6. Based on the results of the modeling tool, adjust the system by adjusting elevations, pipe diameters, and the locations of mains and manholes and by adding force mains and lift stations if needed in order to:

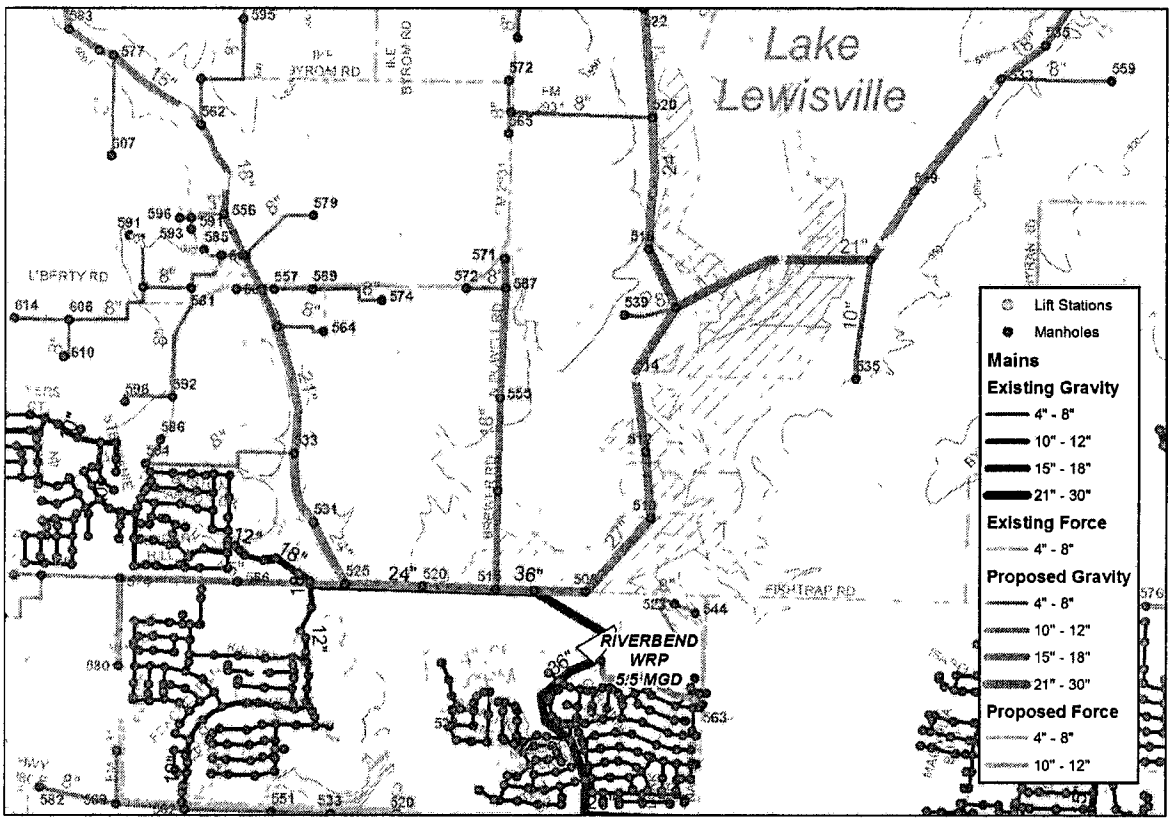
    a. Satisfy TCEQ requirements

    b. Limit depths of mains and manholes

    c. Keep pipe diameters as small as possible

7. Repeat steps 5 and 6 until a satisfactory solution is obtained.

This process requires a good deal of engineering judgment and a bit of trial and error. The resulting wastewater system is represented in a large map, a small portion of which is shown below:



The existing gravity mains are shown in red, the proposed gravity mains in green, and the proposed force mains in blue.

Detailed Planning through 2035

In this section we describe the detailed implementation of the long-term water supply plan described earlier. Proposed improvements were modeled and tested for each of these years: 2013, 2018, 2020, 2025, 2030, and 2035. Please refer to the Future Production Capacity and Future Storage Capacity appendices for overview maps corresponding to each of these years.

This plan hinges on Mustang's ability to develop a system of productive wells that can delay the switch to surface water in the west half of the system until around 2030. Future versions of the plan will be updated based on the success of the wells.

2013

This is the starting point of this study.

South – Temple Dane Production Zone

This is the surface water production zone, which is completely supplied with UTRWD water through the Temple Dane pump station.

Northwest

This is the groundwater production zone, which is completely supplied by wells.

Well #6

This is a standalone production zone supplied by a single well. This zone is not analyzed further here but at some point it will probably be switched to surface water and the well abandoned. The parcel on which the #6 well is located is not large enough to support a new well (which would require a 150 foot radius sanitary easement).

Light Ranch

This is a standalone production zone supplied by a single well. This zone is not analyzed further here but at some point it will probably be switched to surface water and the well abandoned. The parcel on which the Light Ranch well is located is not large enough to support a new well (which would require a 150 foot radius sanitary easement).

2018

Moving the Oak Point area from surface water to groundwater takes a significant load off of the Temple Dane pump station so that it can meet the demand of the expected growth along Hwy 380 and FM 1385.

Temple Dane Production Zone

The Temple Dane pump station will be upsized to a capacity of 8000 GPM.

Northwest

The addition of a 1000-GPM well (currently proposed for a tract near Hwy 377 and Industrial Parkway) will accommodate expected growth in the large but slowly growing Northwest Region.

Southwest – Oak Point

Two 1000-GPM wells and an elevated storage tank will make the Oak Point area self-sufficient. The elevated storage tank is sized to meet TCEQ requirements for future growth and the expansion of the groundwater region to include Cross Roads and The Lakes.

2020

Moving the Cross Roads area from surface water to groundwater takes a further load off of Temple Dane. Combining it with the Oak Point area and the lower-pressure part of the northwest groundwater region creates a self-sufficient groundwater production zone.

East – Temple Dane Production Zone

The Smiley Road elevated tank is added to provide storage for the Smiley Road, Shiney Hiney, and Talley Ranch developments.

Northwest

The low-elevation area of the northwest production zone is separated out from the Northwest pressure plane (873' MSL) and added to the 753' MSL pressure plane.

Southwest

Oak Point, Cross Roads, and surrounding areas including The Lakes are combined into one 753' MSL groundwater pressure plane by closing the 10" line running west from FM 720 on the south side of Hwy 380 and opening valves connecting Oak Point to Cross Roads.

The Lakes elevated tank is added and sized so that it and the Oak Point tank have enough elevated storage to meet growth through 2030 when this zone is combined with the surface water production zone.

2025

A new production zone and pressure plane is added for the Four Seasons development.

East

The Jackson Ridge pump station is added to take UTRWD water near the Byran Road tank and send it both north to the Smiley Road elevated tank and south to relieve the demand on the Temple Dane pump station.

The Tischler elevated tank is added to the north of the Talley Ranch development. Together, the Smiley Road and Tischler tanks meet the storage and pressure needs of the low-lying Talley Ranch WCID area and low-growth area between Hames and Light Ranch roads. The Tischler tank is the northernmost tank in the 753' MSL pressure plane.

Northwest

Additional wells are added to meet growing demand. The Krugerville elevated tank is added to provide storage and pressure for the 873' MSL pressure plane and maintain pressures for the customers at higher elevations in Krugerville.

Northeast - Four Seasons

A well, ground storage tank, and elevated storage tank are added to make the Four Seasons a self-sufficient production zone. The tanks are sized for ultimate build out in the area.

Southwest

Additional wells are added in or near The Lakes and in the Oak Point area.

2030

East

Three wells, treated with chloramine, are added. Their water is blended with surface water from the Smiley Road pump station. The Jackson Ridge pump station is expanded by 2000 GPM.

Northwest

Well #4 is upsized by 500 GPM.

Northeast - Four Seasons

No change.

Southwest

An additional well is added in or near The Lakes.

2035

Groundwater is treated so that it can be blended with surface water. Mustang's CCN is essentially one big production zone (but three pressure planes) with water coming from wells and three surface water take points.

East

Additional capacity is added as needed to the Smiley Road pump station to meet demand in Talley Ranch and Four Seasons.

South

What had been the east and southwest zones are combined into a single pressure plane at 753' MSL. Water is again allowed to flow west from the Temple Dane pump station.

Northwest

The Liberty Road pump station (corner of Liberty Rd and Hwy 377) is added to send water from the Temple Dane zone into the northwest pressure plane (873' MSL).

Northeast – Four Seasons

A transmission main is completed from the Tischler Road elevated tank to the Four Seasons ground storage tank. The Four Seasons pump station is upsized as needed to meet demand.

Summary of Proposed Capital Improvements through 2019

Brief descriptions of the projects planned for the next five years are given in this section, with detailed descriptions, cost summaries, and proposed schedule included in the Appendix. The locations of the projects are given on a map following the list of projects. The projects are identified with keys (e.g., SW1) which appear as labels on the map.

Southwest

SW1: MUD 5 Well and Treatment (1000 GPM)

This project includes testing and completing a well to serve the southwest area for the near future when this area is switched from surface water (from the Temple Dane Pump Station) to groundwater. The exact site has not been determined. One possibility is to the east of Naylor Road, north of Amber Lane, in a 42-acre section of Cross Oak Ranch Phase 3 that is largely located in the floodplain.

SW2: WCID 4 Well and Treatment (1000 GPM)

The exact site has not been determined. One possibility is in the Oak Point WCID 4 tract to the east and north of Shahan Prairie Road.

SW3: Oak Point (WCID 4) 12" Line

This project connects the proposed WCID 4 well to an existing 12" line. The length of this line will depend on the location of the well, which may even be outside Mustang's CCN. The length given in the cost summary and schedule is conservative.

SW4: Oak Point Elevated Tank – 1 MG

This project, together with the two Oak Point wells, will make it possible to separate the southwest area of Mustang's CCN into a separate groundwater production zone. The proposed site is one-acre parcel owned by Mustang SUD on Naylor Road between Amber Lane and Emerald Sound Blvd. The tank is sized based on models of future growth in which Oak Point and Cross Roads are combined into a single groundwater production zone.

Northwest

NW1: Repair Exposed Line across Cantrell Slough

This project will repair a section of 10" pipe south of Highway 380, crossing the Cantrell Slough that has been exposed for several years.

Add Level Sensors to Wells

As part of the plan to aggressively develop groundwater sources, this project improves Mustang's ability to monitor the condition of its aquifer with continuous well level monitoring.

NW2: Replace Asbestos Line

This project removes an existing 6" asbestos line along Highway 377 north of Arvin Hill Road, replacing it with 16" ductile iron line. This line is sized to accommodate flows needed when surface water from Temple Dane is sent to the northwest pressure plane, which is predicted to happen around 2030.

NW3: Distribution Main – Mustang Road, 6" Line

This project addresses problems with low-pressures experienced by customers served by a 2.5" line along Mustang Road from FM 2931 to FM 1385.

NW4: Industrial Parkway Well and Treatment

This project includes testing and completing a well to serve the northwest area. One possibility is for Mustang to acquire part of the 20-acre lot south of Industrial Parkway to the east of Highway 377.

NW5: Transmission Main - Providence to The Lakes, 20" Line

This project will provide elevated storage to customers in The Lakes and surrounding area by providing a connection to the existing Providence elevated storage tank.

Southeast

SE1: Upgrade Temple Dane Pump Station to 8000 GPM

With a relatively inexpensive upgrade, the Temple Dane pump station can be expanded from 5200 GPM to 8000 GPM.

SE2: FM 720 Utility Relocation – Phase 2

It will be necessary to relocate Mustang's water lines along FM 720 when TxDOT makes improvements.

SE3: Transmission Main –FM1385 to FM428, 36" Line

This project allows the Temple Dane Pump Station and proposed Jackson Ridge Pump Station to move water north to future developments including Sandbrock MUD 6, Smiley Rd WCID, Shiney Hiney, and Talley Ranch.

SE4: Transmission Main – FM428 to Smiley Rd EST, 36" Line

This project will allow the proposed Jackson Ridge pump stations to move water north to Shiney Hiney, Smiley Road, and Talley Ranch developments.

Northeast

NE1: Smiley Road Elevated Tank – 1 MG

This elevated tank will be in the same pressure plane as Byran Road and the proposed Tischler Road elevated tank. These three tanks will provide elevated storage for all customers in the east production zone and pressure plane south of the proposed Four Seasons pressure plane.

Wastewater Projects

The wastewater Master Plan is a separate document. The projects are included here so that all near-term capital improvement projects are accessible in one place for the ease of budget planning.

