

State of the Water System

City of Amarillo

2012



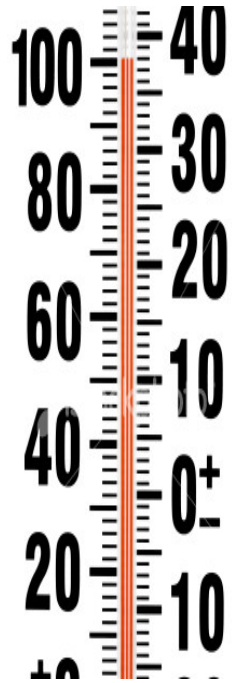
Every Drop Counts.

City of Amarillo • www.amarillo.gov

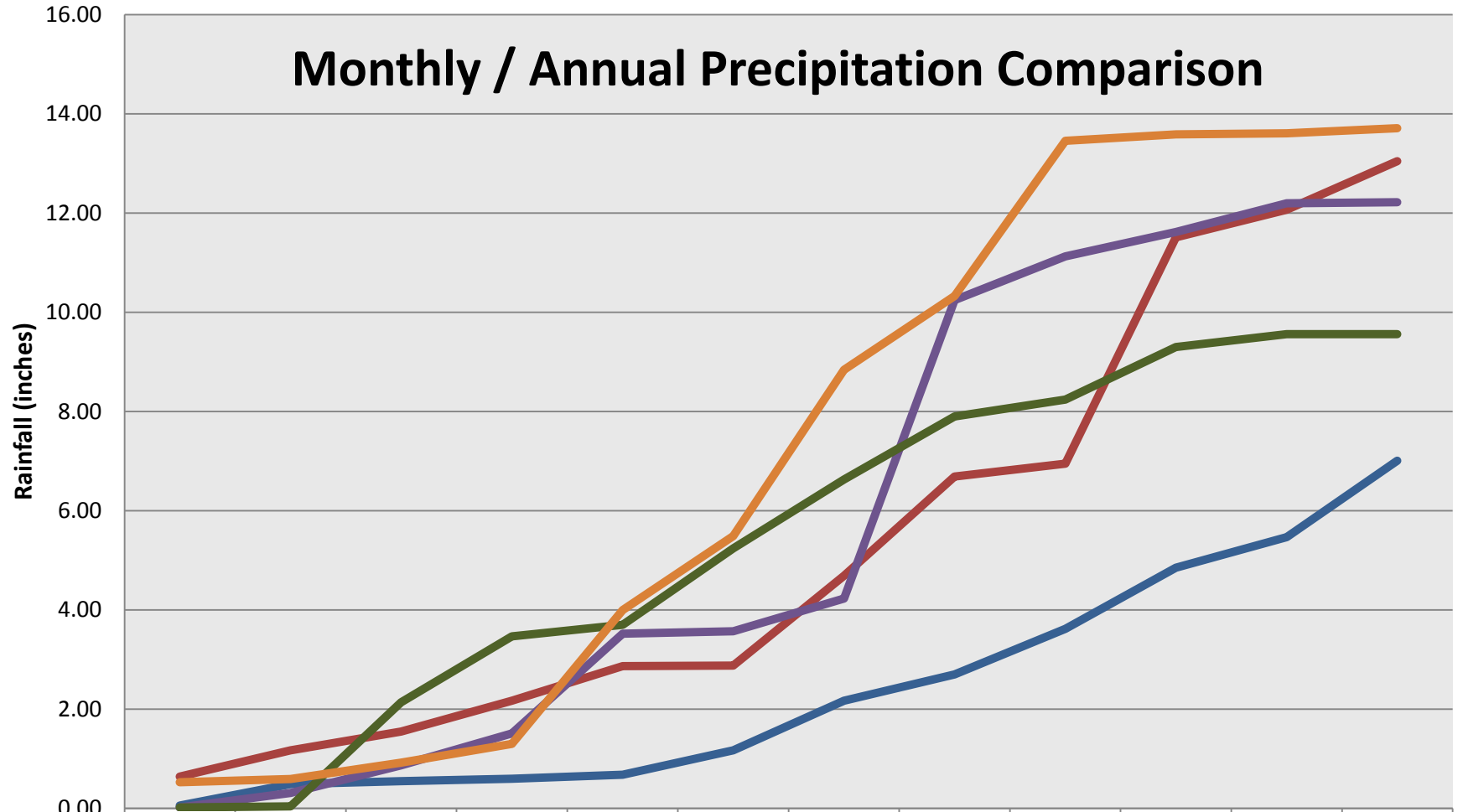
2011 – A Year to Remember & For Learning

The historic 1-year “Drought of Record”

- 50 days above 100 degrees F.
 - *previous record = 26 days*
- Record 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 = 16 billion gallons*

