

FLOOD ZONE 1 ADVISORY BOARD

MAY 6, 2021

STAFF REPORT

Item 1. Approval of Meeting Minutes: February 4, 2021

The advisory board is being asked to approve the minutes from the February 4, 2021 meeting. The draft minutes can be found here: https://www.marinwatersheds.org/sites/default/files/2021-04/FCZ1_AB-Mtg_draft_minutes_020421.pdf

Recommended Action: Approve minutes.

Item 2. 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 3. Zone 1 Financial Update (Written Update Only)

This is a written update only, but staff will be available for questions.

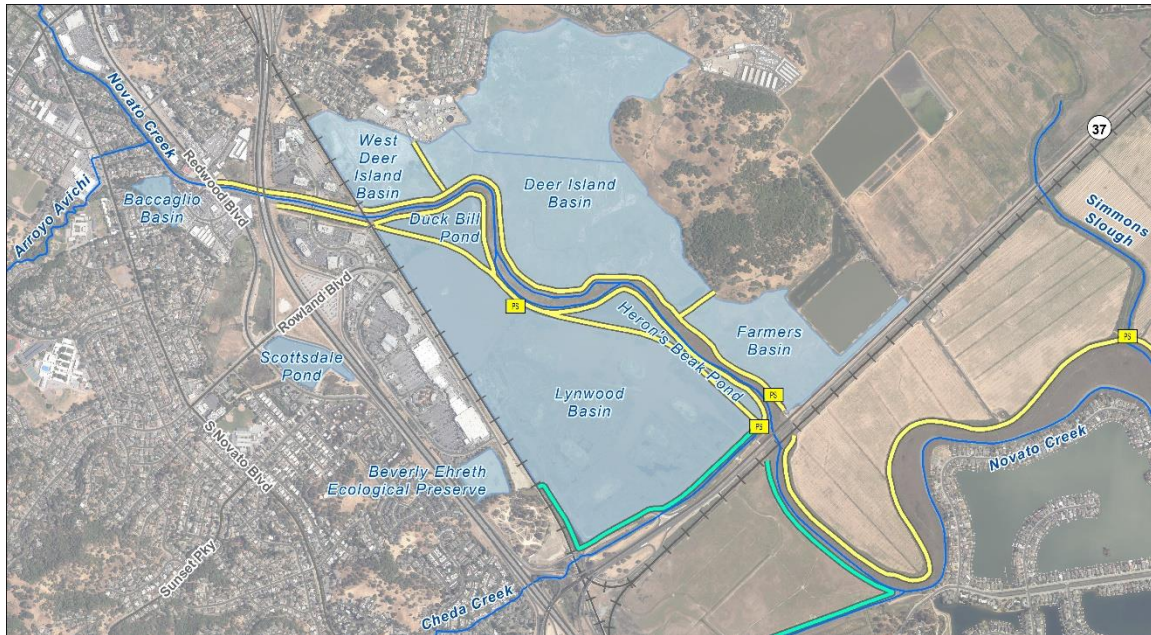
The County Administrator's Office requested that the zones recommend a baseline budget for the beginning of each fiscal year that does not include major project expenses. Baseline budgets are intended to be relatively consistent year to year. Major project expenditures will require separate actions from 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 proposed Flood Zone 1 Baseline Budget for FY 2021-2022 that will be brought to the Board of Supervisors for approval at a hearing in June can be found here (subject to change): <https://www.marinwatersheds.org/resources/publications-reports/proposed-flood-zone-1-budget-fiscal-year-2021-22>.

