## Section 7 – Existing Water Supply – Canadian River Municipal Water Authority

### Content

a. CRMWA History
b. System Delivery Capacity (plus Bailey County Well Field)
c. 2007 Water Allocation
d. Water Right Purchases & Well Field Development
e. Salt Cedar Eradication Program

### Summary

The Canadian River Municipal Water Authority (CRMWA) is a state authorized agency that was began in 1953. The member cities include: Amarillo, Borger, Brownfield, Levelland, Lamesa, Lubbock, O'Donnell, Pampa, Plainview, Slaton, and Tahoka. CRMWA has served as the primary supplier of water for Lubbock for many years.

With this item, a history of CRMWA and their projects are included for general information. Also included is information about the CRMWA system, 2007 Water Allocation, Well Field development projects, and salt cedar eradication.

CRMWA members relied on Lake Meredith for over 50 years for water supplies. With the drought and with the construction of dams in New Mexico, and the subsequent increase in size of one of those reservoirs, Lake Meredith's firm yield has dropped considerably. The exact amount of drop in yield has not yet been finalized, but it could be by half or more.

The development of the Roberts County Well Field, which Well Field began delivering water only in 2002, has saved CRMWA cities from major water shortages. While the main CRMWA aqueduct can deliver over 40,000 acre feet of water to Lubbock in the course of a year, the 2007 allocation is only 31,499 acre feet due to the drought and the loss of yield in Lake Meredith. The Roberts County Well Field, once fully developed, can deliver 26,000 acre feet annually of groundwater to the City of Lubbock. Any amount of allocation over that amount must come from Lake Meredith. If the Roberts County Well Field was not in place, Lubbock's allocation might be as low as 15,000 acre feet annually.

# Section 7 – Existing Water Supply - CRMWA

## a. CRMWA History

# CRMWA

## Canadian River Municipal Water Authority

## History

For over fifty years, the Canadian River Municipal Water Authority has worked to serve its member cities and all citizens of the Texas Panhandle and South Plains by providing a dependable and safe source of municipal and industrial water.

In 1947, through the Panhandle Water Conservation Authority and representatives of several area communities, the U.S. Bureau of Reclamation was requested by the area's Congressional delegation to determine the feasibility of furnishing a surface water supply from the Canadian River.

Representative Eugene Worley introduced in Congress H. R. 2733 to authorize the Canadian River Project, which was passed by the House on August 4, 1949. H. R. 2733 passed the Senate and was signed into law by President Harry S. Truman on December 29, 1950, becoming Public Law 898-81. Representatives of Texas, Oklahoma and New Mexico met on December 6, 1950, and signed the Canadian River Compact which was ratified by each of the three states and by Congress in 1952.

In 1952, A. A. Meredith resigned his position as City Manager of Borger to work full time on advancing the proposed Canadian River Dam Project.

Governor Allan Shivers signed Senate Bill 126 on May 27, 1953 to create the Canadian River Municipal Water Authority (CRMWA). The first meeting of the Directors selected by the member cities to serve on the Authority's Board was held at Plainview, Texas, on October 5, 1953. On November 24, 1953, 11 cities confirmed the creation of CRMWA at elections.

Member cities reached an agreement on the allocation of costs and water, and a contract was signed between CRMWA and the United States Bureau of Reclamation (USBR) on November 28, 1960. In 1962, construction of the Sanford Dam began. Construction of the aqueduct began in 1963.

On January 28, 1965, final closure of Sanford Dam was effected and storage of water in the lake began. The National Park Service was designated to manage recreation and fish

and wildlife facilities at the lake. On August 31, 1965, the lake impounded by Sanford Dam was officially designated by Congress as Lake Meredith to honor A. A. Meredith. A dedication ceremony for Sanford Dam and Lake Meredith was held on November 1, 1966. The final joint of pipe for the 322-mile Aqueduct system was laid on November 2, 1966, south of Lubbock.

In October of 1967, John C. Williams was named General Manager of CRMWA, effective July 1, 1968. On April 1, 1968, normal deliveries of water began, and operation and maintenance of the project was transferred to CRMWA on July 1.

In 1971, salt springs were located downstream from Ute Dam, near Logan, New Mexico, and a Federal study of brine inflows was requested. In 1977, the USBR reported finding a shallow brine aquifer near Logan, New Mexico. A report by the USBR in 1979 indicated that the saline inflow to the Canadian River could be controlled by pumping from wells. This eventually led to congressional authorization of the Lake Meredith Salinity Control Project, which was placed in operation in September of 2001.

