

Amarillo Copes With Ongoing Drought Conditions

Presented by: Emmett A. Autrey
Director of Utilities
City of Amarillo



To: Red River Authority
Basin Advisory Committee meeting

At: Ambassador Hotel
Amarillo
March 19, 2013

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Amarillo's Pre-drought Water sources

1. Southwest well-fields
2. Carson county well-fields
3. CRMWA
 - 3.1 Lake Meredith
 - 3.2 Roberts County



Every Drop Counts.



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Amarillo's Pre-drought Water Supply

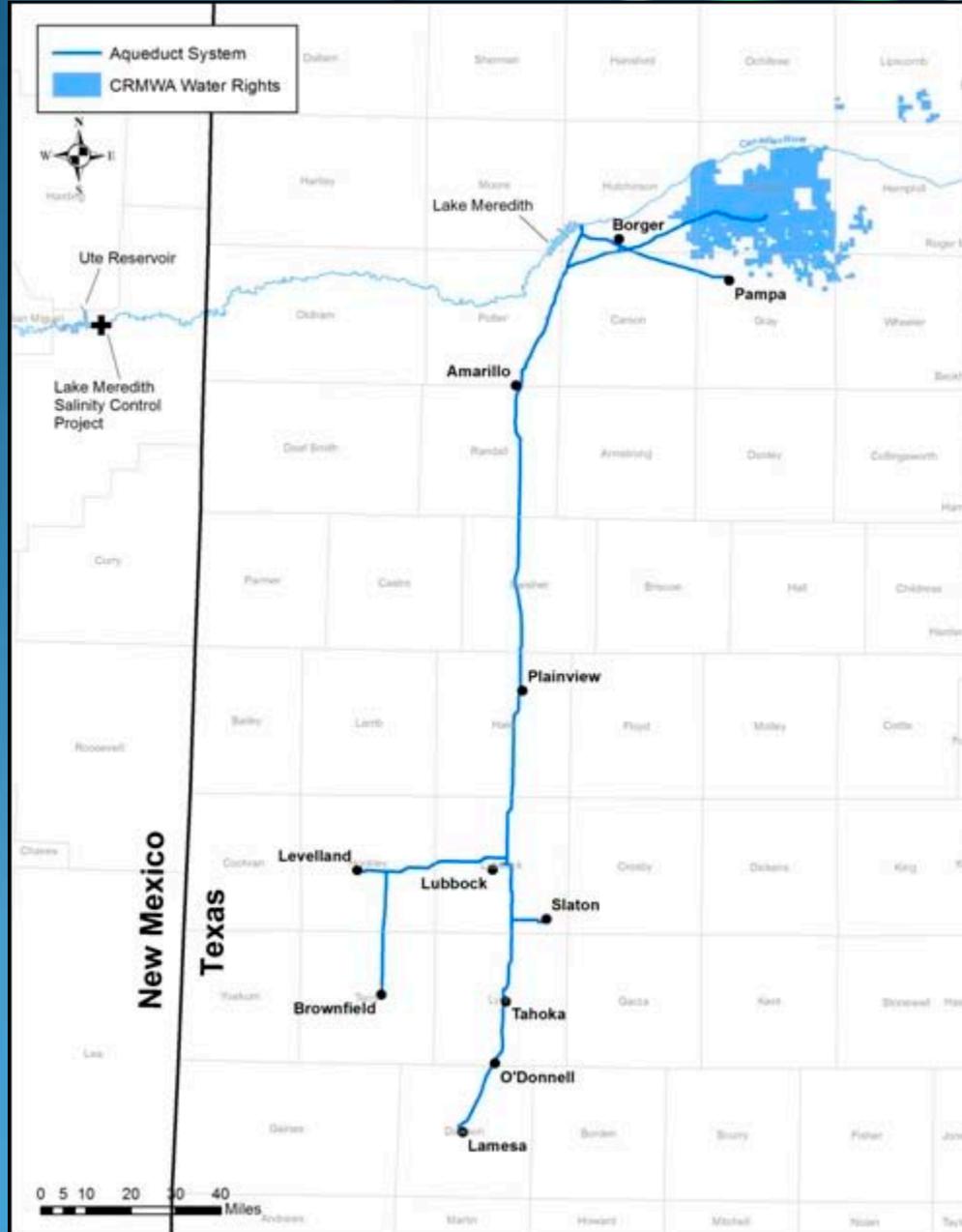
Amarillo's **pre-drought** Water Production Capacity:

CRMWA Roberts County allocation	26.4	MGD
Carson County wellfield	35	MGD
SW wellfields (Some Dockum)	<u>10</u>	<u>MGD</u>
Total Groundwater	71.4	MGD
Lake Meredith allocation	was 27.3	MGD

Amarillo's 500 MG balancing Reservoir can supply an additional 15 MGD for up to 30 days for summer peak demands, providing a pre-drought short-term maximum capacity of 113.7 MGD – WITH Lake Meredith.

NOTE: Last summer, we reached an all-time peak day demand of 92 MGD. Do you see the problem? What if a major supply fails?