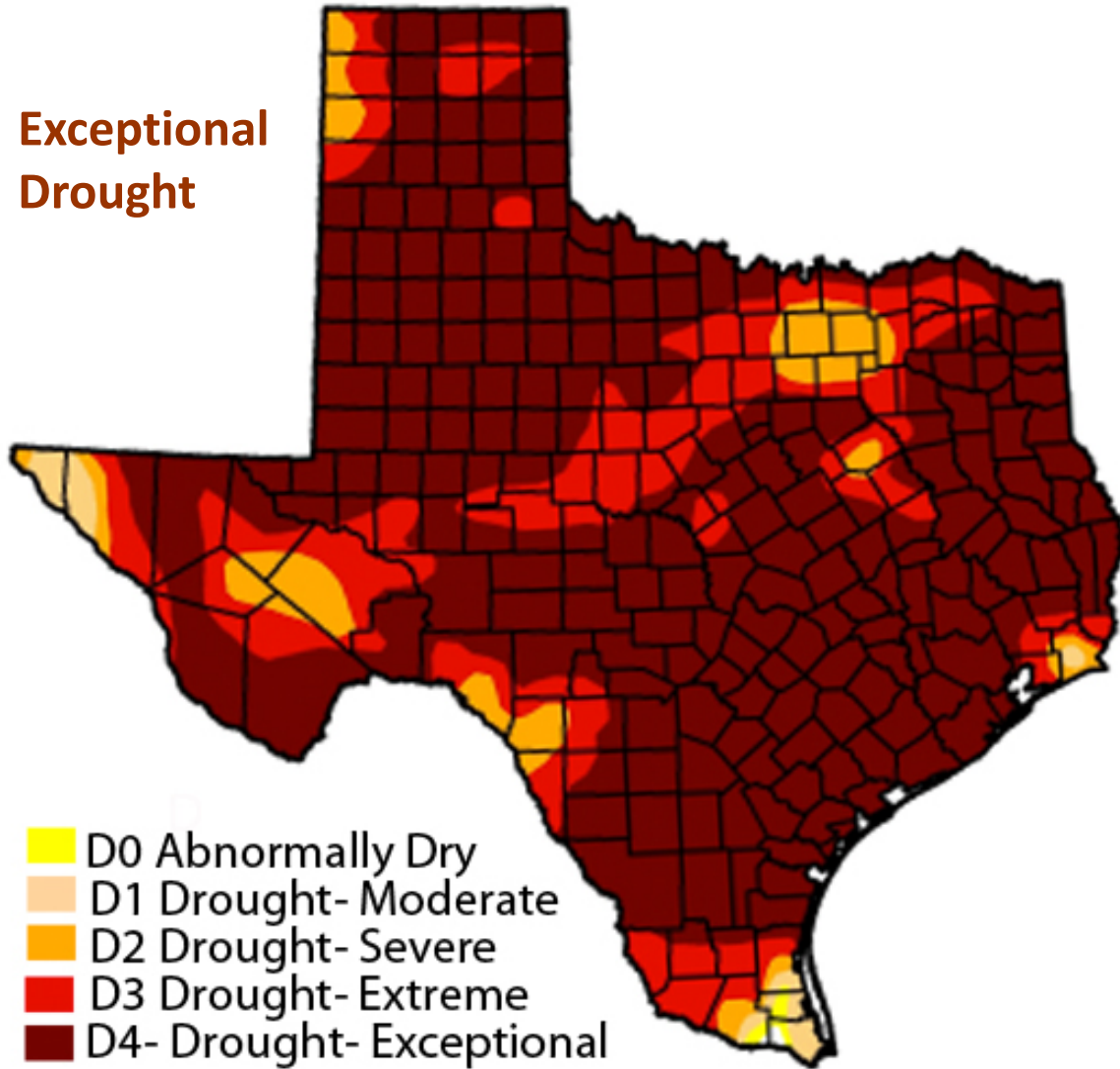


Monthly / Annual Precipitation Comparison



	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

Exceptional Drought



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

CRMWA-Lake Meredith

Water Dropped Below Base of Intake



Emergency Pumps in place

A close-up photograph of vibrant green leaves, likely from a plant like a corn or similar, filling the left side of the slide. The leaves are layered and show natural texture and color variations.

2012 State of the Water System Issues and Answers

The effects of the Drought/Heat Wave of 2011.

- **Lake Meredith dropped to a historic low water level.**
 - **Water level dropped below the base of the intake.**
- **Our water system was tested as never before....**
 - **Wells and pumps running 24 hours per day.**
 - **Increased pump break-down experienced.**
 - **Very difficult to keep the Holding Reservoir filled.**
 - **Treatment & Storage capacities stressed,**
 - **But we managed to keep water pressure and flows near normal**
- **Then, the Carson County line broke!**
 - **Reservoir lost 60 million gallons of water in 2 days.**
 - **Repair made in record time...back online in 49 hours.**

.... So, we made it!

2012 State of the Water System

So, I told our Employees, “The worst thing that could happen now would be for the Carson County 45-inch Transmission Main to rupture!”

Be Careful What you say – it could become a self-fulfilling prophecy!

2012 State of the Water System

Carson County Transmission Line blow-out... 08-21-2011



How the water was used : by user categories

Total Water Used in 2011

18.385 billion gallons

56,422 acre feet*

*NOTE: An acre foot is 325,851 gallons

Typical calendar year usage is nearly 16 billion gallons.

The extra 2.385 billion use in 2011 is almost all due to outside watering, due to the 2011 drought conditions.

The consumption for all fresh water uses in 2011 was 264 gallons per person per day (gpcd).

Subtracting out of town industries & City of Canyon results in a an in-town usage of 16,046,090 ,000 gallons, or 230 gpcd, compared to an in-town gpcd of under 200 in a “normal” water usage year.

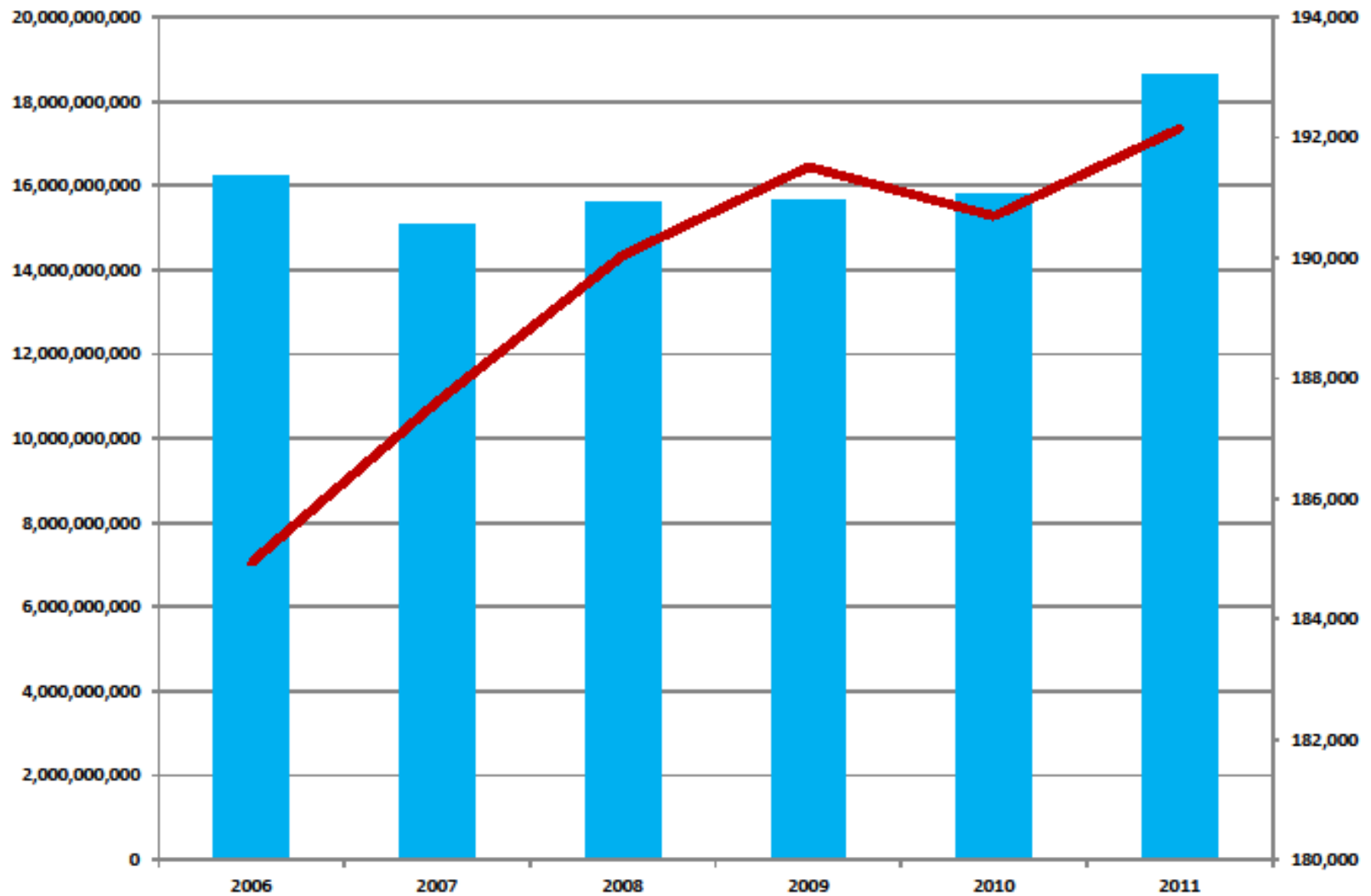
The water usage by consumer categories, is indicated graphically on the next slide.