A grant from the Texas Water Development Board for an Alternate Water Supply Study was approved in 1992. In 1994, the CRMWA Board of Directors approved the purchase of 42,765 acres of water rights, pending approval of the member cities. On August 13, 1996, revenue bonds were sold and the water rights purchase was closed. Bids for a Groundwater Supply Project were taken in 1999. On March 22, 2000, a groundbreaking ceremony was held and the Directors unveiled a plaque dedicating the project and naming the facilities The John C. Williams Aqueduct and Wellfield. The project was placed in operation in December of 2001.

On May 25, 1999, the debt to the USBR for construction of the Canadian River Project facilities was paid and CRMWA received title to the aqueduct system.

In November of 2001, John Williams retired, and the CRMWA Board selected Kent Satterwhite as the current General Manager and Secretary/Treasurer.

A Resolution was adopted in January of 2002, establishing the firm yield of Lake Meredith as 76,000 acre-feet per year, with another 40,000 acre-feet normally available from the Groundwater Supply Project.

The Canadian River Municipal Water Authority celebrated its 50th Anniversary in October of 2003.

# CRMWA

## CANADIAN RIVER MUNICIPAL WATER AUTHORITY

### SANFORD DAM

HOME
NEWS
PROJECTS
LAKE MEREDITH
SANFORD DAM
LINKS
ABOUT US

Sanford Dam is a large zoned earthen dam. It is 198' high and 6,380' long. It 15,000,000 cu.yds. of earth plus about 1,000,000 cu.yds. of rip rap. The Dam w designed and built by the Bureau of Reclamation. Construction was completed Sanford Dam impounds Lake Meredith. It is located on the Canadian River 8 m Borger, Texas, and 37 miles northeast of Amarillo, Texas.

Small Test Release from the Flood Control Outlet Works at Sanford Dam

(Flood Control on Right and Spillway on Left)

For more history and statistics of the Sanford Dam, visit the following:

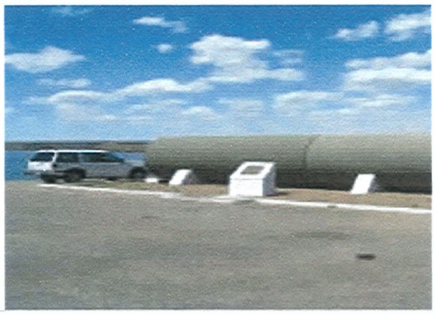
CRMWA History

Bureau of Reclamation

CONTACT US @: PO Box 9, Sanford Texas 79078 Phone (806) 865-3325 Fax (806) 865-3314 or E-mail

# CRMWA

## Canadian River Municipal Water Authority



### AQUEDUCT SYSTEM

HOME
NEWS
PROJECTS
LAKE MEREDITH
SANFORD DAM
LINKS
ABOUT US

From Lake Meredith, an aqueduct system transports water to the eleven me of the Authority. Its total length of 322 miles makes it one of the major aquec United States. Mostly of concrete pipe, in diameters of 96 inches down to 8 aqueduct can deliver up to 118 million gallons daily to the cities. The Mair extends from the Lake south through Amarillo and Lubbock to Lamesa. Fou plants lift the water about 800 feet to reach Amarillo. From there the water flow through the rest of the Main Aqueduct.

One branch line called the East Aqueduct serves Borger and Pampa with a c of gravity and pumped flow. A second branch, the Southwest Aqueduct, goes Lubbock to Levelland and then south to Brownfield. Pumping is required from Levelland, and the water flows by gravity from Levelland to Brownfield.

Regulating reservoirs located at Amarillo, Lubbock, and Borger allow the cities water even when the pumping plants are shut off. Cities are responsible for th of the water. Amarillo, Borger, Pampa, and Plainview have individual treatmer joint plant operated by Lubbock treats all of the water for the seven southern cit

Since beginning operation in 1968, the Authority has supplied up to 70 percent water used by the member cities. Each year between 72,000 and 75,000 acre- 24 billion gallons) of water is moved from Lake Meredith to the cities, formi resource for the 450,000 citizens of the eleven cities.

**Pumping Plant 1** (5 units @ 1, each)

82,000 gpm (gallons per minute capacity

For more on a project in 1998 tc flow capacity of the aqueduct sy Central System Pig Project.