Except for the Simmons Slough Pump Station currently under construction, all Zone 1's pump stations are nearing or beyond their expected design life of 50 years. The District learned in applying for a FEMA HMGP grant to upgrade Lynwood pump station, then 49 years old, that Cal OES does not fund pump station projects for which the existing facility is nearly 50 years old because it is not considered a hazard mitigation effort if it is near the end of its expected design life. We also recently learned that FEMA will not fund more than \$150,000 for reconstruction projects through the new Building Resilient Infrastructure & Communities (BRIC) grant program. Staff recommend setting aside \$3 million in a pump station project designation in Zone 1 which could either be used to rehabilitate the three pump stations in the zone: Lynwood (built 1968), Farmers (1990), and Cheda (1971); and/or to be used as grant matching funds to construct new pump stations at Nave Gardens and/or Scottsdale Marsh as described in Item 5.d, depending on the outcome of the proposed feasibility study. The advisory board requested to wait on making a recommendation around pump station project designation until after the study is done. For information purposes there is a placeholder for the pump station designation in the above linked Baseline Budget, but it will not be recommended to the District Board of Supervisors this year.

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Item 4. Zone 1 Projects Update

See the previous Staff Reports and minutes for additional background and more details on these projects.



a) Simmons Slough Water Management System (Written Report Only)

This is a written report only, but staff will be available if there are questions.

This project includes installation of a new pump station at the downstream end of Simmons Slough to pump stormwater runoff through the levee and into Novato Creek across from Bel Marin Keys. The project has also installed three new culverts with overflow weir boxes upstream of State Route 37 which will allow additional water to accumulate in the marsh area bounded by Olive Ave., Atherton Ave. and Deer Island to benefit habitat managed by Marin Audubon (a key grant condition) as well as reduce the frequency of flooding on the highway. The Zone has \$1.4 million available through the State grant and the zone is contributing an additional estimated \$1.5 million for construction.

The Construction contract was awarded to Thompson Builders Corporation in the amount of \$2,892,067 (note, engineer's estimate was \$2.2M) and work started in August and September of 2020 at the three sites. The culverts and overflow weir boxes have been completed upstream of Hwy 37 at the Audubon property along Atherton Ave. and are awaiting enough stormwater runoff to fill the marsh and test the overflow weir boxes.

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New water control structures to enhance seasonal wetlands at the Audubon property

Construction at the new pump station site is currently on hold as we await the delivery of the new pumps and motor control equipment that was delayed due to scheduling complications related to the COVID 19 Pandemic. The structure is complete along with the discharge pipes and levee grading and re-compaction. Completion of the pump station will resume once the equipment and regulatory permits allow work to resume and will be completed and operational by the end of 2021. In the interim, the Flood District through a memorandum of understanding and cost share agreement with the Novato Sanitary District is routing stormwater runoff from Simmons Slough to one of the Novato Sanitary District pump stations that can discharge these flows into Novato Creek.

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Newly constructed Simmons Slough Pump Station structure

The project budget, including a 15% contingency, is \$3,325,877.05. **To date \$1,729,092 has been invoiced, and the project is approximately 70% complete.**

b) Deer Island Basin Complex Tidal Wetlands Restoration Project

The SF Bay Restoration Authority (SFBRA) Governing Board approved funding design, preparation of construction plans and specifications and permitting for the first phase of Deer Island Basin Tidal Wetlands Complex Restoration Project. The District's Deer Island Basin Complex includes both the Deer Island Basin and the two stormwater ponds (Ducks Bill and Herons Beak) along Novato Creek as shown on the map on the previous page.

Following a solicitation for proposals, competitive selection, and negotiation, the cost for the proposed scope exceeded available budget. Staff worked with SFBRA staff to modify the scope to scale back the design for the Deer Island Basin restoration element to a preliminary design level while leaving the scope for the restoration of the two ponds adjacent to Novato Creek unchanged. Restoration of the two ponds would effectively widen Novato Creek and increase the floodplain in that location. The cost for this reduced scope still exceeds the \$630,000 grant by \$108,540 which must come from Flood Control Zone 1 funds. On January 28, 2020, the District awarded the contract to ESA and we have been working closely with them on the project design. ESA has conducted biological surveys, an aquatic habitat report and a public access assessment that are all in final drafts and should be available soon. In addition, Staff have been working with ESA engineers and modelers on an improved HEC-RAS model based on the Stetson model of the lower watershed and on preliminary design for the restoration alternatives. Our goal is to keep improving the Novato watershed RAS model for current and future projects.

