

Community Rating System
Activity 510 (Floodplain Management Planning)
Progress Report on Implementation of Credited Plan

Date this Report was Prepared: 5/1/24

Name of Community: County of Marin

Name of Plan: Marin County Operational Area Multi-Jurisdictional Hazard Mitigation Plan 2023 (Marin MJ LHMP)

Date of Adoption of Plan: 3/5/24

5 Year CRS Expiration Date:

1. How can a copy of the original plan or area analysis report be obtained:

The Marin MJ LHMP can be found at the link below (scroll to the bottom):

[Emergency.marincounty.org/pages/mitigation](https://emergency.marincounty.org/pages/mitigation). It is also available on the Department of Public Works website at <https://publicworks.marincounty.org/fema-resources/>.

2. Describe how this progress report was prepared and how it was submitted to the governing body, released to the media, and made available to the public:

The plan and a staff report was digitally provided to the Marin County Board of Supervisors prior to a regularly scheduled meeting on 3/5/24, when it was subsequently adopted. The media was engaged through multiple press releases about the plan and the Director of Emergency Management was interviewed about the plan twice on West Marin's local radio station, KWMR. The public was provided opportunity to give feedback and review the plan through the following channels:

- Online Survey (English and Spanish)
- Website
- Social Media (English and Spanish)
- Town hall and community outreach events

3. Provide a description of the implementation of each recommendation or action item in the action plan or area analysis report, including a statement on how the project was implemented or not implemented during the previous year:

The plan was adopted earlier this year, so new projects have not been implemented yet. Previous projects' status can be found in Table 4.8: Status of Previous Hazard Mitigation Actions, or see page 426 for table.

4. Discuss why any objectives were not reached or why implementation is behind schedule:

Goal 5: Maintain FEMA Eligibility/Position the communities for grant funding.

Result: The Marin Multi Jurisdictional Hazard Mitigation Plan lapsed between December and March due to planning challenges, internal organization change, and dynamically changing planning requirements. The few months that we did not have an adopted plan did not impact our ability to apply for grants nor to receive grant funding.

5. What are the recommendations for new projects or revised recommendations?

See Table 4.9 in the MJ LHMP, or see page 431 for table.

Table 4.8 summarizes the actions that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

Action Number / Name	Completed	Ongoing	Not Started	Still Relevant in Update	Included in Action Plan
(1) Seismic Retrofit of County-owned buildings not current to code. West Marin Service Center, Point Reyes Station	X			N	
(2) Seismic Retrofit of County-owned buildings not current to code. Civic Center Roof Replacement	X			N	
(3) Seismic Retrofit of County-owned buildings not current to code. Tomales Fire Station- Replacement	X			N	
(4) Seismic Retrofit of County-owned buildings not current to code. 120 N. Redwood- Seismic Assessment		X		Y	
(5) Seismic Retrofit of County-owned buildings not current to code. Marin Center- Seismic Assessment of the Veteran's Memorial Auditorium & Exhibit Hall		X		Y	
52 Follow all four phases of FEMA's How-to-Guide: "Integrating Historic Property and Cultural Resource Considerations Hazard Mitigation Planning"			X	N	
Acquire electric bikes and safety equipment for official use during major disasters.			X	N	
Arroyo Corte Madera del Presidio Riverine Flood Risk Reduction project: Assist with reducing the frequency and severity of flooding. Study completed on 03/2022 with the best option to move forward with a restoration project.			X	N	
Assess bulkheads surrounding Tomales Bay		X		Y	
Azalea Ave Bridge Replacement project will replace the original Azalea Bridge, to decrease flood hazards.				Town of Fairfax is project lead.	
Bothin Marsh Restoration project. Thin-lift placement of sediment from Coyote Creek into Bothin Marsh.		X		Y	
Improve City of Novato Drainage Improvement informed by study currently in process. Goal to bypass high flows, increase storage, develop flood barriers, daylighting drainages, and install pump stations and/ or tide gates.		X		Y	
Conduct a comprehensive finished floor-elevation inventory. Project to understand a Floor Elevation Survey to determine the floor elevation of a structure.	X			N	
Consider sea level rise adaptation from Collaboration: Sea-level Marin Adaption Response Team (C-SMART).		X		Y	
Continue supporting the Sonoma County Water Agency led Advanced Quantitative Precipitation Information effort.		X		Y	

