

# Water Supply Trigger Point Factors and Recommendations



Council Presentation  
August 27, 2019



# Bottom Line Up Front

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## 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

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## **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



Identify and assess key factors affecting “implement” decision

Key Factors: Supply -- Demand -- Financial



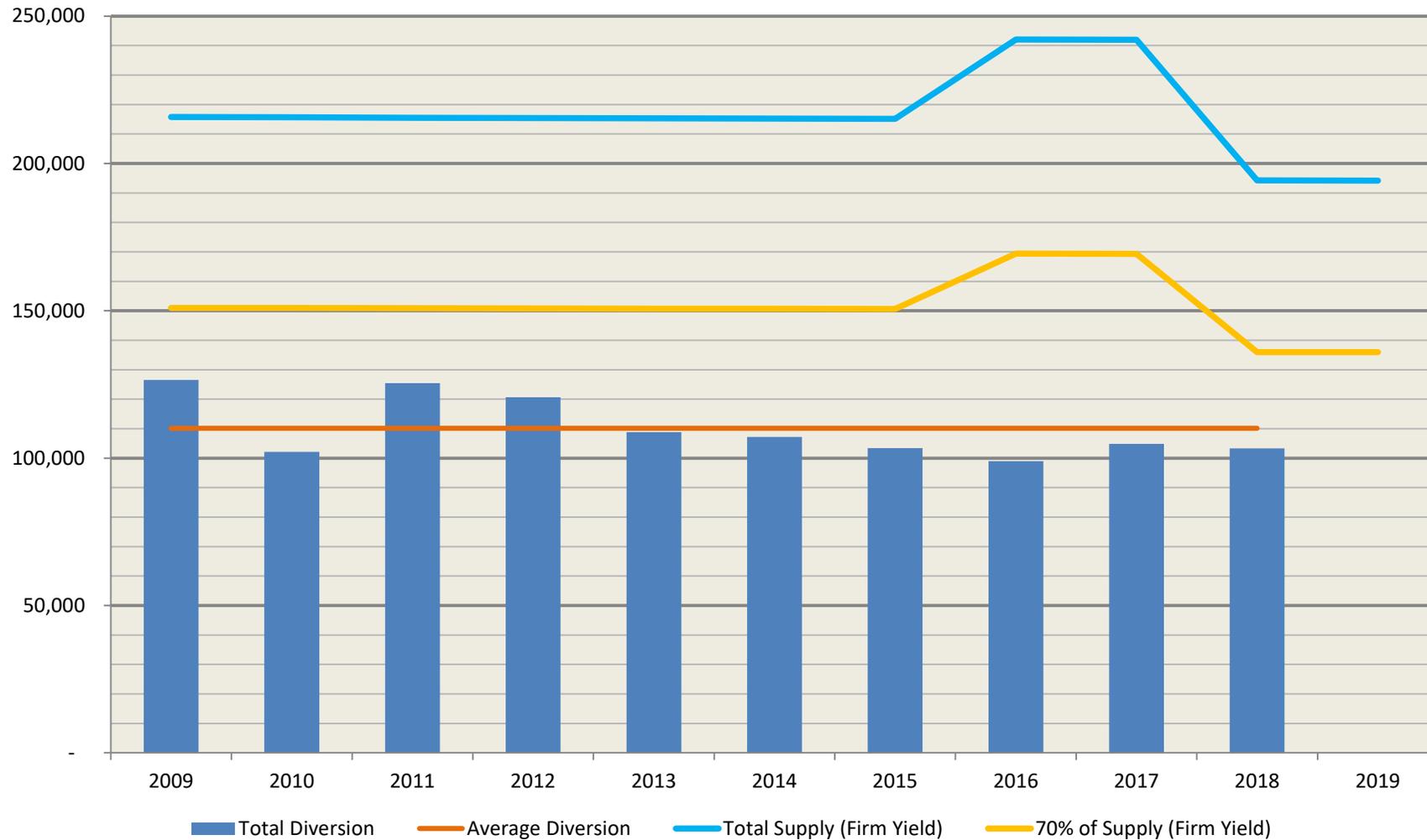
# Supply Assumptions

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- 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