# CRMWA

## Canadian River Municipal Water Authority

### JOHN C. WILLIAMS AQUEDUCT AND WELLFIELD

HOME
NEWS
PROJECTS
LAKE MEREDITH
SANFORD DAM
LINKS
ABOUT US

**Purpose:** To increase the quantity and quality of water available to the member cities of the A

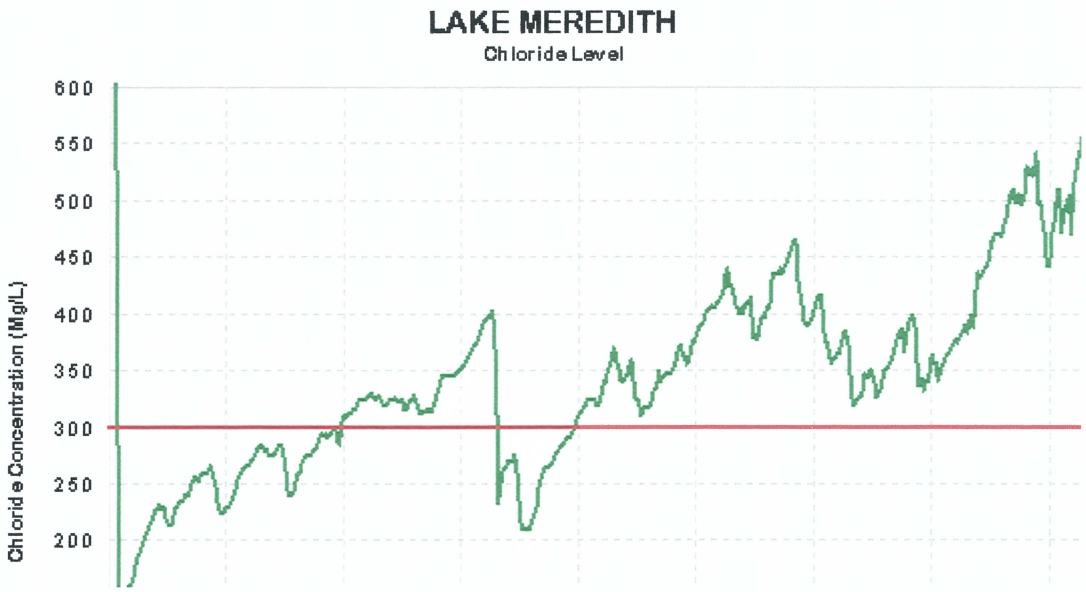
**Description:** The Conjunctive Use Groundwater Supply Project developed by the Authority c field of 27 wells, expandable at a later date to as many as 45 wells, located in western Roberts Hutchinson counties of the Texas Panhandle. A blended mixture of well water and lake water is delivered to ten of the cities, with Borger receiving its well water directly at its clearwell.

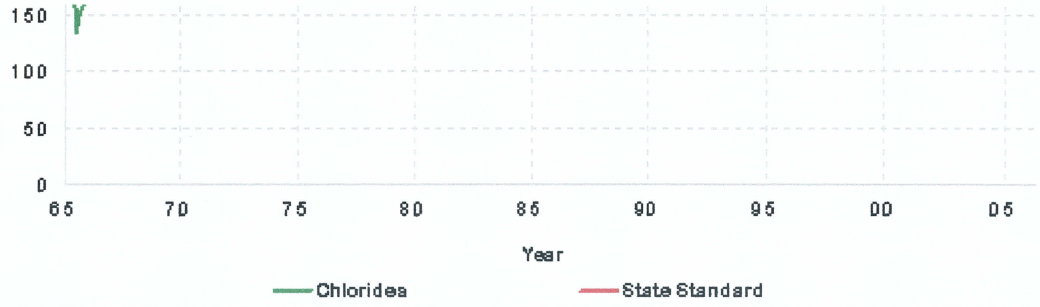
Water rights for the project were acquired on 42,765 acres of rangeland. Depending on the qua quality of water available in Lake Meredith, which has varied over the last 10 years from around milligrams per liter of chlorides, 27,000 to 30,000 acre-feet of water per year will be pumped fro The permit obtained from the Panhandle Groundwater Conservation District #3 allows pumping 40,000 acre-feet per year in normal circumstances, and up to 50,000 acre-feet per year in unus emergency conditions.

The conveyance facilities which deliver the well water to the point where it is mixed with water fi Meredith consist of approximately 36 miles of 54" pipe and two pump stations. The intersection and new aqueducts is located about five miles south of Fritch in Carson County. The collection the well field consists of nearly 35 miles of pipe ranging in size from 8" to 30". There are two bc stations in this system which deliver the water to the first storage tank.

