



# Water CIP Workshop

April 17, 2024



Grant Watanabe, P.E.

Director of Public Works and Engineering Services



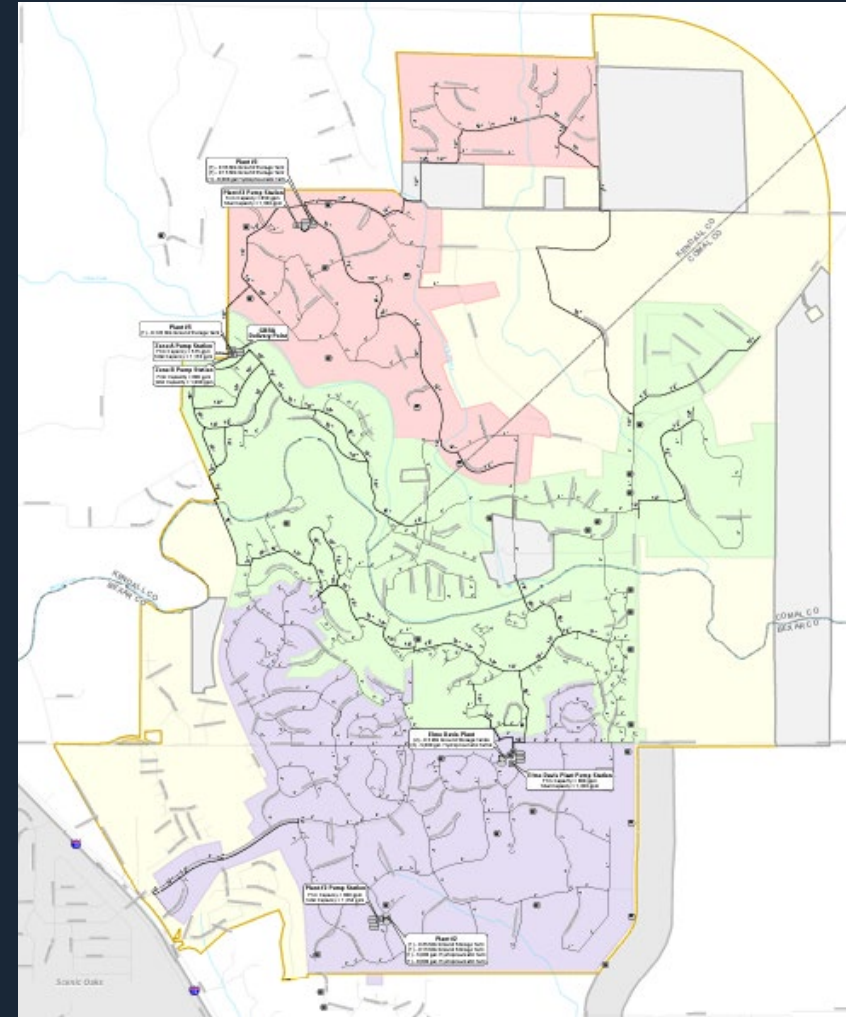
# Agenda

- Overview
- Projects Completed
- Approved 5-year Water CIP
  - Willow Wind/Red Bud Hill/Rolling Acres Trail Water Line
  - Elevated Storage Tank
  - Expand Plant No. 5
  - Old Fredericksburg Water Line
  - Elmo Davis GST #1 & #2 Rehab
  - Upgrade Electrical at Plant No. 3
  - 4 other smaller projects
- Other Projects for Consideration
  - SAWS Emergency Interconnect
  - Plant 4 Ground Storage Tank
- Discussion



# Overview

- Much of the City's water infrastructure was originally built in the 1970s. It now includes:
  - 3 pressure zones
  - 5 water plants
  - 29 potable water wells
  - 10 irrigation wells
  - 85 miles of water mains
- Currently serves 3,237 water customers





