

SECTION 12

REGIONAL WATER PLANNING

12.1 General

According to the 2006 SCTRWP, several of the water providers in Caldwell County are expected to have shortages in the coming years. *Table 12-1* lists the entities in Caldwell County and their respective shortage, as determined by the SCTRWP. The expansion and/or creation of new water management strategies will be necessary to meet the needs in Caldwell County. Proposed water management strategies in the SCTRWP will be expanded on and a regional network will be developed in this section.

Regional cooperation is necessary not only to mitigate cost but also to jointly find solutions that will benefit all participants. Communication and collaboration are efforts that are required to plan and implement a regional water plan.

Water Supplier	Projected Shortage					
	2010	2020	2030	2040	2050	2060
Aqua WSC	49	121	178	240	300	362
City of Lockhart WSC	341	984	1,519	2,070	2,615	3,175
City of Luling	168	311	400	485	587	695
Creedmoor Maha		0	0	0	0	0
Martindale WSC				2	19	41
Maxwell WSC			73	249	479	692
Polonia WSC			137	331	520	719
Tri Community WSC						
County Line WSC	44	1,096	1,416	1,582	1,900	2,365
Goforth WSC	79	532	969	1,415	1,963	2,408
San Marcos	79	532	969	1,415	1,963	2,408
Gonzales County	0	14	75	208	254	255

12.2 Water Supply Sources

Water supplies vary for the local water utilities. Surface water is supplied from GBRA and CRWA through river-run-of-rights. Groundwater is supplied through well permits in the Edwards (Barton Springs) Aquifer, Wilcox-Carrizo Aquifer, and Alluvial Wells. Future water supplies from these sources are expected to develop further to meet demands. Water supplies that are available to Caldwell County have been listed in *Table 12-2*. The information presented is from a query performed on the TWDB website on available water by source. The water sources listed in the survey by the WUG's were searched to provide information on the water available.

The accessible water supplies from the named sources in *Table 12-2* decrease for each decade. The available supplies in 2010 are 10,878 ac-ft, 2020 has 10,838 ac-ft, 2030 has 10,071 ac-ft, and 2040 has 10,063 ac-ft.

Given the listed supplies and calculated water demands discussed in Section 8, the expected shortages are slightly greater than the SCTRWPG. The difference is likely based on greater population estimates and different per capita values. A revised municipal demand for the "TWDB County Water Demand Projections" is presented in *Table 12-3*. The municipal demand revision reflects the water demands determined in this study. *Table 12-4* presents the expected shortages based on these revisions and study determinations.

TABLE 12-2 Caldwell County Water Supplies (ac-ft)					
Source Name	WUG Name	Supply 2010	Supply 2020	Supply 2030	Supply 2040
CARRIZO-WILCOX AQUIFER	Mining	16	10	4	0
CARRIZO-WILCOX AQUIFER	Manufacturing	84	84	84	84
CARRIZO-WILCOX AQUIFER	Irrigation	1,037	916	809	714
CARRIZO-WILCOX AQUIFER	Lockhart	2,310	2,310	2,310	2,310
CARRIZO-WILCOX AQUIFER	Luling	2,730	2,730	2,730	2,730
CARRIZO-WILCOX AQUIFER	County-Other	3,173	3,264	2,604	2,698
Sub-Total		9,350	9,314	8,541	8,536
GUADALUPE RUN-OF-RIVER	Luling	99	99	99	99
GUADALUPE RUN-OF-RIVER	Martindale	198	198	198	198
GUADALUPE RUN-OF-RIVER	County-Other	613	613	613	613
Sub-Total		910	910	910	910
CANYON LAKE/RESERVOIR	Martindale	50	50	50	50
CANYON LAKE/RESERVOIR	County-Other	258	258	258	258
Sub-Total		308	308	308	308
EDWARDS-BFZ AQUIFER	County Other	161	161	161	161
Sub-Total		161	161	161	161
QUEEN CITY AQUIFER	Mining	0	0	0	0
QUEEN CITY AQUIFER	Manufacturing	3	3	3	3
QUEEN CITY AQUIFER	Irrigation	36	32	28	25
QUEEN CITY AQUIFER	County-Other	110	110	120	120
Sub-Total		149	145	151	148
Total Supply		10,878	10,838	10,071	10,063

