CHAPTER 8: IMPLEMENTATION

This chapter provides a framework to bring the Plan's recommendations into existence. An intention of this Plan is to recommend land management practices that will directly contribute to water pollutant load reductions and hydrologic condition improvement. The first section of this chapter summarizes our current understanding of known pollutants in the watershed and the relative level of load reduction expected from the recommended management practices.

Chapter 8 then goes on to identify who would implement actions by when and addresses the value of partnerships to engage watershed residents and support Gold Ridge RCD in meeting watershed goals. It presents an overall strategy for keeping watershed residents and other stakeholders current with new information and management practices. Finally, the chapter identifies potential funding sources and provides a brief summary of permits that may be needed for implementation.

Pollutant Load Reduction and Success Criteria

Chapters 3 through 7 outline information related to, and actions designed to improve, the overall health and functioning of the watershed for wildlife and human residents. Chapters 4, 5, and 6 focus on riparian and instream habitat conditions, water quality, and water supply availability, respectively. These three chapters summarize baseline data for habitat conditions and pollutant factors and indicate where and when conditions have deviated from indicator target values.

Water-quality and streamflow monitoring efforts to date have not been designed to directly estimate pollutant loading. Results from the baseline water-quality monitoring program were not sufficiently statistically robust to estimate pollutant loads (UCCE 2009, Appendix B). Load estimating using watershed models is an altrnative approach. However, for the model results to be accurate, the input data must be correlated to site-specific information and the output checked for accuracy against real data. This type of modeling approach, with its associated data collection and computational needs, was beyond the scope of this Plan. Loading rates based on published literature, while commonly used, are too general to provide a much higher level of precision than local, knowledgeable professional judgment in designing and ranking load reduction measures in the watershed; see Table 6 below. The misapplication of published literature loading values or inaccurate model results may lead to unintended consequences for landowners and resource agencies. Therefore, we have chosen to characterize pollutant load reduction in a qualitative manner that rates their potential to effect changes in indicators.

As illustrated in the Table 6 below, a single land-use management practice may affect multiple hydrologic and pollutant factors. Successful reduction of any pollutant load or improvement in a hydrologic condition requires implementation of multiple management practices. Project development and prioritization will need to include evaluation of the potential to reduce pollutant loads or improve hydrologic conditions within a reach or watershed wide.

Table 6. Potential for land management practices to reduce pollutant loads in the Salmon Creek Watershed.
High potential (H), medium potential (M), and low potential (L) are relative and subjective. Additional data collection and watershed modeling are necessary to substantiate and quantify pollutant loads and expected reduction amounts.

Evaluation of Pollutant Load Reduction Measures									
	Hydrologic Factors			Pollutant Factors					
Management Practices	Dry-season flows	Infiltration/ Groundwater recharge	Flood peaks/ Flashiness	Turbidity	Temperature	Dissolved oxygen	Nutrients	Pathogens	Toxins/ Heavy metals
Manage forests for fire safety, diversity, and health		H	M	M					
Manage grasslands for species diversity and health		H	M	M			M	M	
Stabilize upland gullies				H					
Improve or decommission rural roads				H					
Install sediment retention basins		M	M	H			L	L	
Construct vegetated infiltration bioswales		H	H	M			L	L	
Disconnect impervious surfaces and drainage ditches from waterways		M	H	H			M	M	H
Promote use of pervious materials		M	M	L					
Upgrade septic systems						M	H	H	M
Reduce use of pesticides and fertilizers							M		
Install riparian fencing to limit livestock access	H			M		H	H	H	
Implement agricultural nutrient management				M		M	H	H	
Increase riparian buffer width	L		L	M	H		H	M	
Plant riparian trees					H	H	L		
Stabilize eroding streambanks with bioengineered solutions				L	M				
Implement rainwater harvesting and storage projects	H	M	L		L	L			
Remove instream pumps and reduce use of near-channel wells	H				M	H			
Implement water conservation practices	M				L	L			
Improve community water system efficiency	M				L	M			
Color Key	Watershed-wide and/or seasonal impairment								
	Reach-specific or localized impairment								
	Suspected impairment								

The success of pollutant load reduction implementation will be tracked through the watershed monitoring program; see Chapter 9. The expanded monitoring program will also be used to refine the understanding of reach-specific impairments, as well as design and prioritize projects. The following table outlines the key indicators and criteria to be used in tracking pollutant load reduction and hydrologic condition success.

Table 7. Success criteria for pollutant load reductions and hydrologic condition improvements.

