MT. VIEW SANITARY DISTRICT

10-YEAR CAPITAL IMPROVEMENT PROGRAM
FISCAL YEAR 2020-2021 UPDATE

District Board of Directors
Gregory T. Pyka – President
Elmer "Al" J. Schaal – Vice President
Stanley R. Caldwell
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Prepared by:
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May 14, 2020
INTRODUCTION

BACKGROUND

District capital projects are administered through the 10-year Capital Improvement Program (CIP). The District’s 10-year CIP encompasses all engineered studies and projects related to improvements, repairs, rehabilitation, and replacement of the District’s collection system, pump station, plant, and marsh assets. The 10-year CIP update is a planning tool that manifests proactive asset management, facilitates financial planning (sewer rates and cash flow), promotes organizational balance (staff’s ability to manage and support the workload), and informs the Board of Directors (Board) and the public about infrastructure needs, upcoming projects, and proposed capital expenditures.

A draft 10-year CIP update is presented to the Board annually for review and direction at its March strategic planning meeting or April regular meeting. A final version, including this 10-year CIP update document, is presented for Board adoption thereafter at its May regular meeting. The last 10-year CIP update was approved by the Board on July 11, 2019.

DISCUSSION

The following tables summarize the plant, collection system (includes pump stations), and marsh-related projects planned for the next ten fiscal years, along with the estimated total project cost for each project, and the fiscal year in which construction is anticipated to occur.

<table>
<thead>
<tr>
<th>Plant Projects List</th>
<th>Estimated Total Project Cost</th>
<th>Construction Fiscal Year</th>
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<tbody>
<tr>
<td>Biotower Feed Pump Improvements</td>
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<tr>
<td>SCADA System Upgrades</td>
<td>$634,000</td>
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<td>Centrifuge Replacement</td>
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<td>Project Description</td>
<td>Estimated Total Project Cost</td>
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<td>Annual Emergency Repairs Contingency</td>
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**Collection System Projects List**

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<th>Project Description</th>
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<td>Pipeline Condition Assessment</td>
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</table>
### Pipeline & Manhole Repair / Rehabilitation / Replacement Phase 4

- **Cost:** $837,000
- **Fiscal Year:** 27

### West Service Zone Sewer Replacement

- **Cost:** $3,537,000
- **Fiscal Year:** 28

### Fig Tree Lane & Almond Street Capacity

- **Cost:** $638,000
- **Fiscal Year:** 28

### Pipeline & Manhole Repair / Rehabilitation / Replacement Future Phase 5

- **Cost:** $1,704,000
- **Fiscal Year:** 29

### Iron Adjustments After Street Pavement Projects

- **Cost:** $30,000
  - **Note:** In Fiscal Year 2020-2021
  - **Completion:** As necessary

### Annual Emergency Repairs Contingency

- **Cost:** $50,000
  - **Note:** In Fiscal Year 2020-2021
  - **Completion:** As necessary

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**Marsh Projects List**

<table>
<thead>
<tr>
<th>Project</th>
<th>Estimated Total Project Cost</th>
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<tr>
<td>Moorhen Marsh Maintenance</td>
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### FINANCIAL IMPACT

The CIP aims to maintain average annual capital projects expenditures of approximately $3.0 million, which hypothetically breaks down into roughly $2.0 million for the plant and $1.0 million for the collection system. It is important to understand that the cost of various projects may render this unachievable in certain fiscal years; furthermore, these amounts may need to be adjusted in the future to account for inflation and rising construction costs.

Total estimated project costs across the 10-year CIP approach $55.6 million. These costs are better broken down and understood as explained below.

In the first five years of the plan, total estimated project costs are about $20.0 million. Annual expenditures average about $4.0 million; however, when a single year spike of well over $6.7 million in Fiscal Year 2020-2021 is removed, the annual average drops to about $3.3 million. The single year spike is mainly attributable to the UV Disinfection Replacement Project, which requires approximately $3.7 million in that fiscal year alone.

In the final five years of the plan, total estimated project costs eclipse $35.4 million. Annual expenditures average nearly $7.1 million; however, when single year spikes of almost $15.8 million in Fiscal Year 2027-2028 and well over $7.6 million in Fiscal Year 2028-2029 are removed, the annual average drops to $4.0 million. The single year spikes are mainly attributable to the following projects:
• Switchgear & Standby Generator Replacement, which requires approximately $10.6 million in Fiscal Year 2027-2028. This project has been deferred to later years to allow time to build up the necessary funding reserves. Along with the inevitable cost increases, this deferral carries with it a clear understanding of the potential increased risks of failure due to equipment condition and capacity over that extended time period.

• New Maintenance & Operations Building, which requires nearly $5.2 million in Fiscal Year 2028-2029, and will require further study to better define the scope and cost. This project has also been deferred to later years to allow time to build up the necessary funding reserves.

