

DRAFT Non-Potable Water Master Plan

Beaumont Cherry Valley Water
District

June 8, 2022





2022 Non-Potable Water Master Plan

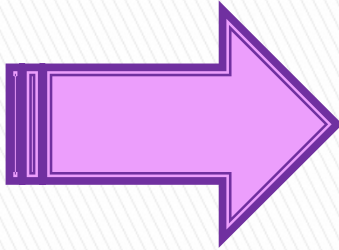


200+ pages!

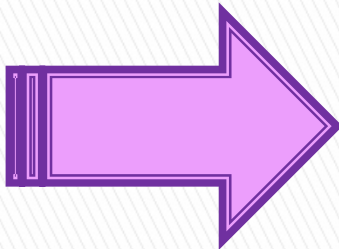
District Engineering Staff completed a draft of the Non-Potable Water Master Plan



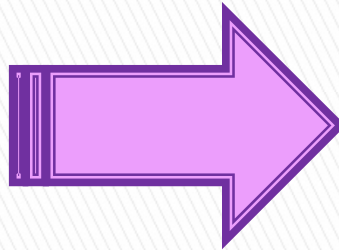
Non-potable Water Master Plan (in process)



2020 Urban Water Management Plan Update



Rate & Fee Studies



Capital Facilities Program

Non-Potable Master Plan forms the Basis for Ongoing and Upcoming Studies, Projects, and Development

Non-Potable Master Plan Structure

▶ 8 Sections

- 1 – Background
- 2 – Regulations
- 3 – Population
- 4 – Non-Potable Sources
- 5 – Non-Potable Demands
- 6 – Facilities Required
- 7 – Facilities Costs
- 8 – Priorities, Funding, Implementation

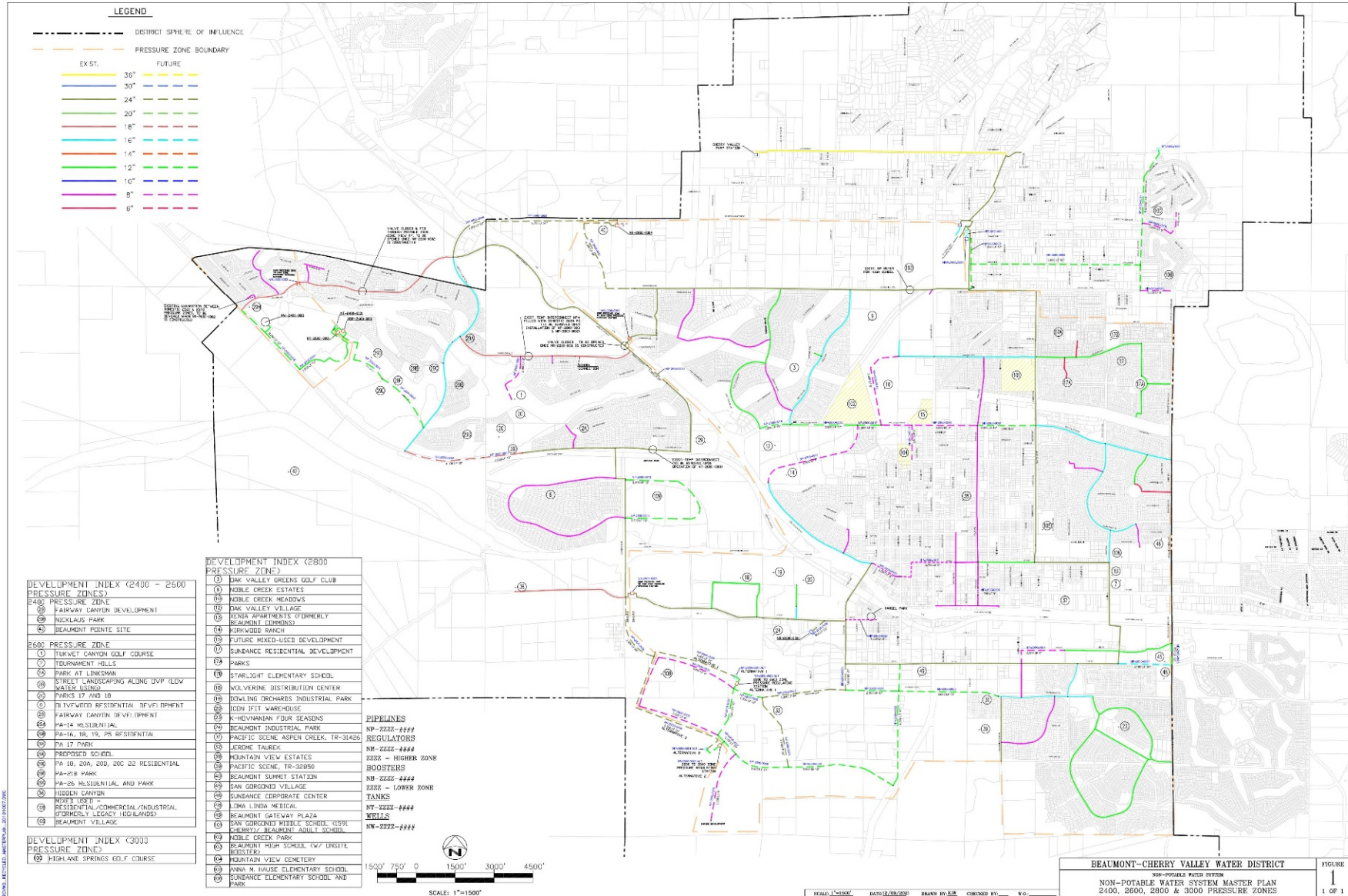
Section 1 – Background, Service Area Characteristics, and Overview of District Facilities