Criteria to track the success of pollutant load reduction projects		
Hydrologic Factors	**Dry-season flows**	Increasing trend in dry-season baseflow discharge and /or drought-period streamflow
	Infiltration/ Groundwater recharge	Increasing trend in dry-season water depths in upland wells
	Flood peaks/ Flashiness	Decreasing trend in streamflow flashiness
Pollutant Factors	**Turbidity**	Decreasing trend in winter baseflow and storm-event turbidity levels
	Temperature	Increasing trend in number of weeks with pool MWAT at or below 15°C during the dry season
	Dissolved oxygen	Increasing trend in number of weeks with average pool DO at or above 7 mg/L
	Nutrients	Maintain nitrate levels at or below 0.155 mg-N/L and orthophosphate (reported as total P) at or below 0.03 mg/L
	Pathogens	Fecal coliform: Maintain median 30-day levels at or below 50/100 ml with 10% of those samples not exceeding 400/100 ml
	Toxins/ Heavy metals	No criteria standards established

Color Key		
	Watershed-wide and/or seasonal impairment	
	Reach-specific or localized impairment	
	Suspected impairment	

Partnerships

The Salmon Creek Watershed is rich in partners. With no incorporated cities, a small population, and no municipal reservoirs, it has fostered an independent population of multi-generational ranch families, farmers, artists, and rural residents accustomed to taking care of themselves and their neighbors. Participation in watershed activities has been high with many people regularly attending public meetings, cooperating with Gold Ridge RCD on conservation projects, and expressing interest in the Save our Salmon (SOS) rainwater harvesting program. The SCWC and OAEC have been leaders with Gold Ridge RCD in creating a vision for a healthy watershed and bringing in funding for assessments, planning, and implementation. Salmon Creek School has just completed the first platinum LEED (Leadership in Energy and Environmental Design) certified building in Sonoma County; the school also includes a strong watershed-based environmental component in the curriculum. BLT, SLT, and SCAPOSD hold conservation easements in the watershed and promote good stewardship practices.

Bodega Water Company has been working with OAEC and Gold Ridge RCD to reduce its impact on summer flows. UCCE and NRCS have been stalwart partners in providing technical assistance to Gold Ridge RCD and landowners, as well as cost-share help through USDA programs. The NCRWQCB, CDFG, SCC, and NOAA Restoration Center have been major funders of watershed programs, and many other agencies have generously served as technical advisors.

Many of the actions in the Plan rely on partners to take the lead or provide support. Table 8 identifies the partners and their existing roles in the watershed. The following acronyms are used in the implementation summaries (Tables 9-13) that follow:

BAEDN	Bay Area Early Detection Network
BLT	Bodega Land Trust
CDFG	California Department of Fish & Game
CNGA	California Native Grass Association
MSWMA	Marin Sonoma Weed Management Area
NCRWQCB	North Coast Regional Water Quality Control Board
NOAA	National Oceanic and Atmospheric Agency's Restoration Center
NRCS	USDA Natural Resources Conservation Service
OAEC	Occidental Arts and Ecology Center
NCRWQCB	North Coast Regional Water Quality Control Board
SCC	State Coastal Conservancy
SCAPOSD	Sonoma County Agricultural Preservation and Open Space District
SCWC	Salmon Creek Watershed Council
SLT	Sonoma Land Trust
STRAW	Students and Teachers Restoring a Watershed
SWRCB	State Water Resources Control Board
TBD	To be determined
TU	Trout Unlimited
UCCE	University of California Cooperative Extension
$	$0 to $24,999
$$	$25,000 to $100,000
$$$	Over $100,000

Table 8. Existing programs and efforts in the Salmon Creek Watershed.

Watershed partners	Existing Program or Activity
Landowners	Ongoing stewardship activities including range and forest management, erosion control, invasive plant control, and riparian enhancement.
GRRCD	Outreach and education, water conservation and rainwater harvesting, instream habitat enhancement, streambank restoration, ranch planning, support of on-farm pollination programs, water quality monitoring, grassland monitoring, rural road improvements and assessments, manure management planning, watershed management planning, forest health, and grant writing
Salmon Creek Watershed Council	Outreach and education; community networking; watershed website; generator of and clearinghouse for ideas for grants and initiatives; support of GRRCD, OAEC, Salmon Creek School, and other's grant-funded watershed programs.
OAEC	Salmon Creek Water Conservation Program, outreach and education, estuary enhancement, forest health, landowner consulting, grassland monitoring, endangered species recovery efforts, including native beaver reintroduction, erosion control and stormwater management, grant writing and program development.
Bodega Water Company	Water conservation, rainwater harvesting
UCCE	Ranch water quality plans, assistance with water quality monitoring, and estuary research
Sonoma County Agricultural Preservation and Open Space District	Conservation easements, stewardship activities on District-owned properties
Bodega Land Trust	Conservation easements, outreach and education, stewardship activities on properties with easements
Salmon Creek School	Community education, green building and LID (low impact development) demonstrations, riparian and wetland enhancement
Bodega Volunteer Fire Dept	Rainwater harvesting, LID
California State Parks	Estuary protection and management
Ocean Song	Native grassland mapping and management, environmental education

Implementation summary

$ = $0 to $24,999 $$ = $25,000 to $100,000 $$$ = over $100,000

Table 9. Implementation of upland management recommendations.