Corrillo Drive Pipe Rehabilitation was completed by San Rafael in cooperation with flood zone 6.	X			N
Corte Madera Creek Flood Risk Management Project will help to reduce the frequency of flooding by enhancing natural stream functions. An HMGP application for components in the channel that reduce flood risk was submitted August 4, 2023		X		Y
Cove Pump Station Improvements were completed in 2022 and will assist with the updates to the pump.	X			N
Coyote Creek Levee Improvements - a levee study was completed, and a portion of the levee system has a project underway for seepage mitigation. It is in the design phase.		X		Y
Crest Marin, Cardinal, and Shoreline Pump Station Upgrades. A condition assessment for Crest Marin is nearly complete.		X		Y
Deer Island Basin Project to setback levees, restore tidal wetlands, and increase tidal prism to reduce sedimentation and flood risk. CEQA complete, design underway.		X		Y
Develop Renters and Homeowners Guides to Flood Preparedness project outlining safety directives for homeowners and renters during a potential flood hazard.			X	Y
Easkoot Creek Flood Flow Bypass Project. National Park Service is working with FHWA and the Flood District to identify and plan a potential overflow channel from Easkoot Creek to the Ocean.		X		Y
East Creek Outfall Modifications project is a pavement rehabilitation project and potentially include tide gates to reduce sunny day flooding of Tiburon Blvd.		X		Y
Encourage property owners in SFHAs to purchase flood insurance.		X		Y
Establish additional local funding mechanisms for increased flood and fire mitigation.		X		Y
Estancia Ditch and Pump Station improvement project. All pump stations in Santa Ventia were upgraded to the Trimble Unity systems. Additional upgrades needed.		X		Y
Flood Preparedness Pilot Program identifies resources for flood preparedness on county website.		X		Y
Gallinas Creek Geomorphic Dredge, currently in design phase for the placement of 100,000 cubic yards of dredge sediment		X		Y
Initiate Community Plans for Adapting to Coastal Hazards		X		Y
Karen Way Ditch Improvements is currently on hold		X		Y
Las Gallinas Levee Evaluation provides geotechnical engineering service for the elevation and assessment consistent with the Corps of Engineers (USACE) Publication Number EM 1110-2-1913.	X			N
Levee Setback and Upgrade Project. Initiation of this project depends on completion of a land exchange through State Lands Commission. County is working on surveying needed to support that exchange.		X		Y
Lower Corte Madera Creek Improvements: Levee evaluation completed in 2020 under a DWR grant and a geomorphic dredge assessment in process to be completed in 2023				Y
Lower Ryan Creek Pump Station Study and Upgrades is currently on hold				Y
Madrone Ave Bridge Replacement project will reduce impacts from floods.				Town of San

				Anselmo is project lead.
Manzanita Modifications Project. Caltrans is working on a project initiation document for December 2023 for sea level rise adaptation at the US 101/SR 1 between Manzanita and Marin City. County is supporting this work through hydraulic studies.		X		Y
Marin City Drainage Improvements Project, currently in the planning phase of project.		X		Y
Marin County Structure Elevation Program provides federal assistance to homeowners with cost-effective projects. FEMA funding approved; 7 permits are being reviewed.		X		Y
Marin County Watershed Program provides a framework to integrate flood protection and environmental restoration with public and private partners to protect and enhance Marin's watersheds.	X			N
McInnis Park Wetland Restoration Project proposes to restore subtidal and intertidal habitat at an 180-acre are of diked wetlands.		X		Y
Meadow Drive Interceptor and Ditch Upgrades. Interim upgrades were made by adding an in-line check valve to prevent tides from flooding Meadow Dr. No funding (or local match) currently available for full conceptual upgrades to proceed to design.		X		Y
Mill Valley Comprehensive Flood Control & Drainage Master Plan	X			N
Nokomis Ave Bridge Replacement project will assist with the replacement of the Nokomis Ave Bridge, with the hopes of reducing flood hazards.				Town of San Anselmo is project lead.
Novato Levee Study, completed in 2020 under a DWR grant.	X			N
Pacheco Pond Project is currently on hold		X		Y
Protect and restore natural buffers. Two funded and completed nature-based studies explored the feasibility of these projects and follow up work is now happening through the Stinson ARC project and through pursuit of other grant opportunities.		X		Y
Pump Station No. 1 Upgrade is currently on hold.		X		Y
Pump Station No. 2 Upgrade, and interconnection to Pump Station No. 1 is currently on hold.		X		Y
Pump Station No. 5 Upgrade on hold.		X		Y
Richardson Bay Shoreline Protection work is to be integrated into future sea level rise adaptation planning.			X	Y
Ross Valley 10 Year Work Plan described technical rationale for a suite of on-the-ground flood reduction measures, spread watershed-wide, that work together as a system to reduce flooding and seek to restore the ecological health and function of Corte Madera Creek and its tributaries	X			N
Rush Creek Drainage Improvements is currently on hold		X		Y
San Anselmo Flood Risk Reduction Project. Construction of flood detention basin on Fairfax Creek was substantially completed and the basin operational in November 2022. The outfall pipe slide gate can be		X		Y

operated manually and pending installation of electrical paneling March 2023 for electrical control operation. The project to remove the building bridge in downtown San Anselmo is in the final planning phase				
Santa Venetia and Rafael Meadows Street Drain Upgrades. Coordinating with County Engineering to include drainage upgrades with road rehabilitation projects. Labrea Way, vulnerable to recurrent stormwater ponding, is currently in design.		X		Y
Santa Venetia Pump Station No. 4 Upgrades on hold		X		Y
Santa Venetia Floodwall Project (Formerly the Santa Veneita Timber-Reinforced Berm Improvement Project)		X		Y
Seismic Retrofit of County-owned buildings not current to code.		X		Y
Seismic upgrades (bolting and anchoring pumps and roof) to the Cove Pump Station building in Tiburon.		X		Y
Simmons Slough Flood Risk Reduction Project	X			N
Strawberry Levee Improvements will be incorporated into sea level rise planning			X	Y
The Sycamore Ave Bridge Replacement project will reduce the impact of flooding.				Town of San Anselmo is project lead and federally funded.
Tiburon Street Drainage Improvements Plan identifies support to the town of Tiburon's storm drainage, providing upgrades to the Cove Stormwater pump station.		X		Y
The upgrade Farmers, Cheda, and Lynwood pump stations is currently on hold.		X		Y
The West Creek Flood Wall Alternative Restoration Project is currently on hold.		X		Y
The Winship Bridge Replacement project will reduce the impact of flooding.				Town of Ross is the project lead and federally funded.

