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NapaSan

Wastewater Treatment Plant Master Plan

Board Presentation No.1

September 2, 2020

Agenda

- Introductions
- Master Plan Process
- Master Plan Focus Areas
- Schedule

Introductions

Need for a New Master Plan

Industry practice is to update the master plan every 7-10 years.

Flow and loading projections have changed

Establish different planning assumptions and trigger points for expansion projects

New technologies and evolving regulations

Recommended alternatives may be different

Condition assessment to establish a prioritized CIP

The Team

NapaSan
Collection • Treatment • Recovery • Reuse

Project Principal
Kevin Alexander, PE

Project Manager
◆ Marc Solomon, PE, BCEE, D.WRE

Technical Advisor - QA/QC
◆ Paul Pitt, PhD, PE, BCEE

Condition Assessment
Technical Leads
◆ Allan Briggs, PE
Sean Pour, PhD
Structural
Wyatt Dressler, PE
Mechanical
Swaid Alhajri, PE
Electrical
Shishir Doctor, PE
I&C
Justin Irving, PE
Odor Control
Kristen Smeby
Climate Change Resiliency
Ryan Nagel, PE

Wastewater Process Optimization
Technical Lead
◆ Irene Chu, PE
Capacity Analysis
Justin Irving, PE
Michael Wang, PE
Nutrient Management
Ron Latimer, PE
Joe Rohrbacher, PE
Operational Vulnerability
Grade IV Operator
◆ ● Steve Walker, PE
Resiliency
Sandeep Mehrotra, PE

Energy Management
Technical Lead
◆ Bryan Lisk, PE
Biogas Production, Food and Winery Waste Co-Digestion
Derya Dursun, PhD, PE
Filter and Fuel Capacity
Bryan Lisk, PE
Algae Digestion
● Rudy Kilian, PE, PMP
PSPS Resiliency
Shishir Doctor, PE
EBAT Model
Jay DeVilbiss

Recycled Water & Potable Reuse
Technical Lead
◆ ● Doug Wing, PE
Infrastructure
● Anne Prudel, PE
Plant Improvements
● Doug Wing, PE
Potable Reuse
◆ ● Andy Salveson, PE

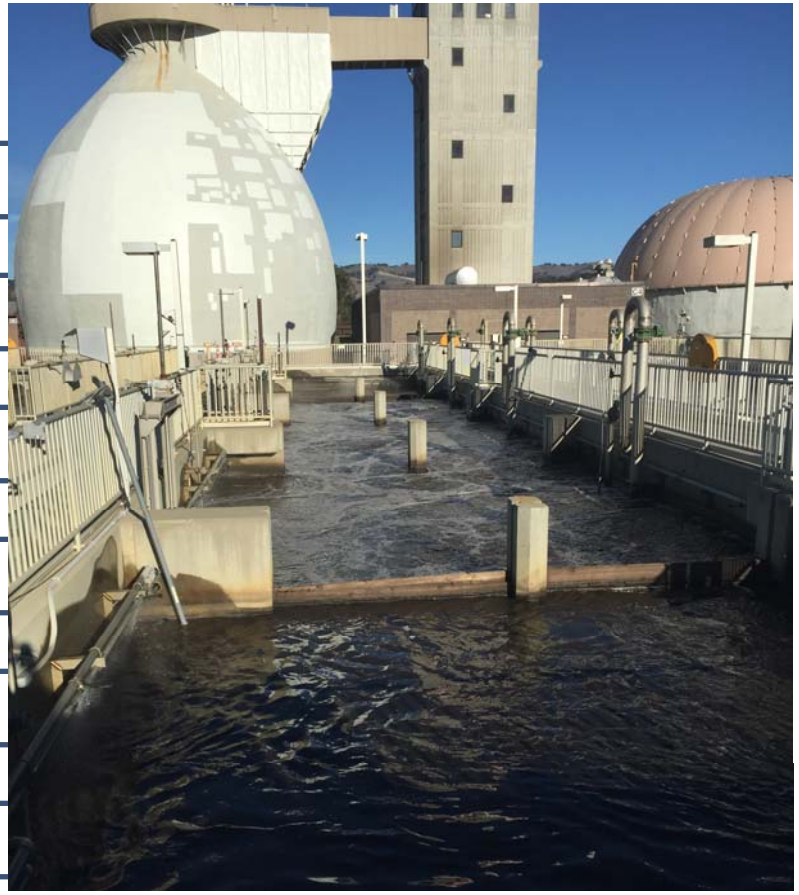
Biosolids Management
Technical Lead
◆ ● Sarah Deslauriers, PE, ENV SP
Class A Biosolids Analysis
● Christine Polo, PE, ENV SP
Biosolids Program Analysis/ Disposal Alternatives
● Rashi Gupta, PE