• West Service Zone Sewer Replacement, which requires almost $3.3 million in Fiscal Year 2028-2029. This project will depend upon conclusive data from preceding condition and capacity studies to confirm its scope and cost. Some of the scope may be incorporated into preceding projects.

Capital projects expenditures will be offset by revenues from a combination of sources including sewer service charges, ad valorem property tax, debt, and possibly grants. The District is currently carrying out a Proposition 218 process to increase sewer service charge rates. Should this proposed rate increase be adopted by the Board, total projected revenues would reach $18.0 million across the first five years of the 10-year plan, and $37.3 million across the first eight years. The capital funding plan also includes immediate acquisition of a $5.0 million or $6.0 million loan.

The funding plan does not factor in capacity fees for new connections, since capacity fees vary annually and are therefore difficult to forecast. There are presently, however, at least four subdivisions at various stages of development which could generate significant revenue in the future. These subdivisions represent 283 new connections, equating to over $2.7 million (using the current capacity fee) in new connection revenue. It is important to note that these developments are not necessarily guaranteed to move forward, and when they do their exact timing is not certain; therefore, they are excluded from the funding plan.

SUPPLEMENTARY INFORMATION

Immediately following this introduction is a copy of the new 10-year CIP in tabular and graphical format. Beginning on the first page, projects are listed in the left-hand column, grouped by Plant, Collection System & Pump Station, and Marsh.
Next to the project name is its estimated total project cost. Across the top rows is the timeline, represented as plan year, calendar year, and fiscal year. In the field area is the schedule, broken out in rough 6-month increments by project phase (see legend at upper left). The estimated project cost for each fiscal year is shown just below the phases. These individual project costs roll down to fiscal year subtotals for each type of project (plant, collection system & pump station, or marsh), and also to fiscal year grand totals at the bottom of the second page. On the third page is a column chart which graphically depicts those subtotals and grand totals by fiscal year.

Following the tabular and graphical formats of the new 10-year CIP are project summary sheets in the same order that the projects are shown on the 10-year CIP table. Each summary sheet provides further detail about the project including its scope description, justification for being in the CIP, estimated total project cost or budget, and anticipated schedule.
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PLANT SUBTOTALS: $5,509,500
### COLLECTION SYSTEM & PUMP STATION

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#### CS & PS

- **Collection System & Pump Station Subtotals**: 546,000.00
- **Marsh Subtotals**: 1,179,000.00
- **Marsh Wastes**: 1,179,000.00

#### Annual Emergency Repairs Contingency

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### Marsh

- **Marsh Wastes**: 1,179,000.00
MT. VIEW SANITARY DISTRICT

10-YEAR CAPITAL IMPROVEMENT PROGRAM
FISCAL YEAR 2020-2021 UPDATE

PLANT PROJECTS
**PROJECT NAME:** Biotower Feed Pump Improvements

**DESCRIPTION:** This project will replace one pump, rehabilitate another, and replace all three discharge elbows and associated piping in the Biotower wet well. It will also replace all three pumps’ guide rails, as well as make repairs to the Sand Filter sump pump guide rail system.

**JUSTIFICATION:** During routine maintenance activities on the Biotower pumps, it was discovered that the discharge elbow flange for at least two of the three pumps had become corroded and pitted. As a result, the pumps cannot seat flush against the discharge elbows and create the necessary seal, leading to a leak and slight loss of pumping capacity. It is thought that at least one pump and all three discharge pipes date back to the original construction of the Biotower in 1989. Of the other two pumps, one has been repaired (date unknown), while the other failed and was replaced several years ago.

**ESTIMATED TOTAL PROJECT COST:** $412,000

**ANTICIPATED SCHEDULE:**
- Design – FY20
- Construction – FY21
PROJECT NAME: SCADA System Upgrades

DESCRIPTION: This project will replace many of the hardware components (server, backup server, computer, monitors, operator workstation) and software programs (new licenses, configurations, trainings) that comprise the District’s SCADA system. The Project will also significantly upgrade existing graphics screens as well as develop new ones that will greatly improve plant operations and control. The Project will also improve remote access capabilities.

JUSTIFICATION: The District’s current SCADA system is at least ten years old (likely more), is technologically becoming unsupportable, has antiquated screens or lacks screens altogether, lacks redundancy, lacks multiple user remote access capability, has recently been experiencing high error rates, and generally has reached the end of its useful service life. The system has undergone continuous changes, tweaks, and upgrades throughout its entire service life, and although it continues to run today, it must now be updated.

ESTIMATED TOTAL PROJECT COST: $634,000

ANTICIPATED SCHEDULE:
- Design – FY20
- Construction – FY21
PROJECT NAME: UV Disinfection Replacement

DESCRIPTION: This project will primarily replace the existing UV disinfection equipment and controls with new equipment and controls. Other assets in the UV process area may also be addressed at the same time, including the monorail crane and its structure, the reclaimed water pumping system, flowmeters, effluent gates, motor control center, and various other automation, electrical, and SCADA upgrades.

