

FLOOD ZONE 4 ADVISORY BOARD
STAFF REPORT
JANUARY 28, 2025

Item 1. Review and Approve Order of Agenda

Working with staff in advance of the meeting, the advisory board chairperson is responsible for reviewing and providing feedback on which items to include on the agenda and in what order to discuss them. When staff receive agenda requests from board members other than the chairperson, we refer to the chairperson for confirmation of what should be on the agenda. **The purpose of this agenda item is to review and confirm agenda items and consider any other changes to the order of items.**

It's important to note that email communications between more than two advisory board members about topics under the purview of Zone 4 could be considered a violation of the Brown Act. Individual board members may contact the chairperson directly about items they want to add to the agenda, but refrain from discussing them with other board members, even by email, until the meeting convenes.

Item 2. Meeting Minutes: October 22, 2024 (Action Item)

Draft minutes can be found here:

<https://flooddistrict.marincounty.gov/meetings/zone-4-advisory-board-meeting-october-22-2024/#/tab-minutes>

Recommended Action: Approve draft minutes of October 22, 2024

Item 3. Open Time for Items Not on the Agenda

Comments will be heard for items not on the agenda (limited to three minutes per speaker).

Item 4. December 2024 Storm/King Tide Report (Information Item)

During the period of King Tides between December 11 and December 17, 2024, several waves of precipitation delivered more than 7" of rain on Mount Tamalpais. According to the Sheriff's Office, southern Marin had the majority of the emergency calls, largely related to shoreline flooding and downed trees caused by high winds. The Emergency Command Center logged over 300 storm-related calls. County firefighters responded to 35 fallen branches or trees, 31 downed power lines, and one water rescue. County maintenance crews patrolled 24/7 during this period, cleaning trash racks, making sure pumps were running, and (mostly in West Marin) removing mudslides and dozens of trees from roads.

On December 14, 2024, there were extreme high tides, with preliminary values peaking at 8.16ft at the Golden Gate Bridge. During this period of high tides an estimated 2.5" of rain fell in the Marin City watershed. The Marin City Pond was filled to capacity after about 1" of rain fell in the saturated watershed, threatening to block access into and out of this disadvantaged

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community, and closed lanes on U.S. 101 which in the past has had traffic impacts felt as far north as Santa Rosa. For the first time, the District had portable pump operators run pumps through the morning and afternoon to keep the intersection of Drake and Donahue passable. While this new facility successfully kept Marin City open in December, refining and actively managing this new pump operation is taking up a considerable amount of District staff time this winter. Tasks include constructing and testing sumps and associated storm drain improvements, cleaning storm drains, protracted negotiation of a contract with the operator, coordinating with the Marin Gateway Shopping Center and Caltrans, operating a manual tide gate at the pond, monitoring weather forecasts, rainfall amounts, and actual and predicted tides, installing a water level sensor in the pond, monitoring water levels in the pond and at another sensor in the street drain system, purchasing, permitting, registering, storing, and securing two new large portable pumps, much bigger than any the County has previously has used before. This work is being carried out by the Flood Division staff but is fully funded through a special allocation from the State of California, secured by Senator McGuire. This funding was specifically set aside to assist a disadvantaged community facing potentially life-threatening impacts from losing access to Highway 101 and beyond.



Figure 2. Portable Pumps in Marin City

We received reports of Gate 5 and 6 flooding that same day. Because the tide peaked well above the predicted King Tide it covered the access roads and parking areas for the community.



Figure 3. Gate 6 Flooding (photo from Jenny Silva)