It is estimated that the design and environmental compliance including permitting will be completed by the end of 2021. **An interim presentation will be provided by ESA at this meeting.** Additional funds, which are currently not identified, would be needed for actual

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construction of the project. Construction is likely to cost several millions of dollars, but the cost estimate will be refined as part of the final design.

c) Lynwood Pump Station Reconstruction (Written Update Only)

This is a written report only, but staff will be available if there are questions.

In 2005 plans were made to replace this now 52-year old pump station and nearby Cheda stormwater pump station. At the time the Zone did not have adequate funding to proceed with construction so the project was put on hold. In the interim \$369,312 in contracting costs for repairs and replacements have been needed, including replacing the pump station discharge pipes, several severely corroded beams that are part of the pump station structure, and several repairs to and replacements of the pumps and motors. During the 2016-2017 winter storms Novato Creek flooded the adjacent area along Highway 37, and the Highway was closed repeatedly for weeks at a time while portable pumps were used to redirect floodwater into Lynwood Detention Basin. This basin's water levels are controlled by the pump station. The extra water in Lynwood Detention Basin did result in flooding conditions to the Highway 101 off-ramp at Rowland Way, which was closed for the duration of flooded conditions. The District applied for funding from FEMA both to reimburse storm-related damage costs and to upgrade the pump station utilizing the plans that were prepared in 2005 and updated in 2017. The funding was denied because the facility was already reaching the end of its design life. In the summer of 2019, during the course of routine preventive maintenance on two of the pump station's four pumps, it was discovered that the beams supporting them were severely corroded and the pump station structure is in need of rehabilitation as soon as possible. The District has taken short-term measures to reinforce the structure.

With increased pumping capacity and an automated electrical system at the Lynwood Pump Station prior flooded conditions and road closures may have been significantly reduced. The proposed Lynwood Pump Station Improvement Project would have upgraded the existing pumps at the pump station and added an additional 10,000 gallons per minute pumping capacity to the system to better protect the surrounding community by allowing the detention basin to collect flows during peak storm runoff events and then quickly and effectively pump down the basin both during and after the storm events to prepare the basin to contain the maximum capacity storage for the next storm system. The pump station is currently only operated manually. Additionally, the project would have upgraded the electrical and mechanical systems to current standards, include a new motor control center equipped with a warning and alarm system using telemetry via cell phone dialer and add an automated system to switch power to an emergency generator so that the pump station could continue to function in the event of a power outage. Every year the Lynwood Pump Station experiences several power outages, and these outages are unknown unless maintenance personnel are physically at the pump station to observe that the power is not available. Upgrading the Pump Station to an automated system would potentially save hours of critical continued pumping in the event of power outages between storm patrol inspections.

Staff recommend putting the Lynwood Pump Station Reconstruction project on hold until completion of the potential feasibility study described in Item 5.d.

Item 5. Continue Discussion of Zone Work Plan for FY 2022

a) Watershed and Sea Level Rise Context (Written Report Only)

This is a written report only, but staff will be available if there are questions.

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Zone 1 revenues are nowhere near sufficient to keep pace with the financial needs of climate change related increases in flood risk. The expected costs are compounded by many District maintained facilities reaching the end of their design service life. Additionally, environmental regulation of maintenance activities is becoming increasingly restrictive and costly. Staff are faced with the challenges of maintaining aging infrastructure while simultaneously planning for sea level rise adaptation with any additional funding dependent upon State and Federal grant programs. Consistent with the Novato Watershed project, staff would like to bring to your Board a new set of priorities to re-design the Novato flood system consistent with regional, state, and federal priorities such as wetland restoration, sea level rise adaptation, transportation improvements, and hazard mitigation in order to attract more grant funding and leverage local funding as matching funds. However, it should be noted is that current grant funding sources for major flood control improvements is very limited and highly competitive and doesn't necessarily address the existing infrastructure deficit. Unless there are major changes in funding priorities and availability there will likely continue to be flooding over major infrastructure (e.g. highways, railroads, and other public facilities) in the lower Novato watershed as sea levels rise.

