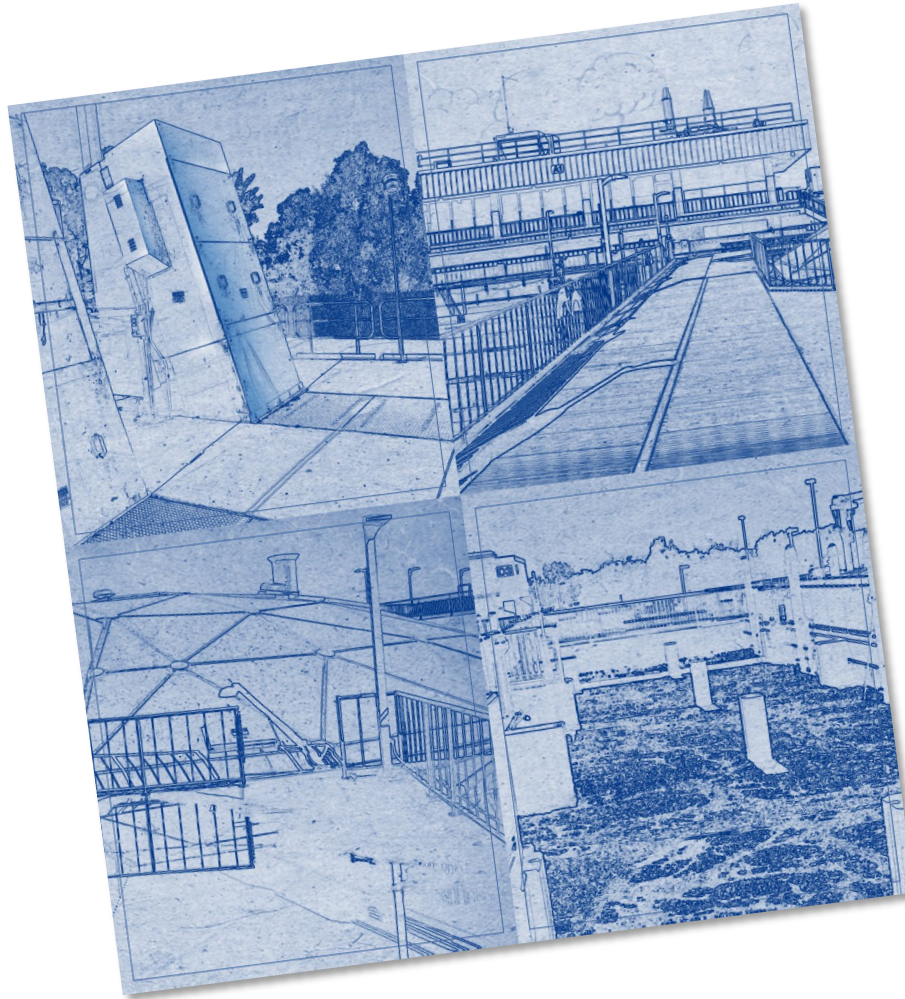




Wastewater Treatment Plant Master Plan

Board Presentation No.3

February 17, 2021



Agenda

- Introductions
- Master Plan Recap
- Master Plan Focus Areas Update
- Schedule

Master Plan Recap

Recap From the Last Meeting



Master Plan Focus Area Update

This Master Plan Focuses on the Following Areas



Condition Assessment

Prioritize near, intermediate, and long-term needs.



Wastewater Process Optimization

Meet regulatory requirements in a financially sustainable manner.

Provide Near-term solutions that allow flexibility for long-term objectives.



Energy Management

Drive towards energy self-sufficiency.

Position District to best implement and manage conservation practices and increase efficiency.



Recycled Water & Potable Reuse

Improve level of service throughout facility.

Position District to navigate changes in recycled water and evolving regulations/permitting.



Biosolids Management

Provide flexibility to navigate emerging biosolids markets.

Position district to best implement and manage practices.



CIP & Plan Development

Utilize trigger-based solutions and tools that best leverages existing infrastructures and minimizes impacts to rate payers.