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
Uplands 1: Manage forests and woodlands to maintain diversity and ecosystem function.	1a. Provide education and technical support for landowners to manage healthy forests.	√ Conduct a watershed workshop or small-forest "fair." √ Provide information on websites. Distribute handouts at local events. √ Encourage landowners to work with NRCS to develop Forestry Conservation Action Plans (NRCS CAP). √ Promote management of existing redwood forest to encourage development of late seral stands. √ Coordinate with local conservation corps to provide low-cost work crews to assist landowners.	5 yrs	$ - $$	GRRCD or UCCE	Cal Fire Sonoma County Forest Conservation Working Group NRCS
	1b. Identify priority areas for forest and woodland conservation, including late-successional redwoods that provide habitat for special-status species.	√ Target high priority areas.	5 yrs	$$	SCAPOSD, SLT, BLT	Sonoma County Forest Conservation Working Group
	1c. Implement a fuel-load management program in cooperation with Cal Fire.	√ Target high priority areas. √ Organize neighborhood meetings with Cal Fire and local fire departments. √ Coordinate with local conservation corps to provide low-cost work crews to assist landowners. √ Assist neighborhoods in organizing and finding funding for chipping programs √ Assist landowners with NRCS EQIP practices	5 yrs	$-$$	FireSafe Sonoma	Landowners CalFire NRCS Sonoma County Forest Conservation Workgroup Local VFDs Neighborhood associations

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
	1d. Determine the extent of Sudden Oak Death in the watershed and educate landowners about minimizing spread and managing infected forests.	√ Coordinate with UCCE to monitor extent of SOD. √ Create outreach materials to educate landowners about how to prevent SOD spread, treat diseased trees, and handle infected wood. Distribute at local events, other watershed workshops, and through websites. √ Develop, publish, and publicize BMP recommendations for private forest and woodland owners.	1-3 yrs	$-$$	UCCE	TBD
Uplands 2: Protect existing coastal prairie and other grasslands rich in native species and manage for healthy grasslands throughout the watershed.	2a. Support watershed ranchers in developing and implementing ranch plans that include sustainable grazing practices.	√ Coordinate with UCCE and NRCS to support ranchers in developing plans.	5 yrs	$$	MSWMA	Landowners UCCE NRCS GRRCD
	2b. Support local research and education efforts to identify and refine management strategies that promote native grassland species.	√ Establish and support demonstration sites for ongoing education. √ Provide a range of educational materials and tours for ranchers, small grassland owners, and the	1-3 yrs	$-$$	MSWMA	Sonoma Marin Coastal Grasslands Working Group GRRCD
	2c. Identify priority areas for native grassland conservation.	√	5 yrs	$$	Sonoma Marin Coastal Grasslands Working Group	SCAPOSD SCC Sonoma Coast State Park
	2d. Develop local seed sources for native grassland plants.	√ Develop database of locations where key grassland species for restoration occur, and where landowners are willing to allow seed collection. √ Offer workshops identifying key grassland species for restoration use, methods of seed collection, and options for seed increase.	5 yrs	$	MSWMA	Sonoma Marin Coastal Grasslands Working Group CNPS, Milo Baker Chapter

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
		√ Support development of a community seed bank.				CNGA
Uplands 3: Reduce impact of invasive species populations on habitat quality and function.	3a. Inform residents about invasive plant species, removal techniques and timing to avoid erosion and wildlife impacts, and native species suitable for residential or rangeland plantings.	√ Hold a weed-whacking workshop. √ Partner with local nurseries and distributors to provide free native plants, protectors, and other revegetation products to participants. √ Provide information on websites. Distribute handouts at local events.	5 yrs	$	MSWMA	Landowners SCWC
	3b. Promote removal of gorse, French broom, Scotch broom, and Himalaya blackberry infestations and replanting with appropriate native species.	√ Provide use of weed wrenches for a nominal fee. √ Organize neighborhood work parties. √ Provide free native plant(s) and disposal of invasive plant material.	5 yrs	$	MSWMA	Landowners SCWC
	3c. Monitor new occurrences of invasive species and contribute to regional weed management databases and efforts.	√	on-going	$	BAEDN	Landowners MSWMA
Uplands 4: Preserve undisturbed upland habitat and its connectivity.	4a. Identify and protect areas needed for wildlife corridors and critical habitat.	√	on-going	$$$	SCAPOSD	BLT SLT GRRCD
	4b. Encourage use of wildlife-friendly fencing	√ Develop informational materials to post on websites and distribute at workshops, local events, and landowner visits.	5 yrs	$	GRRCD	Landowners NRCS

Table 10. Implementation of instream and riparian enhancement recommendations.

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
IR 1: Protect and increase existing riparian corridors.	1a. Increase and protect riparian corridor widths to improve function and habitat quality.	√ Educate landowners and residents about the benefits of riparian corridors and functional widths. √ Install riparian fencing along stream reaches accessed by livestock. √ Develop a program to assist rural residential landowners in managing their land for wider riparian corridors.	1- 3 yrs	$ - $$	GRRCD with assistance from NRCS	Landowners SCWC BLT SLT UCCE
	1b. Enhance riparian corridor structure complexity and species richness.	√ Educate landowners along riparian corridors on the components of a healthy riparian corridor. √ Install riparian fencing in reaches accessed by livestock. √ Plant riparian trees and herbaceous shrubs in riparian areas with insufficient density and complexity.	5 yrs	$ - $$	GRRCD with assistance from NRCS SCWC	Landowners BLT STRAW
IR 2: Increase instream channel complexity.	2a. Increase wood in stream channels.	√ Educate landowners and residents on the importance of large wood in stream channels, and the legal constraints on its unauthorized removal. √ Leave naturally downed large wood in channel, unless threatening infrastructure. √ Install large wood structures. √ See Recommendation 1 for actions to increase available wood and promote natural recruitment through riparian corridor enhancement.	5 yrs	$ - $$	GRRCD TU	Landowners BLT SCWC UCCE CDFG SWRCB SCC NOAA
	2b. Allow bank widening and inset flood bench development in reaches not constrained by buildings or infrastructure.	√ Use non-rock, biotechnical engineering practices to stabilize banks. √ Allow natural bank retreat and slumping.	5 yrs	$$	TBD	Landowners CDFG SWRCB SCC NOAA