Here is a summary of potential funding sources that staff could begin planning around:

FEMA Hazard Mitigation Grant Program (HMGP) – Funding for up to 75% of hazard mitigation projects, available only after disasters occur in the state (which has been a regular occurrence the past five years). Typically, projects are limited to \$4 to \$5 million in scale and must have a benefit to cost ratio greater than one. This program is generally less competitive than FEMA's national grants. Hazard Mitigation Plan required. Does not fund facility rehabilitation projects.

FEMA Building Resilient Infrastructure and Communities (BRIC) – Brand new program. Funding for up to 75% of the cost of hazard mitigation projects, up to \$50 million projects. Nationally competitive but there are set asides for each state as well (\$500 million total available in 2020). Hazard Mitigation Plan required. Funds only up to \$150,000 in the case of facility reconstruction projects.

San Francisco Bay Restoration Authority (SFBRA Measure AA) – Funding for wetland restoration projects around the Bay. Flood protection costs can be included only if they are needed for the wetlands project. Ecotone levees along State Route 37 and restoration of the diked basins may be attractive projects to the SFBRA.

DWR Floodplain Management Protection and Risk Awareness Program – New state program focuses on economically disadvantaged communities and multi-benefit projects that primarily address stormwater, mudslide, and flash flood-related protections. Projects in FEMA special flood hazard areas are prioritized. 25% local match is required, except for projects that directly benefit a disadvantaged community. Stormwater Resource Plan required.

Caltrans SB1 Adaptation Planning Grants – grants for studies to support sustainable regional transportation. Caltrans is also looking at alternatives for SR 37 and may be interested in restoration of the diked baylands.

State Clear Water Revolving Funds – funds for a wide range of water infrastructure projects. Eleven types of projects are eligible to receive CWSRF assistance including the Stormwater Program with offer assistance to any public, private, or nonprofit entity for measures to manage, reduce, treat, or recapture stormwater or subsurface drainage water. Suitable projects include water reuse, and watershed pilot projects, particularly those that enhance disadvantaged community, support climate resiliency and advance conservation planning.

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b) Papermill Creek Storm Drainage Project

The District is working with Wood Rodgers to prepare construction plans for drainage inlet upgrades in Papermill Creek, a small tributary to Pacheco Creek. Construction would take place either late summer or early fall this year. Preliminary construction cost estimates are in the range of \$200,000-\$500,000.

c) Mapping and Repairs in Nave Gardens

Following the City's adoption of the Novato Drainage Master Plan earlier this year, a representative of the Old Town Novato Flood Group (OTNFG) reached out to District staff regarding storm drain facilities in Nave Gardens of particular community concern. OTNFG learned at that Council meeting that several pipes and outfalls linking City streets to District-managed creeks were on easements that had not been offered to, nor accepted by, the City and therefore they were not priority projects in the Master Plan. District staff researched older maintenance records and found documentation showing that these easements, that were originally mapped in 1950 during approval of the Nave Gardens subdivision, were accepted by the County in 1967 and quitclaimed to the District in 1975. **As this network of easements and facilities are not yet a part of the District's property database, a mapping and inspection effort is underway before the study in Item 8d can be initiated. The condition of these facilities is unknown and immediate repair needs may be identified. If there are any repair needs that cannot be completed within the baseline budget they will be presented to the advisory board at a special meeting before proceeding.**

d) Arroyo Avichi-Baccaglio-Scottsdale-Lynwood Complex Flood Study (Written Update Only)

This is a written update only, but staff will be available if there are questions. **This study is on hold until the mapping, inspections, and any necessary repairs are made in Nave Gardens per Item 5.b.**