Table 4.9 lists the Current Hazard Mitigation Actions for Marin County.

Table 4.9: Marin County Current Hazard Mitigation Actions

No.	Mitigation Action	Hazards Mitigated/Goals Met	Jurisdiction/Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
1	Develop a Vulnerable Communities Index specific to Marin County, aggregating economic, gender, age, linguistic, ethnic, and racial characteristics; geographic locations; hazard impact; and adaptive capacity.	All Hazards 1, 2, 3, 4, 5, 6	County of Marin - CDA	New	TBD Cost General Funds/Grants HMPG, BRIC, CDC, CDPH Public Health Emergency Preparedness	2-5 years Medium	Safety Element Action CA Dept. of Public Health - Community Assessment for Public Health Emergency Response (CASPER)
2	Develop a climate change preparedness outreach program for higher risk populations.	All Hazards 1, 3	County of Marin – CDA, OEM/Fire, Fire Agencies	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	Safety Element Action
3	Provide grants for alternative housing to community members at risk of climate change impacts.	All Hazards 1, 3	County of Marin – CDA, OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	5+ years Low	Safety Element Action
4	Mitigate by planning in advance for climate change impacts and incorporating lessons learned in neighboring counties.	All Hazards All goals	County of Marin – OEM/Fire, CDA, DPW	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	Safety Element Action
5	Develop a Property Rating System.	All Hazards 1	County of Marin - CDA	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	Safety Element Action
6	Develop Resilience Hubs.	All Hazards 1, 2, 4	County of Marin – CDA	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	Safety Element Action
7	Focus improvements on the transportation network for risk reduction, especially informed by new and emerging climate risk.	All Hazards 1, 2, 5	County of Marin – CDA	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
8	Conduct study to identify natural methods to limit coastal erosion	Land Subsidience 1, 4, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	

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No.	Mitigation Action	Hazards Mitigated/Goals Met	Jurisdiction/Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
9	Conduct research on best natural methods to mitigate erosion on highways and roads and implement planning and strategy stage.	Land Subsidence 1, 4, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC, BRIC technical assistance	2-5 years Low	
10	Conduct research on best natural methods to mitigate erosion in and around rivers and streams and implement planning and strategy stage.	Land Subsidence 1, 2, 4, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC, BRIC technical assistance	2-5 years Low	
11	Addition of vegetation in soil eroded areas.	Land Subsidence 1, 2, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
12	Increase conventional storage that is filled during high-flow periods	Drought, Flooding 1, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	5+ Years Low	
13	Provide multilingual outreach on mitigation tactics to well-dependent residents	Drought 1, 3	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
14	Conduct Outreach and acquire grants to pass to rural communities for installing Rainwater Harvesting systems	Drought 1, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
15	Identify alternative water supplies for times of drought; mutual aid agreements with alternative suppliers	Drought 1, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
16	Remove non-native plants and trees from all County and City and Town facilities, replace with drought tolerant, native plants	Flooding, Drought 1, 2, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	2-5 years Low	
17	Turn soil to increase infiltration rate and pore space to absorb more water	Flooding, Drought 1, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	2-5 years Low	

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18	Encourage soil turning on private land	Flooding, Drought 1, 3, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
19	Install new HVAC systems at schools and critical infrastructure facilities	Heat 1, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
20	Implement non-AC solutions to cool buildings - green roof and nature-based infrastructure systems	Heat 1, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
21	Paint roofs with pigments to reduce heat inside buildings	Heat 1, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
22	Outreach to communities at high risk of heat impacts	Heat 1, 3, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
23	Establish policy for cooler homes / Earthship homes	Heat 1, 4, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
24	Provide grants for high-risk residents to improve and acquire cooling mechanism in home.	Heat 1, 3, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
25	Provide alternative locations and equitable response actions for residents to seek cooler environments (e.g., movie theaters) via regional heat response plans	Heat 1, 3, 5	County of Marin – OEM/Fire		TBD Cost General Funds/Grants HMPG, BRIC	0-2 years Medium	
26	Establish additional and expand functionality of heating, cooling centers and resiliency hubs.	Heat 1, 3, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	

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No.	Mitigation Action	Hazards Mitigated/Goals Met	Jurisdiction/Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
27	Replace concrete sidewalks with DG	Heat, Flooding 1, 2, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
28	Implement green streets initiatives in identified areas	Heat, Flooding 1, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
29	Install green roofs on public buildings supported by non-potable water	Heat, Flooding 1, 2, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
30	Conduct a whole county study on what areas could benefit from more shaded areas; a green streets program.	Heat, Flooding 1, 2, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
31	Conduct study on how much concrete can be removed	Heat, Flooding 1, 2, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
32	Implement countywide flood monitoring system to inform mitigation future projects	Flooding 1, 2, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Medium	
33	Conduct research on widening storm channels and aged infrastructure which has not been climate change adapted and in need of enhancements	Flooding 1, 2, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC, BRIC technical assistance	2-5 years Low	
34	Widen storm channels in high-density areas and urban settings	Flooding 1, 2, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	5-10 years Low	
35	Develop policy to remove concrete parking lots	Flooding 1, 4, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	

