LEAGUE CITY
EST. 1893

Public Hearing

2023 MASTER WATER & WASTEWATER PLANS UPDATE

Master Plan Updates

- Last Update was in 2018

- Study evaluated existing water and wastewater systems and the development of capacity and renewal recommendations for a 5-yr, 10-yr, and Buildout Capital Improvement Plan (CIP)

Water Master Plan Update

Over the last 10 years, the completion of water projects at SH 3, SSH, Calder Road., and Northside BPS, water system operations have stabilized, and special summer operational procedures have been reduced to localized pockets only during peak demand conditions.

Current system:

- approximately 2.86 million feet of mains in service.
- Main Sizes vary from 1” to 48” in diameter
- No low-pressure areas in system – can maintain 50psi all times of day.
- 10 Booster Pump Stations in use (10 to 54 years old).

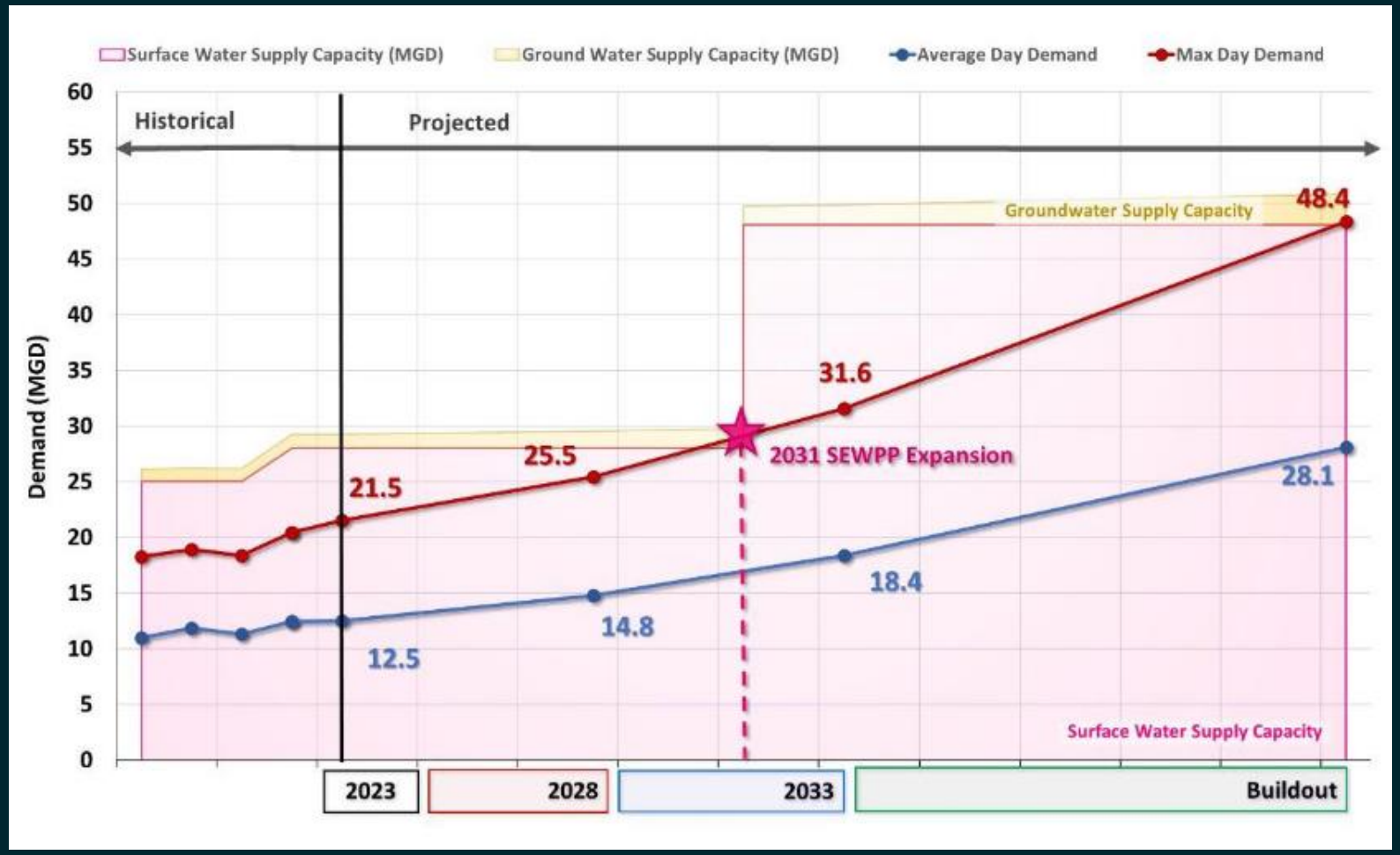
Water Master Plan Update cont.

