



**GRP Review Committee Meeting**  
**February 26, 2024**

# Item 1

## Call to Order

# Item 2

## Public Comments

# Item 3

## Approval of Minutes

# Item 4

## GRP Division Updates

**Item 5**  
**Lone Star Groundwater Conservation**  
**District Update**

## **Item 6**

# **Receive updates to the Water Conservation and Drought Contingency Plans**

# What are the Plans?

## Water Conservation Plan

75<sup>th</sup> Legislature enacted SB 1

Assists in achieving lasting, long-term improvements in water use efficiencies using strategies to reduce the amount of water withdrawn from a particular source, and to ensure that the water withdrawn is used in an efficient manner.

## Drought Contingency Plan

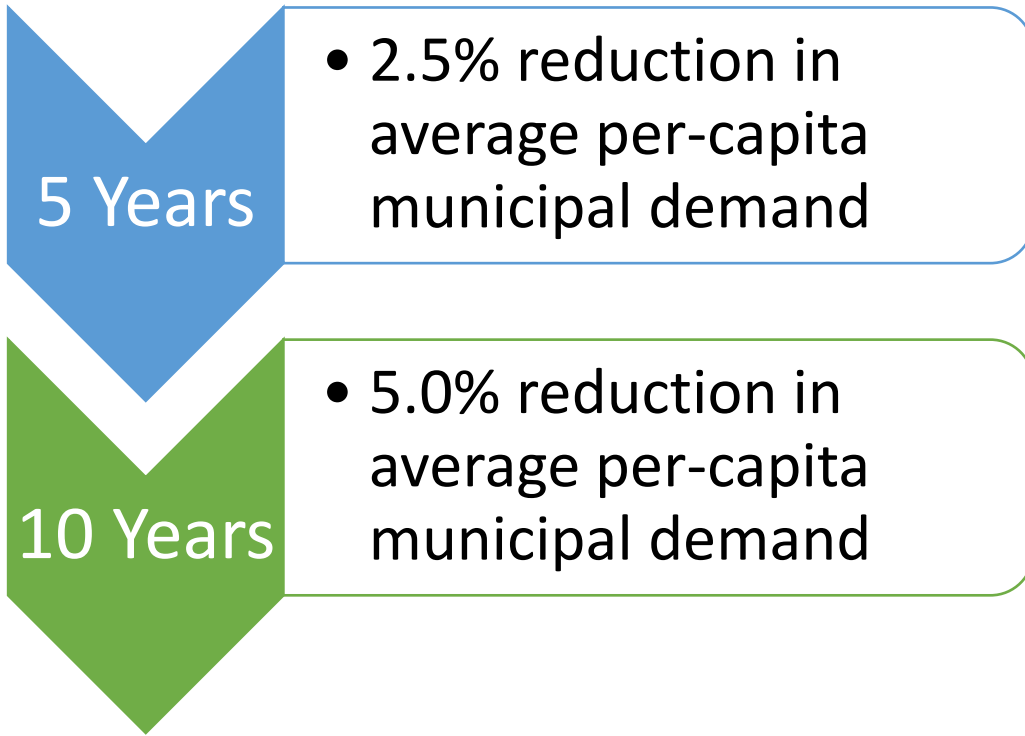
75<sup>th</sup> Legislature enacted SB 1

Short-term in nature, using temporary supply and demand management measures in response to temporary and potentially recurring water shortages and other emergencies.



# Water Conservation Plan

## Current & Proposed



💧 <u>Current goal -</u>	70.38 gpcd
💧 <u>Current gpcd (w/ 2 droughts) -</u>	102.67 gpcd
💧 <u>2019 – 2022 average gpcd -</u>	90.23 gpcd
💧 <u>2.5% reduction by the end of 2028 -</u>	88.0 gpcd
💧 <u>5% reduction by the end of 2033 -</u>	83.5 gpcd
💧 <u>Water loss less than 10%</u>	

# Drought Contingency Plan

## (GRP Division)

*GRP receives raw water from Lake Conroe that is treated to potable water. For this plan, the drought stage of the SJRA Lake Conroe Division is the main indicator of drought conditions in the GRP Division and will be used as the basis for initiating and terminating drought stages.*

Division	Stage	Trigger	Target Reductions	
			Municipal, Irrigation (Apr – Sept)	Municipal, Irrigation (Oct - Mar)
GRP	1	Lake Conroe @ 198' or equipment, pipeline, or sample failure	5%	5%
	2	Lake Conroe @ 196' or equipment, pipeline, or sample failure	10%	5%
	3	Lake Conroe @ 193' or equipment, pipeline, or sample failure	20%	10%
	4	Lake Conroe @190' or equipment, pipeline, or sample failure	30%	15%

# Next Steps

- Plans to be formally adopted by SJRA Board of Directors on March 28, 2024.
- Notifications will be sent to all Participants on April 01, 2024, notifying them of the new plans. (Language will be provided to Participants to insert in their DCP.)
- Plans will be submitted to the TCEQ and TWDB by May 1, 2024

**Item 7**  
**Receive FY2025 GRP Budget**  
**Recommendations**

## Fiscal Year 2025 Budget Development

Establish Budget Goals W/ GRP Review Committee and SJRA Finance Committee

Review O&M Historical Data, Project Water Demands and Identify Needs

Develop O & M Budget

## 10-Year Project Plan Development

Evaluation of Assets and Development of 10-Year Project Plan

Present 10-Year Project Plan to GRP Review Committee

Present 10-Year Project Plan to SJRA Board

Combine O & M Budget with Project Expenditures and Debt Service

Develop Draft Rates

## Presentations and Notifications

45 Day Notice to All Participants (prior to consideration of budget by GRP Review Committee)

Present Draft Division Budget and Rates to GRP Review Committee

Present Draft Division Budget and Rates to SJRA Board

Receive, Consider and Incorporate Input

GRP Review Committee Vote to Recommend Budget and Rate Order

SJRA Board Vote on Budget and Rate Order

**Note:**  
• Effective Rate Order Notice sent to Participants after budget and rates are approved.

# Public Meetings for FY25 GRP Budget & Rates

Date	Audience	FY 2024 GRP Budget Activity
February 26	Review Committee	Budget Process, Demands, and SWTF Production
March 25	Review Committee	Receive Recommendations for FY25 Demands and SWTF Production
March 25	Review Committee	10-Year Project Plan Presentation
March 28	SJRA Board	10-Year Project Plan Presentation
April 22	Review Committee	FY25 Draft Budget & Rate Presentation
April 25	SJRA Board	FY25 Draft Budget & Rate Presentation
May 20	Review Committee	Review Committee Vote on FY25 Budget and Rate
May 23	SJRA Board	Vote on FY25 GRP Rate Order
August 22	SJRA Board	Vote on Proposed FY25 GRP Operating Budget

*Dates are subject to change.*

# GRP Budgeting

## Revenues

- Groundwater Pumpage Fees
- Surface Water Fees
- Industrial Reservation Fee
  - Entergy
- Industrial Use Fee
  - Entergy

## Expenses

- Debt Service
  - Principal & Interest
- O&M Expenses
  - Payroll and Benefits
  - Professional Fees
  - Purchased & Contracted Services
  - Supplies, Materials, and Utilities
  - Maintenance Repair, Parts, and Rentals
  - General and Administrative
- Other Expenses (Capital Improvements)

# Fiscal Year 2024 Budget (Current)

- Total demand 54.54 MGD
- Annual average SWTP Production 13 MGD
- Groundwater Pumpage Rate \$2.99 / 1,000 gallons
- Surface Water Rate \$3.41 / 1,000 gallons

## Surface Water Recipients

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City of Conroe

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City of Oak Ridge North

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MSEC

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MUD 99

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SJRA Woodlands

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SMCMUD

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Rayford Road MUD

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# Fiscal Year 2025 Projected Demand

Fiscal Year (Sept – Aug)		
Calculation	Gallons	MGD
2-Year Average	25,468,995,010	69.78
3-Year Average	23,709,998,802	64.96
4-Year Average	22,873,650,617	62.67
5-Year Average	22,012,829,926	60.31
6-Year Average	21,396,944,218	58.62

**GRP's recommendation**

**6-Year Average**

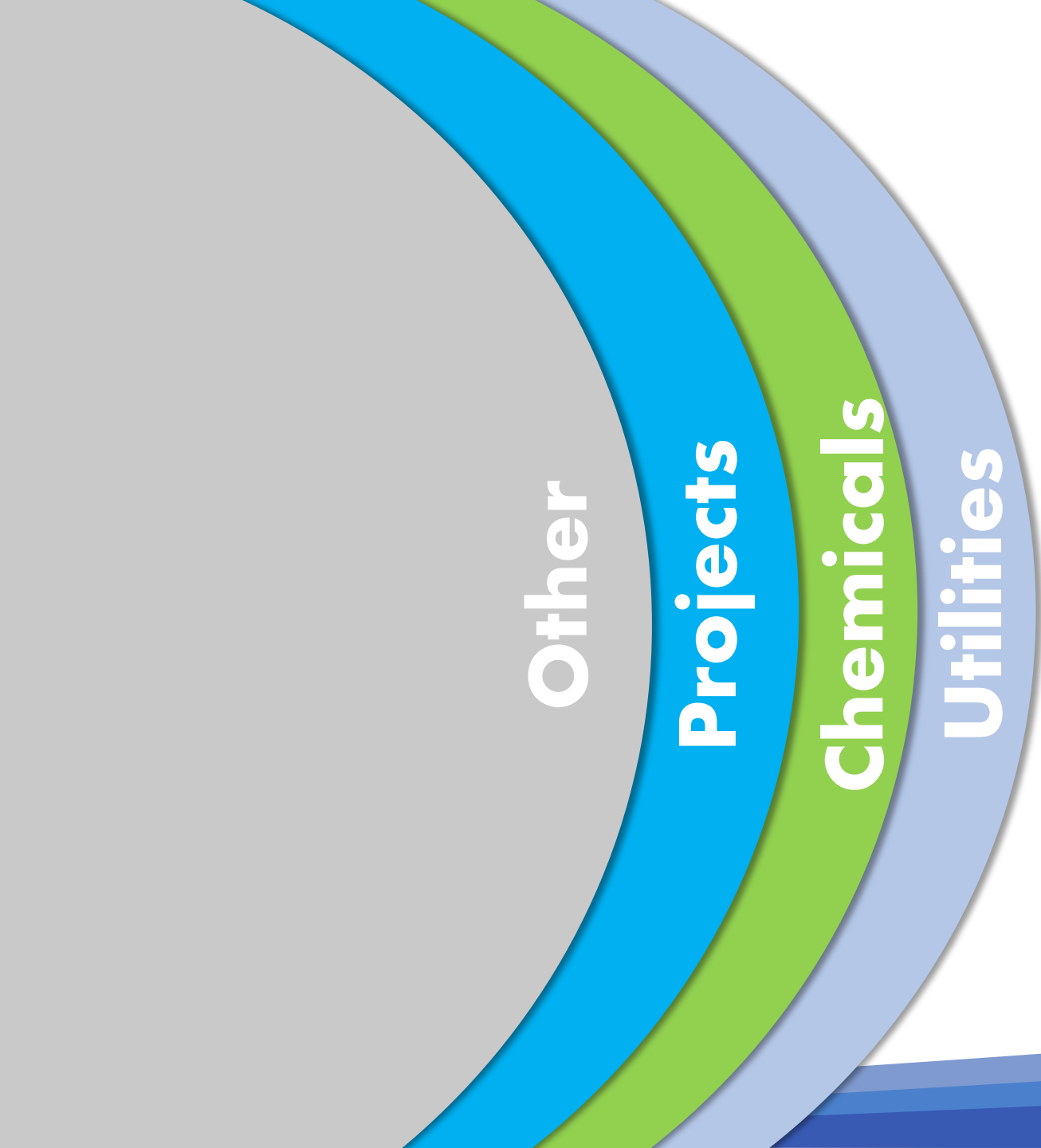
**FY 2025 Budgeted Demand  
58.62 MGD**

Budgeted FY2024	19,907,100,000	54.54
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Projected demands represent the aggregate historical groundwater and surface water demands for all GRP Participants.