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- 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

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

## Known Projects:

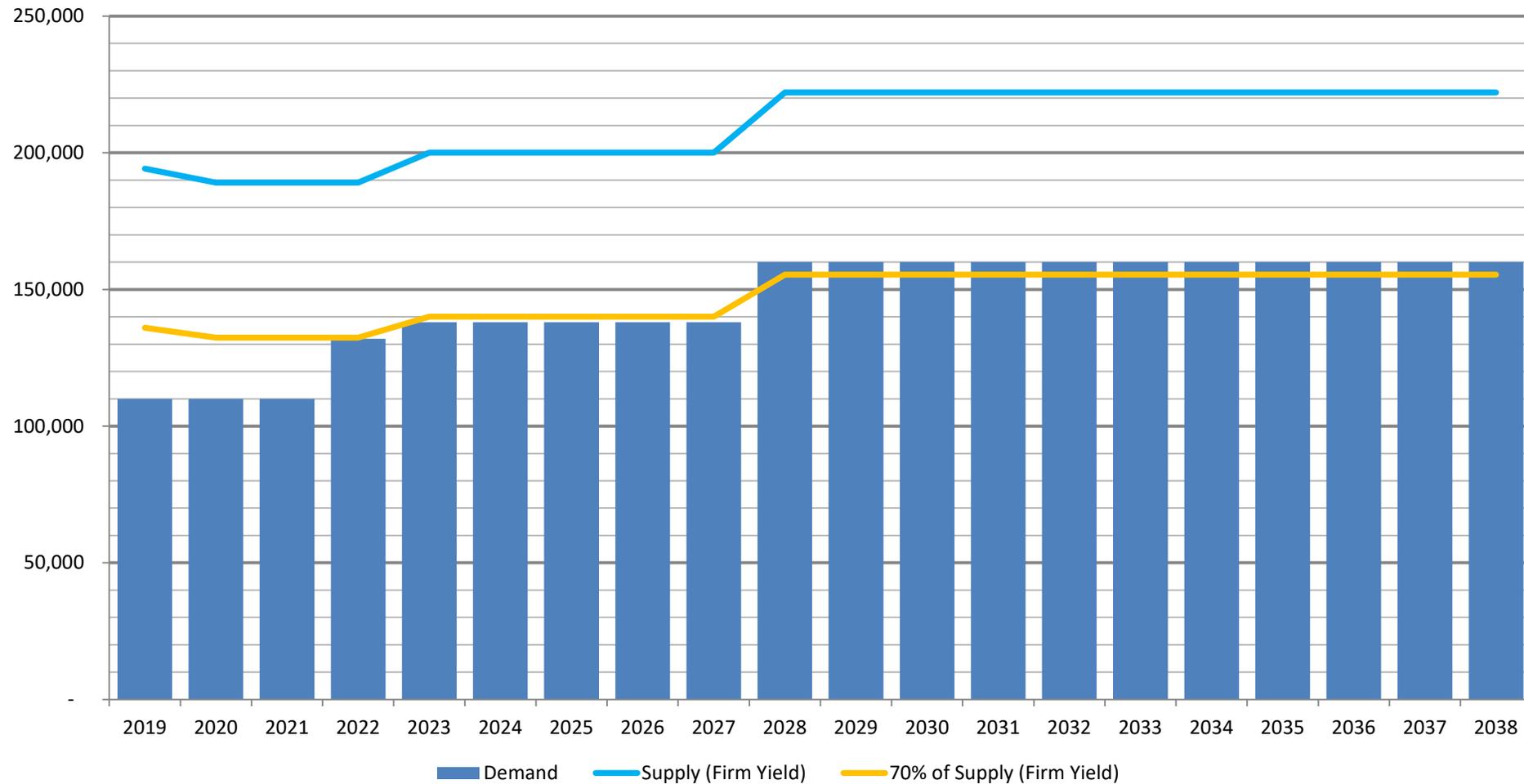
- 2022 --- 25 MGD Gulf Coast Growth Ventures (GCGV)
- 2023 --- 5 MGD Steel Dynamics Southwest, LLC