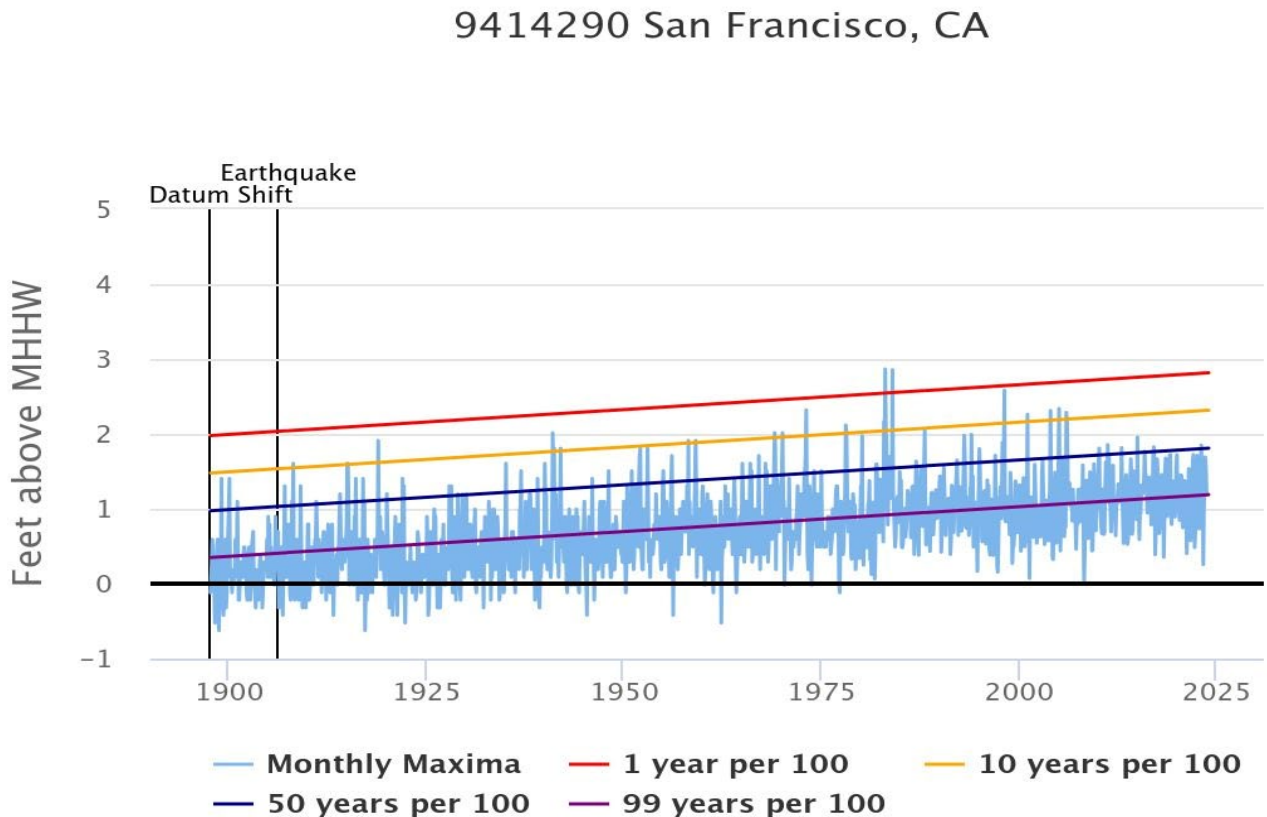
Figure 4. Gate 5 Flooding (photo Jenny Silva)

Zone 4 Advisory Board members also reported flooding during this time on Greenwood Cove Drive and part of the right lane on Tiburon Blvd. A fire truck was staged to prevent people from driving into the floodwaters.

The low portions of Greenwood Cove Dr. are around 7 feet elevation. Tides of this elevation are predicted to reach this level for a handful of days this year in June, July, November, and

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December. Occasionally, extreme weather events drive tides significantly higher than predicted as happened on December 14, 2024. Figure 5 shows trends in extreme tides at the Golden Gate Bridge (data for 2024 has not been added to this chart yet). There is an overall trend over the last 120 years of increasing average tidal elevations, by about 8", due to climate change. When the data for 2024 is added to this chart, we expect to see a tide level exceed the red line representing the December 14 tide – note tides have not been that high since the early 1980s! Although tides reach the elevation of Greenwood Cove Drive a few times each year, it is rare for there to be the depth of water this community saw on December 14,.



NOAA/NOS/Center for Operational Oceanographic Projects and Systems

Figure 5. Extreme Tides at the Golden Gate Bridge NOAA Gauge

Item 5. Restoration of East and West Creeks (Information Item)

Background: On January 23, 2024, the advisory board recommended the below described scope of work for design and environmental review for proposed restoration projects on East and West Creeks, with a budget of \$400,000.