# SWTF Production and Blend Ratios

	Utility	FY24 Budgeted %	FY24 Budgeted Avg. MGD	Proposed %	Proposed Avg. MGD	Estimated Annual Delivery
Surface Water Recipients	City of Conroe	35%	3.87	35%	3.86	1,410,548,067
	City of Oak Ridge	35%	0.12	30%	0.10	36,592,700
	Midsouth Enterprises	35%	0.80	30%	0.69	250,185,920
	MUD 99	35%	0.38	30%	0.28	100,471,500
	SJRA Woodlands	50%	7.76	50%	7.64	2,789,067,300
	SMCMUD	35%	0.38	30%	0.33	119,680,100
	Rayford Road MUD	35%	0.37	30%	0.31	112,335,700
				13.63		13.20



Potential Impacts on  
Fiscal Year 2025 GRP  
Division Budget

Other

Projects

Chemicals

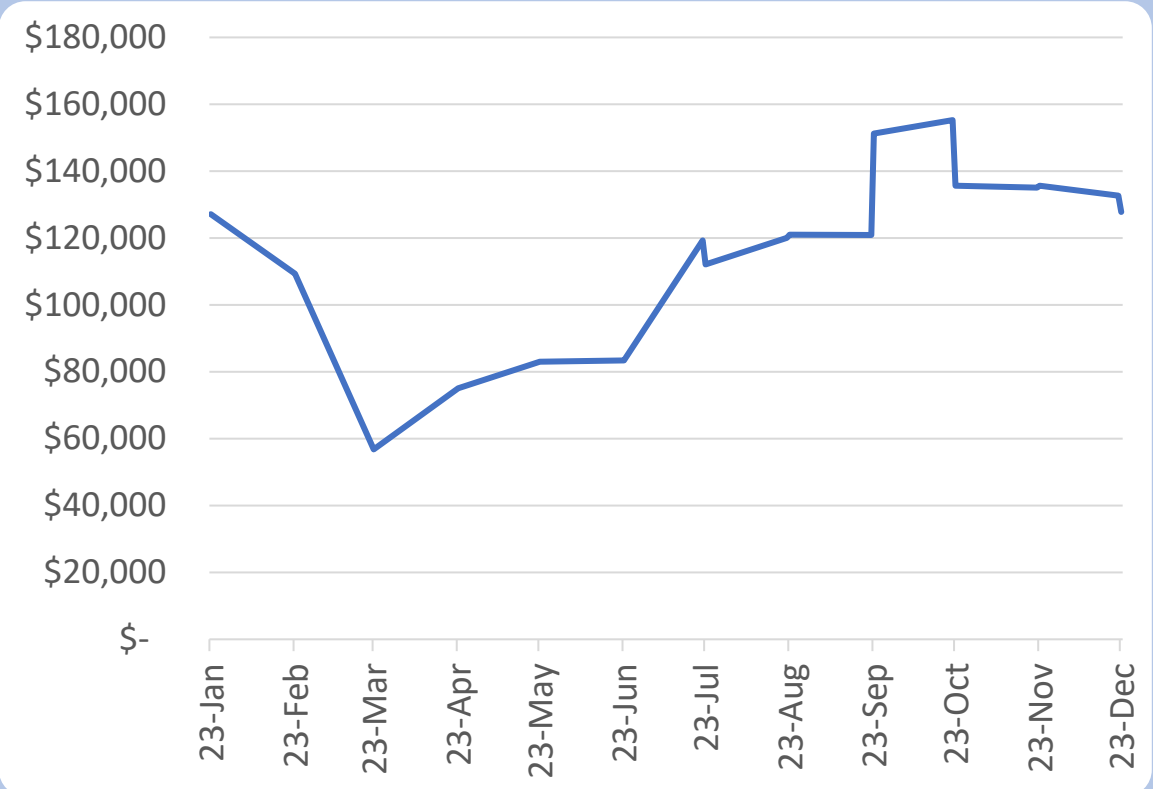
Utilities

FY24 Budget (current)	\$1,595,850
Rolling 12-month Jan.23 – Dec 23	\$1,317,966

FY25 Plan: Rolling 12-month\*+10%     \$TBD  
*\*To be defined/refined closer to approval*

December 2023 – December 2022

US City Avg. All Items	9.949 Increase
US City Avg. Electricity	8.622 Increase



Other

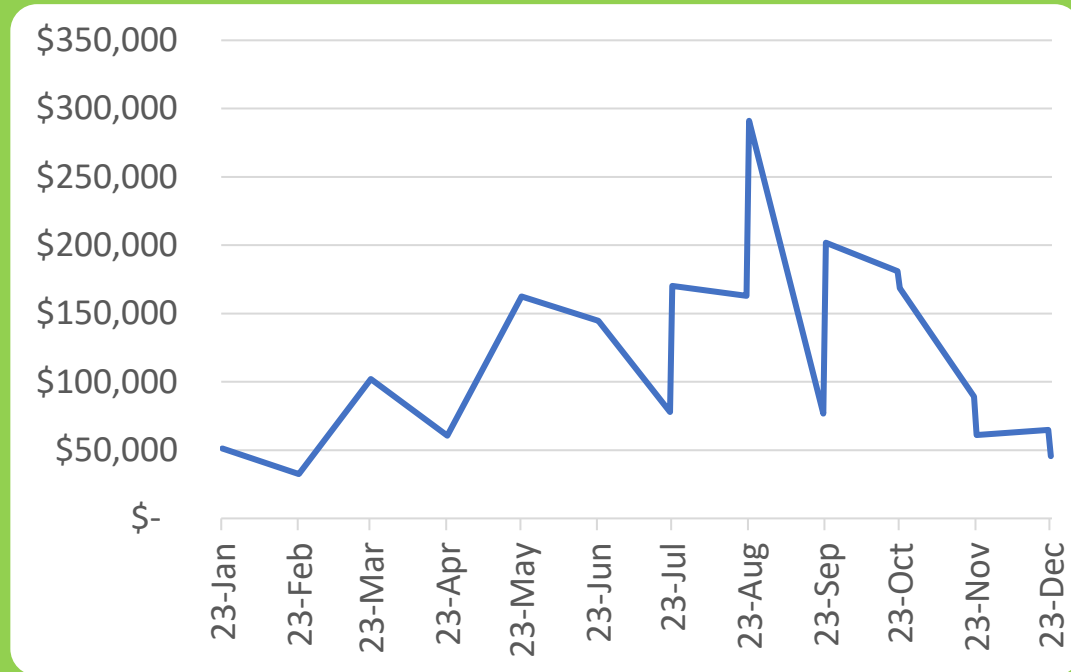
Projects

Chemicals

Utilities

FY24 Budget\* (current) \$2,391,796  
Rolling 12-month\* Jan.23 – Dec 23 \$1,498,047  
*\* Not including GAC*

FY25 Plan: Rolling 12-month\*\*+3% \$TBD  
*\*\*To be defined/refined closer to approval*



Other

**Wastewater Discharge Optimization Study (continued from FY24)**

Feasibility study to determine capital cost and potential savings to treat process wastewater onsite

**Membrane Replacement (continued from FY24)**

Study to determine membrane replacement strategy; replace with same manufacturer, phasing requirements, & TCEQ requirements.

Projects

Chemicals

Utilities

Items under evaluation:

- Health & Property insurance
  - Actual +10%
- Staffing
  - Merit 4%, promotions 2%
- Additional O&M repairs
- Service contracts
- Capital needs
- Utilities – further evaluate

