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Wastewater Treatment Plant Upgrade

Preliminary Design
Cost Estimate Discussion
January 19, 2021

FORSGREN Associates Inc.

Project Goals

1) Provide best long-term solution at the best cost.
2) Meet the expected growth demands.
3) Convert process to biological nutrient removal.
4) Design for easier future expansion.
5) Provide Type II reuse water, with space for Type I.
6) Meet future low nutrient limits for Utah Lake with minimal changes.
7) Reduce odors.
8) Improve staff safety:
   - Equipment maintenance challenges.
   - Equipment replacement difficulties.
   - Electrical system safety issues.
9) Leverage existing assets first:
   - Use existing site.
   - Reuse/repurpose existing buildings/structures where possible.
10) Reduce ongoing maintenance costs.

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Summary

- Preliminary cost estimate: $50M-$55M
- How does this compare?
  - In line with neighboring cities.
- Why are costs higher?
  - Vision for the project (scope) has changed.
  - Construction costs have escalated due to supply problems and labor shortages (COVID).
- How are we minimizing impact of higher costs?
  - Getting more accurate costs earlier.
  - Reusing buildings/structures where possible.
  - Considering ways to reduce scope.
  - Looking at rates/financing options.

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Cost Comparison

- Payson: $52M/4.0 MGD = $13.00/gallon
- Salem: $20M/1.5 MGD = $13.33/gallon
- Spanish Fork: $115M/6.6 MGD = $17.42/gallon
- Provo: $113M/10 MGD = $11.30/gallon

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Causes of Cost Increase

- Construction cost escalation
- Underestimation of original scope
- Vision of the project has evolved (goals)

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Construction Cost Changes

- Metrics for the past year
  - Construction cost index up 8%
  - Consumer price index up 6%
  - Producer price index up 6%
- High volume of local construction work
- Labor shortages
- Materials supply problems
- COVID
- *Construction costs will continue to rise*

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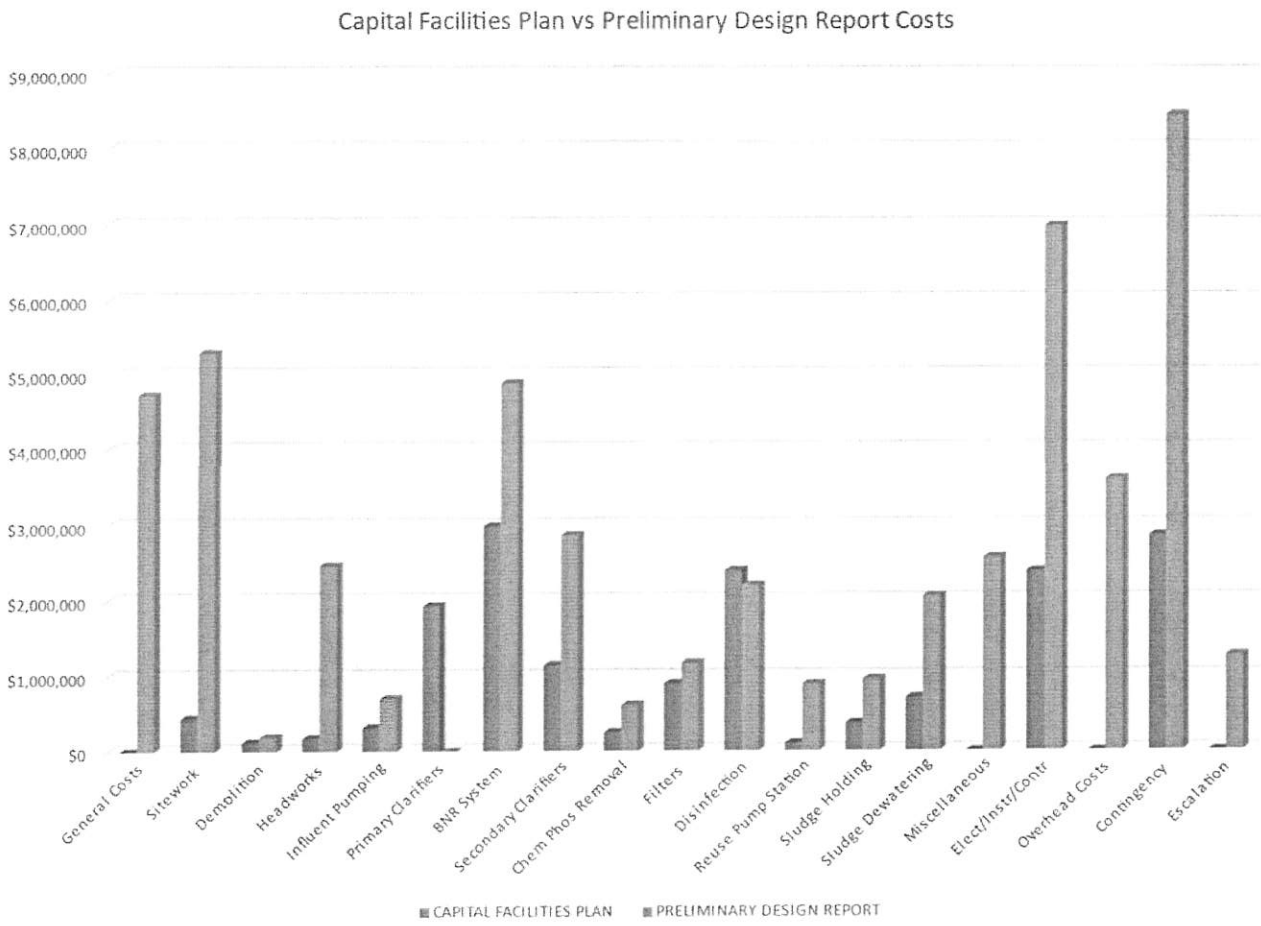
Cost Comparison with Facility Plan