- ▶ Background of the District
- ▶ History on Prior Planning Efforts
- ▶ Master Planning with Urban Water Mgmt Plan
- ▶ Significant Events Over Time
 - Beaumont Basin Adjudication
 - East Branch Extension (EBX I – 2003)
 - NCRF (Ph I – 2006, Phase II – 2018)
 - Others
- ▶ Interagency Discussions
 - City of Beaumont, City of Banning, YVWD

Facilities Map

Existing Facilities

- ▶ 300+ Connections
- ▶ 50± miles of Pipeline
- ▶ 1-2MG Storage Tank

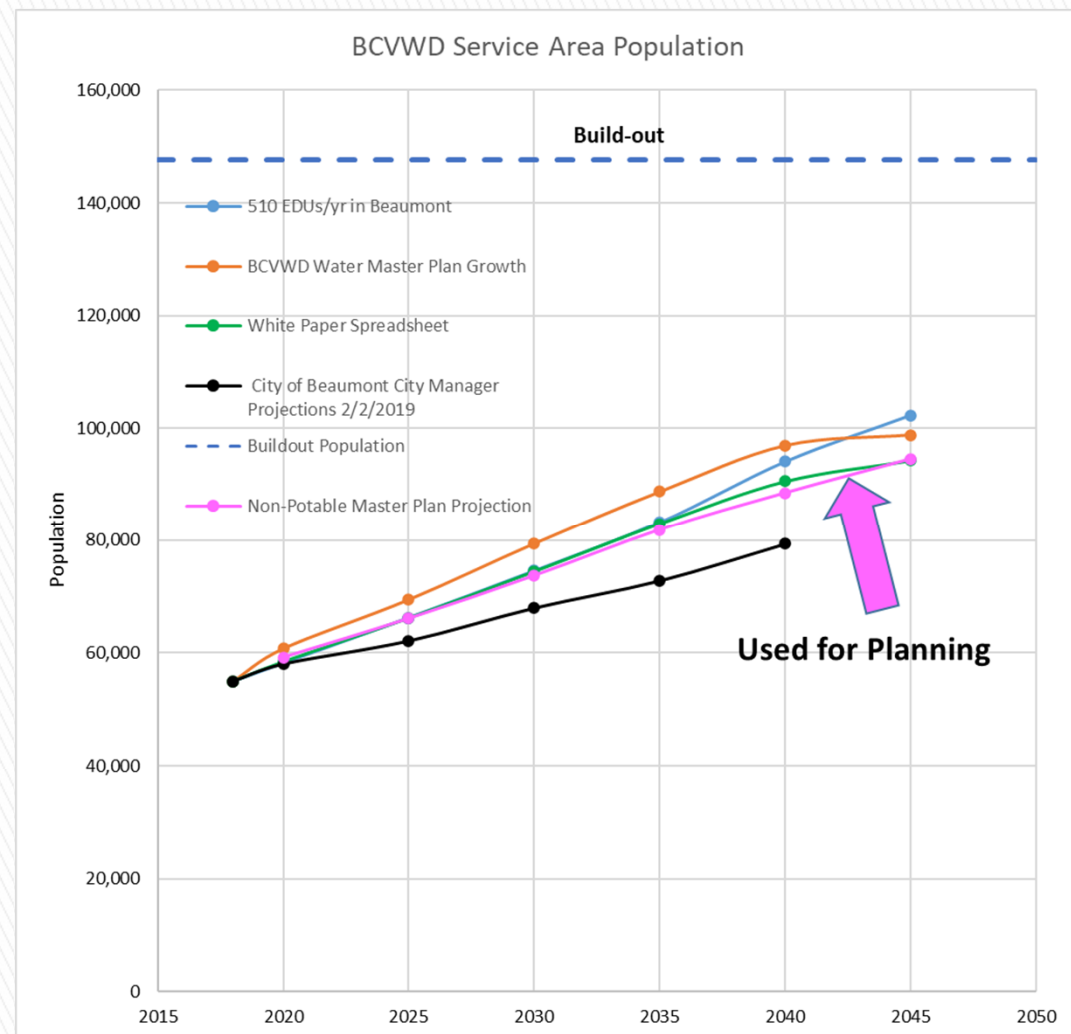


Section 2 – Regulatory Constraints

- ▶ California Code of Regulations (CCR)
 - Title 17, Div. 1, Ch. 5, Group 4 Drinking Water Supplies
 - Cross-Connections
 - Title 24, Div. 4, Ch. 1–3
- ▶ State Water Resource Control Board Division of Drinking Water (SWRCB DDW)
- ▶ Regional Water Quality Control Board (Santa Ana)
- ▶ Use Restrictions
- ▶ Water Quality Objectives
- ▶ SWRCB Division of Water Rights
- ▶ Governmental Constraints
 - Executive Orders (After 2014–2016 Drought)
 - AB 1668 (Water Budgets for Indoor Consumption)

Section 3 – Service Area Population

- ▶ Generally Coincides with Urban Water Management Plan (UWMP)
 - Accounts for City's General Plan Update (Downtown Area)
- ▶ Multiple Growth Projections Evaluated
 - District Baseline (2018)
 - City WWTP Feasibility Study (2016)
 - BCVWD Whitepapers (2017–2018)
 - BCVWD Potable Master Plan (2016)



Section 4 – Non-Potable Water Sources

▶ Water Supplies

- Potable Groundwater
- Non-Potable Groundwater (Currently Well 26)
- Recycled Water (City of Beaumont)
- Screened Imported State Project Water (SPW)
- San Timoteo Canyon Groundwater (Future)
- High Nitrate Groundwater from Mouth of Edgar Canyon (Future)

▶ Recycling Facilities

- City of Beaumont WWTP
 - Considered to be the Source of Supply for Recycled Water
- Others (No Longer Considered – Kept for Historical Purposes)
 - YVWD Henry Wochholz Regional Water Recycling Facility
 - City of Banning Treatment Plant

Section 5 – Non-Potable Water Demands

