

Ross Valley Solutions Framework	Short Term Target Date: by December, 2006	Intermediate-Term Target Date: by December, 2008	Long Term Target Date: After 2008
Flood Damage Prevention & Reduction			
Large & Small Flood Control Projects: Corps Project	<ul style="list-style-type: none"> ▪ Community agreement on ACOE Alternative to proceed with the detailed design phase of federally authorized Unit 4 project 	<ul style="list-style-type: none"> ▪ Preliminary design and EIR-EIS ready for Federal appropriation. Federal construction start and local finance plan in place. 	<ul style="list-style-type: none"> ▪ Plans and Specifications, PCA Federal construction start in place. Complete construction improvements, and new O&M Manual for CMC.
Federal Watershed Study	<ul style="list-style-type: none"> ▪ Complete Reconnaissance for Federal interest in flood control-environmental restoration outside of Corps Project area. 	<ul style="list-style-type: none"> ▪ Get Federal authority for spin-off projects in the areas of flood management, flood control and environmental restoration. ▪ Local financing cost share plan for Feasibility level Watershed Study. Obtain Federal appropriation. 	<ul style="list-style-type: none"> ▪ Plans and specifications, PCA, Federal appropriation for construction. Construct improvements.
Culverts/Bypasses, Bridge Replacements, and Channel Widening	<ul style="list-style-type: none"> ▪ Identify "Choke Points" on Corte Madera, San Anselmo, and Fairfax Creeks. <ul style="list-style-type: none"> ▪ Large ones already known. ▪ Walk the creek to identify smaller constrictions. ▪ Develop channel modification and constriction removal scenarios to evaluate with a new hydraulic model, conduct modeling, and determine feasible structural projects (e.g., bridge & culvert replacements, channel widening) to increase flood conveyance capacity at strategic areas to reduce flood damage. 	<ul style="list-style-type: none"> ▪ Prioritize potential Projects for funding, Planning, Engineering, and Design: <ul style="list-style-type: none"> ▪ Replace, widen and raise strategic bridges and abutments. ▪ Design replacement of large culverts under buildings downstream of Bridge Street in San Anselmo and other sites. ▪ Design and construct temporary features to re-direct overbank flows back into the creek 	<ul style="list-style-type: none"> ▪ Construct projects to eliminate structural flow constrictions. ▪ Construct replacement of large culverts under buildings downstream of Bridge Street in San Anselmo. ▪ Design & construct flood flow bypasses and permanent features to re-direct overbank flows back into the creek.
Flood Peak Detention	<ul style="list-style-type: none"> ▪ Determine "ballpark", order of magnitude volume of peak flow to be held upstream for urban area protection. Review initial ideas for feasibility using existing model data. 	<ul style="list-style-type: none"> ▪ Develop hydrology model necessary to evaluate feasible concepts. ▪ Plan, design and fund key upstream dry detention dams and floodplain storage basins on major tributaries to reduce flood peaks. 	<ul style="list-style-type: none"> ▪ Construct dry detention dams and floodplain storage basins.

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Elevation of structures	<ul style="list-style-type: none"> ▪ Publish 1982/2006 high water mark map and flood damage area maps. High ground maps for evacuation. 	<ul style="list-style-type: none"> ▪ Obtain State/Federal grants and low interest loans for property owners to raise residential properties on a coordinated basis. ▪ Develop model floodplain management ordinances for Town consideration regarding elevation of structures 	<ul style="list-style-type: none"> ▪ Raise major at-risk residential & commercial buildings.
Dry/Wet Flood-proofing	<ul style="list-style-type: none"> ▪ Obtain and publish flood proofing designs & best practices for existing buildings and utilities on the RVW Website. ▪ Clarify Residential and Non-residential flood proofing standards, design options and NFIP policies. Publish information and vendors on RVW website. ▪ Improved sandbagging program and support. 	<ul style="list-style-type: none"> ▪ Initiate installations of flood proofing measures. ▪ Grants and low interest loans for commercial property owners and storefront lessees. ▪ Expanded distribution sites and sandbag stockpiles. 	<ul style="list-style-type: none"> ▪ Flood-proof critical utilities (power grid infrastructure and back-up power generators, telephone and internet service, sewage pipelines and pump stations)
Acquisition and Relocation	<ul style="list-style-type: none"> ▪ Identify and map properties adjacent to channels with high probability of recurrent flooding or progressive bank retreat. 	<ul style="list-style-type: none"> ▪ Begin identification of willing sellers in strategic locations for channel widening, bank setback stabilization, and improved flood conveyance. Seek grants in a coordination fashion. 	<ul style="list-style-type: none"> ▪ Obtain funds and acquire strategic properties from willing sellers.