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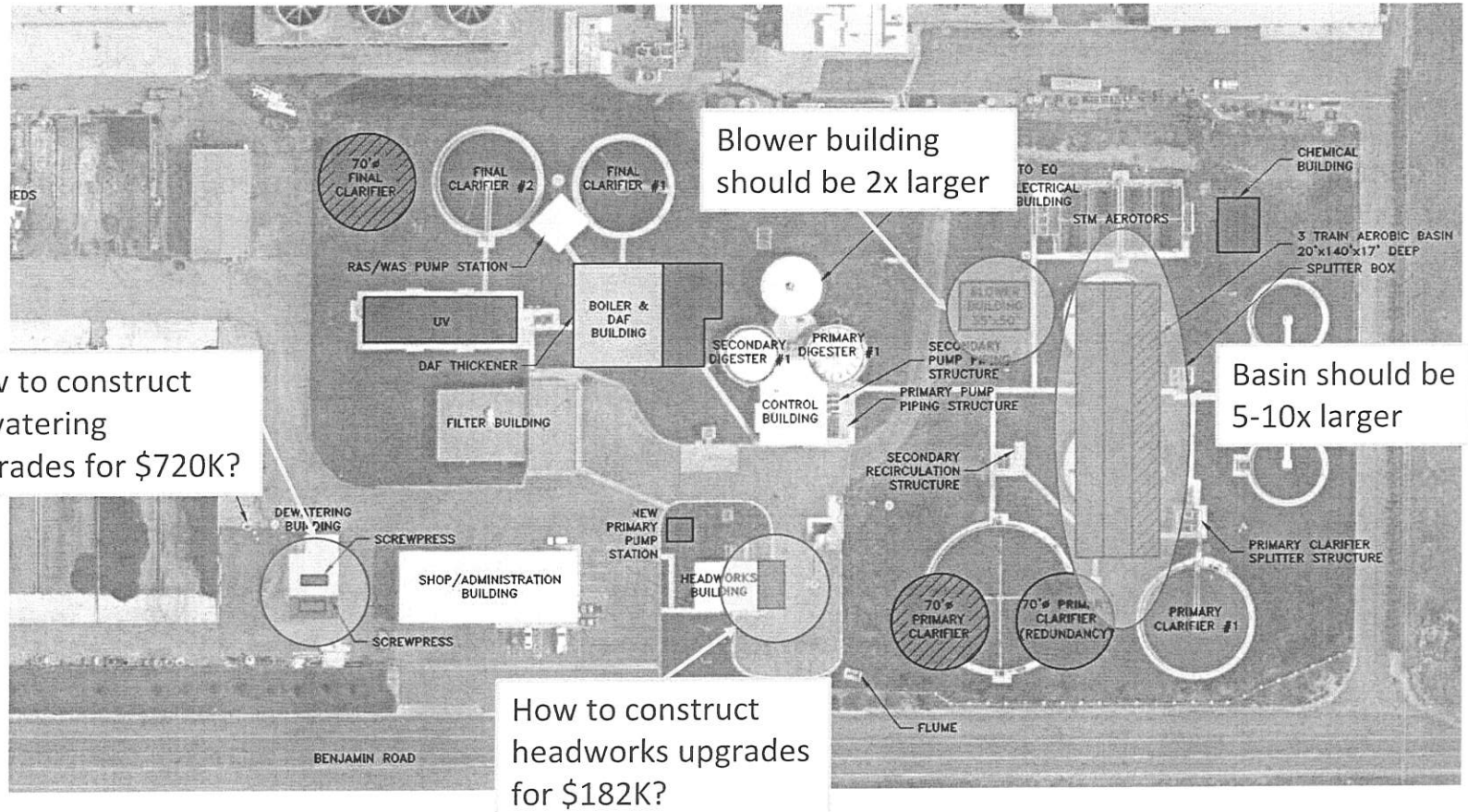
Facility Plan Evolution