Data obtained from TWDB WUG Supplies at <http://www.twdb.state.tx.us/assistance/rwpg/DB02/index.asp>

TABLE 12-3 TWDB County Water Demand Projections Based on Revised Municipal Demands 2010-2040 in ac-ft				
Category	2010	2020	2030	2040
Irrigation	1,044	928	824	733
Livestock	918	918	918	918
Manufacturing	15	18	21	24
Mining	14	15	16	17
<i>Municipal</i>	<i>7,781</i>	<i>10,932</i>	<i>14,602</i>	<i>16,803</i>
Steam Electric	0	0	0	0
Total Demand	9,772	12,811	16,381	18,495

TABLE 12-4 Caldwell County Additional Water Need (ac-ft)				
Year	2010	2020	2030	2040
Expected Need	(1,106)	1,973	6,310	8,432

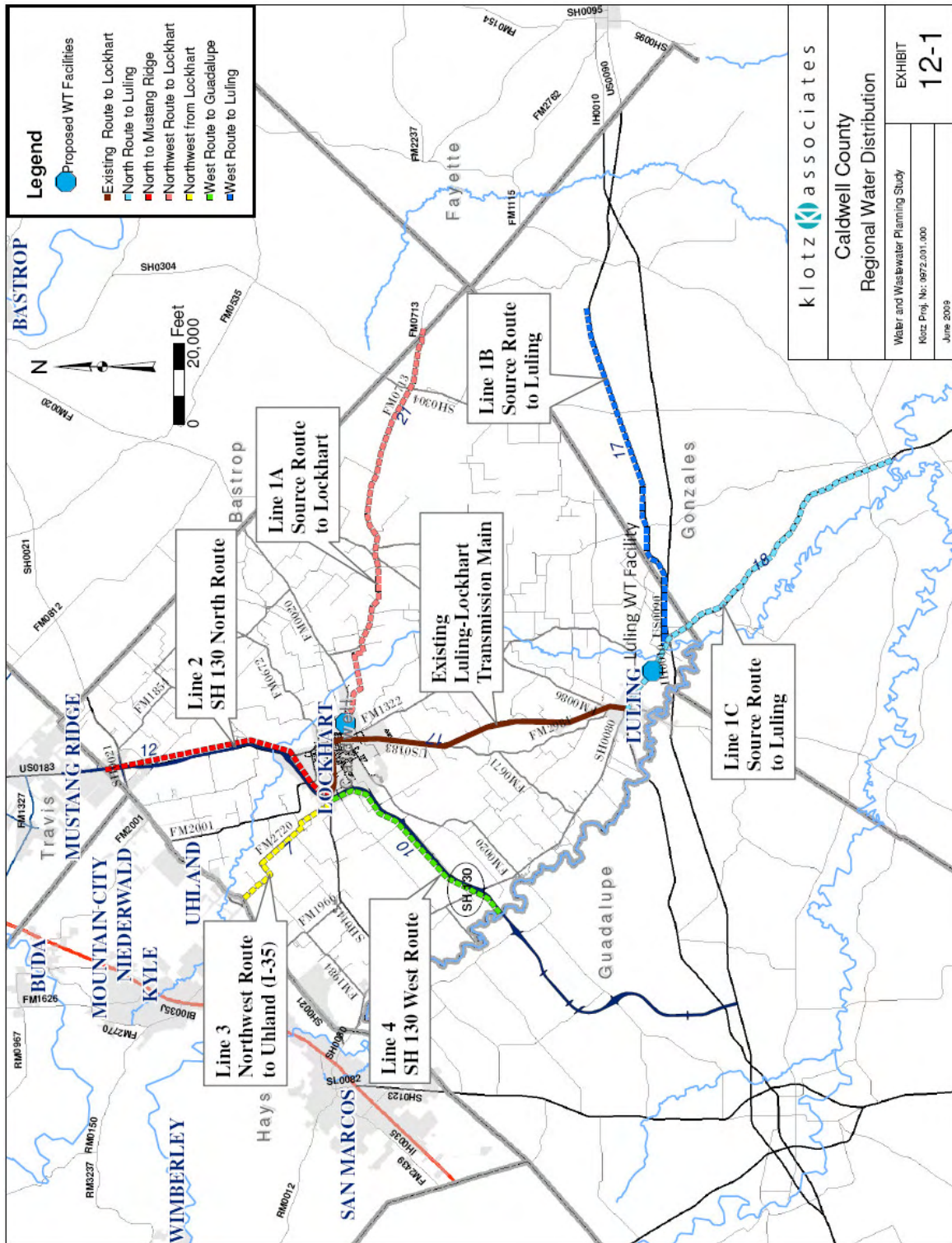
Regional facilities in this study will be developed to meet the approximate additional need of 8,500 ac-ft. Facilities and transmission lines will be sized to provide the determined need.