**Other**

**Projects**

**Chemicals**

**Utilities**

# March 2025 GRP Review Committee Meeting

Recommend  
projected demand  
for FY2025

Staff  
recommends  
58.62 MGD

Confirm annual  
average SWTP  
production for  
FY2025

Staff  
recommends  
13.20 MGD



**Item 8**  
**Receive and Discuss Benchmarking Study**

# SJRA GRP O&M Cost Benchmarking Study

**GRP Review Committee Meeting**

February 26, 2024



# Agenda

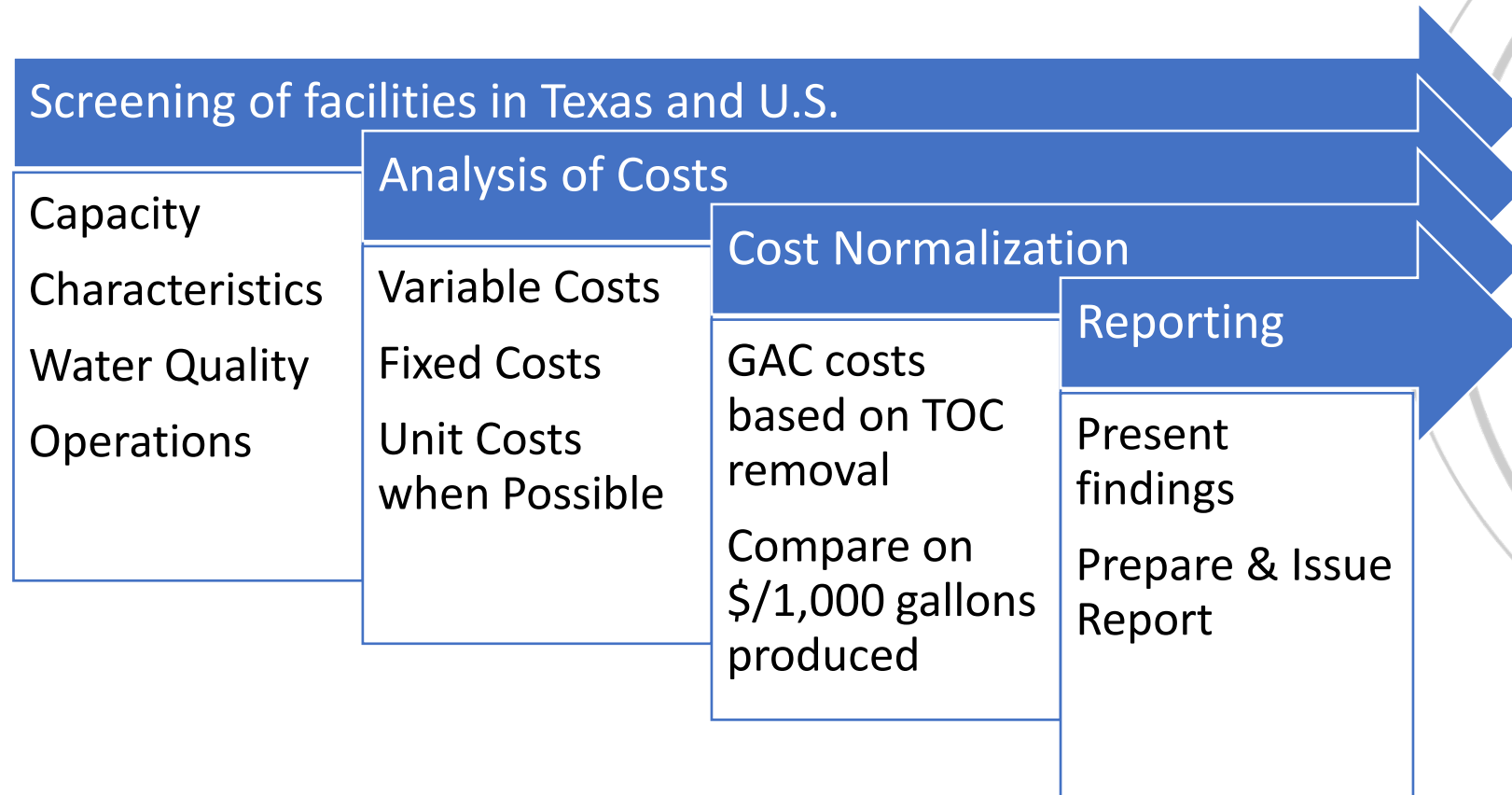
- Goal of Study & Approach
- Benchmarked Facilities
- Cost Comparisons
- Conclusions
- Q&A

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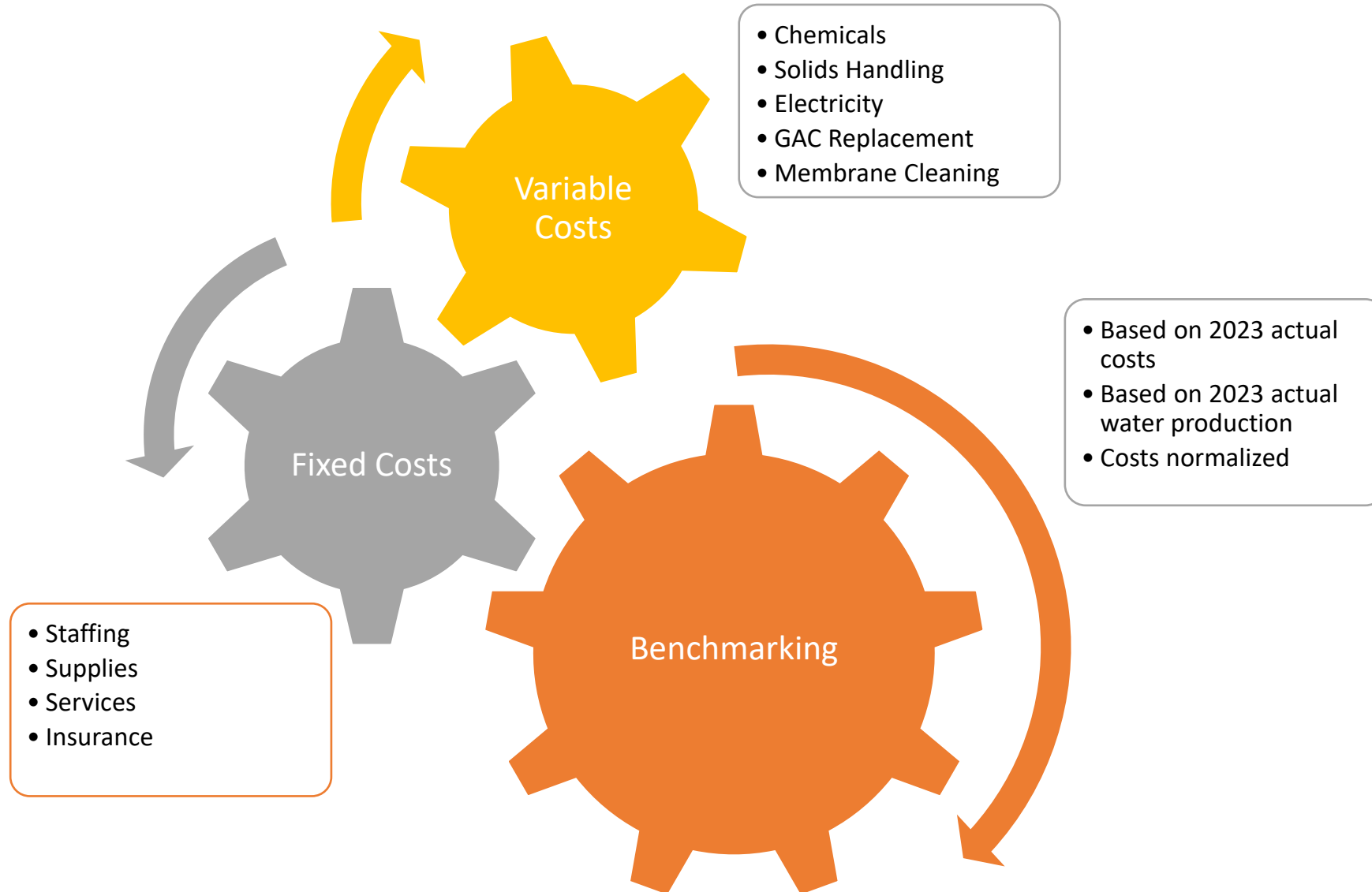
# Study Goal & Approach

# Goal & Approach

Goal: Develop comparative O&M costs from similar facilities to benchmark costs at SJRA's 30 MGD SWTP.



# Cost Characteristics & Benchmarking



# Outreach to facilities

- Researched candidate facilities
- Reached out to Carollo & industry reps to screen candidates for benchmarking
- Used Carollo network to facilitate contact and gain assistance from utilities
- Prepared & sent O&M Benchmarking Questionnaire to candidate respondents
- Followed up with phone calls, emails, and site visits to obtain information

## SURFACE WATER TREATMENT PLANT BENCHMARKING QUESTIONNAIRE

The San Jacinto River Authority (SJRA) is attempting to benchmark and compare operating & maintenance (O&M) costs for their surface water treatment plant (SWTP) against peer facilities. Your assistance in providing information will help SJRA as they strive to operate efficiently while remaining fully compliant with treated water regulations and achieving level of service goals. As possible, please share information on the following. Information for the last 2-3 years of operation would be greatly appreciated if available. Thank you for your assistance.

GENERAL INFORMATION	
Treatment	1. Processes used, including solids handling. A site plan, process flow diagram, and/or design criteria would be helpful
Production	1. Average daily finished water production (MGD) 2. Yearly finished water production (total gallons)
Water Quality	1. Average & range of raw water quality (turbidity, pH, alkalinity, hardness, TOC, color, etc.)
OVERALL PRODUCTION COSTS (SUM OF A + B + C + D + E + F + G BELOW)	
Total Costs	1. Total O&M costs per year (SWTP operations only)
Clarifications	1. Please note if cost includes raw water purchase/pumping, capital rehab costs, or other external costs that are factored into cost.
A. PERSONNEL COSTS	
Total Costs	1. Total labor costs per year (SWTP O&M staff only)
Personnel	1. # of operations & maintenance personnel associated with labor cost
Clarifications	1. Please note if costs include fringes and if any administrative overhead is applied.
B. FIXED COSTS	
Total Costs	1. Total fixed costs per year (supplies, services, insurance, etc.)
Clarifications	1. Please note if costs include fringes and if any administrative overhead is applied.
C. VARIABLE COSTS - CHEMICALS	
Total Costs	1. Total chemical costs per year
Description	1. Please list chemicals fed, \$ spent/chemical/year, cost/unit (e.g., \$/lb or similar), average doses applied, amount used/year
D. VARIABLE COSTS - POWER	
Costs & consumption	1. Total cost per year, \$/kwhr, kwhr used/year
Description	1. If possible, please break-out finished pumping, intermediate pumping, raw pumping separately
E. VARIABLE COSTS - SOLIDS DEWATERING & DISPOSAL	
Costs & consumption	1. Break-out as possible
Description	1. lbs/year, % solids achieved, method of hauling/disposal
F. VARIABLE COSTS - GAC (IF APPLICABLE)	
Costs & consumption	1. Total cost per year of replacement GAC, tons/year, \$/ton
Performance	1. Average TOC ahead of GAC, average TOC after GAC
G. VARIABLE COSTS - MEMBRANES (IF APPLICABLE)	
Costs	1. Any isolatable costs such as CIP chemical costs, pumping costs, etc.
Performance	1. Average flux, average transmembrane pressure, operations between CIP, etc.