Blower building should be 2x larger

How to construct dewatering upgrades for $720K?

Basin should be 5-10x larger

How to construct headworks upgrades for $182K?

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New Major Structures

- Headworks
  - Existing screens capacity: 4.5 MGD each (2 units)
  - Would need to add on to building, connect to old
- Secondary Clarifier
- RAS/WAS Pump Station
- Sludge Dewatering Building
  - Existing press capacity: 225 LB/HR
  - Required phase 1 capacity: 1,000 LB/HR
- Sludge Tanks Blower Building
  - Blowers: 6' L x 5' W x 6.5' T
- Reuse Tank and Pump Station
- Odor Control
- Water Department Building

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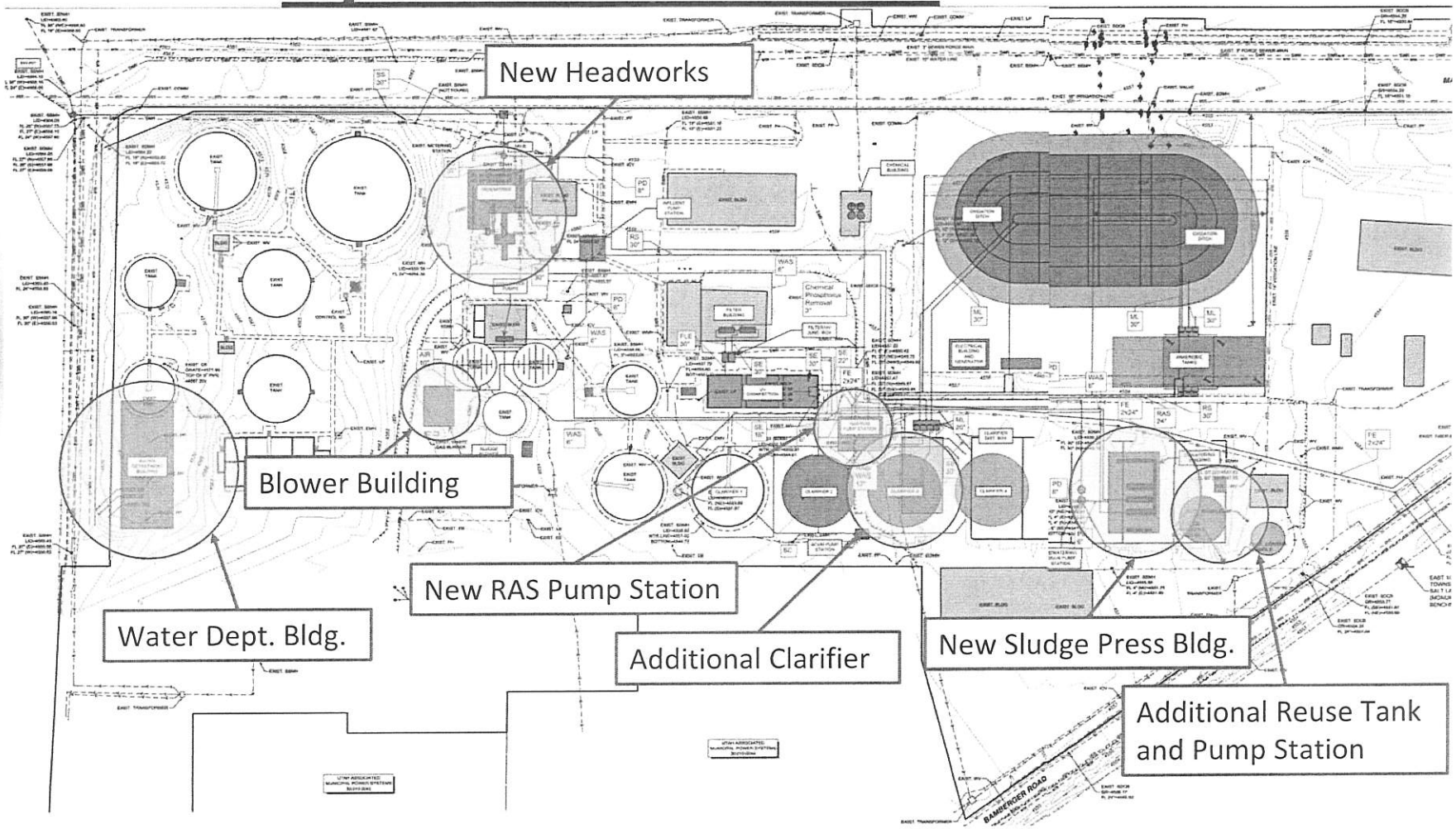
Updated Site Plan