CIP & Plan Development
Technical Lead
◆ Allan Briggs, PE
Trigger Based Solutions
Ron Latimer, PE
CIP Sheet
Allan Briggs, PE
Cost Estimating
Chris Portner, PE, CPE

Master Plan Process

Master Plan Process

- An overarching planning document
- Identifies key issues
- Recommends programs, projects and associated budgets
- Focus on the wastewater treatment plant, biosolids and recycled water
- Ensures that the District can maintain their facilities
- Specific projects in the short term with a plan for the longer term



Goals of this Master Plan

- Develop Trigger-based Road Map (Liquids, Solids, Recycled Water)
- Address R&R for Aging Infrastructure by Performing a Condition Assessment
- Address Reliability, Redundancy & Vulnerabilities
- Leverage Existing Assets First
- Develop Planned Expenditures for CIP
- Develop CIP Sheets & Story Map
- Transfer Institutional Knowledge

Project Drivers and Objectives

Measures for Success

- Be proactive, not reactive in planning for the future – defendable decision-making process
- Improve reliability – prioritize maintenance, short and long-term rehabilitation and replacement
- Minimize business risk exposure – know which assets are most critical
- Minimize cost to ratepayers – optimize life cycle costs
- Develop and transfer knowledge of methodologies and tools to NapaSan Staff to keep Master Plan updated (not a snapshot in time)

Master Plan Focus Areas

This Master Plan Focuses on the Following Areas

Condition Assessment	Wastewater Process Optimization	Energy Management	Recycled Water & Potable Reuse	Biosolids Management	CIP & Plan Development
Prioritize near, intermediate, and long-term needs.	Meet regulatory requirements in a financially sustainable manner. Provide Near-term solutions that allow flexibility for long-term objectives.	Drive towards energy self-sufficiency. Position District to best implement and manage conservation practices and increase efficiency.	Improve level of service throughout facility. Position District to navigate changes in recycled water and evolving regulations/ permitting.	Provide flexibility to navigate emerging biosolids markets. Position district to best implement and manage practices.	Utilize trigger-based solutions and tools that best leverages existing infrastructures and minimizes impacts to rate payers.

The Comprehend-Explore-Converge Method for the other core areas of the Master Plan

Comprehend

- **Understand** the plant and issues
- Conduct **Condition Assessment**
- Develop site specific **tools** for analysis

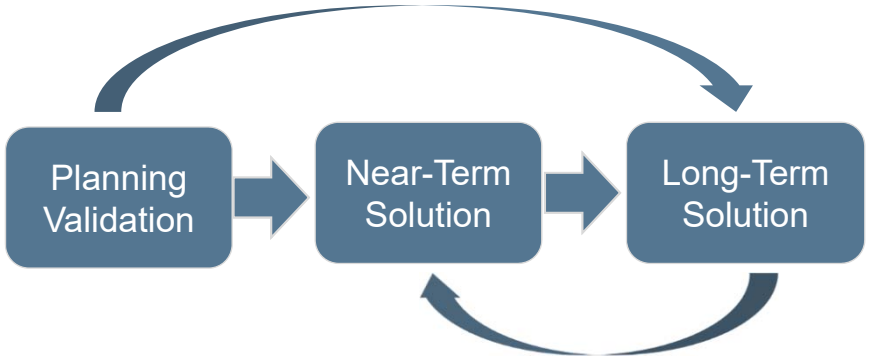
Explore

- Site specific **solutions**
- **What-if** analysis
- Leverage existing assets first

