



Lubbock's Future Water Supply: Lake 7

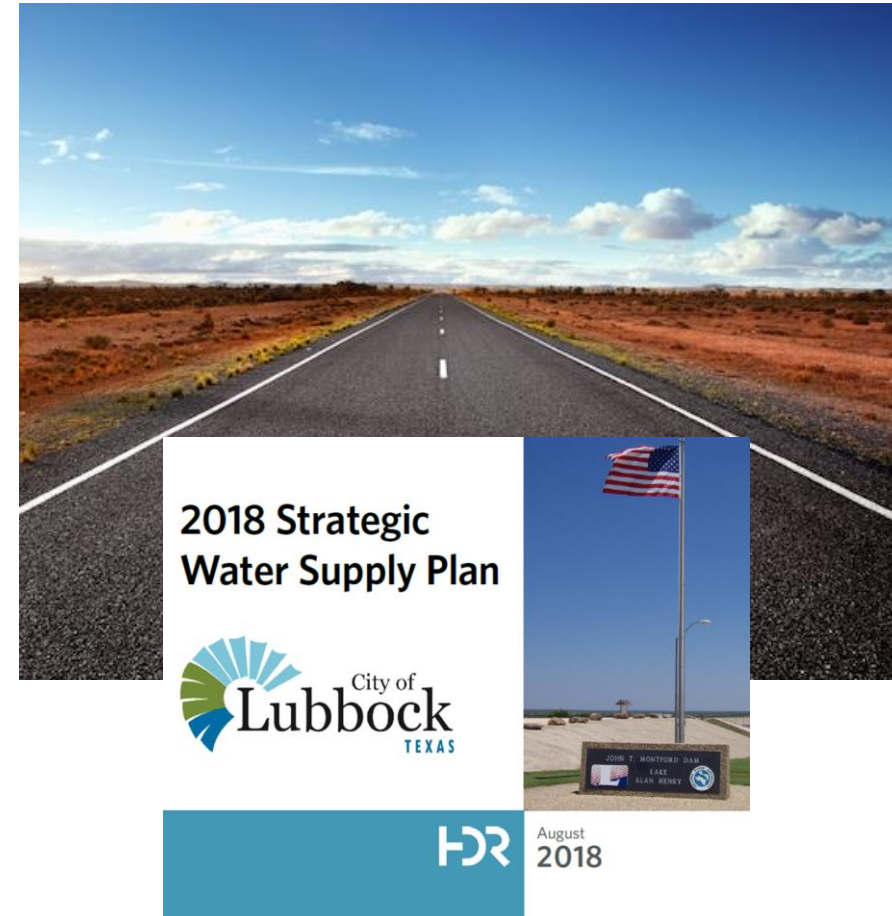
Aubrey A. Spear, P.E.
Director of Water Utilities

Interested Parties Meeting
October 27, 2022



Lubbock's Water Supply Planning Goals

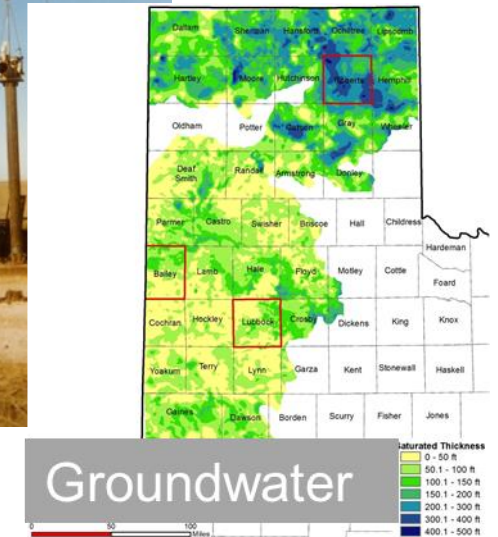
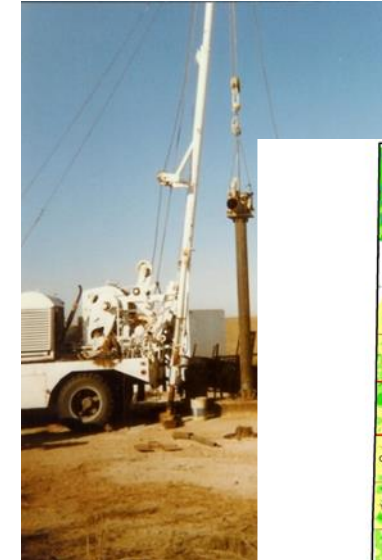
- Provide a road map to develop and implement cost-effective and sustainable water supplies over the next 100 years.
- Diversify the City's water supply portfolio to minimize risk associated with variable climatic conditions.
- Emphasize conservation efforts to delay expensive water supply projects.