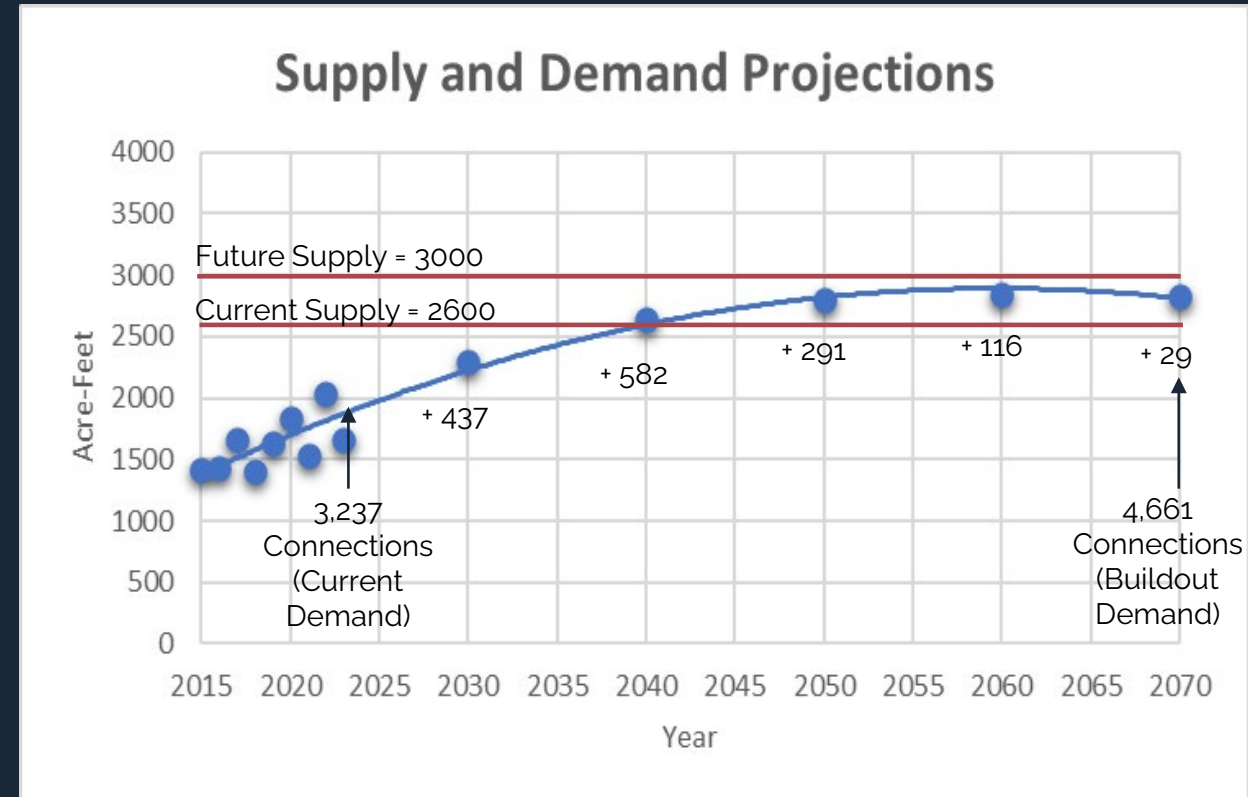
# Overview

## Current Supply Sources (2,600 acre-ft)

- City-owned wells
  - Annual Production: 400-900 acre-ft
  - Firm Capacity: 750 acre-ft
- GBRA
  - Current Purchase: 1344 acre-ft
  - Contract Reservation: 1850 acre-ft

## Future Supply Needed (~400 acre-ft)

- GBRA
  - Available in 2038 timeframe
- SAWS
  - Wholesale service agreement subject to SAWS Board approval