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## Benchmarked Facilities



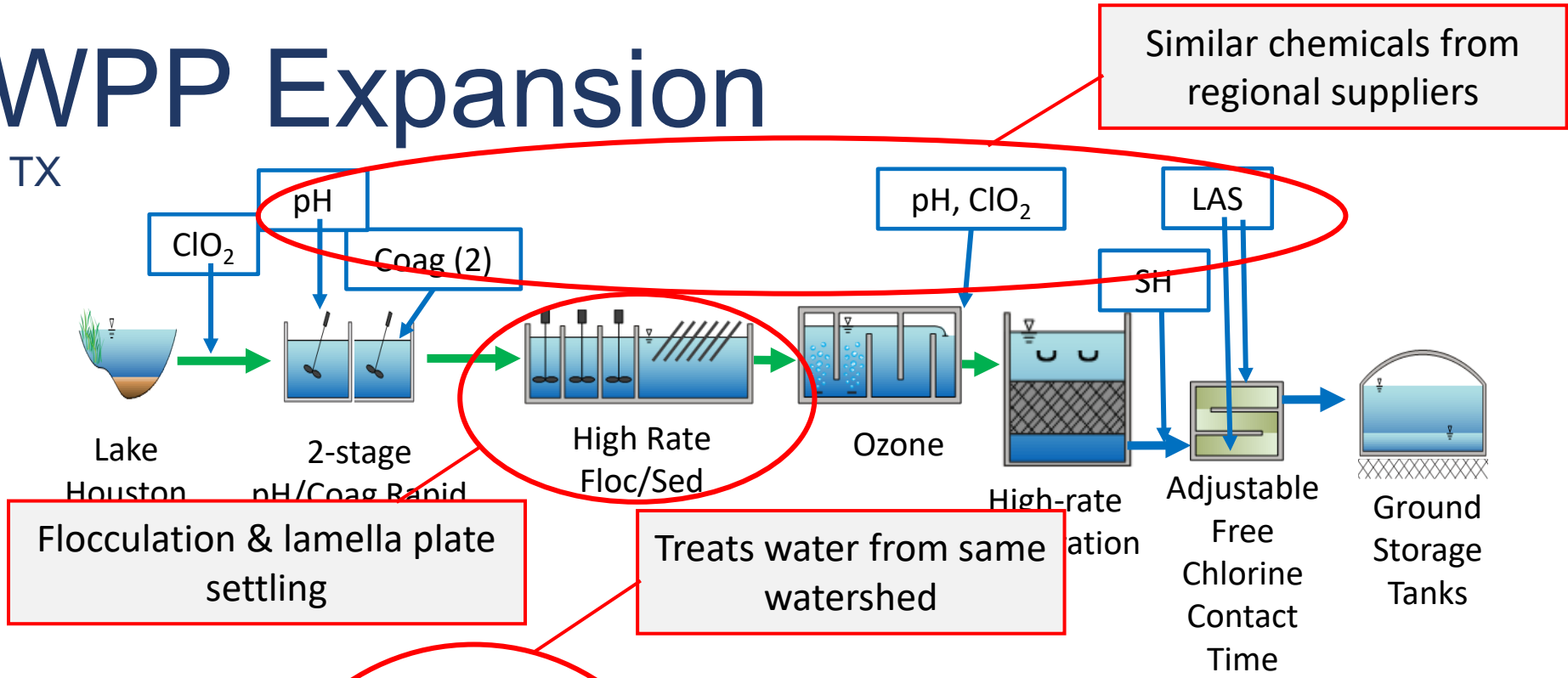
# Benchmarked Facilities

- A total of 16 utilities in-state and out-of-state facilities were contacted
- Facilities below provided usable data for study
- (1) Denotes Texas facilities

	SJRA <sup>1</sup>	City of Houston <sup>1</sup>	City of Houston <sup>1</sup>	Sugar Land <sup>1</sup>	City of Fort Worth <sup>1</sup>	Mansfield Water Utilities <sup>1</sup>	Park Cities MUD <sup>1</sup>	City of Phoenix
	GRP	NEWPP	NEWPP Expansion	Sugar Land WTP	Westside WTP	Bud Ervin WTP	Park Cities WTP	Val Vista WTP
Rated Capacity (MGD)	30	80	320	10	15	45	15	220
Membranes	X			X	X	X	X	
GAC	X			X		X	X	X

# NEWPP Expansion

Houston, TX



Floculation & lamella plate settling

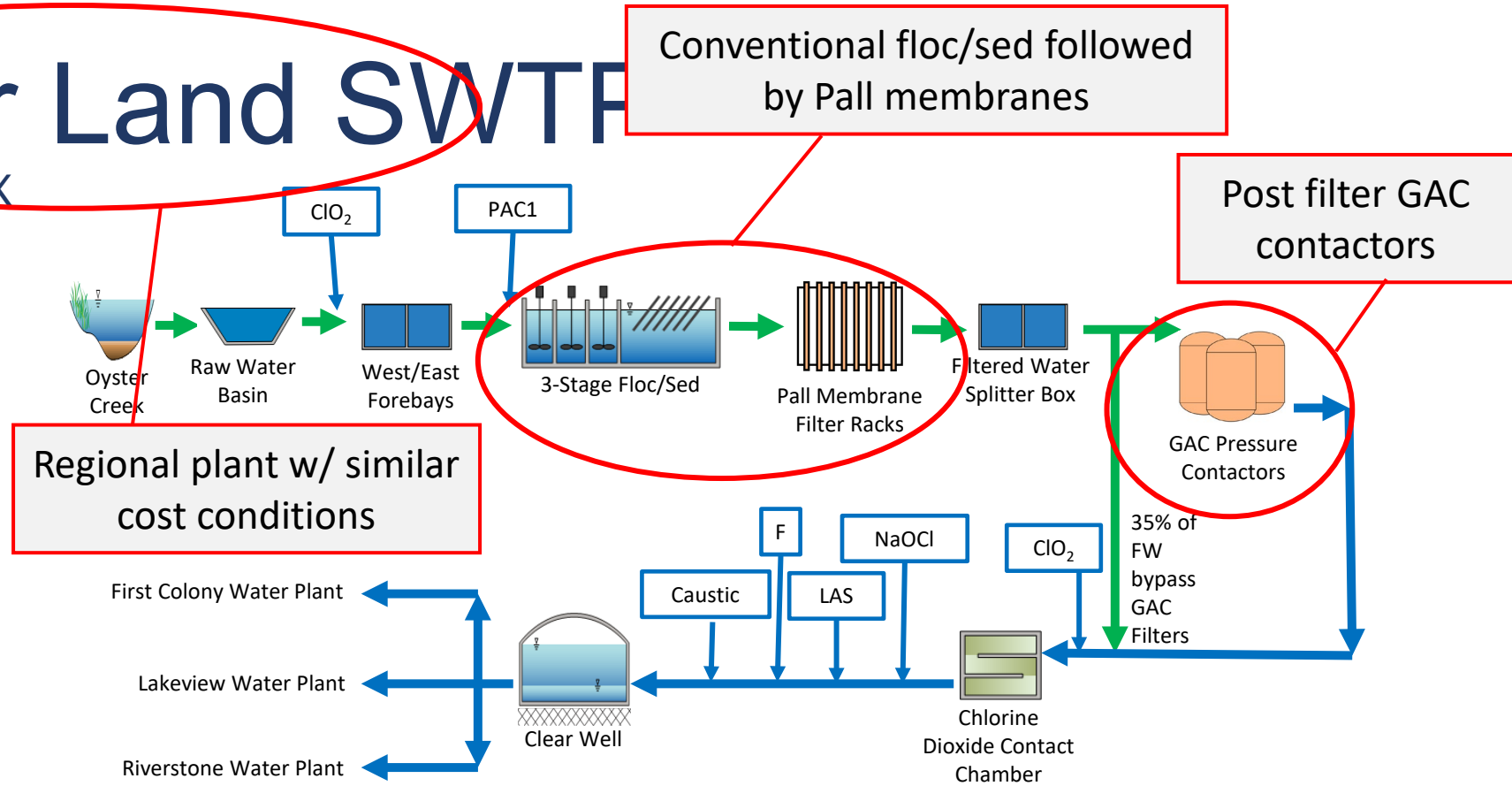
Treats water from same watershed

Subject to same regional costs as SJRA

	Lake Houston			Trinity River		
	Min	Max	Avg	Min	Max	Avg
Turbidity (NTU)	1.0	285	19.4	0.5	262	22.4
pH	5	11	7.7	6.4	8.9	7.9
TOC (mg/L)	4.0	25.0	9.2	3.6	15.9	6.4
Alkalinity (mg/L)	6	244	63	41	124	93
Hardness (mg/L)	24	140	57	45	150	114

# Sugar Land SWTF

Sugar Land, TX



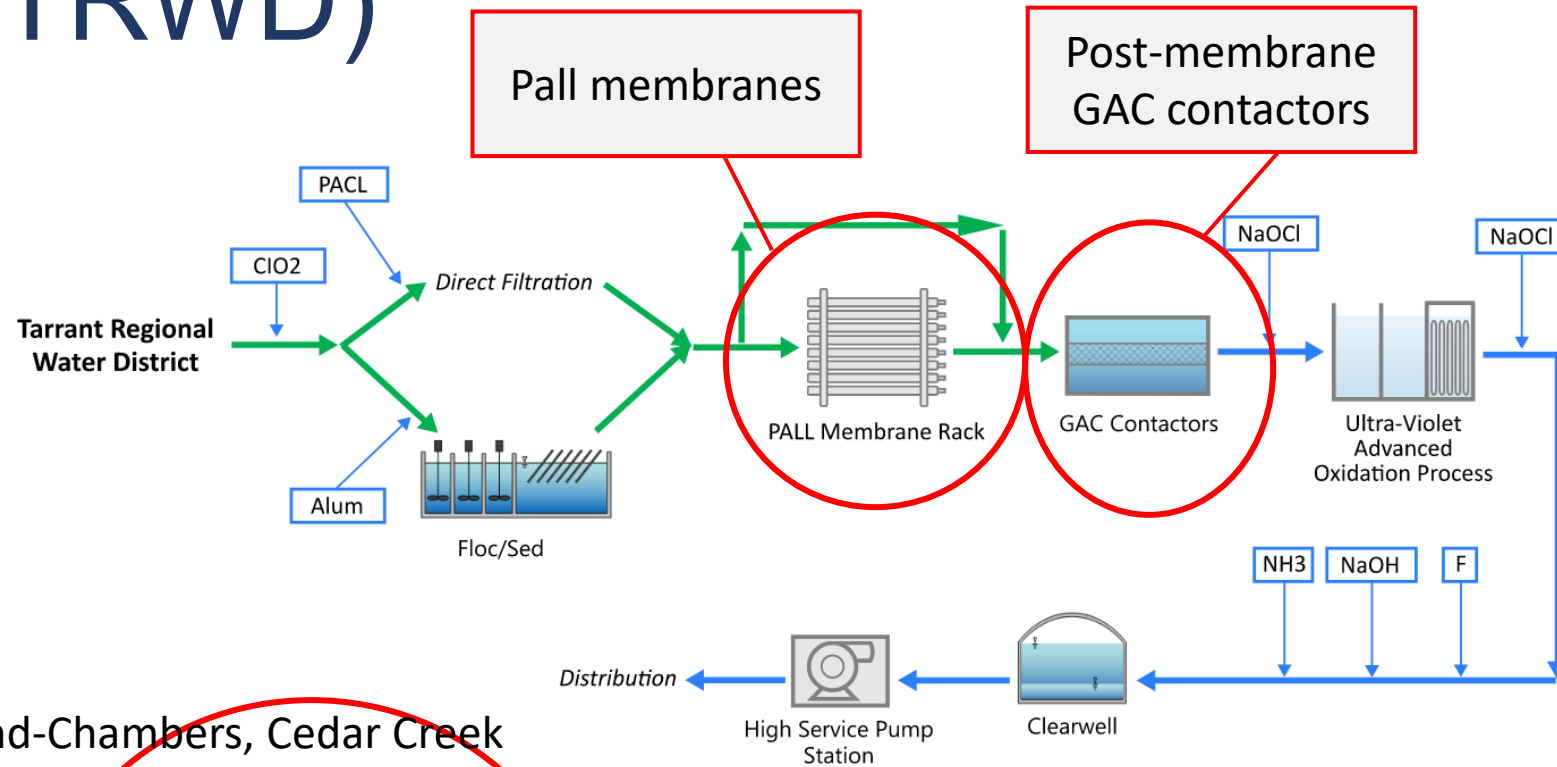
Regional plant w/ similar cost conditions

