

Water Supply Trigger Point Factors and Recommendations



Council Presentation
August 27, 2019



Bottom Line Up Front

Why are we here?

- Desire to develop a drought-proof water supply to meet future needs of the Coastal Bend
 - Water Supply has decreased due to:
 - Reduced Choke Canyon Reservoir and Lake Corpus Christi storage capacity
 - Reduced quantity of Lake Texana contract water
 - Water Demand is increasing due to economic growth
 - To meet expected Water Demand, we need to move forward with the procurement of a Seawater Desalination Plant now
 - Review alternative water supply options
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The Important Questions

What do we need?

- A new drought-proof water supply

When do we need it?

- Demand projections indicate a new water supply is needed in the 2022 to 2023 time frame

Can we afford it?

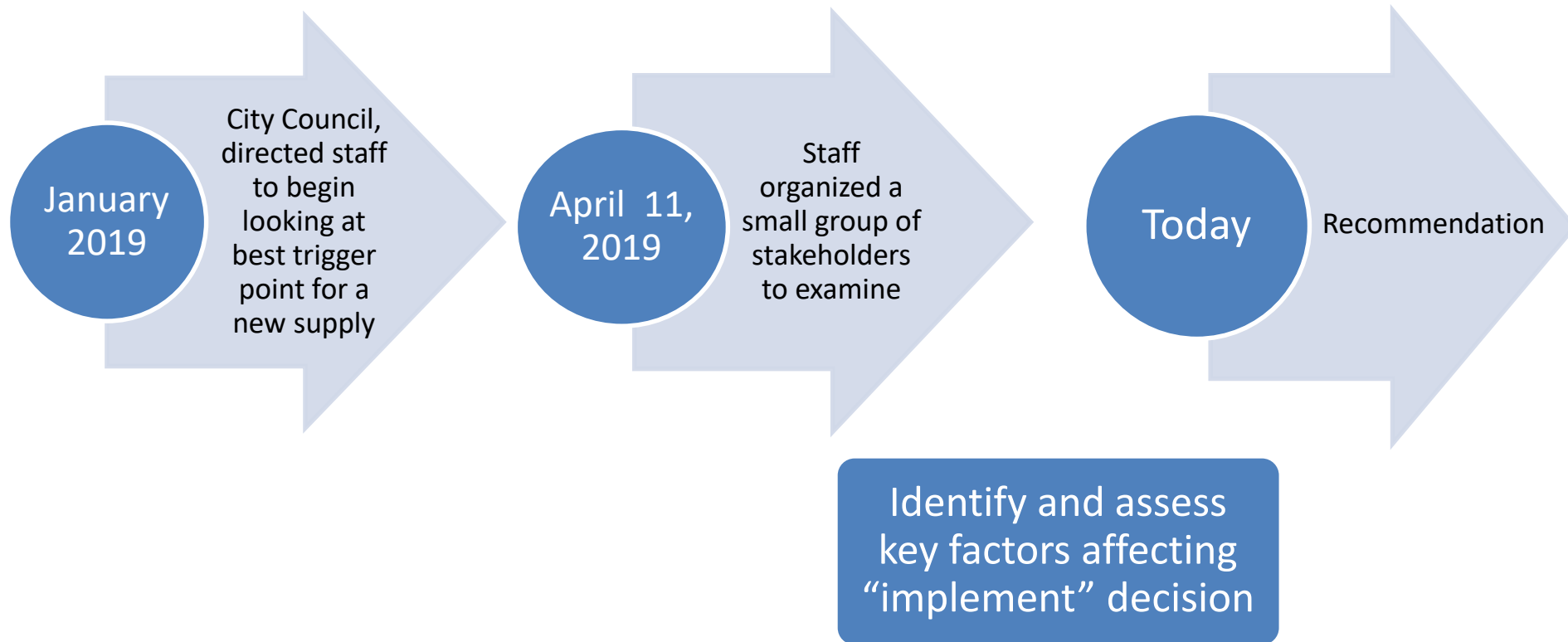
- Yes...based on financial projections and increases in consumption, we have the financial resources available to acquire a new water supply

Have we have started and do we need to continue?