CRMWA System Overview





**Lake Meredith in the Good Times
Normal Amarillo allocation was 27.3 MGD**



**500 Million Gallon Reservoir, at 34th & Eastern
Holds CRMWA water for use during high demand season.**

Water Production Dept. (52200)



Carson County Well-field: 35 MGD

**One of the 40 wells in the Carson Co. well field
Average production is about 0.9 MGD per well**



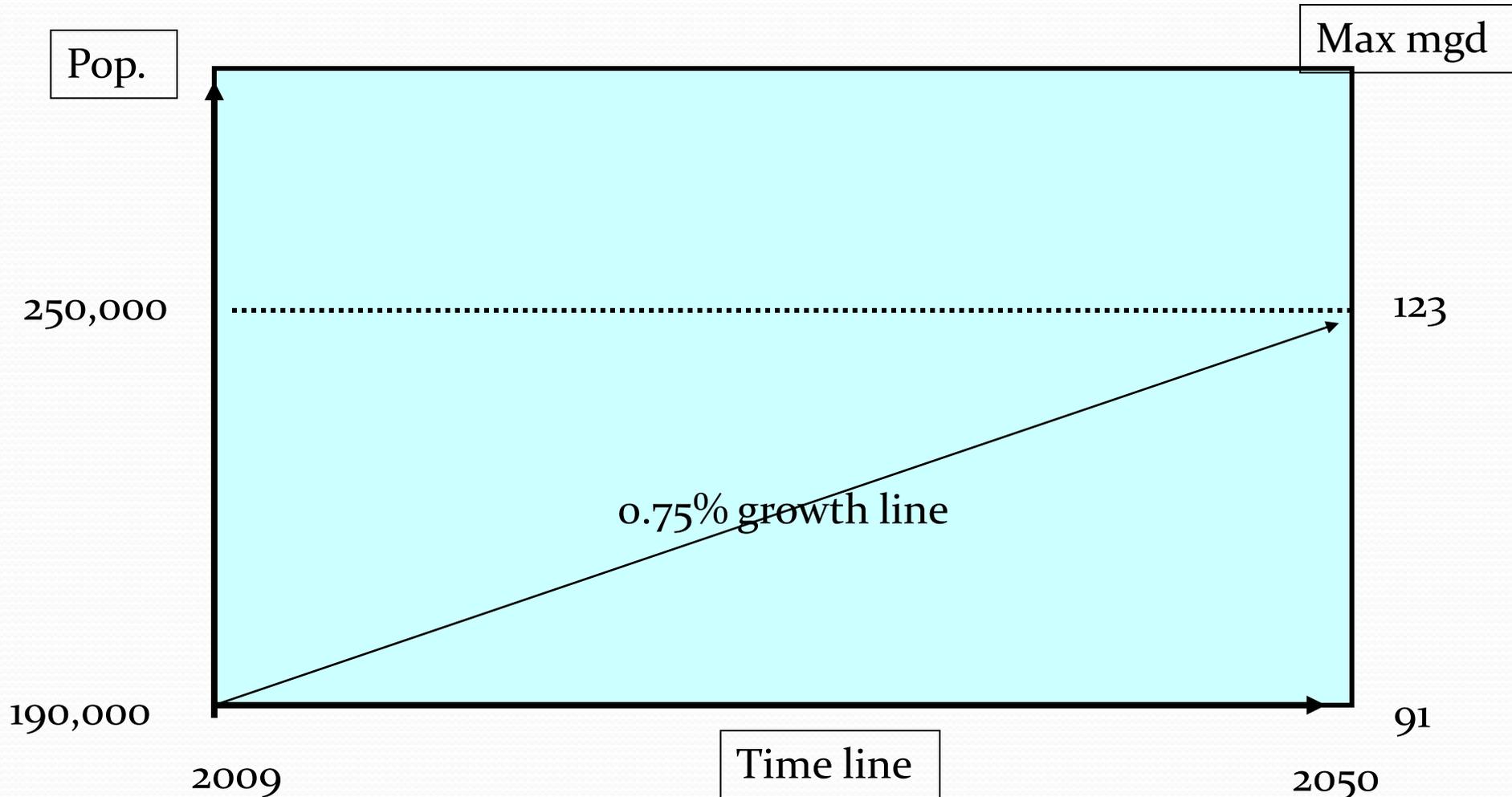
**“City Lake” pump station: placed
in service in 1927 and still running!
SW wells = 10 MGD Capacity**