Large Out-of Town Industries

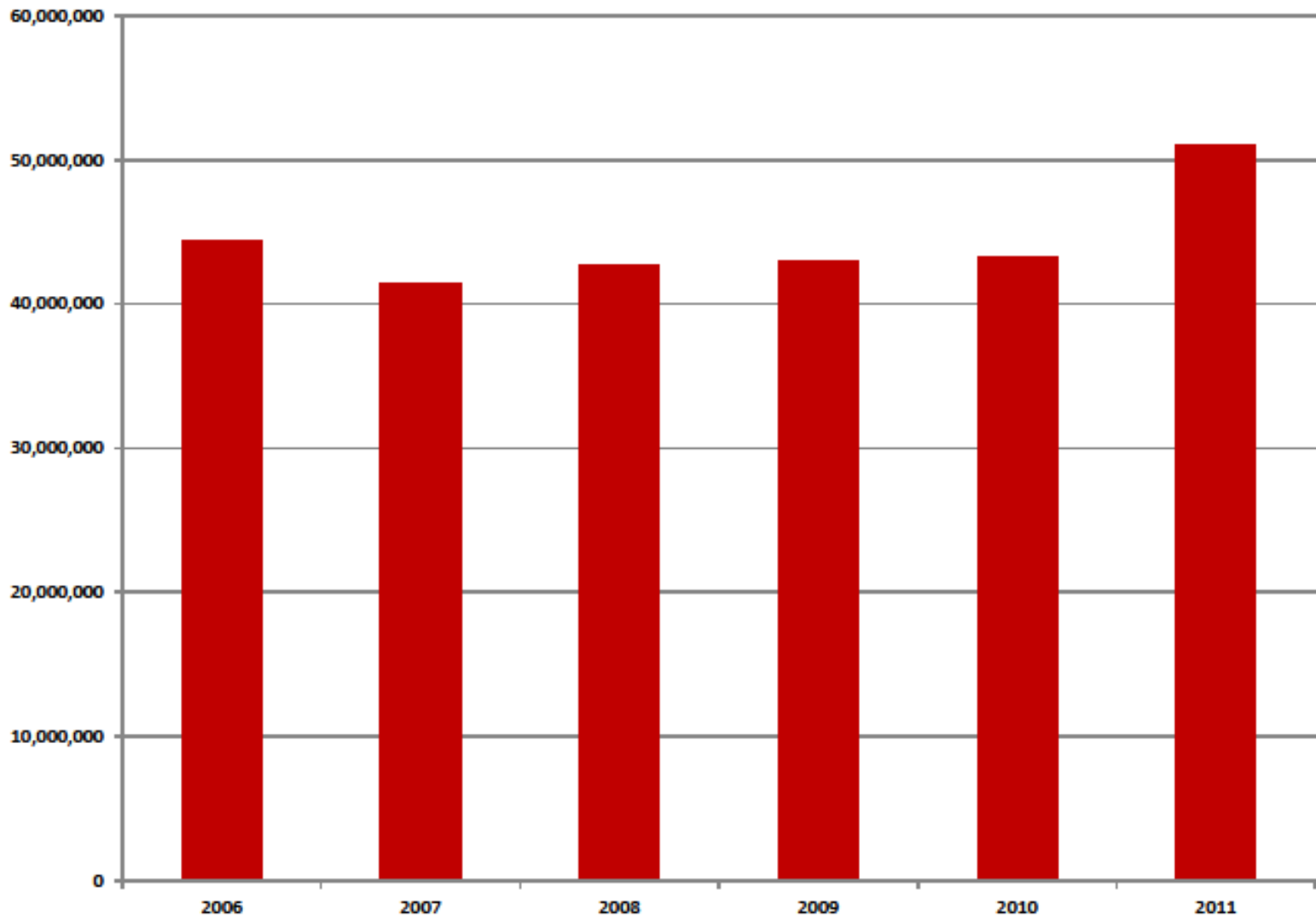
Several large industrial water customers are located outside the City limits of Amarillo. These are not counted in the GPCD calculation. Additionally, water that is sold to City of Canyon is not counted as GPCD.