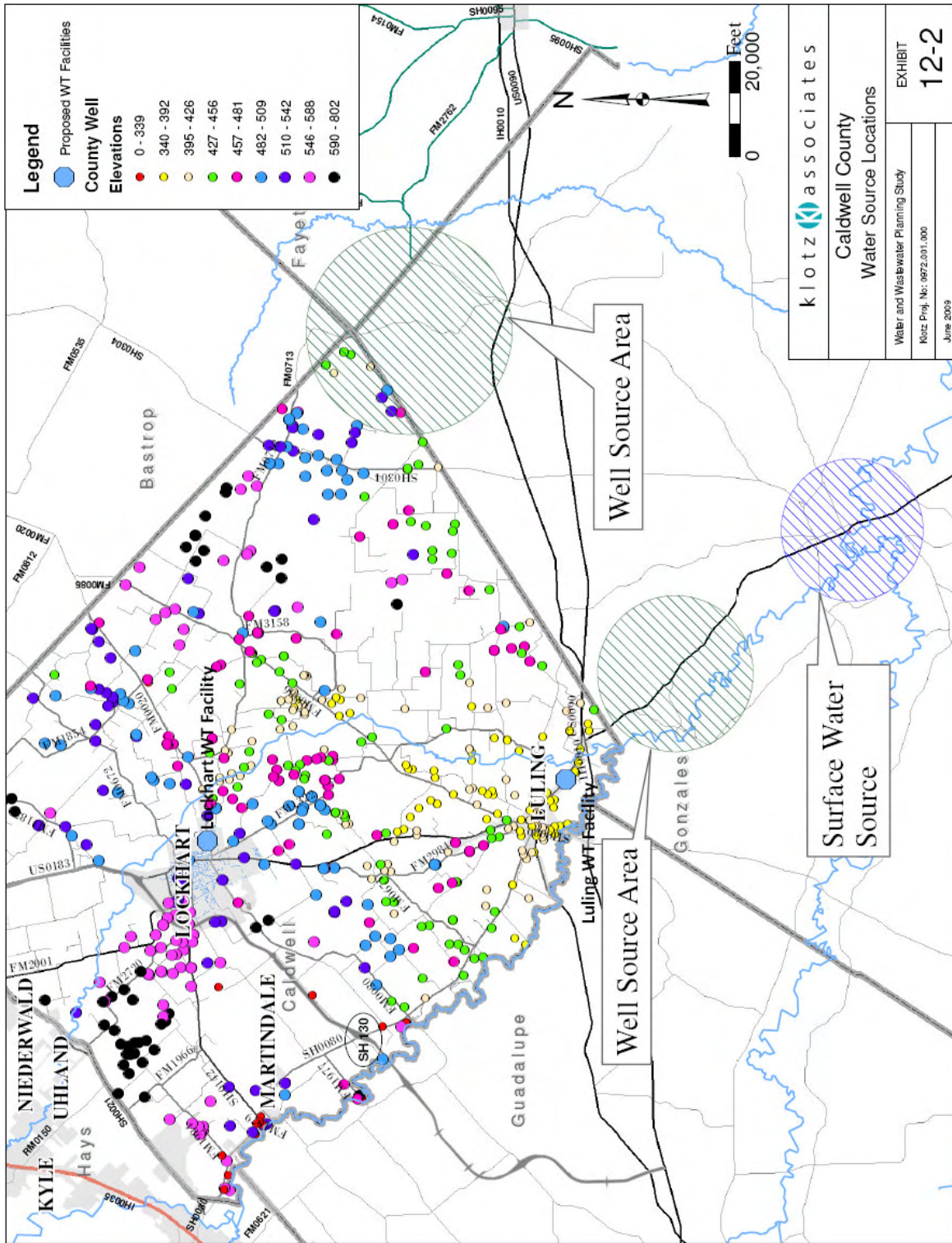
12.3 Conceptual Planning

In the evaluation of the population projections it was stated earlier that most of the development and growth is expected to occur to the north and west between the I-35 and SH 130 Highways. Planning for Caldwell County will develop with the understanding that growth will begin from the north and west and then south to Luling. Water systems will be planned to accommodate the growth and allow for further regional expansion. This approach will also consider both the HCPUA and the GBRA Mid-Basin Project strategies.

12.3.1 Source Development

Utilizing the viable strategies of the HCPUA and the Mid-Basin Project, water sources from the Carrizo-Wilcox and Guadalupe River Basin will be developed. As shown in *Exhibit 12-1*, the initial delivery of the raw surface water will be to Luling and the delivery of groundwater will be to Lockhart. Luling currently operates a water treatment plant that is capable of diverting up to 4,422 ac-ft/ yr of water with a peak rate treatment capacity of 2.779 MGD. The plant delivers the water to the city of Luling and Lockhart. The transmission line that would route water to Luling for treatment is shown in a dashed blue line and the existing line that delivers the water to Lockhart is solid red. The dashed red line indicates the groundwater route delivered to Lockhart. Another route to consider for groundwater is taken from a well field south of Caldwell County and delivered to Luling. Well fields that have been located for groundwater development are noted as “Well Area” in *Exhibit 12-2*. Surface water diversions at the confluence of the San Marcos and Guadalupe River are noted as “Surface Water Area” in the exhibit.





