



MONITORING NETWORK

CURRENT UPDATE

POSGCD BOARD MEETING
JUNE 10, 2014

15. Management Goals, Objectives, & Performance Standards

15.1 Efficient Use of Groundwater

Management Objectives:

1. The District will maintain a monitoring well network with at least 50 monitoring wells to provide coverage across management zones and aquifers within the District. The District will measure water levels at the monitoring well locations at least once every calendar year. A written analysis of the water level measurements from the monitoring wells will be made available through a presentation to the Board of the District at least once every three years.

Performance Standards:

1. Maintain a monitoring well network and its criteria, and measure at least 50 monitoring wells at least once every calendar year.
2. Number of monitoring wells measured annually by the District.

2014 Water Level Measurements

The table to the right is the data that was submitted to the Texas Water Development Board (TWDB) for the district's annual water level measurements.

Measurements were taken between 2/18/2014 and 5/15/2014.

The district utilizes a variation of methods to obtain level measurements

- Steel Tape
- E-line
- Sonic recorder
- Pressure Transducer

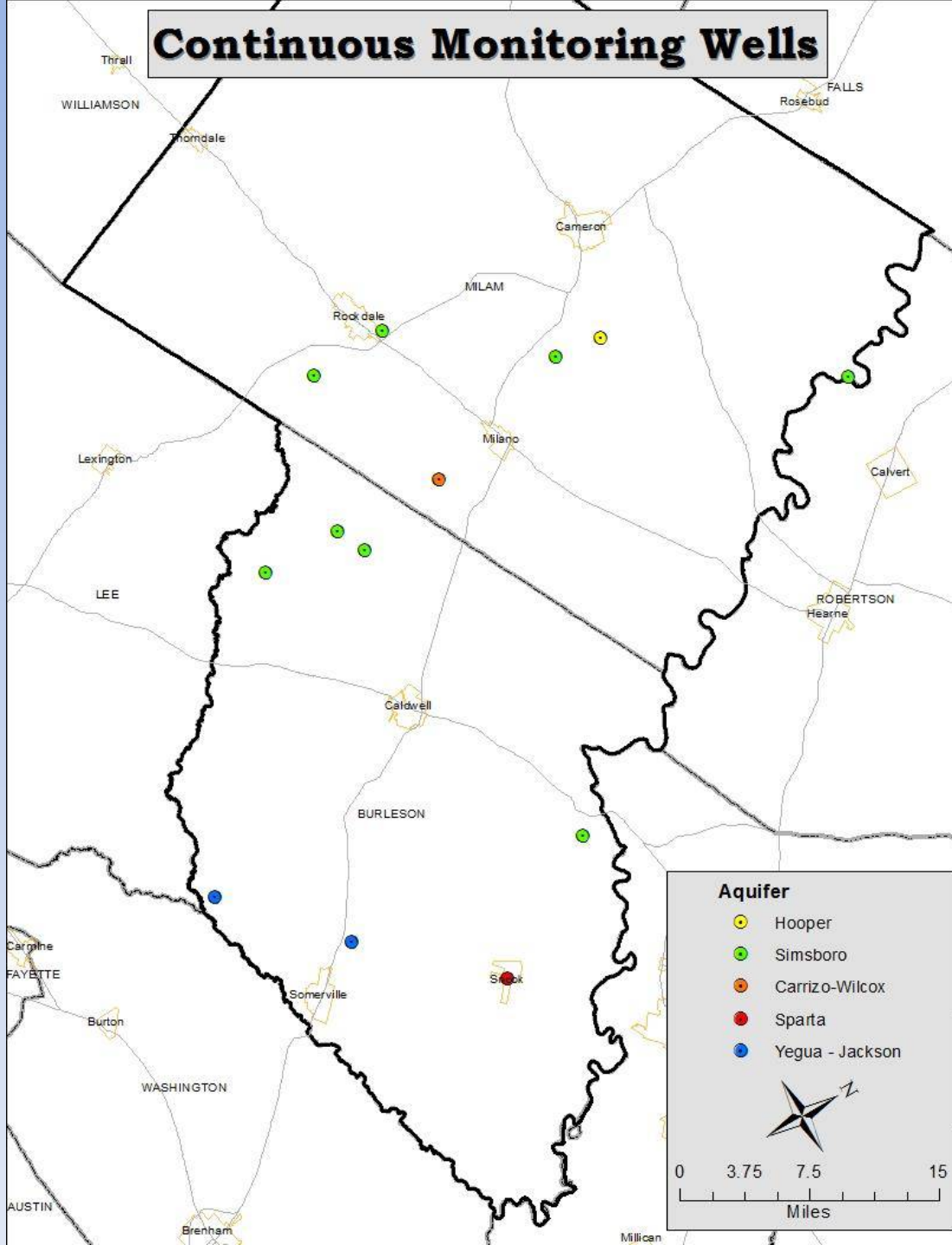
WID	state well number	owner	2014 Le	Date	Method	Comment
25	5917409	City of Rockdale (Belton)	-167.2	3/25/2014	Transducer	Good reading
26	5917103	Ralph Summers- Mary Jane Boyd	-77.1	4/22/2014	Sonic	Good reading
53	5909901	Freddy S. Debault	-113	3/13/2014	E-line	Good reading
59	5911402	Harold Lange	-152	4/22/2014	Sonic	Good reading
73	5910907	Willard Kornegay	-132	2/19/2014	E-line	Pumped < 10 min prior
77	5919103	Charles Hoppe	-138.2	2/19/2014	Sonic	Good reading
84	5919302	James Ayers	-41.5	2/19/2014	E-line	Good reading
99	5925508	Larry Sexton	-60.9	2/20/2014	Tape	Good reading
107	5925102	Noack Family Partnership, Ltd.	-127	2/20/2014	Transducer	Good reading
115	5917715	L.B. Kubiak	null			Did not Visit (Gate Locked)
121	5917714	City of Rockdale (Texas)	null			Was being reworked
138	5917713	City of Rockdale (Tracy)	-145.63	3/25/2014	E-line	Off 2 hrs
170	5824914	Rockdale ISD	-127.2	2/27/2014	Sonic	Good reading
221	5909605	Marlow WSC	-132.5	3/13/2014	E-line	Good reading
223	5902706	North Milam WSC	-38.8	2/24/2014	E-line	Off 2 hrs
234	5902309	Wendy Breck	-30.2	4/8/2014	Transducer	Good reading
236	5902307	Phillip & Vicki Harris	-125.6	4/9/2014	tape	Good reading
256	5902901	North Milam WSC	-111.5	2/24/2014	Sonic	Pumped < 2hrs prior
268	5832101	Wayne Diver	-8	2/27/2014	E-line	Good reading
308	5927716	R. B. Wilkens	-115.6	2/18/2014	Tape	Good reading
341	5927606	Rudy Steck	-99	2/18/2014	Tape	Good reading
433	5920410	Milano WSC- Rita Test	-25.6	2/24/2014	E-line	Good reading
434	5920409	L. C. Hall, Sr.	-46.2	2/19/2014	Tape	Good reading
457	5919502	Milano WSC - Well 4	-281.5	2/24/2014	Sonic	Off 2hrs
518	5927204	Dale Hill	-26.8	2/19/2014	E-line	Good reading
579	5937611	Camilla J. Godfrey	-32.5	2/18/2014	E-line	Good reading
596	5937329	Finley Company	null			Bad Reading (Oil)
638	5937101	Snook well #1	-28.3	2/18/2014	Transducer	Good reading
661	5936802	Lyons Water Supply	-132.1	2/18/2014	Tape	Possible pump influence
698	5943608	Birch Creek Recreation	-51.4	2/18/2014	Transducer	Good reading
787	5938701	Burnside Services, Inc.	-18.1	2/18/2014	E-line	Good reading
791	5935208	Juanita Amidon	-70.2	2/18/2014	Sonic	Good reading
859	5929456	Marion Malazzo	-20.7	2/18/2014	Tape	Good reading
860	5929457	Marion Malazzo	-19.4	2/18/2014	E-line	Good reading
877	5928619	Tunis Water Supply	-57.8	2/4/2014	E-line	Good reading
894	5928601	P. G. Haines	-24	2/18/2014	E-line	Good reading
895	5928702	Sarah Engleman	-81.9	2/18/2014	Tape	Good reading
943	5934106	Nathan Ausley	-135.6	2/20/2014	Sonic	Good reading
1023	5929537	Texas A & M University	-23	2/18/2014	Tape	Pumped within 30 min
1061	5934607	Deanville Water Supply Corporation 2	null			Did not Visit
1062	5918101	Milano WSC - Well # 1	-285	2/24/2014	Sonic	Off 2hrs
1063	5918104	Milano WSC - Well # 2	-271.4	2/24/2014	Tape	Off 2hrs
1064	5918908	Milano WSC - Well # 3	-300.4	2/24/2014	Sonic	Off 2hrs
1066	5918705	Milano WSC - Buer Well	-219.8	2/24/2014	Sonic	Good reading
1082	5911703	Gause Water Supply # 1	-172	2/28/2014	Sonic	Unknown when last pumped
1110	5824611	Southwest Milam Water Supply Corp.	-142.1	2/27/2014	Sonic	Off 2 hrs
1117	5917712	City of Rockdale (runway)	null			Couldn't access
1118	5917711	City of Rockdale (airport)	null			Couldn't access
1166	5929410	Holland Porter	-24.7	2/18/2014	Tape	Good reading
1197	5934107	Nathan C. Ausley	-103.55	2/20/2014	Sonic	Good reading
1573	5934601	Deanville Water Supply Corporation 1	-71.5	5/15/2014	E-line	Off > 10 hrs prior
1575	5927718	Deanville Water Supply Corporation 4	null			Did not Visit
1883	5832704	Martin Hobbs	-94.7	2/27/2014	Tape	Good reading
2152	5925409	Glynn Phillips	null			Was pumping
2191	5917716	L.B. Kubiak	null			Did not Visit (Gate Locked)
2423	5902904	Gary & Deryl Emola	-118.5	2/19/2014	Sonic	Good reading
6145	5927611	Alvin J. Kutach	-110.7	2/18/2014	Tape	Good reading
6243	5925502	Birdie Kristoff	-77	2/20/2014	Tape	Good reading
6305	5832908	Charles Lee McDaniel	-24.8	4/22/2014	E-line	Good reading
6586	5927309	Francis Joseph Landry, Jr.	-115.2	2/19/2014	Sonic	Good reading
6621	5926402	Frederick A. Jackson	-267.3	2/20/2014	Transducer	Good reading
6910	5926403	Charles & Jacquelin Stone Revocable Living Trust	null			Broken Transducer
7364	5824612	Richard H. Griffith	-57.2	2/27/2014	Tape	Good reading
7506	5824610	Southwest Milam Water Supply Corp.	-141	2/27/2014	Sonic	Good reading
7774	5910705	Jay Wise	-151.7	3/13/2014	Sonic	Good reading
7793	5925103	Noack Family Partnership, Ltd.	-123.2	2/20/2014	Sonic	Good reading
8239	5928804	Providence Baptist Church	-28.1	2/18/2014	E-line	Good reading
8388	5943104	Wayne Edwards	-105.1	4/22/2014	E-line	Good reading
8415	5929433	Portee FLP	null			Bad Reading (Oil)
8451	5925408	Antonio E. Cantu	null			Was pumping
8658	5910706	Randal C. Leo	-185.5	4/1/2014	Tape	Good reading
8767	5934108	Terry Ausley	-189.5	2/20/2014	Transducer	Good reading
8935	5901904	Donald R. Schuerman	-47	2/19/2014	E-line	Good reading
9095	5910707	Randal C. Leo	-155.7	4/1/2014	Sonic	Good reading
9104	5928342	David L. Hodges	-71.3	2/19/2014	E-line	Good reading
9157	5936809	Burleson County Pct. 4	-66.5	2/18/2014	Transducer	Good reading
9166	5918108	Post Oak Savannah	-257.95	5/15/2014	E-line	Good reading
9167	5918109	Post Oak Savannah	-68	5/15/2014	E-line	Good reading

