FLOOD ZONE 3 ADVISORY BOARD MEETING APRIL 13, 2022

STAFF REPORT

Item 1. Approval of Meeting Minutes: October 12, 2021

Review minutes at this link: https://www.marinwatersheds.org/sites/default/files/2022-02/FCZ3 AB-Mtg Draft-Minutes 101221.pdf

Recommended Action: Approve minutes.

<u>Item 2. Open Time for Items Not on the Agenda</u>

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

<u>Item 3. 10/24/21 Storm Recap</u>

On October 24, 2021 an historic "Bomb Cyclone" storm impacted Marin County, and the effects varied widely across the County's terrain. Based on rainfall measurements from marin.onerain.com, the Mount Tam rain gauge recorded precipitation amounts of 21.1 inches over 4.8 days - a 100–200-year storm event in that location. With coincident higher than predicted tides, access into and out of Marin City was blocked by accumulating stormwater at the intersection of Donahue and Drake nearest the freeway for much of the afternoon and evening that day. At this location it represented about a 10-year flood based on the storm drain model.

Arroyo Corte Madera del Presidio experienced the event as a 3- to 4-year flow (2-hour duration) and 15-year storm for 12 hours of rainfall. The creek got very full, but the District did not receive reports of out of bank flow as the lower sections of the creek tend to be more vulnerable to short-duration and high intensity precipitation.

The District did not receive any reports or note any out of bank flow along Coyote Creek, however the intense rainfall coupled with power outages during the storm led to widespread flooding of roads and smaller drainageways that drain to pump stations and Coyote Creek.

Item 4. Tam Valley Maintenance and Project Updates

a. Coyote Creek Levee Update

The Coyote Creek Flood Control Project (Project) is a U.S. Army Corps of Engineers flood mitigation project that was constructed in the 1960s. The Project provides flood mitigation for many of the homes, businesses, and roads located in Tamalpais Valley. After completion of construction, the Marin County Flood Control and Water Conservation District (District) was tasked with the operations and maintenance of the Project. The Project was constructed on lands that are now owned by the District and/or where easements were acquired for maintenance of the flood control project. The Project had been eligible, under Public Law 84-99, for reimbursement for damages occurring to the Project (not private properties) resulting from a federally declared disaster.

Staff from the Army Corps of Engineers (USACE) conducts periodic inspections of the Project. During one of these inspections, the USACE noted that the District should address any public or private encroachments on District lands in order to remain in the PL 84-99

program. To identify the encroachments, Cinquini & Passarino, Inc. completed a survey in 2021 for a total cost of \$198,095.

Following completion of the survey, District staff met with the US Army Corps of Engineers staff to review the encroachments, which consist of fences, trees, pathways and pedestrian bridges, portions of homes, and an electrical transmission tower. The USACE feedback centered around the transmission tower. District research shows that the tower was built on County (not District) owned land where Pacific Gas & Electric has a Transmission Line Right of Way dating back to 1915. In 2016, GEI performed an evaluation of the entire levee system but did not provide a specific evaluation of the effect of the tower on levee stability (https://www.marinwatersheds.org/resources/publications-reports/coyote-creek-levee-evaluation-project).

With the current encroachments, the Coyote Creek Project is not at this time eligible for rehabilitation funding under PL 84-99, however, the Army Corps will continue to support the project through technical assistance and inspections. Staff have reached out to PG&E to initiate discussion about any potential relocation of the transmission line away from the levee along Nyhan Creek.

Recommended Action: Recommend a budget of up to \$50,000 for GEI to provide an evaluation and recommendations to support the stability of the levee in the vicinity of the PG&E transmission tower on Nyhan Creek.

b. Crest Marin Pump Station Assessment

The Crest Marin Pump Station was constructed in 1978 and is reaching the end of its expected useful life. One of the station's smaller pumps (*station contains total of 4 pumps*) was removed for major preventive maintenance last year and it needed to be extensively refurbished including having the bowl, oil tubes, and shafts replaced. One of the back-up pumps needed to be completely replaced. Additionally, two flap gates on the pump discharge pipes were leaking water last summer so all three of the large flap gates were replaced in October. The costs to replace the pump and the large flap gates amounted to over \$150,000, whereas average maintenance contract costs per year for this pump station had been less than \$20,000 prior to 2021. Following the 10/24 storm, a small sink hole over a 12" metal pipe leading to the pump station also appeared late last year. Costs estimates for pipe replacement are being prepared but are likely to add on the order of \$30,000 to existing maintenance costs.