JUSTIFICATION: The UV disinfection system was installed in 1994 and is now 26 years old. The equipment uses a substantial amount of electrical energy, is not operated automatically, cannot be monitored remotely, has no automatic sleeve wiping system, lacks instrumentation to measure transmittance, and in general requires frequent maintenance with high costs associated. The 2011 Wastewater Treatment Plant Systems Reliability Evaluation recommended that the equipment and controls be replaced.

ESTIMATED TOTAL PROJECT COST: $5,246,000

ANTICIPATED SCHEDULE:
- Design – FY20 to FY21
- Construction – FY21 to FY22
PROJECT NAME:  Centrifuge Replacement

DESCRIPTION:  This project will replace the existing centrifuge equipment and controls with new sludge dewatering equipment and controls. Various electrical upgrades in and around the Dewatering Building may also be addressed at the same time.

JUSTIFICATION:  The existing centrifuge is close to 20 years old. Its frame and casing are cracked and broken, it leaks slightly and clogs easily, and it is not working as efficiently as it used to. The control technology is no longer supported. The cost to fix the centrifuge and update the control system equals or surpasses the cost to furnish and install completely new equipment.

ESTIMATED TOTAL PROJECT COST:  $1,256,000

ANTICIPATED SCHEDULE:
- Design – FY21
- Construction – FY22
PROJECT NAME: Headworks Automatic Screening Rebuild (Aquaguard)

DESCRIPTION: This project will rebuild the headworks automatic screening mechanism. Most of the major equipment components needed for the project have already been procured and are currently being stored at the plant while awaiting installation.

JUSTIFICATION: The existing automatic screening mechanism is reaching the end of its useful service life and must be rebuilt. The mechanical work required to do this is beyond the capabilities of District staff and equipment.

ESTIMATED TOTAL PROJECT COST: $451,000

ANTICIPATED SCHEDULE:
- Design – FY21
- Construction – FY22
PROJECT NAME: Control Building MCC P1 Replacement

DESCRIPTION: This project will replace Motor Control Center (MCC) P1 and its corresponding Programmable Logic Controller (PLC). It will also rearrange the feeder to electrical panel 20P1 from MCC P1 to electrical panel EP5A.

JUSTIFICATION: This project was recommended by the 2017 Wastewater Treatment Plant Electrical Systems Study as well as its 2019 update. MCC P1 is over 50 years old, is in poor condition, has reached the end of its useful service life, is under capacity for peak electrical loads, and should be replaced as soon as possible. It is logical to replace the PLC at the same time since the two assets are adjacent and closely related. The rearrangement of the electrical feeder to panel 20P1 will be a more straight-forward arrangement that better meets electrical code requirements.

ESTIMATED TOTAL PROJECT COST: $1,931,000

ANTICIPATED SCHEDULE:
- Design – FY22
- Construction – FY23
PROJECT NAME: Pump Stations Telemetry & SCADA Improvements

DESCRIPTION: This project will make each of the four pump stations fully monitored and controlled by the SCADA system. The scope of work would include modifying or adding PLCs, adding cellular radios and antennas, adding control panels, and modifying SCADA screens to accommodate the new monitoring and control capabilities.

JUSTIFICATION: This project was recommended by the 2017 Wastewater Treatment Plant Electrical Systems Study as well as its 2019 update. Currently, Operations staff must make daily trips (including weekends) to each of the four pump stations to monitor and control equipment. If a pump station alarm sounds via an autodialer, Operations staff must physically visit the pump station to investigate and resolve the alarm. Full pump station monitoring and control will significantly reduce the number of trips and visits to the pump stations, which in turn will greatly improve Operations staff efficiency and productivity, which ultimately will save the District time and money in the long term.

ESTIMATED TOTAL PROJECT COST: $556,000

ANTICIPATED SCHEDULE:
- Design – FY22
- Construction – FY23
**PROJECT NAME:** Plant Masterplan

**DESCRIPTION:** This masterplan will conduct condition, capacity, safety, and redundancy assessments of each plant process area and its major pieces of equipment or assets to identify those in need of repair, replacement, rehabilitation, upsizing, or redundancy.

**JUSTIFICATION:** A comprehensive plant masterplan should be conducted roughly every ten years to maintain an ongoing understanding of the state of the District’s aging infrastructure, to account for increasingly stringent regulatory requirements, and to become a reference point for capital planning, project prioritizing, annual budgeting, and rate setting.

**ESTIMATED TOTAL PROJECT COST:** $500,000

**ANTICIPATED SCHEDULE:** FY24
PROJECT NAME: Digester Heat / Mix Room Improvements

DESCRIPTION: This project will make permanent repairs to the primary digester feed pipe, add piping and valves for secondary digester redundancy, and replace the heat exchanger and its recirculation pump. The project will also include replacement of the motor control center, installation of a new programmable logic controller, and various other electrical and SCADA upgrades in and around the Digester Heat / Mix Room. The microturbine system will be permanently removed.

