RANCHO MURIETA COMMUNITY SERVICES DISTRICT

15160 Jackson Road, Rancho Murieta, CA 95683
Office - 916-354-3700 * Fax - 916-354-2082

IMPROVEMENTS COMMITTEE

(Directors Randy Jenco and Martin Pohll)

Regular Meeting
January 4, 2021 at 8:00 a.m.

This meeting will be held via ZOOM video conference only. You can join the conference by (1) logging on to https://us02web.zoom.us/j/86002386371, entering Meeting ID no. 860 0238 6371, and using the audio on your computer, or (2) dialing into 1-669-900-9128 and entering the meeting code 860 0238 6371. Those wishing to join with audio only can simply call the telephone number above and enter the code. Participants wishing to join the call anonymously have the option of dialing *67 from their phone. Please refer to your telephone service provider for specific instructions. ***PLEASE NOTE – MOBILE DEVICE USERS MAY NEED TO INSTALL AN APP PRIOR TO USE AND MAC AND PC DESKTOP AND LAPTOP USES WILL REQUIRE YOU TO RUN A ZOOM INSTALLER APPLICATION – PLEASE FOLLOW DIRECTIONS AS PROVIDED BY ZOOM. IT IS RECOMMENDED YOU ATTEMPT TO LOGIN AT LEAST 5 MINUTES BEFORE THE START OF THE MEETING.***

AGENDA

1. **Call to Order**
2. **Consider Finding That as a Result of the COVID-19 Emergency: (i) Meeting in Person Would Present Imminent Risks to the Health or Safety of Attendees; and (ii) the Meeting is Authorized to be Held by Teleconference Pursuant to Gov. Code, § 54953, subd. (e)(1)(C).**
3. **Comments from the Public**
4. **Monthly Update**
5. **Discuss Lift Station Vulnerability**
6. **Director and Staff Comments/Suggestions**
7. **Adjournment**

"In accordance with California Government Code Section 54957.5, any writing or document that is a public record, relates to an open session agenda item and is distributed less than 24 hours prior to a special meeting, will be made available for public inspection in the District offices during normal business hours. If, however, the document is not distributed until the regular meeting to which it relates, then the document or writing will be made available to the public at the location of the meeting."

In compliance with the Americans with Disabilities Act if you are an individual with a disability and you need a disability-related modification or accommodation to participate in this meeting or need assistance to participate in this teleconference meeting, please contact the District Office at 916-354-3700 or awilder@rmcsd.com. Requests must be made as soon as possible.

Note: This agenda is posted pursuant to the provisions of the Government Code commencing at Section 54950. The date of this posting is December 30, 2021 , 2021. Posting locations are: 1) District Office; 2) Post Office; 3) Rancho Murieta Association; 4) Murieta Village Association.

MEMORANDUM

Date: December 30, 2021

To: Improvements Committee

From: Michael Fritschi, P.E. - Director of Operations

Subject: Monthly Utilities Department Updates

Reserve Updates

Staff have begun updating the replacement values and useful life of the various components in the water, sewer, storm drain infrastructure. This is the first step in the analysis for determining adequate reserve funding projections.

SB170 Funded Projects

Wastewater Facility Disinfection - The District has contracted with West Yost & Associates to complete the Ultraviolet Disinfection vs Sodium Hypochlorite Lifecycle Analysis. The results from the analysis and recommendation to move forward will be brought to the improvements committee upon completion of the analysis.

Water Treatment Facility Sodium Hypochlorite Conversion – The District has released a request for proposal (RFP) for the design services related to the upgrade of the water treatment disinfection system from chlorine gas to sodium hypochlorite. A team will be assembled to review and rate the proposals and bring the recommendation to the improvements committee in February.

Granlees Intake Safety Project – HDR Engineers met with District staff at the Granlees intake site and reviewed and discussed the various safety and environmental project components. HDR will present a proposal to perform the necessary design and environmental permitting to move the project to be ready for construction.