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
	2c. Promote tree establishment along the active channel and on stream banks for bank stabilization, live wood complexity, and undercut bank development.	√ Remove chronic disturbances, such as grazing (See Recommendation 1). √ Stabilize and slope eroding banks with bioengineering approaches and plant early successional riparian plants such as willow along with hardwood and conifer species. √ Leave or install large wood on active channel margins and banks to slow flood velocities, deposit fine sediment, and protect seedlings. √ Allow undercut banks to develop.	5 yrs	$$ - $$$	GRRCD	Landowners BLT STRAW TU SCWC NOAA UCCE CDFG SWRCB SCC
IR 3: Reduce fine sediment delivery and maintain gravel quality.	3a. Reduce fine sediment delivery from upland gully erosion, residential development, livestock operations, vineyards, and roads.	√ Educate landowners, construction operators, and public works departments on BMPs for reducing erosion and managing sediment delivery to streams. √ Improve grasslands and cross-fence pastures to reduce sheet and rill erosion on livestock ranches and dairy operations. √ Install riparian fencing to reduce streambank erosion. √ Decommission non- or under-used roads. √ Upgrade poorly designed roads. √ Document and repair upland gullies delivering sediment directly to the stream system.	Ongoing	$-$$$	GRRCD	Landowners SWRCB CDFG SCC NOAA
	3b. Improve in-channel complexity for the capture and sorting of suitable spawning gravels.	√ See Instream and Riparian Recommendation 2.	5 yrs	$$	GRRCD	Landowners SWRCB CDFG SCC NOAA

Table 11. Implementation of water quality enhancement recommendations.

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
WQ 1: Minimize turbidity and the delivery of fine sediment from upland sources.	1a: Document and manage upland sediment sources.	√ Assess upland erosion sites for delivery of sediment to waterways. √ Maintain an on-going inventory of high-priority erosion control projects for use in funding and implementation decisions. √ Cooperate with landowners to implement identified high-priority erosion control projects.	Ongoing	$$-$$$	GRRCD	Landowners SCWC CDFG SCC NCRWQCB NRCS
	1b. Maintain, improve, or decommission rural roads.	√ Address sediment sources from road networks. Where possible, decommission roads that are no longer in use. √ For roads that are still in use, improve road design and maintenance practices to limit sediment production. √ Provide maintenance workshops and install demonstration projects as outreach to owners of dirt roads and driveways.	5 yrs	$-$$$	GRRCD	Landowners SCWC CDFG SCC NCRWQCB NRCS
	1c. Disconnect and filter sediment from waterways.	√ Increase the width, extent, and vegetative cover of riparian buffer throughout the watershed; see Instream Habitat Enhancement Action Plan in Chapter 5. √ Provide off-channel water sources for livestock by developing alternative water supply and providing pasture troughs. √ Construct sediment retention basins and infiltration swales along roadway drainage ditches to capture stormwater runoff and fine sediment. √ Install bioswales to slow stormwater runoff before it enters waterways √ Disconnect impervious surfaces	5 yrs	$$-$$$	GRRCD with assistance from NRCS OAEC	Landowners SoCo Dept. of Transport'n & Public Wks CDFG SCC NCRWQCB

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
	1d. Promote soil retention.	√ Provide technical information and training on Best Management Practices for erosion control and farming practices to maintain topsoil.	1-3 yrs	$	GRRCD with assistance from NRCS	Landowners UCCE NCRWQCB
WQ 2: Maintain and improve summer water temperatures.	2a. Maintain and enhance dry-season flows.	√ See Chapter 7: Water Supply Sustainability Action Plan.			GRRCD	Landowners UCCE NCRWQCB CDFG NOAA
	2b. Maintain and Increase riparian canopy cover.	√ See Chapter 5: Instream Habitat Enhancement Action Plan.			GRRCD	Landowners UCCE NCRWQCB CDFG NOAA
	2c. Reduce and minimize turbidity.	√ See WQ Recommendation 1.			GRRCD	Landowners UCCE NCRWQCB CDFG NOAA
WQ 3: Increase summer DO levels in pools.	3a. Increase summer streamflows.	√ See Chapter 8: Water Supply Sustainability Action Plan.				
	3b. Reduce summer water temperature.	√ See WQ Recommendation 2.				
	3c. Reduce nutrient loads.	√ See WQ Recommendation 4.				
WQ 4: Minimize nutrient and pathogen delivery.	4a. Restrict direct livestock access to	√ Provide technical information to horse owners and other rural residents with small numbers of	1-3 yrs	$	GRRCD with assistance from NRCS and	Landowners NCRWQCB