JUSTIFICATION: The critical primary digester feed pipe failed on January 3, 2019, due to internal corrosion; a temporary repair was made at that time. The likelihood of another failure is unknown, while the consequence of another failure could be significant. While the secondary digester provides the primary digester with limited redundancy for planned shutdowns, the primary has no redundancy for emergency situations (such as the broken feed pipe). This is because the secondary is currently unmixed and unheated, and the heat / mix room lacks the necessary piping and valves to easily switch between the two digesters. The heat exchanger was installed in 1969 and has reached the end of its useful service life, while its recirculation pump needs to be upgraded to a chopper-style pump to eliminate the potential for clogging issues. The microturbine is no longer needed; it is not used as there is insufficient digester gas available to run it. Most of the improvements described above were recommended by the 2011 Wastewater Treatment Plant Systems Reliability Evaluation and the 2017 Wastewater Treatment Plant Electrical Systems Study.

ESTIMATED TOTAL PROJECT COST: $1,349,000

ANTICIPATED SCHEDULE:
- Design – FY24
- Construction – FY25
PROJECT NAME: 10-Year Digesters Cleaning

DESCRIPTION: This project will clean, inspect, and make any necessary repairs to both the primary and secondary digesters.

JUSTIFICATION: The primary digester was last cleaned and inspected in 2015, while the secondary digester was last cleaned and inspected in 2014. Both digesters should be cleaned, inspected, and repaired roughly every ten years to keep them in optimal operating condition.

ESTIMATED TOTAL PROJECT COST: $620,000

ANTICIPATED SCHEDULE:
- Design – FY24
- Construction – FY25
PROJECT NAME: Biofilter & Biotower Rehabilitation

DESCRIPTION: This project includes a complete seismic retrofit of the Biofilter structure, rehabilitation of the Biofilter redwood timber grillage, replacement of the Biotower media, removal and replacement of the Biotower wall interior coating, and installation of redundant float controls for both the Biofilter and Biotower.

JUSTIFICATION: The Biofilter was originally constructed in 1968, long before current building codes took effect, and there are a number of significant seismic concerns with the structure. The condition of the Biofilter redwood timber grillage must be investigated further as it is showing signs of decay around the perimeter. The Biotower media is deteriorating across the top surface and is reaching the end of its useful service life. The Biotower wall has a seepage problem which creates aesthetic issues and could lead to localized structural problems over time. Redundant float controls are necessary to ensure that the Biofilter and Biotower remain in service in the event of an instrumentation failure. All of the improvements described above were recommended by the 2011 Wastewater Treatment Plant Systems Reliability Evaluation.

ESTIMATED TOTAL PROJECT COST: $2,532,000

ANTICIPATED SCHEDULE:
- Study / Pre-design – FY25
- Design – FY25
- Construction – FY26
**PROJECT NAME:** Headworks Improvements & Automatic Screening Replacement

**DESCRIPTION:** This project will replace the existing automatic screening equipment in the primary influent channel with new equipment. It will also replace the existing manual bar screen in the bypass channel with a second automatic screening system for redundancy; the bypass channel would be widened to accommodate this improvement. A new programmable logic controller will also be installed, and access improvements for worker safety will be made. A pre-design study will explore the potential for chopping / grinding and grit separation processes at the headworks, installation of which may then be incorporated into the project scope.

**JUSTIFICATION:** The improvements described above were recommended by the 2011 Wastewater Treatment Plant Systems Reliability Evaluation and the 2017 Wastewater Treatment Plant Electrical Systems Study.

**ESTIMATED TOTAL PROJECT COST:** $1,525,000

**ANTICIPATED SCHEDULE:**
- Study / Pre-design – FY26
- Design – FY26
- Construction – FY27
PROJECT NAME: Switchgear & Standby Generator Replacement

DESCRIPTION: This project will replace the plant’s main electrical switchgear and standby generator with larger capacity units. Electrically speaking, the switchgear is the "front door" that controls, protects, and isolates the plant’s entire electrical system from the power utility (PG&E). The standby generator is used to power and keep the entire plant running in the event of utility power failure. The project will also install a power monitor at the new switchgear, and rearrange the feeder to Motor Control Center (MCC) P3 to be directly connected to the switchgear instead of routed through MCC P1.

JUSTIFICATION: This project was recommended by the 2017 Wastewater Treatment Plant Electrical Systems Study as well as its 2019 update.

The switchgear was installed in 1993 and is 27 years old. It is currently in good condition, but its useful service life is only expected to be 30 to 40 years. Moreover, it is under capacity for peak electrical loads. While it operates within the designed factor of safety for peak loading, it is possible that operations could be adversely affected if the breaker were to trip. Any capital projects that introduce new electrical loads at the plant (e.g. New Maintenance & Operations Building) will only exacerbate the problem and increase risk.