City has at present secured 28.044 MGD of water, but an additional 20.4 MGD is needed to meet projected demands at buildout.

City is working an agreement to reserve 20MGD of capacity from the SEWPP to help meet our long-term needs.

Although City has emergency well capacity, we are restricted to only 10% of the total annual water supply from groundwater sources without facing heavy monetary penalties from Harris-Galveston Subsidence District.

Water Master Plan Update cont.



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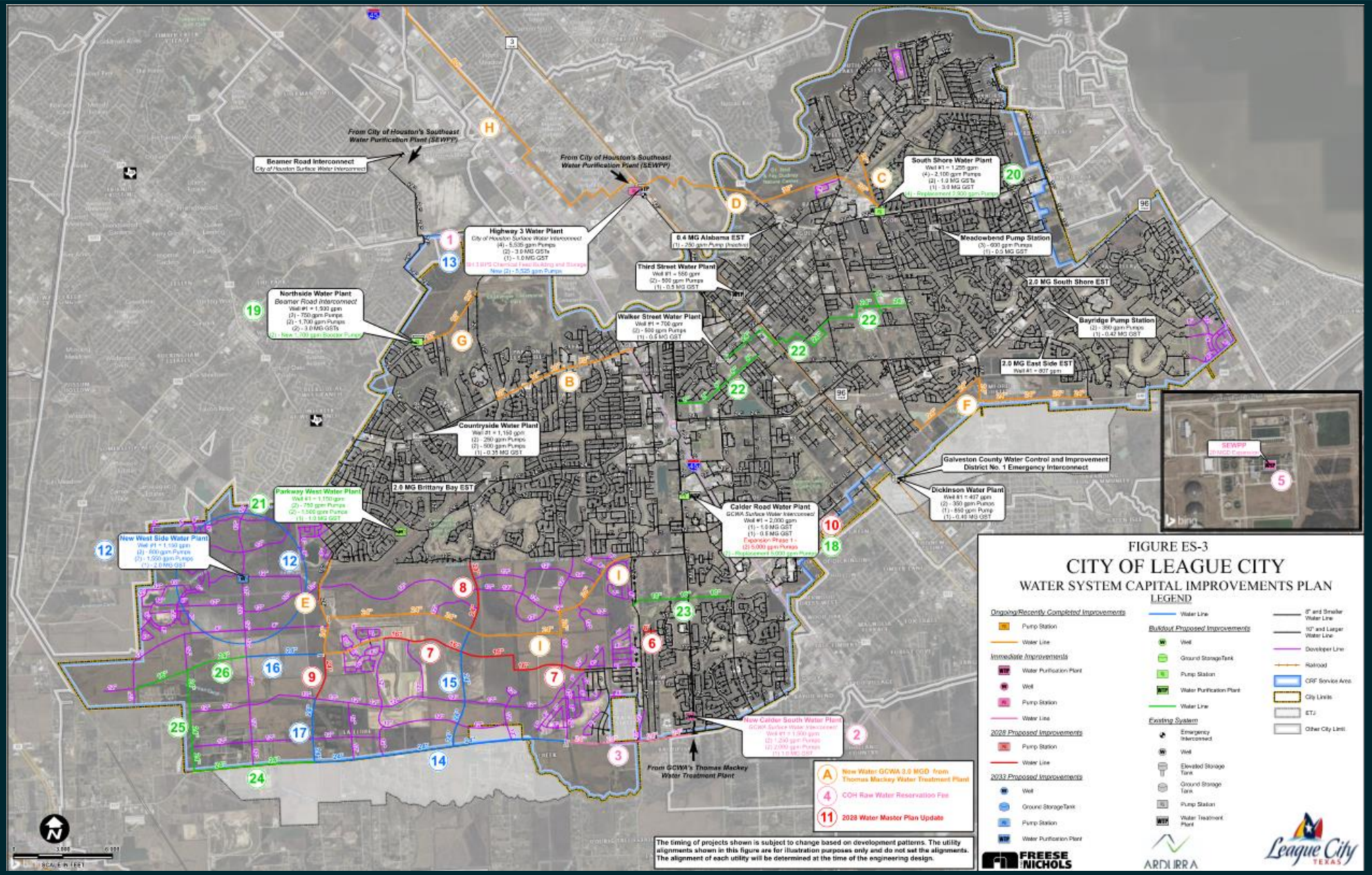
From City of Houston's Southeast Water Purification Plant (SEWPP)
Beamer Road Interconnect
City of Houston Surface Water Interconnect
From City of Houston's Southeast Water Purification Plant (SEWPP)
Highway 3 Water Plant
City of Houston Surface Water Interconnect
(4) - 5,535 gpm Pumps
(2) - 3.0 MG GSTs
(1) - 1.0 MG GST
0.4 MG Alabama EST
(1) - 250 gpm Pump (Inactive)
South Shore Water Plant
Well #1 = 1,255 gpm
(4) - 2,100 gpm Pumps
(2) - 1.0 MG GSTs
(1) - 3.0 MG GST
Meadowbend Pump Station
(3) - 600 gpm Pumps
(1) - 0.5 MG GST
Third Street Water Plant
Well #1 = 550 gpm
(2) - 500 gpm Pumps
(1) - 0.5 MG GST
2.0 MG South Shore EST
Northside Water Plant
Beamer Road Interconnect
Well #1 = 1,500 gpm
(3) - 750 gpm Pumps
(2) - 1,700 gpm Pumps
(2) - 3 MG GSTs
(1) - New 1,700 gpm Booster Pump
Walker Street Water Plant
Well #1 = 700 gpm
(2) - 500 gpm Pumps
(1) - 0.5 MG GST
Bayridge Pump Station
(2) - 350 gpm Pumps
(1) - 0.42 MG GST
2.0 MG East Side EST
Well #1 = 807 gpm
Countryside Water Plant
Well #1 = 1,150 gpm
(2) - 250 gpm Pumps
(2) - 500 gpm Pumps
(1) - 0.25 MG GST
Galveston County Water Control and Improvement District No. 1 Emergency Interconnect
2.0 MG Brittany Bay EST
Parkway West Water Plant
Well #1 = 1,150 gpm