**What we do in our spare time – fix “minor” leaks.
Carson Co. 45-inch Transmission Line blow-out ...
08-21-2011**

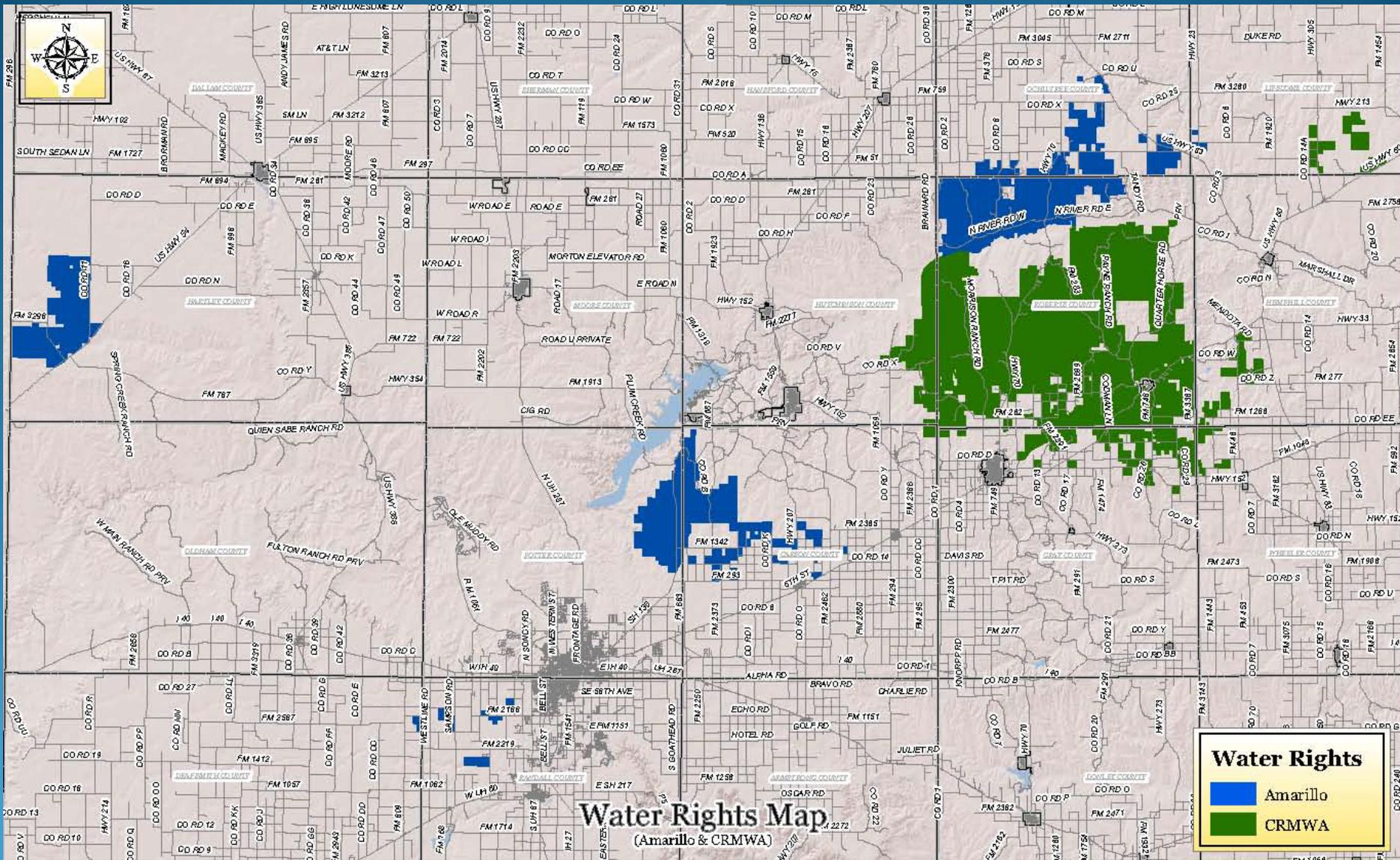


What the Future Holds?