Water Supply Sources Considered

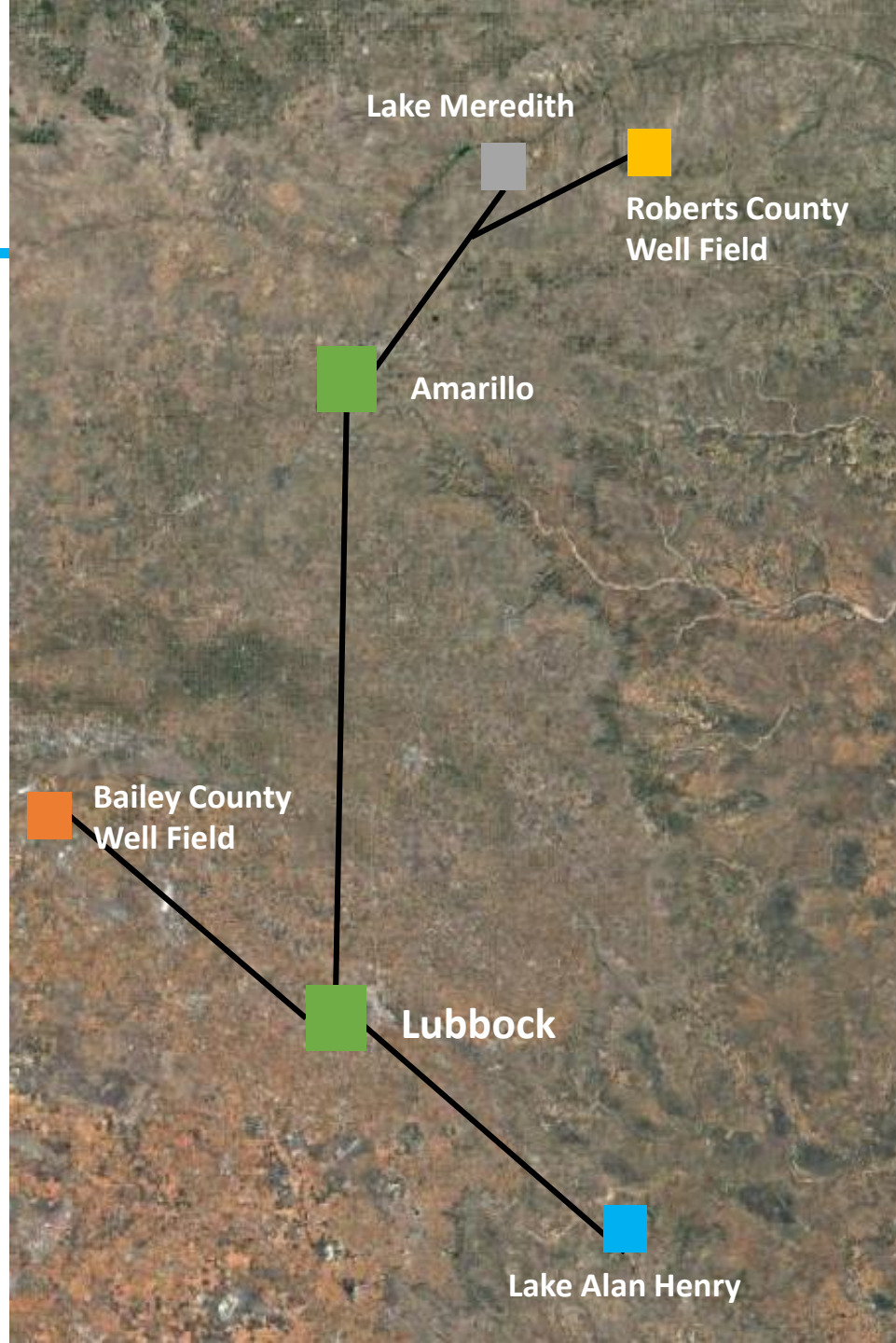
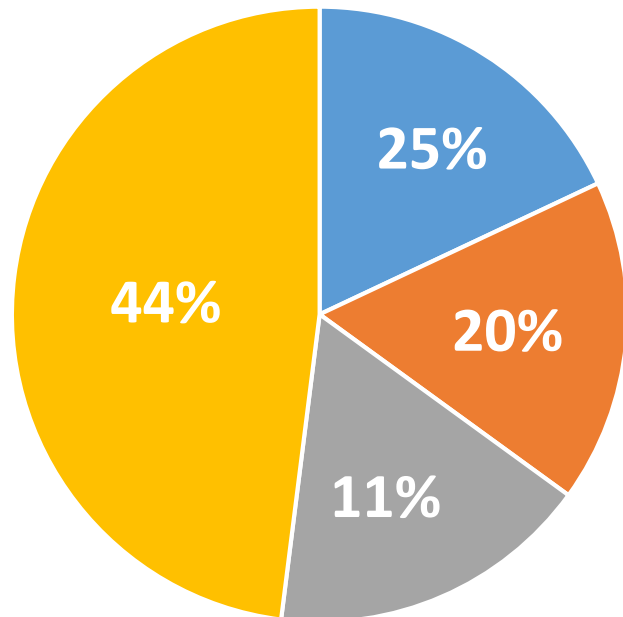


Water Conservation



Lubbock's Current Water Supplies

<u>Water Source</u>	<u>Distance from Lubbock</u>
■ Lake Alan Henry	65 mi
■ Lake Meredith	160 mi
■ Roberts County Well Field	150 mi
■ Bailey County Well Field	75 mi