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36	Expand culverts in areas classified as 100- or 500-year flood plain	Flooding 1, 2, 5	County of Marin – OEM/Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	5-10 years Low	
37	Assess County and Town owned parking lots to implement catch basins	Flooding 1, 2, 5	County of Marin – OEM/Fire, Cities and Towns	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
38	Design creek restoration projects on East and West Creek to improve flood conveyance capacity	Flooding 1, 2, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Medium	
39	Marin City Stormwater improvement project to limit standing water and flooding.	Flooding 1, 2, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-7 years High	
40	Research, design, and construct the Santa Venetia Floodwall Project	Flooding 1, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC, BRIC technical assistance	5-10 years Low	
41	Novato Bypass improvement project to reduce flooding	Flooding 1, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-7 years Low	
42	Corte Madera Creek Flood Risk Management Project Phase 1, Access Ramp and Granton Park Pump Station	Flooding 1, 5	County of Marin – DPW	New	\$4,104,227.00 bid + contingency. 50% reimbursed by DWR Grant, 50% paid by FCZ 9.	2-5 years Low	
43	Develop Integrated Flood Modeling System to New Weather Radars	Flooding 1, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	

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44	Apply below grade waterproofing and implement other water-intrusion mitigation measures to protect facilities that are experiencing increased levels of hydrostatic pressure.	Flooding 1, 2, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
45	Cardinal Rd Levee Upgrade - Seepage Mitigation for a segment of Coyote Creek Levee (~1,000 LF)	Flooding, Sea Level Rise 1, 2, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
46	Conduct sea level rise vulnerability analysis of County Flood Control District-owned and operated flood control assets	Flooding, Sea Level Rise 1, 2, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
47	Harden the North San Pedro Road Improvement at China Camp to preserve the transportation corridor through China Camp State Park. Preserve the corridor for emergency evacuations route and future sea level rise.	Flooding, Sea Level Rise 1, 2, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
48	Construct coarse-grained beach marsh and shoreline edge restoration to inhibit marsh and bay coastal shoreline edge erosion due to wind-wave erosion and SLR	Sea Level Rise 1, 5	County of Marin - DPW	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
49	Construct Corte Madera Creek Flood Risk Management Project Phase 1, Lower COM Restoration	Sea Level Rise 1, 5	County of Marin – DPW	New	Cost Estimate \$3,000,000. 50% eligible for reimbursement by DWR Grant, 50% to be covered by FCZ 9 with additional construction grant funding being sought.	2-7 years Medium	100% design, seeking additional construction funding

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50	Reduce impacts from Sea level rise and protect natural storm barriers by researching and restoring Tiscornia Marsh and other wetlands and marsh areas	Sea Level Rise 1, 5	County of Marin – OEM / Fire, City of San Rafael	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC, BRIC technical assistance	2-10 years Medium	
51	Create offshore wetlands in low lying areas susceptible to climate driven sea level rise	Sea Level Rise 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
52	Implement vegetation in coastal areas to limit sea level rise and storm surge	Sea Level Rise 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-5 years Low	
53	Enhance public awareness of evolving flood risk hazards due to sea level rise, both on county's coast and bay side	Sea Level Rise 1, 3, 5	County of Marin – DPW, OEM	New	TBD Cost General Funds/Grants FMA, DWR, HMGP, BRIC	2-5 years, ongoing Medium	
54	Novato Baylands Resilience Projects - including, Levee Improvements, Setback Levee Construction, Pump Station Construction and Tidal Restoration	Sea Level Rise 1, 2, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants FMA, DWR, HMGP, BRIC	2-10 years Low	
55	Geomorphic dredging of Tidal Flood Control Channels and Thin-Lift Marsh Augmentation for SLR Resiliency	Sea Level Rise 1, 2, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants FMA, DWR, HMGP, BRIC	2-7 years Low	
56	Southern Marin Levee Improvements and New Levee Construction with Associated Pumping for Direct Coastal Flooding Impacts	Sea Level Rise 1, 2, 5	County of Marin – DPW	New	TBD Cost General Funds/Grants FMA, DWR, HMGP, BRIC	2-7 years High	
57	Complete designs and implement wetland restoration project to protect Bothin Marsh Open Space Preserve and Bay Trail	Sea Level Rise 1, 5	County of Marin – Parks	New	\$25,000,000 General Funds/Grants FMA, DWR, HMGP, BRIC	15 years Medium	Preliminary designs completed