In order to assess overall maintenance needs and costs, staff recommend soliciting a consultant to conduct an assessment of the Crest Marin Pump Station. The study would recommend improvements and categorize them into the following priority levels to help staff and the advisory board with planning and budgeting:

- High Priority Improvements should be completed in the next two (2) years to maintain system reliability/safety. Failure may result in high emergency response costs and potential property damage.
- Medium Priority Improvement should be completed in the next five (5) years.
- Low Priority Improvement recommended but will not increase reliability of the pump station.

The following pump station elements are to be included in the condition assessment:

- Pump Station Condition-(roof and other structural housing components)
- Electrical

- Electrical Service
- Electrical Systems
- Pump Control Panel
- Alarms
- Wet Well Level Monitoring
- Pumping Station Design and Safety
- Piping and outfall/gate condition and optimization
- Stormwater pumps condition and capacity
- Emergency back-up pumps and potential for additional power sources in addition to diesel back up.
- Trash rack condition and potential for optimization

The District requested cost proposals from available on-call consultants and received estimates in the range of \$65,000 and \$125,000 to conduct this assessment. Due to the cost being above the recommended \$50,000 threshold for on-call work, the District recommends putting out a request for proposals (RFP) to solicit consultants. Following this assessment, the staff will return to your board with a scope of work for pump station upgrades prepared by the selected consultant. Note that Cardinal and Shoreline pump stations are within ten years of their expected end life, so staff will return to your board with a scope of work for a pump station and drainage study for the Cardinal and Shoreline pump stations.

Recommended Action: Recommend a budget adjustment of \$125,000 for a consultant to provide an evaluation and recommendations to extend the expected life of Crest Marin Pump Station.

c. <u>County Led Caltrans SB1 Adaptation Grant Funded Studies for Highway 1 Corridor in Tam Valley</u>

District staff led two studies related to the Caltrans' SB 1 planning grant funding for studies that focused on increasing resilience for the area from the intersection of State Highways 101 and 1 north to Mill Valley in Marin County. This work will help inform Caltrans' sea level rise project for State Route 1 and US 101 between Manzanita and Marin City, for which a Caltrans Project Initiation Document (PID) which is expected in June 2023. Note, this Caltrans project is only funded through the PID preparation, and not yet funded for environmental review, design, nor construction, but the PID is a necessary step toward identifying funding.

i.Bothin Marsh Restoration Update

Flood District engineers have been working closely with Marin Parks and OneTam staff on the tidal marsh restoration and sea level rise planning for Bothin Marsh. District staff managed a task of the SB1 grant study which involved analyzing the realignment of Lower Coyote Creek below the Highway 1 bridge directly into Bothin Marsh. Staff developed an RFP and solicited bids from qualified consultants in 2019, and on September 24, 2019 awarded the project to Anchor QEA of San Francisco, CA. The first round of modeling results (Anchor December 2020) showed that there is a feasible alternative for rerouting lower Coyote Creek into Bothin Marsh that does not result in significant upstream flooding impacts. This report also evaluated the sediment transport benefits from realignment and showed that the long-term sustainability of Bothin Marsh would be enhanced from the proposed realignment project. Note that this analysis was preliminary and focused on flooding and sediment impacts and did not include permitting and other feasibility issues.

Marin Parks requested that the District work with Anchor to further refine the realignment alternatives to maximize sediment transport onto the Marsh while minimizing flooding impacts. To this end, your board recommended in October 2021 a \$50,000 budget for Anchor to conduct these additional analyses. This work benefits the District through supporting the dual flood reduction benefits of rerouting Coyote Creek and sustainability elevating the marsh with additional sediment over time as sea levels rise. In mid-2022 we will post the results of this work to marinwatersheds.org.