Converge

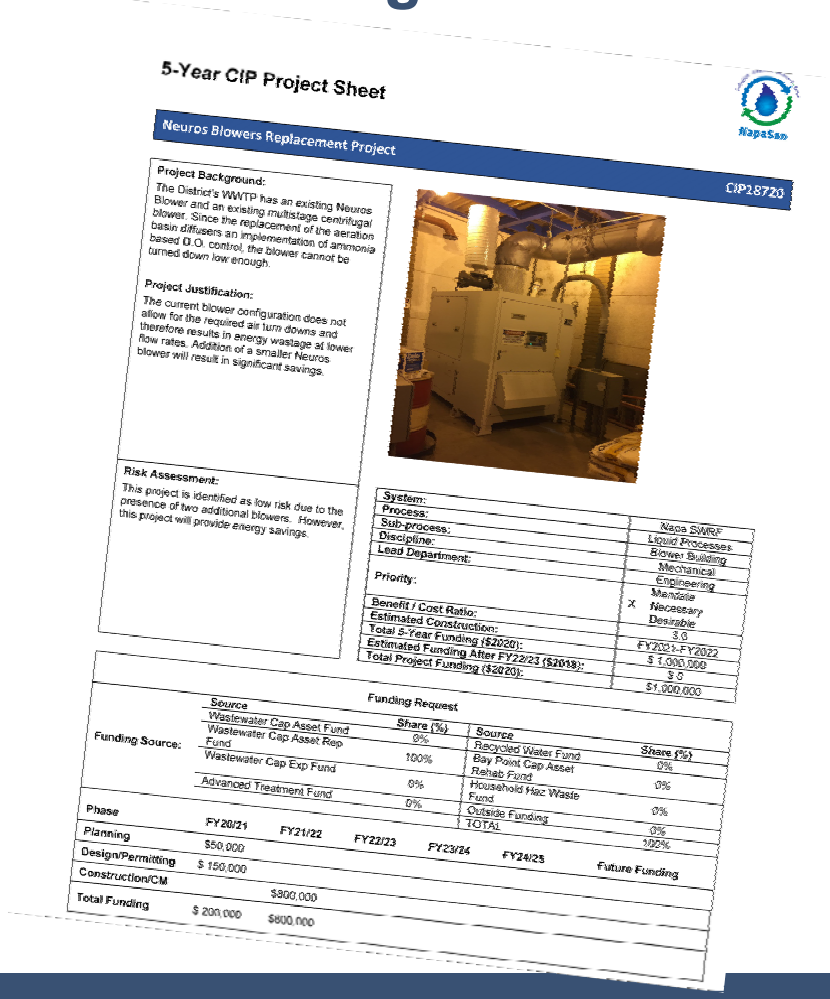
- Converge on **best value solution**
- **Synergistic** near- and long-term solutions
- Flexible planning **documents** and **tools**

LEAF
Leverage Existing Assets First



Recommended Capital Improvement Program

- Near-Term CIP Projects
  - **0 to 5 years**
- Intermediate and Long-Term CIP Projects
  - **6 to 10 years**
  - **11 to 20 years**
- Trigger Based Road Map Development



5-Year CIP Project Sheet

NapaSan

Neuros Blowers Replacement Project — CIP18720

Project Background:
The District's WWTP has an existing Neuros Blower and an existing multistage centrifugal blower. Since the replacement of the aeration basin diffusers an implementation of ammonia based D.O. control, the blower cannot be turned down low enough.

Project Justification:
The current blower configuration does not allow for the required air turn downs and therefore results in energy wastage at lower flow rates. Addition of a smaller Neuros blower will result in significant savings.

Risk Assessment:
This project is identified as low risk due to the presence of two additional blowers. However, this project will provide energy savings.