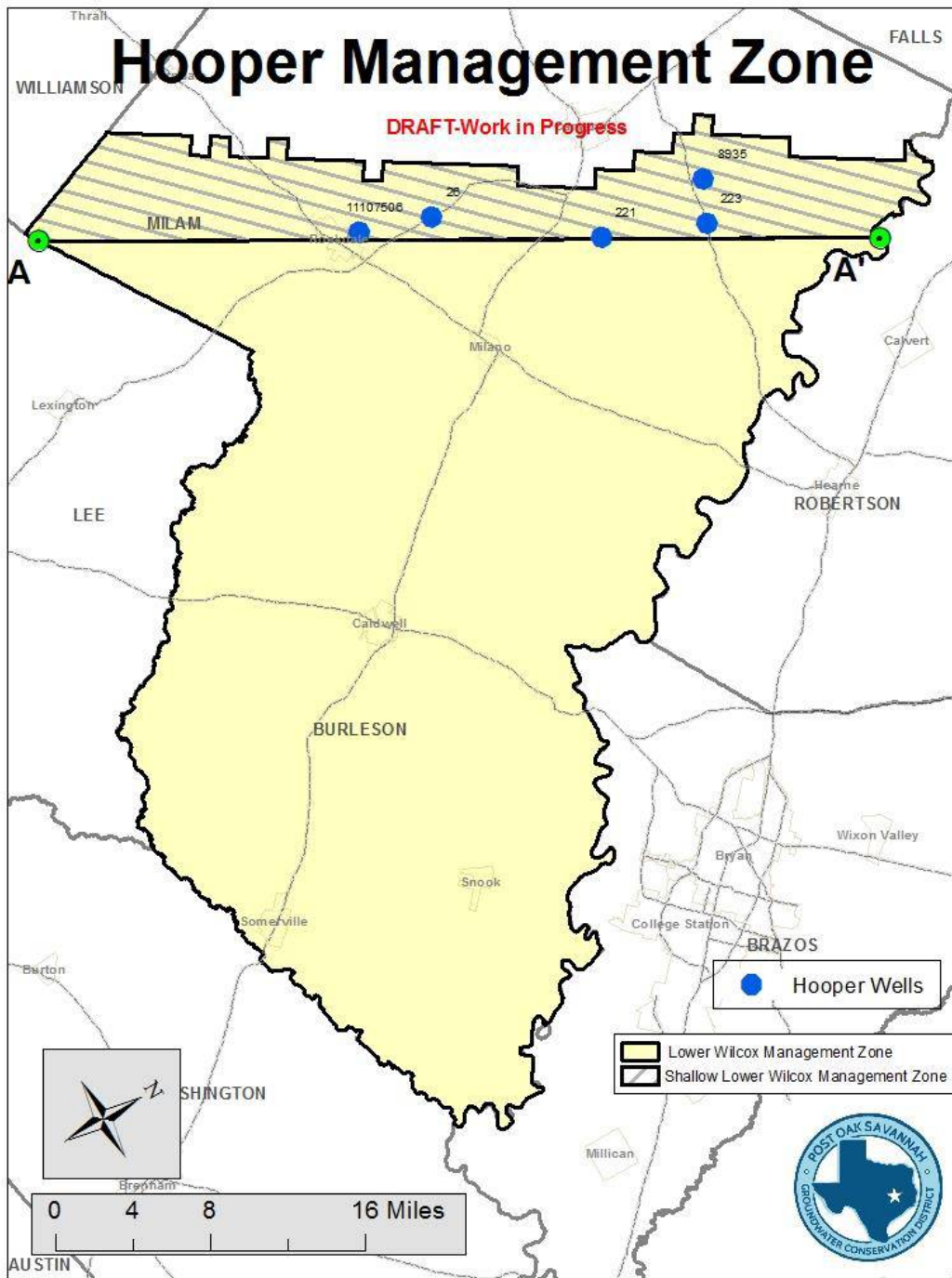
Current Monitor Well Count

Aquifer	Management Zone	
	Shallow	Deep
<i>Hooper</i>	8	0
<i>Simsboro</i>	13	18
<i>Calvert Bluff</i>	5	0
<i>Carrizo</i>	4	4
<i>Queen City</i>	5	6
<i>Sparta</i>	0	8
<i>Yegua-Jackson</i>	N/A	3
<i>Brazos River Alluvium</i>	7	N/A