The John C. Williams Aqueduct and Wellfield was placed in operation in December of 2001.

**The following graph shows the trend chlorides in Lake Meredith have taken since compl Sanford Dam.**






**The other objective of this project is to increase water quantity. The following graph sho historical storage in Lake Meredith.**

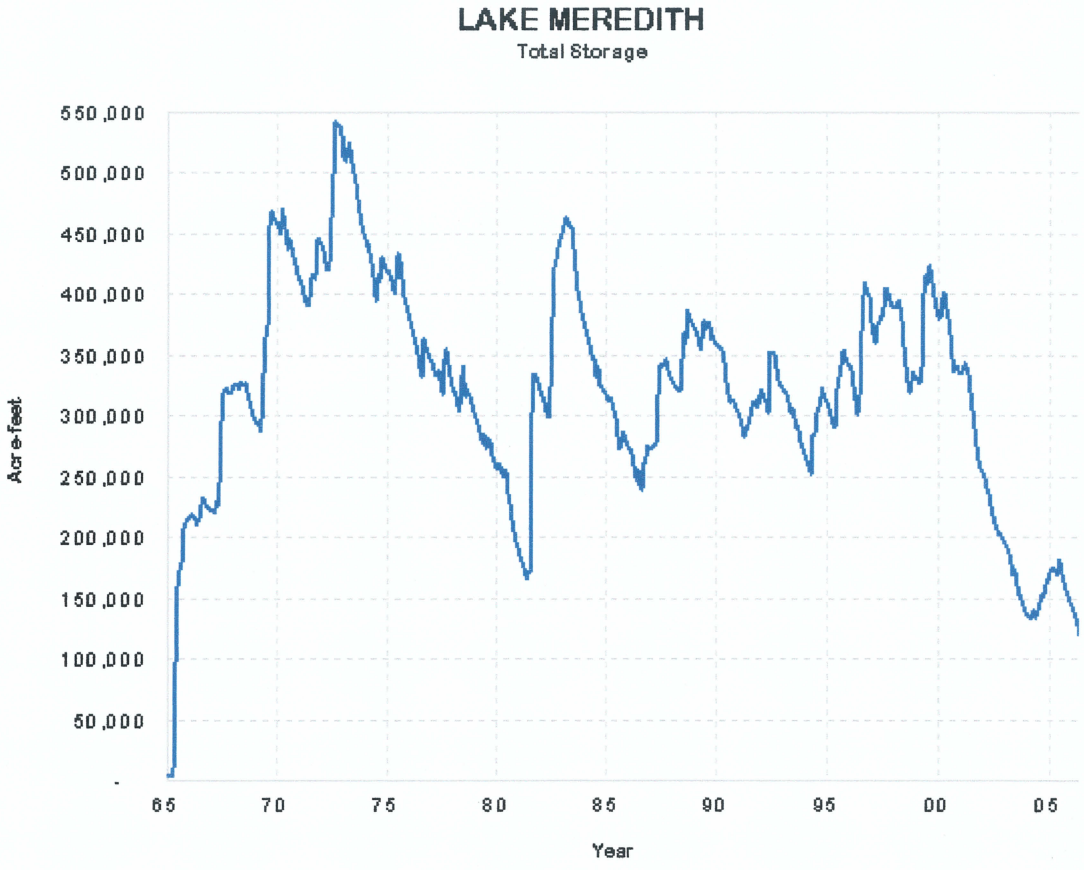
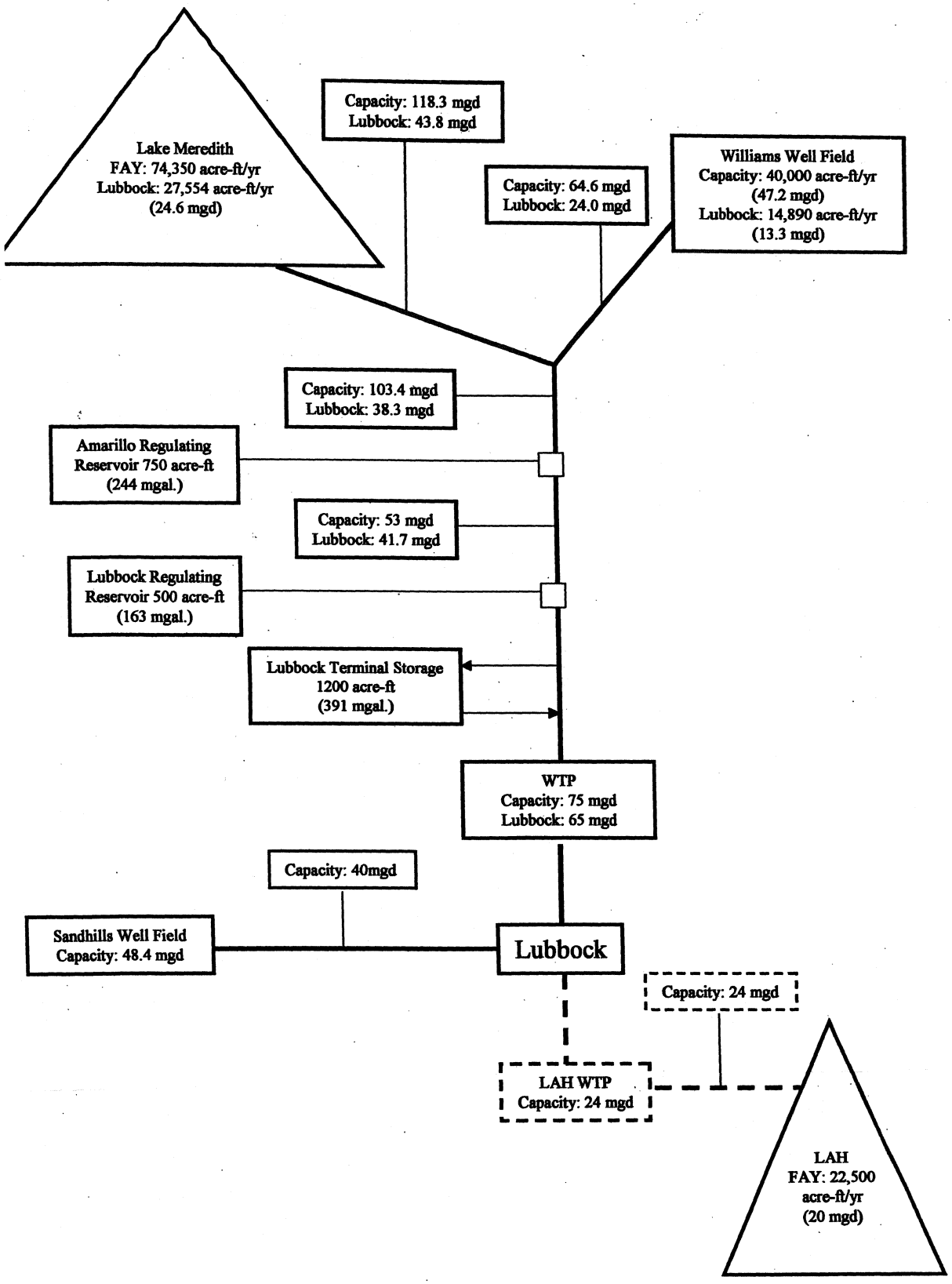