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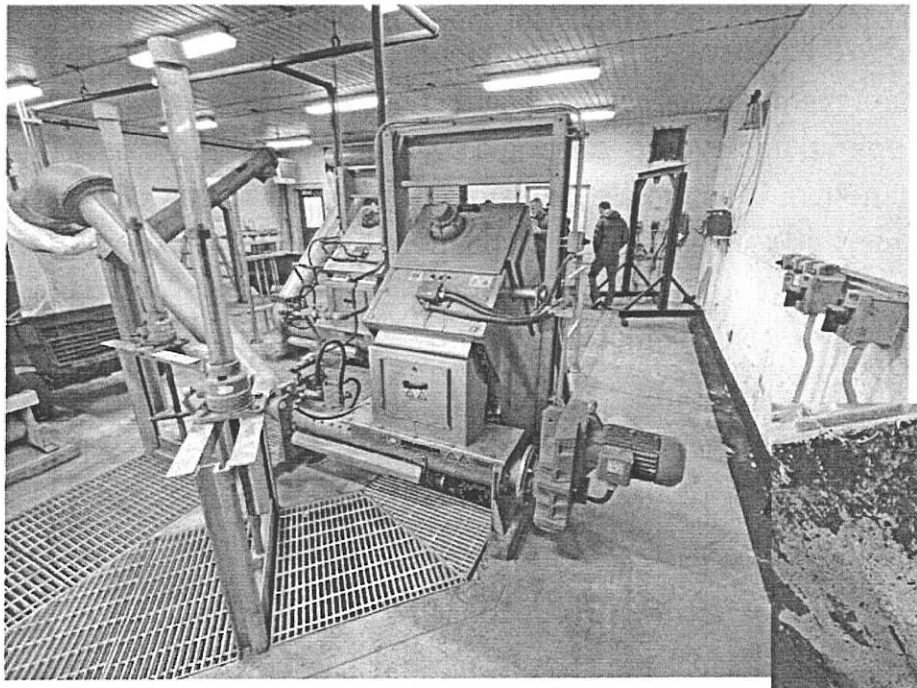
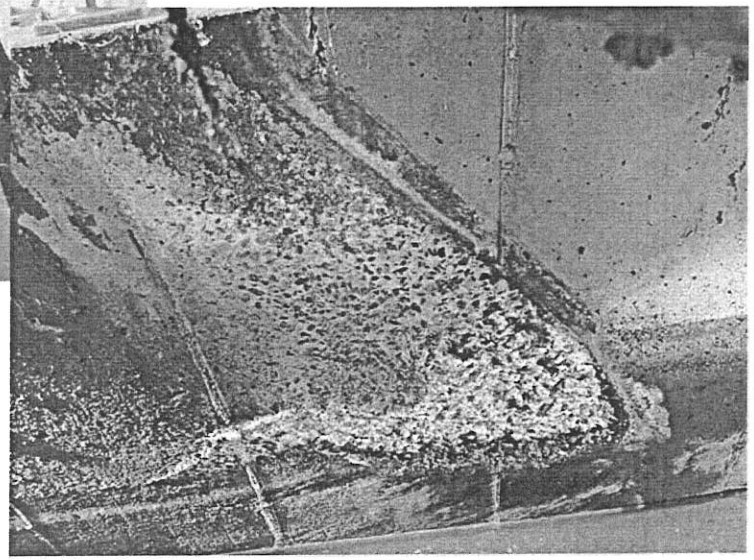
Existing Condition - Headworks