Laguna Joaquin

The District has met with the RMA and the next step is to schedule a follow up meeting with RMA and a biologist from SOLitude to discuss preliminary non-sediment removal options to reduce or eliminate midge flies. At this point the RMA continues to take the lead on this project.

System Vulnerability & Imminent Infrastructure Rehabilitation

During the process of infrastructure review, staff will bring forth information regarding the current state of components of the system infrastructure that increases the risk and vulnerability of system. These items have a higher probability and/or consequence of failure.

The following District infrastructure has been identified as requiring direct or imminent attention:

Sewer Lift Stations (various) – Staff have identified (7) lift stations in need of either major repair, replacement, or rehabilitation. See the attached Lift Station Vulnerability Memorandum for respective station issues, prognosis, and proposed solutions.

Water Distribution System Emergency – *An 8-inch valve located at De La Cruz and De La Pena Circle has failed. The valve stem sprung a leak on November 25th and staff had to respond to the water leak and have isolated the valve and reduced the leakage. Staff have contacted local contractors to get quotes to replace the valve. The valve is buried approximately 15 ft. The District has received (2) quotes*

with a time and materials range between $30,000 and $40,000 to replace the valve. This higher cost to replace is due primarily to the depth of excavation and proximity of the valve.

Update: The District has negotiated a contract with M3 Construction to perform the valve replacement. M3 needs about 5 days of dry weather to perform the valve replacement. This replacement will likely be done the first week of January based on weather forecasts.

Wastewater Plant Water Pumps – *The plant water pumps (hydropneumatics system) were previously replaced in June of 2021 and have recently failed due to severe rust exfoliation issues. The District is in the process of working with the manufacturer to provide a solution and/or significant compensation for the equipment. The vendor has recently obtained one of the pumps and has taken it to have the volute sandblasted and recoated. The District will be able to put the pump to test during the recycled water season. If the solution works, the manufacturer will coat the second pump.*
Update: The Manufacturer has taken one of the pumps for sand blasting and recoating and it will be tested when the tertiary facility is back online in the spring.

Programable Logic Controller (PLC) Main Lift South Stormwater Pumping – *The PLC at the main lift south has previously been identified as potentially needing reprogramming or replacement. During the 10-22-21 weekend a large rain event there was enough rainfall to properly test the PLC operation of the (5) storm water pumps. The pump settings and control algorithms were not providing for the proper operation of the pump station. Certain storm pump operation would prevent sewer pumps from initiating and vice-versa. Operations staff troubleshooted the PLC operation with one of the District vendors until 1:00 a.m. and was able to find a "temporary" work around to the controls to keep the storm water system pumped and the sewage pumps operating correctly. The District vendor mentioned that it is time to replace this antiquated PLC controlling the storm and sewer pumping system at Main Lift South. It is proposed that the District approve a contract to update the PLC at Main Lift South soon.*
Update: The PLC has been successfully re-programmed to allow the pumps to operate properly. The PLC replacement timing will be considered in the District Capital Improvements budget.

Water Treatment Plant #1 Back-Pulse Pumps – *The inner volute coating has failed for both back-pulse pumps serving Water Treatment Plant #1. The coating chips tend to get into the membrane tank and shear the membranes. The proposed solution is to have the inside of the pumps sandblasted and re-coated with an epoxy coating that is rated for the wastewater/chemical environment.*

The plan is to switch production to WTP #2 and pull one pump at a time from WTP #1 for recoating. This will allow WTP #1 to be placed back into operation if something happens with WTP #2 during the 8-week coating period. While there will be increased cost to do so, it is recommended that one back-pulse pump be coated at a time to ensure a minimal level of redundancy. This repair is considered an emergency repair. The District is in the process of scheduling the re-coating.