**Photo at left shows the step dr test of our first prototype prod This well is capable of pumpin gpm of high quality water!**

# Section 7 – Existing Water Supply - CRMWA

## b. CRMWA System Capacity




Lubbock Water Supply
Schematic
March 2005

# Section 7 – Existing Water Supply - CRMWA

## c. CRMWA 2007 Water Allocation

# CANADIAN RIVER MUNICIPAL WATER AUTHORITY

P.O. BOX 9, SANFORD, TEXAS 79078
PHONE 806 865-3325 / FAX 806 865-3314



November 8, 2006

Lee Ann Dumbauld, City Manager
City of Lubbock
P.O. Box 2000
Lubbock, Texas 79457

Dear Ms. Dumbauld:

As a part of the continuing effort to balance resources from Lake Meredith and the Williams Wellfield, the CRMWA Board of Directors established allocations for 2007 at 85,000 acre feet.

Your city's share of the supply is 31,499.3 acre feet during the 2007 calendar year.

The attached tabulation is based on your average usage from recent years. It includes a recommended delivery schedule that should allow your City enough CRMWA water available throughout the year so that you will be able to supplement with your reserves. Hopefully, this schedule will also satisfy your peak demand periods.

We realize weather patterns will not follow recent years exactly, but hopefully they will be close enough for us to stay on track throughout the year. Please remember, these are only guidelines developed to assist you. You can certainly use your allocation any way you see fit.

If you have any questions regarding this or any other issue, please do not hesitate to contact Chad Pernell, or myself.