The Growth Factor

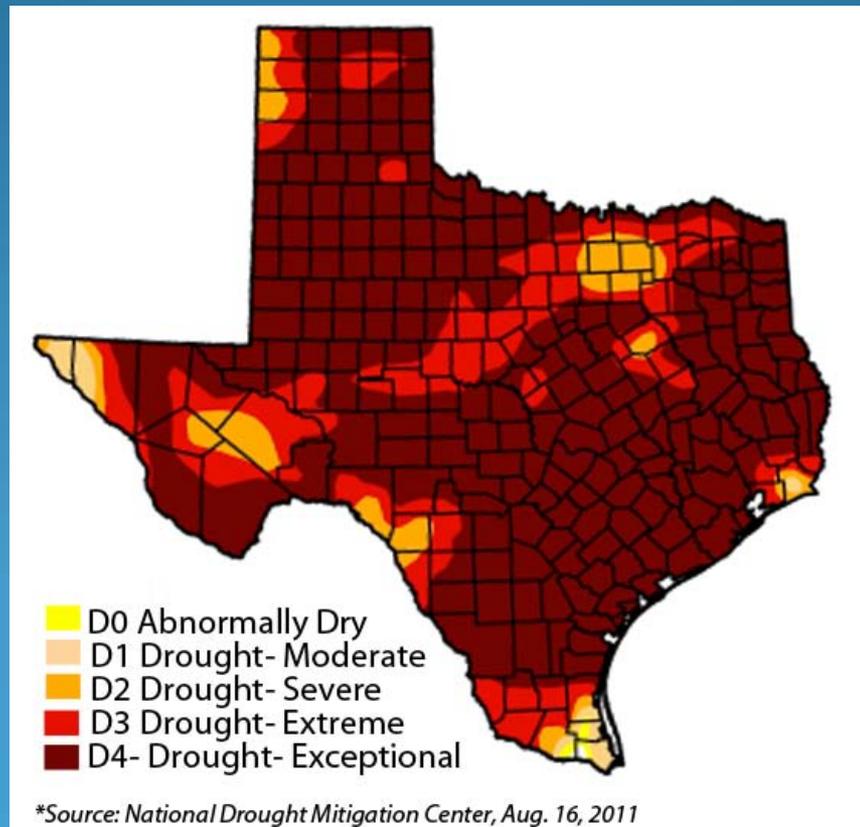


Amarillo and CRMWA Water Rights Current & Future supplies



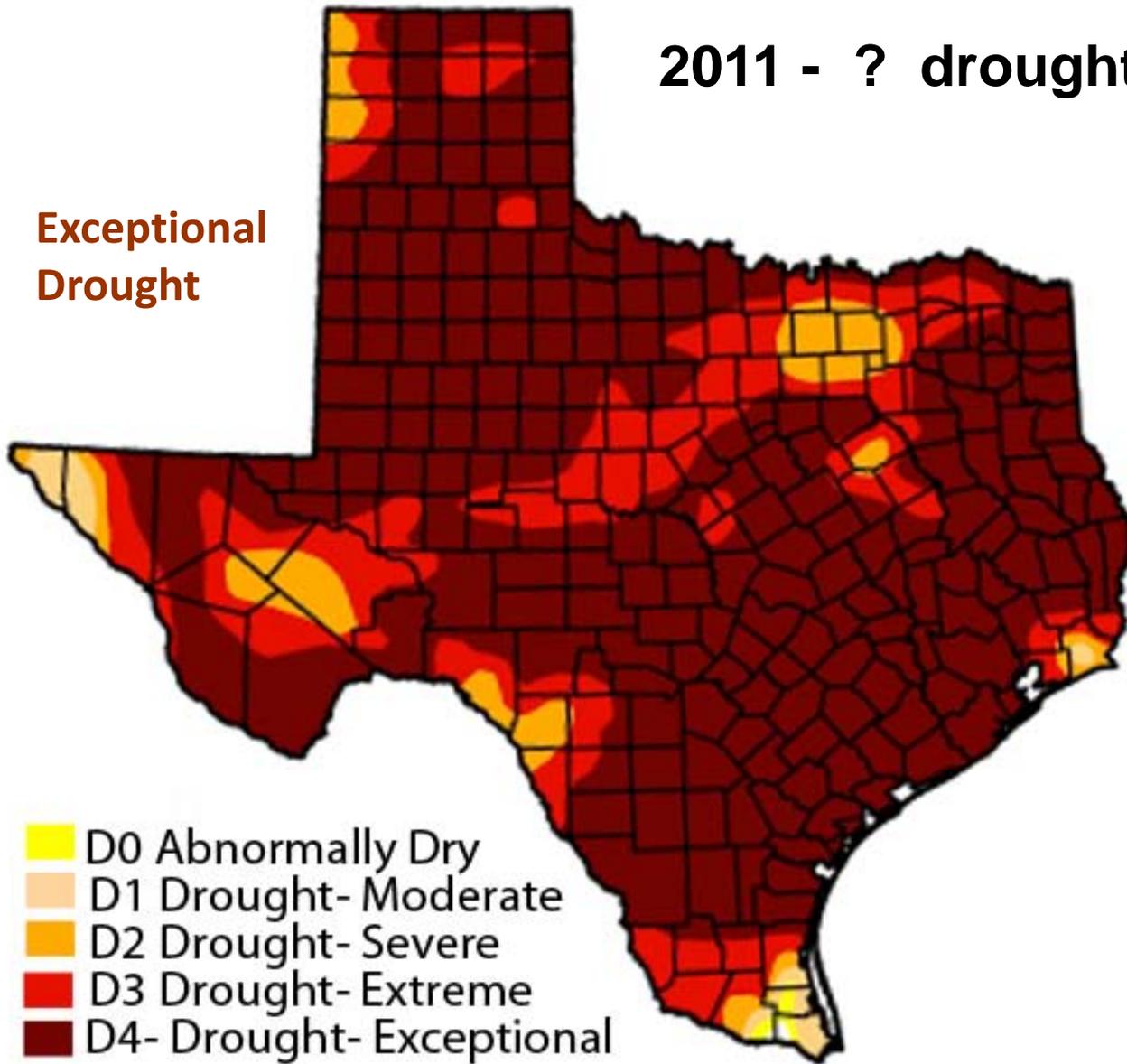
Amarillo Copes With Ongoing Drought Conditions

Then Came 2011 !!



2011 - ? drought

**Exceptional
Drought**



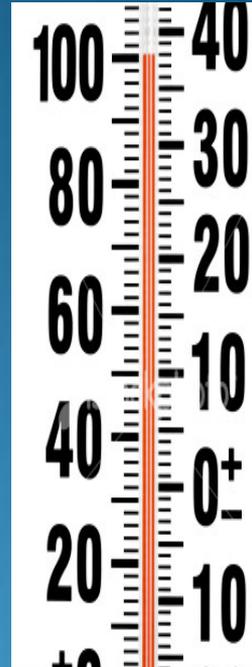
-  D0 Abnormally Dry
-  D1 Drought- Moderate
-  D2 Drought- Severe
-  D3 Drought- Extreme
-  D4- Drought- Exceptional

**Source: National Drought Mitigation Center, Aug. 16, 2011*

2011 – A Year to Remember & For Learning

The historic 1-year “Drought of Record”

- 50 days above 100 degrees F.
 - *previous record = 26 days*
- Historic high temperature 111 degrees F.
 - *previous record = 109 degrees F.*
- Only 7 inches of precipitation
 - *previous record = 9.56 inches*
- Water consumption jumped to 18.385 billion gallons
 - *Normal annual consumption is about 16 billion gallons*

