FLOOD CONTROL ZONE 7 ADVISORY BOARD MEETING
NOVEMBER 4, 2015

STAFF REPORT

Item 1. Approval of Meeting Minutes: September 14, 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. Pump Station No. 2 Generator Update

On September 14, 2015, the Advisory Board (AB) approved up to $175,000 to address the aging generator at Pump Station #2. The generator is regularly maintained and tested. In August it was load tested to only 50% capacity, after having been tested to 80% capacity a year prior.

By December, the goal is to install a receptacle at the pump station so that the District can borrow one of the County's 125 kW and/or 150 kW portable generators should the existing generator fail. The consultant designing this receptacle recommended additional improvements including: getting the work platform at the transfer switch into compliance with current safety codes; and, moving the fence towards the street to make room for the portable generator without blocking access by the Sanitary District which shares the pump station site. This extra space would be required for any replacement of the generator with a permanent generator.

The consultant may also recommend replacing the automatic transfer switch with a manual transfer switch. The cost for a new transfer switch would likely not exceed $10,000, but work platform improvements may add $10,000. Installing a receptacle for the portable generators' plugs and moving the fence back may cost up to $20,000 and $10,000, respectively, bringing the total cost for construction to approximately $50,000. Design costs are estimated to be $20,000. The total cost for this work is not expected to exceed $100,000, including contingency.

b. Winter Preparedness Update

We are presently experiencing a strong El Niño episode. 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.

The District prepares for every year as though it is an "El Niño year." Although two major Marin flood events 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 maintenance 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 and motors. (Individual pumps and motors are scheduled for major maintenance on a six year interval.) Due for planned maintenance this year was the Santa Venetia Pump Station #3 Back-up pump. The amount budgeted for completing this work was $30,000 and all work was completed under budget ($24,083).

Pumps and motors not due for major preventative maintenance are tested and routine maintenance and repair are performed as necessary. Each year before the rainy season the pump station's electrical components are tested and the engines maintained as well. The generators at Pump Stations #1, #2, #4, and #5 were just load tested and only the results of Pump Station #2 were of concern (see Item 3a above for response). The wet well at Pump Station #2 was cleaned out in early fall to optimize pump operation. Building Maintenance determined all other pump station wet wells were in acceptable condition.

Vegetation Maintenance: Vegetation maintenance occurred in all flood control easements by October 15 for Fire Fuel Reduction and stormwater flow. Ditches maintained include the one between Birch and Mabry Way, Santa Venetia Marsh Levee toe drain ("Estancia Ditch"), and Castro Ditch. The Conservation Corps performed extra work at the Castro Ditch at the end of October.

Vegetation maintenance is permitted through a Routine Maintenance Agreement with the CA Department of Fish and Wildlife (DFW) which streamlines the process.

Sediment Removal: Sediment removal needs were assessed during the summer and no actions are required this year. The District contracted with a diver to inspect the La Pasada Interceptor Drain outfall and found it to be above sediment levels in Las Gallinas Creek. Sediment levels within the system are likely to be low now that the new tide gate is keeping the sediment-laden tide water out of the pipe. In an effort to be more water conscious, County crews inspected the roadway drainage system throughout Santa Venetia in late October and determined there is no need for vactoring at this time, but crews did clean inlets out.

Levee/Floodwall Maintenance & Rodent Control: The wooden floodwall that sits atop the earthen levee along Vendola Drive is inspected every other year by District staff and was due for inspection this year. Inspections are performed where permission is granted by the private property owner as most of the levee is located on residential property and/or access is through private yards. This year the District requested 5-year Rights-to-Enter from property owners to cut down on administrative costs.

Once the wooden floodwalls are inspected, replacement occurs in order of priority and as budget allows. This year the District is making an effort to report back to property owners regarding inspection results. This outreach process will allow property owners to better understand the status of their floodwall and anticipated schedule for rehabilitation, if necessary.

Only 50% of property owners provided permission to enter their property after the District sent out a mailer and made follow up phone calls. Inspections began on October 22, 2015, however, inspection of the entire system is recommended to ensure the safety of the greater community.

Based on the 2013 inspection, five sites were repaired this year, including one site of a pilot project for which the District developed an alternative design. The alternative design allows for property owners to fill their backyards up to the floodwall, leaving only a wooden facing on the waterside, which is anchored to the earthen landside slope. This design should reduce maintenance costs and may increase durability. Property owners with wooden floodwalls should coordinate landscaping efforts adjacent to the levee with the District.