To this end, the District is working with Parks to evaluate a potential pilot project for thin-lift placement of sediment from Coyote Creek in Bothin Marsh. It would have to be a Zone 3-led project and would require a Measure AA grant to design, permit, construct, and monitor. Based on a 2017 hydraulic study of Coyote Creek by GHD (https://www.marinwatersheds.org/sites/default/files/2022-03/TM%20-%202017%20Coyote%20Creek%20and%20Nyhan%20Creek%20v2r.pdf), including what was stockpiled from the concrete channel sediment removal in 2018, the amount of sediment needed for this pilot project is approximately the same as what is currently available in Coyote and Nyan Creeks to increase freeboard in the Coyote Creek earthen channel and reduce flood risk at Marin Ave and Enterprise Concourse bridges in Nyhan Creek. The application would leverage a 2017 study by the District that can be found here: https://www.marinwatersheds.org/sites/default/files/2022-04/Bothin Marsh Feasibility.pdf

Recommended Action: To help prepare a possible Measure AA grant application, recommend \$15,000 of next fiscal year's baseline budget for professional services to support the development of a grant application.

Item 5. Marin City Project Updates

a. Marin City Stormwater Pond Flood Infrastructure Improvements (R Leventhal, lead) On June 23, 2020, the Marin County Flood Control and Water Conservation District (District) received award of a grant from the Federal Emergency Management Agency (FEMA) through CalOES for \$337,500 (Phase I of a larger grant) to be used for design, permitting and preparation of plans and specifications for construction of Marin City Stormwater Pond improvements. The 2020 project award included the design of a new drainage culvert under 101 to be installed using trenchless technology and a floodwall along a portion of the Marin City Pond. The trenchless approach was subsequently found to be technically infeasible following a geotechnical investigation in August 2021 due to issues around the subsurface soils that made trenchless installation highly risky and prone to failure.

In response, the Project design team has developed a new design with a pump station from the pond that utilizes the existing pipe under the 101 and provides better flood protection under current and sea level rise conditions as compared to the 2020 proposal, but at a cost of approximately \$9M, or more than double the original grant amount. To fill this funding gap, District staff has requested a scope change from FEMA to significantly increase the grant amount. In the same request, staff have also included an ask for dredging of the pond at approximately \$2M. This request is in the final stages of review by CalOES and is waiting on the BCA (benefit to cost analysis) to be completed in the next two to three weeks and then will be passed along to FEMA for final review and approval. FEMA has not provided a timeline for approval, but the District should learn if the new grant request is funded in the next eight to eight weeks.

Staff did apply and received a one-year extension to Phase I design and permitting until March 23, 2023. However, the design firm's (BKF) work and schedule has been severely inhibited by a lack of access to the stormwater pond. In addition, the project will require the property Owner's consent to submit permits to the regulatory agencies and for construction. The pond is privately-owned, and the Flood District is not a regulatory agency and can only work with willing landowners. Given the delays in access, the costs for the proposed flood improvements are preliminary. The Zone anticipates needing an additional \$2M for this project if the FEMA grant is approved. We will return to your Board when staff have an update. In the short term, \$60,000 is recommended for additional sampling of pond sediments to support design.

Discussions regarding future pond ownership and maintenance are happening at a high level at the County. The District and County have a legal and fiscal duty to fully understand any liabilities when using public funds.

Recommended Action: Recommend \$60,000 for sampling and analysis of pond sediments subject to authorization and approval by the pond property owner(s).

b. Support of Marin City Climate Resilience and Health Justice Pond Wetland Restoration Design