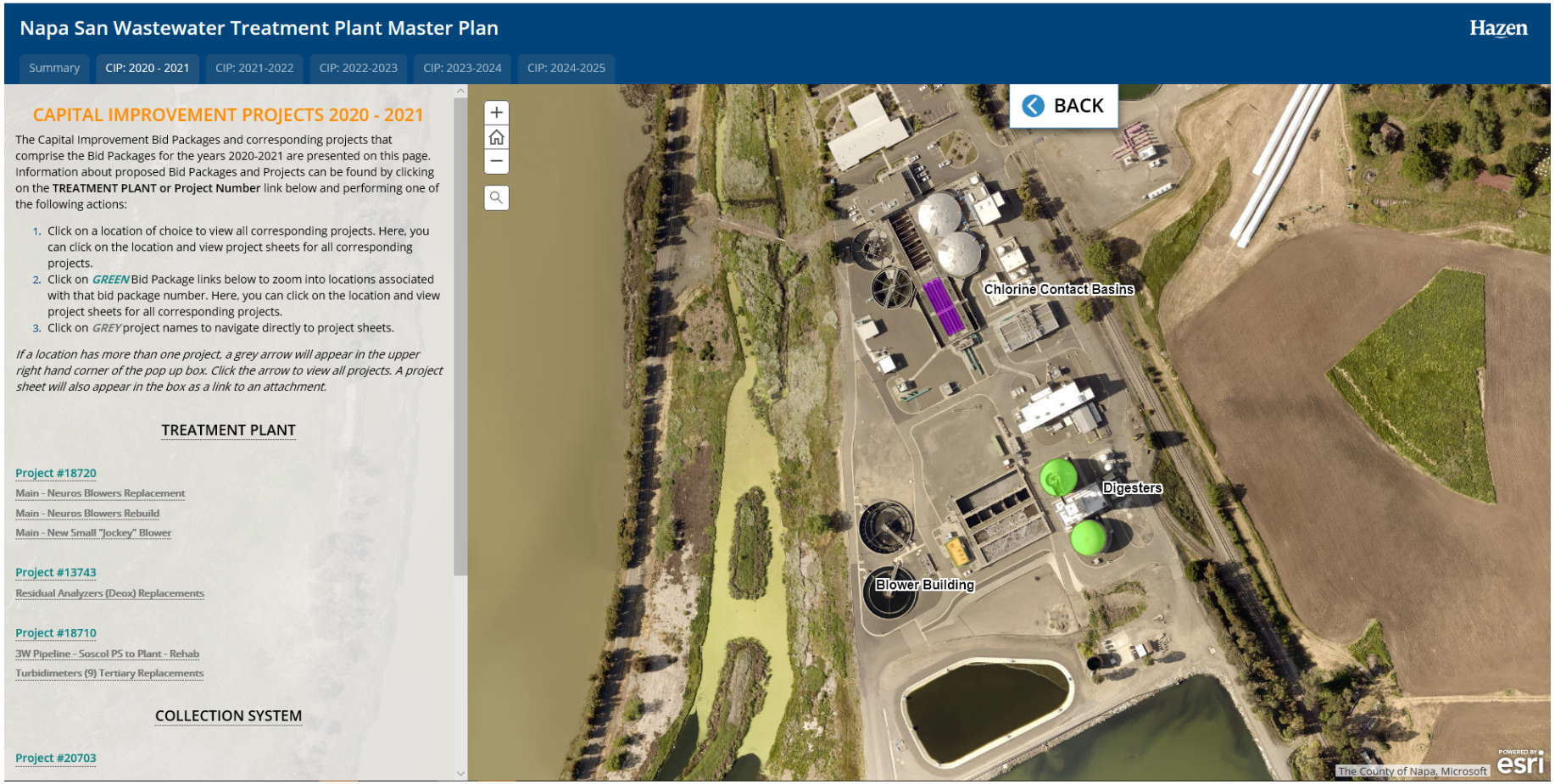
System:	Napa SVRF
Process:	Liquid Processes
Sub-process:	Blower Building
Discipline:	Mechanical
Lead Department:	Engineering
Priority:	Mandate
	X Necessary
	Desirable
Benefit / Cost Ratio:	3.0
Estimated Construction:	FY2021-FY2022
Total 5-Year Funding ($2020):	$ 1,000,000
Estimated Funding After FY22/23 ($2018):	$ 0
Total Project Funding ($2020):	$1,000,000