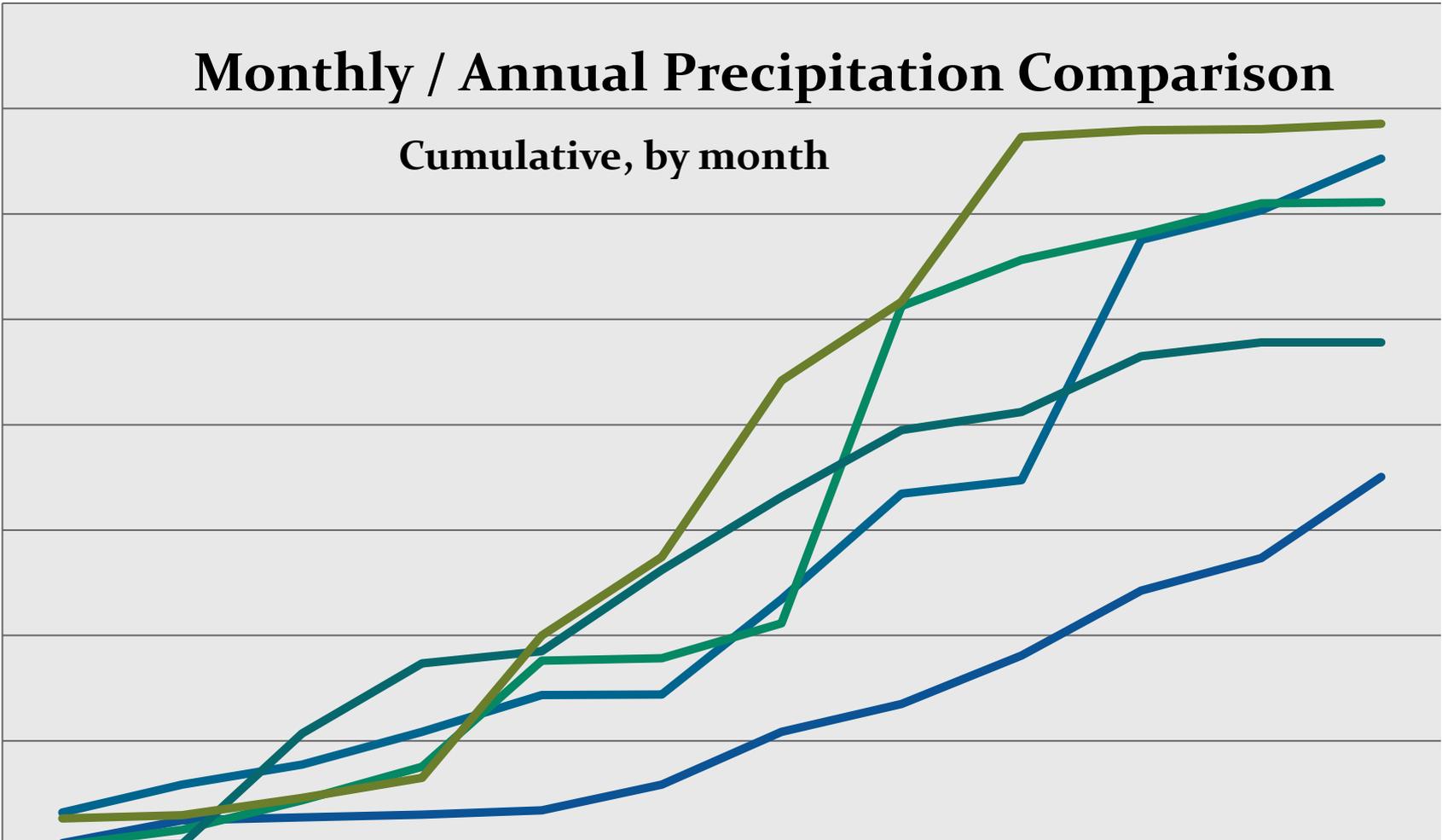


Monthly / Annual Precipitation Comparison

Cumulative, by month

Rainfall (inches)