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58	Develop designs and implement wetland resilience improvements along shoreline of Bolinas Lagoon	Sea Level Rise 1, 5	County of Marin – Parks	New	\$15,000,000 General Funds/Grants FMA, DWR, HMGP, BRIC	15 years Low	Letter Property and Pine Gulch Creek
59	Develop designs and implement McInnis Marsh and Bucks Landing wetland resilience features	Sea Level Rise 1, 5	County of Marin – Parks	New	\$35,000,000 General Funds/Grants FMA, DWR, HMGP, BRIC	15 years Low	
60	Develop plan to prioritize high value areas of potential wetland expansion	Sea Level Rise 1, 5	County of Marin – Parks	New	\$500,000 General Funds/Grants FMA, DWR, HMGP, BRIC	3 years Low	
61	Research, Plan, and Construct Tsunami Evacuation structures near high-risk areas vulnerable to tsunami inundation	Tsunami 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC, BRIC technical assistance	2-10 years Low	
62	Enhance public awareness of mitigation approaches for tsunami, including on bay side of county	Tsunami 1, 3, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years, ongoing Medium	
63	Provide incentives to guide development away from high-risk areas	Tsunami 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
64	Plan for tsunami evacuation routes	Tsunami 1, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
65	Put signage in place for evacuation routes	Tsunami 1, 3, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years High	
66	Research, Analyze, and Harden schools in tsunami inundation zones	Tsunami 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC, BRIC technical assistance	2-10 years Medium	

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67	Harden piers and boat ramps to withstand tsunami forces	Tsunami 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
68	Create barriers around public safety water resources to mitigate tsunami forces	Tsunami 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
69	Harden and lift critical infrastructure in 1 and 3 feet for sea level rise areas.	Sea Level Rise, Flooding, Tsunami 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-10 years Low	
70	Strengthen roads to withstand natural hazards like fires and water inundation. Reduce regulatory impediments to road construction, widening, and other improvements by amending relevant sections of Marin County Code Titles 22, 23, and 24 to eliminate discretionary permit requirements and replace them with ministerial review to ensure that both public and private roads comply with codified engineering standards	Wildfire, Flooding 1, 2, 4, 5	County of Marin – CDA, DPW, Fire Agencies	New	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-10 years Low	Safety Element Activity
71	Review permit processes to ensure that all applications for new development comply with fire safety and building code standards, including but not limited to ensuring the provision of adequate water supply for fire suppression and fire flow requirements.	Wildfire 1, 4, 5	County of Marin – CDA, Fire Agencies	New	TBD Cost General Funds/Grants HMPG, BRIC, BRIC technical assistance	2-5 years Medium	Safety Element Activity

Table 4.9: Marin County Current Hazard Mitigation Actions

No.	Mitigation Action	Hazards Mitigated/Goals Met	Jurisdiction/Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
72	Electric signage for in VHFD and HFD areas alerting residents on red flag days	Wildfire 1, 3, 5	County of Marin – OEM, HHS	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
73	Amend Wildlands Urban Interface (WUI) Regulations. Work with Marin Fire agencies to prepare and adopt WUI regulations for new development and substantial remodels to reduce fire hazards. Track and update standards as the areas of high and extreme fire hazard areas are defined.	Wildfire 1, 4, 5	County of Marin – CDA, Fire agencies	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	Safety Element Activity
74	Identify Areas with Insufficient Evacuation Opportunities.	Wildfire 1, 5	County of Marin – CDA, Fire Agencies	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	Safety Element Activity
75	Remove hazardous trees and vegetation, including non-native species throughout the High and Very High Fire Danger Areas.	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-10 years Low	
76	County-wide assessment of hazardous trees and vegetation	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
77	Deploy additional AI cameras for fire ignition and detection	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
78	Conduct research on impact of wildfire smoke on southeastern portion of the county	Wildfire 1, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC, BRIC technical assistance	2-5 years Low	

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No.	Mitigation Action	Hazards Mitigated/Goals Met	Jurisdiction/Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
79	Create green breaks in county in VHFD and HFD Areas	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
80	Expand fuel management by collaborating with land management agencies	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
81	Encourage vegetation modification at private residences	Wildfire 1, 3, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
82	Conduct a county wide fuels study to understand how different vegetation would behave when ignited	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
83	Conduct a vegetation study in high and very high fire hazard areas	Wildfire 1, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
84	Implement culturally informed (especially native tribal culture) wildfire mitigation projects	Wildfire 1, 3, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
85	Encourage fire resistant construction and landscaping	Wildfire 1, 2, 3, 4, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
86	Exceed codes and standards for fire resistant construction	Wildfire 1, 2, 3, 4, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years High	
87	Harden fire roads to withstand impacts from natural hazards	Wildfire 1, 2, 3, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	

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No.	Mitigation Action	Hazards Mitigated/Goals Met	Jurisdiction/Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
88	Conduct brush clearance around fire roads	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
89	Provide grants to harden existing structures against fires	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
90	Plant native fire-resistant vegetation	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
91	Conduct brush clearance around evacuation routes	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
92	Deploy livestock to remove vegetation	Wildfire 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
93	Collaborate with land management agencies to manage vegetation in open space and common space areas	Wildfire 1, 2, 5	Co County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
94	Provide direct assistance to property owners in need of vegetation management to improve defensible space	Wildfire 1, 3, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
95	Retrofit any current roads, highways and bridges to endure high magnitude earthquakes in areas with 0.55 or higher shaking intensity.	Earthquake 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
96	Establish policy for soft story homes	Earthquake 1, 4, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	