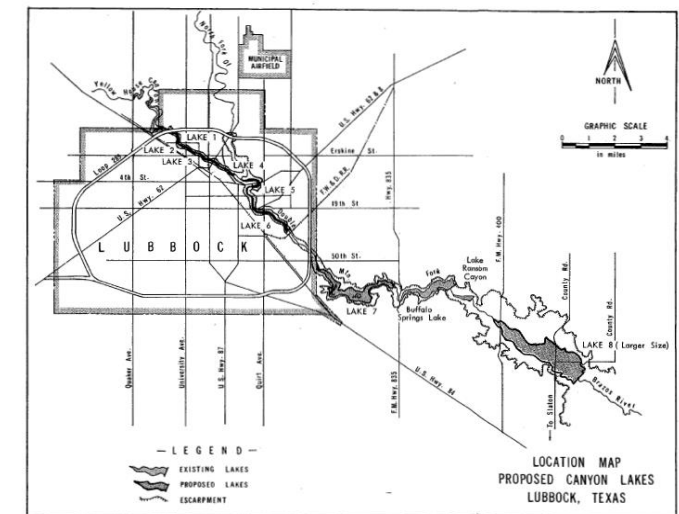
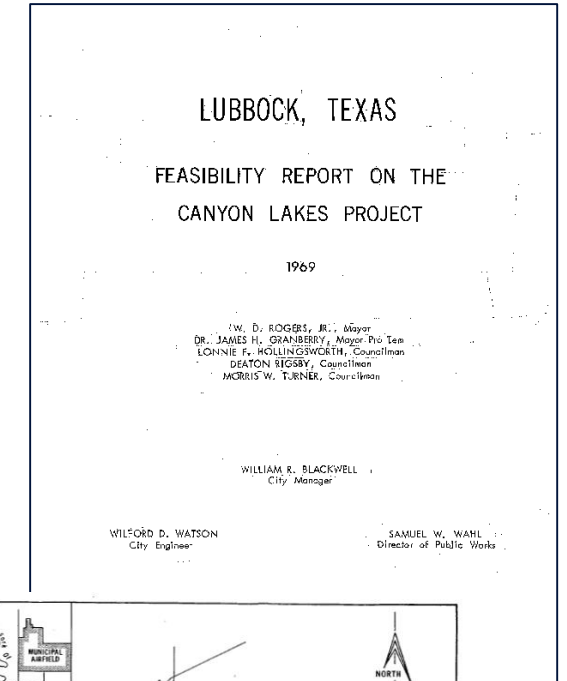


Canyon Lake System Concept Development

1960s — City of Lubbock began discussions about constructing a series of up to eight lakes along the Brazos River Basin from northwest Lubbock to an area southeast of Slaton.

1969 — Freese, Nichols & Endress completed a Feasibility Report on the Canyon Lakes for the City with maps depicting the location of eight proposed lakes.

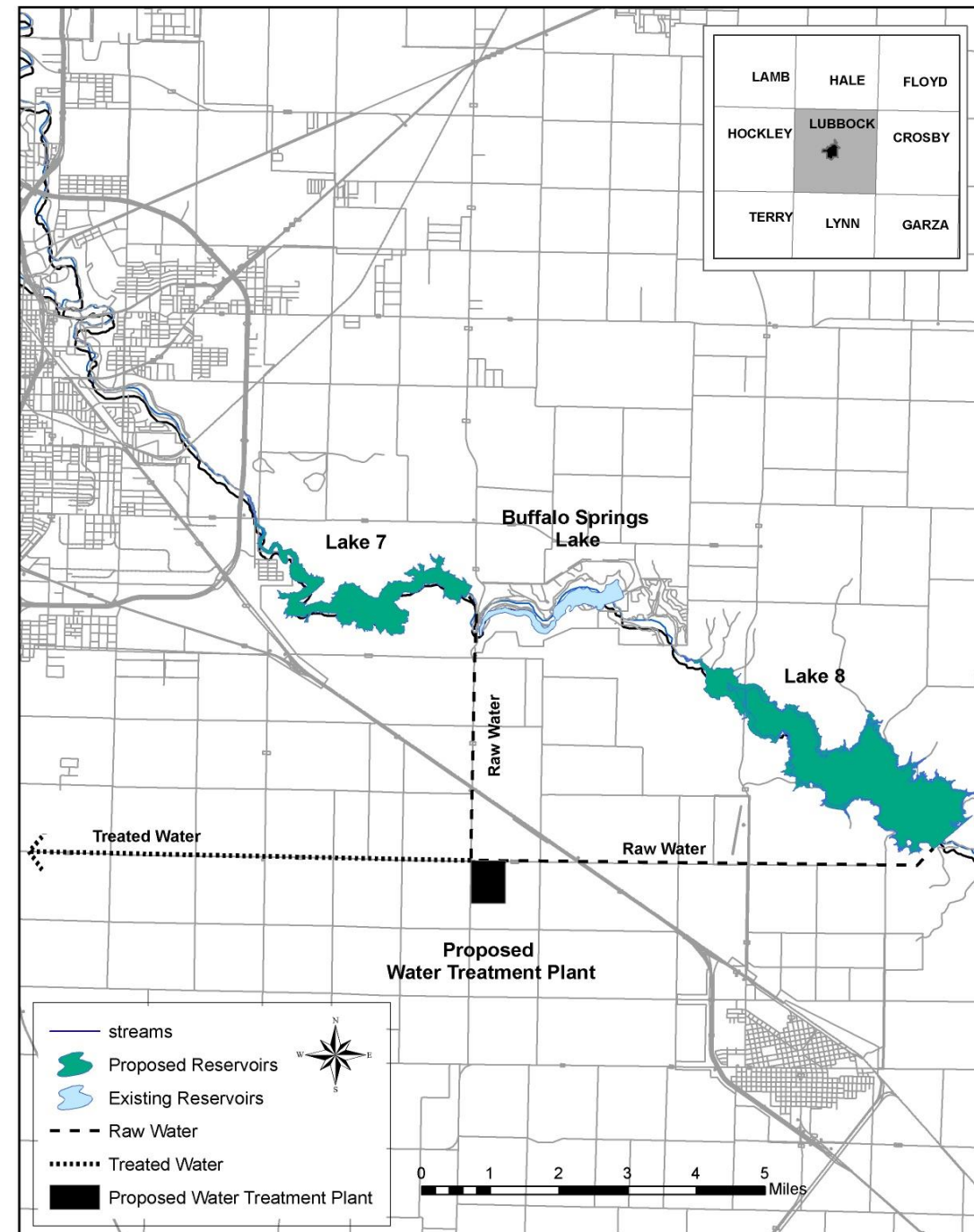
1970s — City constructed five out of the eight proposed dams/lakes.



Proposed Lakes 7 & 8 Locations

Jan. 2006 — Llano Estacado Regional Water Plan included conceptual plans for Lakes 7 and 8.