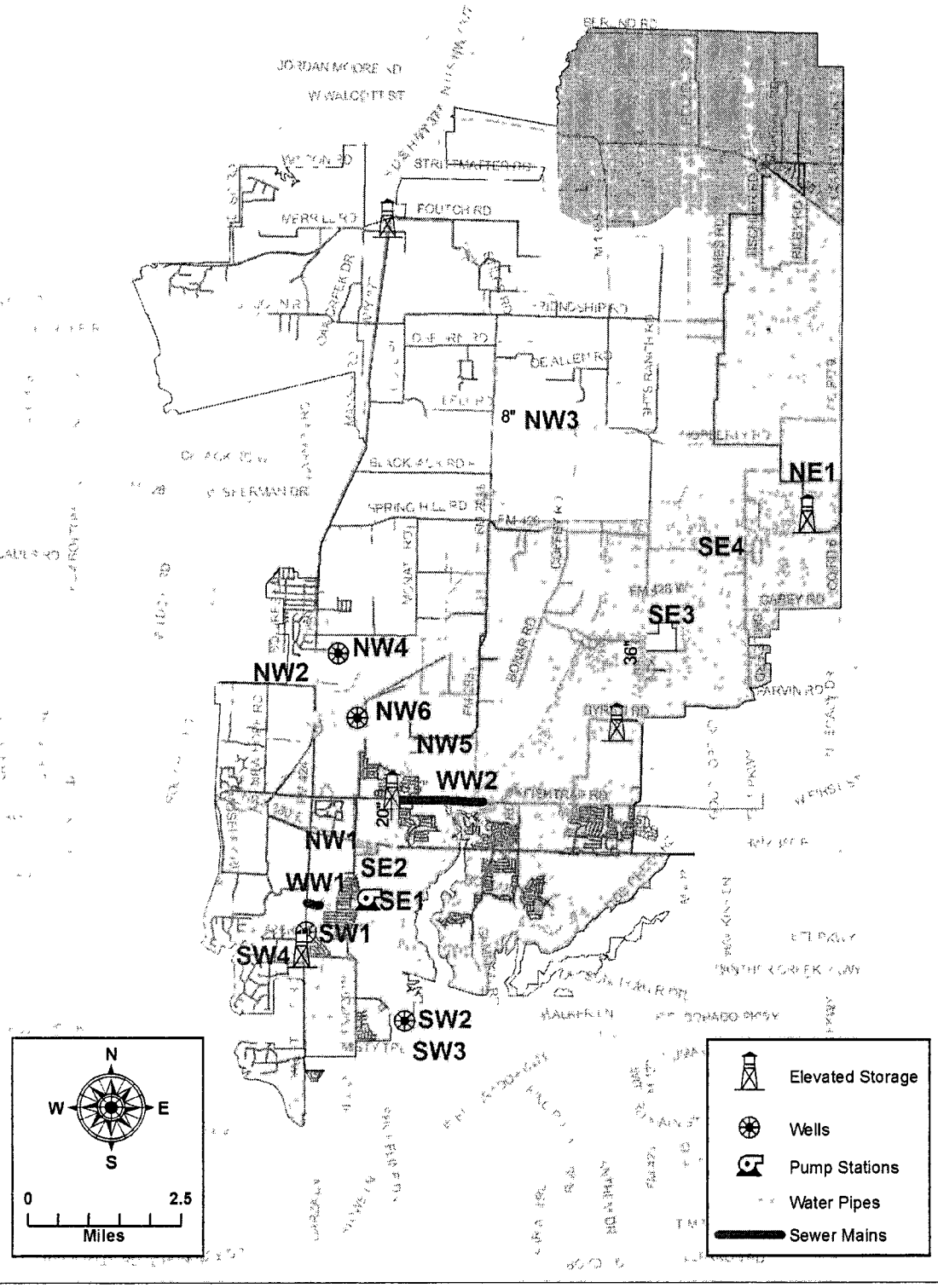
WW1: Oak Hill Estates Interceptor Line

This project will provide a connection to the Peninsula WRP for future customers south of Hwy 380 and west of Naylor Road.

WW2: Fish Trap Road to Riverbend WRP Interceptor Line

This project will serve future customers to the south and west of Providence Village.

Locations of CIP Projects through 2019



Conclusions

Summary

This plan outlines an affordable approach to improving service to existing water customers, while comfortably meeting the projected growth within the Mustang system for the next twenty years. If the water system continues to grow at the projected rates, the projects and schedules herein will comfortably meet the growing demands.

If the system grows at a slower rate, Mustang will have the ability to adjust capital spending by deferring future projects without unexpected rate adjustments. And if the system grows more quickly, the project schedules can be accelerated to increase system capacity more quickly and fewer rate adjustments may be needed.

Recommendations

In addition to the CIP projects identified in this report, we recommend the following:

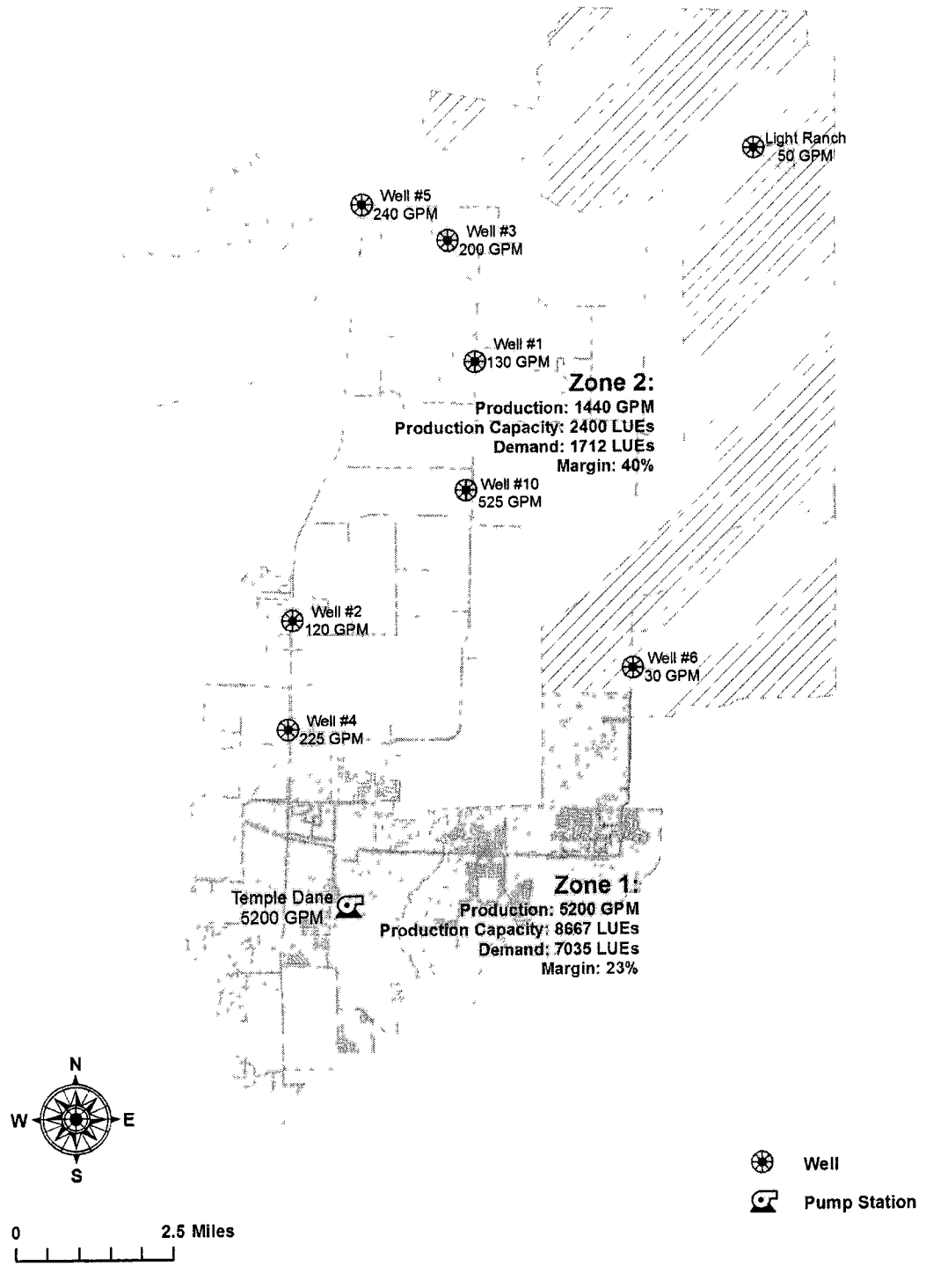
- The recommendations in this plan should be reviewed annually to make adjustments as new information is available. The plan makes general assumptions about the location of future development, and it is a near certainty that development patterns will vary from the assumptions herein. Several uncertain and uncontrollable factors, including future growth rates, unusually wet or dry summers, escalating construction costs and operation and maintenance costs, changes in regulatory requirements or taxes, interest rates and system-wide development patterns, make it prudent to regularly review this plan.
- Continue to maintain the Mustang SUD Geographic Information Systems (GIS) database. In the model used for this report, 3204 of the 10622 enabled meters (which includes those in the Providence subdivisions) did not have associated customer IDs. We recommend working closely with Steger Bizzell personnel to ensure that the integrity of the hydraulic model is maintained as new customers and pipelines are added.
- Monitor and record both static and drawdown levels for all wells at least once a month. This information can be used to determine which wells are candidates for upsizing, which can be a very cost-effective way to add production capacity.
- In this report, we identified general locations for proposed wells. We recommend further study to identify specific well locations.