- Due to long lead times for permitting, financing, procurement, design, construction, and start-up, we need to continue the process underway
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Timeline for Trigger Point Development



Key Factors: Supply -- Demand -- Financial

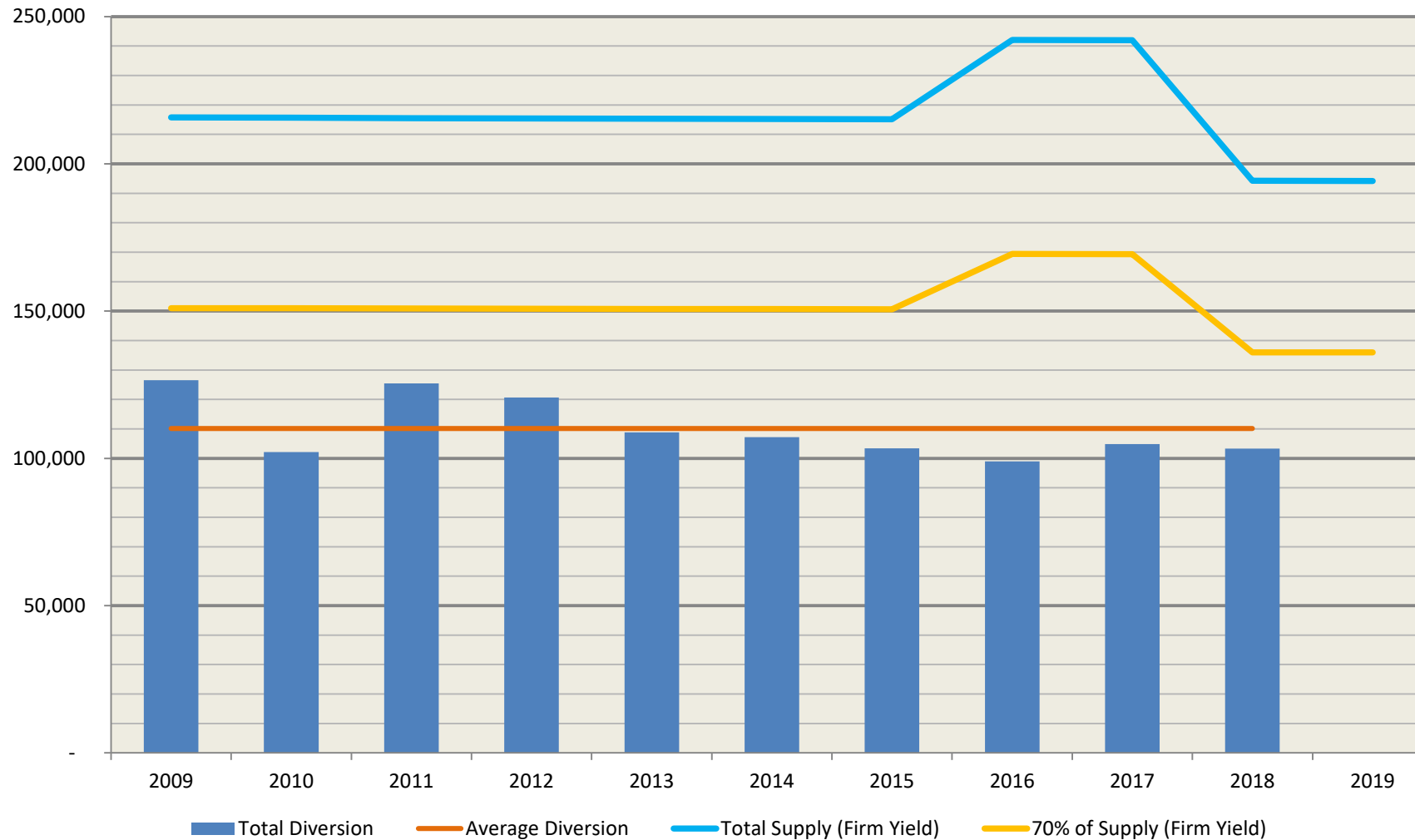


Supply Assumptions

- Recent Reduction in Supply:
 - Change in water supply model due to the new drought of record
 - Change in storage capacity at reservoirs due to sedimentation
 - Change in quantity available from Lake Texana
 - Environmental Permits for Seawater Desalination:
 - 30 MGD at Inner Harbor
 - 40 MGD at La Quinta Channel
 - Desalination Plants designed to be expandable from 10 MGD to 20 MGD output
 - Future expansion to permit limits is possible at additional future cost
 - Time required to expand:
 - Plants will be designed to expand to 20 MGD output in 12 months or less
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Supply-Demand History