16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00

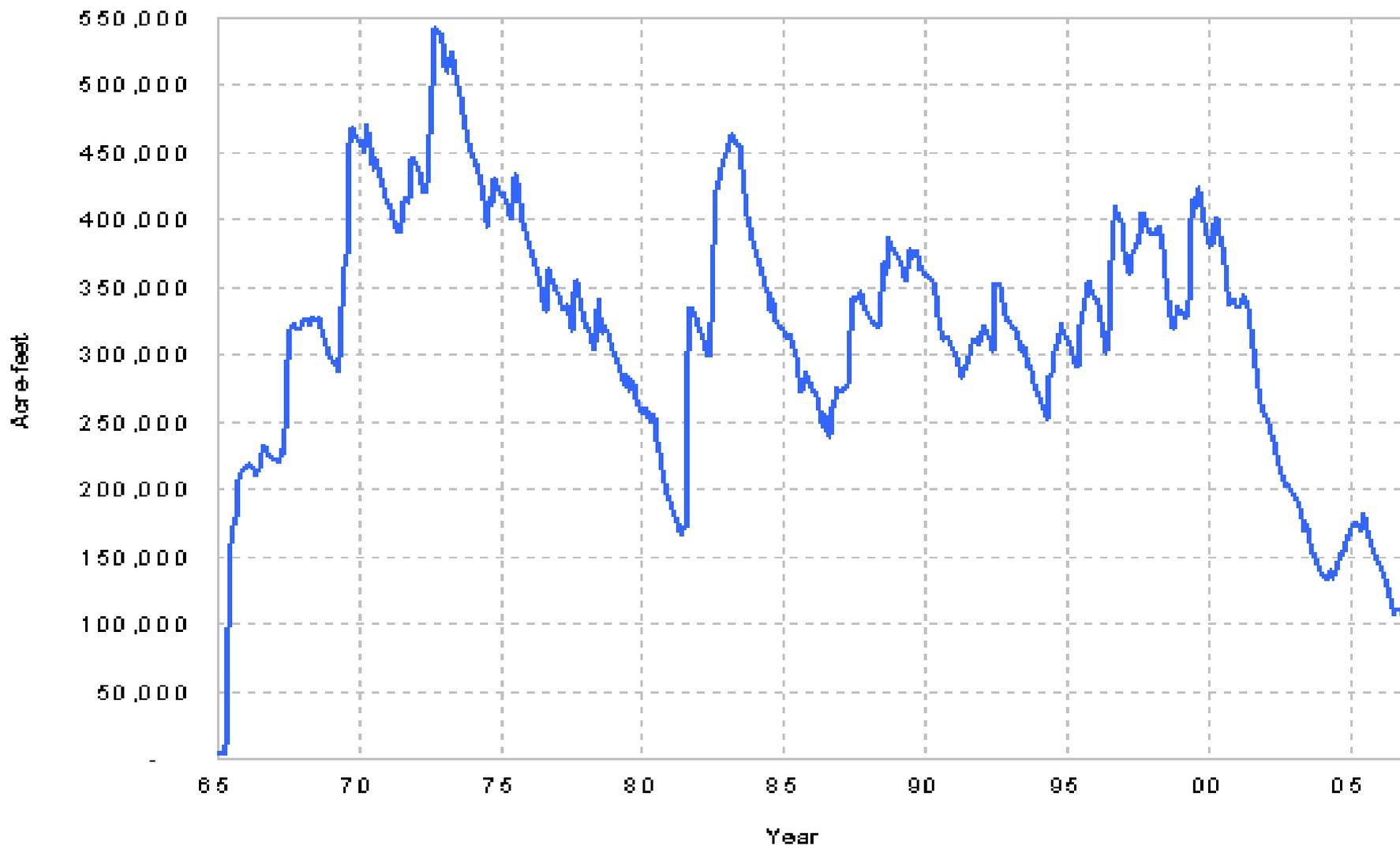


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Annual
2011	0.06	0.49	0.55	0.60	0.68	1.17	2.17	2.70	3.62	4.85	5.47	7.01
1953	0.64	1.17	1.55	2.17	2.87	2.88	4.69	6.69	6.95	11.51	12.07	13.05
1933	0.02	0.31	0.87	1.51	3.52	3.57	4.23	10.25	11.13	11.62	12.20	12.22
1970	0.02	0.04	2.14	3.47	3.70	5.24	6.63	7.90	8.24	9.30	9.56	9.56
1955	0.53	0.59	0.92	1.30	4.00	5.49	8.84	10.33	13.46	13.59	13.61	13.71

History of Lake Meredith contents – To 2007

LAKE MEREDITH

Total Storage



CRMWA-Lake Meredith - 2011

Water Dropped Below Base of Intake



Lake contained less than 4% of capacity

Emergency Pumps in place

Monthly Water Production (2006 to Current)

2,500,000

2,000,000

1,500,000

1,000,000

500,000

0

Gallons (x1000)