- Electrical clearances inadequate (code violation)
- Difficult to access equipment
- No cranes to remove equipment
- Ventilation system not functional
- Electrical area classification violations
- Concrete degradation
- Equipment damage by H_2S



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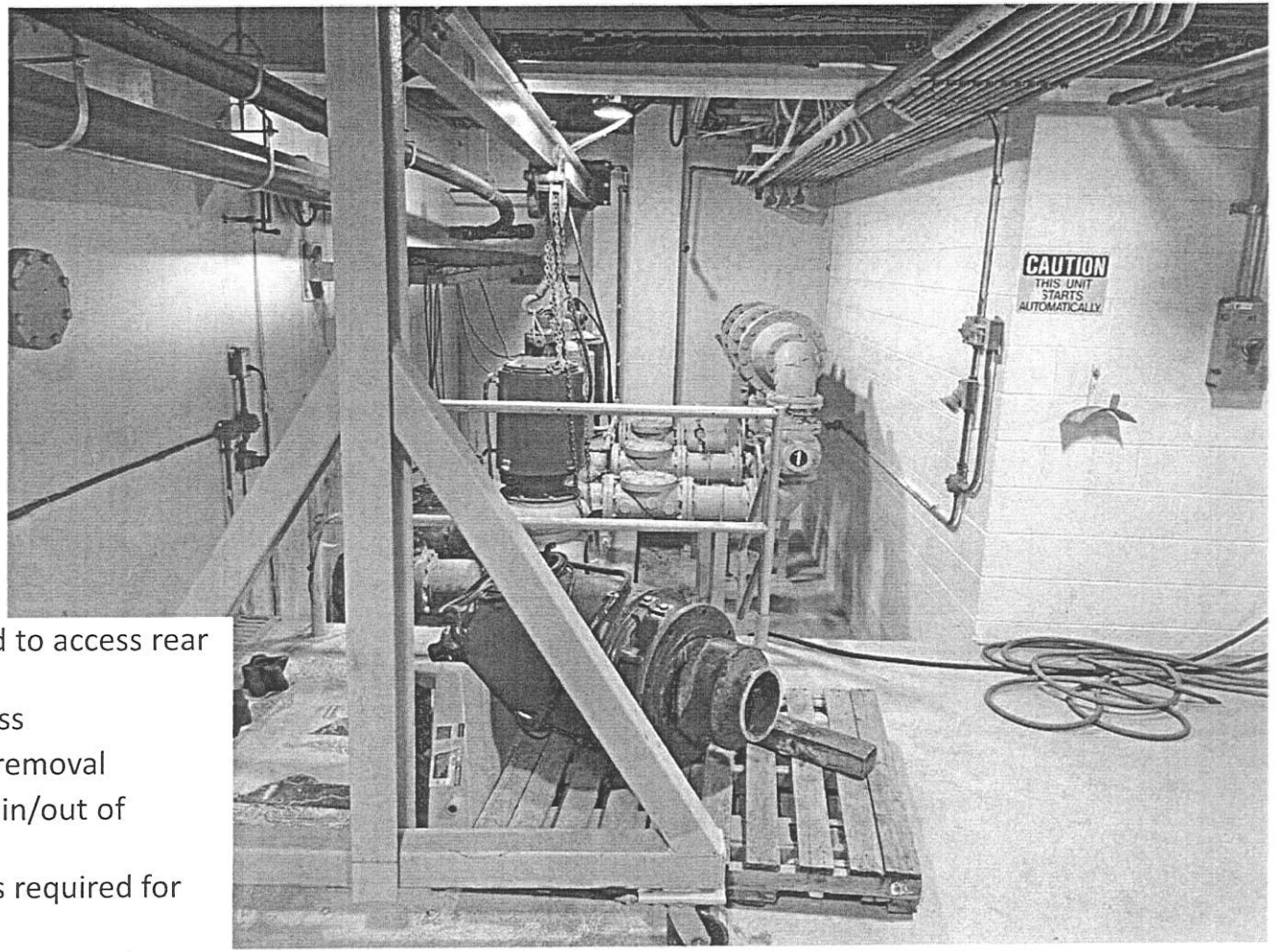
Existing Condition – Primary Pump Sta.