Supply Takeaways

- A drought-proof water supply is needed
 - The Coastal Bend is 100% dependent on surface (rain) water to meet demand
 - A non-surface water source is needed to ensure supply during drought and to meet future increases in demand
- Seawater Desalination provides a non-surface water source
 - Can be expanded to respond to future drought
 - Can be expanded to meet future demand
 - Can be designed to be expandable at affordable cost
 - Can be designed to be expandable in 12 months or less
- Demand projected to approach or exceed 70% of firm yield is a trigger point to increase Supply



Demand Assumptions

- Large increases in Water Demand are projected to occur in 2022, 2023, and 2028

Known Projects:

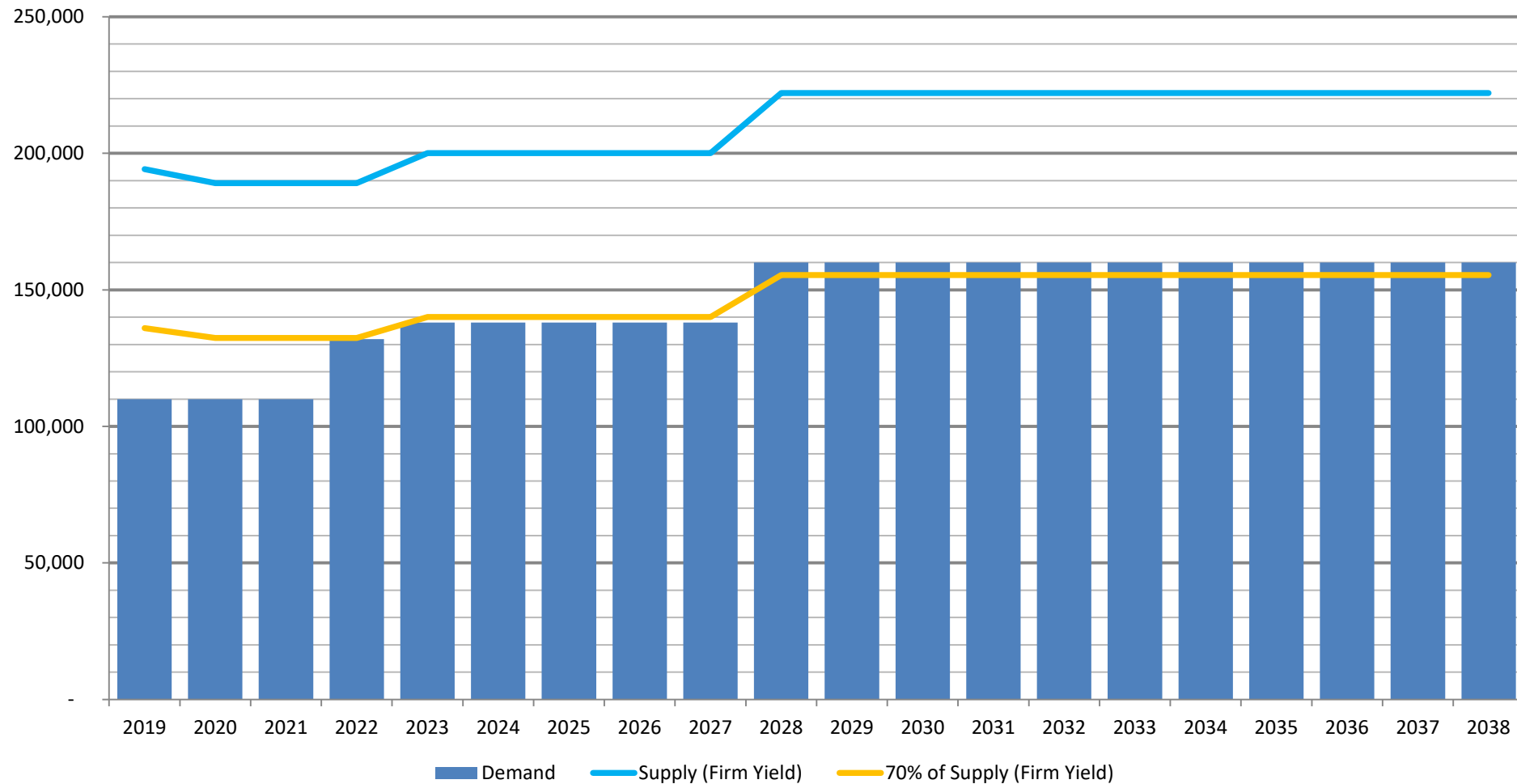
- 2022 --- 25 MGD Gulf Coast Growth Ventures (GCGV)
- 2023 --- 5 MGD Steel Dynamics Southwest, LLC