The District's engineering consultant BKF has set-up and run the hydrology and hydraulics (H&H) model and confirmed that the modeling conducted as part of the 2018 Flood Study was performed correctly. In June 2021, Audubon and their consultants provided three grading design options for evaluation by BKF to assess impacts to flooding. The grading plans were labeled by Audubon as (1) Minimum Dredging Alternative (2) Maximum Habitat Expansion Alternative – Full Tidal and (3) Maximum Habitat Expansion Alternative – Muted Tidal. The District also developed a fourth alternative on its own called (4) Maximum Volume in order to assess the sensitivity of the pond's maximum water surface elevation to available detention storage. The results are summarized in a July 26, 2021 Technical Memorandum by BKF that indicated that any of the three Audubon restoration grading plans were compatible with proposed pond flood protection improvements. The fourth alternative also showed that deepening the pond by dredging did not meaningfully improve the level of flood protection due to high groundwater and also that the critical elevations for flood protection are in the 6 ft to 8 ft NAVD88 range, Therefore, while a larger pond might make a real difference in flood protection, a deeper pond does not significantly increase the level of flood protection. Based on these results, Audubon had finalized their pond restoration designs and sent them to their stakeholder group.

c. Draft Feasibility Study for Bypass Drainage Project on Donahue (H Lee, lead)
Based on feedback from the ad-hoc Marin City comprehensive planning subcommittee, your Board requested a study, prepared by Schaaf & Wheeler, that fast-tracks an evaluation of the feasibility and preliminary costs of a potential project to install storm drainpipes along Donahue out to the bay, bypassing the shopping center and pond system. This study looked at four alternatives, all of which included adding a pipe down Donahue between Terners and Bridgeway. Three of the alternatives considered detention basins. Schaaf and Wheeler considered three locations and all of these are conceptual at this point. Locations considered in their engineering analysis included the cloverleaf by the US 101 SB offramp, under Golden Gate Village, or under the shopping center parking lot. A 34 cfs capacity pump station could reduce the detention storage needs by 17%, or alternatively the size of

the pipe proposed along Donahue between Terners and US 101 could be increased substantially to provide storage within the pipe instead of a a detention basin or pump station. **Draft preliminary conceptual** cost estimates range from \$10 million to \$25 million. Note, the pump station would likely have some visible parts (like controls and generator) even if it is submersible, and it is highly likely that the large pipe proposed along Donahue would run into utility conflicts as there are multiple and varied utilities buried under the road. Required next steps to determine feasibility would include potholing to determine utility depth, and working with property owners regarding potential detention sites, both of which are not in the scope of this study. Given the additional and substantial work needed, staff recommend incorporation and further development of these alternatives within the planning process for the Marin City Watershed and Flood Mitigation plan (Item 4.d) to support and facilitate communications with property owners and to identify a plan for working with utilities under Donahue.

d. Draft Marin City Comprehensive Watershed and Flood Mitigation Plan (F. Meneau lead)

See Item 6.d. of the October 12, 2021 staff report for background information: https://www.marinwatersheds.org/sites/default/files/2021-10/FCZ3 AB-Mtg Staff-Report 101221.pdf

Staff have continued working with the Ad-Hoc Zone 3 Advisory Board Subcommittee to get feedback on this flood mitigation planning scope that builds on work identified in the 2017-18 Wood Roger's drainage study, the People's Plan, the Southern Marin Watershed Guide, and the Marin City Climate Resilience and Health Justice (MCCR&HJ) wetland restoration plans. Additionally, the planning process will coordinate with Caltrans' sea level rise project for State Route 1 and US 101 between Manzanita and Marin City, for which a Caltrans Project Initiation Document (PID) is expected by June 2023. A draft request for proposals (RFP) has been reviewed with the subcommittee and they requested an update to the full Zone 3 Advisory Board before posting it for consultants to submit proposals. If the RFP is posted this week, proposals will be reviewed in May and a consultant could be awarded a contract by July 2022.

e. USACE-Led Marin City Emergency Action and Resilience Planning

See Item 6.e. of the October 12, 2021 staff report for background information: https://www.marinwatersheds.org/sites/default/files/2021-10/FCZ3 AB-Mtg Staff-Report 101221.pdf

The U.S. Army Corps of Engineers (USACE) will present a brief update on the scope and progress for this project.