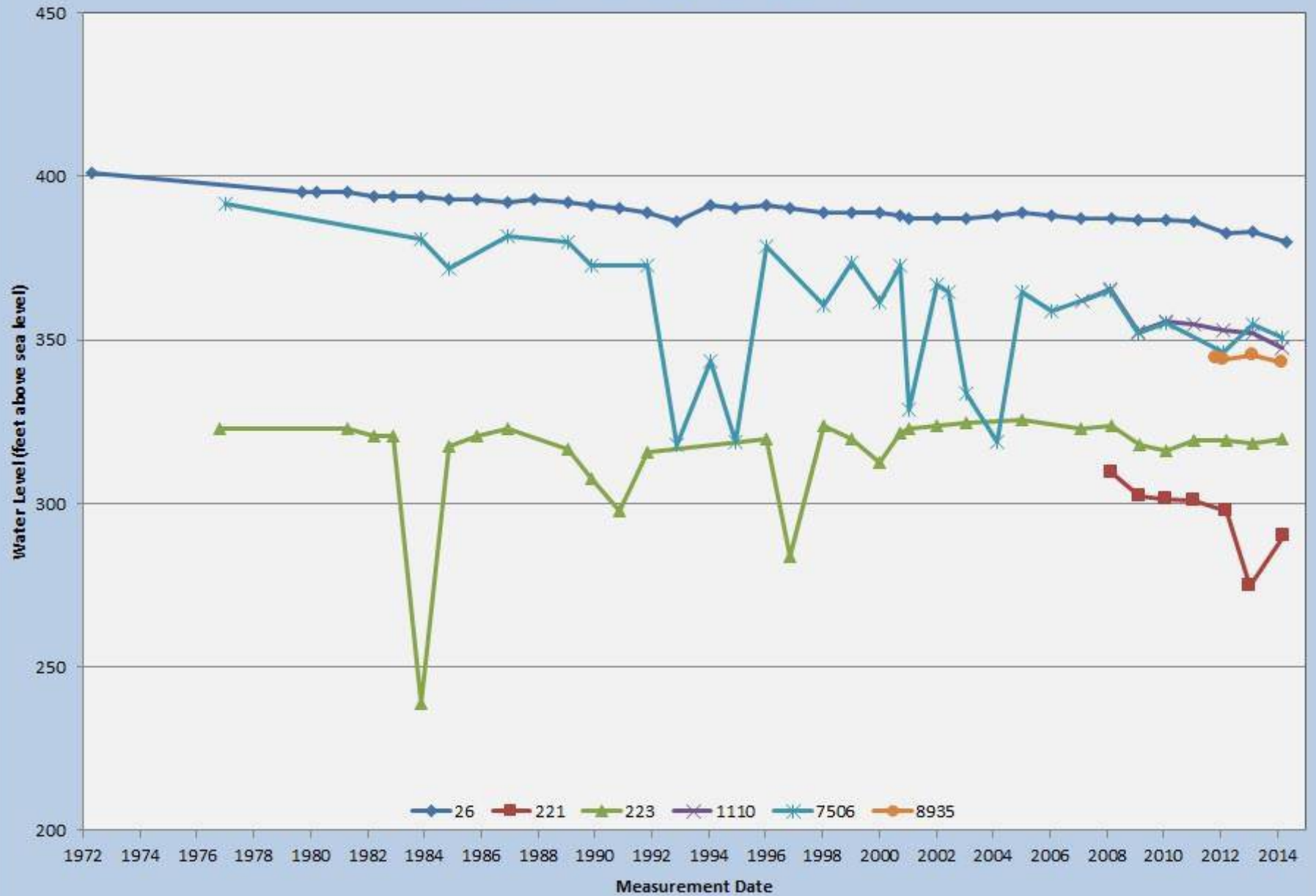


Continuous Monitoring Wells



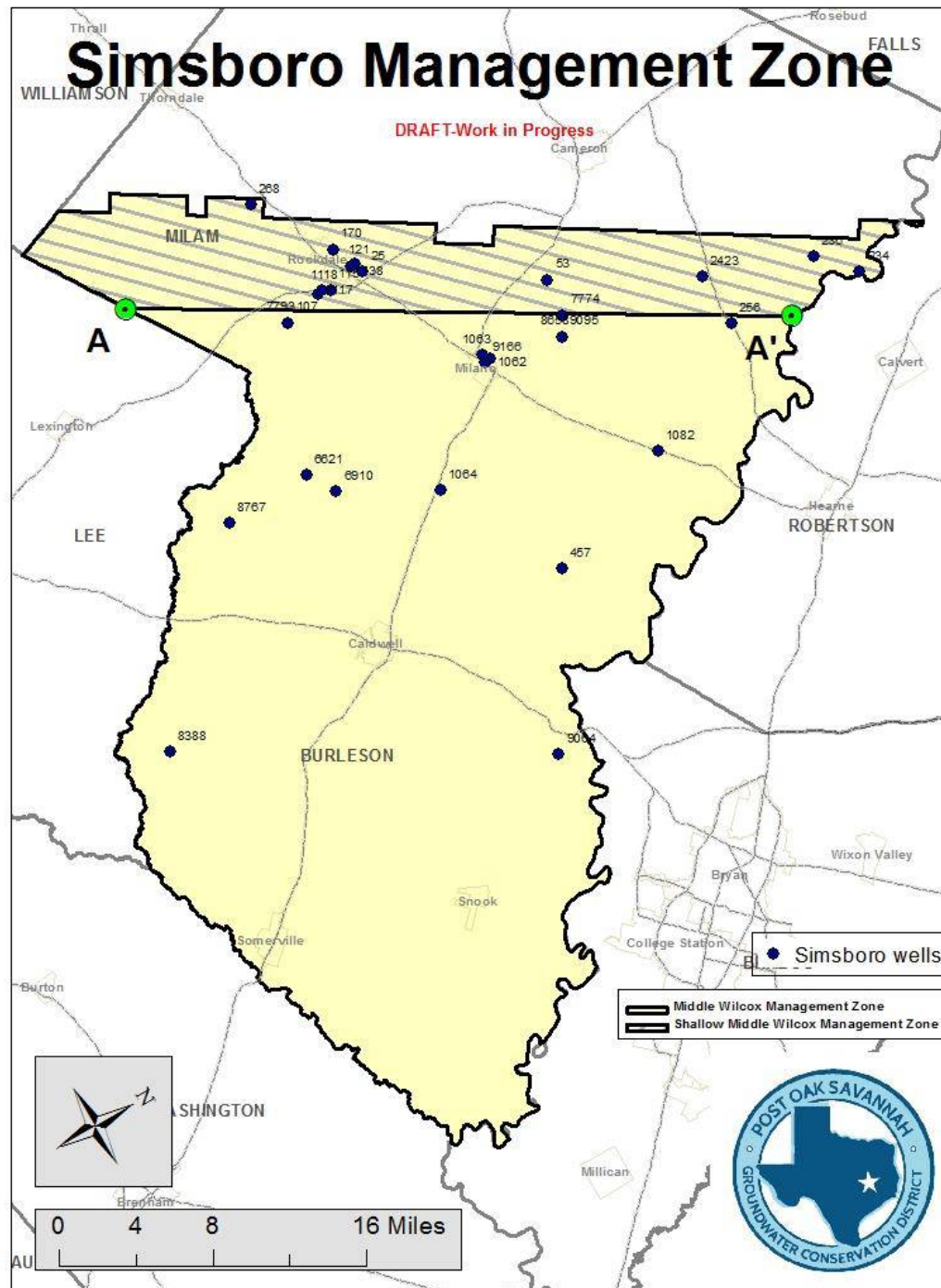


Hooper Management Zone

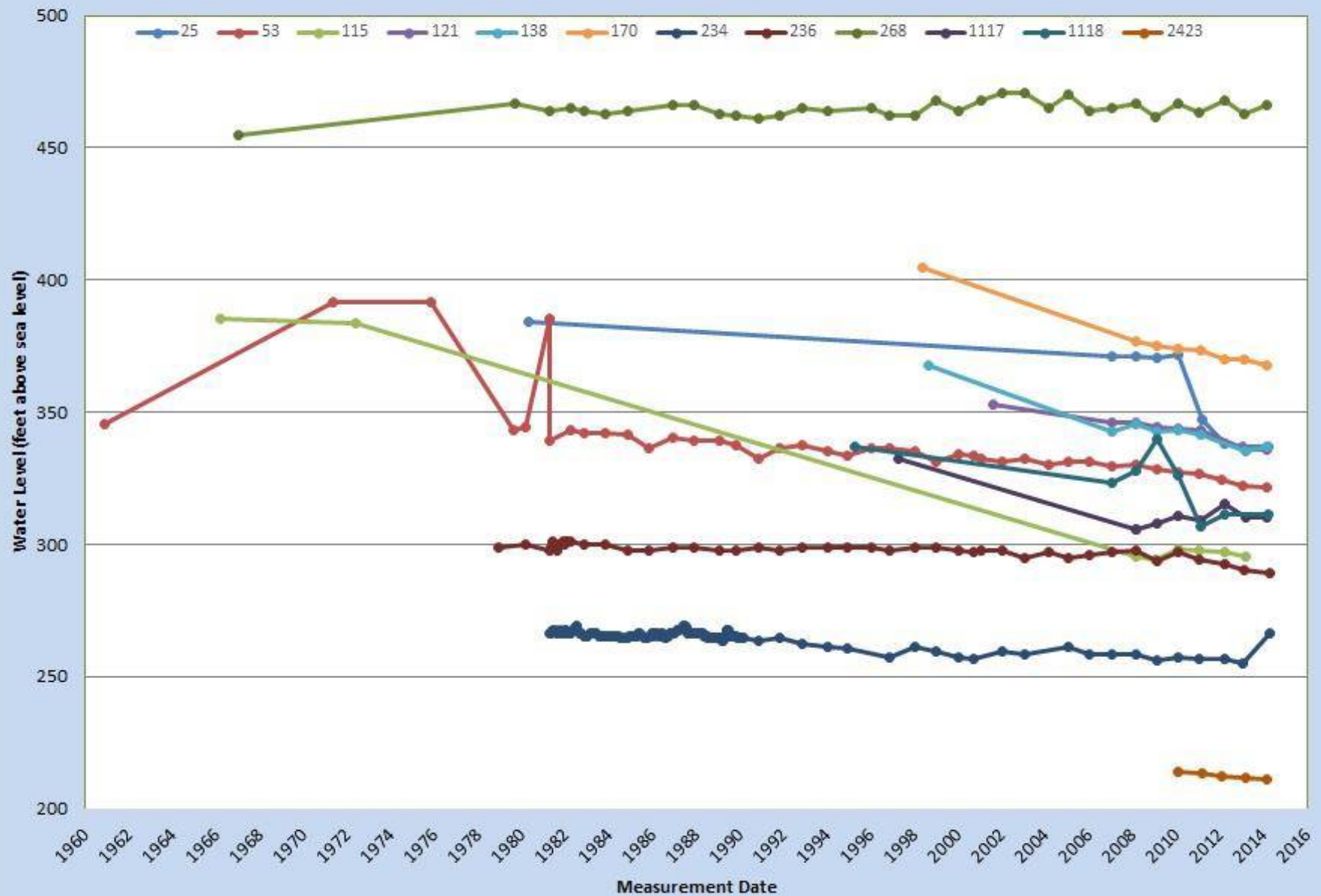