(2) - 750 gpm Pumps
(2) - 1,500 gpm Pumps
(1) - 1.0 MG GST
Dickinson Water Plant
Well #1 = 407 gpm
(2) - 300 gpm Pumps
(1) - 850 gpm Pump
(1) - 0.40 MG GST
Calder Road Water Plant
GCWA Surface Water Interconnect
Well #1 = 2,000 gpm
(1) - 1.0 MG GST
(1) - 0.5 MG GST
Expansion Phase 1 -
(2) 5,000 gpm Pumps
(1) - Replacement 5,000 gpm Pump
New West Side Water Plant
Well #1 = 1,150 gpm
(2) - 800 gpm Pumps
(1) - 1,500 gpm Pump
(1) - 2.0 MG GST
New Calder South Water Plant
GCWA Surface Water Interconnect
Well #1 = 1,000 gpm
(2) 1,200 gpm Pumps
(2) 2,000 gpm Pumps
(1) 1.0 MG GST
SEWPP
(2) MGD Expansion
From GCWA's Thomas Mackey Water Treatment Plant
A New Water GCWA 3.0 MGD from Thomas Mackey Water Treatment Plant
4 COH Raw Water Reservation Fee
11 2028 Water Master Plan Update
The timing of projects shown is subject to change based on development patterns. The utility alignments shown in this figure are for illustration purposes only and do not set the alignments. The alignment of each utility will be determined at the time of the engineering design.
FIGURE ES-3
CITY OF LEAGUE CITY
WATER SYSTEM CAPITAL IMPROVEMENTS PLAN
LEGEND
Ongoing/Recently Completed Improvements
Pump Station
Water Line
Immediate Improvements
Water Purification Plant
Well
Pump Station
Water Line
2028 Proposed Improvements
Pump Station
Water Line
2033 Proposed Improvements
Well
Ground StorageTank
Pump Station
Water Purification Plant
Water Line
Buildout Proposed Improvements
Well
Ground StorageTank
Pump Station
Water Purification Plant
Water Line
Existing System
Emergency Interconnect
Well
Elevated Storage Tank
Ground Storage Tank
Pump Station
Water Treatment Plant
8" and Smaller Water Line
10" and Larger Water Line
Developer Line
Railroad
CRF Service Area
City Limits
ETJ
Other City Limit
FREESE NICHOLS
ARDURRA
League City TEXAS