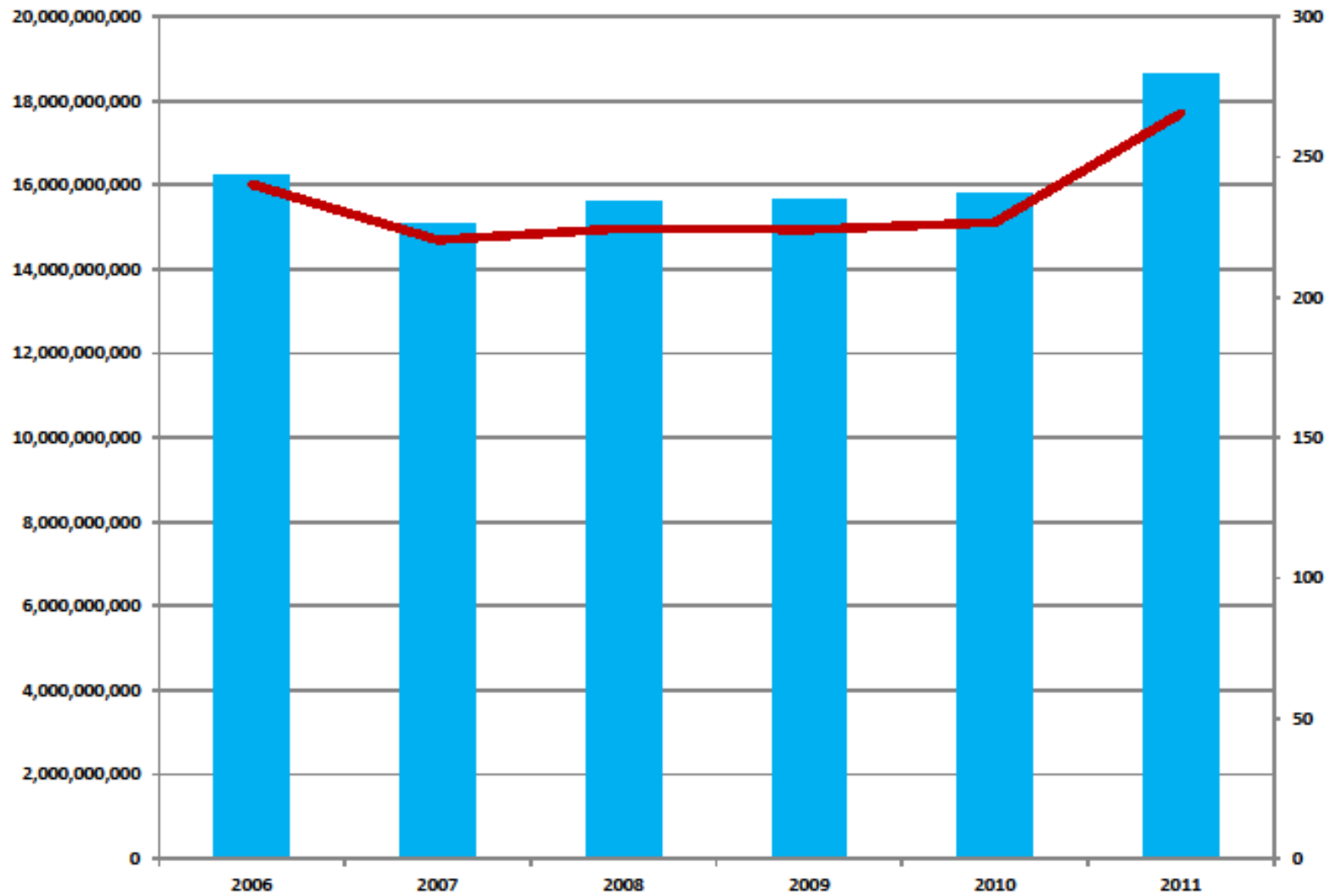
Annual Water Consumption vs. Population



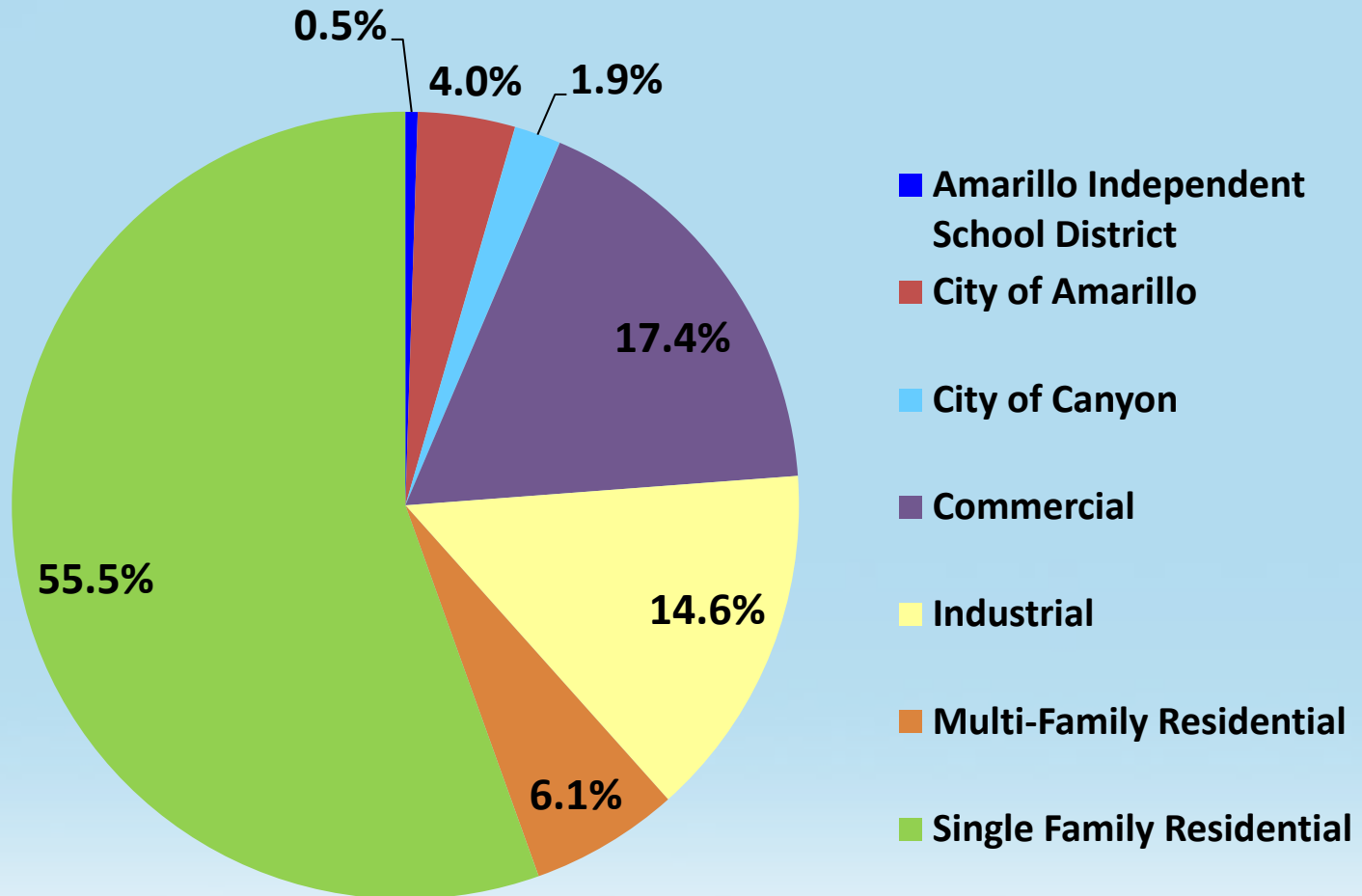
Average Daily Consumption



Annual Gallons Per Capita Per Day (GPCD)



