

***Marin County Flood Control and Water Conservation District***

**FLOOD CONTROL ZONE 3 ADVISORY BOARD MEETING**  
**NOVEMBER 18, 2015**

**STAFF REPORT**

**Item 1. Approval of Meeting Minutes: March 19, 2015**

**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 Engineer's Report**

a. Flood Preparedness

The National Weather Service anticipates that the strong El Niño which has developed will last through this winter. Staff will present the basics of El Niño, including how it is measured, how it can influence the weather, and what weather and climate experts are saying about how it might affect the amount of precipitation we receive this upcoming rainy season.

Regardless of predictions, the District prepares for every year as though it is an “El Niño year.” Although two major flooding years in Marin's history occurred during years with El Niño episodes (1997/98 and 1982/83), it is not unusual to experience major flooding in the absence of El Niño, such as in 2005/06. Flooding can even occur during a drought year such as last year, when the County suffered some of its worst flooding damage since 2006.

It is for these reasons that the District follows an annual program of facility and creek maintenance which mitigates the risk of flooding. This includes conducting regular inspections of the creeks, floodwalls, and levees within the District's jurisdiction, and frequently testing pumps, motors, and generators. Creeks, drainage ditches, pipes, trash racks, and pump wet wells are cleared of vegetation, sediment, and trash in the fall and throughout the winter as needed. A facility-specific update regarding maintenance, storm preparedness and response is provided below.

Pump Station Maintenance: All scheduled annual pump maintenance has been completed. This includes both major maintenance for select pumps and electric motors, as well as preventative maintenance for all pumps/motors. (Individual pumps and motors are scheduled for major maintenance on a six year interval.) Due for planned maintenance this year were pump #1 at Crest Marin, pump #2 at Shoreline, and pump #1 at Ryan Creek. The amount budgeted for completing this work was \$80,000 and all work was completed under budget (\$54,910). Pumps not due for preventative maintenance are tested and routine maintenance and repair is performed as necessary. Each year before the rainy season, the pump stations' electrical components are tested and the engines are maintained. The backup generators at Cardinal Road, Ryan Creek, and Shoreline pump stations were just load tested with no issue.

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The pump station wet wells were inspected for sediment accumulation and it was determined that the only wet well requiring cleaning was at the Ryan Creek Pump Station.

Vegetation Maintenance: The Conservation Corps North Bay performed annual vegetation maintenance along the Coyote Creek Levee. The District also entered into its annual agreement with the City of Mill Valley under which the City oversees maintenance and then typically receives up to \$35,000 in reimbursements from the District. The City is considering increasing maintenance and preparing for more frequent post-storm cleanup this year; we are discussing an increase on their reimbursement up to \$50,000 in an effort to accommodate their request. Vegetation maintenance is being permitted through a Routine Maintenance Agreement with the CA Department of Fish and Wildlife (DFW) which streamlines the permit acquisition process.

Sediment Removal: The need for sediment removal was assessed earlier this year at multiple locations where sediment removal has been performed in the past. Individual permits were sought from the San Francisco Regional Water Quality Control Board (SFRWQCB) for sediment removal along Nyhan Creek at Enterprise Concourse and along Sutton Manor Creek downstream of Ashford Avenue. A programmatic permit had previously been secured for this work from California Fish & Wildlife. Work at Enterprise Concourse was completed in October; however, work at Ashford Ave. has not yet begun as the District has not yet received a permit from SFRWQCB to complete the work. Work will commence as soon as the permit is received.

Levee/Floodwall Maintenance & Rodent Control: The Coyote Creek levee is inspected biennially (i.e., every other summer) by the U.S. Army Corps of Engineers (USACE) and District staff. Minor patch repairs of the concrete channel in Coyote Creek are conducted by County staff and/or contractors as needed. Each year County staff inspects, cleans, greases, and repairs as necessary the tide gates on the pipes that penetrate the channel wall. This year the District completed an inspection of the inside of these pipes and will use the inspection results to prioritize pipe rehabilitation in the future. Rodent control efforts on the earthen levees are ongoing, and are conducted in accordance with the County's Integrated Pest Management policy. Traps were set early this fall and, following successful rodent removal, holes will be filled with bentonite grout to restore the levee fill material. Residents who notice rodent activity can contact the District to request information on how to fight burrowing rodents in their yards and/or report problems in nearby levees to have traps set near the levees.