Sincerely,

Kent Satterwhite

Kent Satterwhite, P.E.
General Manager

Enclosures

cc: Quincy White, Assistant City Manager
Tom Adams, Director of Public Utilities
Bruce Blalack, Water Distribution Superintendent
Jim Collins, CRMWA Director
Bobby Rodgers, CRMWA Director

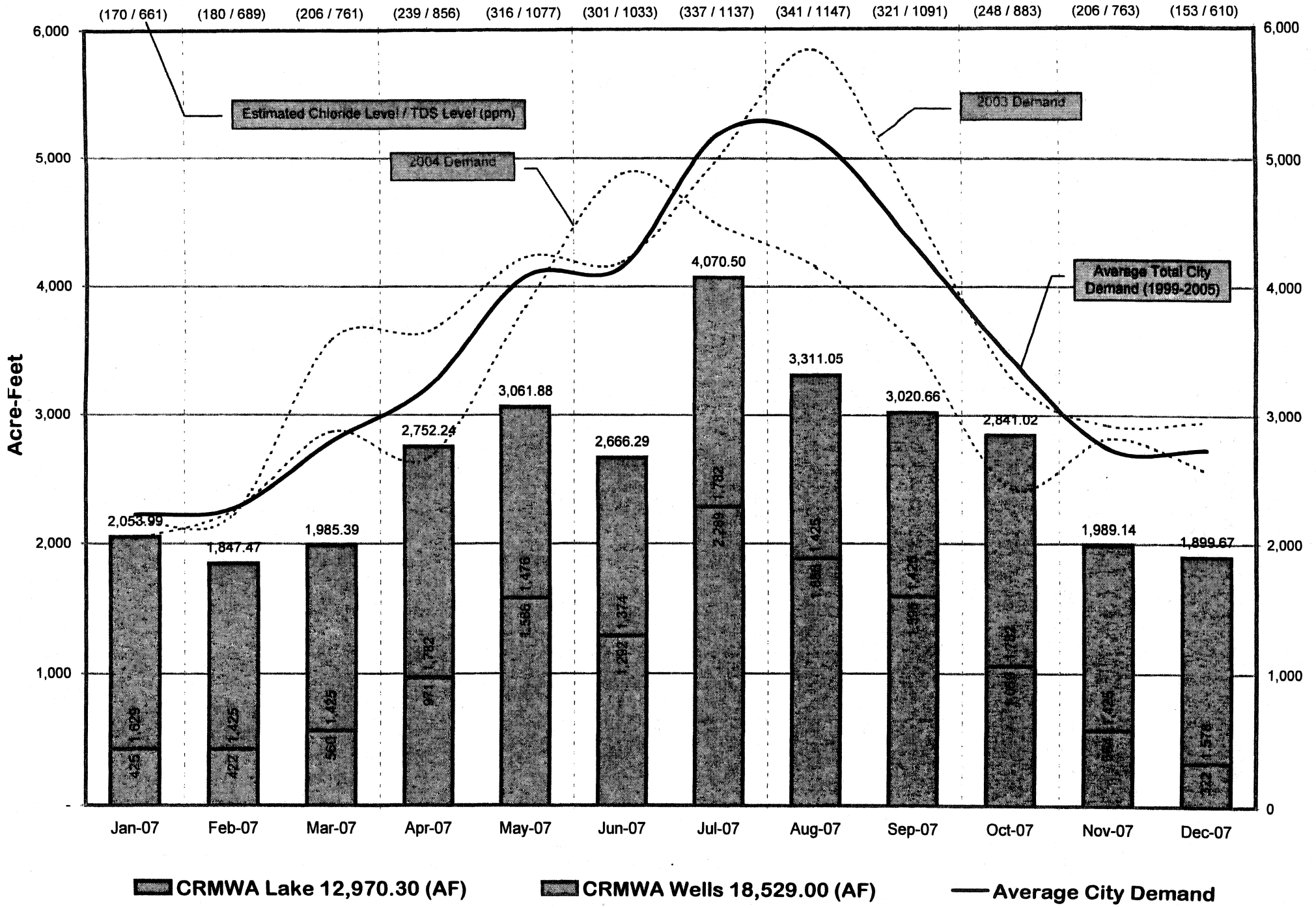
# City of Lubbock
## 2007 Deliveries from CRMWA