2011 Water Usage by Customer Type



Answers to the Previously discussed “Issues”



**Water Sources &
Pumping capacity
Increased**

Well No. 501 - Potter County Well-field



Answers to the Previously discussed “Issues”

Enhanced emphasis on Water Conservation

Some suggested approaches:

- **Continued efforts by the City of Amarillo Conservation Team.**
- **Re-visit the Landscaping and related ordinances.**
 - **Possible incentive for exchanging cool season to warm season turf.**
 - **Possible incentive for Xeriscape and Drought - tolerant landscaping.**
 - **Possible incentive for Rainwater Harvesting systems.**
- **“Water Wise” education program for 5th graders.**
- **Increased public exposure: Town Hall meetings, etc.**



2012 Conservation Team Activities

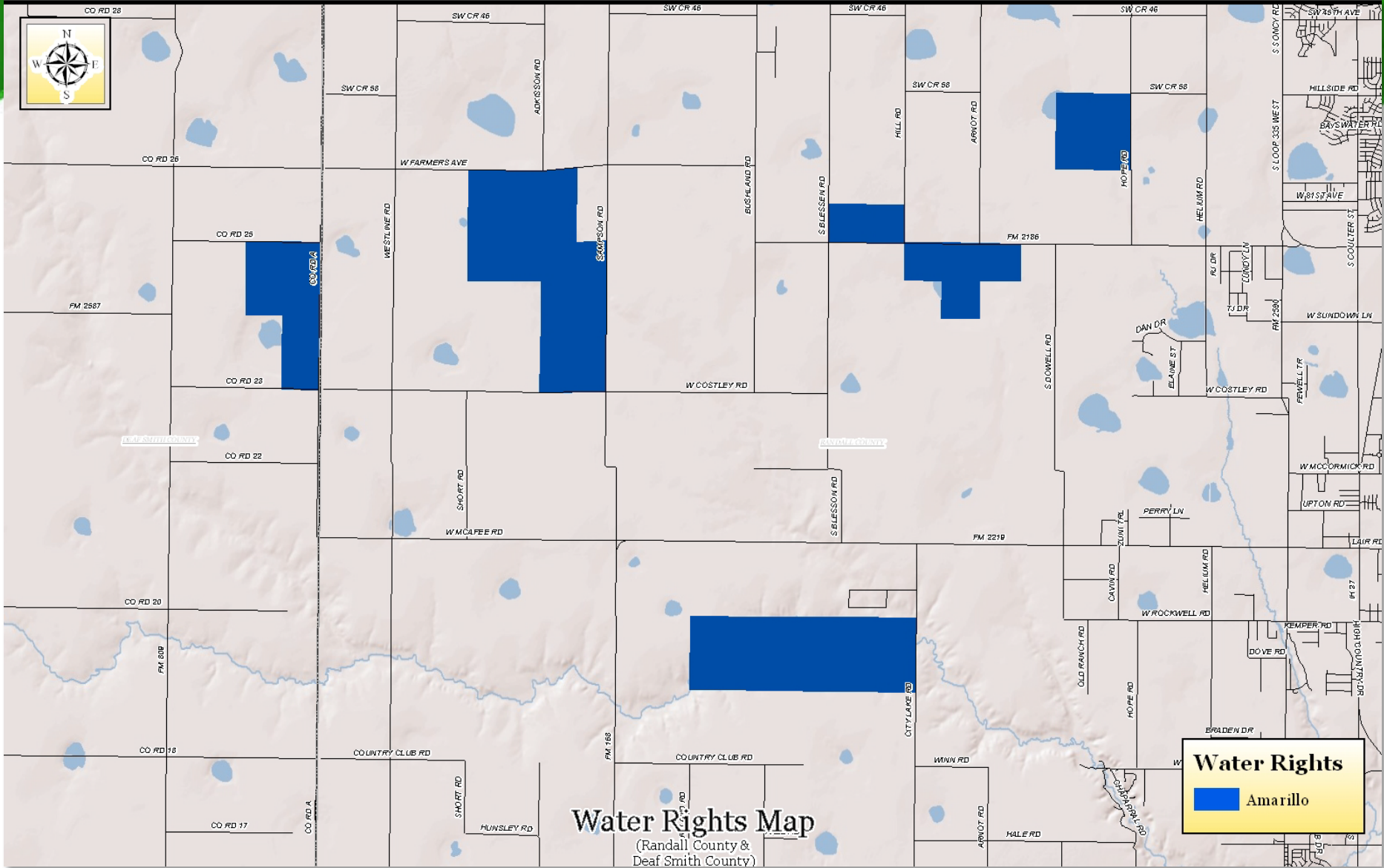
- 1. Team meets regularly to plan & strategize.**
- 2. Participated in “Panhandle Water Symposium” Feb. 8th. Co-Sponsored with Panhandle Groundwater Conservation District.**
- 2. Operated a Conservation booth in the Remodelers event at the Civic Center February 25th & 26th.**
- 3. Operating booths for the Botanical Gardens last weekend & next weekend.**
- 4. Will operate booths for High Noon on the Square throughout the Summer.**
- 5. Will operate a booth for Starlight Theater in Sam Houston Park throughout the Summer.**
- 6. And, other opportunities as they arise.**