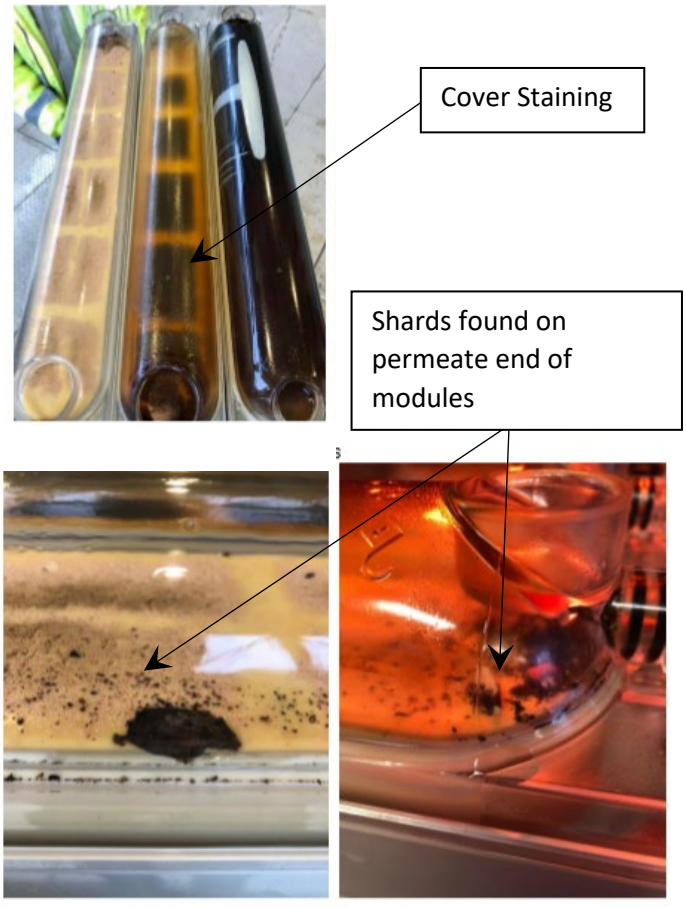
Update: WTP #2 is in the process of being put back online after some minor repair to the filter. This will allow WTP #1 to be taken offline to re-coat the back-pulse pumps. Staff will also need to create adequate space in the drying beds for multiple backwashes before putting the filter online.

Wastewater Tertiary Wetwell Feed Pumps – *The tertiary feed pumps pump stored wastewater to the District tertiary facility for tertiary treatment. The pump glands have had minor "bandage" repairs throughout the last 10-15 years. While there is no imminent failure projected this year, it is only a matter of time before failure occurs. Staff are arranging for the pumps to be pulled and laid out for*

inspection and rehabilitation while the tertiary facility is offline for the winter. The District will collect bids to refurbish the pumps.
Update: The pumps have been pulled and have been made available for inspection by vendors for rehabilitation. The deadline for quotes is December 31, and the District is expecting at least 2 bids.

Clementia Subdrain Pumps – *The pump starters for the Clementia subdrain pumps appeared to have failed. Staff is currently utilizing a portable pump to pump down the wetwell to keep the sand chimney properly drained. The Clementia subdrain is a very important structural component to prevent seepage related dam failure. Staff are in communication with the District vendor to determine how best to correct the situation.*
Update: The pump starters have been replaced. While the subdrain station is operational, the pump controller alternating switch was found to be burned out and will need to be replaced soon to allow the pumps to cycle back and forth.

Membranes (Plant 1) *-Some of the Plant 1 membranes are requiring extensive repairs. This has caused significant after-hours required response by operations staff to repair the membranes and keep Plant 1 in operation. It is likely that the membranes are approaching the end of their useful life (7-10 years). According to the manufacturer, the repairs are not UV-curing properly due to the buildup of potassium permanganate staining on the membrane covers blocking the UV-curing process. Plant staff will be increasing the chemical membrane cleaning regiment in an effort to prevent the staining.*
Update: The increase in chemical membrane cleaning has been effective in keeping the transmembrane pressure (TMP) down and Log Removal Value (LRV) up (more efficient operation). As previously mentioned, the back-pulse pumps will be pulled and re-coated to prevent the coating chips (shards) from further shearing membranes. Plant staff will still need to deal with the manganese or potassium permanganate that is causing the staining on the cover, which inhibits UV curing repair.