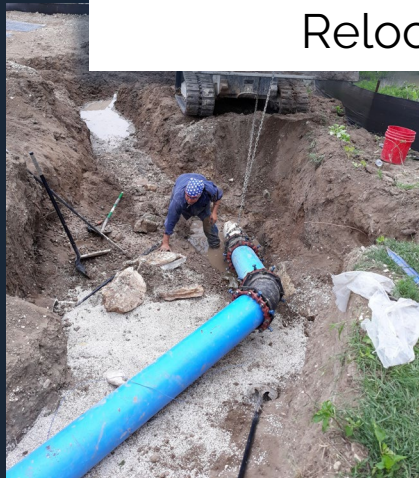
# Projects Completed



Balcones Creek Water Line Relocation



Plant No. 2 9000 Gallon Hydro-pneumatic tank



# Approved 5-Year Water CIP



	2023	2024	2025	2026	2027	2028	Total
Willow Wind/Red Bud Hill Water Line (29R)	\$35,836	\$34,869	\$879,807	-	-	-	\$950,512
Elevated Storage Tank (2W)	335,117	161,833	603,933	3,763,968	3,914,527	-	8,779,378
Rolling Acres Trail Water Line Rehab (28R)	30,011	36,783	610,941	-	-	-	677,735
Expand Plant No. 5 (Impact Fee) (5W)	5,856	223,643	1,320,800	-	-	-	1,550,299
Old Fredericksburg Water Line (21W)	25,857	266,063	270,400	-	-	-	562,320
Upgrade Elmo Davis Pump Station (1R, 2R)	-	-	400,400	-	-	-	400,400
Upgrade Electrical at Plant No.3 Pump Station (5R)	-	-	74,419	318,519	-	-	392,939
Upgrade Electrical at Elmo Davis Pump Station (3R)	-	-	70,348	320,530	91,743	-	482,620
Well K6 Electrical (11R)	-	-	60,000	-	-	-	60,000
Well CR1 Electrical (16R)	-	-	60,000	-	-	-	60,000
Expand Elmo Davis Water Plant Zone C (Impact Fee) (6W)	-	-	-	193,240	1,094,715	300,408	1,588,363
<b>Total Water</b>	<b>\$432,677</b>	<b>\$723,191</b>	<b>\$4,351,047</b>	<b>\$4,596,257</b>	<b>\$5,100,985</b>	<b>\$300,408</b>	<b>\$15,504,566</b>

Cash Funded

Requires Debt Funding

# Past Ranking/Scoring Schemes



## “Must Do” Projects

- Regulatory driven
- System resiliency significantly improved based on current operations
- Improvements to infrastructure with known high O&M costs

## “Should Do” Projects

- Added system resiliency
- Reduction in O&M costs
- Potential for regulatory deficiencies

## “Nice to Do” Projects

- Minor O&M corrections
- Minor system resiliency improvements
- Growth related projects

Criteria	Weight	Maximum Score	Weighted Score
Regulatory Driver	3	5	15
Contractual Agreement	2	5	10
Health and Safety Impact	3	5	15
Operating and Maintenance Cost	2	5	10
Resiliency	2	5	10
Growth and Development	1	5	5
City Priority	1	5	5
Total Score Possible			70

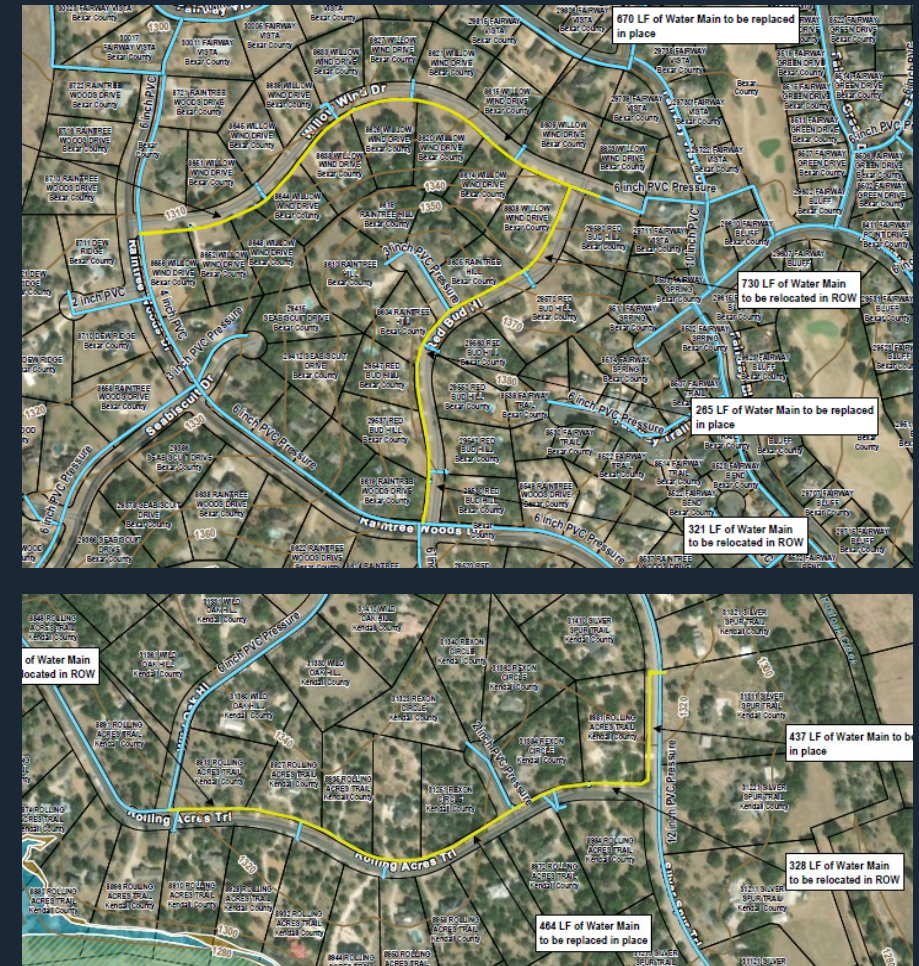
# Willow Wind/Red Bud Hill Water Line Replacement (29R) Rolling Acres Trail Water Line Replacement (28R)