As presented at the February 6, 2017 Advisory Board meeting, a limited evaluation of potential flood reduction benefits for potential projects at Scottsdale Pond was included in the Novato Watershed Study. In November 2020 staff recommended that a more detailed analysis of Novato Creek and the bypass system from Arroyo Avichi through Baccaglio Basin, Scottsdale pond and marsh, and Lynwood Basin ("ABSL Complex") be performed leveraging the new Stetson HEC-RAS model, the new Countywide LiDAR surface data, and the City of Novato storm drain model. **Below is a summary of elements** that could be included in the ABSL Complex study based on feedback from the advisory board at the November 2020 meeting and the Old Town Novato Flood Group:

1) Summary of the universe of potential projects in Zone 1 to model (from watershed program and levee evaluation review, and new projects to be identified below).

2) Identify opportunities along Novato and lower Warner creeks and through the ABSL Complex for new flow gates, perimeter barriers, pump stations, and increased stormwater detention that improve flood mitigation. This includes alternatives to maintaining existing systems (i.e. move pump station from Lynwood Basin to Scottsdale).

3) In addition to considering alternatives to sediment removal, evaluate alternative footprints and triggers for sediment removal.

4) Evaluate potential project alternative benefits for smaller flood events (e.g. 10-year event) than the 50-year.

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5) *Applies to apples comparison of project alternative benefits and costs, project ranking (aim for 1-2 criteria), and determination of what grant buckets they fit in and/or whether a loan is needed. Review criteria with advisory board.*

6) Comprehensive evaluation of the trade-offs between projects that benefit Nave Gardens/South Novato blvd and their impacts elsewhere.

7) Review with City potential storm drain improvements that may be more effective in conjunction with potential Zone 1 projects in the study, and any opportunities for flow gates and/or interim portable pumps in road right of way.

Last year the District solicited Statements of Qualifications from firms interested in performing on-call work. One of many respondents included Wood Rodgers, an engineering firm that has extensive experience in storm drain modeling and uses the proprietary software that the City of Novato's storm drain model is made up of. Staff recommend writing up four task request forms, under their on-call contract, for Wood Rodgers for the ABSL Complex study scope that includes elements 2, 4, 6, and 7 above. Staff could bring a draft scope (task request forms) and cost estimate to you at the tentatively scheduled April advisory board meeting for final feedback and recommended project budget.

After completion of the ABSL Complex study elements by Wood Rodgers, staff could work on assimilating the results into elements 1 and 5, and with Stetson Engineers (also on-call) on element 3. If the advisory board moves forward with this study expenditures will be tracked in a new ABSL Complex project ledger so you can receive reports on actual costs at advisory board meetings.

e) Rush Creek Watershed Study (Written Update Only)

Staff will be available for questions but are providing this written update only.

This project was identified by the Advisory Board as a secondary priority after the Simmons Slough Water Management System. Staff, the City of Novato, and Caltrans met in 2018 with the primary property owner in the lower Rush Creek area (east of Binford Road), the California Department of Fish & Wildlife (CDFW), to discuss cooperation and participation in the study as well as partnering on future maintenance activities. During the meeting it became apparent that a study which may identify the cause of backwatering the drainage channel and clarify the levels of sedimentation within the marsh immediately downstream of Binford Road is a necessary step in defining the issue.

Once all the funding for this study is identified, the Rush creek watershed model will leverage the City of Novato's storm drain master plan hydraulic model and the new County-wide LIDAR elevation data. The City of Novato has offered \$20,000 towards this study and the Transportation Authority of Marin is able to contribute \$25,000. A call for applications for Caltrans SB1 Adaptation Planning grants came out in November 2020 and staff considered applying for the remaining approximately \$100,000 needed to undertake this study through this program. However, the County already had three other applications being submitted for other projects so staff now recommend waiting until the next round. In the meantime staff recommend Zone 1 focus on the proposed ABSL Complex Study.

Staff continues to monitor the Rush Creek outfalls pending completion of the Rush Creek drainage study, as noted above, which will inform decisions as to the tide gate structure's (including un-gated culverts) desired effectiveness and planned repairs.