The water strategy included both lakes reusing water captured from Lubbock's treated wastewater both upstream and downstream of Buffalo Springs and Ransom Canyon.



Lake 7 Concept Refinement

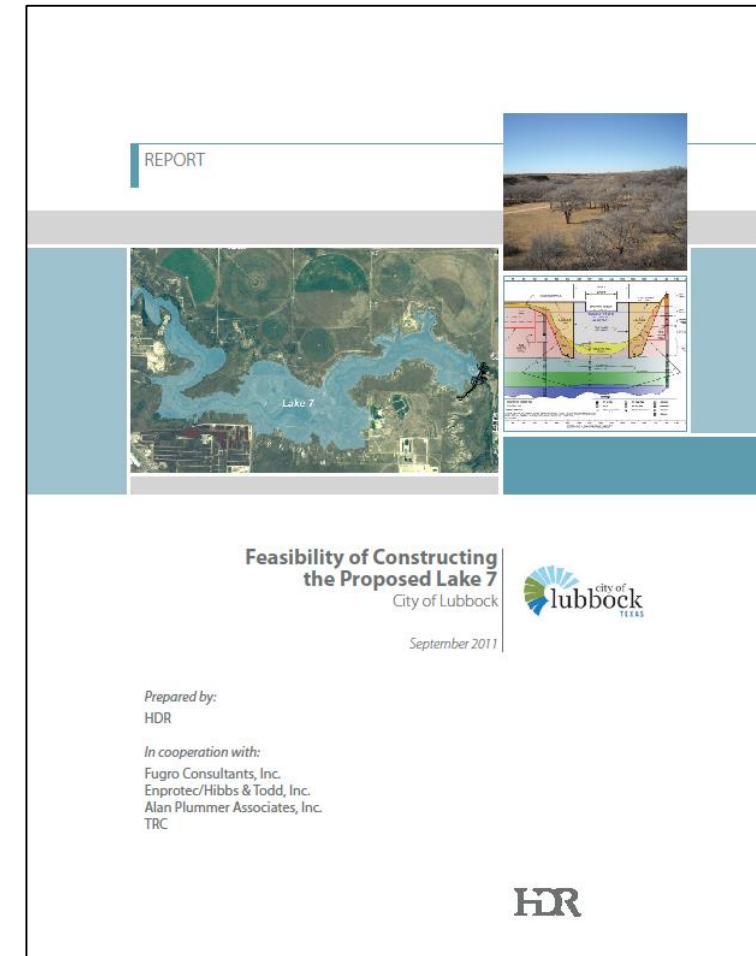
2007 — City's Strategic Water Supply Plan included a strategy to construct Lake 7.

2011 — City's consultants completed a Feasibility Report for the construction of proposed Lake 7.

2013 — City of Lubbock's updated Strategic Water Supply Plan incorporated Lake 7 feasibility report findings.

2016 — Llano Estacado Regional Water Supply Plan included Lake 7 as a feasible water supply for the City.

2018 — City's current Strategic Water Supply Plan includes Lake 7 as one of the most feasible, long-term water supply strategies.



Strategic Water Supply

Jim Bertram Lake 7

Supply Sources:

Reuse Water

Storm Water

Developed Water

Initial Project Cost:

\$207,261,000

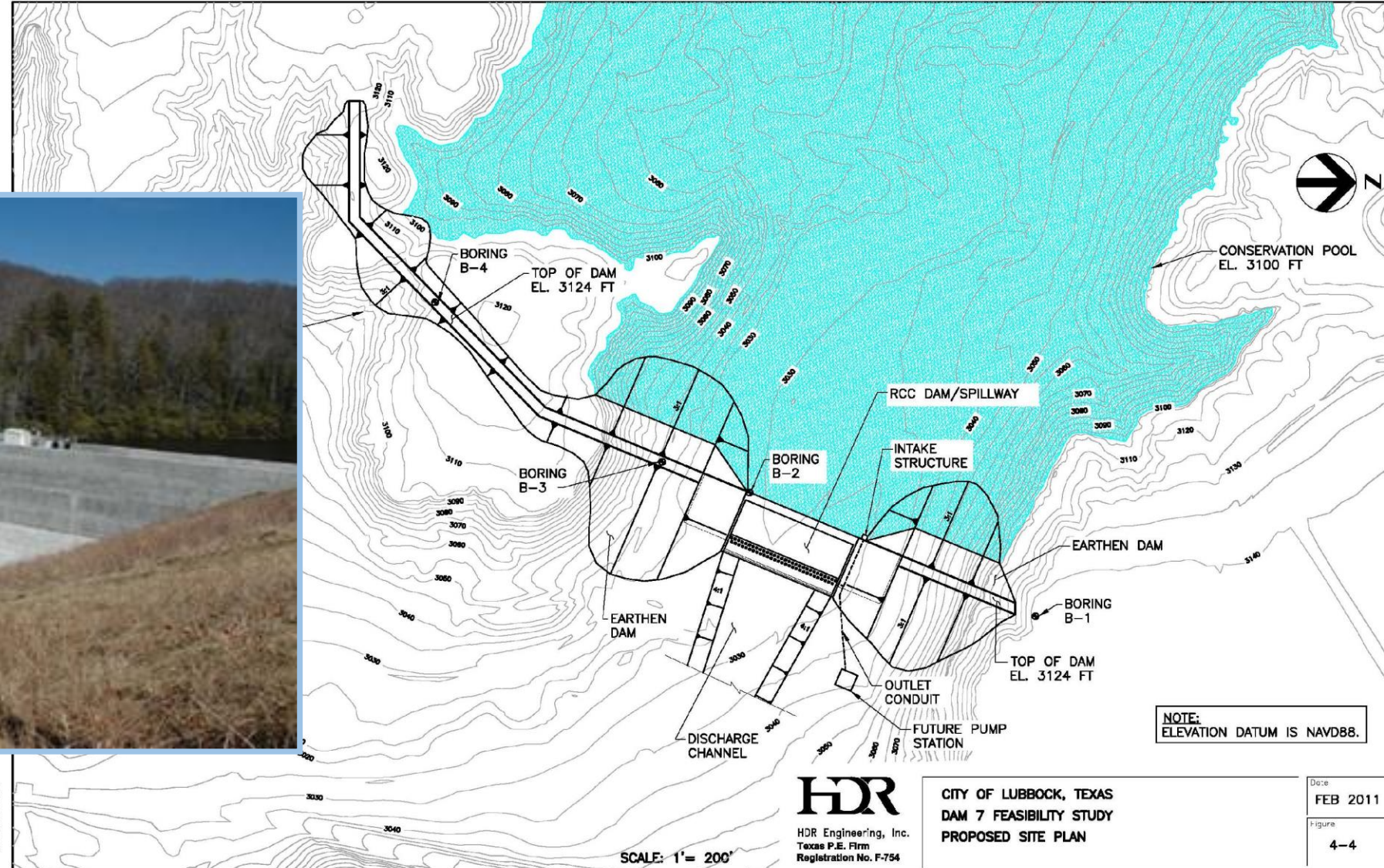
Initial Water Supply Potential:

11,975 acre-feet / year

10 million gallons / day



Lake 7 Dam Conceptual Layout / Type



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Lake 7 Permitting Activities

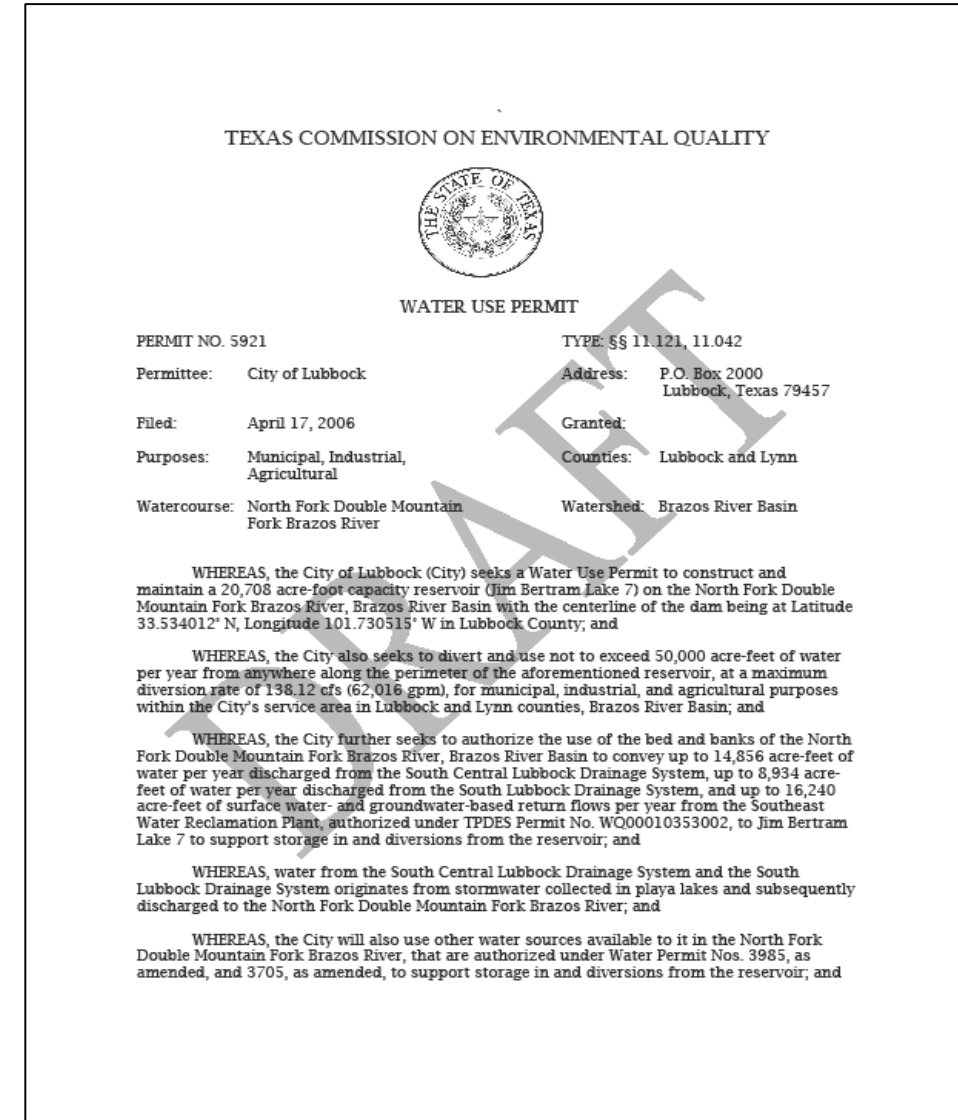


April 2006 — City of Lubbock filed a water rights application with the TCEQ for the right to impound developed and treated wastewater in Lakes 7 and 8.

March 2008 — City withdrew Lake 8 from its TCEQ water rights application.

June 2011 — City submitted an Environmental Information Document supporting the Lake 7 application.

February 2022 — TCEQ issued draft Water Rights Permit No. 5921 to the City.