The standby generator was also installed in 1993 and is 27 years old. It is also currently in good condition; however, depending on a number of factors (e.g. overall run time, regular maintenance, amount of exercise, etc.), its useful service life is only expected to be 20 to 30 years. Moreover, it is also under capacity for peak electrical loads and must be upsized similar to the switchgear.

Currently, the switchgear does not have a power monitor. This device is essential to monitor power usage, record power fluctuations, and diagnose power failures. It should be connected to the SCADA system for full monitoring capability.

The rearrangement of the electrical feeder to MCC P3 will increase reliability and reduce the electrical load on MCC P1.
Switchgear & Standby Generator Replacement, continued...

Overall, the switchgear and standby generator are some of the most critical infrastructure at the plant. Their capacity directly affects the District’s ability to maintain uninterrupted operations during events such as major wet weather, power blips and failures, or the recent public safety power shutoffs (PSPS). Risk of failure due to condition always increases with an asset’s age, and given their age the District would be prudent to plan to replace these assets within approximately 10 years.

**ESTIMATED TOTAL PROJECT COST:** $11,480,000

**ANTICIPATED SCHEDULE:**
- Design – FY27
- Construction – FY28 to FY29
PROJECT NAME: New Maintenance & Operations Building

DESCRIPTION: This project would construct a new building to accommodate all of the operations, environmental, and laboratory staff’s office, workspace, and storage needs. The building is estimated at 6,500 square feet. Its most likely location would be in the area roughly bounded by Moorhen Marsh Pond A2, the biosolids processing area and Centrifuge Building, and the Thickener. If that is the case, two existing, aging operations and maintenance buildings would be demolished to make way. The project would also abandon or demolish the former administration building, and rehabilitate and upgrade the existing Control Building to satisfy space needs for the Control Building Motor Control Center P1 project.

JUSTIFICATION: The existing Control Building is almost 70 years old (1951), while the former administration building is approaching 40 years old (1983) and near the end of its useful service life. These buildings also have safety concerns (i.e. electrical room), existing spaces are undersized or inadequate to accommodate staff needs (i.e. men’s locker room, laboratory), they lack certain spaces entirely (women’s locker room), and they are not up to building codes (i.e. unisex bathroom ADA access, seismic requirements). The operations, environmental, and laboratory staff offices, workspaces, and storage areas are spread out across multiple, separate buildings in the lower plant area, leading to a certain amount of inefficiency. The 2011 Wastewater Treatment Plant Systems Reliability Evaluation performed a preliminary space needs assessment, evaluated the existing spaces available, and recommended that a new building be built.

ESTIMATED TOTAL PROJECT COST: $5,652,000

ANTICIPATED SCHEDULE:
- Study / Pre-design – FY27
- Design – FY28
- Construction – FY29
PROJECT NAME: Thickener Rehabilitation & Improvements *(Placeholder)*

DESCRIPTION: This project will make any necessary or recommended repairs, rehabilitations, replacements, or improvements to the sludge thickener process area.

JUSTIFICATION: The Thickener launder and scum pit were originally constructed in the 1950s, and are now nearly 70 years old. It served for roughly 15 years as the District’s first and only clarifier until it was converted to a thickener in 1968. The sludge pump and grit washer areas were added in 1968 and are now over 50 years old. The 2011 Wastewater Treatment Plant Systems Reliability Evaluation recommended no major improvements to the sludge thickener process area. However, it also noted that the last major project in this process area was in 1997 to replace the scum mechanism. Apart from minor equipment rehabilitation or replacement by District staff, this process area has not been touched by a major project for over 20 years, and it will likely be at least 30 years given the anticipated schedule shown below. The Plant Masterplan study will conduct a detailed assessment of this process area to identify any necessary or recommended repairs, rehabilitations, replacements, or improvements.

ESTIMATED TOTAL PROJECT COST: $2,017,000

ANTICIPATED SCHEDULE:
- Pre-design / Design – FY29
- Construction – FY30
PROJECT NAME:  PG&E Natural Gas Pipeline *(Placeholder)*

DESCRIPTION:  This study will coordinate with PG&E to determine the availability, options, and cost associated with bringing a natural gas service pipeline to the plant. This effort was originally undertaken in conjunction with the Disinfection Decision Study during Fiscal Year 2018-2019. The study aims to document PG&E service options and details, obtain PG&E cost estimates for design and installation of the pipeline, obtain PG&E terms and conditions of any service or payment agreements for the pipeline, and obtain or develop a preliminary pipeline alignment figure. Once all of the above are completed, the viability of a natural gas service pipeline may be fully evaluated.