Simsboro Management Zone

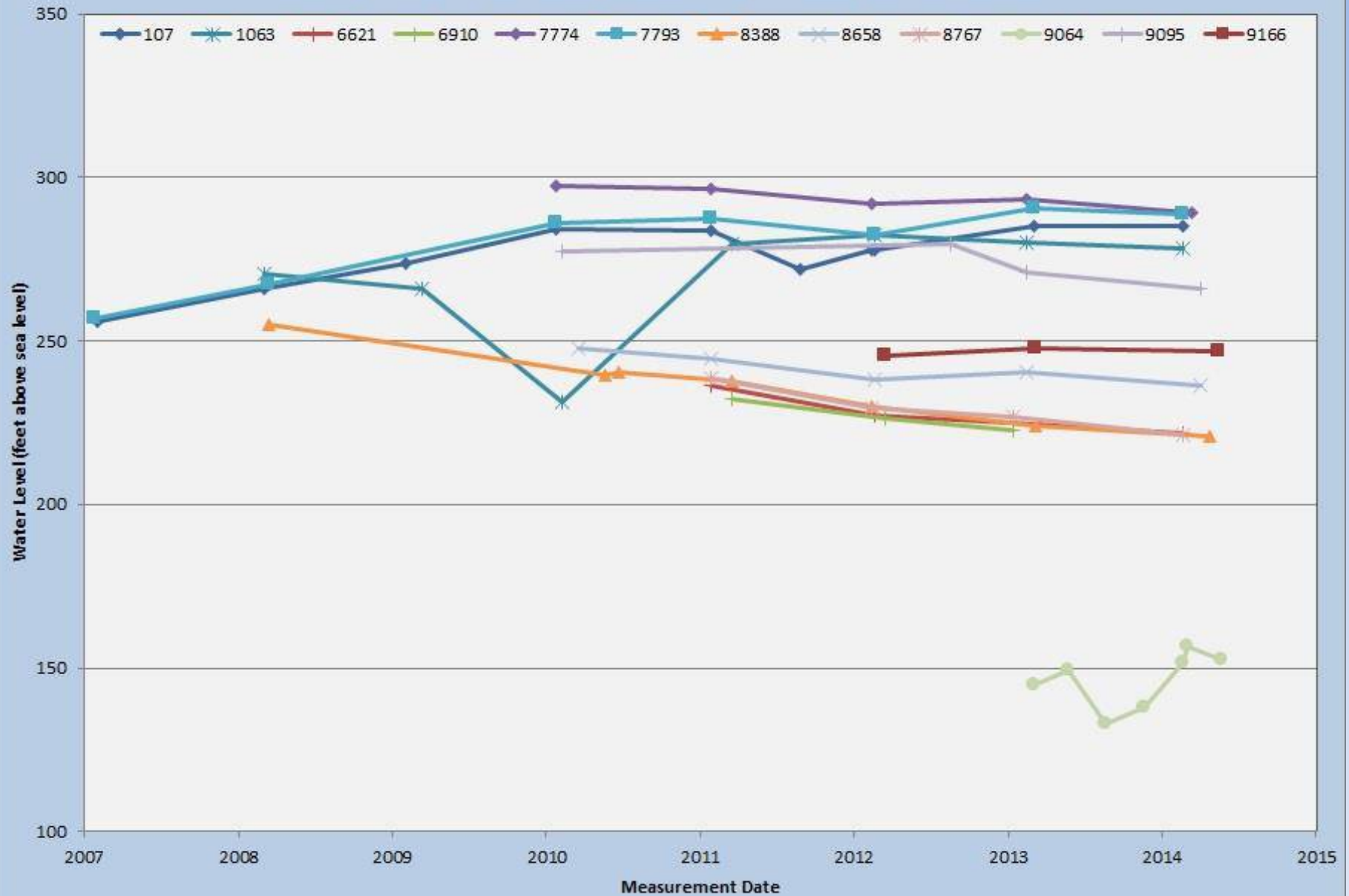
DRAFT-Work in Progress



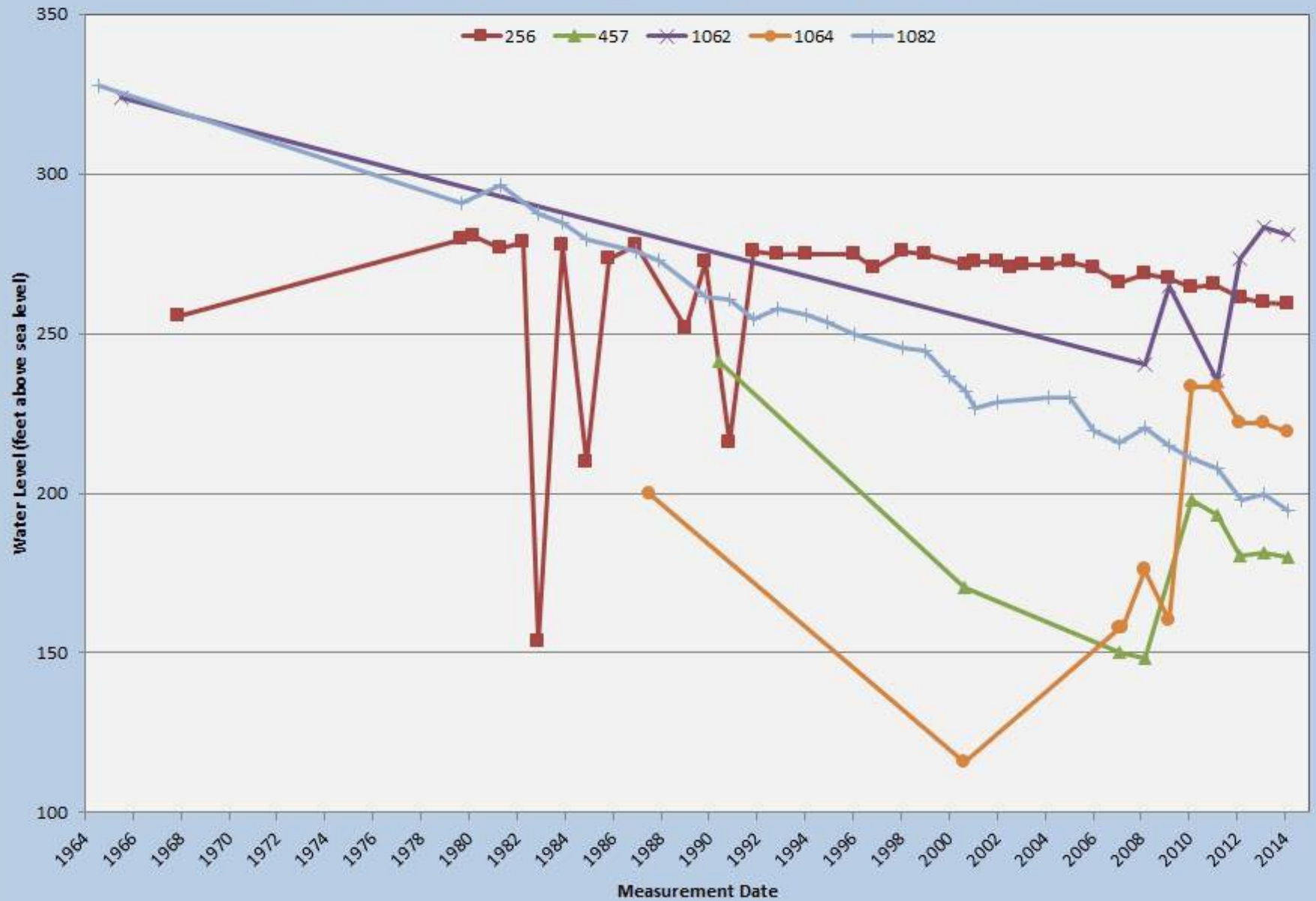
Shallow Middle Wilcox (Simsboro) Management Zone