Prepared for the Future

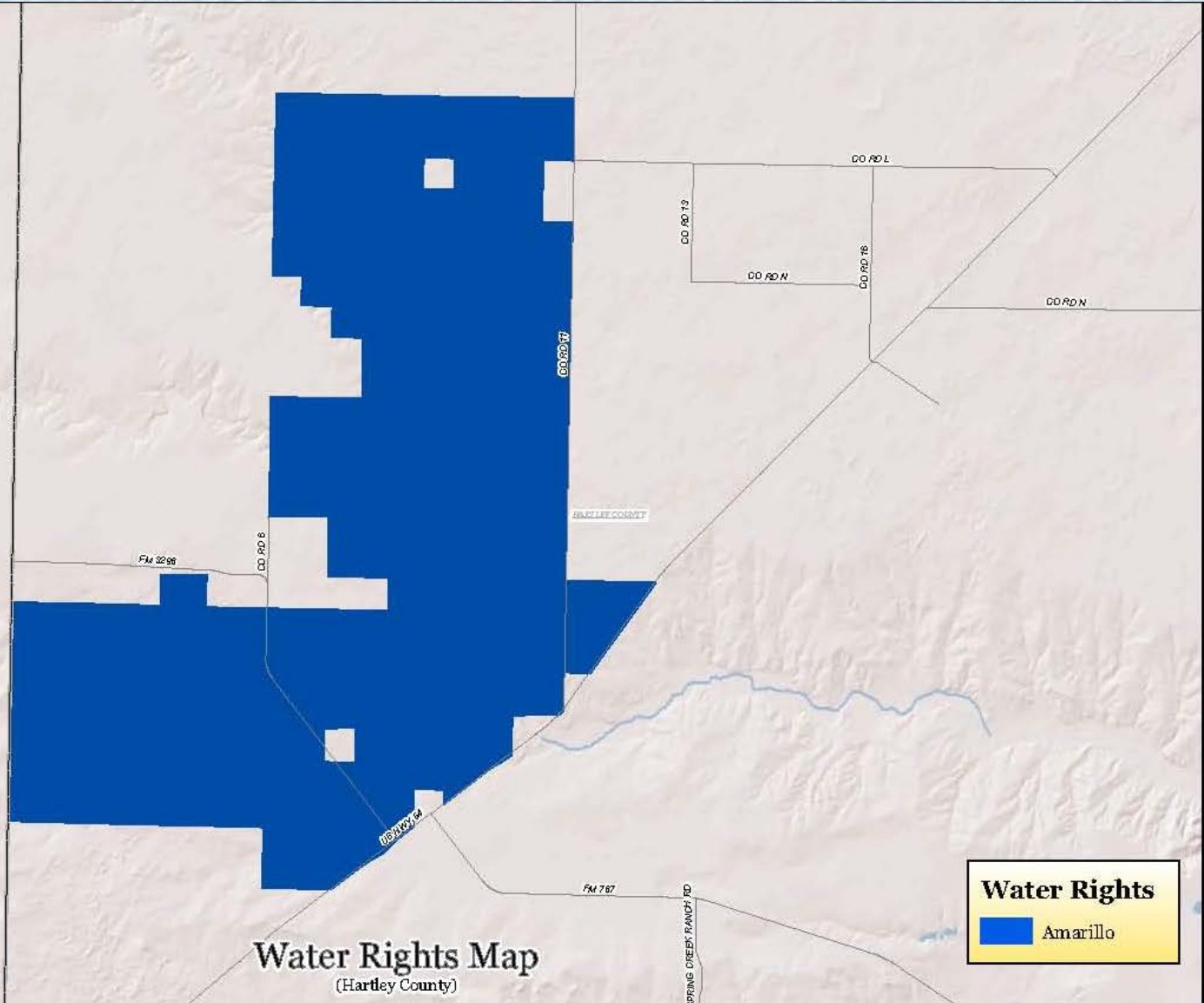
Amarillo's Water Rights Holdings

Hartley County	-	45,774
Randall & Deaf Smith County	-	7,011
Carson & Potter County	-	78,439
Roberts, Ochiltree & Lipscomb Co.	-	120,987
<hr/>		
Total Holdings	-	252,211
Amarillo interest (CRMWA)	-	<u>180,094</u>
Total Amarillo w/ CRMWA interest		432,305