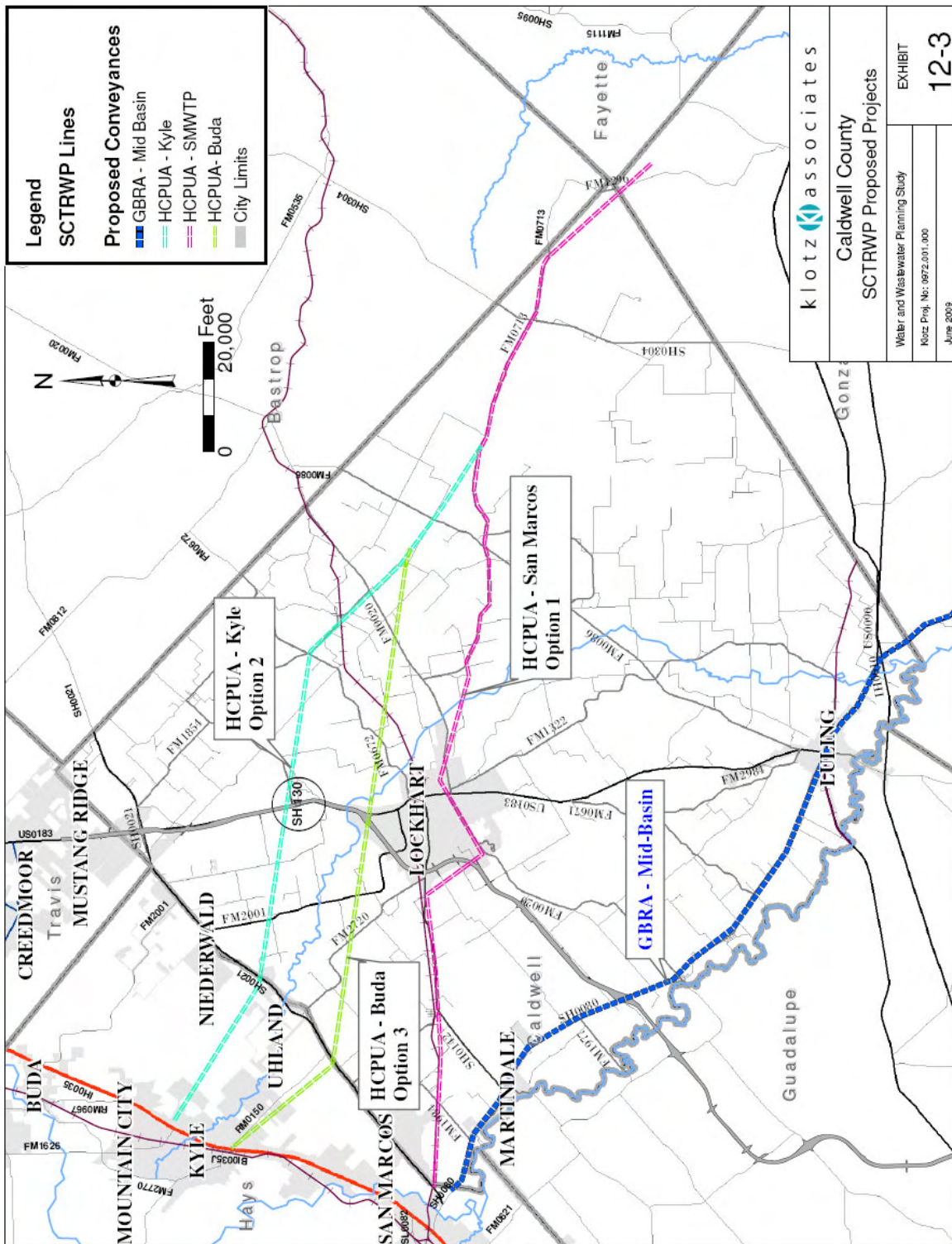
12.3.2 Distribution

The water will be delivered through a 24” transmission line flowing at 5 fps. Once water is delivered to designation delivery points it is recommended to develop a regional water distribution system as shown in *Exhibit 12-2*. The development of the Luling-Lockhart water transmission was a project that formed the beginning of a regional water distribution system. The following actions are recommended to further develop a regional water distribution system:

- Develop water sources to initial delivery point (Lockhart/ Luling)
- Develop a route to Uhland where population growth is expected to be the greatest
- Develop a transmission line route along SH 130 toward I-35 N
- Develop a transmission line route along SH-130 West
- Develop a transmission line route to loop the system

Development of the transmission lines would create a regional water distribution system that would not only aid Caldwell County, but also the neighboring counties in need of water. The benefit of including adjacent counties to participate is cost related. Sharing cost provides an incentive for many participants to pool together resources to develop the water sources needed for future water demands.

Current plans in the SCTRWP that detail the same routes are the Plumbing Plan developed by the Hays/Caldwell PUA and the GBRA Mid-Basin Project. *Exhibit 12-3* provides an illustration of approximate line locations. The Plumbing Report lists three options of delivery points