Deep Middle Wilcox (Simsboro) Management Zone

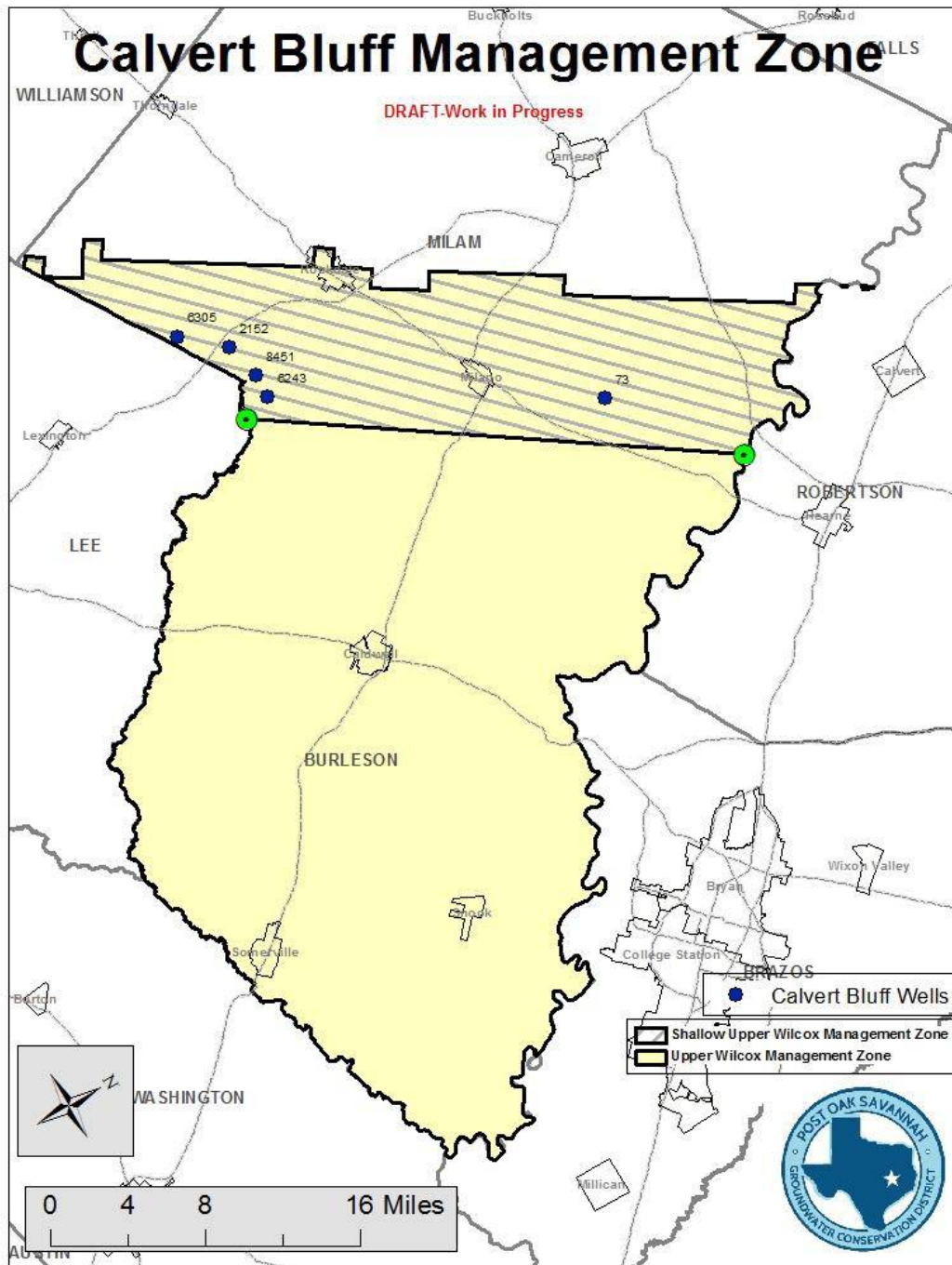


Deep Middle Wilcox (Simsboro) Management Zone

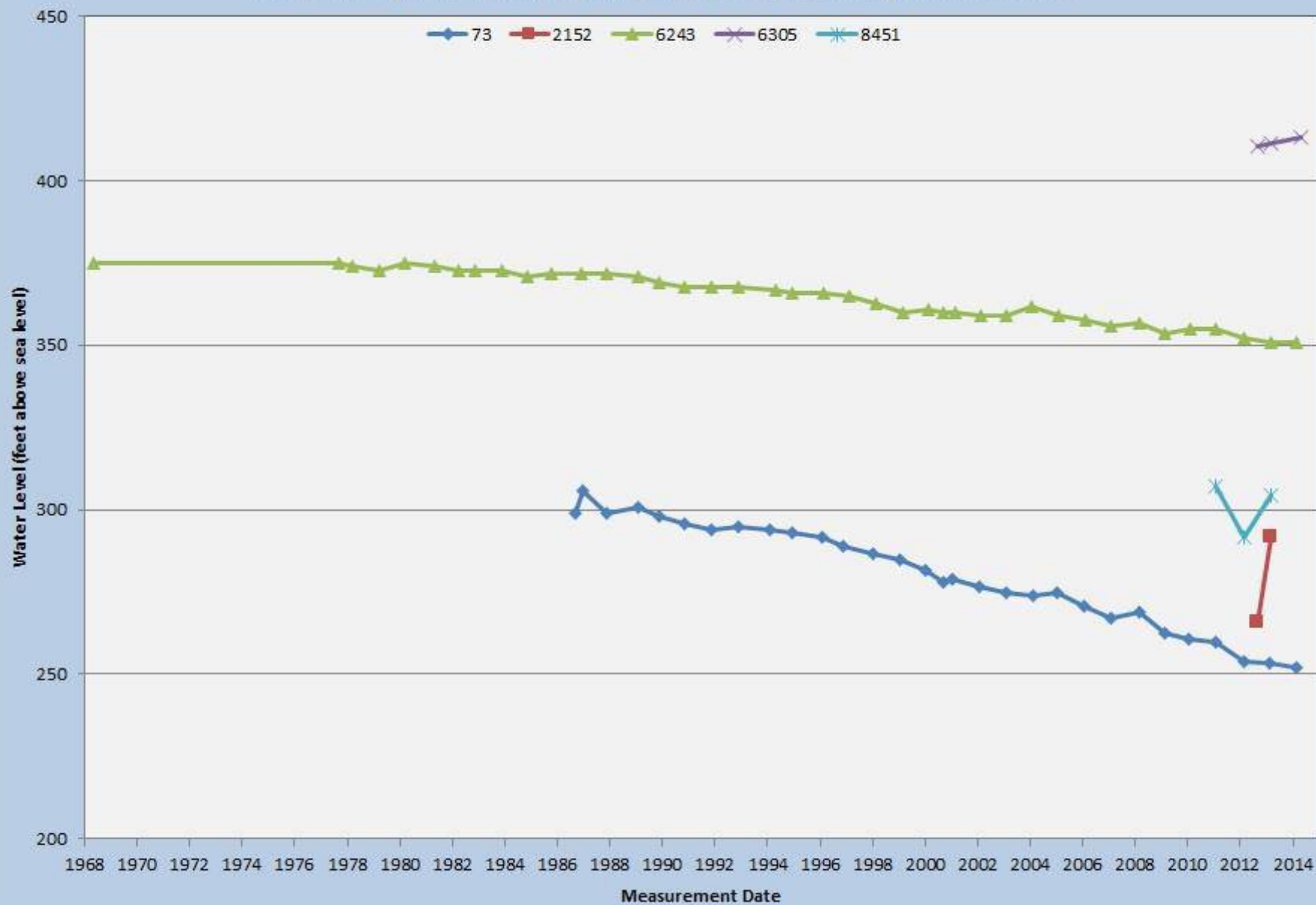


Calvert Bluff Management Zone

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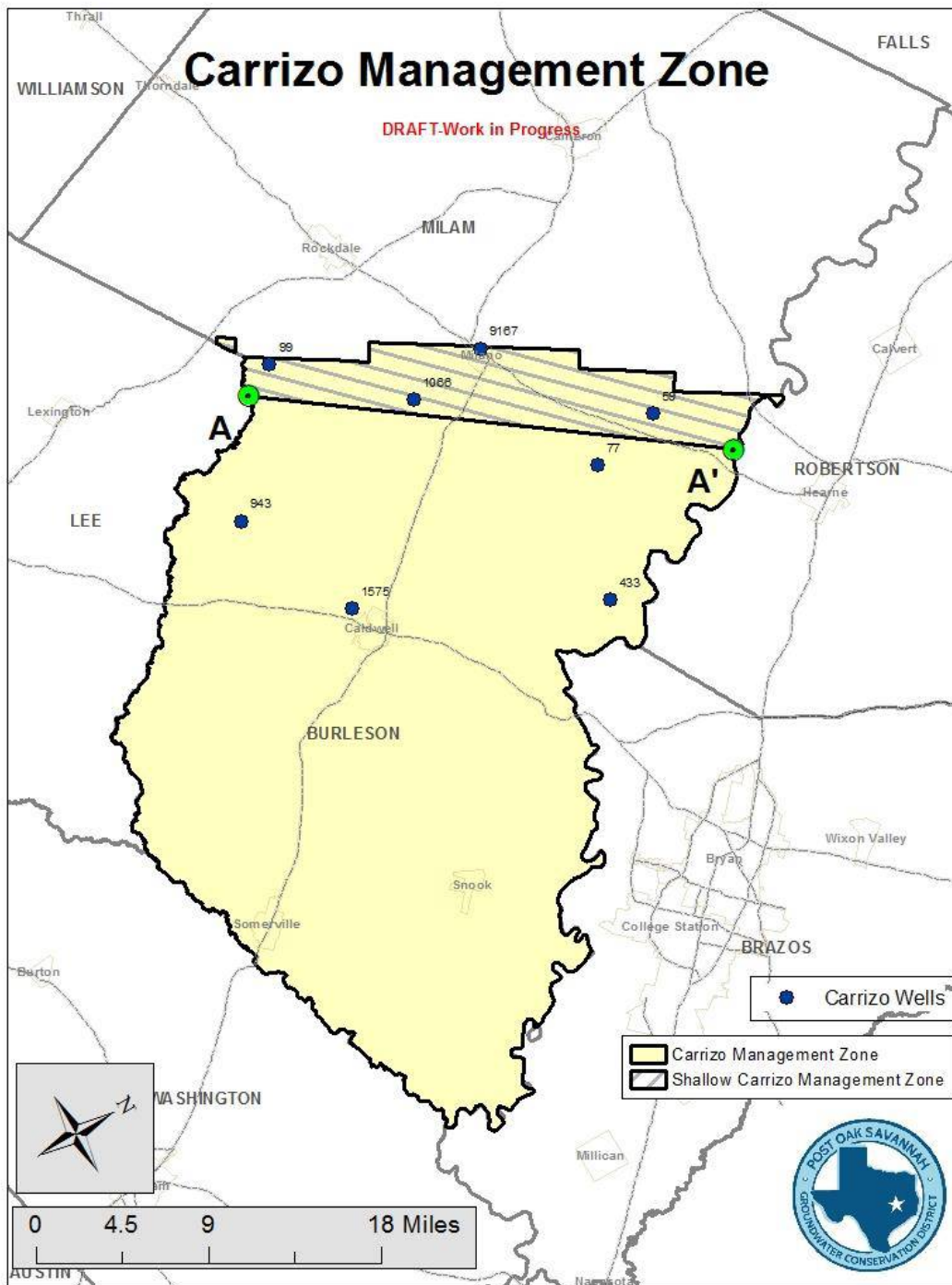