WasteWater Master Plan Update

Current system:

- approximately 1.98M feet of GM & 227K feet of FM in service.
- Main Sizes vary from 2” to 66” in diameter
- 78 Lift Stations
- 2 Water Reclamation Facilities

WasteWater Master Plan Update cont.

8.1.1 TCEQ Evaluation Criteria (75/90 Rule)

Lines showing the *recommended* **permitted average day flow (ADF) capacity**, **90% of the permitted ADF capacity**, and **75% of the permitted ADF capacity** are shown on **Figure 8-2** and **Figure 8-3.** These lines are based on TCEQ §305.126, commonly referred to as the 75/90 rule, which requires a WRF permit holder to begin planning for expansion of the treatment facility when the average day or average annual flow reaches 75% of the permitted capacity for three consecutive months. When the average day or average annual flow reaches 90% of the permitted capacity, the permit holder shall obtain necessary authorization from the commission to commence construction of the necessary additional treatment facilities.

8.1.2 Future Wastewater Treatment Capacity

The proposed treatment capacity expansions for each Wastewater Reclamation Facility are as follows:

- **Dallas Salmon**: No expansion of treatment capacity recommended.
- **Southwest**: Expansion of treatment capacity to 8.0 MGD by 2028 and further expansion of treatment capacity to 12.0 MGD in the Buildout planning period (after 2033).

These treatment capacity expansion recommendations were developed based on the projected average day wastewater flows, the capacity requirements in TCEQ §305.126, and a minimum period of 5-10 years before another projected expansion would be needed for the WRF.

Table 8-1: Proposed Wastewater Treatment Capacity

Water Reclamation Facility	Average Daily Permitted Treatment Capacity (MGD)			
	2023	2028	2033	Buildout
Dallas Salmon WRF	12.0	12.0	12.0	12.0
Southwest WRF	4.0	8.0	8.0	12.0
Total Treatment Capacity	16.0	20.0	20.0	24.0

WasteWater Master Plan Update cont.

Various combinations of improvements and modifications were investigated to assess the most appropriate approach for conveying the projected peak wastewater flows and treating the projected annual average wastewater flows. Considerations in developing the wastewater capacity CIP included increasing system reliability, simplifying system operations, conveying peak wet weather flows, and reducing surcharging and sanitary sewer overflows.