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No.	Mitigation Action	Hazards Mitigated/ Goals Met	Jurisdiction/ Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
97	Research and assess current roads, highways, and bridges probability to endure a high magnitude earthquake	Earthquake 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC, BRIC technical assistance	2-5 years Low	
98	Replace or enhance water and sewage pipes and joints within areas vulnerable to liquefaction with flex pipes or alternate infrastructure.	Earthquake 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-10 years Low	
99	Retrofit all County and City and Town facilities to withstand large earthquakes.	Earthquake 1, 2, 5	County of Marin – OEM / Fire, Cities and Towns	New	TBD Cost General Funds/Grants HMPG, BRIC	2-10 years Low	
100	Identify pre-1933 school buildings and critical infrastructure	Earthquake 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
101	Retrofit all critical infrastructure to resist severe earthquake shaking above 0.55 intensity.	Earthquake 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-15 years Low	
102	Expand community outreach to Great Shakeout Drill – Use Shaker trailer	Earthquake 1, 3, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
103	Outreach to hospitals and other critical care facilities on infrastructure risk	Earthquake 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	
104	Conduct Research on impacts of San Andreas Fault in West Marin	Earthquake 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC, BRIC technical assistance	2-5 years Medium	
105	Provide outreach and education on San Andreas Fault in West Marin	Earthquake 1, 3, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Medium	

Table 4.9: Marin County Current Hazard Mitigation Actions

No.	Mitigation Action	Hazards Mitigated/ Goals Met	Jurisdiction/ Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
106	Study dam spillways and emergency spillways, specifically for seepage and to reassess geological assumptions	Dam Inundation 1, 2, 5, 6	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
107	Widen dam spillways in areas where dams may receive additional water due to climate change	Dam Inundation 1, 2, 5, 6	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	5-15 years Low	
108	Harden dam spillway infrastructure to prevent spillway failures during controlled / emergency releases	Dam Inundation 1, 2, 5, 6	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	5-15 years Low	
109	Research effective methods to strengthen wind load for existing utilities and critical infrastructure	High Wind 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC, BRIC technical assistance	2-5 years Low	
110	Conduct geotechnical survey of slope stability county wide	Debris Flow 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
111	Seed and transplant fire resistant and native plants and trees on vulnerable sloped areas	Debris Flow 1, 2, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years Low	
112	Outreach and education to areas at risk of debris flow	Debris Flow 1, 3, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-5 years, ongoing Medium	
113	Acquire land and or design new codes for areas in high-risk landslide areas and minimize new construction via policy recommendations	Debris Flow 1, 2, 4, 5	County of Marin – OEM / Fire	New	TBD Cost General Funds/Grants HMPG, BRIC	2-10 years Low	
114	Marin County Structure Elevation Program	Flooding 1, 2, 4, 5	County of Marin - DPW	Existing, New	\$4M General Funds/Grants (HMGP)	0-5 years In progress	Provides federal assistance to homeowners with cost-effective projects. FEMA funding approved

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No.	Mitigation Action	Hazards Mitigated/Goals Met	Jurisdiction/Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
							and 7 permits are being reviewed
115	Seismic Retrofit of County-owned buildings not current to code.	Earthquake 1, 2, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants HMPG, BRIC	0-5 years In progress	Staff also continue gathering available seismic assessment data on County-owned (and possibly leased sites in the future) facilities. This information will be brought into an asset management database, which is in the early stages of development, and will support risk assessment and work plan development
116	Seismic Retrofit of County-owned buildings not current to code. 120 N. Redwood- Seismic Assessment	Earthquake 1, 2, 5	County of Marin - DPW, CDA	Existing (2018)	TBD Cost General Funds/Grants HMPG, BRIC	0-5 years In progress	Local hazard mitigation by the States Office
117	Seismic Retrofit of County-owned buildings not current to code. Marin Center- Seismic Assessment of the Veteran's Memorial Auditorium & Exhibit Hall	Earthquake 1, 2, 5	County of Marin - DPW, CDA	Existing (2018)	TBD Cost General Funds/Grants HMPG, BRIC	0-5 years In progress	Completed assessment, and HMGP grant secured for upgrades. Seismic retrofit work at the Exhibit Hall completed in November 2022. The retrofit design work for the Veterans' Memorial Auditorium is complete. Construction work anticipated to run from April

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No.	Mitigation Action	Hazards Mitigated/Goals Met	Jurisdiction/Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
							2023 thru January 2024.
118	San Anselmo Flood Risk Reduction Project.	Flooding 1, 2, 5	San Anselmo is project lead	Existing (2018)	\$17.6M/ Flood Zone 9/ General Funds/Grants (DWR, HMGP application)	0-5 years In progress	Construction of flood detention basin on Fairfax Creek was substantially completed and the basin operational in November 2022. Outfall pipe slide gate can be operated manually and pending installation of electrical paneling March 2023 for electrical control operation. The project to remove the building bridge in downtown San Anselmo is in the final planning phase
119	Arroyo Corte Madera del Presidio Riverine (Corte Madera Creek) Flood Risk Management Project	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$14M/Flood Zone 9: General Funds/Grants (DWR, applications for FEMA, NOAA)	0-5 years In progress	Construction in progress through 2023 - The Marin County Flood Control and Water Conservation District (District) proposed the Corte Madera Creek Flood Risk Management Project, Phase 1 to reduce the 25-year flood risk along Corte Madera Creek in the Town of Ross and unincorporated Kentfield and to