Jan

Feb

March

Apr

May

Jun

Jul

Aug

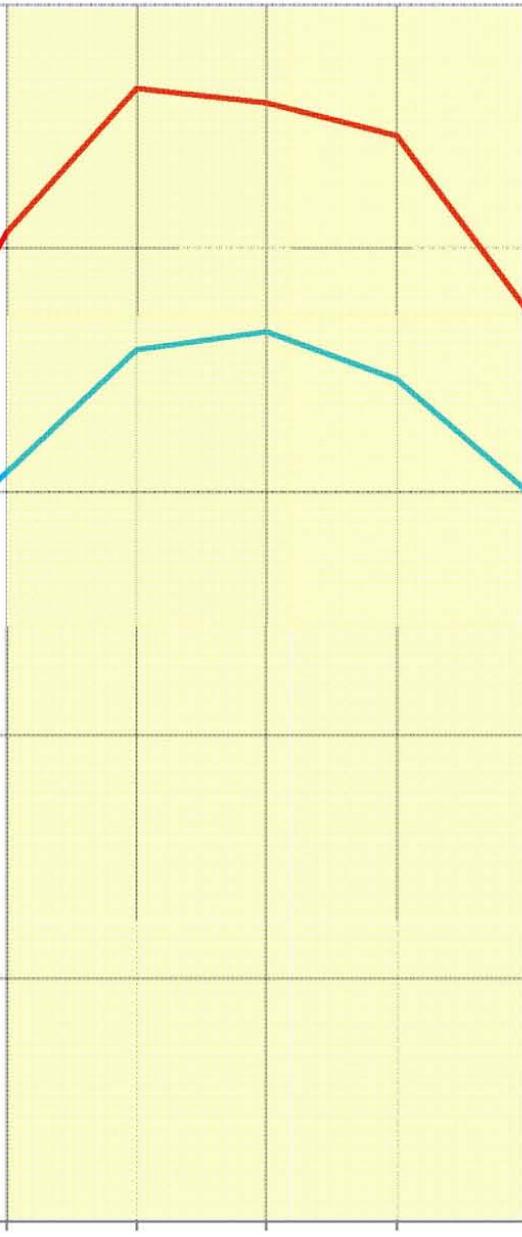
Sept

Oct

Nov

Dec

- 5 Year Average
- 2011
- 2012



Jan

Feb

March

Apr

May

Jun

Jul

Aug

Sept

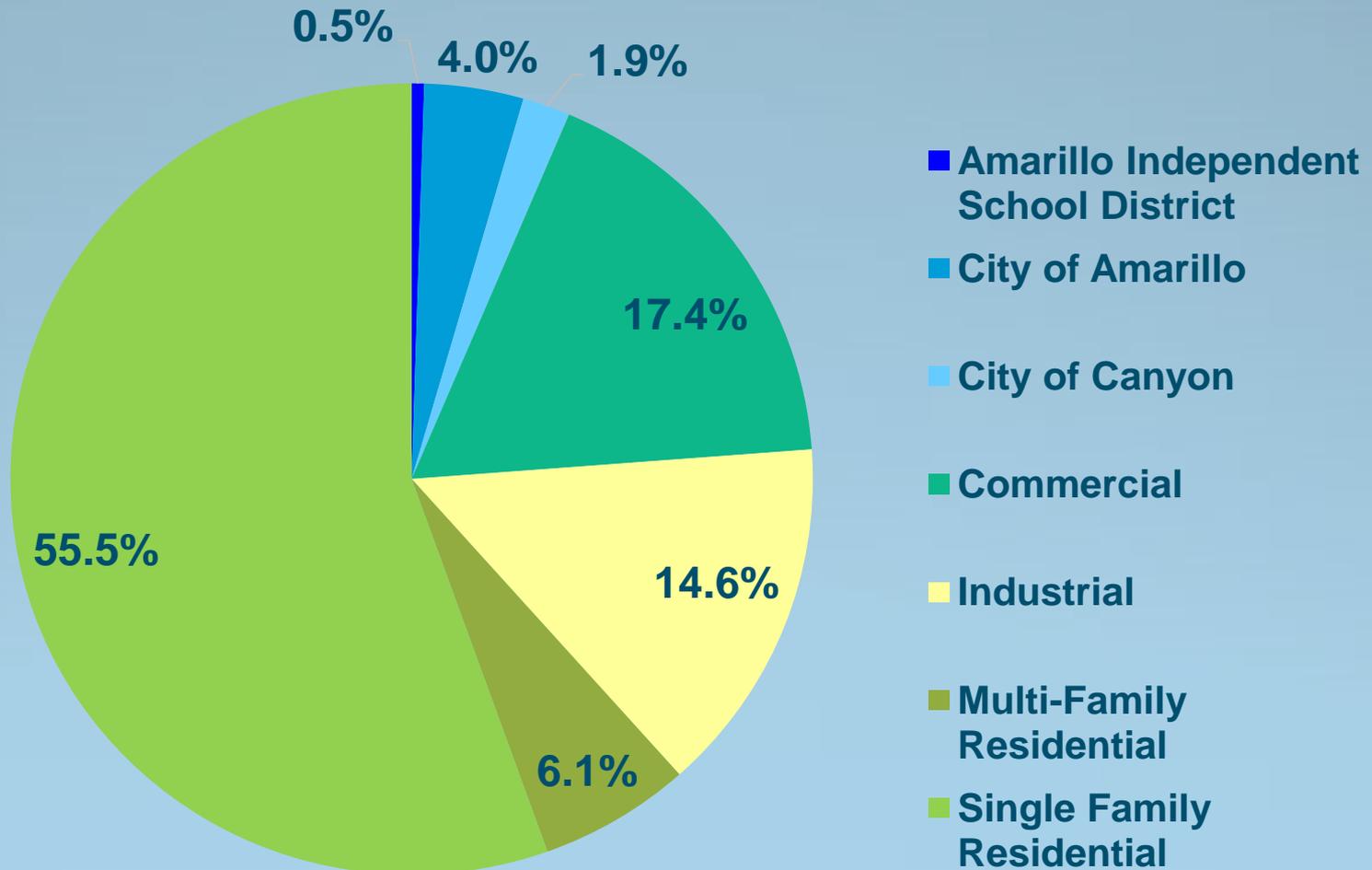
Oct

Nov

Dec

Amarillo Copes With the Ongoing Drought

Water Use Categories – 2011 by Customer Category



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A new source needed:

1. Potter County well-field was a 2030 project in the Texas Water Plan.
2. Amarillo petitioned Region A to move it up to a 2010 project...this was in late 2007.
3. Region A recommended approval...
4. TWDB approved the 2010 project...
5. TWDB funding received in 2009 and 2010...
6. Total funding was over \$ 86 million...
7. Project actually began in early 2010...
8. Substantial completion in late Summer of 2011...
9. Project final anticipated this month.
10. Due to very low bids, money left over is being used for a transmission pipeline needed to move the new water to distant points of need.