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
	streams and riparian areas.	confined animals. √ Support use of riparian fencing, pasture management, water development, and other strategies to protect waterways.			UCCE	CDFG NOAA Sonoma County Farm Bureau
	4b. Upgrade inadequate septic systems adjacent to waterways.	√ Provide information to landowners on the importance of maintaining a well-functioning septic system to a healthy stream. √ Coordinate with Sonoma County PRMD to streamline permitting to upgrade or replace inadequate systems. √ Seek funding to assist landowners with onsite wastewater treatment systems.	5 yrs	$$	TBD	Landowners SoCo PRMD NCRWQCB
	4c. Reduce use of nitrate- and phosphate-rich products.	√ Develop and distribute a comprehensive list of effective alternatives and methods for reducing quantity of use. √ Develop demonstration sites for reduced fertilizer and pesticide gardening and farming. √ Educate landowners about reducing the use of phosphate soaps to lessen associated phosphate pollution through insufficient filtration by onsite wastewater treatment systems.	1 -3 yrs	$	TBD	Landowners MSWMA BAEDN UCCE SoCo Agric. Commissioner's
WQ 5: Promote minimal use and proper disposal of toxic compounds.	5a. Keep stormwater on site.	√ Use educational materials, workshops, and demonstration sites to encourage the use of measures such as rainwater catchment, low-impact design, swales, and infiltration ponds to retain stormwater.	1- 3 yrs	$	TBD	OAEC UCCE NCRWQCB County of Sonoma

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
	5b. Educate community on pollutants of concern and how to reduce water contamination.	√ Develop and distribute educational materials on websites, at workshops and community events, and on toxic round-up days (see Action 5c). √ Include information on proper use and disposal of household toxics, and safe alternatives. √ Include guidelines for proper drainage of swimming pools and spas.	1 – 3 yrs	$	TBD	SoCo Envt'l Health SCWC
	5c. Promote proper disposal of toxic products.	√ Hold well-publicized toxics round-up days quarterly to assist landowners with safe disposal of unwanted compounds.	1 – 3 yrs	$	TBD	

Table 12. Implementation of water supply sustainability recommendations.

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
WS 1: Develop storage-based water supplies to reduce reliance on, and utilization of, extractive sources.	1a. Develop off-channel ponds and distribution systems.	√ Evaluate agricultural producer's water supply sources to target those using instream or riparian sources.	1 – 3 yrs	$$$	GRRCD	Landowners NRCS CDFG SWRCB NOAA
	1b. Install roofwater harvesting systems.	√ Design and install roofwater catchment systems to replace non-potable water uses from extractive sources and increase water supply security. √ Consider installing roofwater catchment systems where potable supplies are unreliable, water quality is poor, or water source is a stream diversion.	1 – 3 yrs	$$ - $$$	GRRCD BWC OAEC	Landowners NRCS CDFG SWRCB NOAA
	1c. Support landowners in reducing or eliminating dry-season use of instream pumps and near-channel wells.	√ Conduct an education and outreach program to inform residents of the ecological impacts of using their riparian water rights. √ Develop off-channel storage and roofwater harvesting systems to replace riparian water sources – see Water Supply Actions 1a and 1b above. √ Develop program to enroll landowners in abstaining from using their riparian rights for the purpose of salmonid habitat improvements.	1 – 3	$ - $$$	GRRCD OAEC BWC	Landowners NRCS TU SWRCB NOAA
WS 2: Reduce water demands.	2a. Implement water conservation program to minimize consumption	√ Conduct watershed-wide workshops to educate residents and encourage water conservation practices, such as: √ Work with County to develop and distribute information on programs that assist landowners in implementing water conservation projects, such as water use audits and SCEIP. √ Research and develop programs that	1 – 3 yrs	$	OAEC	GRRCD PRMD County of Sonoma TU SCWA

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
		assist landowners with financial hardships to replace old faucets and appliances with high efficiency devices.				
	2b. Structure water rates to support water conservation and reduce dependence on water supply from sources critical for aquatic habitat.	√ Address high unaccounted-for water losses in community systems √ Implement conservation rate structure				
WS 3: Recharge springs and groundwater.	3a. Increase infiltration in upland recharge areas and up-gradient from springs.	√ Install rain gardens to capture excess runoff. √ Install contour infiltration trenches and infiltration swales to temporarily hold and infiltrate runoff. √ Direct excess runoff into catchment basins that store and allow slow infiltration. √ Replace impervious surfaces such as parking areas and patios with pervious materials (grass pavers, porous concrete, and other pervious pavers). √ Effectively manage grasslands and forests; see Chapter 4 Uplands Action Plan.	5 yrs +	$$$	TBD	
	3b. Reduce stormwater runoff in uplands.	√ See Chapters 4: Uplands Action Plan and 6: Water Quality Action Plan.	5 yrs +	$ - $$	TBD	

Table 13. Implementation of agricultural sustainability recommendations.