Similar raw water quality

	Min	Max	Avg
Turbidity (NTU)	12.9	322	64.8
pH	7.25	8.81	7.73
TOC (mg/L)	2.5	10.4	5.4
Alkalinity (mg/L)	70	230	153
Hardness (mg/L)	80	288	169

# Bud Ervin WTP, Tarrant Regional Water District (TRWD)

Mansfield, TX



Richland-Chambers, Cedar Creek and Benbrook Reservoirs

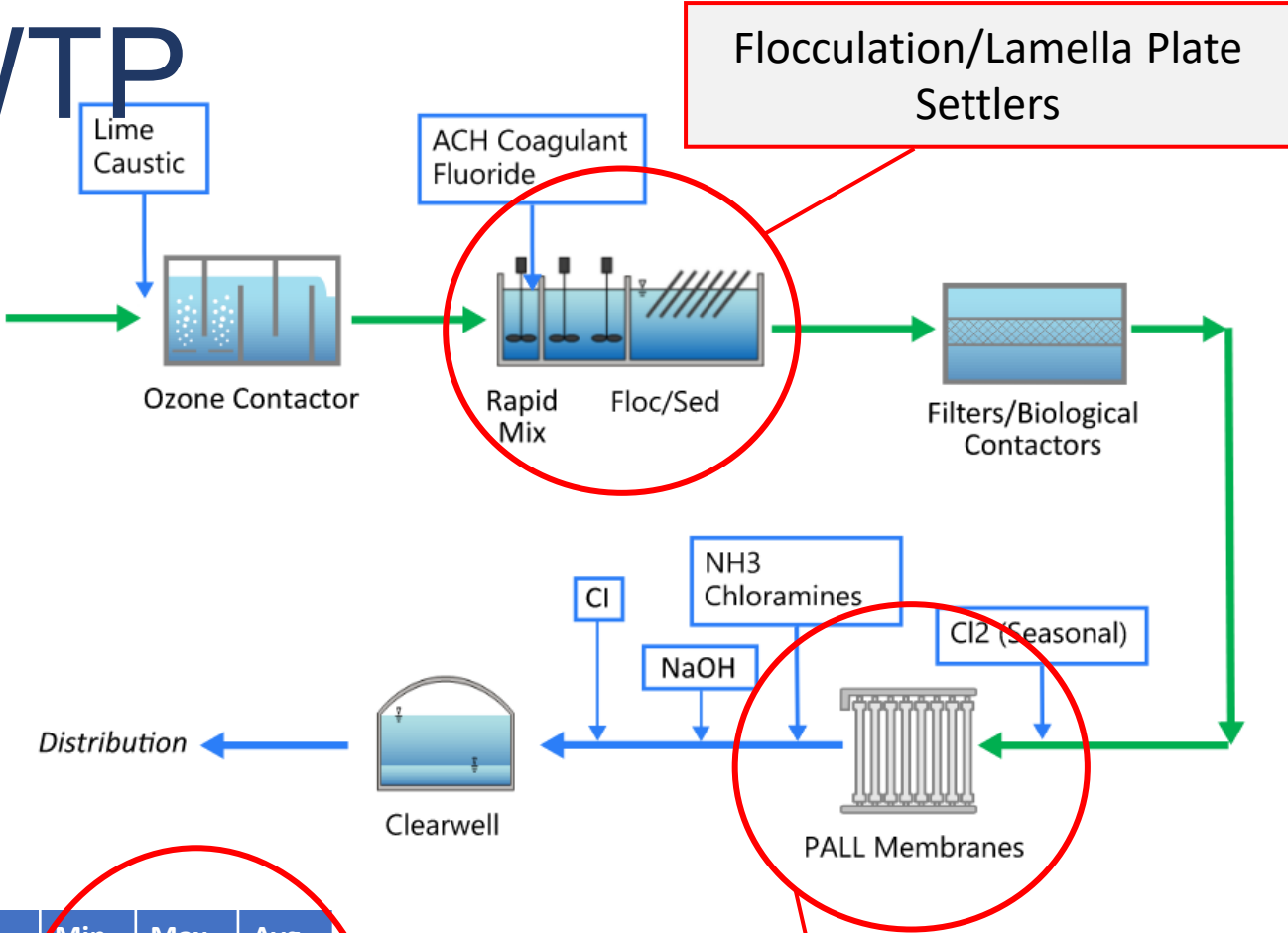
	Min	Max	Avg
Turbidity* (NTU)	0.6	29	3.1
pH	7.1	8.1	7.7
TOC (mg/L)	4.9	6.7	8.1
Alkalinity (mg/L)	69	110	92
Hardness (mg/L)	75	123	98

Similar raw water quality

# Westside WTP

Fort Worth, TX

Blend:  
Richland-Chambers,  
Cedar Creek,  
Benbrook



Flocculation/Lamella Plate Settlers

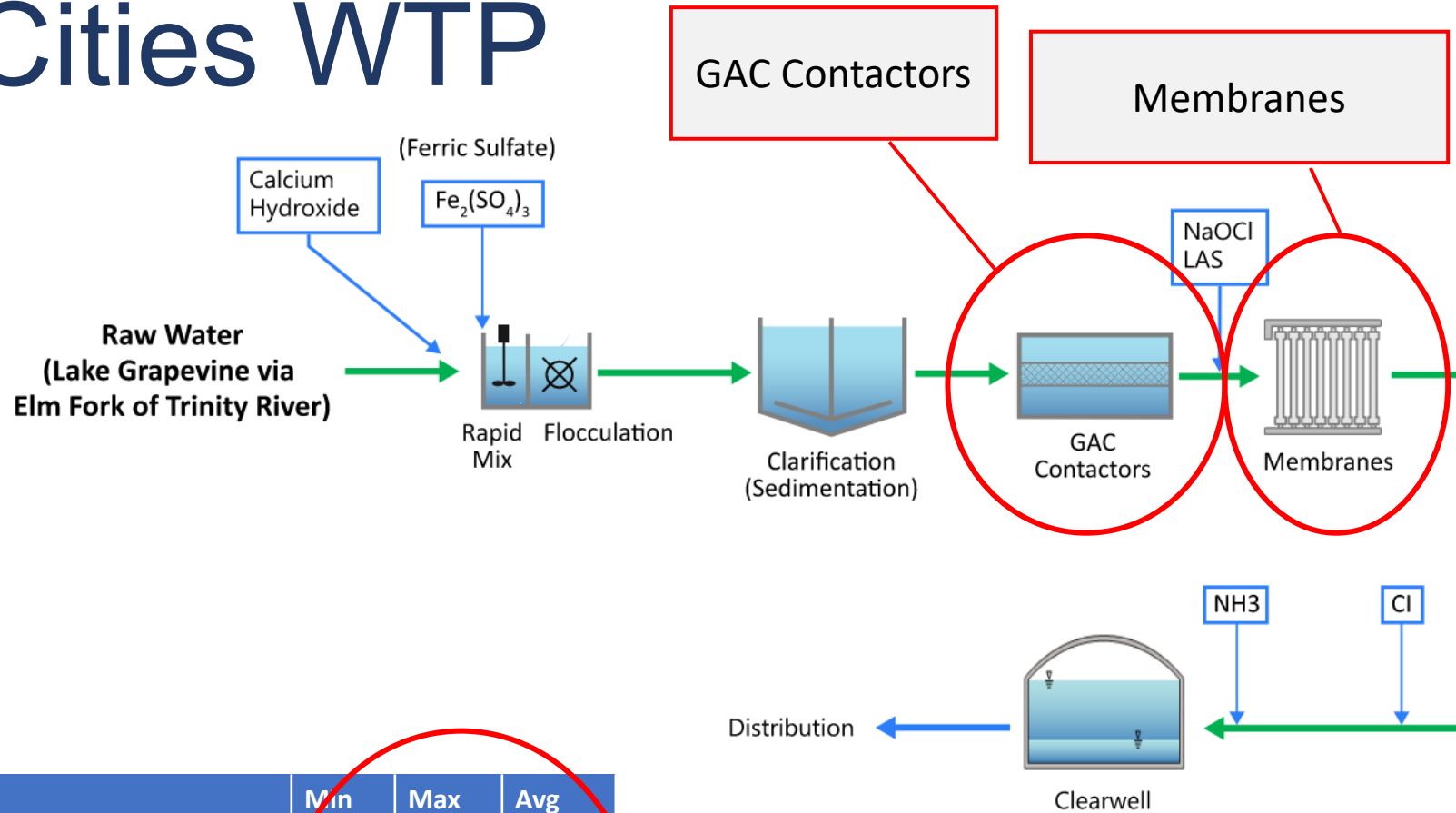
Pall Membranes

Similar raw water quality

	Min	Max	Avg
Turbidity (NTU)	0.5	33.1	4.7
pH	-	-	7.8
TOC (mg/L)	4.5	6.5	5.5
Alkalinity (mg/L)	76	134	91
Hardness (mg/L)	79	141	95