that include the San Marcos WTP, the City of Kyle elevated storage tank (EST) and the City of Buda well site #3 where they have a ground storage tank (GST) that can be utilized. The Mid-Basin Project transmission main would in all scenarios deliver 4,000 acft of surface water to the San Marcos WTP.



12.4 Water System Cost Estimates

Various studies, reports, and recent bids were used to develop cost estimates. *Table 12-5* presents a summary of the estimated associated project cost for the proposed transmission lines. Current economic conditions may cause moderate fluctuations in construction costs and estimates. **Appendix M** provides a basis for the proposed cost estimate.

ITEM NO.	ITEM DESCRIPTION	AMOUNT
1	Line 1A - Groundwater Source Route to Lockhart	\$33,800,000
2	Line 1B - Groundwater Source Route to Luling	\$30,000,000
3	Line 1C - Surface Water Source Route to Luling	\$51,500,000
4	Line 2 - SH 130 North Route	\$12,000,000
5	Line 3 - Northwest Route to Uhland	\$7,000,000
6	Line 4 - SH 130 West	\$10,000,000

It is recommended first to develop wells in the Carrizo/ Wilcox Aquifer initially with either Transmission Line 1A or 1B and begin to branch out before the expected growth. As growth occurs, a network of pipelines can begin to be established regionally to provide for a regional supply. The construction of SH 130 presents an opportunity to develop two of the branch network lines to supply water in the areas of expected growth. Transmission Line 2 and Line 4 are recommended to parallel SH 130.