| | CRMWA Wells (AF) | CRMWA Lake (AF) | [1]CRMWA Total (AF) | Avg MGD | Estimated Blend % Wells | Estimated Blend % Lake | Water Quality Chloride Level | Water Quality TDS Level |
|---|---|---|---|---|---|---|---|---|
| *Allocation* | *37.058%* | *37.058%* | | | | | | |
| January | 1,628.92 | 425.06 | **2,053.99** | 20.92 | 79% | 21% | 170 | 661 |
| February | 1,425.31 | 422.16 | **1,847.47** | 21.50 | 77% | 23% | 180 | 689 |
| March | 1,425.31 | 560.08 | **1,985.39** | 23.10 | 72% | 28% | 206 | 761 |
| April | 1,781.63 | 970.61 | **2,752.24** | 25.62 | 65% | 35% | 239 | 856 |
| May | 1,476.21 | 1,585.67 | **3,061.88** | 34.40 | 48% | 52% | 316 | 1,077 |
| June | 1,374.40 | 1,291.89 | **2,666.29** | 32.18 | 52% | 48% | 301 | 1,033 |
| July | 1,781.63 | 2,288.86 | **4,070.50** | 37.90 | 44% | 56% | 337 | 1,137 |
| August | 1,425.31 | 1,885.74 | **3,311.05** | 38.53 | 43% | 57% | 341 | 1,147 |
| September | 1,425.31 | 1,595.35 | **3,020.66** | 35.15 | 47% | 53% | 321 | 1,091 |
| October | 1,781.63 | 1,059.39 | **2,841.02** | 26.45 | 63% | 37% | 248 | 883 |
| November | 1,425.31 | 563.83 | **1,989.14** | 23.15 | 72% | 28% | 206 | 763 |
| December | 1,578.02 | 321.66 | **1,899.67** | 19.97 | 83% | 17% | 153 | 610 |
| | 18,529.00 | 12,970.30 | **31,499.30** | | 59% | 41% | | |

[1]City allocation based on achieving total CRMWA deliveries of 85,000 acre-feet (35,000 AF from Lake, 50,000 AF from Wellfield). Monthly totals are estimated using CRMWA billing months in which meters are read the last Monday of each month.

# City of Lubbock

## 2007 Estimated CRMWA Deliveries



# Item 11 – Establish Water Allocation for 2007

It is again time to consider allocations for the upcoming year. I have enclosed three model runs to help address future allocation questions. We based these models on repeating the average of our 3 worst years (01, 02, & 03). We feel this is a very conservative approach. We started with the current storage levels in the lake and used various allocations to see what happens to lake storage under the different scenarios. The attached tabulations outline the allocation assumptions for the three different scenarios. Please keep in mind the allocations for 2006 total 90,000 acre-feet.

**Drought of Record**

On each of the three attached model runs, we used 100%, 75%, 50%, 25%, and 0% of the 2001 thru 2003 average inflows. Those different percentages are illustrated by the various dotted lines on the graph. Which of those percentages to use is a judgment call. Historically, we have used 100% of the drought of record, but the recent drought has shown us that may not be conservative enough. Repeating the drought of record, in succession plus starting at the level reached after that drought, adds another level of conservatism.

**Usable Storage**

Another issue to consider is at what point do we run out of usable water in the lake. The attached graphs have three lines near the bottom.

- The bottom line is the original stream bed elevation. This would represent the lake being completely dry. It is not realistic to think we could pump to that level because of physical constraints.
- The next line represents the bottom of the lowest gate on our intake tower. We have studied this issue and think we can pump at least to that level, but it will take some changes and a temporary pump(s) to lift the water to a level in the tower that will not cause damage to the pumping units at Pumping Plant 1.
- The third line up represents the bottom of the "usable" storage level. This is the level we have used historically to show available water. We know we can go below this level, but it may cause minor issues with the Canadian River Compact on how we calculate "usable" storage and the amount we could store if the lake was full. This would be an insignificant change if the lake was full, but it is certainly not insignificant at the level we are at today.

We think we should use Usable Storage as a baseline for determining allocations, while keeping in mind that pumping to the "bottom of lowest gate" is possible.

**Conclusion**

We are much more conservative in our approach today than in the past, partly because there is less time to respond to more severe conditions at the current lake level, and also

because we have seen that the drought of record can quickly be replaced. We know the "Drought of Record" (2001-2003) can happen, as represented by the red dotted line on the graphs, and we think we know the 0-inflow line won't happen, but everything in between is a possibility. The big question is how conservative to be in our assumptions.

CRMWA Staff is preliminarily recommending an allocation of 80k acre-feet for 2007 (Option C). We want to receive input from our Member Cities before finalizing that recommendation.