# Park Cities WTP

Dallas, TX

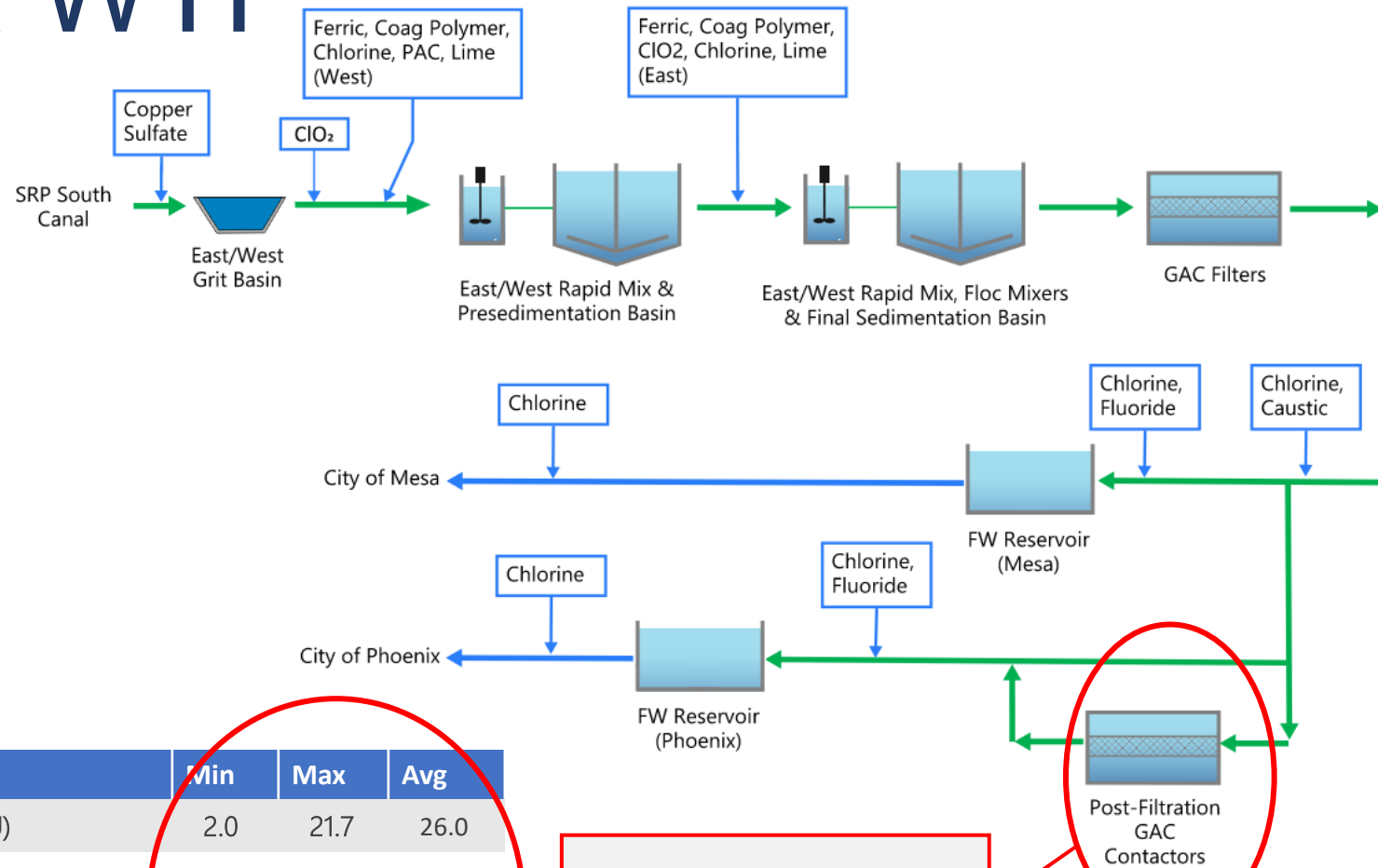


	Min	Max	Avg
Turbidity (NTU)	7.3	17.7	11.2
pH	7.7	8.0	7.9
TOC (mg/L)	1.4	6.5	4.7
Alkalinity (mg/L)	87.0	115.0	99.8
Hardness (mg/L)	114.0	150.0	132.3

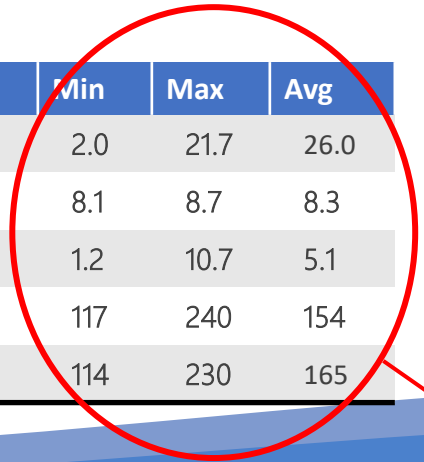
Similar raw water quality

# Val Vista WTP

Phoenix, AZ



	Min	Max	Avg
Turbidity (NTU)	2.0	21.7	26.0
pH	8.1	8.7	8.3
TOC (mg/L)	1.2	10.7	5.1
Alkalinity (mg/L)	117	240	154
Hardness (mg/L)	114	230	165



GAC Contactors

Similar raw water quality

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## Cost Comparisons



# Normalization of Costs

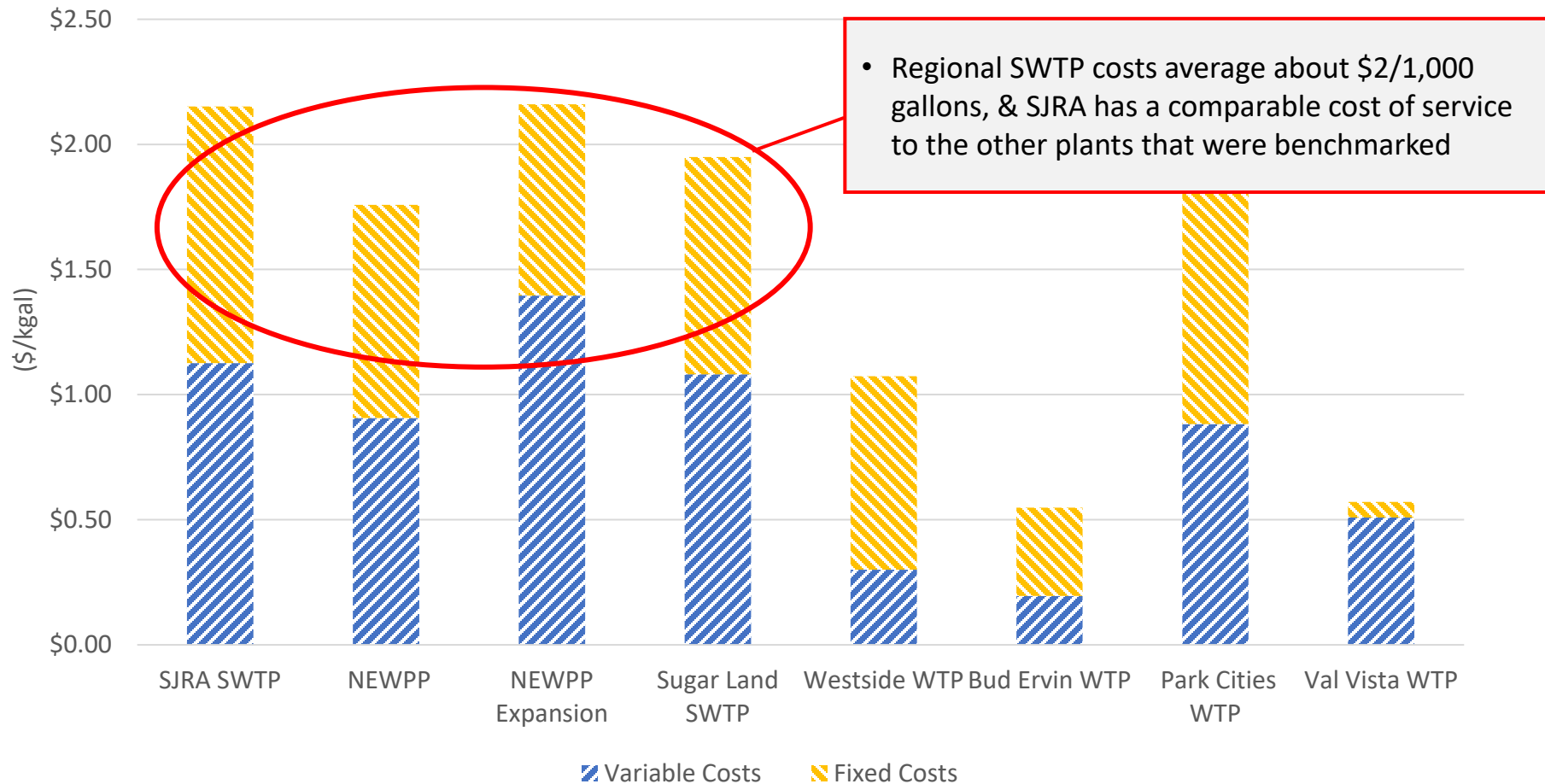
- Normalization important to try and have an “apples-to-apples” comparison
- GAC-related costs normalized on basis of TOC removal
- Normalization based on actual finished water production @ each plant on a \$/1,000 gallon basis