Amarillo's oldest water rights, Randall and Deaf Smith Counties

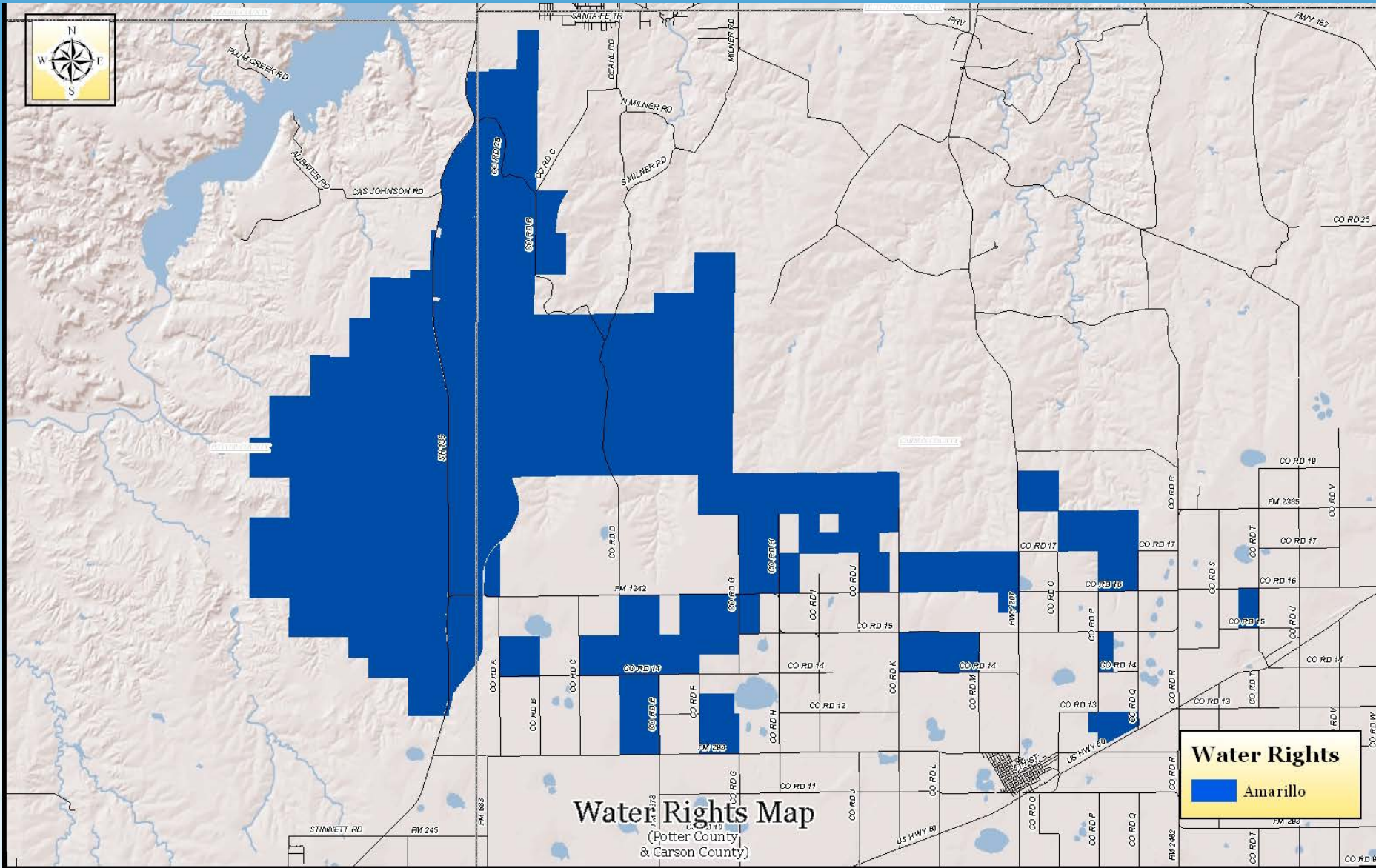


Hartley County – Un-developed Purchased in the 1950's



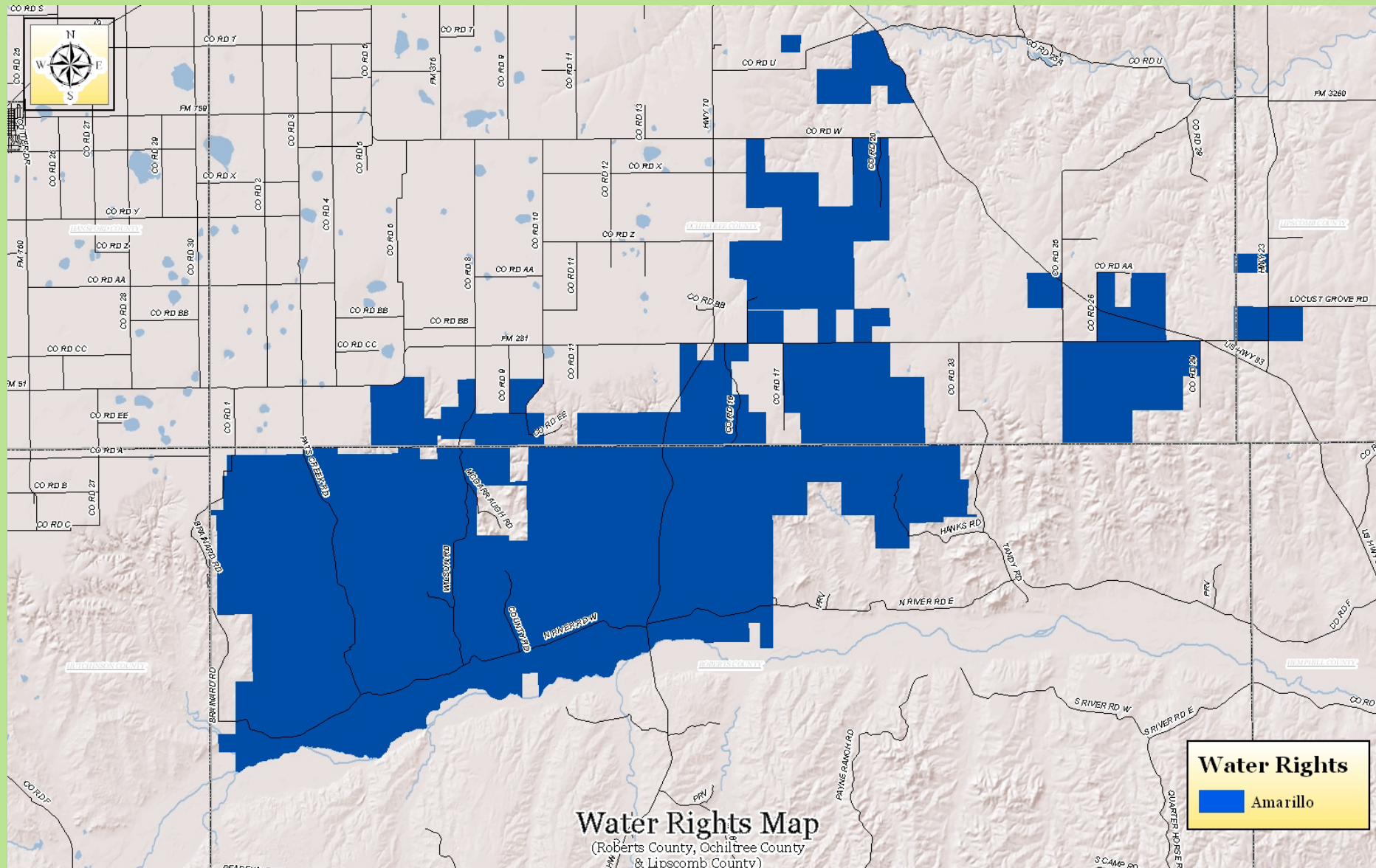
Carson County – 1950's to present

Potter County – 2011-12



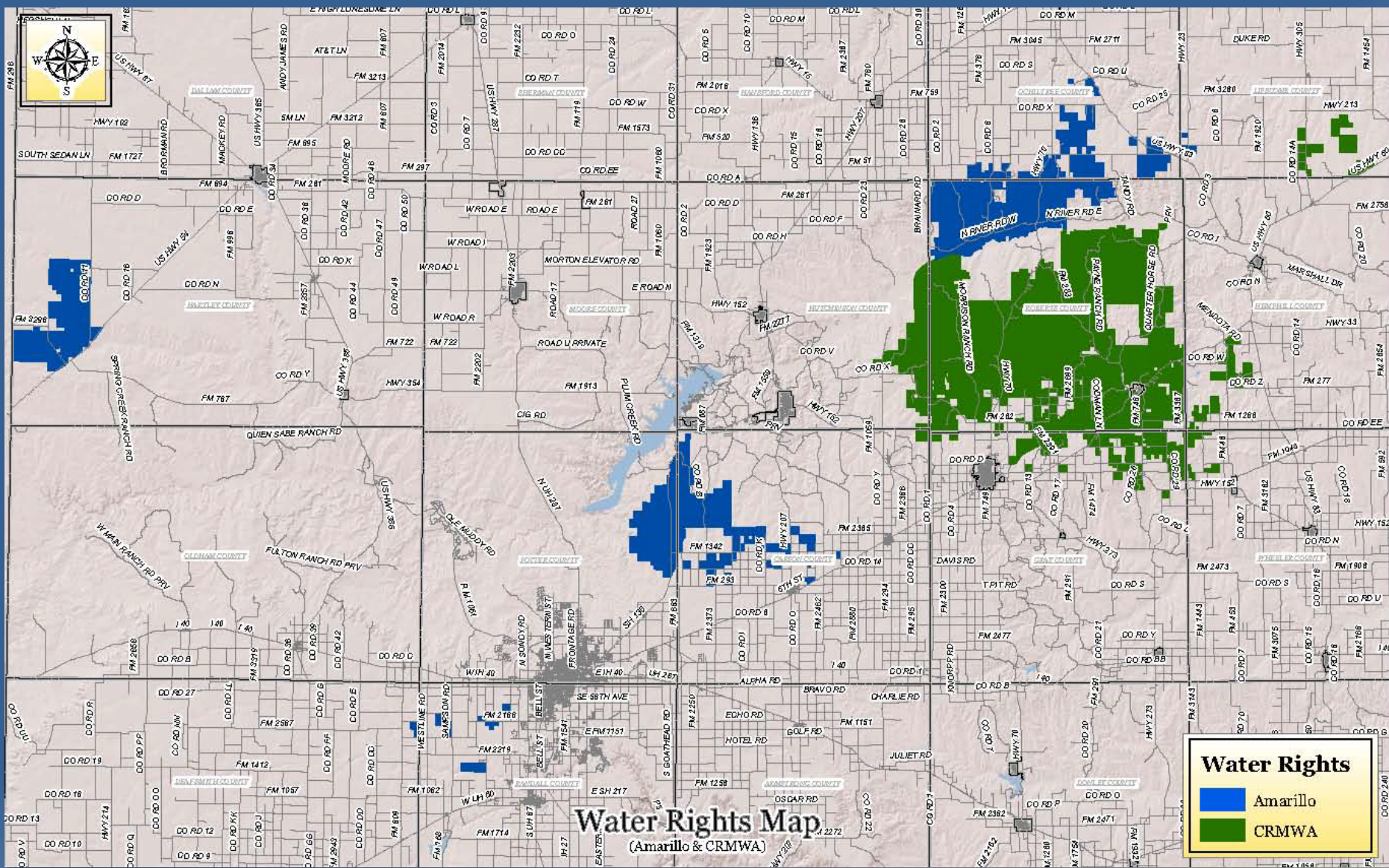
Roberts & Ochiltree Counties

No current development by Amarillo



2012 State of the Water System

City of Amarillo & CRMWA Water Rights holdings



TOP-10 Roundtable: March 14, 2012.

A Kick-off for “Every Drop Counts” campaign 2012

- Roundtable held March 14th, hosted by NWTHS.
- 26 people attended.
- All 10 entities were represented.
- Participation in the info-sharing process was excellent.
- Many good ideas and current practices presented.
- These 10 entities average 8.3 MGD daily average water usage.
 - This represents 16% of total water produced.
- The 10 entities plus the City, employ 18,900 persons.
- Most of the 10 entities already have water conservation measures in place.
- We are thinking of a TOP-20 for next year, to include AISD, CISD and Amarillo College, plus others.



Every Drop Counts.

City of Amarillo • www.amarillo.gov

2012 State of the Water System

Water System Capacity

Southwest Wellfield	63 wells	8 MGD	1927 – 1940's
Carson Co. wellfield	41 wells	35 MGD	1950's to present
Potter Co. wellfield	21 wells	20 MGD	2011-2012
		63 MGD	sub-total
CRMWA Roberts Co.		<u>26 MGD</u>	1999 to present
(40.61) % interest		89 MGD	sub-total
Lake Meredith (normal levels)		27-30 MGD	(zero allocation now)
City 500 MG Reservoir:		16 MGD additional for 30 days	
		30 MGD additional for 16 days	

Infrastructure Condition

A direct relationship to system capacity

- The following slides discuss the need for attention to the deteriorating infrastructure in the Amarillo water system.
- Most mature cities in the U.S. have an even more advanced infrastructure ageing condition.
- By comparison, Amarillo is a “young” city...but that is steadily changing. We need to fix our attention on what is “beneath our feet”, as well as what is readily seen above ground.
- The “experts” in the Water/Wastewater industry have calculated that, nationwide, some 6 trillion dollars needs to be spent on Water utility infrastructure by 2035. This is in addition to growth-related infrastructure. Amarillo must prepare to invest in the sustainability of its own utility infrastructure.

Underground Infrastructure