Precipitation and Stream Gauge Maintenance: The District owns several precipitation and stream gauges throughout the county which help inform us of water levels in creeks and heavy rainfall in real-time. Zone 3 has gauge sites in Tam Valley at Coyote Creek, upper Coyote Creek, and Arroyo Corte Madera del Presidio. Visit <https://marin.onerain.com/home.php> for more information on the gauges. As needed, preventative maintenance on gauges is performed twice annually - in September / October and in February / March.

Storm Response: The Conservation Corps North Bay, under contract with the District, inspects and clears facilities as needed before, during, and after storms. They are also available for sandbagging and/or tarping levees and creek banks if requested. The District keeps sand and bags at the Crest Marin County Flood Control & Water Conservation District Marin Pump Station for authorized emergency use only.

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Additionally, County crews make rounds to all District pump stations to make sure they are in working order, and receive alarms from the pump stations to warn of emergency situations. The District has a fleet of portable pumps which are maintained and tested prior to the winter season and some are pre-deployed in key locations. The nearest pumps that are not pre-deployed are stored at Shoreline Pump Station (in Zone 3) and Pamela Court Pump Station (in Zone 4).

The District has purchased 1,000 feet of temporary removable flood barriers (Muscle Wall) which could be deployed quickly and in lieu of sandbags at flood threatened locations. The barriers are made of high strength plastic and achieve their stability by filling them with water.

### **b. Lower Marin City Drainage Study**

Flooding of the Highway 101 and Donahue Street interchange and nearby roadways may be observed during times of intense stormwater runoff, which may be exacerbated by high water levels in the marsh, and also during extreme high tides alone. The last major drainage improvements to the interchange area occurred in the mid-1990s with the construction of the shopping center. Since that time the gradual settlement and deterioration of pipes and other drainage facilities, including tides gates, has hampered the ability of the interchange and connecting roads to function as originally designed. Even if the system was to be restored to its original design, the absence of stormwater pumping facilities limits the ability of the system to perform when high tides are present, and rising tides from sea-level introduce further challenges.

Flooding of roadways may be the result of one or a combination of the following factors:

- Limited capacity of the existing stormwater drainage system.
- Differential land settlement, which may affect storm drain pipe functionality and also create localized depressions - both of which could lead to areas of ponding water.
- Lack of maintenance of drainage facilities, including storm drains and tide gates, which have contributed to the facilities performing below their intended design.
- Improper and/or lack of operation of the tide gates at the marsh.
- Accumulation of sediment within the marsh which, if maintained below a certain level, may serve as a detention basin.
- Absence of stormwater pumping facilities.
- Variety of ownerships (Much of Marin City's storm drain system and associated infrastructure is privately owned and, as such, the type and frequency of any maintenance is unknown.)

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The Lower Marin City Drainage Study would serve as a major step towards identifying possible long-term drainage improvements for the area in the vicinity of the interchange. Improvements would consider not only current conditions, but also future conditions such as sea-level rise. The study's scope includes:

1. Review of Available Information
2. Existing Conditions Assessment
  - a. Topographic and Boundary Surveys
  - b. Existing Facilities Survey and Mapping
  - c. Existing Facilities Video Inspection and Cleaning (for purposes of inspection)
3. Geotechnical Exploration
4. Hydrologic & Hydraulic Modeling
5. Alternatives Development & Assessment (includes preliminary environmental review)

The total estimated cost for the project is \$421,300 and 50% of the cost would be provided by the Lifeline Transportation Program Grant provided by the Transportation Authority of Marin (TAM). This past summer the District applied for and received notice that it had been awarded the grant. The next steps are for TAM to provide the District with a formal agreement for the grant funds and then for the District to solicit proposals for a qualified consultant to complete the scope of work. While the exact timing is unknown, the District expects to begin work on the study in 2016.

### c. Coyote Creek Levee Evaluation

This project includes an evaluation of the current condition and level of flood protection provided by Coyote Creek's flood walls and earthen levees from Maple Street to the Mill Valley-Sausalito Path, as well as an assessment of improvement alternatives. Project tasks include surveying, hydrology and hydraulic modeling, geotechnical exploration and failure analysis, and alternative assessment. Considered alternatives will include those which satisfy Federal Emergency Management Agency (FEMA) requirements for accreditation and comply with USACE's specifications for operation and maintenance.