# Costs Comparison

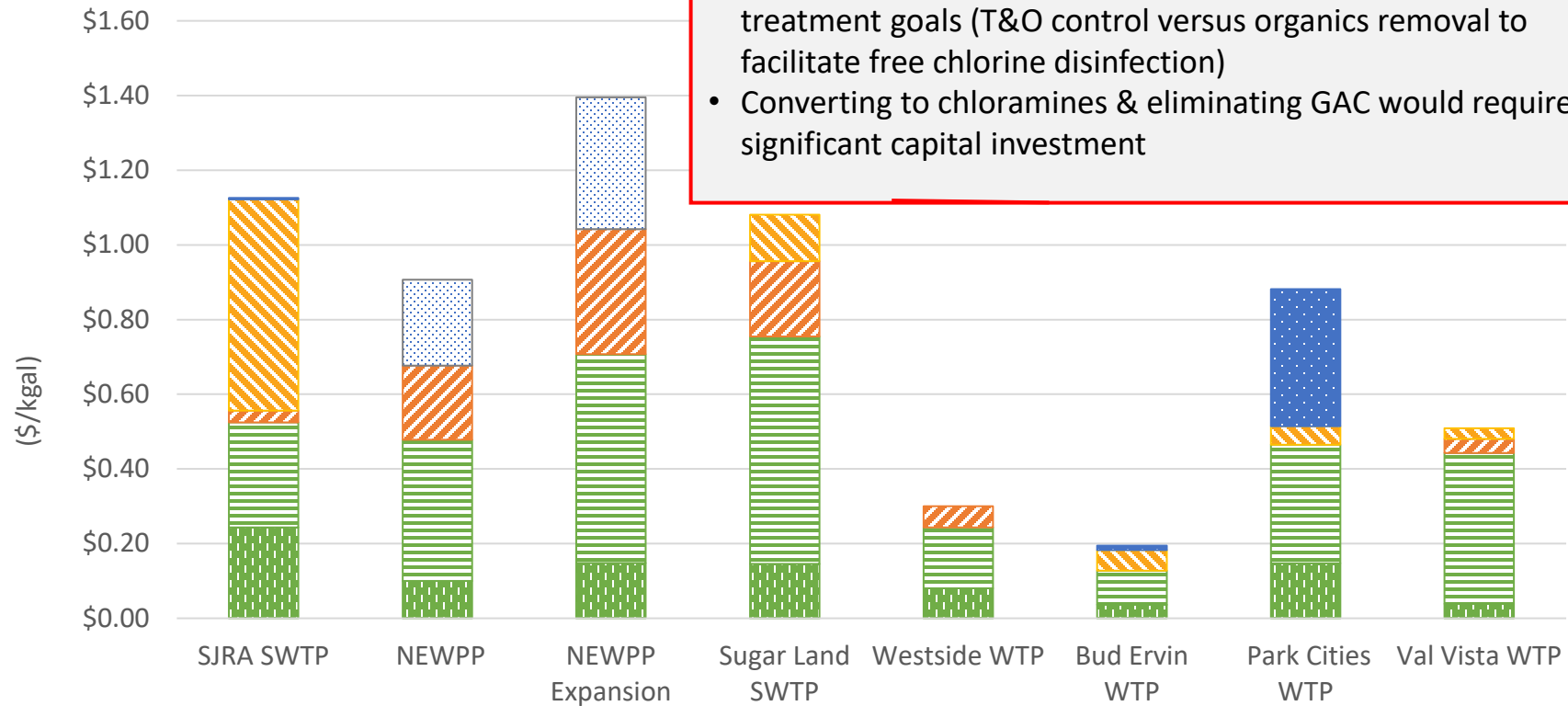
ID	Category	SJRA SWTP	NEWPP	Category	SJRA SWTP	Val Vista WTP
	PRODUCTION			PRODUCTION		
	Actual Water Production (total gallons/year)	5,210,000,000	15,512,500	Actual Water Production (total gallons/year)	5,210,000,000	39,939,180,000
	Actual Water Production (MGD)	14		Actual Water Production (MGD)	14	109
	<b>Rated Plant Production (MGD)</b>	<b>30.0</b>		<b>Rated Plant Production (MGD)</b>	<b>30.0</b>	<b>220.0</b>
	O&M COSTS			O&M COSTS		
	O&M Staff			O&M Staff		
A	# of O&M Staff associated w labor cost	19		# of O&M Staff associated w labor cost	19	~25
	Variable Costs	\$5,863,833	\$14,000	Variable Costs	\$5,863,833	\$20,314,135
D	Electrical/Power	\$1,266,906	\$1,500	Electrical/Power	\$1,266,906	\$1,528,662.00
C	Chemicals & Gases	\$1,467,397	\$5,800	Chemicals & Gases	\$1,467,397	\$16,145,459.00
E	Solids Dewatering & Disposal	\$165,333	\$3,000	Solids Dewatering & Disposal	\$165,333	\$1,528,662.00
F	GAC (if applicable)	\$2,947,045		GAC (if applicable)	\$2,947,045	\$1,111,352.00
G	Membranes (If applicable)	\$17,153		Membranes (If applicable)	\$17,153	
	Administration costs (33.9% of variable + fixed)*	NA	\$3,500	Administration costs (33.9% of variable + fixed)*	NA	
B	Fixed Costs	\$5,343,754	\$13,200	Fixed Costs	\$5,343,754	NA
A	Personnel	\$2,017,894	\$3,700	Personnel	\$2,017,894	NA
B	Total Supplies (minus chemicals/gases)	\$263,750	\$6,000	Total Supplies (minus chemicals/gases)	\$263,750	\$2,500,000
B	Other services (minus electrical & solids)	\$1,794,385	\$3,800	Other services (minus electrical & solids)	\$1,794,385	ND
B	Equipment	\$648,574	\$1,000	Equipment	\$648,574	ND
B	Laboratory Equipment/Supplies	<i>Incl. in Equipment</i>	<i>Incl. in Equipment</i>	Laboratory Equipment/Supplies	<i>Incl. in Equipment</i>	ND
B	Capital Distribution	\$0	\$0	Capital Distribution	\$0	ND
B	Insurance, TCEQ, Security	\$584,001	\$8,000	Insurance, TCEQ, Security	\$584,001	ND
B	WQ, Exec Support, CAS	\$35,149	\$6,000	WQ, Exec Support, CAS	\$35,149	ND
	Administration costs (33.9% of variable + fixed)*	NA	\$3,300	Administration costs (33.9% of variable + fixed)*	NA	NA
	<b>Overall Production Costs</b>	<b>\$11,207,587</b>	<b>\$27,200</b>	<b>Overall Production Costs</b>	<b>\$11,207,587</b>	<b>\$22,814,135</b>
	<b>O&amp;M Rate (\$/1,000 gallons)</b>	<b>\$2.151</b>		<b>O&amp;M Rate (\$/1,000 gallons)</b>	<b>\$2.151</b>	<b>\$0.571</b>
	<b>Variable Costs Rate (\$/1,000 gallons)</b>	<b>\$1.125</b>		<b>Variable Costs Rate (\$/1,000 gallons)</b>	<b>\$1.125</b>	<b>\$0.509</b>
	<b>Fixed Costs Rate (\$/1,000 gallons)</b>	<b>\$1.026</b>		<b>Fixed Costs Rate (\$/1,000 gallons)</b>	<b>\$1.026</b>	<b>\$0.063</b>

# Total O&M Rate Normalized to Production Flow

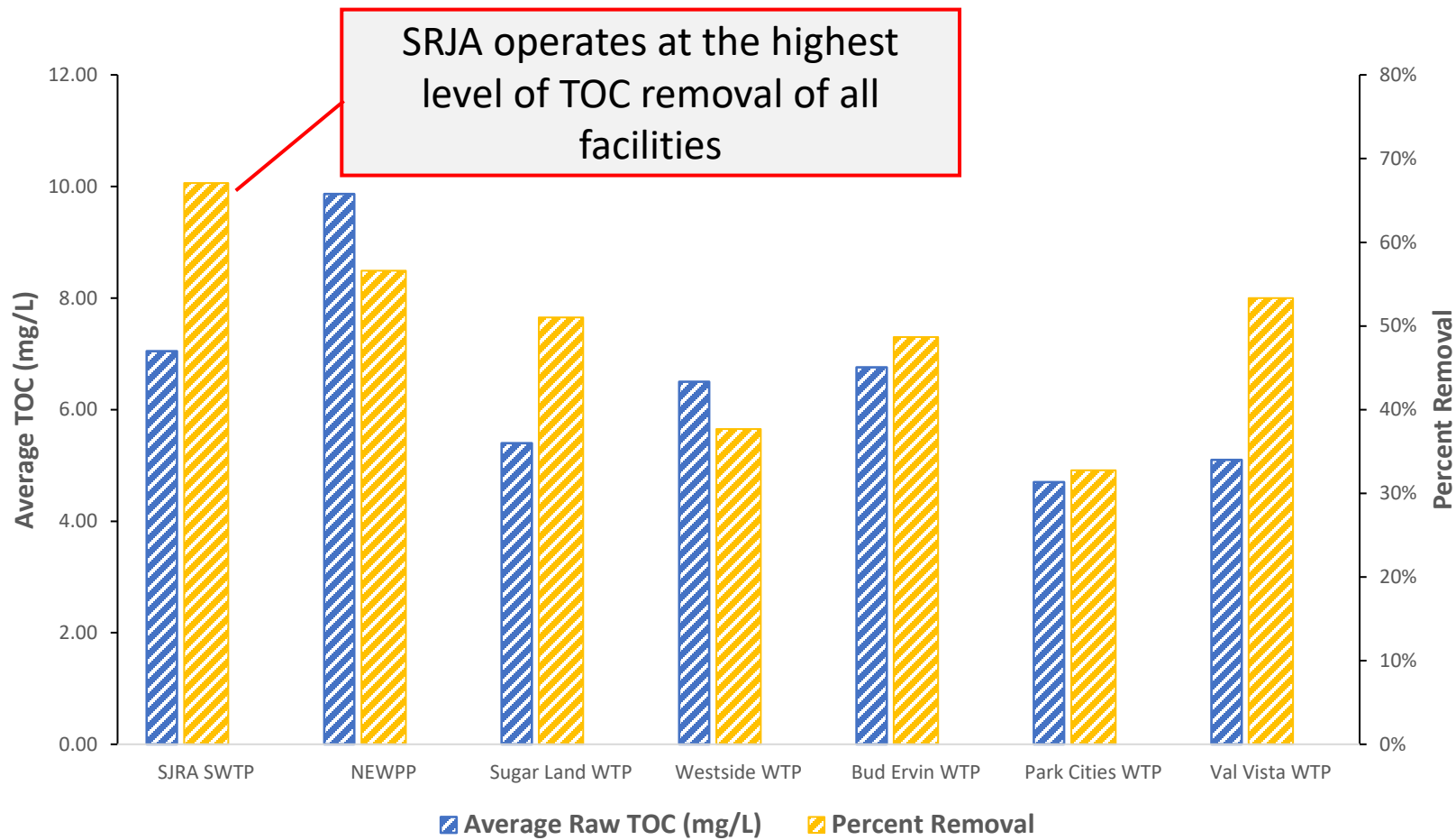


# Variable Costs Normalized to Production Flow

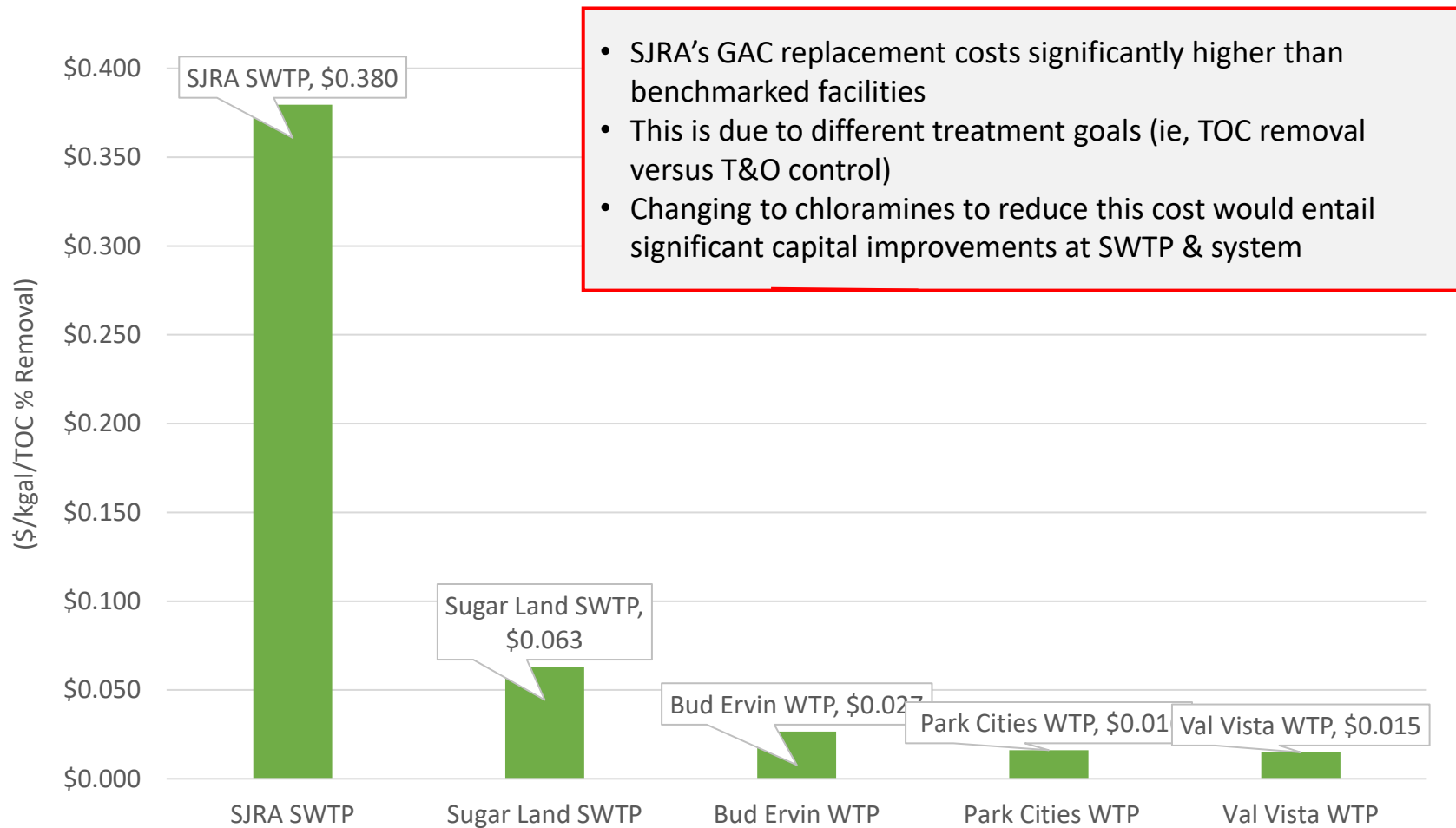
- GAC replacement is significant portion of SJRA variable cost
- Houston's cost of treating same water is higher due to higher chemical & administrative burden applied to cost
- Other GAC facilities spend less on replacement due to different treatment goals (T&O control versus organics removal to facilitate free chlorine disinfection)
- Converting to chloramines & eliminating GAC would require significant capital investment