Item 6. Zone 3 investment strategy

On October 12, 2021, the Zone 3 Advisory Board established an ad-hoc subcommittee of advisory board members to recommend an investment strategy for Zone 3 considering the extensive need to replace and rehabilitate aging flood protection infrastructure throughout Zone 3 and in response to a funding request from Mill Valley. The resolution establishing Zone 3 acknowledged the major drainage systems within Flood Zone 3 is provided with the staff report. However, Zone funding is not sufficient to maintain existing improvements and to construct the additional drainage facilities needed to provide reasonable flood protection. The subcommittee met in March to review a draft proposal for prioritizing Zone 3 fund investments.

The strategy would provide overall direction for fiscal programming and budgeting for the revenue Flood Zone 3 receives and guide the development of the Zone Workplan. There is no revenue generated for the overall Marin County Flood Control and Water Conservation District (District). The Zone workplans incorporate the annual operations and maintenance program as well as plans to construct new facilities and to replace and rehabilitate Zone facilities. Annual baseline budgets are approved by the District Board of Supervisors pursuant to the Marin County Flood Control and Water Conservation District Act (Flood Control Act). A draft work plan with identified projects and programs is attached.

Draft Outline for a Flood Zone 3 Investment Strategy

Purpose

- Better understanding of budgetary needs
- Clear narrative-what is planned with limited funds (Annual Revenue ~2.2M)
- All phases of capital projects are identified in the work plan.

A. System Preservation

Operation and maintenance of storm drainage facilities to preserve design capacity.

Repair, rehabilitation and reconstruction of storm drainage facilities to preserve functionality.

Restoration of the drainage system to a more sustainable natural system where shown to be feasible and at no additional implementation or maintenance cost.

B. Public Safety

Repair or modification of existing facilities to ensure public safety and to reduce liability.

Prepare drainage studies and infrastructure planning to assist communities in providing flood protection.

Modification of existing storm drainage facilities to provide a level of flood protection consistent with Federal, State, District and local standards and laws.

C. Equity

D. System Expansion

Planning, development and construction of new storm drainage facilities.

Modification of existing storm drainage facilities to adapt to sea level rise.

E. Integration with Caltrans Planning

F. Sea Level Rise

<u>Item 7. Zone 3 FY 2022-23 Proposed Baseline Budget</u>

The County Administrator's Office requested that the zones recommend a baseline budget for the beginning of each fiscal year that **does not include major project expenses**. Baseline budgets are intended to be relatively consistent year to year. **Major project expenditures will require separate actions from the AB and District BOS to adjust the budget as needed**. As usual, the approved budget may always be adjusted as necessary as priorities and cost estimates for projects and studies planned for this coming fiscal year are more clearly identified. The advisory board is asked to focus on expenditures that are shaded green within the baseline budget.

: https://www.marinwatersheds.org/sites/default/files/2022-03/Proposed%20Flood%20Zone%203%20Baseline%20Budget%20FY%202022-23 0.pdf

Recommended Action: Approve the FY 22-23 baseline budget

Item 8. Annual and Preventive Maintenance Work Program

All activities below are part of the baseline budget proposed for the Zone for FY 2022-23.

a. Pump Stations – individual pumps and motors are scheduled for major maintenance on a six-year interval at each of the zone's pump stations. Major preventive maintenance is scheduled this summer at Cardinal and Ryan Creek Pump Stations. Based on historical expenses staff would have budgeted \$60,000, but with both these pump stations now more than 30 years old, we anticipate potentially \$120,000 in contracting costs for refurbishment and potentially replacement with new pump(s).

All of the pumps in the zone are run and checked monthly during the summer and more frequently during the winter season even if there is a dry period. Each year before the rainy season each pump station's electrical components are tested and the engines maintained.

b. Vegetation and Sediment Removal – the District completed fire fuel reduction vegetation management early this summer on properties where the Zone has easements and/or fee title to perform these activities. During late summer and early fall, the Conservation Corps North Bay typically performs vegetation maintenance for the purpose of increasing flow conveyance capacity in the channels in Zone 3. Due to severe limitations on the linear extent of in-creek work that can be performed annually District wide (5000 linear feet total) under the District's 2017-2022 Regional Water Quality Control Board permit for programmatic creek maintenance a very limited number of sites was maintained including trimming of vegetation and removal of solid waste this year. Sediment removal was conducted in Mill Valley at Sutton Manor only.