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
Ag 1: Facilitate opportunities for producers to locally process and market agricultural products.	1a. Promote and sustain agriculture-related industries in or near the watershed and develop forums for linking them with producers.	√ Seek funding to support establishment of businesses that provide services, such as processing, storage, bottling, canning, and packaging. √ Address regulatory hurdles to on-farm livestock processing or "mobile slaughterhouses."	5 yrs+	$ - $$	GRRCD	Producers Community Alliance with Family Farmers UCCE Sonoma County Farm Bureau Local distributors
	1b. Develop a watershed "brand" synonymous with locally produced, sustainable, high-quality farm products.	√ Work with public outreach organizations to promote public appreciation for local agriculture. √ Develop educational opportunities to teach producers about marketing strategies and business management. √ Assist in the development of effective distribution channels for locally produced goods. √ Assist farmers in developing value-added marketing plans for their products while establishing an overall market presence for the watershed as its own appellation.	5 yrs	$	GRRCD	Producers Community Alliance with Family Farmers UCCE Local distributors Farm Trails LandPaths Local farmers' market organizers Farmers/ranchers in the watershed Sonoma County Farm Bureau
Ag. 2: Preserve open space and rural landscapes by keeping large agricultural parcels intact and their operations viable.	2a. Support producers in diversifying income and seeking financial assistance.	√ Assist producers to participate in programs that provide additional capital to support agricultural land values, such as conservation easements through the Williamson Act. √ Coordinate with NRCS staff to assist producers in developing Farm Bill program contracts. √ Work with agricultural landowners to explore other farm-related income options, such as farm tours.	Ongoing	$$$	SCAPOSD	Producers SLT BLT GRRCD NRCS Farm Trails LandPaths Sonoma County Farm Bureau

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
Ag 3: Ensure sustainable resource use in agricultural production.	3a. Work with vineyard operators to reduce water use.	√ Provide workshops and technical support for vineyard dry-farming. √ Assist vineyard operators in acquiring support through NRCS and RCD programs to develop water conservation measures. √ Work with vineyard operators to understand and remain a step ahead of groundwater regulation measures as they develop. √ Educate the local community on vineyard practices.	5 yrs	$	GRRCD with assistance from NRCS	Vineyard Operators and Landowners Sonoma County Grape Growers Association Sonoma County Farm Bureau Community Alliance with Family Farmers Local vineyard operators
	3b. Assist rangeland and dairy operators in implementing water quality protection measures.	√ Provide workshops and technical support for dairy and rangeland operators to assist in compliance with water-quality regulations. √ Assist rangeland and dairy operators in acquiring assistance through NRCS and RCD programs to protect riparian areas.	5 yrs	$	GRRCD with assistance from NRCS	Straus Family Creamery Clover-Stornetta Farms NCRWQCB UCCE
	3c. Assist livestock operators to develop and implement nutrient management plans.	√ Implement a proactive, on-farm nutrient management program that will include a "user-friendly" nutrient budgeting model, soil, vegetation, and manure sampling protocols, and a land application tracking system. The program will assist watershed dairy and livestock operators with the ability to write nutrient management plans based on facility inventories and nutrient budgeting information. √ Secure funding to effectively develop nutrient management or conservation plans for all livestock operators. √ Provide technical assistance to dairy and livestock operators to conduct on-farm facilities inventories and	5 yrs	$	GRRCD, with assistance from NRCS and UCCE	Landowners Western United Dairymen Sonoma County Farm Bureau

Recommendation	Action	Implementation Measures	Time-frame	Cost	Action Lead	Key Partners
		nutrient budgeting. √ Conduct, soil, vegetation, and manure sampling to identify the proper organic fertilizer application rates for farm fields. √ Complete nutrient management plans and land application tracking systems. √ Use buffer strips to trap sediment from confined animal and other high-use areas. √ Work with interested landowners to develop waste-to-profit systems, suchc as methane digesters and on-site fertigation equipment.				

Project selection criteria and process

Gold Ridge RCD is taking the lead for implementing many of the Plan actions. The RCD has been working for nearly 70 years to help coordinate funding resources with landowner needs and will use the Plan to solicit and distribute additional funding for the Salmon Creek Watershed. The following process describes how the RCD will assess and select projects. It recognizes that different funding sources have varying requirements and that additional selection criteria may be needed to fit specific funding programs as well as fulfill resource protection and enhancement goals.

Proposed project selection criteria include:

1. Improvement of water quality,
2. Enhancement of summer streamflow,
3. Protection, restoration, or enhancement of one or more natural processes [e.g., restoration of riparian vegetation that will provide shade, LWD, and bank stability over many years; modification of stream crossings to allow sediment transport and movement of aquatic species; and removal of nonnative invasive plants),
4. Improvement of habitat connectivity,
5. Support of habitat for a diversity of plant/animal species or protection of vital habitat features for special status watershed wildlife species,
6. Addressing causes as well as or instead of symptoms,
7. Strong landowner commitment,
8. Pilot project that will promote additional projects,
9. Support for sustainable agriculture,
10. Technically sound and effective design solution is feasible, and
11. Cost is reasonable for benefits.

Projects would not necessarily need to meet all criteria to be selected. For example, improving drainage on an unsurfaced road may score high in a program to reduce turbidity even though it would not increase summer streamflows or improve connectivity.

Table 14. Gold Ridge RCD project selection process.