Shallow Upper Wilcox (Calvert Bluff) Management Zone

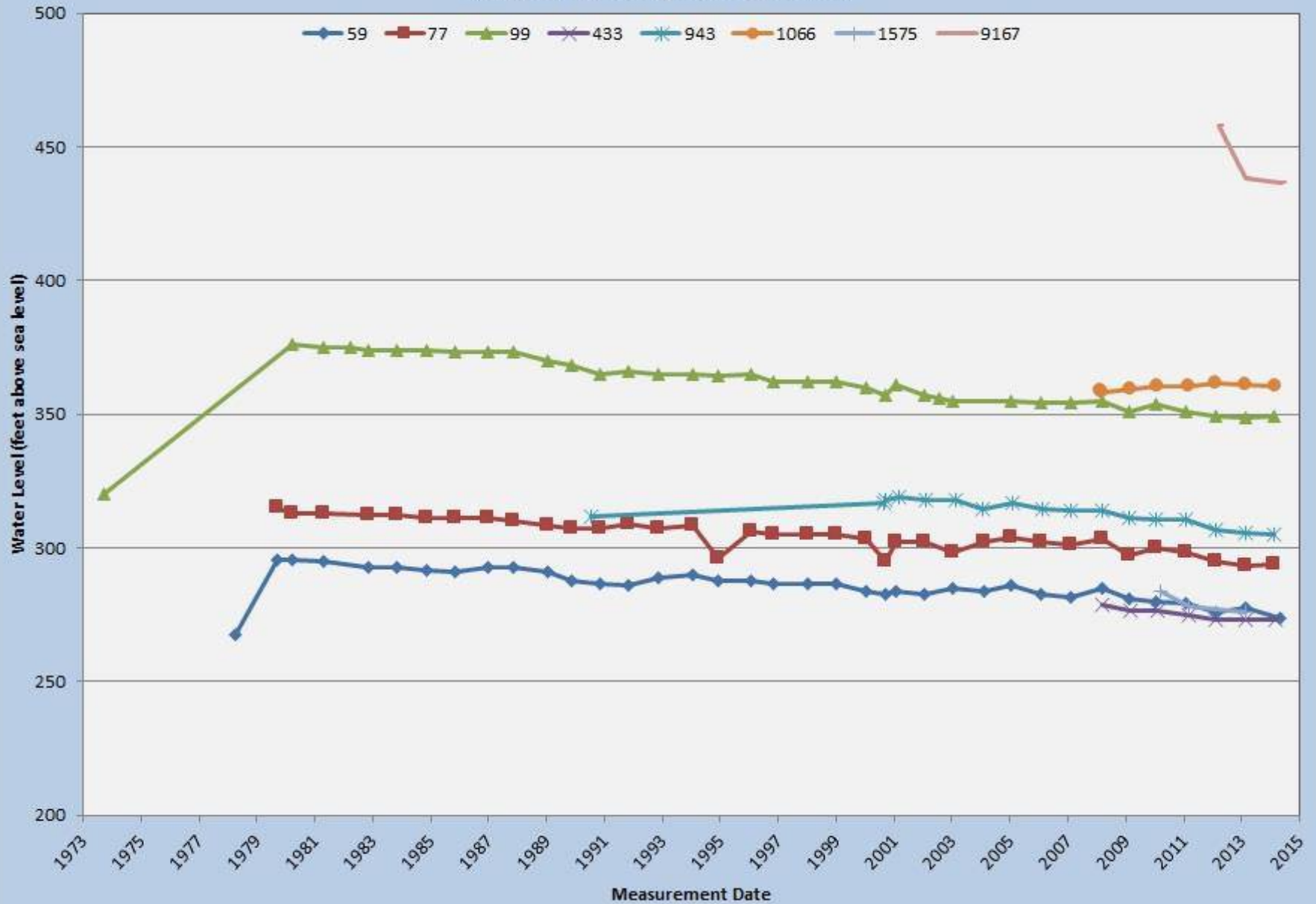


Carrizo Management Zone

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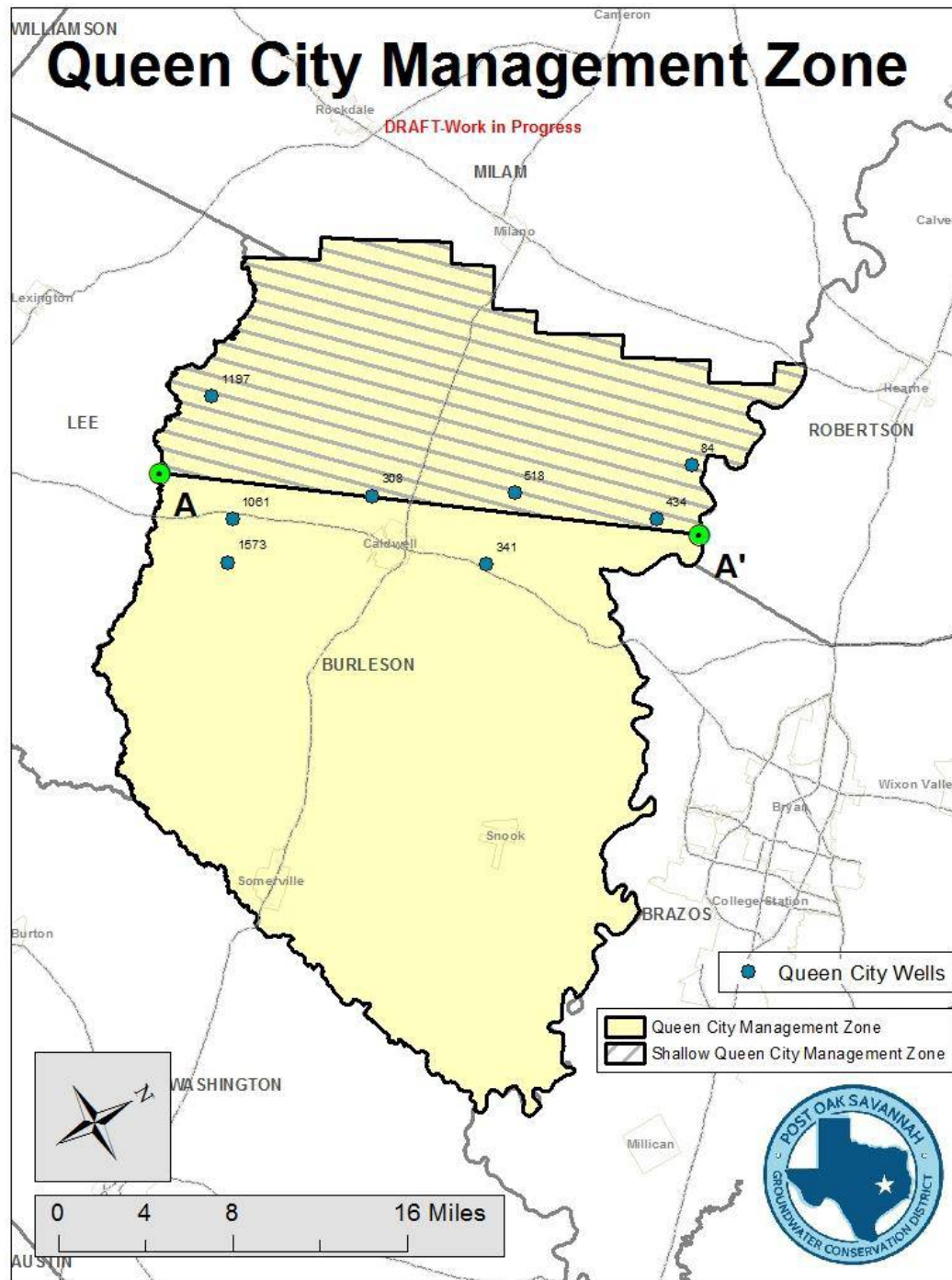
Carrizo Management Zone



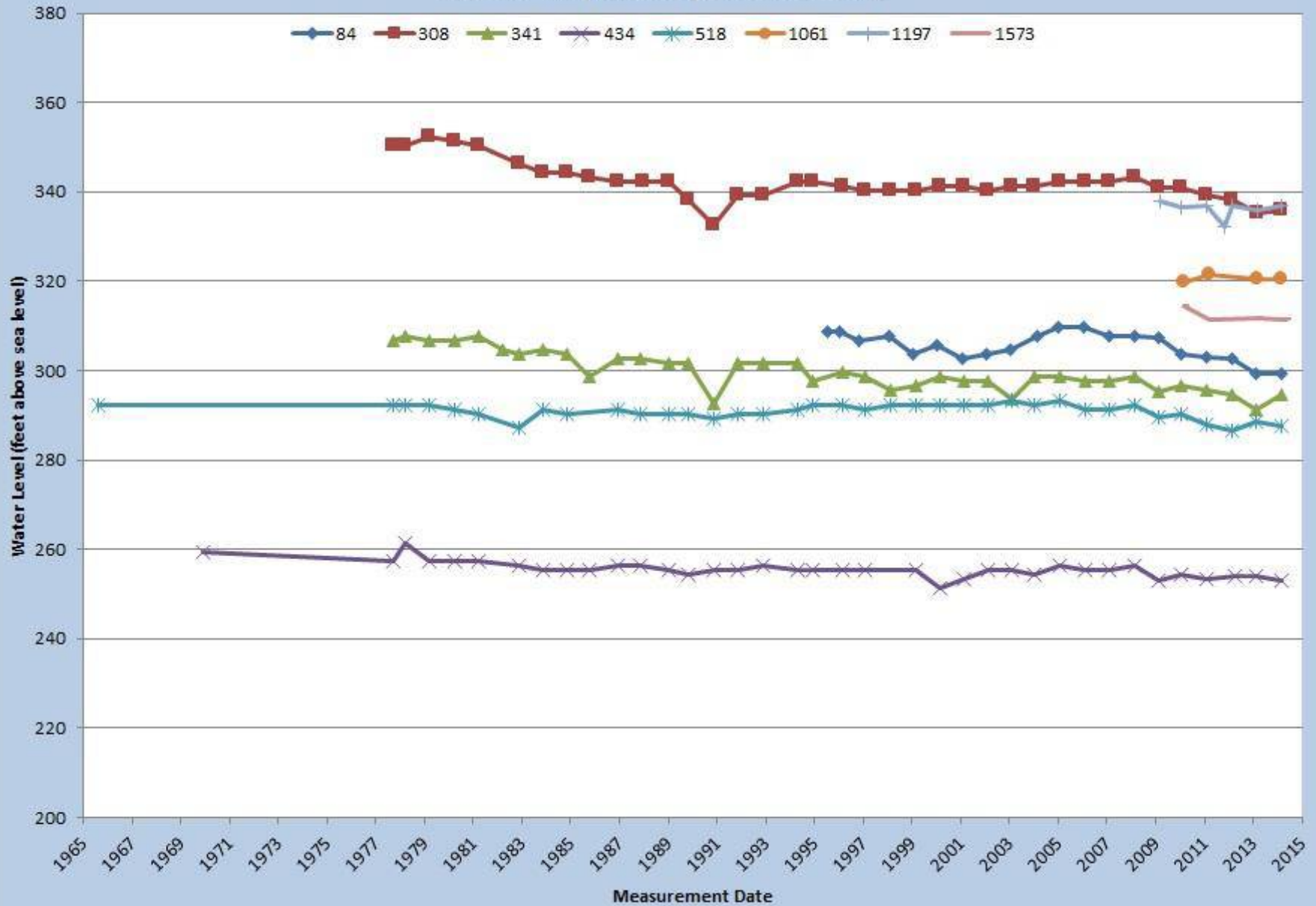
Note: Diamonds denote shallow zone wells, Circles denote deep zone wells