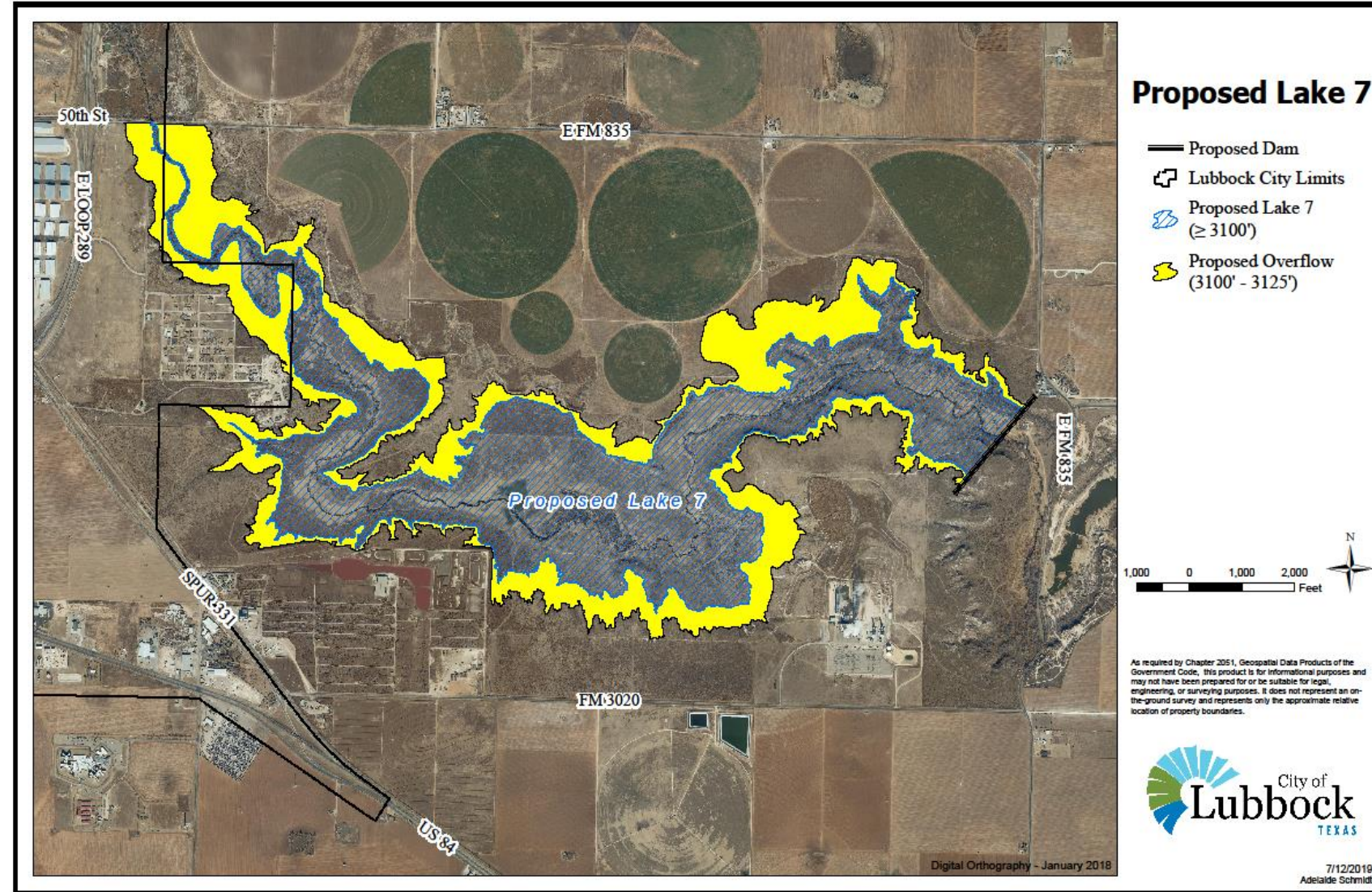
Lake 7 Yield & Sources

Volume- 20,000 acre-feet
(6.5 billion gallons)

Initial Safe Yield:

Return Flows	7,300 ac-ft/yr
Developed Water	2,875 ac-ft/yr
State Water	1,800 ac-ft/yr
Total Yield	11,975 ac-ft/yr