Well No. 501 - Potter County Well Field



**Water Sources & Pumping capacity
Increased by 20 Million Gallons per day
\$86 Million Capital Project**

Potter Co. Pump Station

Potter Co. Well – Field Project

First new well field since 1956



Potter County Pump Station Pump Bay Commissioned in Late 2011



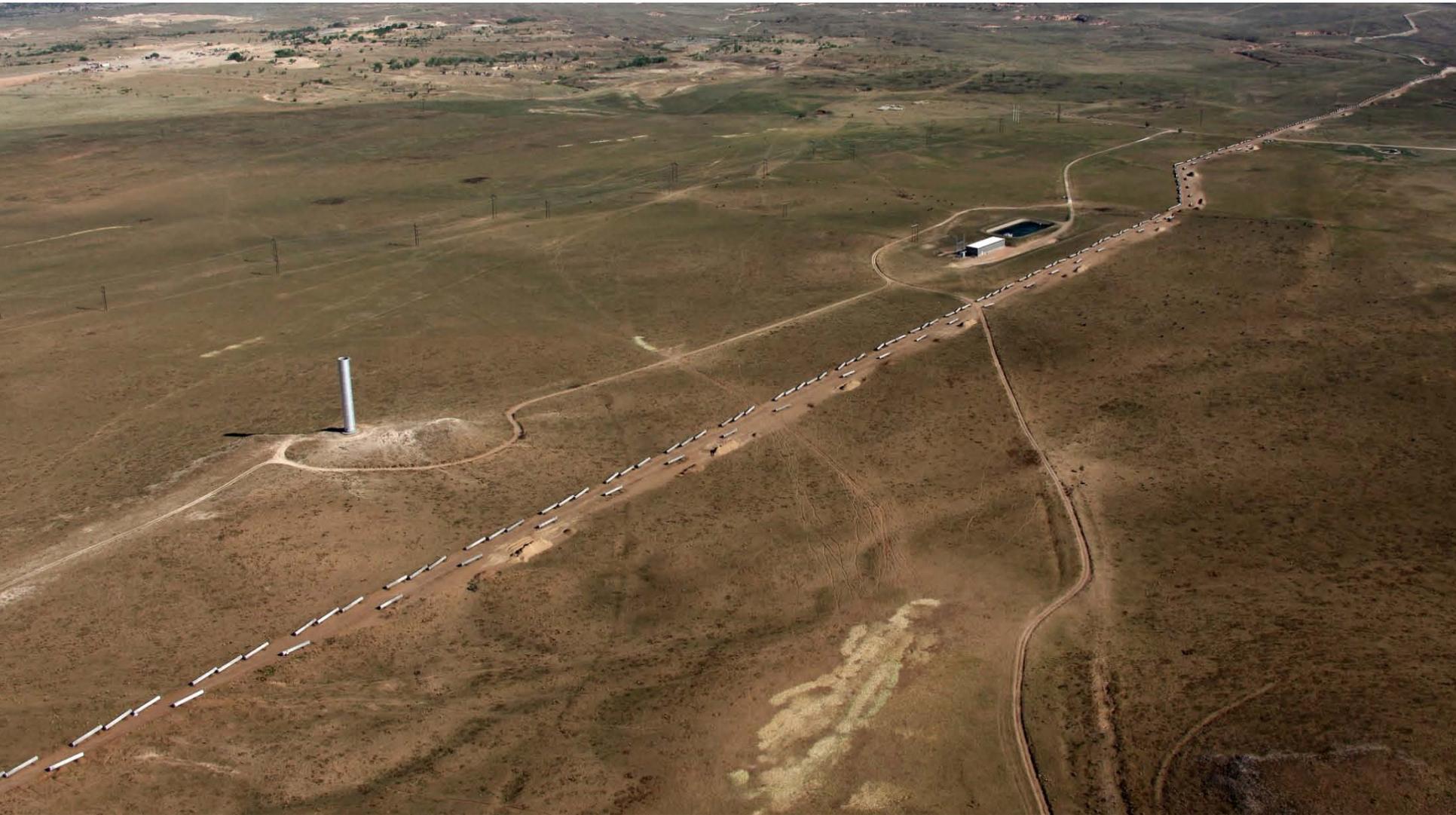
Under Construction

Amarillo's Potter Co. Well-field Project 48-Inch Pipe at Ameron Factory Phoenix, Arizona



48-Inch Transmission Pipeline

Passing by CRMWA Forebay # 4 & Surge Tower



Amarillo's Current Production Capacity

CRMWA Roberts County	26.4	MGD
Carson County wellfield	35	MGD
Potter County wellfield (09-2011)	21	MGD
SW wellfields (Some Dockum)	<u>10</u>	<u>MGD</u>
Total Groundwater	92.4	MGD
Lake Meredith (was 27.3 MGD)	0	MGD

NOTE: Last summer, we reached an all-time peak day demand of 92 MGD.

Amarillo's 500 MG balancing Reservoir can supply an additional 15 MGD for up to 30 days for summer peak demands, yielding a short-term capacity of 107.4 MGD. **With Lake Meredith restored, the sum will be 134.7 MGD**

Amarillo Copes With Ongoing Drought Conditions

A Multi-faceted Water
Conservation Emphasis
Conservation is “Another Source”



Water conservation logo

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Conservation Program Approach – A “work in progress”

1. The conservation Team: it's make-up.
2. Water Rate increases have a reduction effect...
Rates still much lower than the state average.
3. Work with the media to increase conservation awareness.
4. Give presentations to civic organizations.
5. Set up/operate booths for several venues...hand out “promo items”
 - 5.1 Civic Center activities.
 - 5.2 “High Noon on the Square”
 - 5.3 “Star-light theater”.
 - 5.4 “Outdoor Watering” presentations @ libraries.
6. Working on a conservation-friendly landscape ordinance.
7. Rebate programs: Rain-freeze, Rain Harvesting & Lawn Sprinkler “Tune-ups”.
8. Every Drop counts website @ <http://water.amarillo.gov>

City of Amarillo Water Conservation Emphasis

“Every Drop Counts” 2013



Curious how every drop counts...you pay for every drop, whether you use water wisely or waste it! Water is a precious resource in the Texas Panhandle. Do at least one thing a day to save water. Even if the savings are small, every drop counts.

Visit <http://water.amarillo.gov> for more information.

TOP-10 Round Table 2012

WELCOME: Sharon Oxendale
Chief Operating Officer



INTRODUCTIONS: Emmett Autrey



Reclaimed Water

Another Conservation Approach

Another water “source”



**Reclaimed Water Pumps.
Hollywood Rd. WWTP
Pumping to Excel Energy power plants**

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Reclaimed Water used: 13-15 MGD



The City of Amarillo



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What else does the future hold?

We still have 2 billion gallons per year of unused effluent...How about indirect or direct re-use?

Thank you !
Any Questions?

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