Queen City Management Zone

DRAFT-Work in Progress



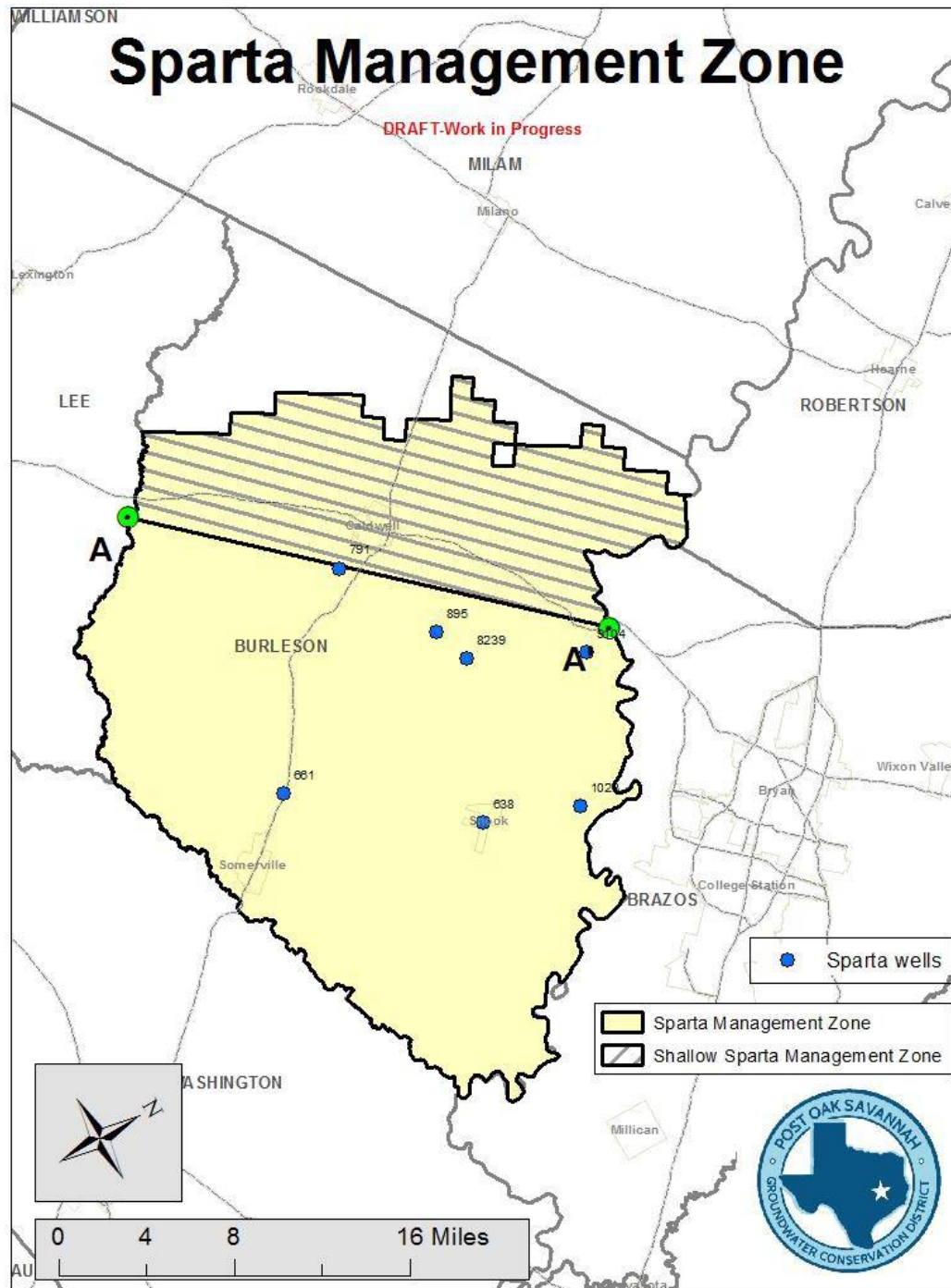
Queen City Management Zone



Note: Diamonds denote shallow zone wells, Circles denote deep zone wells

Sparta Management Zone

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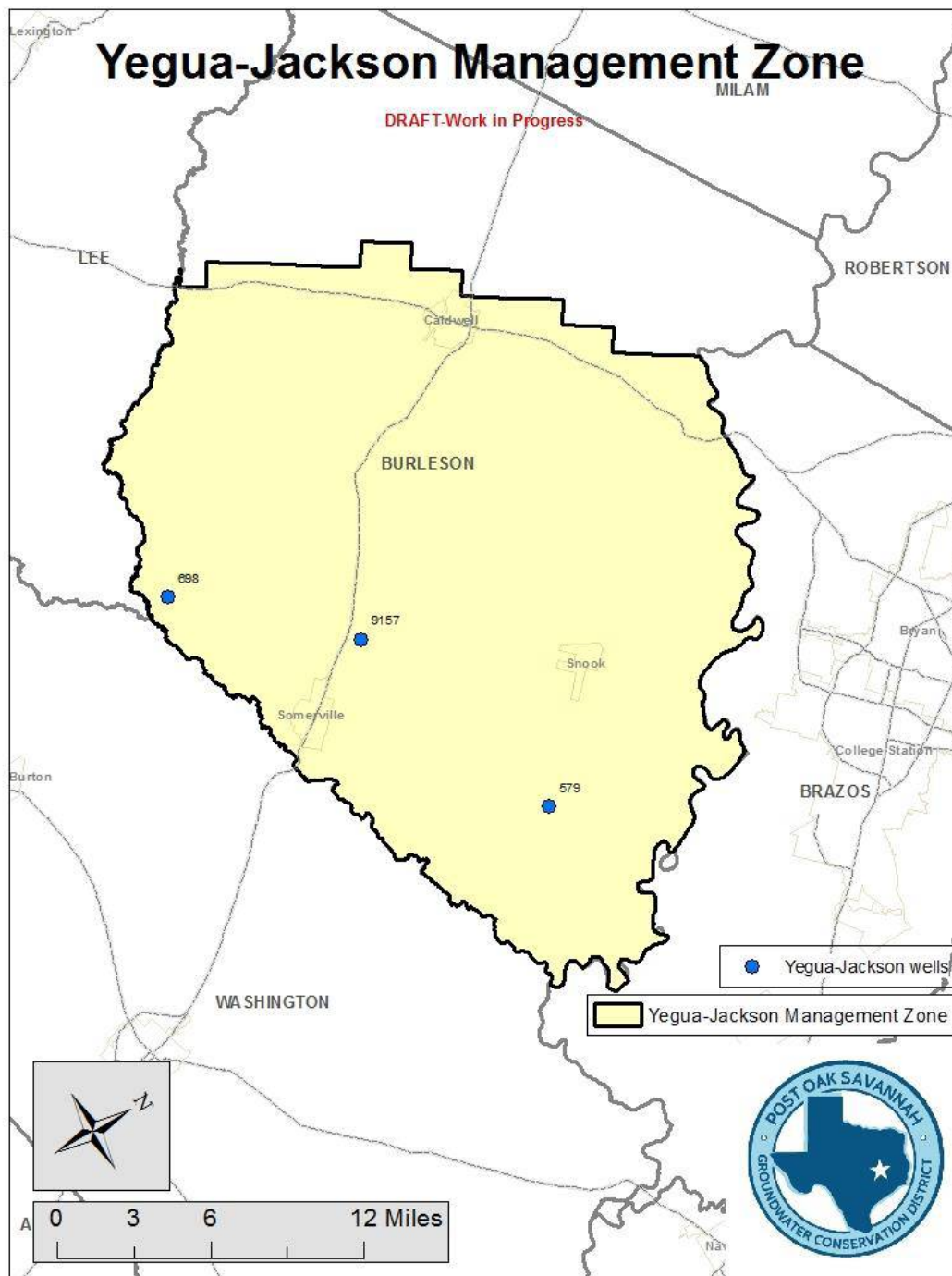