Future Projects:

- 2028 --- 25 MGD Large volume user similar to GCGV
- A new Water Supply designed to meet new Water Demand should be in place before the new demand is consuming water
- A Seawater Desalination plant requires 24 months to design, build, and start-up



Supply-Demand Projection





Demand Takeaways

- Demand projected to approach or exceed 70% of firm yield is a trigger point to increase Supply
- Demand will reach 70% of firm yield by 2022 - 2023
 - Due to design, build, and start-up lead time (24 months) for a new Seawater Desalination Plant, we need to keep moving forward energetically
 - Need to start design and build of first Seawater Desalination Plant in early 2021
- After first plant is operational, Water Demand will increase in the future to the point where a second plant will be needed
 - A second Desalination Plant is dependent on the timing of the next large volume user on the northside
 - Construction of a second Desalination Plant should begin 24-months before the increase in demand is expected

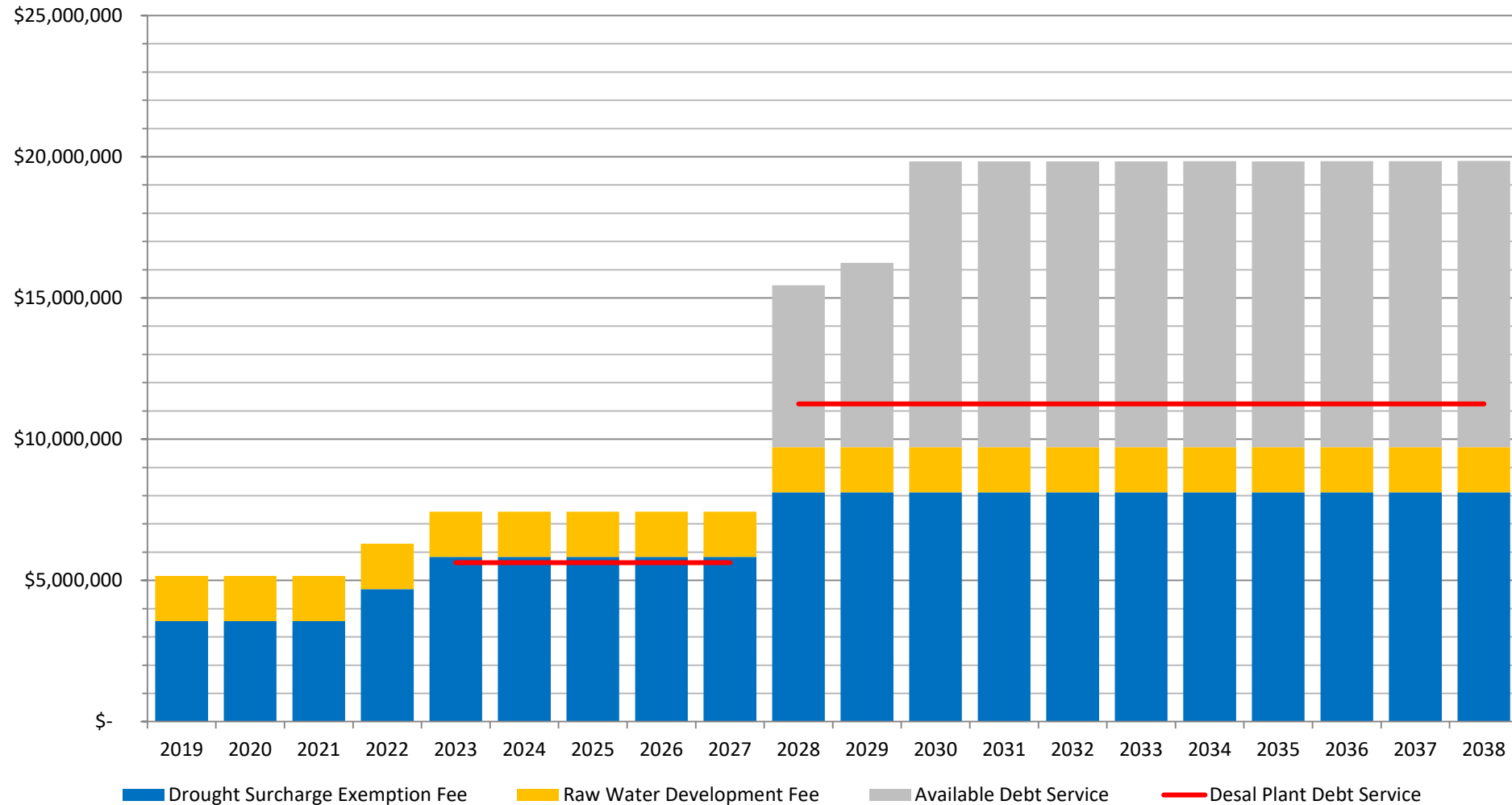


Financial Assumptions

- 10 MGD Seawater Desalination Plant (expandable to 20MGD)
 - Construction cost of \$140,000,000 (estimated)
 - Cost to expand:
 - Expansion from 10 MGD to 20 MGD output estimated to cost \$50,000,000
 - Membranes, Pretreatment, and Post-Treatment Equipment
 - State Water Implementation Fund for Texas (SWIFT) Financing
 - 30 year loan at 2% interest (estimated)
 - Drought Surcharge Exemption Fee
 - Large Volume Users
 - \$0.25 per 1000 gallons (volume of $\approx$ 14.2 million kgal)
 - 2019 annual revenue --- \$3,500,000+