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Item 6. Operations and Maintenance Update (Written Update Only)

Staff will be available for questions but are providing this written update only.

a) Programmatic Maintenance Permitting 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. Department of Fish & Wildlife (DFW) Routine Maintenance Agreement (RMA)

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. Annual fees per site were originally \$112 but are now \$305.25, which for example last year in Zone 1 added up to \$6,105. The 2012 RMA was set to expire at the end of 2016, but an extension was approved until the end of 2020. This year's work program includes activities necessary in order to reapply and/or extend the RMA, including evaluating any potential for consolidating "site" definitions in order to reduce annual fees.

Note: the District has a separate RMA for the quadrennial Novato Creek sediment removal project which expires in 2022 before the next effort is due.

ii. San Francisco Bay Regional Water Quality Control Board (RWQCB) Order

This permit took an additional 2-3 years to develop than the RMA on which it was built. 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 here it: <https://www.marinwatersheds.org/resources/publications-reports/rwqcb-smp-permit>) 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 tules). 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

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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.

b) Preventive Maintenance Program Status

i. Pump Station Maintenance

None of the pump stations have pumps up for major preventative maintenance this year. (Individual pumps and motors are scheduled for major maintenance on a six-year interval.) 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.

Power interruptions to the Lynwood Pump station continue to be a frequent occurrence, largely due to large flying birds in the adjacent pond. In January 2021 PG&E met with District staff to review preliminary options to improve reliability of power at the pump station. This effort is complicated by close proximity to the Deer Island Basin Complex Restoration Project, but hopefully the ABSL Complex Study will illuminate alternatives to long-term power supply at this location.

ii. Vegetation Management

Vegetation maintenance within flood control owned properties and easements occurs May through October. Maintenance work includes trimming of vegetation in the channel and debris removal, as well as mowing for fire fuel reduction. Most of the work is performed under contract with the North Bay Conservation Corps and mowing is typically performed by a County Road Maintenance crew. Fire fuel reduction is performed in spring on District-owned upland properties, provided surveys confirm nesting birds will not be disturbed. Then pre-inspections of the creeks and channels for obstructions to flow are conducted to determine maintenance needs and to prioritize work. Maintenance operations continue throughout the summer to get creeks and channels throughout the Zone ready for the winter season flows. The final step is cutting of cattails which occurs in October right before the rains.

iii. Sediment Management

Due to the lack of rain this year no sediment removal is anticipated to be needed this summer.

iv. Precipitation and Stream Gauge Maintenance

The District maintains several precipitation and stream gauges throughout the County which help inform us of water levels in creeks and heavy rainfall in real-time. With grant funding, Zone 1 has new and recently updated gauge sites near Stafford Lake, and on Novato Creek and at the Library, Rowland Way, and the confluence with Pacheco Creek. Some additional grant funding supports rating curve development. For more information on the gauges visit <https://marin.onerain.com/home.php>. Preventive maintenance on the gauges is performed twice annually - September/October and February/March - and as needed. Since July 2019, further

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maintenance and expansion of the gaging system is funded through the General Fund's emergency preparedness funds. **Old Town Novato Flood Group requested water level gages in Arroyo Avichi and/or Baccaglio Basin; these areas can be evaluated this summer.**

Item 7. Multi-Jurisdictional Repetitive Loss Area Analysis

Through a FEMA HMGP grant, the County is conducting an analysis of repetitive loss areas in all Marin jurisdictions, including Novato. The County is still waiting on insurance data from FEMA which is foundational to this analysis. Insurance information pertaining to specific properties will be kept strictly private, but overall analysis results will be presented later this year to the advisory board for feedback on potential mitigation projects before the analysis is finalized. The analysis will ultimately inform the 2023 update to the Marin County Multi-Jurisdictional Local Hazard Mitigation Plan.

Item 8. Schedule Next Meeting

The next meeting is tentatively scheduled for November 4, 2021 to receive an update on the Nave Gardens facility mapping and review the draft ABSL Complex Study scope and cost (task request form).