Appendix

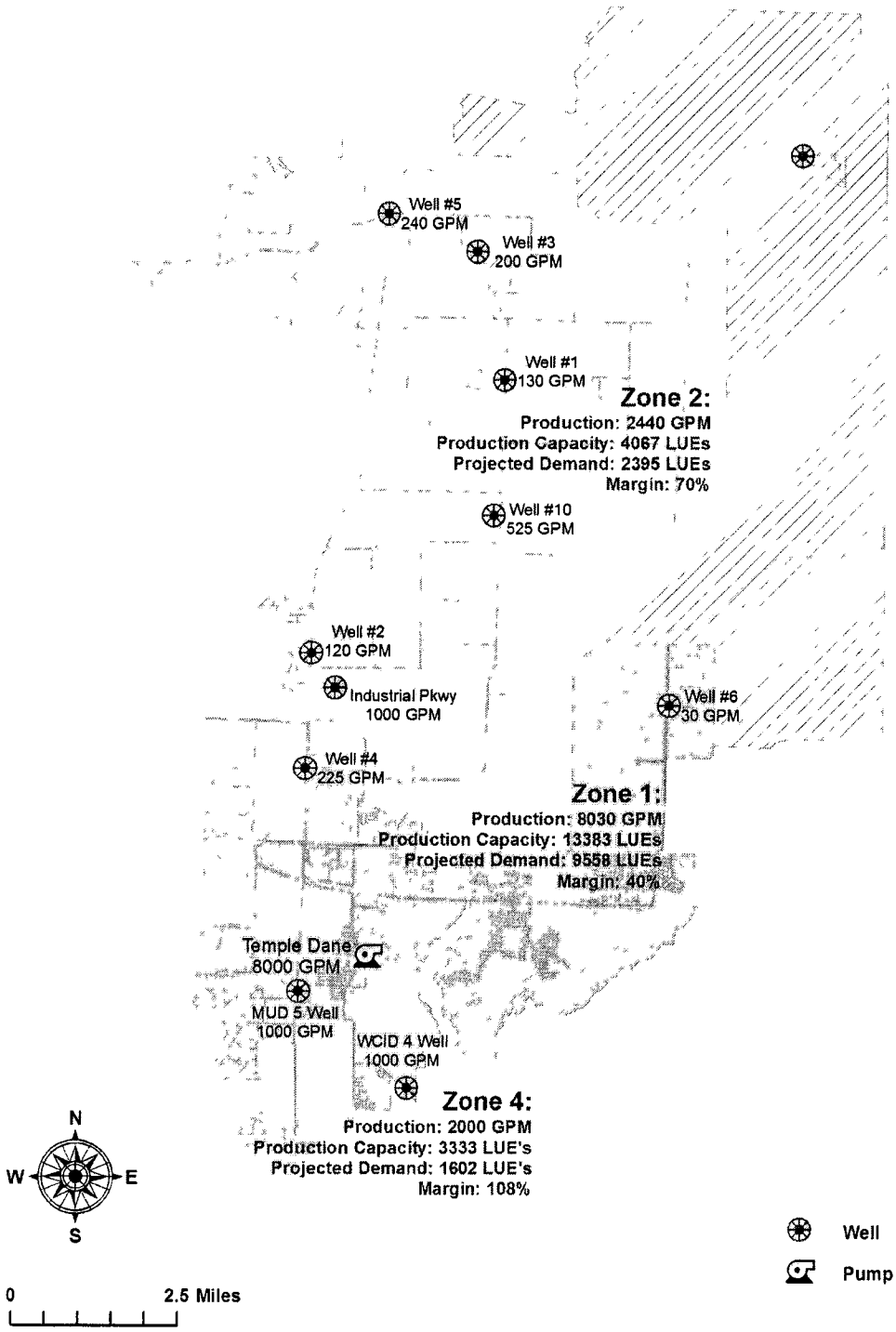
UniqueName	TYPE	Nonflood Area	2013 Meters	Current Density (LUEs / acre)	Buildout Density	Start Year	Buildout Year
Aubrey_ETJ_NE	ETJ	61025251	38	0.03	0.20	2013	2052
Aubrey_ETJ_NW	ETJ	224453631	122	0.02	0.20	2013	2057
Crossroads_LincP	ETJ	3372712	9	0.12	0.20	2030	2057
Denton County_NE	CNTY	284937825	78	0.01	0.20	2030	2052
Denton County_NW	CNTY	309272635	292	0.04	0.20	2030	2057
Denton Div 2_Pilot Point	ETJ	7062182	0	0.00	0.20	2025	2060
Denton_DIV2	DIV 2	57164168	92	0.07	0.20	2025	2060
Pilot Point_ETJ_NE	ETJ	266348006	56	0.01	0.20	2030	2065
Pilot Point_ETJ_NW	ETJ	325825288	217	0.03	0.20	2030	2057
Aubrey_CITY	CITY	11066146	17	0.07	1.00	2013	2050
Aubrey_Little Elm	ETJ	8635587	4	0.02	1.00	2013	2060
Cross Roads_CITY	CITY	132995957	426	0.14	1.00	2013	2052
Cross Roads_ETJ	ETJ	46641977	75	0.07	1.00	2030	2057
Denton County_South	CNTY	5090662	14	0.12	1.00	2025	2060
Krugerville_ETJ	ETJ	37656618	37	0.04	1.00	2013	2050
Little Elm_Providence	ETJ	3043339	0	0.00	1.00	2013	2030
Oak Point_CITY	CITY	85089212	472	0.24	1.00	2013	2045
Oak Point_ETJ	ETJ	24042696	29	0.05	1.00	2013	2055
Pilot Point_CITY	CITY	15944125	6	0.02	1.00	2013	2045
Providence Village_ETJ	ETJ	1699592	4	0.10	1.00	2013	2020
Krugerville_CITY	CITY	28573404	519	0.79	1.50	2013	2045
Aubrey_ETJ_South	ETJ	5227124	0	0.00	2.00	2020	2055
Aubrey_Prosper	ETJ	1446040	0	0.00	2.00	2020	2060
Celina_CITY	CITY	53611372	2	0.00	2.00	2020	2060
Celina_ETJ	ETJ	148454302	1	0.00	2.00	2020	2065
Lincoln Park_CITY	CITY	4527462	0	0.00	2.00	2020	2045
Lincoln Park_ETJ	ETJ	10062760	8	0.03	2.00	2020	2050
Little Elm_CITY	CITY	21224948	12	0.02	2.00	2013	2045
Little Elm_ETJ	ETJ	45864931	73	0.07	2.00	2020	2050
Prosper_ETJ	ETJ	4425573	2	0.02	2.00	2020	2050
Rudman Partnership I		10325491	1		2.50	2022	2037
Rudman Partnership II		5998435	1		2.50	2032	2047
Spiritas Ranch East	<Null>	7607549	1	0.01	2.50	2013	2030
Arrow Brooke	FWSD	11732400	2	0.01	3.00	2013	2040
Denton County FWSD_8A	FWSD	1726407	0	0.00	3.00	2013	2040
FWSD 10	FWSD	6913137	1	0.01	3.00	2013	2050
Highway 377		21431982	157	0.32	3.00	2013	2050
Highway 380	CITY	12454235	45	0.16	3.00	2013	2050
Jackson Ridge	<Null>	11781795	1	0.00	3.00	2013	2040
MUD_5	MUD	9322201	295	1.38	3.00	2013	2040
Oak Point WCID_1	WCID	8005380	234	1.27	3.00	2013	2030
Sandbrock_WCID	WCID	7417235	0	0.00	3.00	2017	2033
Shiney Hiney Partners I	MUD	16002642	2	0.01	3.00	2018	2028
Shiney Hiney Partners II	MUD	5014130	1	0.01	3.00	2023	2028
Four Seasons Ranch MUD_1	MUD	41543394	2	0.00	4.00	2025	2050
Paloma Creek_8A-1	FWSD	995486	5	0.22	4.00	2020	2030

UniqueName	TYPE	Nonflood Area	2013 Meters	Current Density (LUEs / acre)	Buildout Density	Start Year	Buildout Year
Paloma Creek_8A-2	FWSD	877017	0	0.00	4.00	2020	2030
Spiritas Ranch West	<Null>	23562473	1	0.00	4.00	2020	2040
MUD_4	MUD	10871981	1000	4.01	4.50	2013	2040
Denton ISD HS 380@Navo	<Null>	2995271	1			2015	2040
Denton ISD JHS 720@Martop	<Null>	6371273	1			2020	2040
Denton ISD Navo Middle School	<Null>	1363661	4			2014	2040
Shahan Prairie			0			2018	2024
Oak Hill Estates	<Null>	5325211	1	0.01	1.15	2015	2018
Oak Point WCID_4	WCID	8554574	1	0.01	5.60	2018	2024
Paloma Creek Lakeview_8A	FWSD	6489198	302	2.03	4.00	2013	2027
Paloma Creek South_11A	FWSD	15636144	1163	3.24	4.00	2013	2024
Paloma Creek South_11B	FWSD	13000317	288	0.96	4.00	2013	2024
Paloma Creek South_11C	FWSD	4830406	85	0.77	4.00	2013	2024
Paloma Creek_8B	FWSD	10183141	1017	4.35	5.00	2013	2027
Sandbrock_MUD_6	MUD	42959108	1	0.00	3.87	2017	2033
Savannah_10-1	FWSD	10085387	308	1.33	3.77	2003	2019
Savannah_10-2	FWSD	18188969	1263	3.02	3.77	2003	2019
Smiley Rd WCID	FWSD	55787079	1	0.00	3.90	2020	2045
Talley Ranch WCID_1	WCID	92550529	2	0.00	5.88	2020	2055
The Lakes	FWSD	73803537	7	0.00	2.05	2019	2034
Union Park	<Null>	32373750	2	0.00	3.14	2015	2022

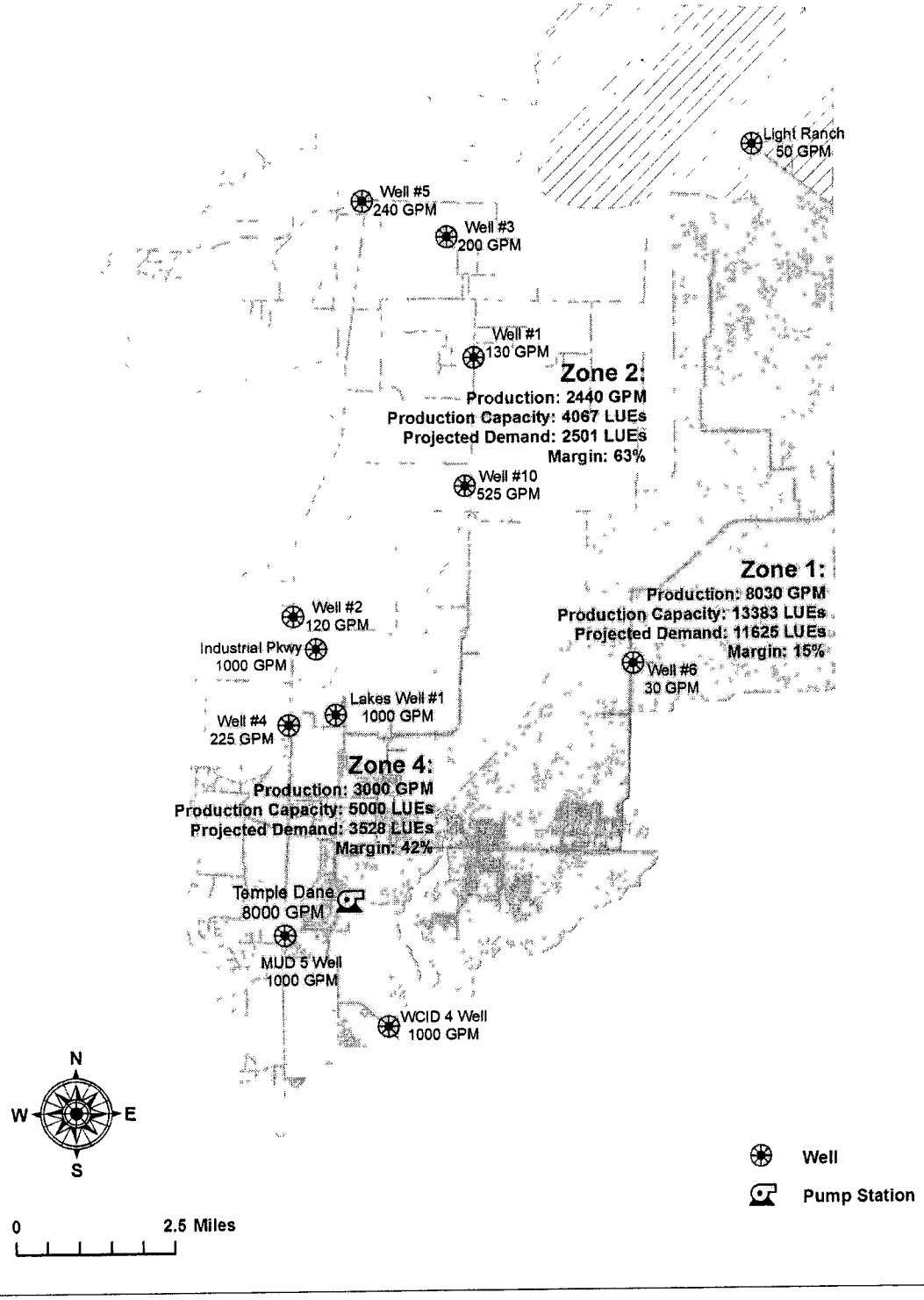
Production Capacity and Well Locations - 2013



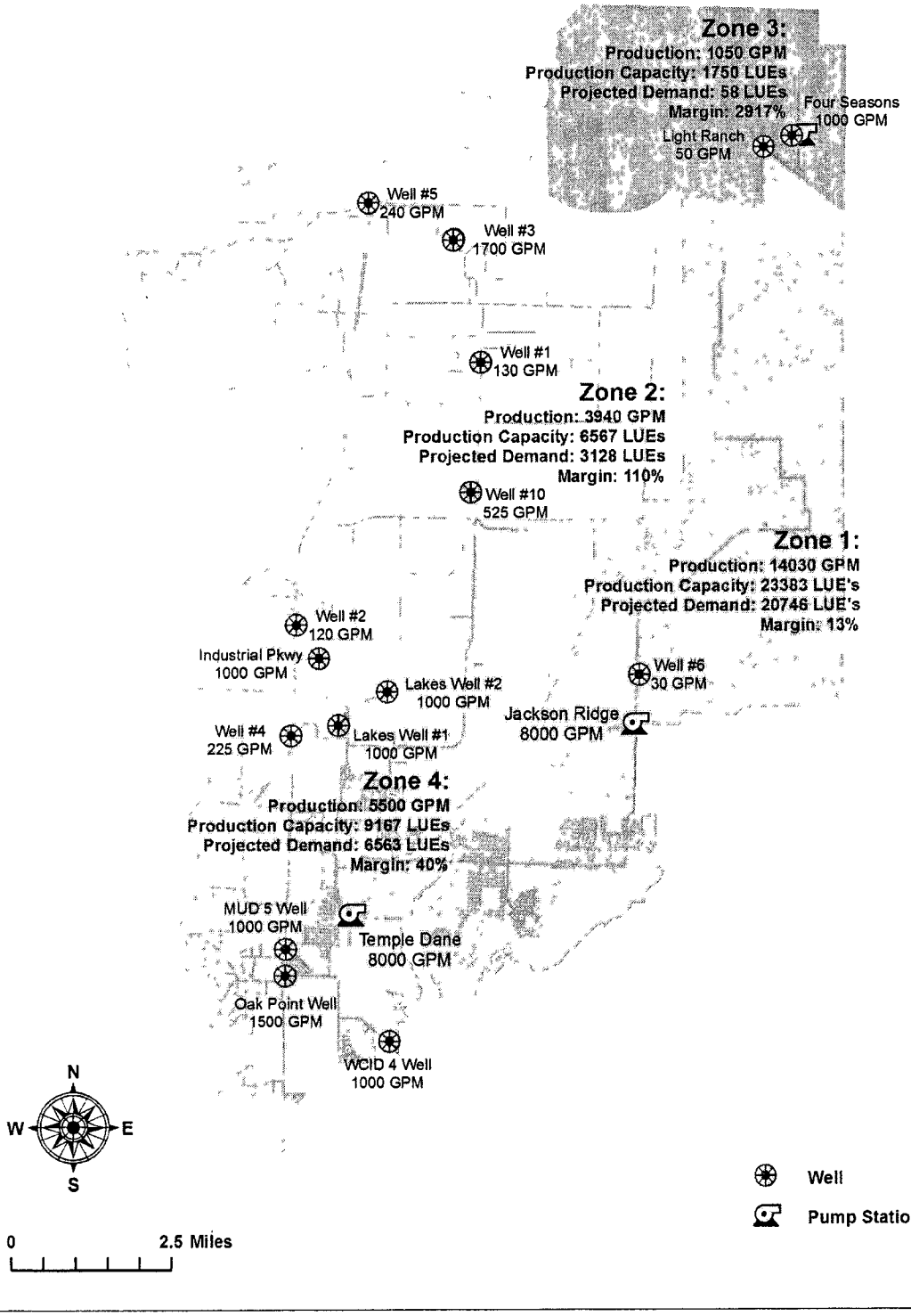
Production Capacity and Well Locations - 2018