- Plant shutdown required to access rear pumps
- Limited equipment access
- Safety issue with pump removal
- Challenge getting pump in/out of building
- Additional city resources required for maintenance

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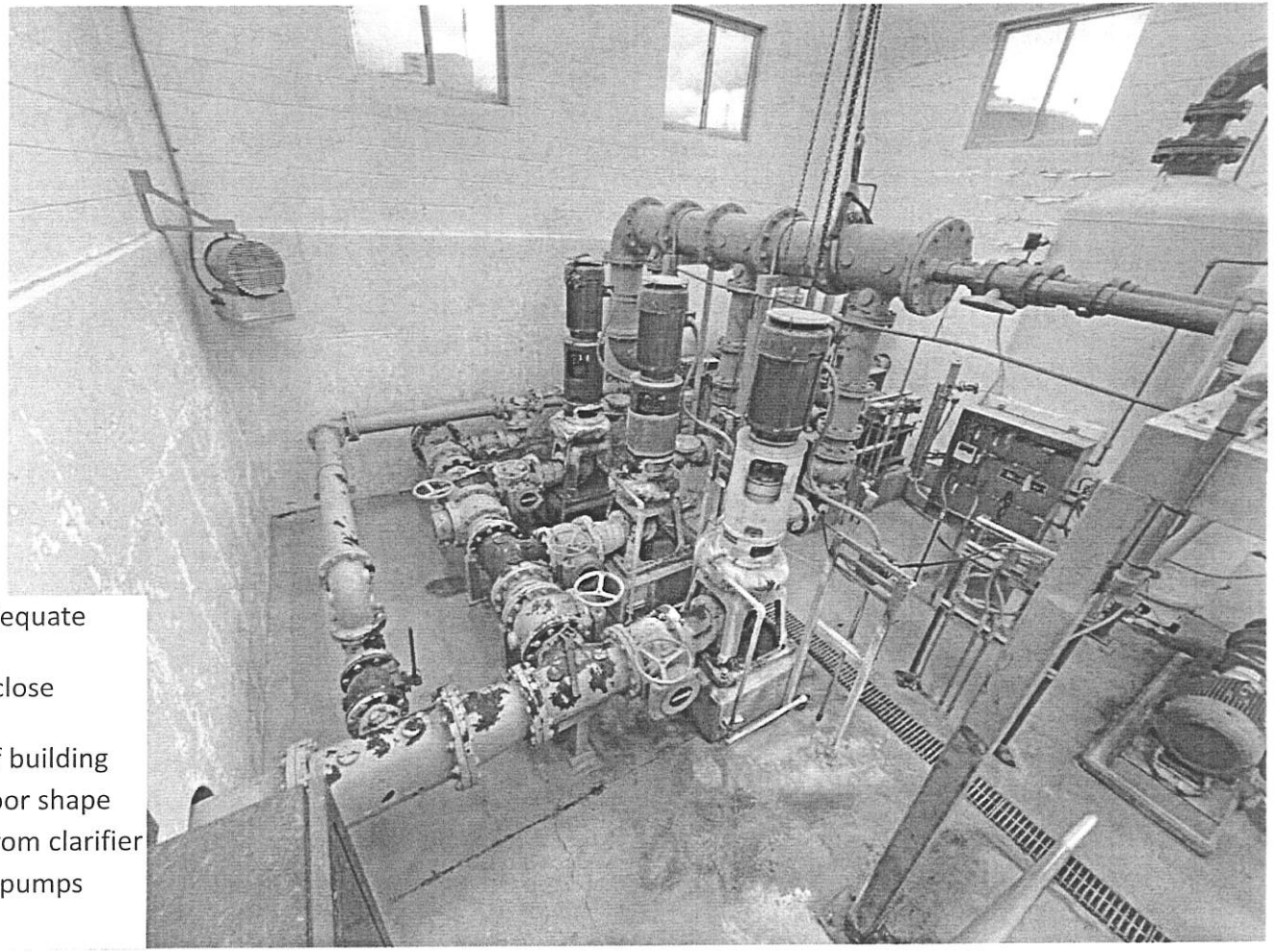
Existing Condition – RAS Pump Sta.