Over 85% of Lake 7 Water
does not originate from the
Brazos River Basin



Lake 7 Return Flows / Treated Wastewater



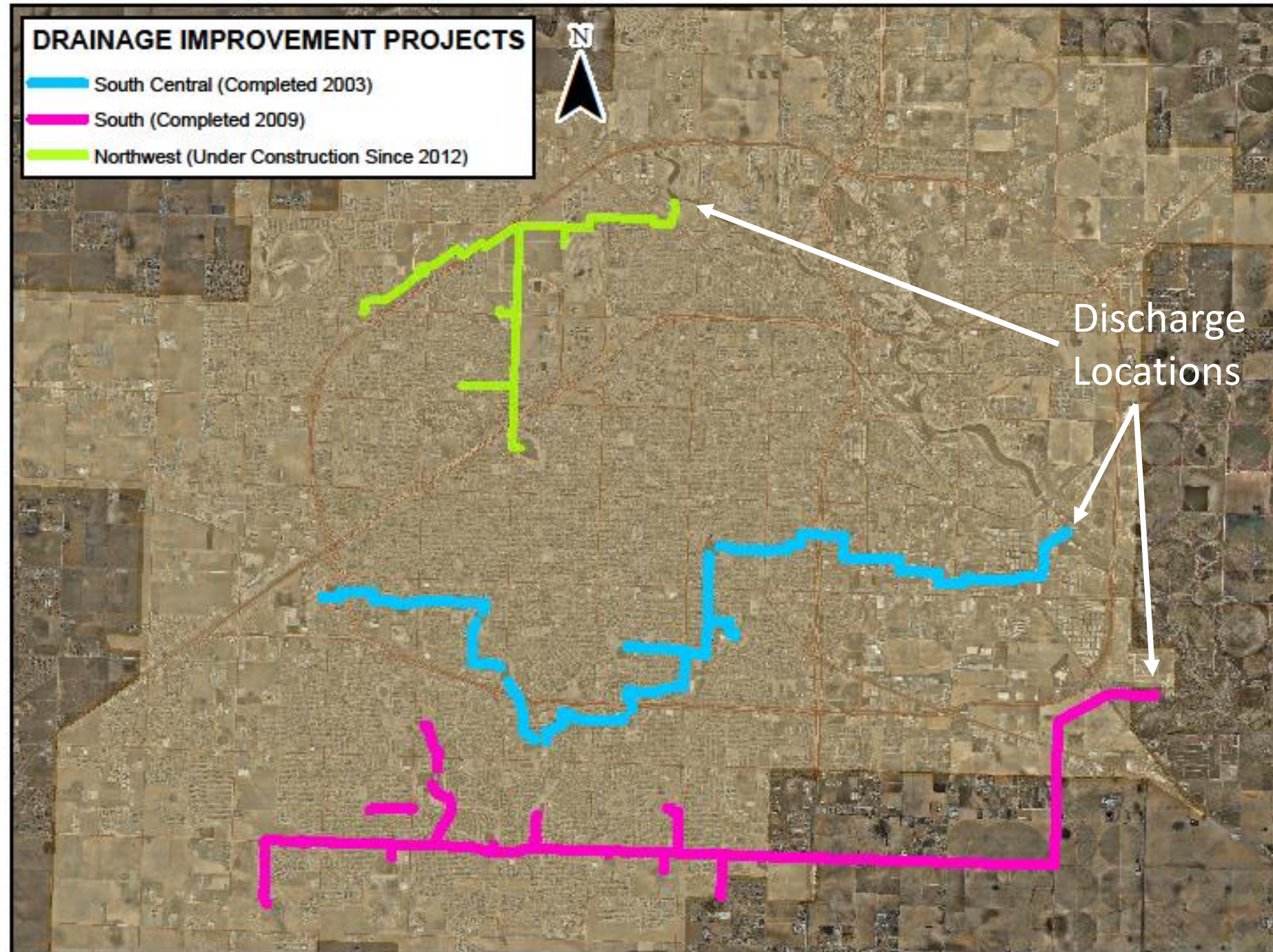
- Lubbock's treated wastewater is also referred to as return flows.
- Would never reach the Brazos River Basin without the City discharging it.
- The City has the right to use all the wastewater and never discharge it.
- If discharged, it is not subject to priority calls by senior water right holders.
- Wastewater represents the largest diversion source for Lake 7.

Lake 7 Developed Water



- Includes water from playa lakes within the City of Lubbock that would never reach the Brazos River Basin.
- Specifically includes water discharged from the City's South, South Central, and Northwest Drainage Systems.
- Is not subject to priority calls from senior water right holders.