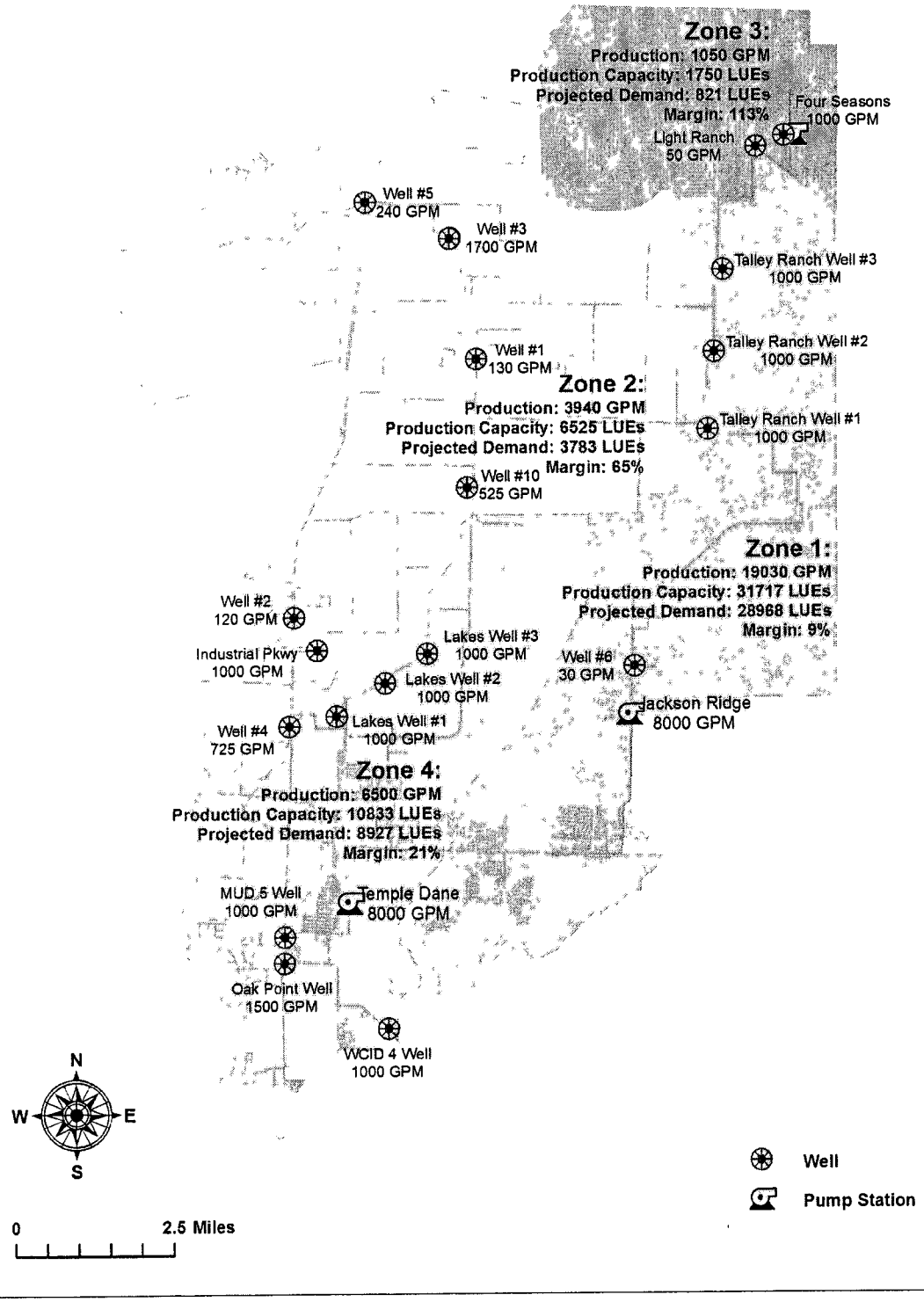
Production Capacity and Well Locations - 2020



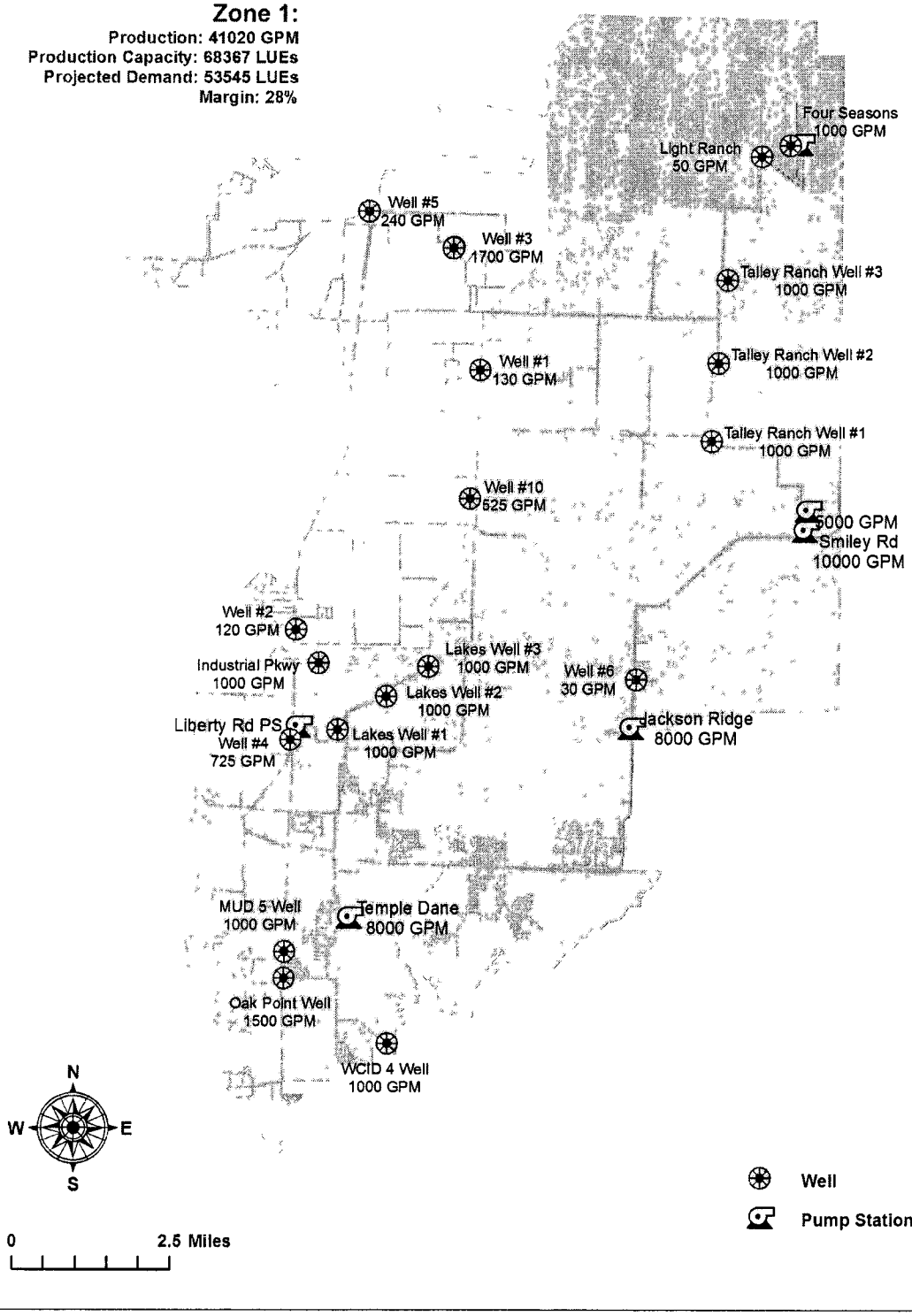
Production Capacity and Well Locations - 2025



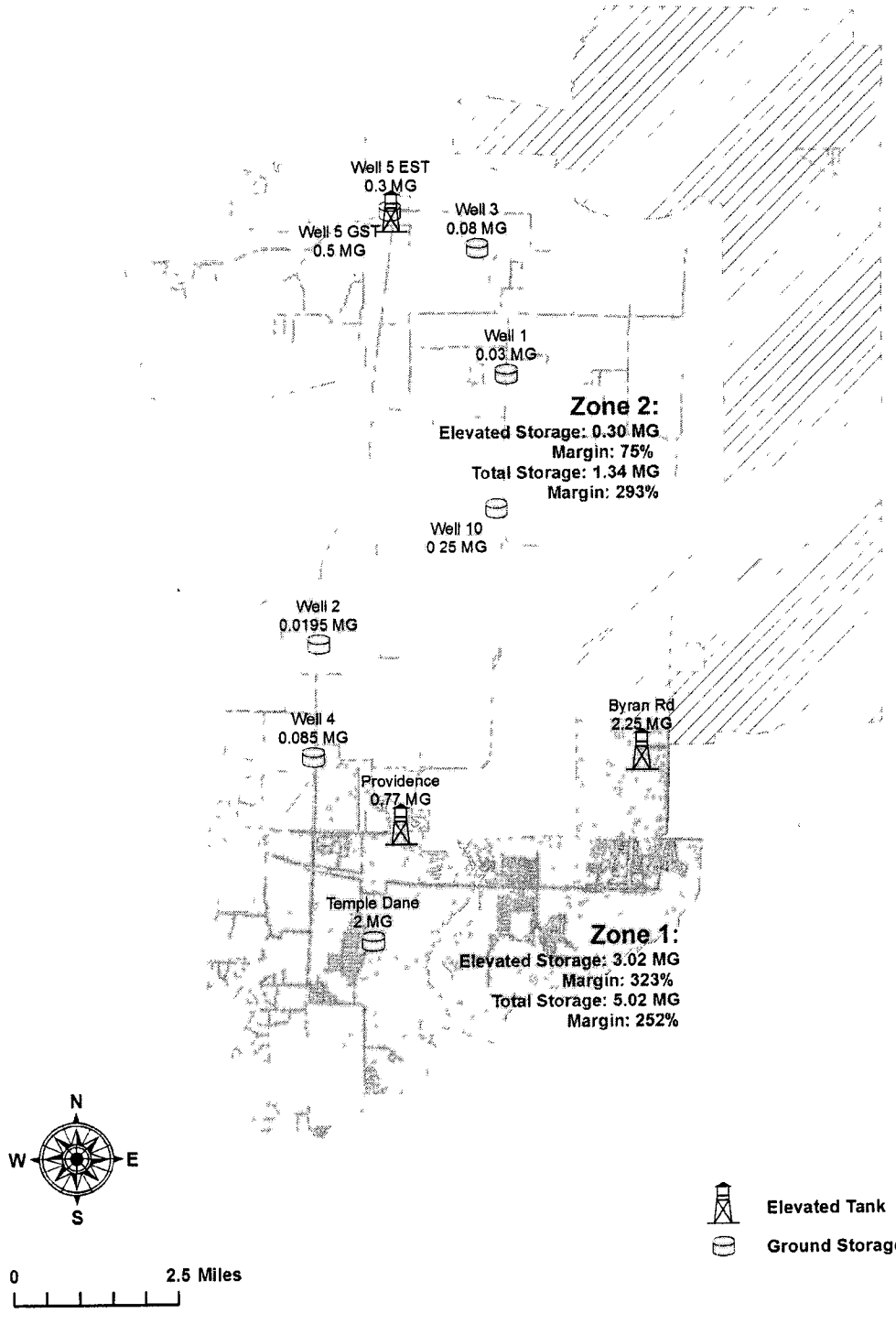
Production Capacity and Well Locations - 2030