## 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
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# Supply-Demand Projection





# Demand Takeaways

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- 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



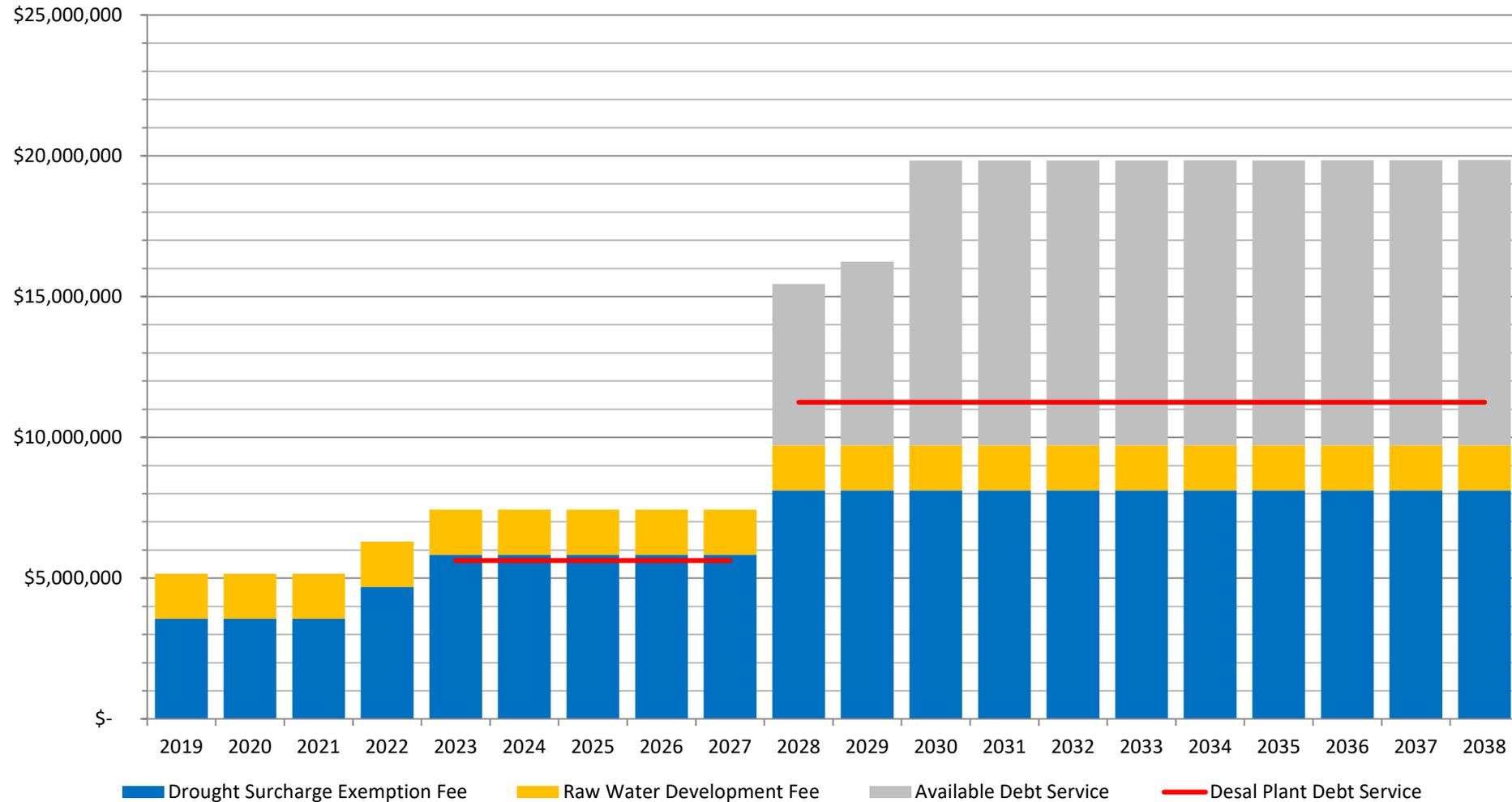
# Financial Assumptions

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- 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

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- 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

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- 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

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- 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