- Project replaces approximately 3,300 feet of waterline on Willow Wind Drive/Red Bud Hill and approximately 2,300 feet of waterline on Rolling Acres Trail.
- Main breaks (3-4 per year) are becoming more frequent
- Reduces O&M costs, service disruption to customers, and water loss
- **Total Estimated Cost = \$1,628,247**

Prioritization Score: 48

“Must Do” Project (Resiliency, high O&M costs)





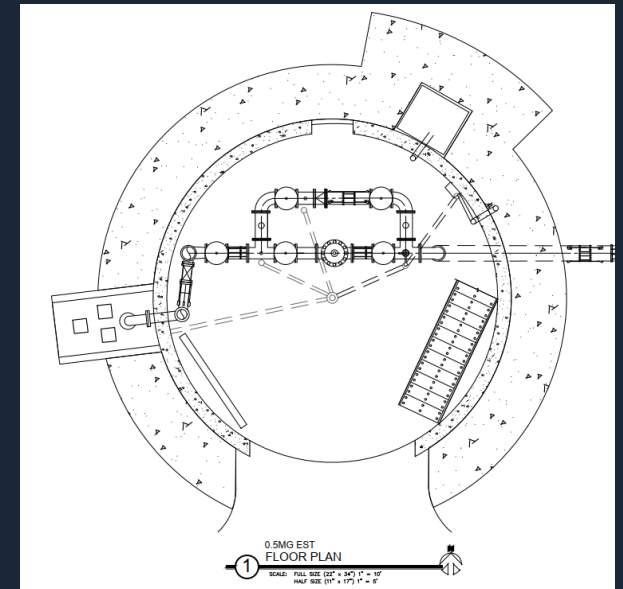
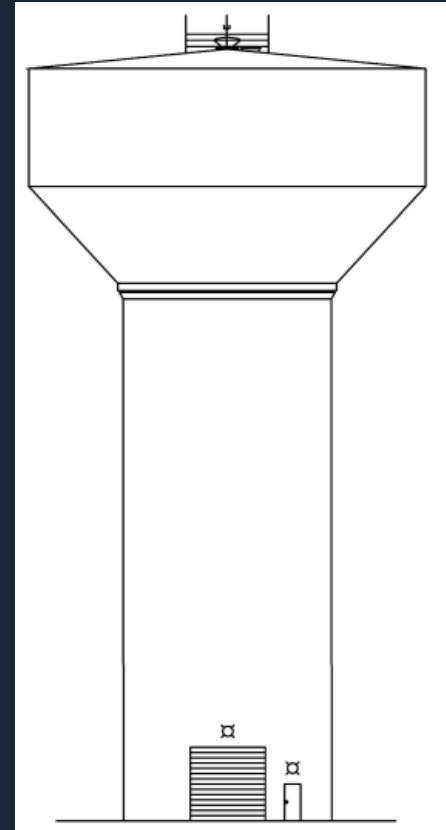
# Elevated Storage Tank (2W)



- Constructs a 500,000 gallon EST to improve water supply and pressure during peak demand, provide adequate fire protection, and reserve storage during extended power outage
- Large parts of the City fall below the NFPA minimum requirement to combat a house fire (1000 gallons per minute for 1 hour).
- In 2017, TCEQ cited the City for exceeding Zone A & C hydrotank capacity. The City responded that it plans to construct an EST to serve Zone A.
- **Total Estimated Cost = \$8,779,378**