- ▶ Historic Non-Potable Water Usage
- ▶ Monthly Variations in Non-Potable Water Demand
- ▶ Variations in Daily Demand
 - Max Day and Peak Hour Demands
 - Peaking Factors are relative to other nearby Agencies
- ▶ Golf Course Demands
 - Oak Valley Golf Club
 - Morongo Golf Club at Tukwet Canyon
- ▶ Future Development
- ▶ Retrofit Facilities

Table 5-4
Non-potable Water Irrigation System
Master Planning Peaking Factors

Condition	Ratio to Average Day Demand
Average Day (annual basis)	1.0
Average Day on Maximum Month	1.9
Maximum Day	2.5
Peak Demand on Maximum Day for irrigation users	7.5

Section 6 – Facilities Requirements

- ▶ Recycled Water
- ▶ Winter: Supplies > Demands
- ▶ Summer: Demands < Supplies
- ▶ Supplemental Sources Will be Required
 - Imported Water & Groundwater

BCVWD Non-Potable Consumption Summary by Month 2016-2020

Consumption Year	Total # of accounts	Total Monthly Consumption, AF												Total Annual Consumption	Non Potable System Consumption over/(under) Average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
2016	277	43.03	28.53	76.85	53.65	66.85	112.30	222.09	211.82	222.74	164.60	119.81	93.93	1,416.19	(219.84)
2017	290	27.66	10.07	8.68	85.46	143.74	197.49	211.08	240.15	273.63	191.74	156.74	150.43	1,696.88	60.84
2018	300	131.10	94.24	87.75	52.13	142.96	157.02	243.54	235.70	267.33	192.46	154.14	120.33	1,878.70	242.66
2019	309	66.26	25.45	12.54	42.87	148.96	63.06	186.08	271.51	235.47	224.62	184.82	79.50	1,541.15	(94.89)
2020	311	21.91	70.56	58.21	29.68	60.87	191.26	210.97	233.46	202.54	290.12	144.11	133.56	1,647.26	11.22
Average		57.99	45.77	48.81	52.76	112.68	144.23	214.75	238.53	240.34	212.71	151.92	115.55	1,636.04	-
Available Recycled Water Supply:		114.17	103.12	114.17	110.48	114.17	110.48	114.17	114.17	110.48	114.17	110.48	114.17		
Left over Recycled Water to Store or Recharge:		56.18	57.35	65.36	57.73	1.49	(33.74)	(100.58)	(124.36)	(129.86)	(98.54)	(41.44)	(1.38)	238.10	Based on calculator below