- **At least 60% of the underground infrastructure – pipes and fittings...is over 50 years old. Much of this is over 60 years.**
- **Some of it dates back as far as 1927.**
- **We are experiencing increasing failure rates in these pipes.**
- **We need to increase the “3 R’s” (Repair, Rehabilitate, Replace) program on these old pipes.**
- **We need to get ahead of the deterioration rate.**
- **We have almost 1,100 miles of water distribution pipe in the ground. (We also have 900 miles of sewer pipe)**
- **Eventually, not too long, we must appreciably increase the budget for the “3 R’s” program.**



Pump Stations Needing Attention

- **The City of Amarillo owns five water pumping stations that were constructed between 1927 and 1956.**
- **Four of these need to have replacement electrical switchgear, fitted with VFD's, and new, more efficient, pumping units installed within the next few years.**
- **The fourth one needs a total motor change-out, and to be retrofitted with VFD's.**
- **These projects should be accomplished within about a 10 year time-line.**
- **The total cost for all of these pump station upgrades will be \$10-15 million**
- **A broken pump in Summer is much more a problem than a planned replacement in Winter!**

Asset Management Plan

- **The Utilities Division is nearing the conclusion of A Wastewater Master Plan, which includes delivery to, and training of, our employees, an Asset Management Plan.**
- **This Plan is based on a “Risk versus Consequence” approach to prioritization of Infrastructure Rehabilitation, Repair and Replacement (3 R’s) Capital projects. We are already doing some of this work.**
- **The Plan is designed to be “proactive” rather than “reactive” in nature, and should get us “caught up” with the deterioration rate This Plan will be delivered to the City and presented to the City Commission prior to Fall of 2012.**
- **The next step is to apply the Plan to the Water infrastructure.**

The Risk vs Consequence analytical chart below illustrates the focused prioritization approach used in effective Asset Management Plans. This approach places the focus where the best results are obtained for the \$ spent.

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Severe
Almost certain	M	H	H	E	E
Likely	M	M	H	H	E
Possible	L	M	M	H	E
Unlikely	L	M	M	M	H
Rare	L	L	M	M	H

Be Water Wise



Every www.water.amarillo.gov



Thank You

Are there any questions?



Every Drop Counts.

City of Amarillo • www.amarillo.gov