Prioritization Score: 33

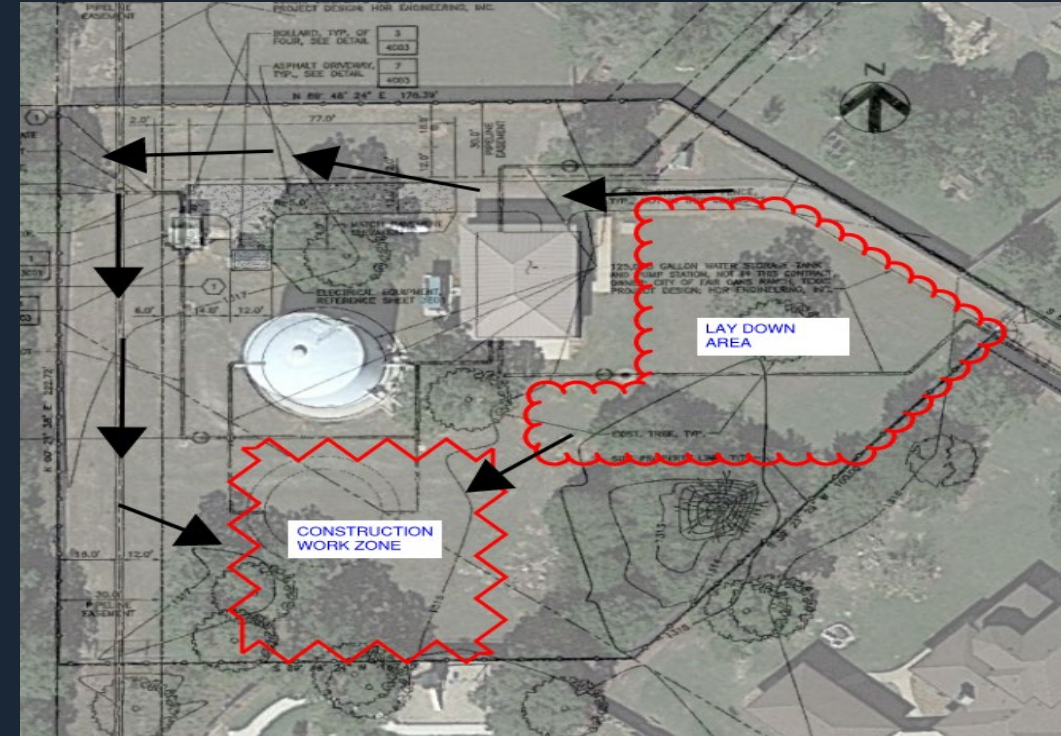
“Must Do” Project (Resiliency, Regulatory)



# Expand Plant No. 5 (5W)



- Constructs a new 500,000 gallon Ground Storage Tank (GST) at Plant 5 to improve utility operations and resiliency during periods of high demand and extended power outages.
- The existing 125,000 gallon tank turns over multiple times a day. It is not capable of meeting peak demand each summer.
- Plant 5 supplies GBRA water directly to Plant 3 (Zone A) and Plant 1 (Zones B and C). The GST storage will enable utility staff to pump water to where it is needed most.
- **Total Estimated Cost = \$1,550,299**



Prioritization Score: 34

“Must Do” Project (Resiliency, Regulatory)

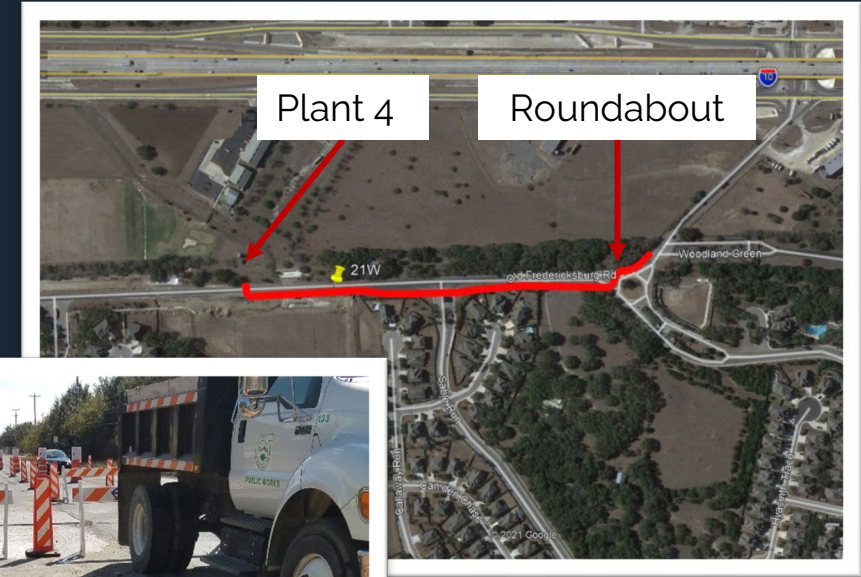
# Old Fredericksburg Water Line Replacement (21W)



