	$12,500.00	$12,500.00	$12,500.00	$12,500.00	$12,500.00	$93,750.00	SCC, Other State and Federal	Assumed 0.25 FTE of Natural Resources Specialist per 2017 budget. Only half year 2017.
CCNRD Type F: Convene expert panel; rapid watershed assessment	2	$15,000.00		$15,000.00			$15,000.00		$15,000.00		$45,000.00	SCC	Assumes one basin.
CCNRD Type G: Annual Summary of Watershed Meetings and VSP Activities	1	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$28,000.00	CCNRD	Consultant estimate.
CCNRD Agricultural Viability Incentive-2 Provide information to farmers and ranchers about available tax incentives for participating agricultural producers.	2	See Type D above	See Type D above	See Type D above	See Type D above	See Type D above	See Type D above	See Type D above	See Type D above	See Type D above	See Type D above	See Type D above	
CCNRD Agricultural Viability Incentives 6, 7, 9 - Comprehensive Plan and Zoning for Ag Industry and Incentives	2	$15,000.00			$15,000.00		$15,000.00		$15,000.00		$45,000.00	CCNRD	Three docket items addressed by Community Development Department Staff.
CCNRD Agricultural Viability Incentive-10 Establish an agricultural viability committee that can advise Chelan County and other agencies on measures to promote the agricultural economy.	2	$3,500.00			$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$3,500.00	$21,000.00	SCC, CCNRD	Quarterly meetings
CCNRD Agricultural Viability Incentives 3, 4, 5, 8 regarding lobbying legislature, coordinating marketing with economic development activities, facilitating regional discussions.	2	$5,000.00			$5,000.00		$5,000.00		$5,000.00		$15,000.00	CCNRD	
Grand Total		**$139,750.00**	**$46,500.00**	**$98,750.00**	**$137,750.00**	**$167,750.00**	**$216,750.00**	**$167,750.00**	**$196,750.00**	**$187,750.00**	**$1,239,500.00**		

Frequency Type
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Source
SCC = State Conservation Commission
CCD = Cascadia Conservation District
CCNRD = Chelan County Natural Resources Department

Appendix J
Outreach

Outreach for the Chelan County Voluntary Stewardship Plan has several objectives:

1. Seek early participation by growers/producers in developing a work plan
2. Seek participation in, and understanding of, work plan development by other stakeholders
3. Gain responsibility and ownership of the Voluntary Stewardship Plan by the agricultural community
4. Ensure that growers/producers know about the VSP work plan as we near adoption
5. Bridge the gap between agricultural producers and resource agencies

There are three primary timeframes to address regarding outreach: outreach to stakeholders in establishing the VSP Workgroup, outreach conducted (in several phases) that provides information to interested stakeholders and the public that a VSP work plan is being prepared, and outreach during plan implementation. There are statutory considerations for outreach.

Establishing the workgroup

The legislation establishing the Voluntary Stewardship Program provides the following direction for appointing the VSP Watershed Workgroup:

> "RCW 36.70A.715 (3) The watershed group must include broad representation of key watershed stakeholders and, at a minimum, representatives of agricultural and environmental groups and tribes that agree to participate. The county should encourage existing lead entities, watershed planning units, or other integrating organizations to serve as the watershed group."

A general organizational meeting for all stakeholders was held in July, 2014. Approximately 25 people attended this meeting. The purpose was to provide information on the VSP and invite any interested participants to attend.

For agricultural groups, several open forums were held in Spring 2014 with producers about what VSP is. These were hosted by Chelan County. Announcements were made during Spring 2014 at watershed planning unit meetings (Entiat, Wenatchee, Stemilt-Squilchuck, and Lake Chelan planning units). Groups that ended up participating include the Cascadia Conservation District, local and state Farm Bureau, the WA State Tree Fruit Association, WSU Extension, and
NRCS.

For tribal government, an invitation was extended to the Yakama Nation and the Confederated Tribes of the Colville Reservation. The Yakama Nation indicated they would not be able to fully participate, but were placed on the e-mail distribution list so they would receive materials. The Colville Tribe did not respond to the invitation and were placed on the e-mail distribution list.

For environmental organizations, invitations were extended to several environmental organizations including Washington Environmental Council, Trust for Public Lands, The Nature Conservancy, and Futurewise. The facilitator met with the Chelan-Douglas Land Trust and reviewed the draft workplan with them. In general, it was difficult to find environmental organizations who were able to fully participate. If an e-mail address was available, they were included on the distribution list to receive materials so they could track if they desired.

Specific state agencies with interest in VSP and expertise in related issues were asked to be part of the workgroup. This includes the Departments of Ecology, Agriculture, and Fish and Wildlife.

Outreach during work plan preparation:
RCW 36.70A.720 sets out the general considerations for outreach during the development of the VSP work plan. Section 1 (b) requires the work group to "seek input from tribes, agencies, and stakeholders."

The table below includes the outreach efforts made during this phase.

NRCS Local Working Group announcement	July 2014
"Hort Days" presentation by Chelan County	January 2015
Article in "Good Fruit Grower" about Chelan County's VSP work plan	March 24, 2015
Joint CCD and NRCS article in newsletter about VSP	Winter/Spring 2015
Work session for Chelan Board of County Commissioners	June 2015
Attended Chelan-Douglas Farm Bureau Summer Picnic – flyers	August 2015
Cascadia Conservation District presentation to their Board	January 2017
Work session for Chelan Board of County Commissioners	March 2017

The county also established a website containing information about the VSP process:
http://www.co.chelan.wa.us/natural-resources/pages/voluntary-stewardship-program?parent=Planning

Outreach during implementation: Implementation: RCW 36.70A.720(1)(d) requires the work group to "ensure outreach and technical assistance is provided to agricultural operators in the watershed" once a workplan is approved. This is described in Section 6.0 of the work plan.

Watershed Work Group Meetings

- October 2014
- March 2015
- December 2015
- March 2017

Staff Work Group

Meetings in 2015

- January 13
- February 10
- March 5
- April 6
- April 16
- May 12
- July 7

- October 16
- November 12

Meetings in 2016

- January 15
- February 19
- April 19
- May 13
- June 21
    - September / October – Conference Calls on Adaptive Management Matrix
- December 16