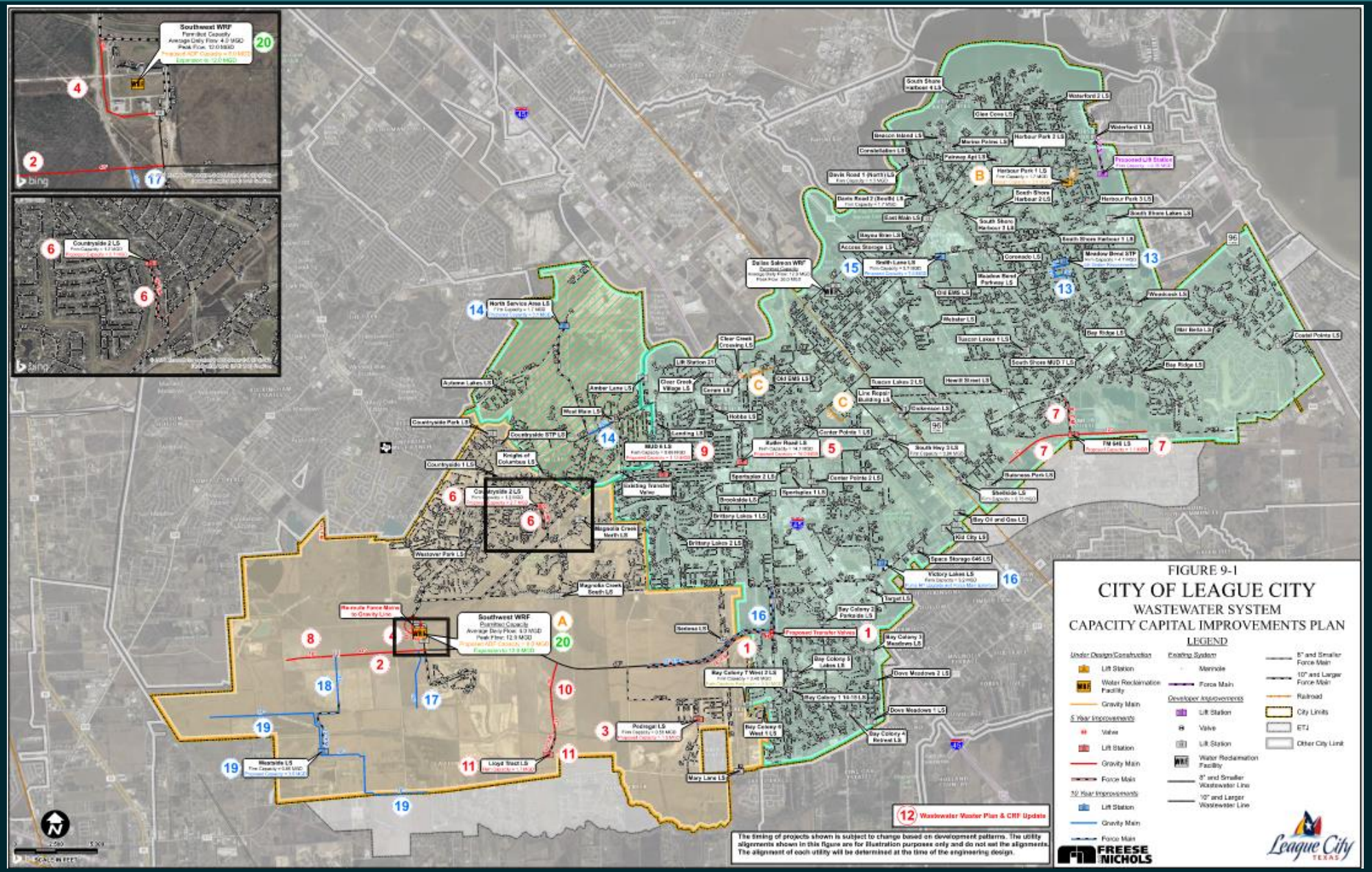
FIGURE 9-1
CITY OF LEAGUE CITY
WASTEWATER SYSTEM
CAPACITY CAPITAL IMPROVEMENTS PLAN
LEGEND
Southwest WRF
Dallas Salmon WRF
Proposed Transfer Valves
12 Wastewater Master Plan & CIP Update
The timing of projects shown is subject to change based on development patterns. The utility alignments shown in this figure are for illustration purposes only and do not set the alignments. The alignment of each utility will be determined at the time of the engineering design.
FREESE NICHOLS
League City TEXAS