In East Creek this involves preparing plans and specifications for removing accumulated debris and sediment from Harriet Way up to Karen Way (approximately 1,320 feet long). This will include design of appropriate biotechnical bank erosion protection through this creek reach. The design engineer may, pending additional feedback from the advisory board at

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future meetings, also design add-on options (which would increase implementation cost above the estimate) for:

- 1) installation of a top of bank barrier along 100-130 Leland Way (about 350 feet long),
- 2) installation of a sediment basin near Karen Way to reduce sedimentation downstream where it is more difficult to access,
- 3) plugging or valving of the Town of Tiburon's 6" storm drain outfall at the Cecilia way crossing, and
- 4) gating or valving of the East Creek outfalls to the Bay.

In West Creek the scope of work includes design and environmental for the following proposed project elements:

- 1) Remove rubble (foreign rock and broken concrete) from the creek between Tiburon Blvd and 80 Rancho Dr, and Cecilia Way and 180 Rancho Drive.
- 2) Remove concrete channel stormwater outfall around 143 Blackfield Drive and replace it with a rock lined channel and appropriate biotechnical bank erosion protection,
- 3) Remove three non-native poplars and one non-native eucalyptus from in-stream, and
- 4) Stabilize banks (e.g. rock rip-rap) to enlarge channel at location of removed in-channel trees

More details can be found on this website: <https://marinflooddistrict.org/documents/executive-summary-for-flood-risk-reduction-alternatives-at-east-and-west-creeks/>

Update: The District is finalizing and is about to release a Request for Proposals (RFP) for potential consultants to complete the design according to the above-described scope of work. After we receive proposals in the spring, we will make a final recommendation to the advisory board at the April 29, 2025 meeting before asking the District Board of Supervisors to award a consulting contract. If design kicks off in mid-2025, construction of improvements would likely occur in 2027 and/or 2028.

Item 6. Greenwood Cove Drive and Tiburon Blvd Tidal Flooding (Information Item)

The RFP described in Item 5 includes as an optional scope of work to design and permit a tidal flood barrier, up to 600 feet long, and associated appurtenances to reduce frequent tidal flooding at Greenwood Cove Drive. Flooding of this area was reported during the December king tides when water levels exceeded 8 feet NAVD88. The exact location of the barrier would be determined by the design engineer but would likely be in the vicinity of the "Low spot" circled in Figure 1. Although the advisory board did not vote to proceed with this when it was first presented at the April 16, 2024 meeting, District staff understand that this is a high priority area for the zone and that there would be several efficiencies gained by including this tidal flood barrier in the proposed scope of work for design and permitting of the East and West Creek Restoration. The advisory board will have an opportunity to reconsider this at the

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April 29, 2025 meeting.

Caltrans is aware that at very high tides water backs up through storm drain risers and inlets between Tiburon Blvd and Greenwood Cove Dr. They are working on incorporating solutions to this issue into their [SR 131 Capital Preventive Maintenance Project](#) which is currently in the design phase and is scheduled for construction 2026-2027. Their proposed storm drain improvements in the State Route 131 (Tiburon Blvd) right-of-way, coupled with the potential tidal flood barrier waterward of Greenwood Cove Dr that District staff are proposing, would go a long way toward reducing tidal flooding affecting Greenwood Cove Dr and Tiburon Blvd.



Figure 1. Low spot on bay shoreline near Greenwood Cove Dr. [Based on a figure from the Richardson Bay Shoreline Study <https://flooddistrict.marincounty.gov/documents/draft-richardson-bay-shoreline-study/>]

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Item 7. Annual and Preventive Maintenance Work Program (Information Item)

Listed below is a summary of annual and preventive maintenance anticipated this year. In addition to these pre-winter activities, District maintenance crews check the trash racks and pump stations before, during, and after storms. A map of the Flood Zone can be found here for reference: <https://flooddistrict.marincounty.gov/documents/map-of-flood-control-zone-4-bel-aire/>. For questions, email floodinquiry@marincounty.gov.

A. Pump Stations

Zone 4 operates three stormwater pump stations: Cove Pump Station (installed in 1978) and significantly upgraded in 2019-2020), Pamela Court Pump Station (installed in 1990), and Strawberry Circle Pump Station, part of Zone 4A (installed in 2003-2006). These stations are essential for draining stormwater from residential and commercial areas into creeks and wetlands, where barriers have been constructed to reduce tidal flooding. Each pump station is equipped with 2-3 pumps and dual power sources, including backup generators or propane-powered backup pumps.