JUSTIFICATION:  Currently, the District does not have natural gas service at the plant. The entire plant energy demand is met by PG&E electricity. Standby generators run on diesel fuel, which have limited run times without fuel re-supply deliveries. Additionally, the boiler burns digester gas, which corrodes its tubes more quickly, causing regular and costly maintenance problems. It also burns propane as a limited term backup. A natural gas service pipeline could alleviate these issues, allowing the boiler to burn cleanly and eliminating the maintenance problems. It could also open the door to cogeneration and greater energy independence. And it could present opportunities for the District to consider technologies such as pyrolysis for biosolids disposal. All of these could potentially reduce the District’s operating costs and risk in the long term.

BUDGET:  $20,000 (Study only, in Fiscal Year 2020-2021)

ANTICIPATED SCHEDULE:
- Study – FY21
PROJECT NAME: Pavement Management Program

DESCRIPTION: This program is the ongoing effort to maintain the District’s pavement assets, which include the Plant Road, Administration Building parking lot and connecting roads, lower Plant roads, and pavements around the four pump stations. A condition assessment study roughly every ten years will establish the condition of each asset; recommend immediate repairs; and help determine the scopes, schedules, and budgets for future repair and rehabilitation projects. These projects may include crack sealing, base repairs and patch paving, surface sealing, overlays, complete reconstruction, and striping work.

JUSTIFICATION: Pavement assets should be maintained regularly to extend their useful service life and optimize long-term capital costs. Left unmaintained, pavement will eventually deteriorate and fail, leading to costly replacement projects which far exceed the cost of regular maintenance projects. Deteriorating pavement also presents safety concerns (i.e. tripping hazards) for employees and visitors, and fails to adequately support District maintenance vehicles such as the vactor truck.

BUDGET: $201,000 in FY21

ANTICIPATED SCHEDULE:
- Condition Assessment Study – FY20
- Design – Annually as necessary
- Construction – Annually as necessary
PROJECT NAME: Annual Emergency Repairs Contingency

DESCRIPTION: This contingency is reserved for emergency plant repairs that may arise during the course of the fiscal year.

JUSTIFICATION: The District occasionally experiences sudden and unexpected asset failures which must be addressed immediately and may require engineered solutions. Past examples include the primary digester influent pipe break, plant water line break, centrifuge blockage, boiler failure, etc.

BUDGET: $50,000

ANTICIPATED SCHEDULE: As necessary
MT. VIEW SANITARY DISTRICT

10-YEAR CAPITAL IMPROVEMENT PROGRAM
FISCAL YEAR 2020-2021 UPDATE

COLLECTION SYSTEM PROJECTS
**PROJECT NAME:** Pipeline Cleaning & Televising

**DESCRIPTION:** This program consists of hydro-cleaning and televising each and every pipeline in the District’s collection system. Televising will record pipeline condition data pursuant to the National Association of Sewer Service Companies (NASSCO) standard rating system. It is anticipated that at least four years will be required for a contractor to clean and televise the District’s entire collection system the first time.

**JUSTIFICATION:** In order to build and implement the computerized risk model described in the Pipeline Condition Assessment program, the District must first obtain pipeline condition data for each and every pipeline in the District. This is accomplished through the process described above.

**ESTIMATED TOTAL PROJECT COST:** $4,636,000 (over next 10 years)

**ANTICIPATED SCHEDULE:**
- Design – Annually
- Cleaning & Televising – Annually
PROJECT NAME: Pipeline Condition Assessment

DESCRIPTION: This program consists of condition assessments of each and every pipeline in the District’s collection system. These assessments will be based on data gathered through the Pipeline Cleaning & Televising program. The data will be used to build a computerized risk model (generic sample shown below) which will help identify the pipelines with the highest priority for repair, replacement, or rehabilitation.

JUSTIFICATION: Collection system condition assessment should be conducted continually to maintain an ongoing understanding of the state of the District’s aging infrastructure, and to become a reference point for capital planning, project prioritizing, annual budgeting, and rate setting.

ESTIMATED TOTAL PROJECT COST: $325,000 (over next 10 years)

ANTICIPATED SCHEDULE: Annually, to follow Pipeline Cleaning & Televising projects
PROJECT NAME: Pump Station Condition Assessment

DESCRIPTION: This study will conduct condition, safety, and redundancy assessments of each of the four pump stations and their major pieces of equipment or assets to identify those in need of repair, replacement, rehabilitation, or redundancy.

JUSTIFICATION: A comprehensive pump station condition assessment should be conducted roughly every ten years to maintain an ongoing understanding of the state of the District’s aging infrastructure, and to become a reference point for capital planning, project prioritizing, annual budgeting, and rate setting.

ESTIMATED TOTAL PROJECT COST: $75,000

ANTICIPATED SCHEDULE:
- Study – FY25
PROJECT NAME: Collection System Capacity Assessment

DESCRIPTION: This study will conduct a capacity assessment of the entire collection system to identify pipelines and/or pump station equipment or other assets in need of upsizing. Capacity assessments will be based on design storms and the latest development projections for the District’s service area. A hydraulic model of the entire collection system will be developed.