 - New demand in 2022 and 2028 will increase Drought Surcharge Exemption Fee revenue
 - 2022 annual revenue --- \$5,800,000+
 - 2028 annual revenue --- \$8,100,000+
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Financial Assessment





Financial Takeaways

- Large increase in Water Demand in 2022 will occur
- Seawater Desalination Plant construction cost estimated at \$140,000,000
 - 10 MGD expandable to 20 MGD Plant
- Working with the Texas Water Development Board on financing (SWIFT Loan)
 - Most favorable financing terms available
- Use of Drought Surcharge Exemption Fee + Available Debt Service + Raw Water Development Charge will pay for Seawater Desalination plants and expansions



Recommendation

- Secure a drought-proof water supply that meets future needs of the Coastal Bend
- Develop procurement process for a Seawater Desalination Plant now
- Move forward with the application process for a SWIFT Loan
- Based on supply and demand projections, the first Seawater Desalination Plant needs to be operational (supplying water) in early 2023



Alternative Water Supply Options

- Water Reuse Project
 - Creating Water Reuse Plan that will establish process to identify feasible reuse ideas
- Aquifer Storage and Recovery Project
 - Corpus Christi Aquifer Storage and Recovery Feasibility Project Phase 1 is currently being completed
- Groundwater Project
 - Evaluating the potential of groundwater as a supply option
- Seawater Desalination Project
 - Seawater Desalination is the number one priority
 - Siting and Permitting phase underway
 - Virtually unlimited drought-proof supply of water available