Routine Maintenance: The County's Facility Maintenance Division conducts annual preventive maintenance at all three pump stations, which includes the inspection, testing, and replacement of electrical and mechanical components as needed. Additionally, the County's Vehicle Maintenance Division performs annual servicing of the generators at Cove and Strawberry Circle Pump Stations, as well as the engine for the backup pump at Pamela Court Pump Station. Every three years, the generators also undergo load testing to ensure operational readiness. The last load test was completed in 2024 and is due again in 2027.

Major Maintenance: Individual pumps and motors are removed for major maintenance on a six-year cycle, carried out by contractors. This summer, both the Strawberry Circle #2 pump and the Cove #2 pump will be removed for servicing. Despite their relatively recent installation and use of stainless-steel parts, significant wear was found on the #1 pumps of these stations last year. This year we are looking at incorporating corrosion protection measures into the maintenance. If due to the pump condition, maintenance work can't be completed utilizing the baseline budget the advisory board recommended last year for next fiscal year, we will recommend a budget adjustment at a future meeting.

B. Vegetation and Sediment Removal

In Spring and late-Summer the East Creek access road and Strawberry Circle Pump Station will be mowed and vegetation at the Pamela Court Pump Station trimmed. In late-Summer or early-Fall the Conservation Corps North Bay clear potential flood hazards and remove invasive species of plants while maintaining East and West Creeks. In October cattails will be trimmed. They will also clear vegetation at the debris rack at the end of Karen Way where East Creek flows into the pipes under the road before the rainy season.

Sediment was removed from East Creek in 2022 and typically is needed approximately every 5 years. Staff met with a resident about a suspected bank failure. This turned out not to be a bank failure but rather a minor buildup of sediment on root mass with some

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light vegetation growing on it. This is typical in creek channels and is likely to scour away with a heavy flow. If not, this sediment will be removed as part of the next sediment removal cycle for East Creek, potentially this summer if needed. The situation is monitored by our storm patrol crew and will be assessed again in the Spring by an engineer. Some advisory board members expressed continued concern about this sediment and its apparent growth after the December 14, 2024 storm.

Natural creeks constantly meander and move, and it is normal for sediment to build up on one side and scour on the opposite side to create a snaking shape. This has benefits to habitat and water quality that environmental permitting agencies try to preserve. East Creek's unnatural straightness along Leland will constantly be in battle with nature. Because of this we will periodically see sediment building up so the channel forms S-curves between sediment removal cycles when the unnatural straightness is temporarily restored.

Analysis completed as described in Item 3 suggests that sediment removal on East Creek reduces flood risk, however the District's programmatic sediment removal on West Creek at Cecilia Way is considerably less beneficial. Based on that, we don't anticipate continuing the practice of spot-sediment removal in West Creek at Cecilia Way.

Item 8. Zone 4 Fund Projection (Information Item)

As requested by the Advisory Board at the October 2024 meeting, attached is a 5-year projection for the Zone 4 fund assuming all projects discussed are implemented within the preliminary estimates, and operating expenses do not exceed baseline budgets. Though there is currently nearly \$4M in the Zone 4 fund, the balance would drop to below \$1.6M in 2027.

Item 9. County Sea Level Rise Planning Update (Written Update Only)

The Flood Zone 4 Advisory Board expressed a strong interest in participating in regional sea level rise planning efforts. The office of the County Executive will continue to send a representative to periodic advisory board meetings to provide updates on a sea level rise governance structure study underway, though there will not be a presentation at this meeting. The consultant team is currently conducting outreach to Southern Marin stakeholders. Information on this study can be found on the **County's recently updated website:** <https://www.marincounty.gov/your-government/sea-level-rise>.

Item 10. Next Meeting

The next meeting is scheduled for April 29, 2025, at 6:30pm at the Westminster Presbyterian Church.