Rodent control efforts on the earthen levees are ongoing, and are conducted in accordance with the County's Integrated Pest Management policy. Gopher activity has decreased compared to previous years, but abatement and bentonite pumping will be implemented if necessary. Traps will be set this fall and, following successful rodent removal, holes would 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.

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. The nearest gauge sites for Zone 7 are in Novato. For more information on the gauges visit *https://marin.onerain.com/home.php*. Preventative maintenance on the gauges is performed twice annually - September/October and February/March - and as needed. A grant from the Department of Water Resources has recently been awarded to upgrade the gauge software but those improvements will be made after this rainy season. The gauge network will also be expanded under this grant.

Storm Response: Before, during, and after storms, the Conservation Corps North Bay inspects and clears facilities as needed. They are also available for sandbagging and/or tarping levees and creek banks if requested. The District keeps sand and bags, for authorized emergency use only, at the Pump Stations #2, #4, and #5. Additionally, county crews make rounds to all of the 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 also has a fleet of portable pumps which are maintained and tested prior to the winter season and some are pre-deployed in key locations, such as on Meadow Way and Estancia Way.

Item 4. Watershed Program Update

a. McInnis Marsh Feasibility Study Presentation by Marin County Parks

Marin County Parks contracted Kamman Hydrology & Engineering to evaluate the baseline conditions of McInnis Marsh and to evaluate the feasibility of restoring the hydraulic and ecological functions of the marsh. The project, which is a partnership among Marin County Parks, Las Gallinas Valley Sanitary District, and Marin County's Gallinas Watershed Program, and Marin County Flood Control and Water Conservation District, has the potential to restore and support the habitat needs of numerous native, threatened, and endangered fish and wildlife species by removing levees and reusing available fill in a setback horizontal levee. The levee would also protect existing developed park facilities. Benefits to the Flood Control District include sediment re-use and potential mitigation credit for any future levee improvements in Santa Venetia.

The feasibility study considered four alternatives for restoration of the marsh area:

Alternative A: High Marsh Levee Removal
Alternative B: Tidal Wetland Restoration with Breach to Gallinas Creek
Alternative C: Wetland Tidal Restoration with Breach to Gallinas and Miller Creeks
Alternative D: Wetland Tidal Restoration with Breach to Miller Creek

In addition, the study considered a Minimal Action alternative that includes sea level rise adaptation measures.

With the exception of the Minimal Action alternative, all of the project alternatives would improve habitat for threatened and endangered plant and animal species; provide benefits to other wildlife and migratory birds; and improve protection for existing park facilities while providing for continued trail use.

The project would provide trail access along the newly constructed horizontal levee to provide a safe and direct connection to the wildlife ponds on the Las Gallinas Valley Sanitary District property. This new trail alignment would allow the county to move the San Francisco Bay Trail, which currently follows Smith Ranch Road, closer to San Pablo Bay, making for a more direct and scenic Bay Trail route. A draft feasibility report will be available in December.

b. Update on Levee Needs Study and Upper Gallinas Restoration Opportunities Assessment

Work is underway on the Lower Gallinas Creek Levee Needs Study. The Levee Needs study is a sea level rise vulnerability assessment for both the north and south forks of Gallinas Creek outside of the Flood Control Zone 7 boundaries.

The Watershed staff has contracted with the Restoration Design Group (RDG) to provide technical assistance in support of the Upper Gallinas Creek Restoration Opportunities assessment. RDG will provide cross section and plan views of natural creek restoration concepts for the concrete channel along Freitas Parkway up to its confluence with Del Ganado. Both projects should be complete by February/March 2016.

c. Stakeholder and Community Meetings:

The Gallinas Watershed Program is planning a community meeting for February/March 2016 to present and receive feedback on all of the Watershed Program findings. Watershed recommendations and project summaries will be compiled into a Gallinas Watershed Report due in February 2016. For information on upcoming community meetings and specific Program deliverables please visit the Gallinas Watershed web page at *http://www.marinwatersheds.org/gallinas_creek_flood_protection.html*

Item 5. Watershed Program Recommendations for Zone 7

The Gallinas Watershed Program purpose is to identify opportunities that provide the following benefits:

- Develop cost-effective solutions to reduce flooding damages that threaten communities, local economies, and public services
- Improve navigational access to lower Gallinas Creek
- Protect, enhance and restore sensitive creek and wetland habitat and water quality
- Identify multi-benefit type projects that will improve the County's ability to compete for State and Federal funding
- Identify projects that are resilient to sea level rise
- Evaluate the beneficial re-use of dredged material for wetland restoration, levee maintenance and shoreline protection within lower Gallinas and Miller Creeks
- Reduce ecological impacts of flood maintenance activities

Below are major findings for Zone 7 based on the Watershed Program studies. The studies will be summarized and compiled into a Watershed Program Final Report in February 2016.