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Drainage System Maintenance	<ul style="list-style-type: none"> ▪ Evaluate tidal channel to determine the extent of sediment excavation needed to maintain flood conveyance capacity of ACOE Flood Project. ▪ Complete hydraulic modeling to determine strategic locations for stream clearance of debris and dense in-channel vegetation in combination with constriction removal and channel modifications. ▪ Identify, map and conduct strategic channel maintenance locations and work with HOAs', County & CCC with existing resources to carryout channel clearing before the wet season. ▪ Carry out preventative debris and vegetation maintenance and removal at bridges and constrictions with existing resources. 	<ul style="list-style-type: none"> ▪ Achieve local maintenance funding for additional, ongoing channel clearance programs. ▪ Achieve local funding for ongoing maintenance debris removal. ▪ Achieve local funding adequate for channel system maintenance. ▪ Assemble the resources and plan for emergency debris removal at bridges and other choke points during flood fight. 	
Bank Stabilization	<ul style="list-style-type: none"> ▪ Prepare a range of appropriate bank stabilization designs and contractors for local landowners. Identify funding sources. Inform property owners through Website. 	<ul style="list-style-type: none"> ▪ Develop a local program of annual monitoring of bank and bed erosion sites, and remediation of critical eroding sites. ▪ Assemble funding program and policy for public-private cost sharing, 	

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Mapping and Land Use Regulation			
Locally maintained flood data and hydraulic modeling.	<ul style="list-style-type: none"> ▪ Phase 1 Hydraulic Model in place by August 15 for modeling of flood control scenarios. Funding identification for full modeling system for regulatory purposes. ▪ Develop predicted floodplain water surface elevations with new hydraulic model-conduct modeling to refine 1978 FEMA floodplain and water surface elevations in Ross Valley 	<ul style="list-style-type: none"> ▪ Phase II detailed watershed wide Hydraulic & Sediment transport model for higher than minimum FEMA credit and Flood Control Project Planning, ▪ Adopt new FIRM Maps to reflect recent events and local policies. 	<ul style="list-style-type: none"> ▪ Develop rating curves for stage/discharge recordings on all existing and new stream gages
Higher than FEMA minimum Regulatory Standards	<ul style="list-style-type: none"> ▪ 1982/2006 high water mark map. Flood damage area maps. High ground maps for evacuation. ▪ Voluntary adherence to high water mark base flood levels in building elevations and new development activity. 	<ul style="list-style-type: none"> ▪ Draft local ordinances for possible adoption by towns and County ▪ Adopt local ordinances for maximum CRS credits. 	<ul style="list-style-type: none"> ▪ Enforce local flood protection ordinances and building codes.
Flood Preparedness-Safety			
Flood warning systems	<ul style="list-style-type: none"> ▪ Flood Preparation/Response Plan cards developed for each municipality. ▪ Early Warning Call System ▪ New flood sensors and town sirens ▪ Install a new creek stage gage upstream of San Anselmo to improve creek flood stage monitoring. 	<ul style="list-style-type: none"> ▪ Install additional telemetry stage gages on Cascade, Fairfax, Sleepy Hollow, San Anselmo, and Ross Creeks ▪ Join North Bay Doppler Radar- storm gauge flood forecasting system 	<ul style="list-style-type: none"> ▪ Prepare a hydrologic network model to compute telemetry stream gage and rainfall data to predict flood stage in advance of downstream flood peaks
Emergency response systems	<ul style="list-style-type: none"> ▪ Website with real-time flood information ▪ Town-to-town communication improvements with emergency responders, residents and business owners. ▪ Phone notification system of property owners during flood emergencies. (TENS) ▪ Identify and announce alternate routes for safe flood evacuations 	<ul style="list-style-type: none"> ▪ Improve and expand phone notification system ▪ Improve flood evacuation routes and high ground access 	<ul style="list-style-type: none"> ▪ Raise the finish elevations of police, fire and essential school buildings ▪ Move Emergency Response and EOC operations out of 500 year flood plain. ▪ Raise access roads to the hospital