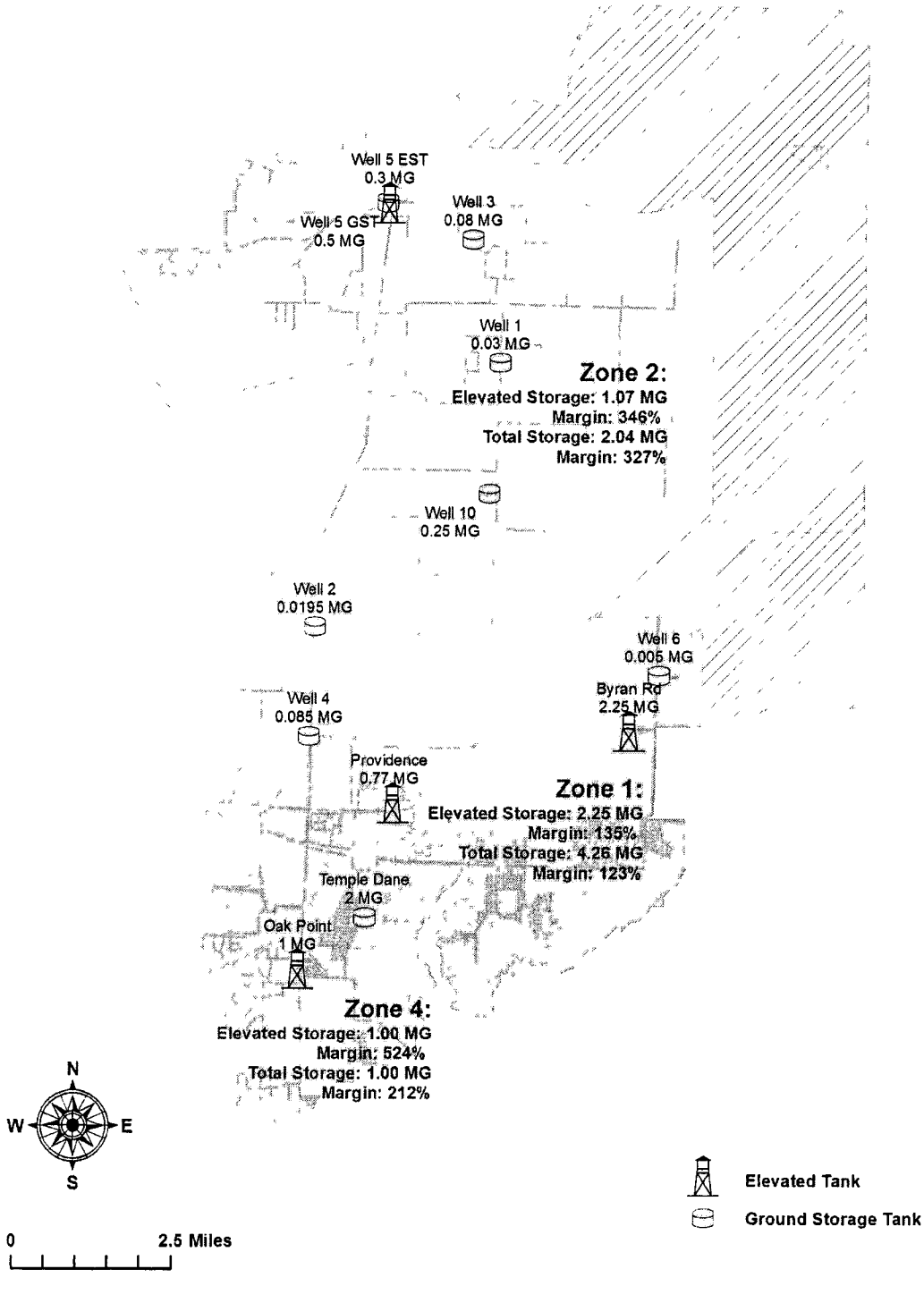
Production Capacity and Well Locations - 2035



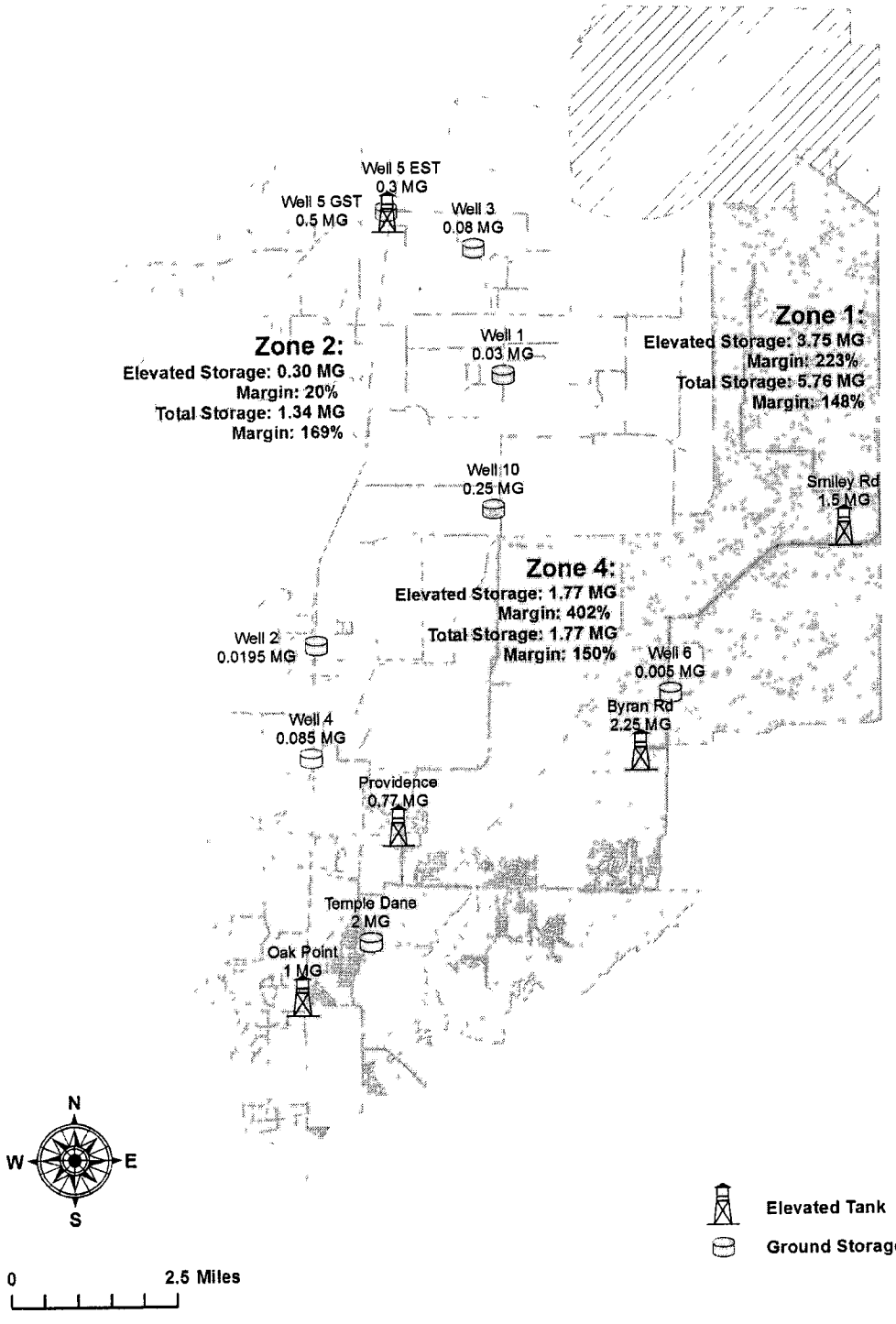
Storage Capacity and Tank Locations - 2013



Storage Capacity and Tank Locations - 2018



Storage Capacity and Tank Locations - 2020



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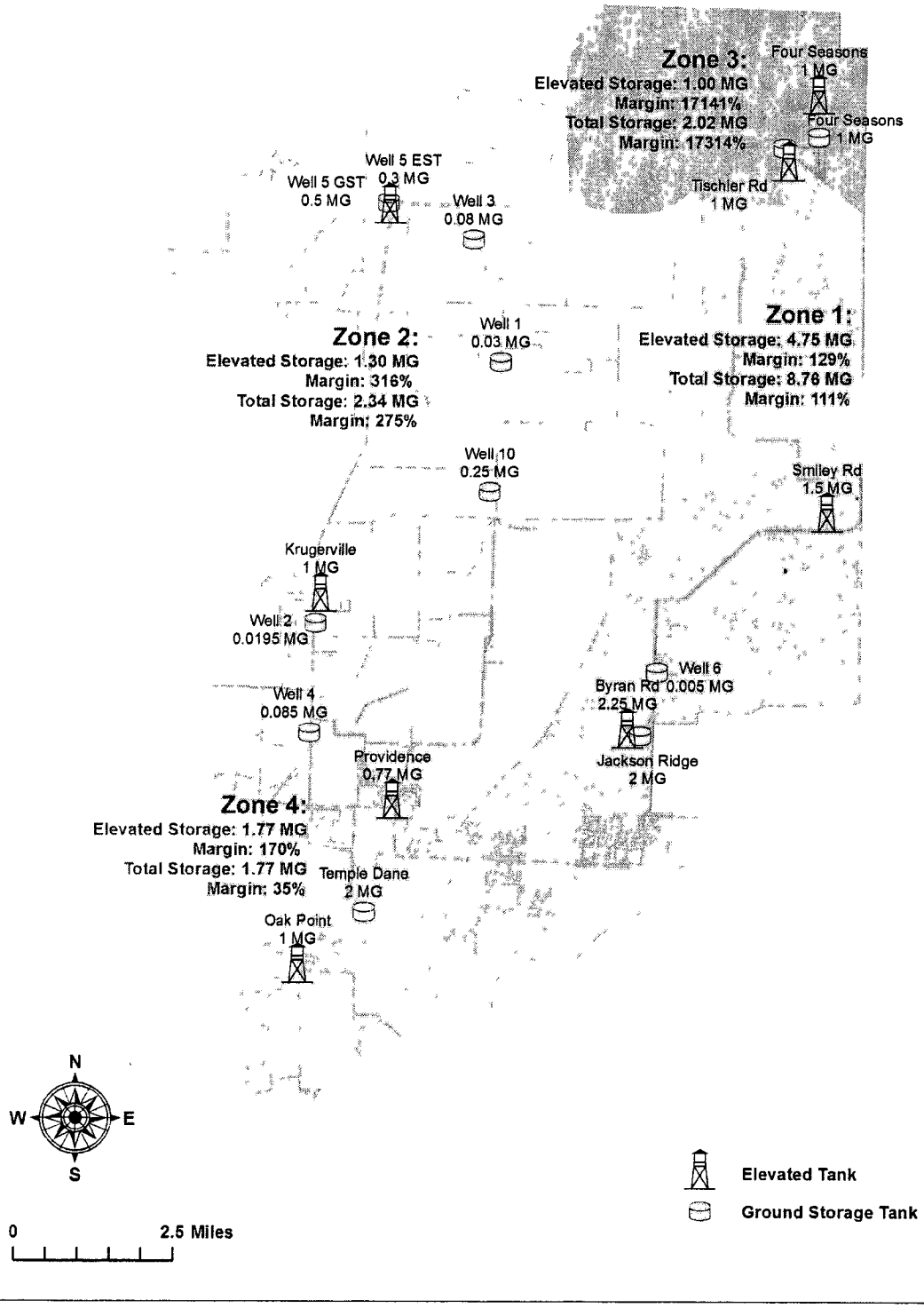
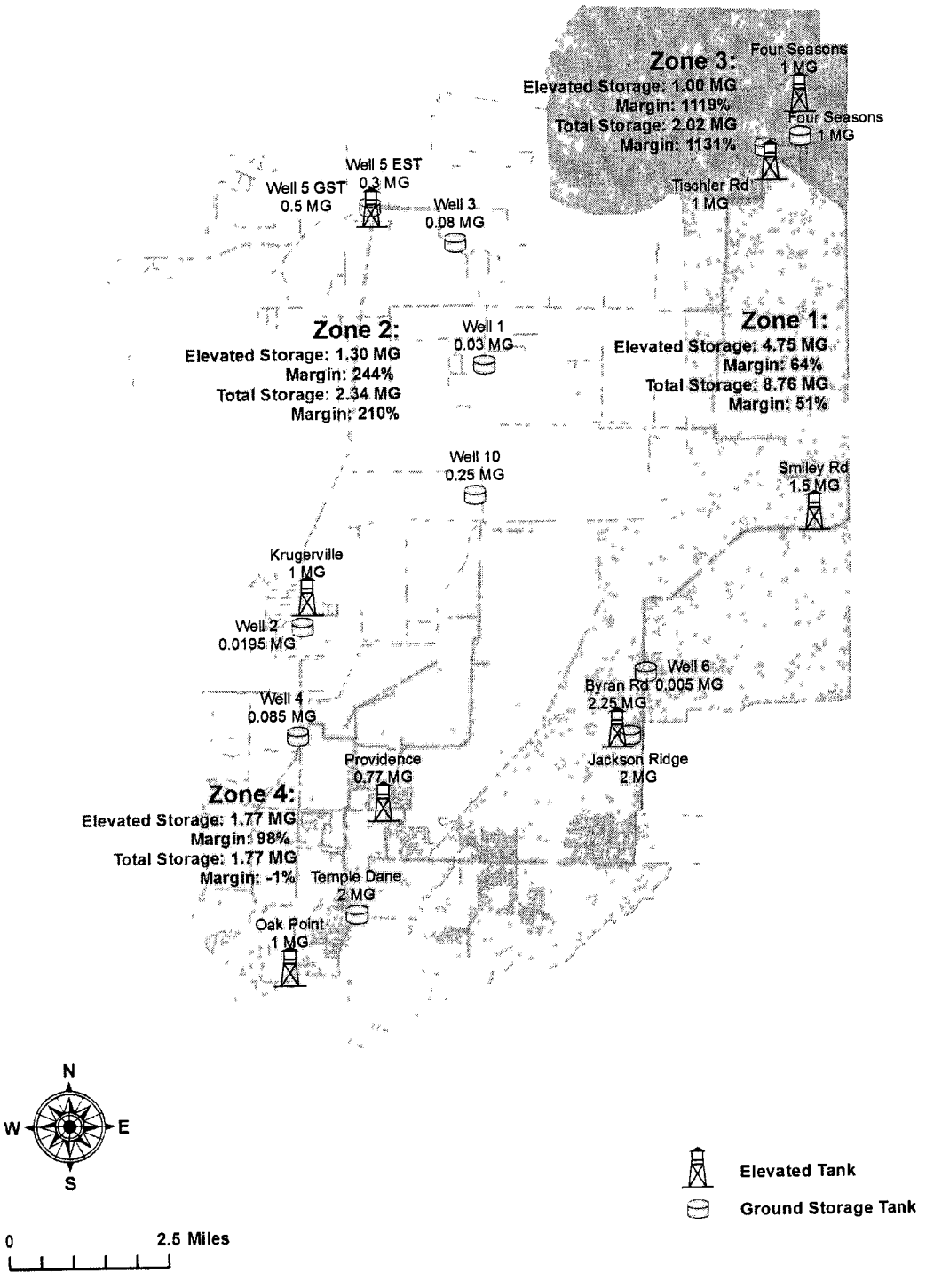
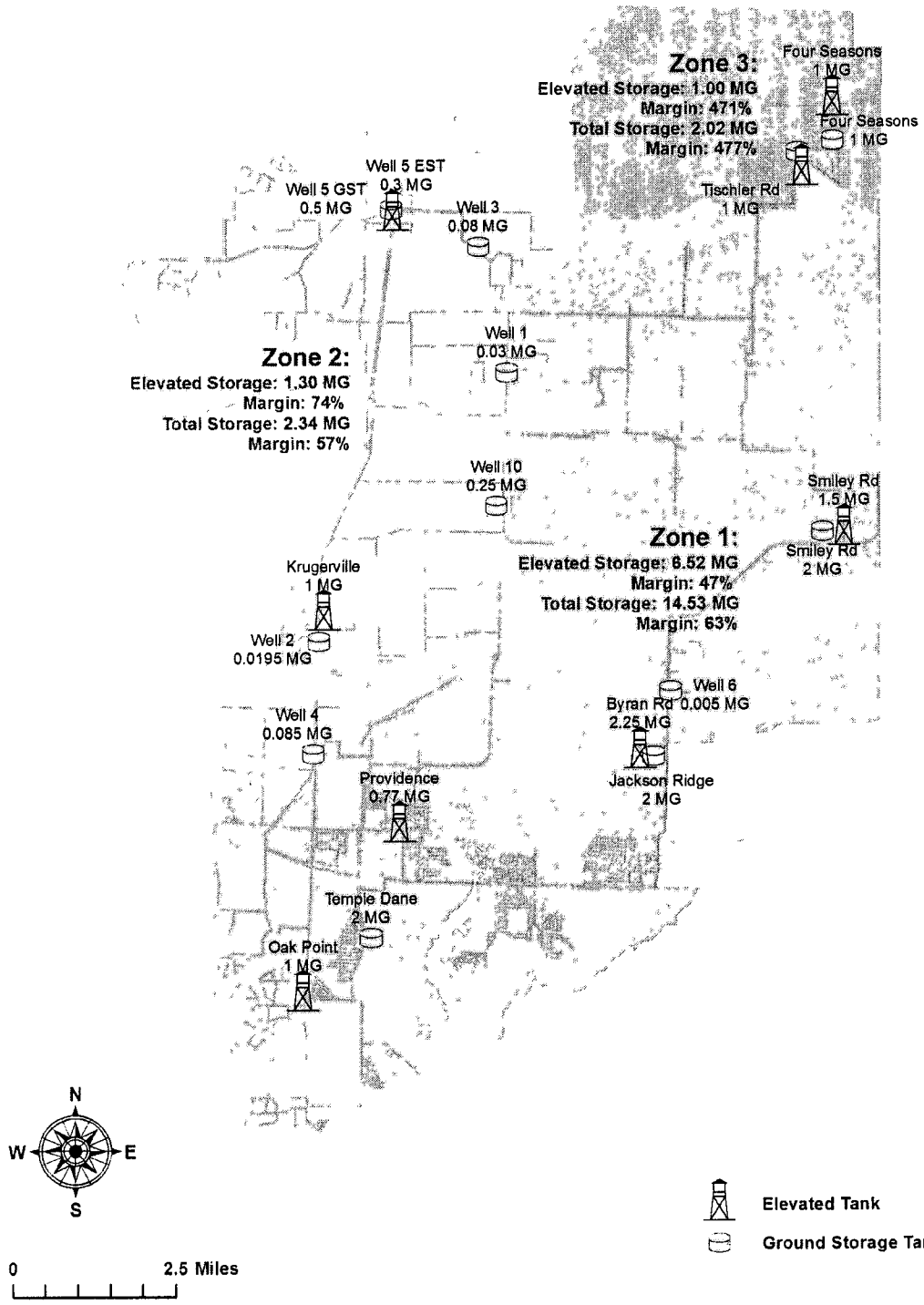