JUSTIFICATION: A comprehensive collection system capacity assessment should be conducted roughly every ten years to confirm the District’s ability to adequately convey peak flows to the plant, and to become a reference point for capital planning, project prioritizing, annual budgeting, and rate setting. A hydraulic model also becomes an essential tool for evaluating large, new development proposals.

ESTIMATED TOTAL PROJECT COST: $150,000

ANTICIPATED SCHEDULE:
- Study – FY23
**PROJECT NAME:** Manhole Repair / Replacement

**DESCRIPTION:** This project will replace two deteriorated manholes; abandon a number of manholes that are no longer in service; locate, expose, and raise a number of manhole covers that have been either overlaid by street paving projects or cannot be located altogether, construct manhole access improvements at one site, install or rehabilitate coatings in a number of manholes, and make several small pipe repairs.

**JUSTIFICATION:** Manholes at the Pacheco / Arthur and Palm / Vista intersections are significantly deteriorated and therefore of serious concern. A reach of pipeline beginning in the vicinity of Pump Station No. 2 and running northwards towards Vine Hill Marsh and then westwards across Interstate 680 is no longer in service. Yet it contributes significant quantities of groundwater through inflow and infiltration, particularly during wet weather, that must be treated unnecessarily at the plant. This reach is also of concern since it transects a number of large private properties via easements; has several inaccessible manhole locations; and crosses under a railroad mainline, through a marsh, and under a major interstate. Manholes that are paved over or hidden cannot be accessed for regular maintenance activities, thereby decreasing staff’s oversight of the collection system and increasing the risk of a preventable problem. The site with poor access presents maintenance difficulties and serious safety concerns. Manhole coatings prevent corrosion and deterioration.

**ESTIMATED TOTAL PROJECT COST:** $910,000

**ANTICIPATED SCHEDULE:**
- Design – FY20 to FY21
- Construction – FY21
PROJECT NAME: Pump Station Miscellaneous Rehabilitation

DESCRIPTION: This project will replace the wet well coating at Pump Station No. 2 and replace the pumps at Pump Station No. 4. Specific electrical improvements will be addressed at Pump Station Nos. 2 and 3, while all four pump stations will be carefully evaluated for other electrical upgrade needs. Other assets in need of repair or replacement along with routine maintenance work will also be included in the project scope.

JUSTIFICATION: The wet well coating at Pump Station No. 2 is failing and needs to be replaced. The pumps at Pump Station No. 4 are a constant maintenance problem due to ragging and will have reached the end of their useful service life. Electrical upgrades are necessary to eliminate maintenance issues, improve redundancy, and ensure uninterrupted pumping.

ESTIMATED TOTAL PROJECT COST: $519,000

ANTICIPATED SCHEDULE:
- Design – FY21
- Construction – FY22
**PROJECT NAME:** Pipeline & Manhole Repair / Rehabilitation / Replacement

**DESCRIPTION:** This program consists of a series of project phases, with the scopes to be defined at a later date. The scopes will be comprised of the highest priority pipeline and manhole issues identified from the data gathered, compiled, and modeled through the Pipeline Cleaning & Televising and Pipeline Condition Assessment projects.

**JUSTIFICATION:** To be determined, pending the Pipeline Cleaning & Televising and Pipeline Condition Assessment projects.

**ESTIMATED TOTAL PROJECT COST:** (multiple project phases)
- Phase 1 – $837,000
- Phase 2 – $837,000
- Phase 3 – $837,000
- Phase 4 – $837,000
- Future Phase 5 – $1,704,000

**ANTICIPATED SCHEDULE:** (multiple project phases)
- Phase 1 – Design – FY23
- Phase 1 – Construction – FY24
- Phase 2 – Design – FY24
- Phase 2 – Construction – FY25
- Phase 3 – Design – FY25
- Phase 3 – Construction – FY26
- Phase 4 – Design – FY26
- Phase 4 – Construction – FY27
- Future Phase 5 – Design – TBD (CIP shows FY28)
- Future Phase 5 – Construction – TBD (CIP shows FY29)
PROJECT NAME: Pump Station Rehabilitation

DESCRIPTION: These are generic projects with scopes to be defined at a later date. They will most likely be comprised of the highest priority issues identified by the Pump Station Condition Assessment and Pipeline & Pump Station Capacity Assessment projects.

JUSTIFICATION: To be determined, pending recommendations from the Pump Station Condition Assessment and Pipeline & Pump Station Capacity Assessment projects.