Lubbock's Major Drainage Systems



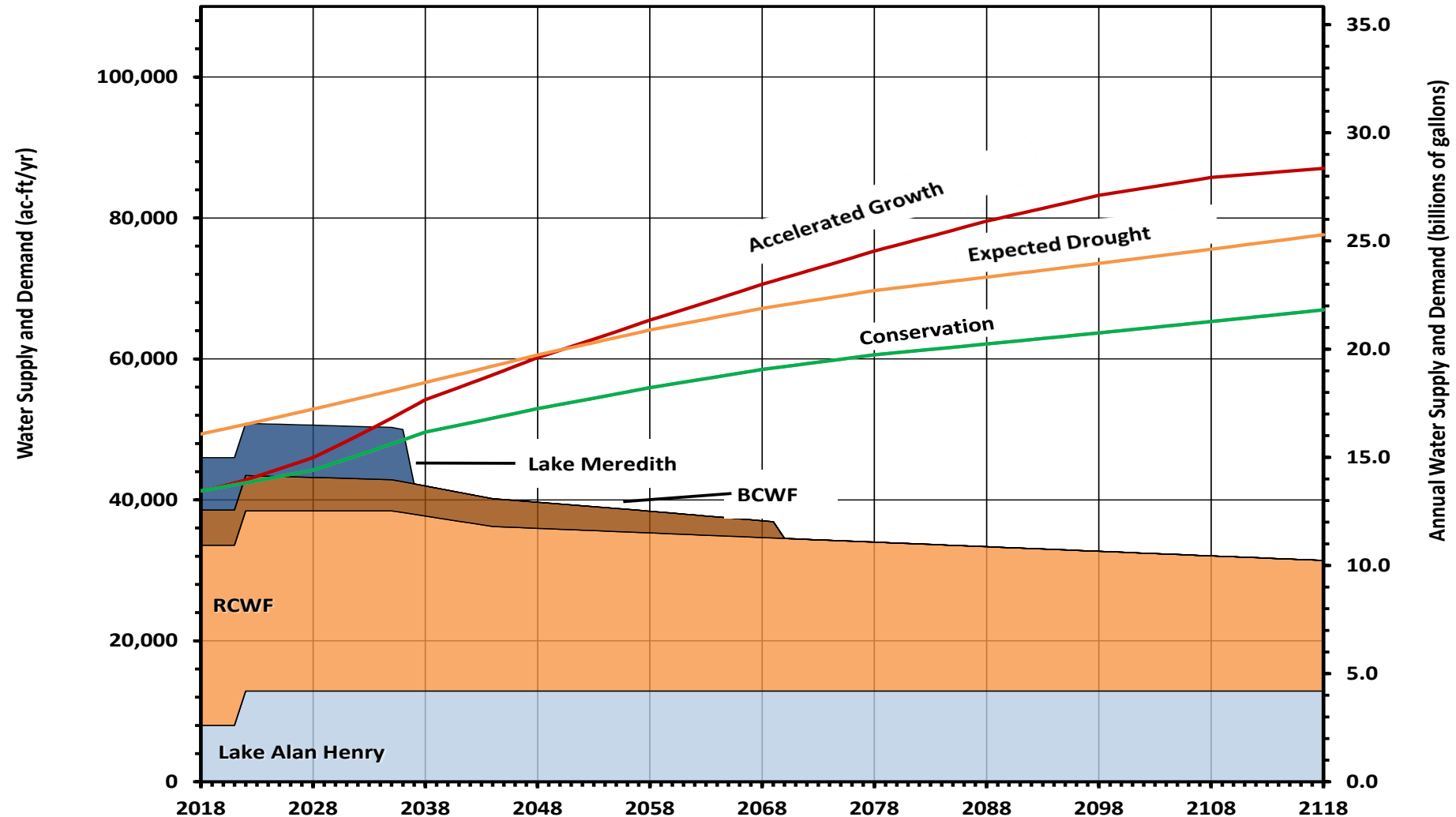
Lake 7 State Water / Stormwater



- Stormwater that is unallocated in the Brazos River Basin is subject to heavy restrictions.
- Subject to environmental flow requirements.
- Subject to priority calls by senior water right holders with priority dates senior to April 17, 2006.

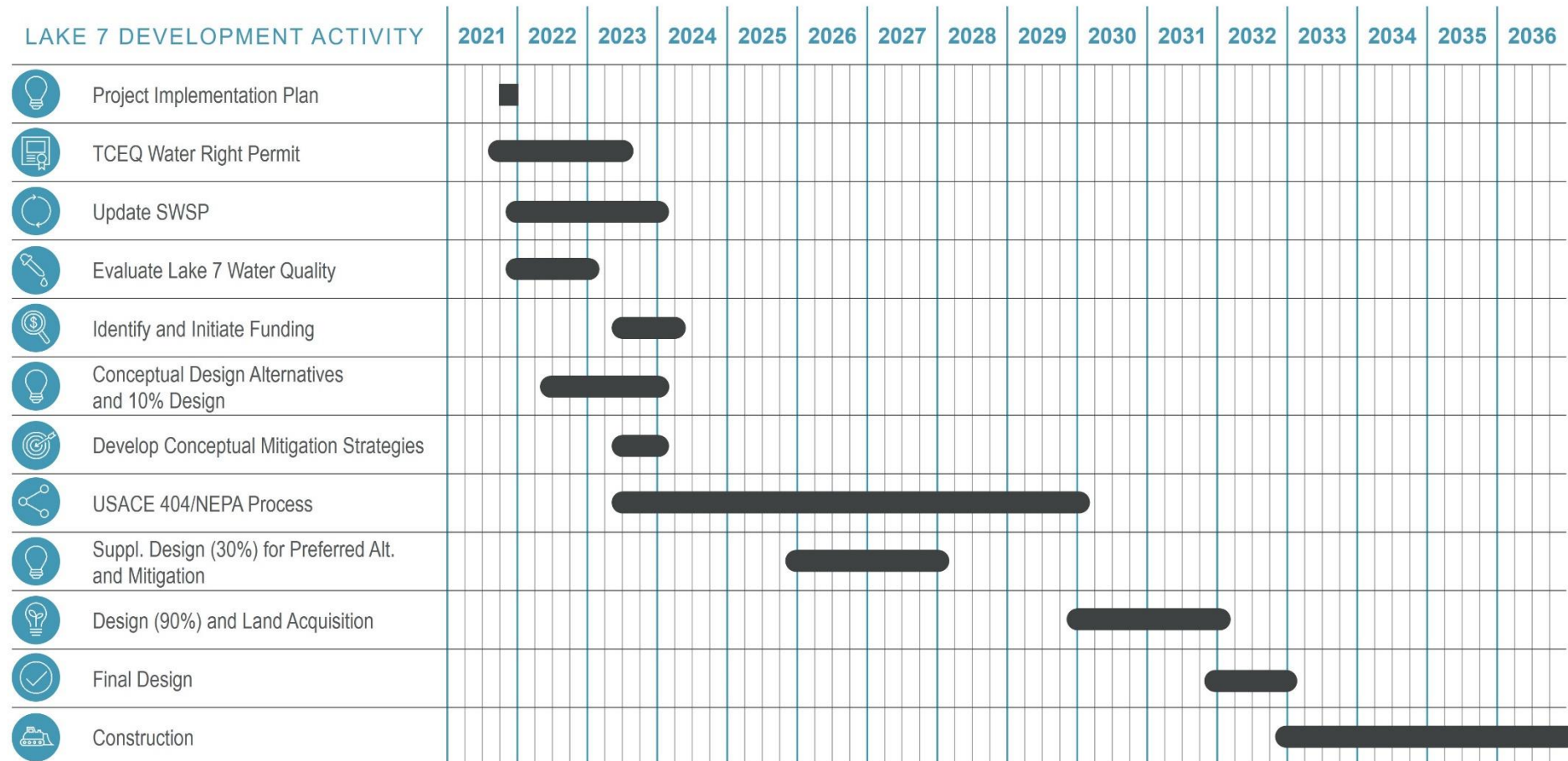
2021 Annual Supply & Demand Projections

Figure 5.1. Comparison of Annual Water Supply and Demands (updated November 2021)



Lake 7 Proposed Timeline

Lake 7 Timeline: 15 years to a waterdrop



Questions?





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