Storage Capacity and Tank Locations - 2030



Storage Capacity and Tank Locations - 2035



Southwest
5-year Water Projects

MUD 5 Well and Treatment (1000 GPM)

MAP KEY: SW1

This project includes testing and completing a well to serve the southwest area for the near future when this area is switched from surface water (from the Temple Dane Pump Station) to groundwater. The project does not include ground storage, high service pumps, or treatment beyond chlorination. The intent is for the well to pump directly into the system, controlled based on the level in the proposed Oak Point Elevated Tank. If, after the well is drilled it is discovered that the water requires more treatment, the cost of the project could increase significantly.

The exact site has not been determined. One possibility is to the east of Naylor Road, north of Amber Lane, in a 42-acre section of Cross Oak Ranch Phase 3 that is largely located in the floodplain.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Qty.*	*Units*	*Unit Cost*	*Total Cost*
Drill and Complete 1000 GPM Well		LS		650,000.00
Well Head Piping		LS		35,000.00
Electrical Building		LS		40,000.00
Electrical & Controls		LS		75,000.00
Chlorination Facilities		LS		140,000.00
Site Work (chain link fence, access road)		LS		50,000.00
Yard Piping, fittings, valves w/ misc. connections		LS		100,000.00

Construction Subtotal	1,090,000.00
Engineering, Surveying, Legal (12.5%)	136,250.00
Contingencies	218,000.00
Easements, R.O.W., etc.	15,000.00
TOTAL	**$1,459,250.00**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

WCID 4 Well and Treatment (1000 GPM)

MAP KEY: SW2

This project includes testing and completing a well to serve the southwest area for the near future when this area is switched from surface water (from the Temple Dane Pump Station) to groundwater. The project does not include ground storage, high service pumps, or treatment beyond chlorination. The intent is for the well to pump directly into the system, controlled based on the level in the proposed Oak Point Elevated Tank. If, after the well is drilled it is discovered that the water requires more treatment, the cost of the project could increase significantly.

The exact site has not been determined. One possibility is in the Oak Point WCID 4 tract to the east and north of Shahan Prairie Road.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Qty.*	*Units*	*Unit Cost*	*Total Cost*
Drill and Complete 1000 GPM Well		LS		650,000.00
Well Head Piping		LS		35,000.00
Electrical Building		LS		40,000.00
Electrical & Controls		LS		75,000.00
Chlorination Facilities		LS		140,000.00
Site Work (chain link fence, access road)		LS		50,000.00
Yard Piping, fittings, valves w/ misc. connections		LS		100,000.00

Construction Subtotal	1,090,000.00
Engineering, Surveying, Legal (12.5%)	136,250.00
Contingencies	218,000.00
Easements, R.O.W., etc.	15,000.00
TOTAL	**$1,459,250.00**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Oak Point (WCID 4) 12" Line

MAP KEY: SW3

This project connects the proposed WCID 4 well to an existing 12" line. The exact length of the line will depend on the location of the well and how connections are made to the Shahan Prairie development.

The length of this line will depend on the location of the well, which may even be outside Mustang's CCN. The length given here is conservative.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Qty.*	*Units*	*Unit Cost*	*Total Cost*
12" SDR-21 PVC w/tracer wire	*3340*	L.F.	27.50	91,850.00
12" Fittings	2	Ea.	1,500.00	3,000.00
12" Gate Valve w/valve box	3	Ea.	2,500.00	7,500.00
12" Fire Hydrant Assembly (w/ valve and tee)	1	Ea.	5,000.00	5,000.00
1" Automatic Air/Vacuum Release Valves w/ vaults	1	Ea.	1,250.00	1,250.00
12" Sand Bedding	3340	L.F.	7.50	25,050.00
Bore w/18" steel casing	0	L.F.	200.00	
Wet Connections	2	Ea.	2,500.00	5,000.00
Erosion Control w/Silt Fence	3340	L.F.	2.50	8,350.00
Clearing & Chipping : slightly wooded	3340	L.F.	1.50	5,010.00
12" Trench Safety	3340	L.F.	1.00	3,340.00
Construction Subtotal				155,350.00
Engineering, Surveying, Legal (12.5%)				19,418.75
Contingencies				31,070.00
Easements, R.O.W: Rural	3340	L.F.	2.00	6,680.00
TOTAL				**$212,518.75**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Oak Point Elevated Tank – 1 MG

MAP KEY: SW4

This project, together with the two Oak Point wells, will make it possible to separate the southwest area of Mustang's CCN into a separate groundwater production zone, allowing the Temple Dane Pump Station to serve more customers in the high-growth area along Hwy 380 and FM 1385.

The proposed site is one-acre parcel owned by Mustang SUD on Naylor Road between Amber Lane and Emerald Sound Blvd. The tank is sized based on models of future growth in which Oak Point and Cross Roads are combined into a single groundwater production zone.

The cost below is for a multileg elevated tank. A composite tank would cost about $400,000 more.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Qty.*	*Units*	*Unit Cost*	*Total Cost*
Tank Foundation (Spread footings for 6 legs & 1 central col.)				40,000.00
1,000,000 Multileg Elevated Tank with Dry Riser				1,650,000.00
Painting & sandblasting				150,000.00
Control Valve w/vault & bypass				15,000.00
Yard Piping incl. 6" flush valve assbly. as tank drain				18,000.00
Electrical				9,000.00
Telemetry Controls				18,000.00
Chain Link Fencing (400'x 400')				27,000.00
Site Improvements w/gravel access road				24,000.00
Construction Subtotal				1,951,000.00
Engineering, Surveying, Legal (12.5%)				243,875.00
Contingencies				390,200.00
Surveying and Staking				2,500.00
TOTAL				**$2,587,575.00**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Northwest
5-year Water Projects

Repair Exposed Line across Cantrell Slough, 12" Line

MAP KEY: NW1

There is a section of 10" pipe south of Highway 380, crossing the Cantrell Slough that has been exposed for several years. This project will install a parallel 800-foot section of new 12-inch pipe, connected using 45-degree bends. The new pipe will be installed well below natural ground level and cement stabilized.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Qty.*	*Units*	*Unit Cost*	*Total Cost*
12" SDR-21 PVC w/tracer wire	*800*	L.F.	27.50	22,000.00
12" Fittings	4	Ea.	1,500.00	6,000.00
12" Sand Bedding	800	L.F.	7.50	6,000.00
18" or smaller Cement Stabilization	500	L.F.	25.00	12,500.00
Wet Connections	2	Ea.	2,500.00	5,000.00
Erosion Control w/silt fence	800	L.F.	2.50	2,000.00
Clearing & Chipping : moderately wooded	800	L.F.	2.00	1,600.00
12" Trench Safety	800	L.F.	1.00	800.00
Construction Subtotal				55,900.00
Engineering, Surveying, Legal (12.5%)				6,987.50
Contingencies				5,590.00
Easements, R.O.W: Urbanized	800	L.F.	3.50	2,800.00
TOTAL				**$71,277.50**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Add Level Sensors to Wells

MAP KEY: N/A

As part of the plan to aggressively develop groundwater sources, this project improves Mustang's ability to monitor the condition of its aquifer with continuous well level monitoring. With submersible level sensors in each well, it will be possible to continually monitor static level, drawdown level, and specific capacity. This information will help determine which wells are the best candidates for upsizing.