- Electrical clearances inadequate (code violation)
- Equipment installed too close together
- No way to get tank out of building
- Building is generally in poor shape
- No way to isolate flows from clarifier
- No way to safely remove pumps from building

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Financing and Rates Considerations

- Financing
  - Look at 30-year loan, use excess funds to pay off early
  - Get as much funding as possible from DWQ
- Impact Fees
  - Can increase to $3,000 for WWTP portion
- Rates
  - DWQ affordability limit = $53.67

Item	Current Rates	Original $23M Project	Updated $55M Project			
		20 YR Loan, w/o Imp. Fees	20 YR Loan, w/o Imp. Fees	20 YR Loan, w/ Imp. Fees	30 YR Loan, w/o Imp. Fees	30 YR Loan, w/ Imp. Fees
Base Rate	$36.18	$42.00	$61.00	$54.00	$52.00	$45.00
Volume Rate (per 1,000 gal)	$1.18	$1.50	$1.50	$1.50	$1.50	$1.50
Avg Monthly Bill (5,000 gal)	$42.08	$49.50	$68.50	$61.50	$59.50	$52.50

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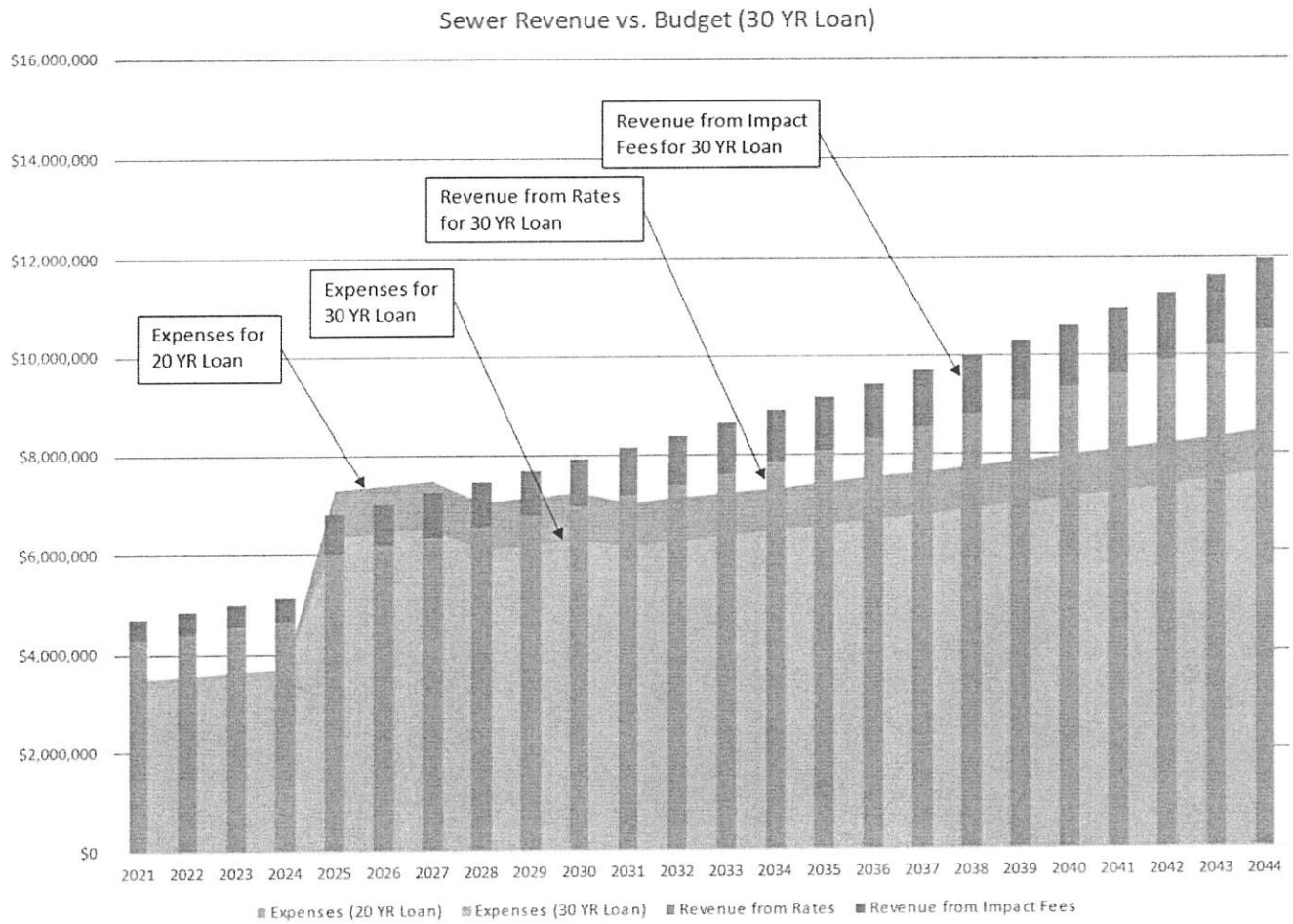
Revenue vs. Budget Challenge