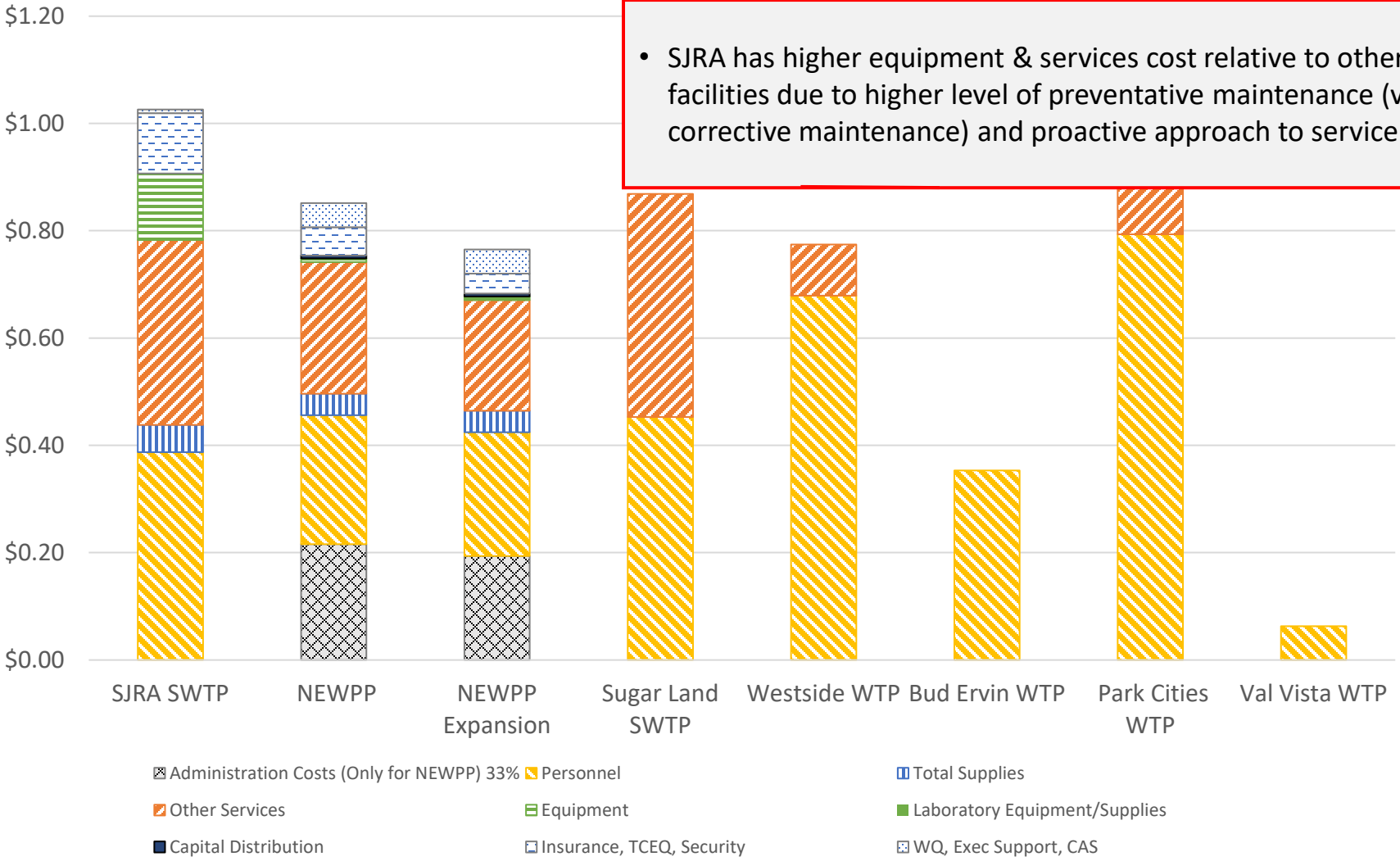
# Average Raw Water TOC & Percent Removal



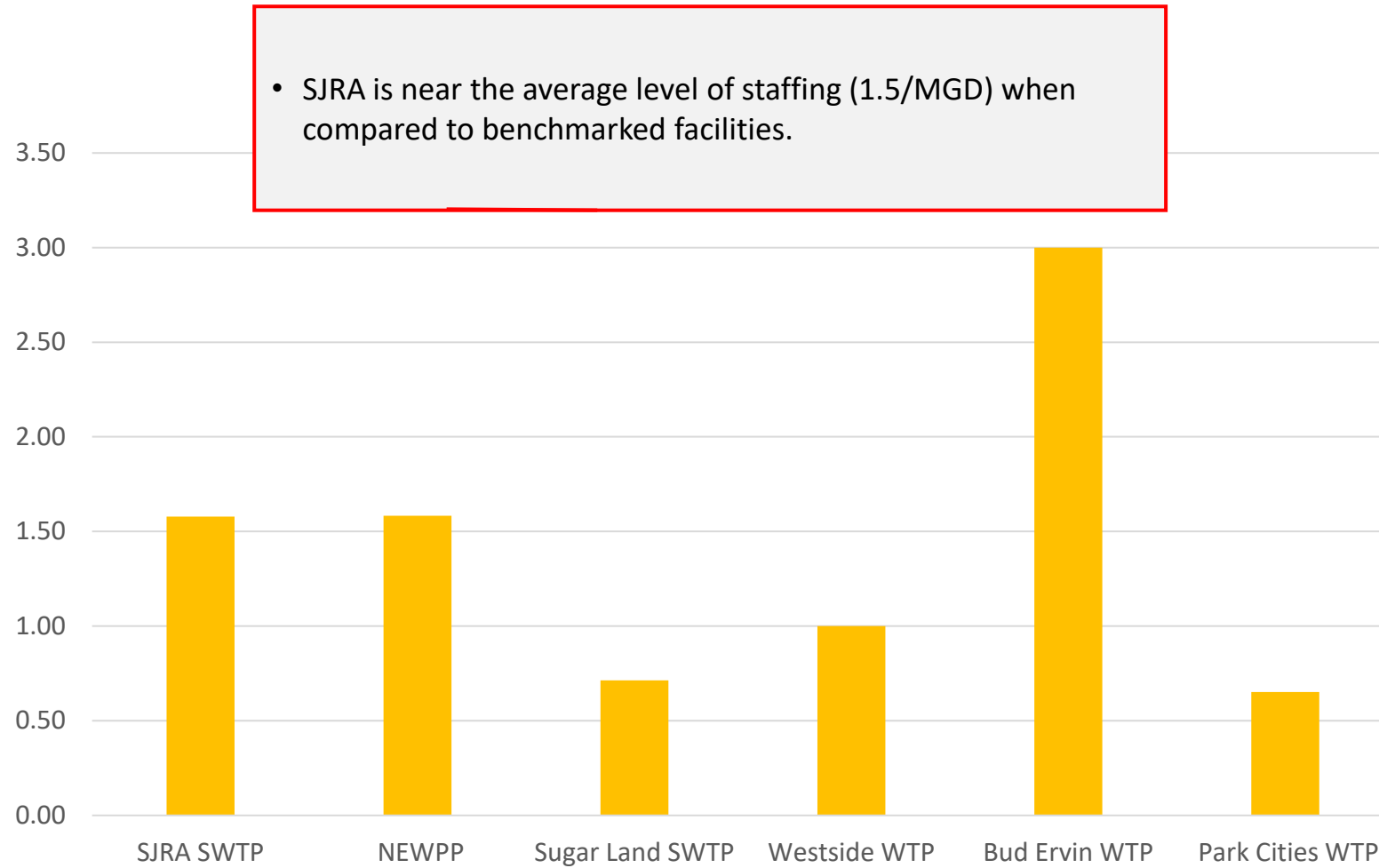
# GAC Costs Normalized to Production Flow and TOC % Removal



# Fixed Costs Normalized to Production Flow



# Staff Normalized to Production Capacity





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## Conclusions

# Conclusions

- SJRA's normalized O&M costs are similar to regional suppliers benchmarked for this project (Houston & Sugar Land)
- SJRA variable O&M costs higher due to GAC replacement costs
- GAC replacement necessary to stay on free chlorine, converting to chloramines would require significant capital investment
- SJRA's higher fixed costs attributable to higher equipment & services cost, which are a function of proactive approach to facility O&M
- SJRA labor profile near the mean of facilities studied for this project

**THANK YOU!**

**We're happy to answer any  
questions.**

## **Item 9**

**Discuss and act on engagement of a firm to complete an administrative, accounting, and revenue/expense allocation study**

**Item 10**  
**GRP Items for Consideration by the SJRA**  
**Board of Directors**

# Item 11

## Attorney's Update

**Item 12**  
**Future GRP Review Committee Meeting**  
**Agenda Items**

**Item 13**  
**Future Meeting Schedule**

**Monday, March 25, 2024**



# Item 14 Adjourn