Las Gallinas Creek Levee Evaluation (South Fork)

- Existing redwood planter box levees provide protection from the tidal flood of record (1983). The levee elevation will need to be raised to accommodate projected sea level rise.
- The primary vulnerability associated with the redwood box levee system is that little is known about its current status because most of it was constructed on private property. Parts of it can only be inspected and maintained if property owners grant permission and many do not. The "temporary" wooden floodwall has been maintained by Zone 7 for 30 years when permission is granted.

Draft Recommendations

- Continue closely following and supporting development of the McInnis Park Marsh Restoration Project and Gallinas Creek Geomorphic Dredging Project and look for opportunities for merging efforts so there are benefits to multiple functional areas of water management.
- Continue increased level of funding for levee maintenance ($40,000-$50,000 per year).

- Improve outreach to levee owners to encourage them to allow District staff to inspect the levee.
- District staff will explore opportunities to refine and implement the newly developed alternative design (see Item 3.b. Levee/Floodwall Maintenance & Rodent Control above) in coordination with property owners.

Santa Venetia Interior Drainage Study

- Apart from Pump Station #4, all pump stations have 100-year flow capacity with their newly refined estimates of catchment areas and runoff per the new stormwater model.
- Due to differential settlement throughout the community, the ability for streets and underground storm drains to get water to the pump stations is limited.
- The La Pasada and Sunny Oaks Interceptor Drains should continue to provide 100-year capacity into the middle of this century, even with projected sea level rise. The Meadow Way Interceptor Drain is limited by sediment levels in the creek.

Recommendations

- Maintain and rehabilitate existing pump systems, as needed.
- Consider increasing the pumping capacity of Pump Station No. 4 when pumps are due for major maintenance.
- Continue coordinating with the Roads Maintenance Division of the Marin County Department of Public Works regarding future road drainage improvements that may be incorporated into their pavement maintenance program.
- Consider building an outfall structure that limits inflow of sediment-laden tidewater into the Meadow Way Interceptor drain.
- Continue maintaining La Pasada and Sunny Oaks Interceptor Drains as-is.

Item 6. Schedule for Possible Election

District staff recommends that your Board consider whether to proceed with a special tax election for Zone 7 in the Fall of 2016 at your February 2016 meeting.. The special tax election may proceed separately from a watershed wide election or as part of a watershed-wide election if there is support from the community and the City of San Rafael for a watershed wide election.

After the defeat of Measure D in 2010,, staff recommended that Zone 7 participate in the Gallinas Watershed Program with the purpose of looking at the entire watershed for potential alternatives and partnerships.

Although work continues in the upper portions of the Gallinas Watershed, the deliverables for the Santa Venetia Watershed: the Army Corps Levee Evaluation, the Geomorphic Dredge Assessment, and the Santa Venetia Interior Drainage Study have been completed, and each has helped define the potential priorities for Zone 7, as noted above. The studies identified tidal flooding as the priority impact for the Santa Venetia sub-watershed.

The Upper Gallinas Creek Restoration Opportunities study is just getting underway. This study builds upon the 2001 Kamman report for Upper Gallinas Creek and will focus on providing

conceptual graphics and figures to describe what a restored natural channel along Freitas Parkway could look like and how much it would cost to build it. Any restoration of this scale will require significant leadership and many years to advance given the potential cost. However, this study will provide the City of San Rafael with a roadmap for future work if support is gained to restore sections of the concrete channel.

In the Gallinas Watershed, flood damages are generally limited to the residential Santa Venetia community, where the creek is dominated by tidal elevations. Changes in the upper watershed do very little to reduce flooding vulnerability in Santa Venetia. Hydraulic modeling by the Army Corps shows that Santa Venetia is most susceptible to tidal flooding.

At the February 2016 Advisory Board meeting, watershed staff will present a schedule and options for a voter approved ballot measure.

Item 7. Schedule Next Meetings

Per the new Advisory Board by-laws approved by your Board and adopted by the Board of Supervisors, the next regular meeting will be February 17, 2016.