	Step	Who	Estimated Day of Completion (from start)	Outcome
1	Adapt overall criteria as needed to fit specific funding source.	GRRCD with funder	14	Criteria meet funding requirements as well as overall watershed goals.
2	Assemble project selection advisory committee (SAC).	GRRCD	30	Advisory team is in place, if needed, and will make recommendations to GRRCD Board.
3	Inform watershed landowners through website, newsletters, and mailings.	GRRCD	60	Watershed landowners are informed of funding opportunities and the selection process.
4	Select project review team.	GRRCD with input from SAC	45	Field team is in place to visit each site and score it according to criteria.
5	Conduct site visits, score projects, and present findings to SAC.	Review team w/ GRRCD staff support	120	SAC and GRRCD staff have an objective evaluation of potential projects.
6	SAC makes project recommendations to GRRCD Board.	SAC	150	GRRCD staff will present recommendations to the GRRCD Board of Directors. The Board will have a thoroughly considered set of projects to approve.
7	GRRCD Board makes final selection and directs staff to proceed.	GRRCD Board	180	Selection completed.

Outreach and education

Outreach and education are fundamental to the success of the Plan. They maintain the visibility and urgency of the need to care for the Salmon Creek Watershed. They provide an avenue for Gold Ridge RCD and program partners to get feedback from watershed residents on how Plan actions are working and to share ideas on how to improve them. For those recommended actions, that rely on voluntary activities by watershed residents, such as control of invasive plant species or water conservation measures, education is the primary access project partners have for implementation.

Outreach and education activities also offer a vital role for organizations that may not be able or willing to manage construction contracts or negotiate landowner agreements, but may have the time, neighborhood connections, and/or long-term funding support necessary for effective outreach. Salmon Creek Watershed Council, local schools and neighborhood organizations, and some County agencies are key partners for outreach and education.

In addition to specific actions in Chapters 3-7, overall strategies for soliciting and distributing information include:

- Gold Ridge RCD and watershed partner newsletters and websites. Excellent resource for announcements of new funding for landowners, tours, and workshops; background information on the watershed; and downloadable reports and brochures.
- Shared electronic calendar. Used by watershed partners to coordinate activites. Accessible as read-only by residents.
- Tours and public meetings. Specific subjects are addressed in the action chapters. Neighborhood-scale meetings and tours may be especially effective for some topics such as small forest management where collective projects between neighboring landowners are optimal.
- Regular watershed summit. A festive annual or biennial event to bring together scientists, residents, and watershed partners for reports and discussion on the state of the watershed. Should include food and art produced in the watershed.
- Presentations and information booths at community events. Enroll the organizers into choosing the watershed as a theme for an upcoming annual Bodega Fire Department community quilt project.
- Presentations at trade associations such as Farm Bureau, Woolgrowers, Cattlemen's, and others.
- Presentations and participation at conferences to share Salmon Creek progress and to bring new information back to the watershed.
- Collaboration with Harmony Union School District on watershed events and projects.

Funding

Although many projects are already underway in the Salmon Creek Watershed as described above, additional funding is needed to fully implement the Plan. Gold Ridge RCD has already been awarded funding for implementation through the Integrated Regional Water Management Program (IRWMP) and the American Recovery and Reinvestment Act (ARRA) from NOAA, and is actively seeking additional funding. Non-profit project partners are also eligible to receive funding from many state and federal agencies, as well as from foundations. In addition to help from Gold Ridge RCD and other project partners, eligible private landowners have direct access to federal cost

share programs through NRCS and USFWS, state cost-share assistance from CalFire, and low-interest loans through the Sonoma County Energy Independence Program. Table 15 identifies funding sources for Plan implementation.

Table 15. Local, state, federal, and foundation funding sources.

Funding Entity	Program
Local Sources	
Sonoma County	Energy Independence Program. Provides low-interest loans to private and commercial property owners for water and energy conservation measures. Loans are repaid through voluntary property tax assessments.
Sonoma County Agricultural Preservation and Open Space District	Protects land through purchasing development rights and acquiring easements. Project selection is based on consistency with the current Acquisition Plan and available funding.
State Agencies	
State and Regional Water Boards	319(h) Nonpoint Source. Funding is through the USEPA and is intended to result in improved water quality through projects that address TMDL implementation or problems in streams, bays, rivers, and lakes that have been listed as impaired. Small Community Wastewater Grant Program. The program provides assistance for planning, design, and construction of publicly owned wastewater treatment and collection systems. Clean Water Revolving Loan Fund. Provides low-interest loans for stormwater and wastewater treatment, and implementation of projects to reduce nonpoint source pollution. Integrated Regional Water Management Grant Program. The intention is to integrate sustainable and reliable water supply, better water quality, stormwater management, environmental stewardship, and a strong economy.
CDFG	Fisheries Restoration Grant Program. This is a long-standing competitive grant program funded by both state and federal sources. Funding can be used for planning, barrier removal, habitat restoration, monitoring, public involvement, maintenance, and education for projects consistent with current CDFG priorities.
State Coastal Conservancy	Funding is primarily through voter-approved bond funds. Provides funding for projects to purchase, protect, restore, and enhance coastal resources.
Department of Water Resources (DWR)	Groundwater program. Includes a range of grants for groundwater monitoring and management. Integrated Regional Water Management Grant Program. DWR administers IRWM grants through Proposition 84. DWR also manages many other grant and loan programs.