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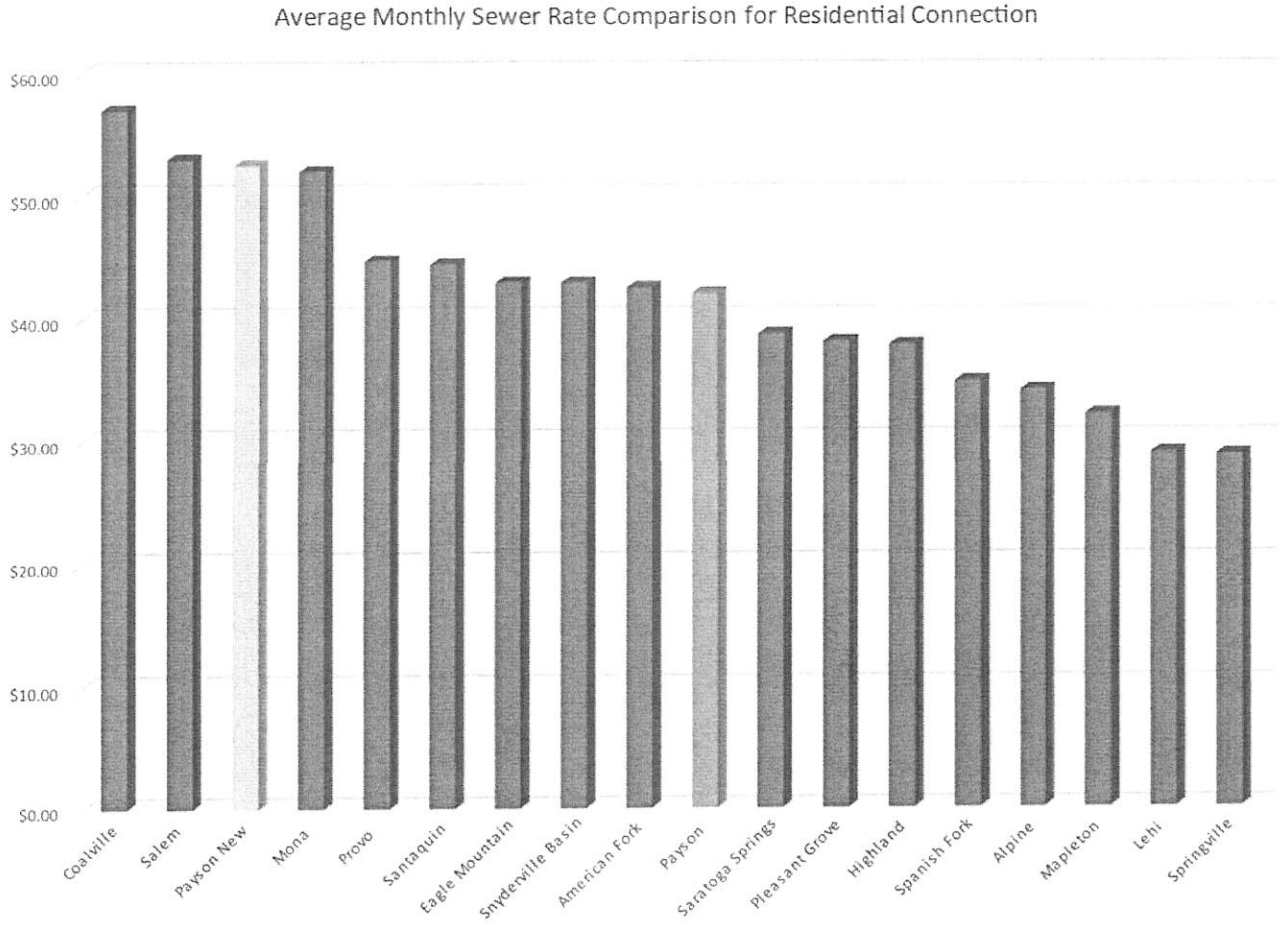
Rate Comparison



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What's Next?

- Obtain additional funding from state
  - Additional loan funds ($2M-$10M)
  - New principal forgiveness funds ($2M)
  - Water Quality Finance Committee Meeting – January 20
  - Water Quality Board Meeting – January 26
- Close state loan
  - Parameters resolution to authorize full budget for project (February)
  - Resolution for new rates (February/March)
  - Need to close loan in early May
- Finalize full funding package
  - Targeting summer of 2022
- Move forward with design
  - Need to be under construction in fall of 2022
  - Deadline to complete construction is fall of 2024

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