The manganese is typically a summer problem. Plant staff will also need to get with the manufacturer to update the cost of membrane replacement for future capital improvements budgeting as the membranes, while still performing well are getting to the end of their useful life.

Site Development Update

Riverview: Mass grading is complete except for the area that will need to be dynamited. When weather improves they will start the water and sewer installation. They plan to develop the first 5 lots off Reynosa as soon as weather permits.

Retreats: Sewer and some storm drain has been installed along Via Robbia. Grading has been completed in the East and ripping/grubbing has occurred in the North. Water line installation will likely occur when the weather clears up. District inspectors are working with the developer to improve the management of the site and the areas identified for erosion control improvements.

Taco Bell: Grading and utility installation is slated to begin in mid-January

Airport: Airport Hanger civil construction is complete, no further updates

Circle K/Shell: No updates.

MEMORANDUM

Date: December 29, 2021

To: Improvements Committee

From: Michael Fritschi, P.E. - Director of Operations

Subject: Lift Station Vulnerability

In November I met with operations staff regarding the vulnerability of our sewer system. A total of (7) sewer lift stations were brought to my attention by staff and are listed below. The next step is to determine the extent of correction desired and the cost to correct the deficiencies. These issues will be included in the upcoming reserve report to the Board in January. Subsequent steps will include budgeting for corrections over the next few fiscal years and completing the work.

Alameda – Alameda serves the pro-shop and snack bar (summer) and runs about 0.3 hours/day.

Issues: This station has a corrosion issue due to the size of the lift station verses the flow that it receives. The longer contact time of the raw sewage between pumping events creates conditions for hydrogen sulfide that can cause corrosion of metals. It is evident that the wet well is somewhat oversized for the relative amount of sewage it receives.

According to staff the station has a single pump that is obsolete and not currently replaceable. Because there is a single pump, there is no redundancy built into this station for failure. The panel has rust issues in the contacts and a check valve were recently replaced in 2019 due to corrosion. Further compounding the problem is the fact that the electrical service is not a true 220v, coming in often at 203v which can create premature motor failure.

Prognosis: Eventually the pump and other appurtenances will fail and based on the obsolescence of the pump there will be no easy “off the shelf” replacement. If pump failure occurs, the station may require some type of (intrusive and highly visible) manual bypass paradigm until a solution can be rendered.

Proposed Solution: Replace this station with a modern pre-packaged single or duplex grinder pump station. There are several manufactures of small single pump or duplex systems with varying pumping capacity. Select a pump and tank configuration that will prevent sewage from turning septic, but also provide capacity as needed during times of high use like a tournament.

If a grinder station is selected it is possible that the top of the existing wet well could be removed, and the new station may be able to be placed inside the existing wet well and backfilled with sand. The new station could also potentially be placed next to the old station and excavated with a large auger. The new grinder station discharge line would be much smaller than the existing station force main and would either need to be sleeved through the existing force main (if possible) or a small shallow (30-inch) excavation would be needed to connect the new 1.25-1.75” discharge to the nearest manhole. The old control panel would either need to be removed or used to house the smaller control panel and telemetry package.

The electrical service will need to be updated to a true 220v or stepped down to 110v.

Starter Shack – Starter shack lift station serves a bathroom on the south course and pumps sewage into a force main from the Main lift North.

Issues: This is a small 40-year old prepackaged lift station that includes a tank that is bolted together. The station has a single pump that cannot pump sewage into the force main while the force main is pressurized from Main Lift North. Electrical conduit serving the station has ruptured due to rust.

Prognosis: The lift station supports the bathroom located at hole #1 on the south course, if the lift station failed, the bathroom would become in-operable. A more critical, but less likely scenario would be if the redundant check valves were to fail, the station could potentially fill up from the pressurized force main from Main Lift North and spill into the Consumes River.

Proposed Solution: Install a prepackaged grinder station with a pump curve that is rated to also be able to overcome pressure in the discharge force main. Once installed and operational, the old lift station will either be excavated or cleaned and filled with sand. Investigate the location, age, operability of the redundant check valves and or install a new check valve to ensure redundancy.