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No.	Mitigation Action	Hazards Mitigated/Goals Met	Jurisdiction/Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
							enhance natural stream functions. An HMGP application for components in the channel that reduce flood risk was submitted August 4, 2023
120	Azalea Ave Bridge Replacement	Flooding 1, 5	Town of Fairfax	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years	Town of Fairfax is project lead.
121	Nokomis Ave Bridge Replacement	Flooding 1, 5	Town of San Anselmo	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years	Town of San Anselmo is project lead.
122	Madrone Ave Bridge Replacement	Flooding 1, 5	Town of San Anselmo	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years	Town of San Anselmo is project lead.
123	Winship Bridge Replacement	Flooding 1, 5	Town of Ross	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years	Town of Ross is the project lead.
124	Sycamore Ave bridge replacement	Flooding 1, 5	Town of San Anselmo	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years	Currently on hold. A watershed study has been scoped out, but not enough funding has been identified.
125	Lower Corte Madera Creek Improvements	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$2M/Flood Zone 9/ General Funds/Grants (DWR)	0-5 years In progress	Currently on hold
126	Continue supporting the Sonoma County Water Agency led Advanced Quantitative Precipitation Information effort.	Flooding 1, 4, 5	County of Marin - DPW	Existing (2018)	\$1.5M General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years In progress	Working to expand storm drainage improvement planning into Nave Gardens through a Flood District funded study currently

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No.	Mitigation Action	Hazard Mitigated/ Goals Met	Jurisdiction/ Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
							underway through 2023. The study is looking at ways of most effectively bypassing high flows and potential options such as increasing storage, building flood barriers, daylighting drainages, and installing pump stations and/or tide gates. Funding for future improvements would likely be sought through FEMA HMGP.
127	Pacheco Pond Project - flood flow diversion to wetlands to improve water quality and habitat. Upgrade title gages.	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years In progress	Annual outreach conducted in October
128	Deer Island Basin Project to setback levees, restore tidal wetlands, and increase tidal prism to reduce sedimentation and flood risk.	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$10M/ Flood Zone 1/ General Funds/Grants (SFBRA grant)	0-5 years In progress	National Park Service is working with FHWA and the Flood District to identify and plan a potential overflow channel from Easkoot Creek to the Ocean.
129	Rush Creek Drainage Improvements	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	2-3 years Low	During final design of the levee upgrade in February 2022, the engineer's updated construction cost estimate came in at \$12M, exceeding the project's available funding for project design and construction.

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No.	Mitigation Action	Hazard Mitigated/ Goals Met	Jurisdiction/ Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
							The District continues to track opportunities for project construction funding.
130	The upgrade Farmers, Cheda, and Lynwood pump stations	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years Low	Interim upgrades were made by adding an in-line check valve to prevent tides from flooding Meadow Dr. No funding (or local match) currently available for full conceptual upgrades to proceed to design.
131	City of Novato Drainage Improvement	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Flood Zone 1/ FMA, DWR, HMGP, BRIC	0-5 years In progress	Currently on hold
132	Encourage property owners in SFHAs to purchase flood insurance.	Flooding 1, 3, 5	County of Marin - DPW, OEM/Fire	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	Ongoing In progress	Currently on hold
133	Easkoot Creek Flood Flow Bypass Project. (National Park Service/FHWA project being scoped currently as part of parking lot work)	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years In progress	Currently on hold
134	Santa Venetia Floodwall Project (Formerly the Santa Venetia Timber-Reinforced Berm Improvement Project)	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$12 Million General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years In progress	Coordinating with County Engineering to include drainage upgrades with road rehabilitation projects. Labrea Way, vulnerable to recurrent stormwater ponding, is currently in design.

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No.	Mitigation Action	Hazard Mitigated/ Goals Met	Jurisdiction/ Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
135	Meadow Drive Interceptor and Ditch Upgrades.	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years Low	Currently in design phase for the placement of 100,000 cubic yards of dredge sediment. Goal to support navigation and storm drain outfall.
136	Santa Venetia Pump Station No. 4 Upgrades on hold	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$3M/ Flood Zone 7 General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years In progress	In 2021, County and Parks staff received a grant from the San Francisco Bay Restoration Authority (SFBRA) Measure AA Bay region wetlands grant program. This grant funding will allow the McInnis Marsh Restoration project to continue work on final design, compliance with the California Environmental Quality Act (CEQA) and permitting including the proposed CSA 6 Gallinas Creek geomorphic dredge project. Note that the proposed McInnis Marsh Restoration project is not currently funded for implementation.