Recycled Water Availability	MGD/Day	AFD	AF per Month (for days shown)		
			28	30	31
	1.00	3.07	85.93	92.07	95.14
	1.10	3.38	94.53	101.28	104.65
	1.20	3.68	103.12	110.48	114.17
	1.30	3.99	111.71	119.69	123.68
	1.40	4.30	120.30	128.90	133.19
	1.50	4.60	128.90	138.11	142.71

Section 6 – Facilities Requirements Con't

Figure 6-1
City of Beaumont WWTP and Location for BCVWD 2800 NP Zone RW Booster Pump Station



Section 7 – Facility Costs

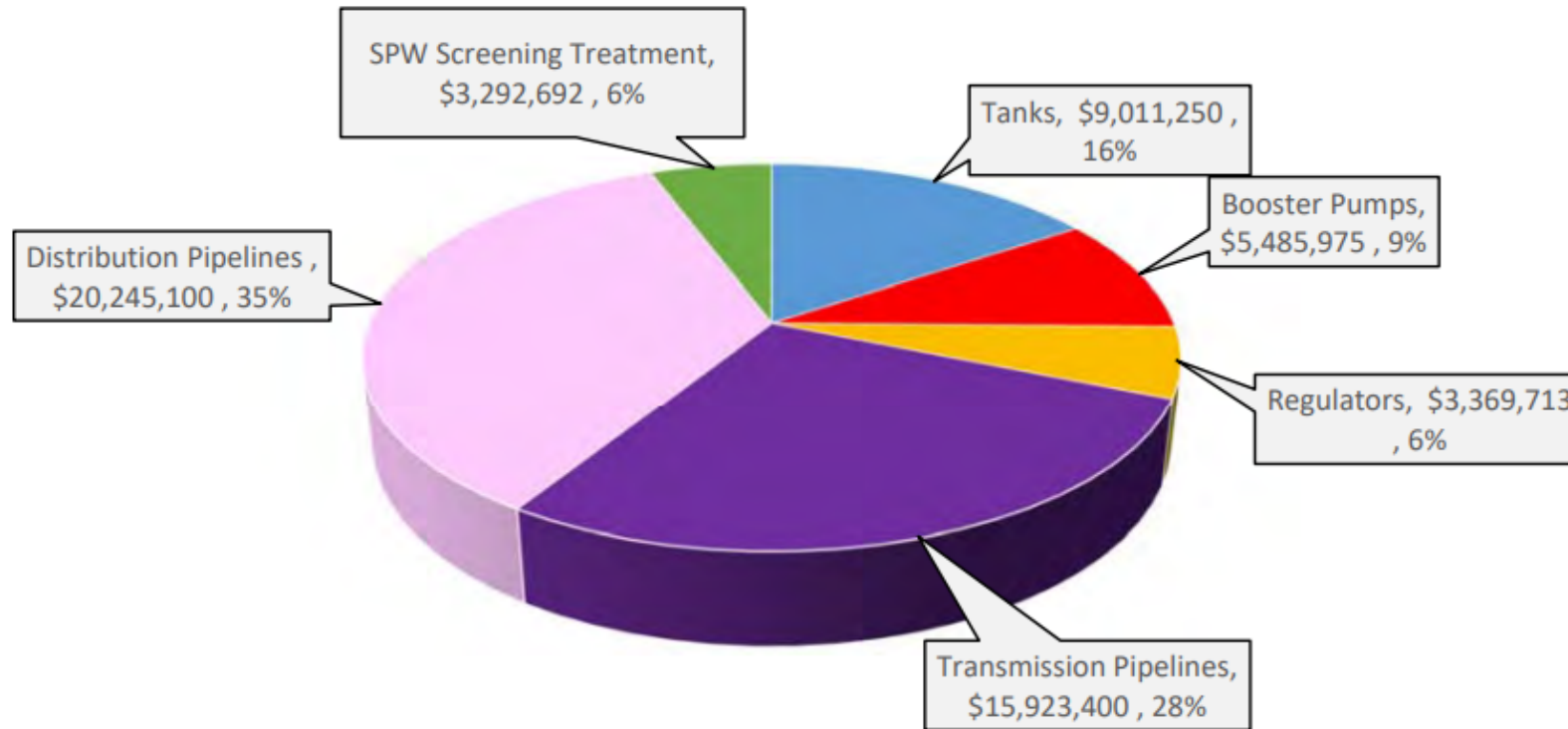
- ▶ **Costs Utilize Engineering News Record (ENR)**
 - 20-city Average Construction Cost Index (CCI) for 2021
- ▶ **Unit Costs Set for**
 - Well (Drilling & Outfitting)
 - Water Tanks
 - Booster Pumping
 - Pressure Regulating Stations
 - Transmission Piping (>16")
 - Distribution Piping (6", 8", 12")