Lift 3b – The 3b Lift Station is a single-phase duplex station that was designed to serve 15-20 residential homes.

Issues: The District has no spare pumps for the station and can no longer procure spare pumps. The lift station now serves the water treatment facility and there are times that the station has difficulty keeping up with the flow. The Control panel is very dated and does not contain control algorithms. In addition, the pumps are not as efficient as they could be. Single-phase pumps supply roughly 1/3 the power of similar three-phase with the same wires used. A three-phase pump has a longer lifespan than a single-phase pump if operated under the same conditions.

Prognosis: This station is critical to the operation of the water treatment facility. If one of the pumps were to fail, the obsolescence of the pumps likely creates extended repair time for the failed pump and increases risk of the station failing due to no redundancy.

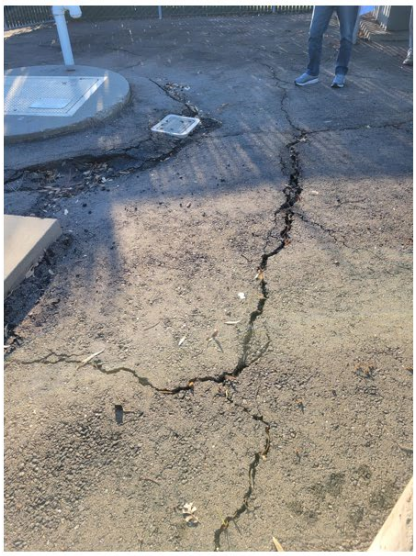
Proposed Solution: Provide for a service update to 3-phase and a more modern pump and panel retrofit.

Green - This lift station is located at the end of Bent Grass Ct.

Issues: The area surrounding the lift station and the lift station control panel appears to have experienced some settlement and may need to be corrected. *See pictures below.*

Prognosis: If the settling continues the discharge piping and electrical conduits could become compromised.

Proposed Solution: Evaluate the soil around the station and attempt to determine if additional settlement may occur and if the actual wetwell has settled. Excavate around the discharge and intake piping and determine if there appears to be strain on the pipes. Examine pipe joints and re-install pipe as needed. Re-set the control panel and potentially remove asphalt and re-compact the material around the wet well and re-pave the section.



Lift 6a – Lift station 6a is located off the northeast portion of De La Cruz Drive.

Issues: The station area has experienced some settlement and the pumps are single phase with capacitor packs that appear as though they may fail sooner than later.

Prognosis: If the station area continues to settle, discharge piping could become compromised. In addition, if capacitor packs fail, they are expensive ($2k each) and could excessively fail if station is not brought to 3-phase. A station failure could lead to a sewer spill on hole #6 on the north course.

Proposed Solution: Provide for 3-phase service upgrade and replace pumps ($9k each). Evaluate the soil around the station and attempt to determine if additional settlement may occur and if the actual wetwell has settled. Excavate around the discharge and intake piping and determine if there appears to be strain on the pipes. Examine pipe joints and re-install pipe as needed. Potentially remove asphalt and re-compact the material around the wet well and re-pave the section.

Cantova Lift Station (Generator) – Located at Cantova way and Murieta drive and serves Murieta Village and the surrounding housing units near Bel Air.

Issues: this is a 1950's towable generator with only one functional leg left and can only run 230v.

Prognosis: This generator could fail and leave the Cantova lift station inoperable during a power outage. The potential spill area would include the Murieta Village and Cantova/Murieta drive.

Proposed Solution: Replace the generator and install an automated transfer switch and updated panel.

FAA Lift Station (Generator) – Located at the west end of Cantova Way and the Lift station serves the business park.

Issues: This lift station currently has no generator.

Prognosis: As more businesses connect to this lift station, there becomes greater consequence if this station does not have access to back up power during a power outage.

Proposed Solution: Obtain and install an automated back-up generator for the FAA lift station.