Sparta Management Zone

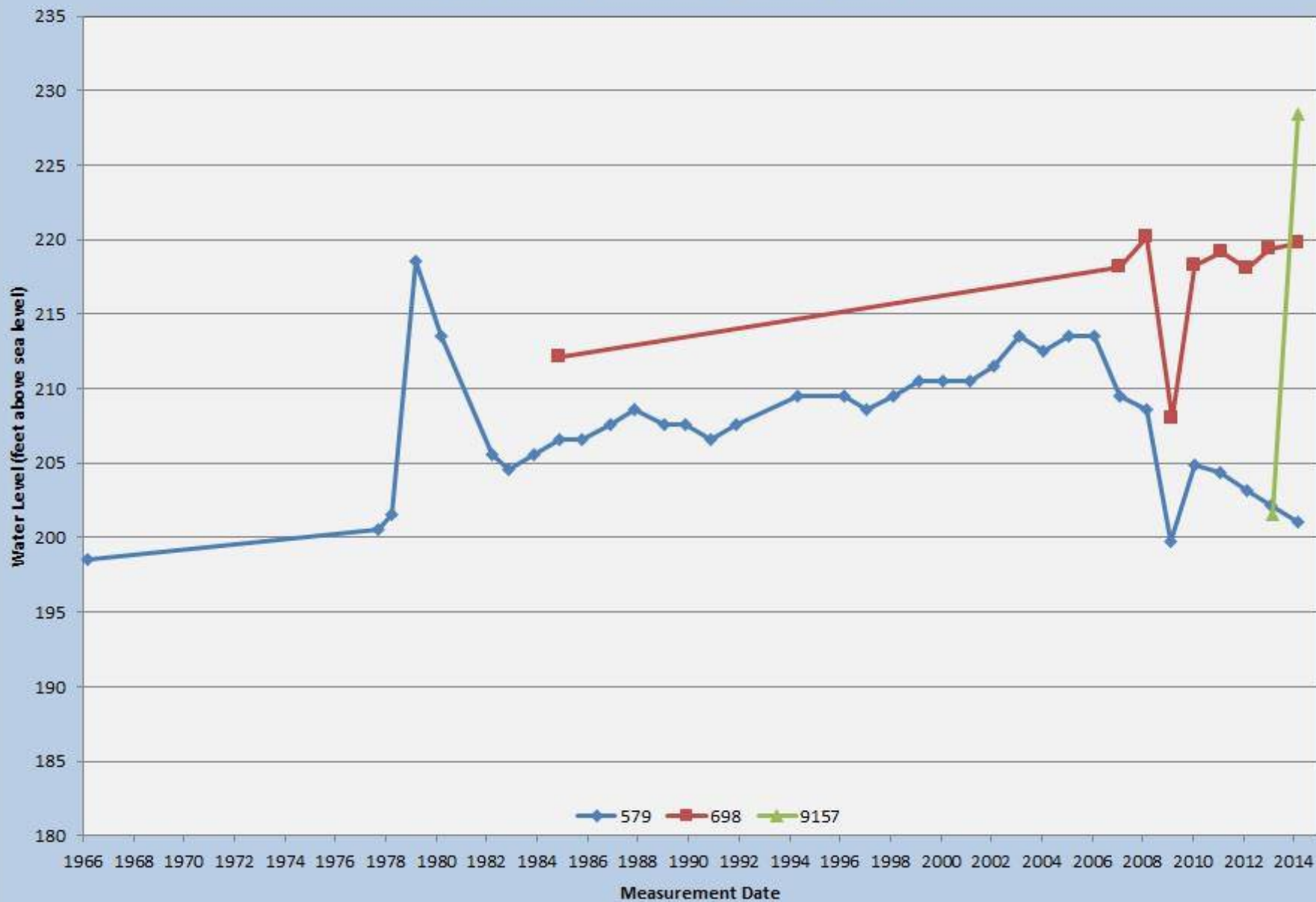


Yegua-Jackson Management Zone

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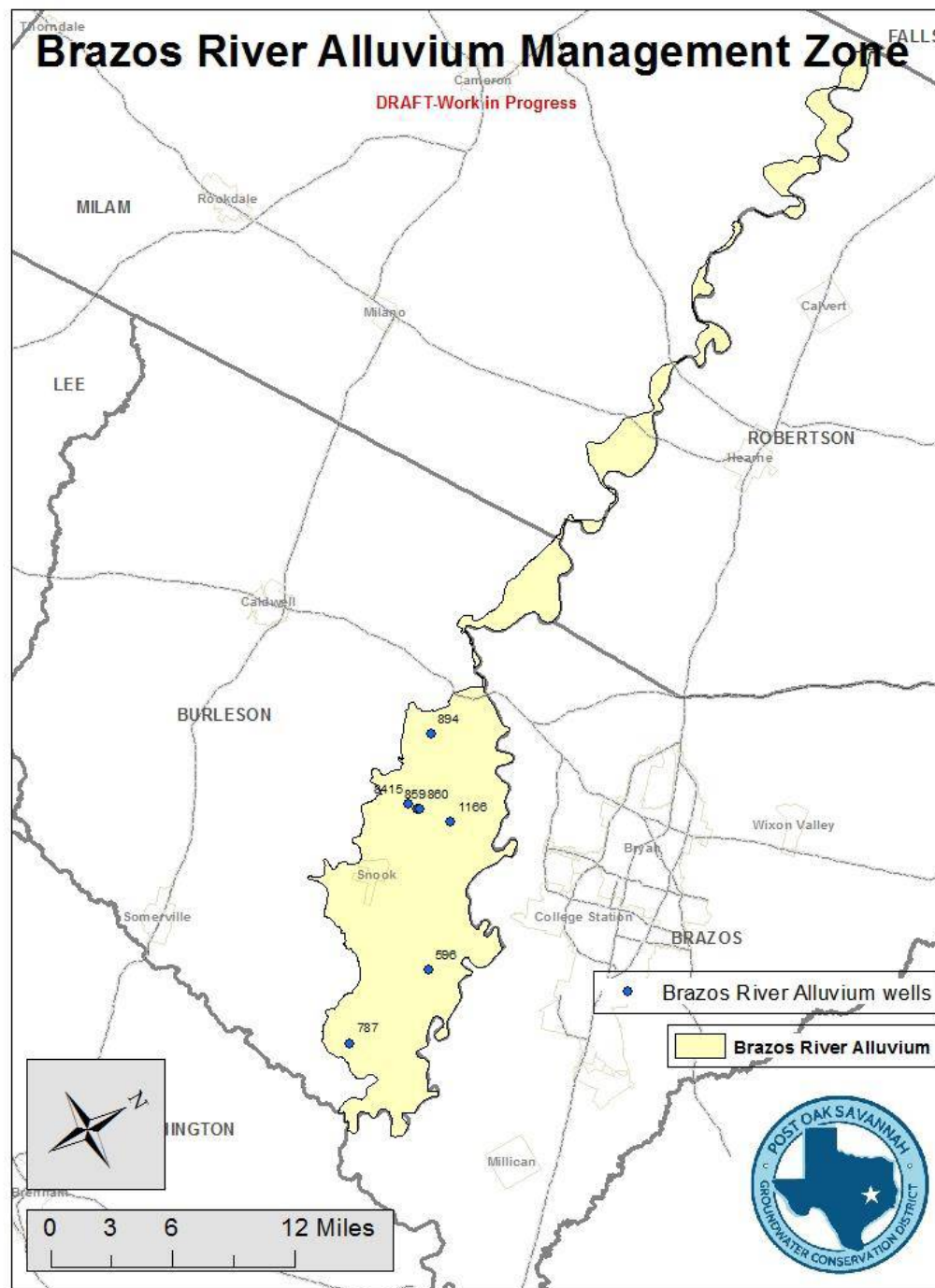


Yegua-Jackson Management Zone

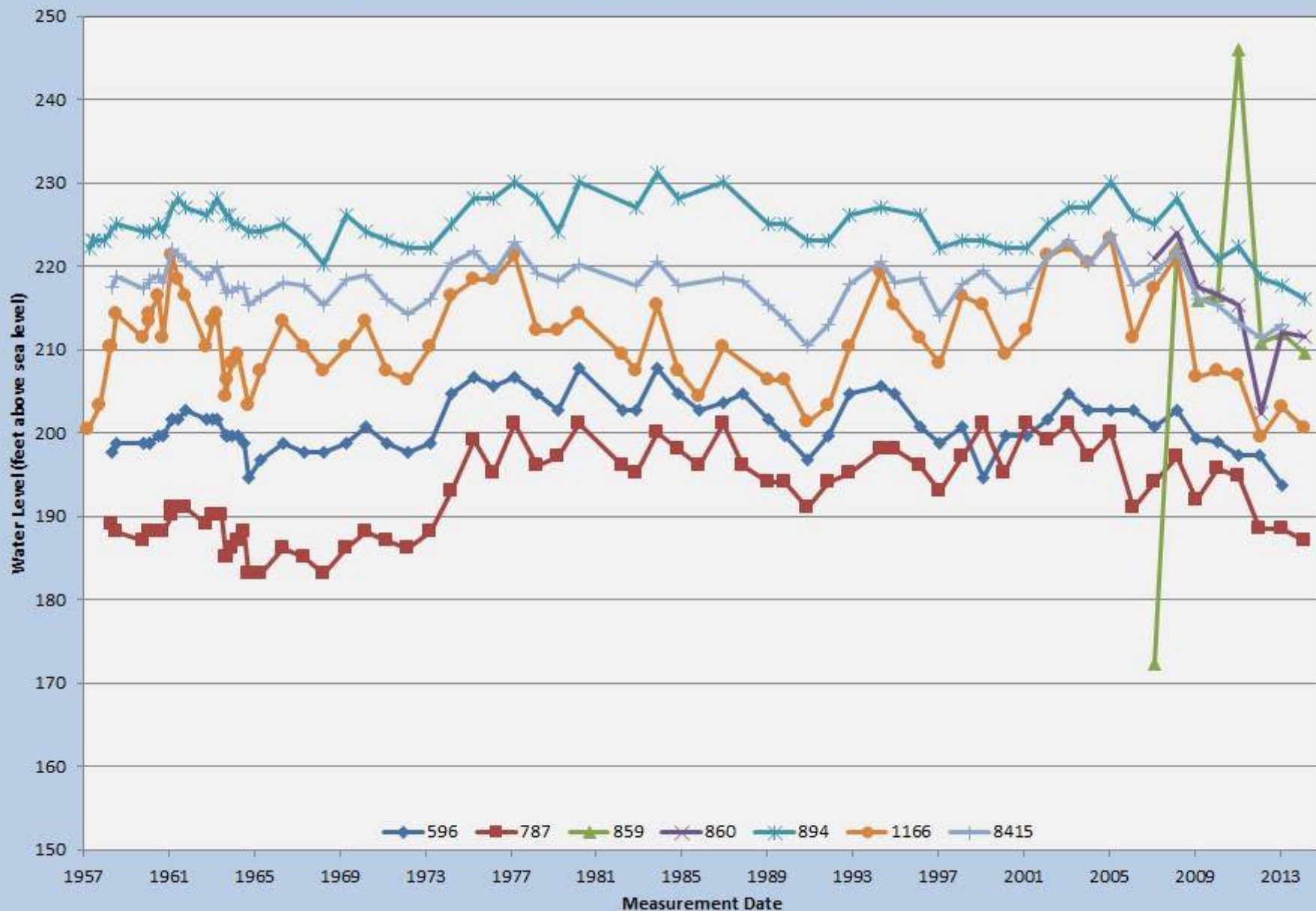


Brazos River Alluvium Management Zone

DRAFT-Work in Progress



Brazos River Alluvium Management Zone



Summary

- 83 monitoring wells
 - 70 incidental wells
 - 13 continual wells
- Preliminary Analysis:

Aquifer	Zone	# wells	Water Levels				Trend Last Five (5) Years
			Mean	Max	Min	Range	
Hooper	Shallow	6	354	401	239	162	<i>relatively constant, most wells dropping ~5 ft.</i>
Simsboro	Shallow	12	309	471	212	259	<i>relatively constant, most wells dropping ~2-10 ft, a couple dropped >10 ft</i>
Simsboro	Deep	17	248	328	116	212	<i>some wells dropping, but several raising as much as 30 ft.</i>
Calvert Bluff	Shallow	5	329	411	254	158	<i>Mixed results, No apparent trend</i>
Carrizo	Shallow	4	330	458	268	190	<i>relatively constant, mostly dropping ~2-6 ft.</i>
Carrizo	Deep	4	303	319	273	46	<i>relatively constant, mostly dropping ~2-6 ft.</i>
Queen City	Shallow	5	299	352	251	101	<i>relatively constant, a couple wells dropping ~10 ft.</i>
Queen City	Deep	3	302	321	291	30	<i>need more data, but trending downward</i>
Sparta	Deep	7	251	294	173	121	<i>relatively constant, mostly dropping no more than ~10 ft.</i>
Yegua-Jackson		3	209	220	199	22	<i>Mixed results, No apparent trend</i>
Brazos River Alluvium		7	210	246	172	74	<i>Relatively constant, dropping ~10 ft.</i>

*Note: Data is preliminary and needs to be checked and verified

Future Activity: Monitoring Network

- Network Expansion
 - New Wells
 - Oil & Gas Well Conversions
 - Well Owner Volunteer
 - District Install
 - Existing wells
 - Increase measurement frequency
 - Use of pressure transducers
- Outreach / Education
 - Webpage
 - Meetings
- Collaborate with other agencies
- Database Enhancements

Future Activity: Data Approach

- Water Levels
 - DFC Compliance (GMA 12 and District Requirement)
 - Threshold Compliance (District Requirement)
- Pumping, Water Levels, Aquifer Properties
 - Well Spacing/ Management Zone Delineation
 - Updates to GAMs and Development of BRA GAM
- Groundwater Availability /Well Productivity
 - Mitigation Agreement
 - Maximum allowable production (MAP)
 - Updates to GAMs and Development of BRA GAM

Future Activity: Data Analysis

- Water Levels
 - QA/QC filters
 - Interpolation methods
 - Weighting options
- Pumping, Water Levels, Aquifer Properties
 - Correlation between pumping change and W.L. change
 - Small-scale aquifer tests
 - Geophysical logs and driller logs
 - Cost-effective & scale appropriate models
- Groundwater Availability /Well Productivity
 - Seasonal variability
 - Water quality
 - Regional and local models