Installing level sensors typically requires pulling the well, at which point the condition of the well, column pipe, pump, and motor may be assessed.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Quantity*	*Units*	*Unit Cost*	*Total Cost*
Submersible level sensor	*8*	LS	1,000.00	8,000.00
Cabling	8	LS	1,000.00	8,000.00
Pull, inspect, and replace pump	8	LS	10,000.00	80,000.00
Install 1" PVC stilling tube	8	LS	1,000.00	8,000.00
Update PLC code	8	LS	500.00	4,000.00
Update SCADA code		LS		5,000.00

Construction Subtotal	113,000.00
Engineering, Surveying, Legal (12.5%)	14,125.00
Contingencies	22,600.00
TOTAL	**$149,725.00**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Distribution Main – Replace Asbestos Cement Line, 16" Line

MAP KEY: NW2

This project removes an existing 6" asbestos cement line along Highway 377 north of Arvin Hill Road, replacing it with 16" ductile iron line. The new line is sized to meet 20-year demand. It is anticipated that by 2030 or earlier, it will be necessary to send surface water into the northwest area from the Temple Dane Pump Station.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Quantity*	*Units*	*Unit Cost*	*Total Cost*
16" DI w/tracer wire	2479	L.F.	55.00	136,345.00
16" Fittings	2	Ea.	2,625.00	5,250.00
16" Gate Valve w/valve box	2			
16" Fire Hydrant Assembly (w/ valve and tee)	1	Ea.	6,000.00	6,000.00
2" Automatic Air/Vacuum Release Valves w/ vaults	1	Ea.	2,500.00	2,500.00
16" Sand Bedding	2479	L.F.	10.00	24,790.00
24" Slick Bore w/o casing	221	L.F.	130.00	28,730.00
Wet Connections	2	Ea.	2,500.00	5,000.00
Erosion Control w/silt fence	2479	L.F.	2.50	6,197.50
Clearing & Chipping : minor	2479	L.F.	1.00	2,479.00
16" Trench Safety	2479	L.F.	1.00	2,479.00
Disconnect & Reconnect Meter	13	Ea.	350.00	4,550.00
Construction Subtotal				224,320.50
Engineering, Surveying, Legal (12.5%)				28,040.06
Contingencies				44,864.10
Easements, R.O.W: Rural	2479	L.F.	2.00	4,958.00
TOTAL				**$302,182.66**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Distribution Main – Mustang Road, 6" Line

MAP KEY: NW3

This project addresses problems with low pressures experienced by customers served by a 2.5" line along Mustang Road from FM 2931 to FM 1385.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Quantity*	*Units*	*Unit Cost*	*Total Cost*
8" SDR-21 PVC w/tracer wire	*10121*	L.F.	15.40	155,863.40
8" Fittings	6	Ea.	825.00	4,950.00
8" Gate Valve w/valve box	6	Ea.	1,500.00	9,000.00
8" Fire Hydrant Assembly (w/ valve and tee)	4	Ea.	4,000.00	16,000.00
2" Automatic Air/Vacuum Release Valves w/ vaults	2	Ea.	2,500.00	5,000.00
8" Sand Bedding	10121	L.F.	6.00	60,726.00
12" Slick Bore w/o casing	90	L.F.	80.00	7,200.00
Open Cut Road Crossing w/12" PVC casing	330	L.F.	85.00	28,050.00
18" or smaller Cement Stabilization	80	L.F.	25.00	2,000.00
Wet Connections	4	Ea.	2,500.00	10,000.00
Erosion Control w/silt fence	10121	L.F.	2.50	25,302.50
Clearing & Chipping : minor	10121	L.F.	1.00	10,121.00
6" Trench Safety	10121	L.F.	1.00	10,121.00
Disconnect & Reconnect Meter	25	Ea.	350.00	8,750.00
Construction Subtotal				353,083.90
Engineering, Surveying, Legal (12.5%)				44,135.49
Contingencies				70,616.78
Easements, R.O.W: Rural	10121	L.F.	2.00	20,242.00
TOTAL				**$488,078.17**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Industrial Parkway Well and Treatment (1000 GPM)

MAP KEY: NW4

This project includes testing and completing a well to serve the northwest area. It is anticipated that it will eventually be necessary to send surface water from the Temple Dane Pump Station to the northwest. This will require an expensive transmission main and pump station. Every well in the northwest that is added or expanded delays that cost.

The project does not include ground storage, high service pumps, or treatment beyond chlorination. The intent is for the well to pump directly into the system, controlled based on the level in the Well #5 elevated tank or, later, the proposed Krugerville elevated tank (2050). If, after the well is drilled it is discovered that the water requires more treatment, the cost of the project could increase significantly. The exact site has not be determined. One possibility is for Mustang to acquire part of the 20-acre lot south of Industrial Parkway to the east of Highway 377.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Qty.*	*Units*	*Unit Cost*	*Total Cost*
Drill and Complete 1000 GPM Well		LS		650,000.00
Well Head Piping		LS		35,000.00
Electrical Building		LS		40,000.00
Electrical & Controls		LS		75,000.00
Chlorination Facilities		LS		140,000.00
Site Work (chain link fence, access road)		LS		50,000.00
Yard Piping, fittings, valves w/ misc. connections		LS		100,000.00

Construction Subtotal	1,090,000.00
Engineering, Surveying, Legal (12.5%)	136,250.00
Contingencies	218,000.00
Easements, R.O.W., etc.	15,000.00
TOTAL	**$1,459,250.00**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Transmission Main – Providence to The Lakes, 20" Line

MAP KEY: NW5

This project will provide access to elevated storage in the Providence tank needed to support future growth in the west. It is timed to come online in time to provide elevated storage to the pressure plane that includes Oak Point, Cross Roads, and The Lakes.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Quantity*	*Units*	*Unit Cost*	*Total Cost*
20" DI w/tracer wire	19,555	L.F.	88.00	1,720,840.00
20" Fittings	8	Ea.	4,250.00	34,000.00
Butterfly Valve 20"	8	Ea.	4,500.00	36,000.00
20" Fire Hydrant Assembly (w/ valve and tee)	4	Ea.	8,000.00	32,000.00
4" Automatic Air/Vacuum Release Valves w/ vaults	4	Ea.	7,500.00	30,000.00
20" Sand Bedding	19,555	L.F.	15.00	293,325.00
30" Slick Bore w/o casing	250	L.F.	160.00	40,000.00
Bore w/30" steel casing	140	L.F.	300.00	42,000.00
Wet Connections	4	Ea.	2,500.00	10,000.00
Erosion Control w/silt fence	19,555	L.F.	2.50	48,887.50
Clearing & Chipping : minor	19,555	L.F.	1.00	19,555.00
20" Trench Safety	19,555	L.F.	2.00	39,110.00
Construction Subtotal				2,345,717.50
Engineering, Surveying, Legal (12.5%)				293,214.69
Contingencies				477,062.5625
Easements, R.O.W: Rural	19,555	L.F.	2.00	39,110.00
TOTAL				**$3,155,104.75**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Well at the Lakes #1

MAP KEY: NW6

This project includes testing and completing a well to serve the west area in the 753' MSL pressure plane. It is anticipated that it will eventually be necessary to send surface water from the Temple Dane Pump Station to the west and northwest. This will require an expensive transmission main as well as additional surface water from UTRWD. Every well that is added or expanded delays that cost.

The project does not include ground storage, high service pumps, or treatment beyond chlorination. The intent is for the well to pump directly into the system, controlled based on the level in the proposed The Lakes Elevated Tank. If, after the well is drilled it is discovered that the water requires more treatment, the cost of the project could increase significantly. The exact site has not be determined.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Qty.*	*Units*	*Unit Cost*	*Total Cost*
Drill and Complete 1000 GPM Well		LS		650,000.00
Well Head Piping		LS		35,000.00
Electrical Building		LS		40,000.00
Electrical & Controls		LS		75,000.00
Chlorination Facilities		LS		140,000.00
Site Work (chain link fence, access road)		LS		50,000.00
Yard Piping, fittings, valves w/ misc. connections		LS		100,000.00

Construction Subtotal	1,090,000.00
Engineering, Surveying, Legal (12.5%)	136,250.00
Contingencies	218,000.00
Easements, R.O.W., etc.	15,000.00
TOTAL	**$1,459,250.00**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Southeast
5-year Water Projects

Upgrade Temple Dane Pump Station to 8000 GPM

MAP KEY: SE1

The Temple Dane Pump Station currently has one 50-hp pump, two 100-hp pumps, and two 150-hp pumps. Upsizing pumps 1, 4, and 5 to 150-hp, will increase the capacity of the Temple Dane Pump Station from 5200 GPM to 8000 GPM.

With the previous upgrade, much of the electrical was upsized to handle this full build-out including conductors from the service transformer.

This estimate does not include the cost to have the electric utility upsize the service transformer and does not include any improvements outside of the pump building.

This estimate is for the entire cost of the upgrade. We anticipate that Upper Trinity Regional Water District (UTRWD) will pay 65% of the cost.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Upgrade Temple Dane Pump Station to 8000 GPM

Item	*Quantity*	*Units*	*Unit Cost*	*Total Cost*
Three (3) Flowserve 8LR14A bronze fitted cast iron constructed horizontal split case pump with 150-hp 4-pole 460-V ODP motor mounted on baseplate. Includes factory pump performance test and field startup services.		LS	60,000.00	60,000.00
Remove two (2) 100-hp and one (1) 50-hp pumps and motors and install three (3) new 150-hp pumps and motors, including piping and valves.		LS	50,000.00	50,000.00
Three (3) 150-hp Siemens Sinamics G120 variable frequency drives or approved equal. Includes field startup services.		LS	36,000.00	36,000.00
Remove one (1) existing 50-hp VFD and two (2) existing 100-hp soft starts and install three (3) new VFDs.		LS	15,000.00	15,000.00
Modify control panel to control new VFDs		LS	10,000.00	10,000.00
Replace 800A MCB with 1000 GFCI MCB		LS	25,000.00	25,000.00
Construction Subtotal				196,000.00
Engineering (15%)				29,400.00
Contingencies (25%)				49,000.00
TOTAL				**$274,400.00**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

FM 720 Utility Relocation – Phase 2

MAP KEY: SE2

TxDOT is widening FM 720 which requires the relocation of utilities. The non-reimbursable portion of the cost of relocating Mustang SUD's water lines is estimated here.

Preliminary Estimated Cost Summary

(Producer Price Index 195.9 based on WPSSOP 3000, January, 2013)

Item	*Qty.*	*Units*	*Unit Cost*	*Total Cost*
10" D.I. cl-350 w/ poly wrap	*350*	LF	56.00	19,600.00
10" MJ SSB cl-350 DI Fittings w/ restraint	2,400	Ea.	4.50	10,800.00
20" Steel Casing by Bore	350	lbs.	300.00	105,000.00
6" D.I. cl-350 w/ poly wrap	150	Ea.	35.00	5,250.00
6" MJ SSB cl-350 DI Fittings w/ restraint	500	Ea.	4.50	2,250.00
4" D.I. cl-350 w/ poly wrap	3,650	Ea.	25.00	91,250.00
4" MJ SSB cl-350 DI Fittings w/ restraint	3,000	LS	4.50	13,500.00
10" Steel Casing by Bore for 4" Carrier	115	LS	200.00	23,000.00
Trench Safety	1	LS	5,000.00	5,000.00

Construction Subtotal	275,650.00
Engineering, Legal	33,078.00
Contingencies	55,130.00
Surveying and Staking	8,269.50
R.O.W., Easements, Permits ($3.5/s.f.)	191,625.00
TOTAL	**$563,752.50**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Transmissions Main –FM1385 to FM428, 36" Line

MAP KEY: SE3

This project allows the Temple Dane Pump Station and proposed Jackson Ridge Pump Station to move water north to future developments including Sandbrock MUD 6, Smiley Rd WCID, Shiney Hiney, and Talley Ranch.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Quantity*	*Units*	*Unit Cost*	*Total Cost*
36" DI w/tracer wire	*10,725*	L.F.	160.00	1,716,000.00
36" Fittings	6	Ea.	12,125.00	72,750.00
Butterfly Valve 36"	6	Ea.	11,000.00	66,000.00
36" Fire Hydrant Assembly (w/ valve and tee)	2	Ea.	11,000.00	22,000.00
4" Automatic Air/Vacuum Release Valves w/ vaults	2	Ea.	7,500.00	15,000.00
36" Sand Bedding	10,725	L.F.	22.50	241,312.50
36" Slick Bore w/o casing	221	L.F.	200.00	44,200.00
Bore w/48" steel casing	140	L.F.	450.00	63,000.00
Wet Connections	2	Ea.	2,500.00	5,000.00
Erosion Control w/silt fence	10,725	L.F.	2.50	26,812.50
Clearing & Chipping : minor	10,725	L.F.	1.00	10,725.00
36" Trench Safety	10,725	L.F.	2.00	21,450.00
Construction Subtotal				2,304,250.00
Engineering, Surveying, Legal (12.5%)				288,031.25
Contingencies				460,850.00
Easements, R.O.W: Rural	10,725	L.F.	2.00	21,450.00
TOTAL				**$3,074,581.25**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Transmissions Main – FM 428 to Smiley Rd EST, 36" Line

MAP KEY: SE4

This project will allow the proposed Jackson Ridge pump stations to move water north to Shiney Hiney, Smiley Road, and Talley Ranch developments.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Quantity*	*Units*	*Unit Cost*	*Total Cost*
36" DI w/tracer wire	*16,532*	L.F.	160.00	2,645,120.00
36" Fittings	12	Ea.	12,125.00	145,500.00
Butterfly Valve 36"	8	Ea.	11,000.00	88,000.00
36" Fire Hydrant Assembly (w/ valve and tee)	5	Ea.	11,000.00	55,000.00
2" Automatic Air/Vacuum Release Valves w/ vaults	5	Ea.	2,500.00	12,500.00
36" Sand Bedding	16,532	L.F.	22.50	371,970.00
Bore w/48" steel casing	74	L.F.	450.00	33,300.00
36" Slick Bore w/o casing	355	L.F.	200.00	71,000.00
Wet Connections	2	Ea.	2,500.00	5,000.00
Erosion Control w/silt fence	16,532	L.F.	2.50	41,330.00
Clearing & Chipping : minor	16,532	L.F.	1.00	16,532.00
36" Trench Safety	16,532	L.F.	2.00	33,064.00
Construction Subtotal				3,518,316.00
Engineering, Surveying, Legal (12.5%)				439,789.50
Contingencies				703,663.20
Easements, R.O.W: Rural	16,532	L.F.	2.00	33,064.00
TOTAL				**$4,694,832.70**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Northeast
5-year Water Projects

Smiley Road Elevated Tank - 1 MG

MAP KEY: NE1

This elevated tank will be in the same pressure plane as Byran Road and the proposed Tischler Road elevated tank. These three tanks will provide elevated storage for all customers in the east production zone and pressure plane south of the proposed Four Seasons pressure plane.