- Project replaces approximately 2700 linear feet of water main along and under Old Fredericksburg Rd.
- Main breaks (2 per year) are becoming more frequent and expensive due to traffic control requirements.
- Planned in conjunction with Bexar County road reconstruction project to gain efficiencies and reduce closure impact.
- **Total Estimated Cost = \$562,320**

Prioritization Score: 26

“Should Do” Project (Reduced O&M, City Priority)





# Elmo Davis GST #1 & #2 Rehab (1R, 2R)

- Elmo Davis GSTs were last coated in 2004 and 2010. Due to the harsh Texas climate, tanks are normally coated every 10 years (exterior) and 15 years (interior) to prevent deterioration.
- As an alternative to CIP projects, staff recommends a long-term tank maintenance plan since all GSTs require regular inspection, cleaning, recoating and rehab to meet TCEQ requirements.
- **Total Estimated Cost = \$400,400**

Prioritization Score: 33

“Should Do” Project (Reduced O&M, Regulatory)



# Upgrade Electrical at Plant No. 3 (5R)



- Project installs Variable Frequency Drives (VFDs), modern electrical panels and other components to reduce wear and tear on equipment (motors, pumps, check valves, etc.) and improve utility operations.
- Plant 3 is the only major plant without VFDs.
- Existing electrical equipment is beyond its expected service life and requires replacement.
- **Total Estimated Cost = \$392,939**

Prioritization Score: 24

“Should Do” Project (Resiliency, Reduced O&M)



# Upgrade Electrical Elmo Davis Pump Station (3R) Expand Elmo Davis Zone C (6W)



- Project installs a VFD, electrical panel and other components for Pump 3 (backup) at the Elmo Davis Pump Station. Upgrades for Pumps 1 and 2 have already been completed.
- Recent pump upgrades at Plant No. 2 and planned upgrades at Plant No. 4 (both serve Zone C) have alleviated the need for Elmo Davis Zone C expansion at this time.
- **Total Estimated Cost = \$2,070,983**



Prioritization Score: 20 (3R) / 34 (6W)

“Nice To Do” Project (Minor Resiliency Improvement)

# Well K6 Electrical (11R) Well CR1 Electrical (16R)



- Project replaces electrical service head, panels, conductors and associated components. Existing equipment is beyond expected service life.
- As an alternative to debt financing, staff recommends addressing these repairs as part of the regular budget process (i.e. cash funding).
- **Total Estimated Cost = \$60,000 each**

Prioritization Score: 20 (11R), 16 (16R)

“Nice To Do” Project (Minor Resiliency Improvement)



# Other Projects for Consideration



Other Water Projects	2023	2024	2025	2026	2027	2028	Total
SAWS Emergency Interconnect	-	-	\$200,000	-	-	-	\$200,000
Ground Storage Tank at Plant No. 4	-	-	400,000	-	-	-	400,000
<b>Total Other Water</b>	-	-	<b>\$600,000</b>	-	-	-	<b>\$600,000</b>



# SAWS Emergency Interconnect



- Project constructs an emergency interconnect with SAWS to provide a backup water source for Zone C
- Improves resiliency in the event of extended power outage or other event where FORU is unable to provide adequate flow or pressure
- Planned location is near intersection of Fair Oaks Parkway and IH-10 Access Rd.
- **Total Estimated Cost = \$200,000**

Prioritization Score: New project  
"Must Do" Project [Resiliency, Regulatory (SB3)]



# Plant No. 4 Ground Storage Tank



- Project constructs a new 50-60,000 gallon tank to replace existing tank in poor condition (nearly 40 years old)
- Existing tank is undersized causing wells to frequently cycle on/off
- Increased storage capacity and standby generator (currently in construction) will improve resiliency and take advantage of high-producing wells
- **Total Estimated Cost = \$400,000**

Prioritization Score: New project  
"Should Do" Project (Resiliency, Potential Regulatory Deficiencies)





# Discussion

- Do you agree with the proposed projects?
  - Are there any projects to add or remove?
  - Is the timing logical?
  - Are the cost estimates reasonable?
  - Do you need additional info or analysis?
- 
- Are you comfortable recommending these projects be included in the upcoming 2024 bond program?