	Fire Prevention Program. Fire-safe landscaping for homeowners and communities.
Cal Fire	California Forest Improvement Program (CFIP). Provides cost-share assistance to private landowners, RCDs, and non-profit groups for planning, planting, fish and wildlife habitat improvement, and land conservation practices.
California Department of Public Health	Safe Drinking Water State Revolving Fund. Provides funding to correct public water system deficiencies. Selection is based upon a prioritized funding approach that addresses public health risks, compliance with requirements of the Safe Drinking Water Act, and need on a per household affordability basis.
Federal Agencies	
USEPA	The USEPA website features an extensive catalog, sorted by keyword (e.g., invasive species, monitoring, land acquisition, watershed management), of federal funding sources for watershed protection (http://cfpub.epa.gov/fedfund/keyword_list.cfm).
U.S. Fish and Wildlife Service	Cooperative Conservation Initiative. Provides cost-share assistance to private landowners to restore natural resources and establish or expand wildlife habitat.
NOAA Fisheries	Open Rivers Initiative provides funding and technical expertise for community-driven, small dam and river barrier removals. NOAA Restoration Center Regional Partnerships provide funding for multi-year regional habitat restoration partnerships including watershed-scale projects that yield significant ecological and socioeconomic benefits. National Association of Counties and NOAA are partners in the Coanties Restoration Initiative (CCRI). CCRI encourages innovative, county led or supported projects that restore important marine and coastal habitats and National Association of Counties and NOAA are partners in the Coastal Counties Restoration Initiative (CCRI). CCRI encourages innovative, county-led or supported projects that restore important marine and coastal habitats and living resources. These projects also develop the capacity of county governments, citizens groups and other organizations to conduct community-based restoration that will enhance local watershed-based resource management and promote stewardship.
Natural Resources Conservation Service (NRCS)	NRCS manages a suite of programs to provide technical and cost-share assistance to implement conservation practices, primarily for owners of land in agricultural production. http://www.ca.nrcs.usda.gov/programs/ The Environmental Quality Incentives Program (EQIP) was established in the 1996 Farm Bill to provide a single, voluntary conservation program for farmers and ranchers to address significant natural resource concerns. Nationally, it provides technical and financial assistance to address natural resource concerns. Administered by the Natural Resources Conservation Service (NRCS), EQIP was reauthorized in the 2008 Farm Bill and awards cost share assistance to projects which provide significant

	The Environmental Quality Incentives Program (EQIP) was established in the 1996 Farm Bill to provide a single, voluntary conservation program for farmers and ranchers to address significant natural resource concerns. Nationally, it provides technical and financial assistance to address natural resource concerns. Administered by the Natural Resources Conservation Service (NRCS), EQIP was reauthorized in the 2008 Farm Bill and awards cost share assistance to projects which provide significant environmental benefit. Eligible farmers and ranchers may apply for EQIP program benefits at any time. The Healthy Forest Reserve Program is a voluntary program established for the purpose of restoring and enhancing forest ecosystems. It can provide cost-share for conservation practices, a conservation easement in exchange for market value, and Safe Harbor from future regulatory restrictions under the Endangered Species Act. The Agricultural Water Enhancement Program (AWEP) is a voluntary conservation initiative that provides financial and technical assistance to agricultural producers to implement agricultural water enhancement activities on agricultural land for the purposes of conserving surface and ground water and improving water quality. As part of the Environmental Quality Incentives Program (EQIP), AWEP operates through program contracts with producers to plan and implement conservation practices in project areas established through partnership agreements. The Conservation Stewardship Program encourages land stewards to improve their conservation performance by installing and adopting additional activities, and improving, maintaining, and managing existing activities on agricultural land and nonindustrial private forest land. Through the Conservation Stewardship Program, NRCS will provide financial and technical assistance to eligible producers to conserve and enhance soil, water, air, and related natural resources on their land. Eligible lands include cropland, grassland, prairie land, improved pastureland, rangeland, nonindustrial private forest lands, agricultural land under the jurisdiction of an Indian tribe, and other private agricultural land (including cropped woodland, marshes, and agricultural land used for the production of livestock) on which resource concerns related to agricultural production could be addressed.
Other Sources:	
National Fish and Wildlife Foundation (NFWF)	NFWF has a number of programs that could apply including: Native Plant Conservation Initiative supports projects that protect, enhance, and/or restore native plant communities.

Permits

Many of the actions recommended in the Plan will require permits from local, state, and federal agencies. For example, work in a stream requires permits from the U.S. Army Corps of Engineers, RWQCB, CDFG, and, under certain circumstances, Sonoma County; if listed species are potentially present, a permit is needed from USFWS or NOAA Fisheries; and if the project is in the Coastal Zone, a Coastal Development Permit is needed. Acquiring permits can be a lengthy process. Involving regulators in the initial stages can help to address concerns early in the project design process and reduce delays after the application is submitted. Grouping similar projects, such as multiple large woody debris structures in one tributary, can also save time and cost.