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No.	Mitigation Action	Hazard Mitigated/ Goals Met	Jurisdiction/ Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
137	Pump Station No. 2 Upgrade, and interconnection to Pump Station No. 1 is currently on hold.	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$3M General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Initiation of this project depends on completion of a land exchange through State Lands Commission. County is working on surveying needed to support that exchange.
138	Pump Station No. 5 Upgrade	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$3M General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Currently on hold
139	Santa Venetia and Rafael Meadows Street Drain Upgrades.	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	In 2022 all pump stations in Santa Venetia were upgrade to Trimble Unity System for alerts and notifications to staff. Funding for additional upgrades not available at this time.
140	Gallinas Creek Geomorphic Dredge	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$3M/ County Service Area 6/ General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Flood district is supporting the Town of Tiburon's storm drainage master plan implementation out by designing the upgrade to the Cove Stormwater Pump Station (construction completed, Project 33 in 2018 LHMP) to have capacity to handle the increased flows that would be conveyed to the station by the full buildout of the

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							Town's master plan.
141	McInnis Park Wetland Restoration Project	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Currently on hold
142	Levee Setback and Upgrade Project.	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Integrated into future sea level rise adaptation planning.
143	Pump Station No. 1 Upgrade	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$2M General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	On hold due to lack of property owner easements. Considering a creek restoration project instead.
144	Estancia Ditch and Pump Station improvement project	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$4M/ Flood Zone 7/ General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Coordinating with Caltrans on a scheduled 2024 pavement rehabilitation project to potentially include tide gates to reduce sunny day flooding of Tiburon Blvd.
145	Tiburon Street Drainage Improvements Plan	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	A levee study was completed, and a portion of the levee system has a project underway for seepage mitigation. It is in the design phase.
146	Karen Way Ditch Improvements	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost/ Flood Zone 4/ General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Currently in the planning phase of project.

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147	Strawberry Levee Improvements	Sea Level Rise 1, 5	County of Marin - DPW	Existing (2018)	\$1M / Flood Zone 4/ General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Integrated into future sea level rise adaptation planning.
148	West Creek Flood Wall Alternative Restoration Project	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	5-10 years In progress	The district is working with the County's Parks Department to evaluate a potential pilot project for thin-lift placement of sediment from Coyote Creek in Bothin Marsh. It would require a Measure AA grant to design, permit, construct, and monitor.
149	East Creek Outfall Modifications Project	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$10M/ Flood Zone 4/ General Funds/Grants/FMA, DWR, HMGP, BRIC	3 years In progress	Caltrans is working on a project initiation document for December 2023 for sea level rise adaptation at the US 101/SR 1 between Manzanita and Marin City. County is supporting this work through hydraulic studies.
150	Coyote Creek Levee Improvements	Flooding 1, 2, 5	County of Marin - DPW	Existing (2018)	\$40M/ Flood Zone 3/ General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Currently on hold
151	Marin City Drainage Improvements Project	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Following the condition assessment design will proceed in 2024. After construction of the crest Marin improvements a study of Cardinal and shoreline

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No.	Mitigation Action	Hazard Mitigated/ Goals Met	Jurisdiction/ Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
							pump stations and associated drainage is anticipated.
152	Richardson Bay Shoreline Protection work is to be integrated into future sea level rise adaptation planning.	Sea Level Rise 1, 5	County of Marin - DPW	Existing (2018)	\$150M TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	5-10 years In progress	County maintains a flood preparedness webpage with resources and information for landowners.
153	Bothin Marsh Restoration project	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$2.4 M General Funds/Flood Zone 3/Grants (SFBR application in progress)	5-10 years In progress	Ongoing through Local Coastal Program update, funded and completed, nature-based adaptation studies, and the Safety Element update.
154	Manzanita Modifications Project. To support/supplement a Caltrans project	Flooding, Sea Level Rise 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Funded through Ocean Protection Council grant and AARPA funds. Ongoing Stinson Beach Adaptation and Resilience Collaboration (Stinson ARC) project.
155	Lower Ryan Creek Pump Station Study and Upgrades	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$2.5M/ Flood Zone 3/ General Funds/Grants/FMA, DWR, HMGP, BRIC	5-10 years In progress	Project has not started due to lower community priority. However, the project has not been abandoned and may be completed in the next year.
156	Crest Marin, Cardinal, and Shoreline Pump Station Upgrades.	Flooding 1, 5	County of Marin - DPW	Existing (2018)	\$7.5M/ Floods Zone 3/ General Funds/Grants/FMA, DWR, HMGP, BRIC	0-5 years In progress	Two funded and completed nature-based studies explored the feasibility of these projects and follow up work is now happening through the

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No.	Mitigation Action	Hazard Mitigated/ Goals Met	Jurisdiction/ Responsible Agency	New, Existing, Completed, Removed	Estimated Cost and Potential Funding Source	Timeline/Priority	Comments/Progress
							Stinson ARC project and through pursuit of other grant opportunities.
157	Flood Preparedness Pilot Program	Flooding 1, 3, 5	County of Marin - DPW	Existing (2018)	Negligible cost General funds	0-5 years In progress	In Progress
158	Consider sea level rise adaptation from Collaboration: Sea-level Marin Adaption Response Team (C-SMART).	Sea Level Rise 1, 4, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	Ongoing In progress	
159	Initiate Community Plans for Adapting to Coastal Hazards	Flooding, Sea Level, Rise, Tsunami 1, 2, 3, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	Ongoing In progress	
160	Develop Renters and Homeowners Guides to Flood Preparedness project	Flooding 1, 3, 5	County of Marin - DPW, OEM	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	0-5 years Low	
161	Protect and restore natural buffers.	Flooding 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	Ongoing In progress	
162	Assess bulkheads surrounding Tomales Bay	Flooding (coastal) 1, 5	County of Marin - DPW	Existing (2018)	TBD Cost General Funds/Grants/ FMA, DWR, HMGP, BRIC	Ongoing In progress	