Condition Assessment Update

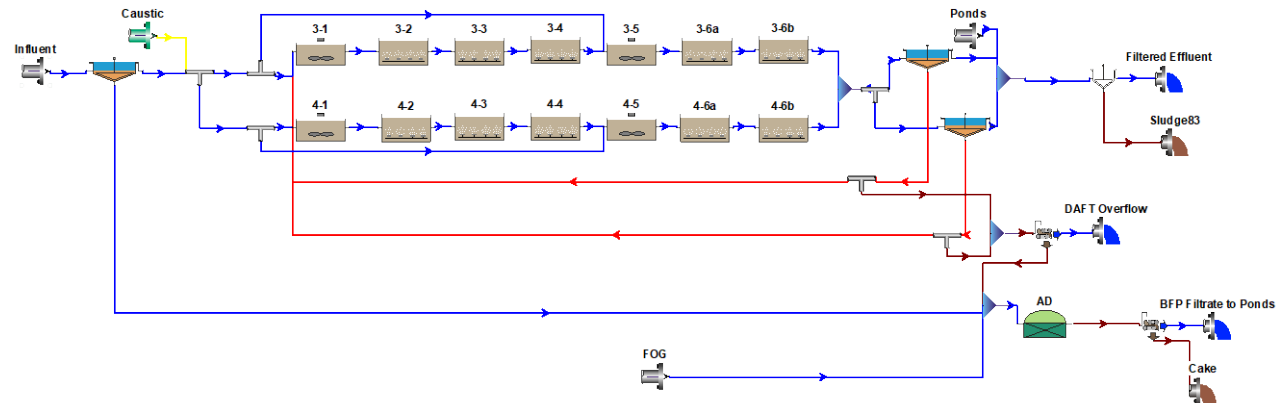
- Developed the Asset Register
- Conducted a Desktop Condition Assessment
- Identified Assets for Focused Condition Assessment
- Coordinated with Staff on Upcoming CIP

							CMMS	Expected	Remainin	PoF%	PoF Le	Assoc	Proce			Total Co	Rounded			Risk	Risk L	Ri	Focused Condit	Napa San	
Size1	Unit1	Size2	Unit2	Size3	Unit3	Quant	Comments	Useful Life	g Useful Life				Level	Asset-Level CoF		5)	Total (1-5)	CoF Le	Score	Level	Matrix	Assessment	Review	Commen	Status
66 IN	12 KV					1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
60 IN	12 KV					1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
60 IN	10 KV					1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
60 IN	12 KV					1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
60 IN	KV					1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
IN	12 KV					1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
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IN	KV					1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
IN	120 VAC					1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
IN	480/120 VAC					1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
HP						1		10	6	40%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	1.4 Medium R	0.4-4	Yes			Pat		
HP						1		10	6	40%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	1.4 Medium R	0.4-4	Yes			Pat		
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IN	KV					1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
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						1		10	6	40%	Low PoF	200-IPS	4.4	4	3.5	3	High CoF	1.1 Medium R	0.4-3	Yes			Pat		
						1		10	6	40%	Low PoF	200-IPS	4.4	4	3.5	3	High CoF	1.1 Medium R	0.4-3	Yes			Pat		
						1		10	6	40%	Low PoF	200-IPS	4.4	4	3.5	3	High CoF	1.1 Medium R	0.4-3	Yes			Pat		
						1		10	6	40%	Low PoF	200-IPS	4.4	4	3.5	3	High CoF	1.1 Medium R	0.4-3	Yes			Pat		
365 HP						1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
345 HP						1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		
135 HP						1		15	11	27%	Low PoF	200-IPS	4.4	4	3.5	4	High CoF	0.9 Low Risk	0.3-4	Yes			Pat		



Wastewater Process Optimization Update

- Reviewed Historical Data
- Develop Flow and Load Projections
- Conducted Special Sampling
- Calibrated Biowin[™] Model
- Identified Alternatives to be evaluated