ESTIMATED TOTAL PROJECT COST: $689,000

ANTICIPATED SCHEDULE: for first project
- Design – FY26
- Construction – FY26
**PROJECT NAME:** West Service Zone Sewer Replacement

**DESCRIPTION:** The scope of this project would include approximately 4,400 linear feet of pipe bursting, approximately 360 linear feet of open cut sewer replacement, 26 new manholes, and property owner-paid pipe bursting of up to 118 lower laterals. Work areas in the West Service Zone would include the Glen Street to Wyoming Street creek easement (including 740 Glen Street), Kelly Avenue from Yale Street to Monterey Avenue, Monterey Avenue itself, Merle Avenue, Bella Vista Avenue, Palm Avenue, Leslie Avenue, Vine Avenue, and Sycamore Street.

**JUSTIFICATION:** This project was conceived to address both condition and capacity issues in the collection system areas noted above. Project design was begun and progressed substantially during 2009, but was shelved indefinitely due to concerns about the necessity for the capacity portion of the project. The Pipeline & Pump Station Capacity Assessment project should provide the data necessary to confirm or refute the need for the capacity improvements. Furthermore, it is possible that certain condition-driven improvements will be addressed under one of the Pipeline & Manhole Repair / Rehabilitation / Replacement project phases. A pre-design will compile and evaluate any remaining issues for inclusion in the final project scope.

**ESTIMATED TOTAL PROJECT COST:** $3,537,000

**ANTICIPATED SCHEDULE:**
- Study / Pre-design – FY27
- Design – FY27
- Construction – FY28
PROJECT NAME: Fig Tree Lane & Almond Street Capacity

DESCRIPTION: The scope of this project would include sewer main upsizing on two streets: 1) increase 300 linear feet of an existing 8-inch main to 10-inch on Fig Tree Lane from Eastwoodbury Lane to Hatchwood Court, and 2) increase 870 linear feet of an existing 10-inch main to 12-inch on Almond St. from Delacy Avenue to Howe Road.

JUSTIFICATION: This project was originally identified in the 2013 Collection System Flow Monitoring and Hydraulic Modeling Study. The Pipeline & Pump Station Capacity Assessment project should provide the data necessary to confirm or refute the need for this project. If needed, and depending on the timing and scope and cost, this project might be addressed under one of the Pipeline & Manhole Repair / Rehabilitation / Replacement project phases, or combined with the West Service Zone Sewer Replacement project.

ESTIMATED TOTAL PROJECT COST: $638,000

ANTICIPATED SCHEDULE:
- Design – FY27
- Construction – FY28
**PROJECT NAME:** Iron Adjustments After Street Pavement Projects

**DESCRIPTION:** The City of Martinez regularly conducts street pavement projects; Contra Costa County occasionally does so as well. The City of Martinez has provided a five-year pavement program with a schedule of upcoming street pavement projects which has been reviewed and incorporated into the CIP under this project. It is the District’s responsibility to raise its manhole and rodding inlet frames and covers to the new street grade at the conclusion of or after street pavement projects. In the past, the District has ‘piggy-backed’ on City’s contractor to perform this work, and then directly reimbursed the City for the cost. Through this inter-agency collaborative effort, the District saves significant time and money while still accomplishing the necessary work.

**JUSTIFICATION:** It is the District’s responsibility to raise its manhole and rodding inlet frames and covers to the new street grade at the conclusion of or after street pavement projects. Left unraised, these structures cannot be located later on, preventing critical collection system maintenance activities from occurring, and reducing collection system oversight.

**BUDGET:** $30,000 (in Fiscal Year 2020-2021)

**ANTICIPATED SCHEDULE:** As necessary
PROJECT NAME: Annual Emergency Repairs Contingency

DESCRIPTION: This contingency is reserved for emergency collection system and pump station repairs that may arise during the course of the fiscal year.

JUSTIFICATION: The District occasionally discovers unexpected asset failures which must be addressed immediately and may require engineered solutions. Past examples include the 2415 Pacheco Blvd. collapse repair, 750 Central Ave. repair, Pump Station No. 2 effluent pipe failures, etc.

BUDGET: $50,000

ANTICIPATED SCHEDULE: As necessary
**PROJECT NAME:** Moorhen Marsh Maintenance

**DESCRIPTION:** This project will include necessary maintenance work, repairs, rehabilitation, replacement, and improvements to the Moorhen Marsh pond treatment system that may have accumulated since the enhancement projects were completed in 2018 and 2019. Work activities could include levee repairs or stabilization, erosion control, pond and slough dredging, ADA pathway construction or rehabilitation, vegetation removal, landscaping and irrigation, biological upgrades, Interpretive Center upkeep, bridge maintenance, outlet and water control structure maintenance, etc.

**JUSTIFICATION:** A comprehensive maintenance project should be conducted roughly every ten years to maintain the marsh pond treatment system and its assets. Due to the anticipated biological constraints on work activities in the marsh, it is recommended that all required maintenance work be compiled into a single project to be completed at the same time.

**ESTIMATED TOTAL PROJECT COST:** $1,179,000

**ANTICIPATED SCHEDULE:**
- Study / Pre-design – FY28
- Design – FY29
- Construction – FY30