On April 1, 2014 the Board of Supervisors awarded a professional services contract with GEI Consultants, Inc. to assist the District with completing a substantial portion of the evaluation including hydraulics and hydrology (H&H), geotechnical engineering, and alternatives. Work is scheduled to conclude this winter. The tables provided on the next page provide a breakdown of the total project cost and schedule to date.

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### Project Cost\*

	Zone 3	Grant	Total
GEI Contract	\$265,758	\$269,815	\$535,573
Staff Labor	\$78,041	\$82,188	\$160,229
Contract (Other)**	\$73,610	\$27,878	\$101,488
Sum	\$417,409	\$379,881	\$797,290

\*Previously encumbered funds.

\*\*For assistance with tasks including surveying and updates to the operation and maintenance manual for the Coyote Creek Flood Protection Project.

### Schedule

Task	Status	Expected Completion
Surveying	Complete	n/a
H&H Modeling	Active	Winter 2015
Geotech Exploration	Complete	n/a
Geotech Failure Analysis	Complete	n/a
Alternative Assessment	Active	Winter 2015

Staff will present the findings of the geotech failure analysis and will introduce concepts which will be considered as part of the alternative assessment.

Initial findings from the draft alternative assessment report will be presented to the advisory board at a meeting this winter and will also be posted on [www.marinwatersheds.org/southern\\_marin.html](http://www.marinwatersheds.org/southern_marin.html) for a 30-day public comment period. Following that, a final alternative assessment report will be finalized and available on the website.

### **Item 4. Highway 101 / Shoreline Highway at Manzanita Flooding: Presentation by Caltrans Staff**

Reoccurring tidal flooding at Highway 101 & Shoreline Highway (also known as Manzanita) can lead to partial and, in extreme cases, complete closure of the interchange. Flooding not only impacts vehicular traffic, but also disrupts use of the area's park & ride lots and bus stops. Both Highway 101 and Shoreline Highway are Caltrans facilities. Caltrans staff will present information on why it floods and on existing operational and communication strategies for handling the flooding and resulting road and facilities closures.

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### **Item 5. Watershed Program Update**

#### a. Richardson Bay Shoreline Study

This technical study assesses vulnerabilities to infrastructure and built areas within the Inner Richardson Bay shoreline (including Zones 3 and 4) to three scenarios of sea level rise (+12, +36 and +60 inches) based on inundation modeling using a modified version of the NOAA SLR viewer. The study presents a range of potential adaptation alternatives from hard engineering (i.e. levees and floodwalls) to soft engineering (enhanced wetlands) as well as zoning and lifestyle adaptation options to reduce flooding and increase shoreline resilience. A range of conceptual level costs were also developed. Staff will present the study and its findings. The draft study has been posted to the [marinwatersheds.org](http://marinwatersheds.org) website for public comment and the report will be finalized spring 2016 following District staff's review of comments.

#### b. Southern Marin Watershed Guide

The Southern Marin Watershed Guide (WG) will describe existing conditions and summarize flooding conditions at the watershed scale in a user-friendly, graphics-rich format.

The purpose of the WG is to organize information and data for the sub-watersheds draining to Richardson Bay (Marin City, Coyote Creek, Arroyo Corte Madera del Presidio, Ryan Creek, Sutton Manor/Alto/Strawberry, and East and West Creeks) and to identify a list of project concepts to address both short term and long term flood and creek management needs. The goal of the WG is to effectively communicate information, findings and recommendations to partner agencies and the community in a concise manner to guide decision making and future commitments. Restoration Design Group and Leslie Stone and Associates are under contract to develop the WG. A draft guide is scheduled to be completed by January 2016.

### **Item 6. Schedule Next Meetings**

Staff will present a schedule of possible upcoming meetings for the AB and Watershed Program including the following:

- Presentation of draft levee alternatives provided through the Coyote Creek Levee Evaluation.
- Fiscal year 2016-2017 budget presentation
- Sub-watershed specific meetings of the Southern Marin Watershed Program

Note, the annual meeting per the bylaws is set as the third Thursday in March, which will fall on March 17, 2016. The bylaws also stipulate that all other regular meetings to be held that year be scheduled at the annual meeting.