Record No.	Description	2023 Baseline Budget	2024 Baseline Budget	2025 Baseline Budget	2026 Baseline Budget	2027 Projected Budget	2028 Projected Budget	2024 Actual as of 1/10/24	2023 Actual	2022 Actual	Notes
1	Property Tax - Current Unsecured	-14,500.00	-14,500.00	-14,500.00	-14,500.00	-14,500.00	-14,500.00	-14,529.25	-15,084.24	-14,509.78	
2	Property Tax - Current Secured	-760,000.00	-780,000.00	-780,000.00	-780,000.00	-780,000.00	-780,000.00	-485,441.80	-837,729.01	-790,428.19	
3	Property Tax - Current Secured - Uni	-4,000.00	-5,000.00	-5,000.00	-5,000.00	-5,000.00	-5,000.00	-3,137.90	-5,690.02	-4,966.83	
4	Property Tax - Prior Unsecured	-500.00	-700.00	-800.00	-800.00	-800.00	-800.00	-845.91	-836.73	-829.09	
5	Supplemental Property Tax - Current	-12,000.00	-20,000.00	-20,000.00	-20,000.00	-20,000.00	-20,000.00	-4,877.84	-29,414.73	-26,331.21	
6	Supplemental Property Tax - Current Unsecured	-300.00	-600.00	-600.00	-600.00	-600.00	-600.00	0.00	-967.44	-579.56	
7	Supplemental Property Tax PR Redm	-450.00	-500.00	-500.00	-500.00	-500.00	-500.00	-57.26	-725.29	-435.62	
8	Current Educational Revenue Augmentation Fund (ERAF)	-3,500.00	-7,000.00	-7,000.00	-7,000.00	-7,000.00	-7,000.00	-10,064.95	-7,453.35	-10,185.49	
9	Excess ERAF	-50,000.00	-70,000.00	-70,000.00	-70,000.00	-70,000.00	-70,000.00	-39,445.54	-67,013.28	-74,371.90	
10	Investment Income - Interest Pooled	-11,500.00	-8,000.00	-40,000.00	-40,000.00	-40,000.00	-40,000.00	-34,458.67	-43,955.32	-1,861.23	
11	Investment Income - ERAF Interest	-20.00	-20.00	-20.00	-20.00	-20.00	-20.00	-100.92	-3.22	-21.45	
12	Unrealized Gains	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-30,544.64	30,544.64	
13	Homeowner Property Tax Relief	-3,000.00	-3,000.00	-3,000.00	-3,000.00	-3,000.00	-3,000.00	-1,555.85	-3,152.80	-3,195.36	
14	SB2557 Admin Fee	11,000.00	11,000.00	11,000.00	11,000.00	11,000.00	11,000.00	5,035.81	10,786.52	10,345.30	
16	Misc. Revenue	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
17	Transfers In	0.00	0.00	0.00	0.00	0.00	0.00	-500.00	0.00	0.00	deposit return for meeting room rental
18	Total Revenue Budget/Actuals:	-848,770.00	-898,320.00	-930,420.00	-930,420.00	-930,420.00	-930,420.00	-589,980.08	-1,031,783.55	-886,825.77	
19											
20	Maintenance of Buildings and Improvements	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	69,368.52	102,872.30	52,336.18	clearing creeks, trash racks, and refurbishing pumps
21	Membership	0.00	0.00	0.00	0.00	0.00	0.00	0.00	148.00	0.00	
22	Miscellaneous Expenses	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	1,887.81	1,265.80	809.25	hardware, room rental
23	Professional Services	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	12,840.00	60,867.68	806.00	engineering and biological consulting services, etc.
23.1	Design for East/West Creek Restoration			400,000.00							
23.2	Add design of tidal barrier at Greenwood Cove			200,000.00							
24	Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
24.1	Construction for East/West Creek Restoration					2,000,000.00					
24.2	Add tidal barrier at Greenwood Cove**					1,000,000.00					
25	Utilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,053.78	
26	Utilities - Electric	14,000.00	14,000.00	14,000.00	14,000.00	14,000.00	14,000.00	6,065.08	11,781.19	6,831.04	
27	Utilities - Water	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	604.45	1,211.31	1,448.17	
28	Total Services & Supplies Budget/Expenditures:	195,000.00	195,000.00	795,000.00	195,000.00	3,195,000.00	195,000.00	90,765.86	178,146.28	64,284.42	
29											