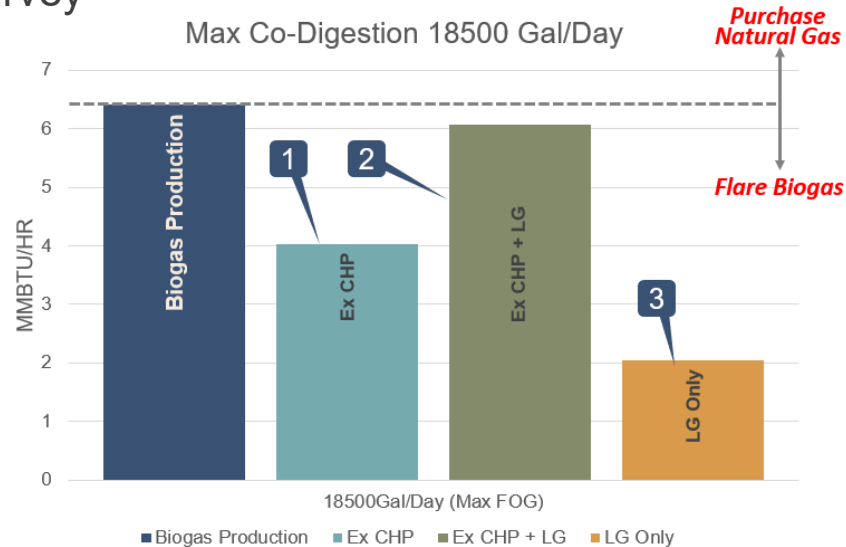




Energy Update

- Preliminary Review of Linear Generator Options
- Developed the EBAT model
- Investigating RNG Option
- Initiated the High Strength Waste Survey

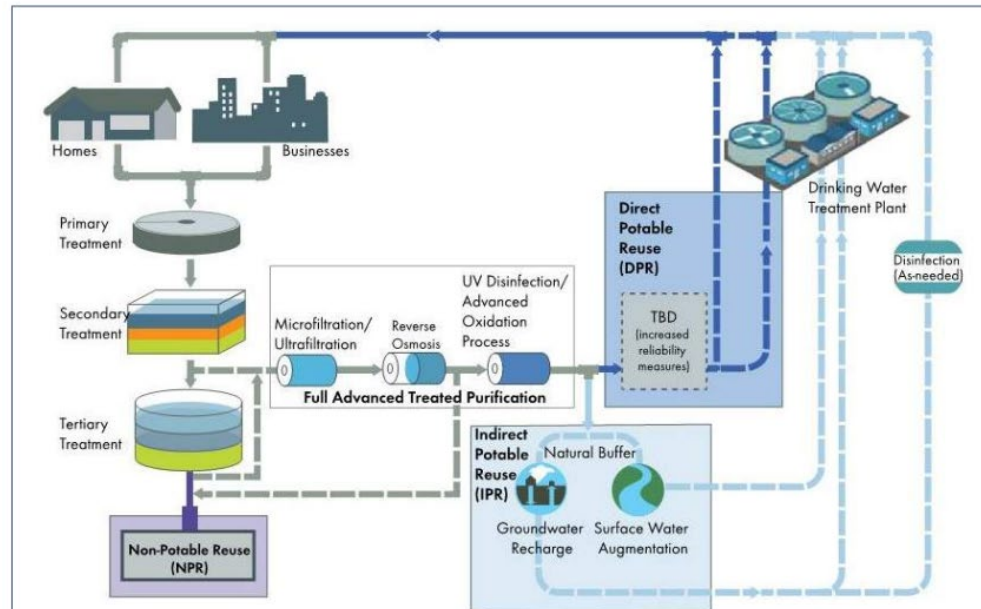
- 1 Existing CHP can use ~63% of the available biogas.
- 2 Existing CHP + Linear Generator can utilize all biogas produced and operate at 100% load
- 3 Linear Generator only can only ~29% of the available biogas





Recycled Water Update

- Revised Historical Demand
- Confirmed Allocations and Projections
- Established the alternatives to be evaluated for Potable Reuse