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Public Information & Floodplain Management Planning			
Public Outreach and Education	<ul style="list-style-type: none"> ▪ Ross Valley Flood Protection & Watershed Web Portal will be in place for the wide distribution and easy access of flood management information and systems. 		
Information and Assistance		<ul style="list-style-type: none"> ▪ Institutionalize the Flood Protection public information system. 	<ul style="list-style-type: none"> ▪ Maintain the public Information system at the Town and Watershed level.
Coordinated Floodplain Mgmt	<ul style="list-style-type: none"> ▪ Initiate discussion between the incorporated Towns and Marin County regarding coordinated flood management. Initiate a coordinated Flood Hazard Mitigation Plan necessary for eligibility of State OES funding under the Stafford Act. 	<ul style="list-style-type: none"> ▪ Achieve agreement on the MOU, Flood Hazard Plan and the equitable distribution of new local revenues throughout the watershed. Excellent models to follow in high CRS communities of Fort Collins, CO, King's County WA and Napa, CA. 	
Flood Insurance Program			
Flood Insurance	<ul style="list-style-type: none"> ▪ Adopt the CRS framework for the development of the flood hazard mitigation planning framework. ▪ Links on Project website to model CRS communities of Napa, Fort Collins, CO and King's County Washington 	<ul style="list-style-type: none"> ▪ Achieve 15% Reduction in NFIP Rates through CRS activities 	<ul style="list-style-type: none"> ▪ Achieve 35% reduction in NFIP Rates through implementation and documentation of CRS activities in the Ross Valley Watershed.
Habitat Restoration and Improvement of Fish Passage			
Water Quality	<ul style="list-style-type: none"> ▪ Promote water quality improvement measures, in particular a reduction of fine sediment sources and urban runoff pollutants in the watershed. 	<ul style="list-style-type: none"> ▪ Implement water quality improvement measures 	<ul style="list-style-type: none"> ▪ Implement water quality improvement measures
Fish Passage	<ul style="list-style-type: none"> ▪ Prepare conceptual design alternatives of flood control facilities and bridges that incorporate improved fish passage elements and barrier removals. 	<ul style="list-style-type: none"> ▪ Prepare Plans & Specs and initiate flood control facilities and bridges that incorporate improved fish passage elements and barrier removals. 	<ul style="list-style-type: none"> ▪ Identify project sites and implement additional fish passage barrier removals to expand salmonid spawning reaches on tributaries.

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Riparian Habitat	<ul style="list-style-type: none"> ▪ Identify appropriate locations and standards to conduct stream clearance activities using BMP's ▪ Develop bank stabilization designs that incorporate riparian trees and shrubs. 	<ul style="list-style-type: none"> ▪ Prepare Plans & Specs and initiate flood control facilities with riparian habitat enhancements. 	<ul style="list-style-type: none"> ▪ Identify project sites and implement riparian enhancements projects throughout the stream network.
River Parkways			
River corridor trails and parks that provide flood attenuation	<ul style="list-style-type: none"> ▪ Begin identification of willing sellers in strategic locations for channel widening and flood conveyance that can also serve as river parkway nodes and overlooks. ▪ Identify and develop ready projects for funding under the California River Parkway Bond Program 	<ul style="list-style-type: none"> ▪ Plan and design river parkway nodes and overlooks as a component of structural flood control projects 	<ul style="list-style-type: none"> ▪ Construct river parkway nodes and overlooks in appropriate locations.
Financing Strategy			
Local, Regional, State, Federal Cost Share Plan	<ul style="list-style-type: none"> ▪ Develop overall program finance plan with cost sharing from Federal, State, Regional and local sources. ▪ Poll Ross Valley residents regarding willingness to pay for flood systems, project preferences, programs and benefit assessment approaches. ▪ Prepare an Engineers Report to determine benefits. ▪ Obtain Watershed Study appropriation for 2007 ▪ Apply for FEMA Hazard Mitigation Funds-round 1. ▪ Apply for Proposition 50 IRWMP & River Parkway funds. ▪ Coordinate State and Fed advocacy. ▪ Obtain Coastal Conservancy funding for hydraulic model development. 	<ul style="list-style-type: none"> ▪ Develop cost and revenue sharing plan among the Towns and County . ▪ Conduct property owner or voter election for local finance mechanism ▪ Apply for Stafford Act Hazard Mitigation funding. ▪ Get Federal authority for Watershed Study projects. ▪ Seek State funding for projects under AB 104 (or next generation) 	