Section 7 – Facility Costs Con't

**Table 7-8
Engineering and Other Allowances for Major Facilities and Pipelines**

Item	Major Facilities Percentage	Pipelines and Transmission Mains Percentage
Design Engineering	7.5%	3.5%
Survey and Geotechnical including project staking and materials testing	5%	3%
Permitting and Environmental Documentation	3%	1.5%
Construction Contract Administration, Shop Drawing Review, RFIs and Inspection	7.5%	4%
Legal and General Administrative	2%	1%
Total Engineering and Other Costs Applied to the Total of Construction Cost plus Contingency	25%	13%

Section 7 – Facility Costs Con't



Extraction Wells Not Depicted, but Costs Estimated to be \$24.6M (Identified in Table 7-19)

Table 7-18
Non-potable Water Master Plan Facility Expenditures by Pressure Zone (\$000s)

Year	Tanks	Booster Pumps	Regulators	Transmission Pipelines	Distribution Pipelines	SPW Screening Treatment	Total
2600 and Below	4,039	3,675	731	10,537	4,237	0	23,219
2800	3,900	1,811	2,639	5,387	11,695	0	25,430
3000	1,073	0	0	0	4,314	3,293	8,679
Total	9,011	5,486	3,370	15,923	20,245	3,293	57,328

Section 8 – Priorities, Funding & Implementation

▶ Immediate Priorities

- Execute an agreement with the City of Beaumont for distribution of the recycled water.
- Complete the design and construct the Booster Pump Station at or near the City of Beaumont WWTP to boost recycled water from the WWTP into the 2800 Zone.
- Design and construct pressure regulating stations between the 2800/2600 zones, and 2600/2400 zones to deliver the recycled water throughout the system.
- Complete and obtain approval of a Title 22 Engineering Report for the NPW Distribution System from DDW and RWQCB, and obtain a permit for distribution of recycled water.
- Identify the site managers for the reuse sites and ensure that the site managers are properly trained.
- Isolate the potable water system from the non-potable water system in the 2600 and 2400 pressure zones.
 - Perform cross-connection testing to ensure the potable water system is completely isolated from the non-potable system.
- Develop a rate structure for non-potable water.

Section 8 – Priorities, Funding & Implementation – Con't

▶ Near-Term Priorities

- Installation of a fine screening facility on the imported SPW pipeline at the 2800 Pressure Zone Non-Potable Tank Site (± 5 years)

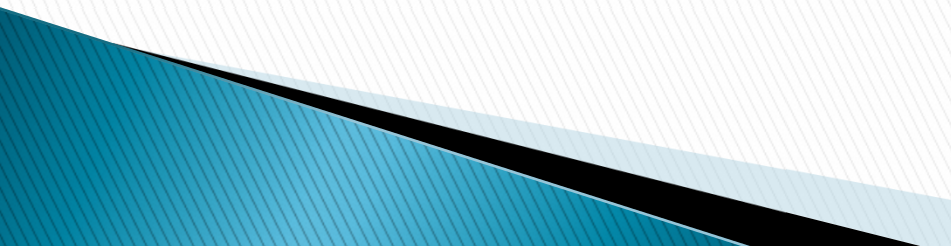
▶ Long-Term Priorities

- Continued expansion of Master Planned facilities as development continues.
- Conversion of various sites throughout the 2800 Pressure Zone.

▶ Funding

- Federal and State Grants & Loans
- Clean Water State Revolving Fund (CWSRF)
- U.S. Bureau of Reclamation (USBR)
- Regional Funding (Santa Ana Watershed Project Authority [SAWPA])
- Bonds
- Facilities Fees (Capacity Charges)
- Front Footage Fees
- Facility Depreciation

Next Steps

- ▶ Finalize Purchase Agreement for Recycled Water with the City of Beaumont
 - ▶ Further Coordination with City of Beaumont regarding Recycled Water
 - ▶ Complete the Non-Potable Water Master Plan and formally adopt.
 - ▶ Perform District tasks associated with implementing Recycled Water Distribution and Site Validation Activities
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Discussion /
Questions