c. Programmatic Maintenance Permit Status

In 2011 District staff began working with State environmental regulatory agencies requiring programmatic maintenance permits for agencies working in waterways. Creek maintenance activities requiring programmatic permitting include vegetation management, sediment and debris removal, erosion control, maintenance and repair of flood control structures, and levee maintenance. The process began by developing a Stream Maintenance Program (SMP) Manual (see it here: https://www.marinwatersheds.org/resources/publications-reports/marin-county-stream-maintenance-manual) and then applying for permits from relevant agencies, which for most sites includes the CA Department of Fish and Wildlife and the San Francisco Bay Regional Water Quality Control Board.

i. <u>Department of Fish & Wildlife (DFW) Routine Maintenance Agreement (RMA)</u>
In October of 2012 the CA Department of Fish & Wildlife issued a Routine Maintenance Agreement (see it here: https://www.marinwatersheds.org/resources/publications-

reports/dfw-saa-routine-maintenance-agreement-permit) for the District's creek maintenance activities. This RMA outlines various measures required in order to minimize impacts to valuable fish and wildlife resources in Marin's creeks. The measures were not significantly different from procedures outlined in the SMP Manual. Conditions also included annual notifications, reports, and fees. The 2012 RMA was set to expire at the end of 2016, but an extension was approved until the end of 2021. This year staff applied to renew the permit with a consolidated "site" definition in order to reduce annual fees and are in the process of reviewing a draft permit from DFW.

ii. San Francisco Bay Regional Water Quality Control Board (RWQCB) Order
This permit took an additional two-year years to develop and update after the DFW
permit was approved. During the summer of 2017 RWQCB issued the first Waste
Discharge Requirements and Water Quality Certification for five years of the District's
Stream Maintenance Program. The thirty-page order came with 62 conditions (see it
here: https://www.marinwatersheds.org/resources/publications-reports/rwqcb-smppermit) and RWQCB has allowed the District to stagger their compliance over the first
several years of the permitted period. Some conditions resulting in the most significant
changes to maintenance practices, creek inspection, and documentation processes
include:

- Maintenance activities including vegetation management (not for purposes of fire fuel reduction), sediment and debris removal, erosion control, maintenance and repair of flood control structures, and levee maintenance may not exceed a program wide cumulative total of 5,000 linear feet of creek channel and 11,000 cubic yards of sediment and debris.
- Vegetation management activities are limited to above ground trimming, limbing and removal. The SMP Manual allows for limited treatment of emergent vegetation removal (like cattails and tulles). The work must leave the subsurface root structures behind to allow it to reestablish in the spring and summer. Full root mass removal of cattails can be performed using hand tools to maintain a low flow channel if approved on a case-by-case basis.
- By May 1 of each year RWQCB requests that the District submit a list of sites to be maintained that summer for their review and approval. 2019 is the first year that RWQCB denied vegetation management approval until it could verify planned work would not exceed program limits. Because of this, staff needed to identify specifically a subset of which sites would have maintenance activities and what the estimated length was. Previously we had been notifying DFW and RWQCB each May that the full length of nearly all sites would be included in the program as we do not know exact sites and lengths needing work that early in the year, but this exceeded the program limits of 5,000 linear feet by approximately twelve-fold. In order to narrow down the program early in the year staff developed a new method of tracking maintenance needs based on GIS data collection coupled with prioritization of sites based on property ownership that allows for more accurate reporting to the regulatory agencies.
- With respect to sediment removal, when the District notifies the RWQCB of planned activities for the summer an update is required regarding potential capital improvement projects that may reduce or eliminate the need for the maintenance activity in the future.

With this permit expiring soon, the District is working with RWQCB to request a one to two year extension. Subsequently, RWQCB is considering adding Marin to this

regional permit which could result in significantly different permit requirements than the existing order:

https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2_021/R2-2021-0005.pdf

Item 9. Schedule Next Meetings