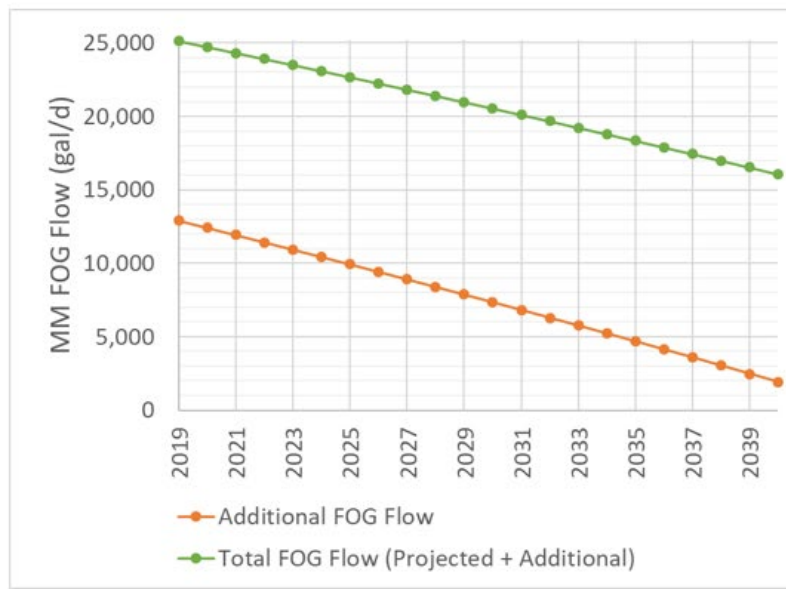
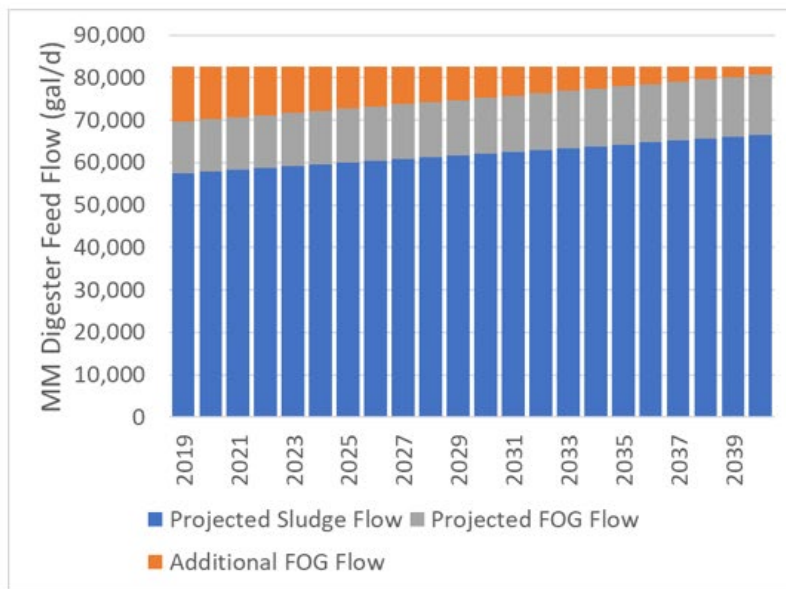


From CUWA 2014



Biosolids Update

- Reviewed Historical Data
- Established Preliminary Projections for Digester Capacity



Schedule

Master Plan Project Schedule and Future Check Ins with the Board

Napa San Master Plan Project Schedule																	
	2020						2021										
Task	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
Task 1 - Project Management																	
Task 2 - Intro, Basis of Planning and Overview of Facilities																	
Task 3 - Condition assessment																	
Task 4 - Renewable Energy																	
Task 5 - Nutrient Management																	
Task 6 - Biosolids Management																	
Task 7 - Operational Vulnerability Assessment																	
Task 8 - Recycled Water																	
Task 9 - Capacity Analysis																	
Task 10 - Business Case Evaluation of Alternatives																	
Task 11 - Recommended 10Yr CIP																	
Task 12 - Report Preparation																	
Board Presentations																	

List of Board Meetings

- September 2020 (Kickoff meeting)
- February 2021 (Update)
- July 2021 (Update)
- December 2021 (Master Plan Approval)

Next Master Plan Follow-up Board Meeting

Areas Completed

- 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