The cost below is for a multileg elevated tank. A composite tank would cost about $400,000 more.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Quantity*	*Units*	*Unit Cost*	*Total Cost*
Tank Foundation (Spread footings for 6 legs & 1 central col.)				40,000.00
1,000,000 Multileg Elevated Tank with Dry Riser				1,650,000.00
Painting & sandblasting				150,000.00
Control Valve w/vault & bypass				15,000.00
Yard Piping incl. 6" flush valve assbly. as tank drain				18,000.00
Electrical				9,000.00
Telemetry Controls				18,000.00
Chain Link Fencing (400'x 400')				27,000.00
Site Improvements w/gravel access road				24,000.00
Construction Subtotal				1,951,000.00
Engineering, Surveying, Legal (12.5%)				243,875.00
Contingencies				390,200.00
Surveying and Staking				2,500.00
Land				20,000.00
TOTAL				**$2,607,575.00**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

5-year Wastewater Projects

Oak Hill Estates Interceptor Line

MAP KEY: WW1

This project will provide a connection to the Peninsula WRP for future customers south of Hwy 380 and west of Naylor Road.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Qty.*	*Units*	*Unit Cost*	*Total Cost*
15" SDR-26 PVC Collection System	*1,175*	LF	85.00	99,875.00
Bore with 24" Steel Casing	60	LF	250.00	15,000.00
Standard Manholes	5	EA	3,500.00	17,500.00
Clearing & Chipping		LS		5,000.00
Erosion Control w/silt fencing		LS		2,500.00
Trench Safety		LS		5,000.00

Construction Subtotal				144,875.00
Engineering, Surveying, Legal (12.5%)				18,109.38
Contingencies				28,975.00
Easements, R.O.W: Rural	1,175	L.F.	2.00	2,350.00
TOTAL				**$194,309.38**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Fishtrap Road to Riverbend WRP Interceptor Line

MAP KEY: WW2

This project will serve future customers to the south and west of Providence Village.

Preliminary Estimated Cost Summary

(Producer Price Index 199.1 based on WPSSOP 3000, January, 2014)

Item	*Qty.*	*Units*	*Unit Cost*	*Total Cost*
15" SDR-26 PVC Collection System	*4,050*	LF	85.00	344,250.00
24" SDR-26 PVC Collection System	3,800	LF	135.00	513,000.00
Bore with 24" Steel Casing	260	LF	250.00	65,000.00
Bore with 36" Steel Casing	150	LF	350.00	52,500.00
Standard Manholes	10	EA	3,500.00	35,000.00
Clearing & Chipping		LS		8,000.00
Erosion Control w/silt fencing		LS		5,000.00
Trench Safety		LS		7,000.00
Construction Subtotal				1,029,750.00
Engineering, Surveying, Legal (12.5%)				128,718.75
Contingencies				205,950.00
Easements, R.O.W: Rural	7,850	L.F.	2.00	15,700.00
TOTAL				**$1,380,118.75**

NOTE: This is a preliminary cost summary based on similar work on the Mustang SUD system and not an actual cost quote. It has not been based on any engineering plans or survey. A revised and more accurate estimate can be provided after engineering plans have been prepared and/or actual construction bids have been received and tabulated.

Southwest											
Map Key		Project	Total Cost Estimate	Production GPM	Year 2015	2016	2017	2018	2019	Total through 2019	Deferred
		Existing Production:									
		None		0							
		Total Existing Production: 0 gpm									
		Production Required by 2035: 2682 gpm									
		Five Year Plan:									
WW1	2015	WW Oak Hill Estates Interceptor Line	204,000		204,000					204,000	
SW1	2015	MUD 5 Well and Treatment (1000 gpm)	1,459,250	1000	1,459,250					1,459,250	
SW2	2015	WCID 4 Well and Treatment (1000 gpm)	1,459,250	1500	1,459,250					1,459,250	
SW3	2015	Oak Point (WCID 4) 12" Line	212,519		212,519					212,519	
SW4	2016	Oak Point Elevated Tank - 1 MG	2,587,575			2,587,575				2,587,575	
		5-Year Production Subtotal		2000							
		Deferred:									
	2025	Oak Point Well and Treatment (1500 gpm)	2,188,875	500							2,188,875
	2030	Transmission Main - Oak Point EST to Oak Point Well - 12" Line	76,590								76,590
		Southwest Total:	***$8,188,059***	3500	***$3,335,019***	***$2,587,575***	***$0***	***$0***	***$0***	***$5,922,594***	***$2,265,465***

Northwest												
Map Key	Year	Project	Total Cost Estimate	Production GPM	Year 2015	2016	2017	2018	2019	Total through 2019	Deferred
		Existing Production:									
		Wells 1, 2, 3, 4, 5, 10		1440							
		Total Existing Production: 1440 gpm									
		Production Required by 2035: 3648 gpm									
		Five Year Plan:									
NW1	2015	Repair Exposed Line across Cantrell Slough, 12" Line	71,278		71,278					71,278	
–	2015	Add Level Sensors to Wells	149,725		149,725					149,725	
NW2	2015	Distribution Main - Replace Asbestos Cement Line, 16" Line	302,183		302,183					302,183	
NW3	2016	Distribution Main - Mustang Road, 8" Line	488,078			488,078				488,078	
WW2	2016	WW Fish Trap Road to Riverbend WRP Interceptor Line	1,265,850			1,265,850				1,265,850	
NW4	2017	Industrial Parkway Well and Treatment (1000 gpm)	1,459,250	1,000			1,459,250			1,459,250	
NW5	2018	Transmission Main - Providence to The Lakes, 20" Line	3,155,105					3,155,105		3,155,105	
NW6	2018	Well at The Lakes #1 (1000 GPM)	1,459,250	1,000				1,459,250		1,459,250	
		5-Year Production Subtotal:		*3440*							
		Deferred:									
	2023	Well at The Lakes #2 (1000 GPM)	1,459,250	1,000							1,459,250
	2025	Expand Well #3 (add 1500 GPM)	1,898,775	1,500							1,898,775
	2025	TM from Industrial Pkwy to Spring Hill Rd - 24" Line	2,230,995								2,230,995
	2025	TM from Spring Hill Rd to Well #5 - 18" Line	3,541,860								3,541,860
	2025	Krugerville Elevated Tank - 1 0 MG - 873' Pressure Plane	2,584,950								2,584,950
	2030	Well at The Lakes #3 (1000 GPM)	1,459,250	1,000							1,459,250
	2030	Transmission Main - Temple Dane to Northwest - 16" Line	1,500,000								1,500,000
	2035	Expand Well #4 (add 500 GPM)	750,000	500							750,000
		Northwest Total:	***$23,775,798***	*7440*	***$523,185***	***$1,753,928***	***$1,459,250***	***$4,614,355***	***$0***	***$8,350,718***	***$15,425,080***

Southeast											
Map Key		Project	Total Cost Estimate	Production GPM	Year 2015	2016	2017	2018	2019	Total through 2019	Deferred
		Existing Production:									
		Temple Dane Pump Station		5200							
		Total Existing Production 5200 gpm									
		Production Required by 2035: 10658 gpm									
		Five Year Plan:									
SE1	2015	Upgrade Temple Dane Pump Station to 8000 GPM	274,400	2800	274,400					274,400	
SE2	2016	TXDOT Relocation along 720 - Phase 2	565,000			565,000				565,000	
SE3	2017	Transmission Main - FM1385 to FM428, 36" Line	3,074,581				3,074,581			3,074,581	
SE4	2019	Transmission Main - FM428 to Smiley Rd EST, 36" Line	4,694,833						4,694,833	4,694,833	
		5-Year Production Subtotal.		8000							
		Deferred:									
	2021	Jackson Ridge Ground Storage Tank - 2 MG	1,000,000								1,000,000
	2021	Jackson Ridge Pump Station - 2000 GPM	4,107,500	2000							4,107,500
	2023	Jackson Ridge Pump Station - Add 2000 GPM	200,000	2000							200,000
		Southeast Total:	***$ 13,916,314***	12000	***$ 274,400***	***$ 565,000***	***$ 3,074,581***	***$ -***	***$ 4,694,833***	***$ 8,608,814***	***$ 5,307,500***

Northeast					Year					Total through	
Map Key		Project	Total Cost Estimate	Production GPM	2015	2016	2017	2018	2019	2019	Deferred
		Existing Production:									
		Light Ranch		50							
		Total Existing Production: 50 gpm									
		Production Required by 2035: 18157 gpm									
		Five Year Plan:									
NE1	2019	Smiley Road Elevated Tank - 1 MG	2,607,575						2,607,575	2,607,575	
		5-Year Production Subtotal:		50							
		Deferred:									
	2020	Transmission Main - Smiley Road to Talley Ranch, 24"	4,715,166								4,715,166
	2023	Jackson Ridge Pump Station - Add 2000 GPM	200,000	2,000							200,000
	2023	Jackson Ridge Pump Station - Add 2000 GPM	200,000	2,000							200,000
	2025	Tischler Road Elevated Tank - 1 MG	3,000,000								3,000,000
	2025	Four Seasons Ground Storage Tank - 1 MG	650,000								650,000
	2025	Four Seasons Well (1000 GPM)	1,500,000	1,000							1,500,000
	2025	Four Seasons Elevated Tank - 1 MG	4,715,166								4,715,166
	2025	Four Seasons Distribution Main, 20" Line	554,745								554,745
	2028	Talley Ranch Well #1 (1000 GPM)	1,500,000	1,000							1,500,000
	2030	Talley Ranch Well #2 (1000 GPM)	1,500,000	1,000							1,500,000
	2030	Talley Ranch Well #3 (1000 GPM)	1,500,000	1,000							1,500,000
	2030	Transmission Main - Talley Ranch to Four Seasons, 24"	2,233,295								2,233,295
	2032	Smiley Road Ground Storage Tank - 2 MG	1,000,000								1,000,000
	2032	Surface Water Pump Station - 5000 GPM	8,000,000	5,000							8,000,000
	2035	Surface Water Pump Station - Add 5000 GPM	500,000	5,000							500,000
	2035	Transmission Main - Lights Ranch Rd to Hanes Rd, 6" Line	353,700								353,700
	2035	Transmission Main - FM 1385 to Hanes Rd, 6" Line	601,680								601,680
		Northeast Total:	***$ 21,142,651***	*18050*	***$ -***	***$ -***	***$ -***	***$ -***	***$ 2,607,575***	***$ 2,607,575***	***$ 32,723,752***
		Southwest, Northwest, Southeast, and Northeast Total	67,022,822	40,990	4,132,604	4,906,503	4,533,831	4,614,355	7,302,408	25,489,701	55,721,797
		Tank Painting			150,000	200,000	200,000	250,000	300,000	1,100,000	
		Undesignated Miscellaneous			100,000	100,000	100,000	100,000	100,000	500,000	
		Facility Upgrades			100,000	100,000	100,000	100,000	100,000	500,000	
		Grand Total:	***$ 67,022,822***	*40,990*	***$ 4,482,604***	***$ 5,306,503***	***$ 4,933,831***	***$ 5,064,355***	***$ 7,802,408***	***$ 27,589,701***	***$ 55,721,797***