Funding Request

Funding Source:	Source	Share (%)	Source	Share (%)
	Wastewater Cap Asset Fund	0%	Recycled Water Fund	0%
	Wastewater Cap Asset Rep Fund	100%	Bay Point Cap Asset Rehab Fund	0%
	Wastewater Cap Exp Fund	0%	Household Haz Waste Fund	0%
	Advanced Treatment Fund	0%	Outside Funding	0%
			TOTAL	100%

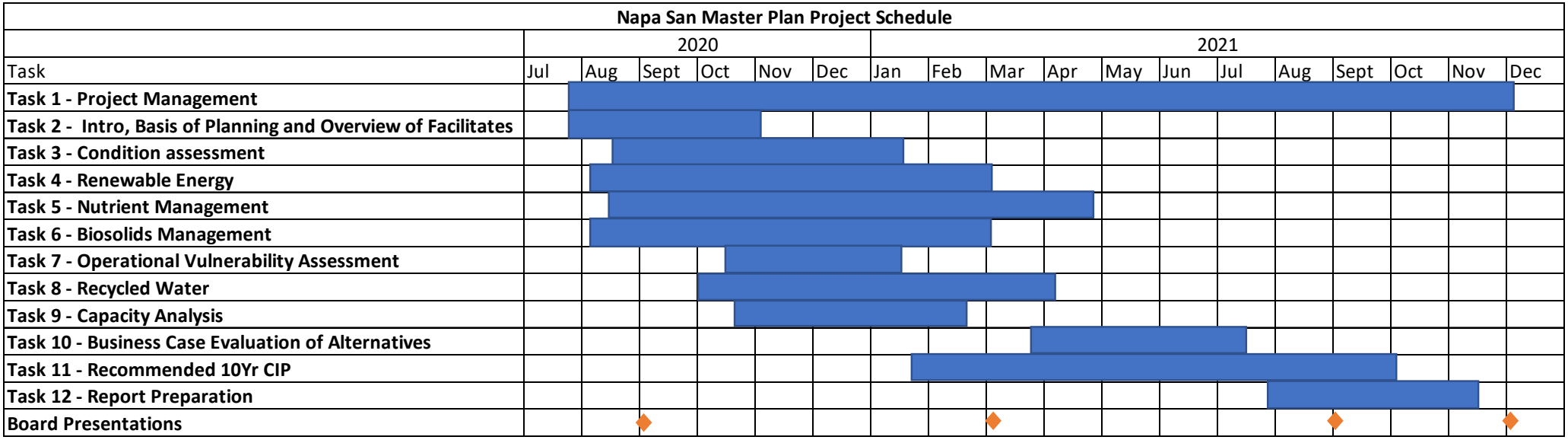
Phase	FY 20/21	FY21/22	FY22/23	FY23/24	FY24/25	Future Funding
Planning	$50,000					
Design/Permitting	$ 150,000					
Construction/CM		$800,000				
Total Funding	$ 200,000	$800,000				

Dynamic Tools to Help District Visualize the Project



Schedule

Master Plan Project Schedule Includes Several Check Ins with the Board



List of Board Meetings
- September 2020 (Kickoff meeting)
- March 2021 (Update)
- September 2021 (Update)
- December 2021 (Master Plan Approval)

Master Plan Follow-up Board Meeting

Areas Completed or Nearing Completion:

- Condition Assessment
- Energy Evaluation
- Near Term CIP Update
- Developed Nutrient, Biosolids and Recycled Water Alternatives
- Identified Operational Vulnerabilities and Capacity Bottlenecks

We will Seek Board Feedback on:

- Near Term Capital Improvement Projects
- Shortlisted Nutrient, Biosolids and Recycled Water Alternatives

Questions?