**Scenario A**

| Year | Total Allocation (1000 AF) | Lake Allocation (1000 AF) | Wellfield Allocation (1000 AF) |
|---|---|---|---|
| 2007 | 90 | 40 | 50 |
| 2008 | 80 | 25 | 55 |
| 2009 | 75 | 6 | 69 |
| 2010 | 75 | 6 | 69 |
| 2011 | 75 | 6 | 69 |

**Scenario B**

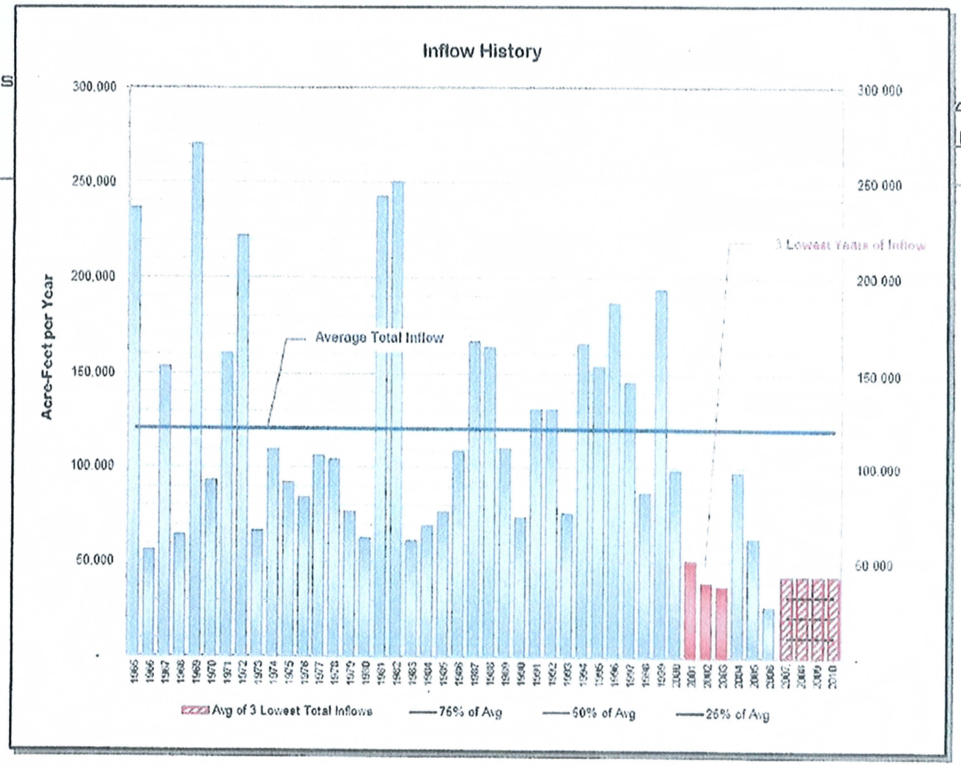
| Year | Total Allocation (1000 AF) | Lake Allocation (1000 AF) | Wellfield Allocation (1000 AF) |
|---|---|---|---|
| 2007 | 85 | 35 | 50 |
| 2008 | 80 | 25 | 55 |
| 2009 | 75 | 6 | 69 |
| 2010 | 75 | 6 | 69 |
| 2011 | 75 | 6 | 69 |

**Scenario C**

| Year | Total Allocation (1000 AF) | Lake Allocation (1000 AF) | Wellfield Allocation (1000 AF) |
|---|---|---|---|
| 2007 | 80 | 30 | 50 |
| 2008 | 75 | 20 | 55 |
| 2009 | 75 | 6 | 69 |
| 2010 | 75 | 6 | 69 |
| 2011 | 75 | 6 | 69 |

# LAKE MEREDITH - Drought Planning

Using Historical Climatological Data & Assumptions




Usable Storage & Usage (Acre-Feet)

350,000
325,000
300,000
275,000
250,000
225,000
200,000
175,000
150,000
125,000
100,000
75,000
50,000
25,000
-
(25,000)
(50,000)
(75,000)

Approximate Lake Depth

94 FT
92 FT
90 FT
88 FT
86 FT
83 FT
80 FT
77 FT
74 FT
70 FT
66 FT
62 FT
57 FT
52 FT
47 FT
37 FT
0 FT

Actual Usable-Storage

Projected Allocations

90,000
80,000
75,000
75,000
75,000
50,000
55,000
69,000
69,000
69,000
40,000
25,000
6,000
6,000
6,000

Well

Lake

Depth - 55.00 ft

0 "Usable"

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

Bottom of Lowest Gate

Stream Bed

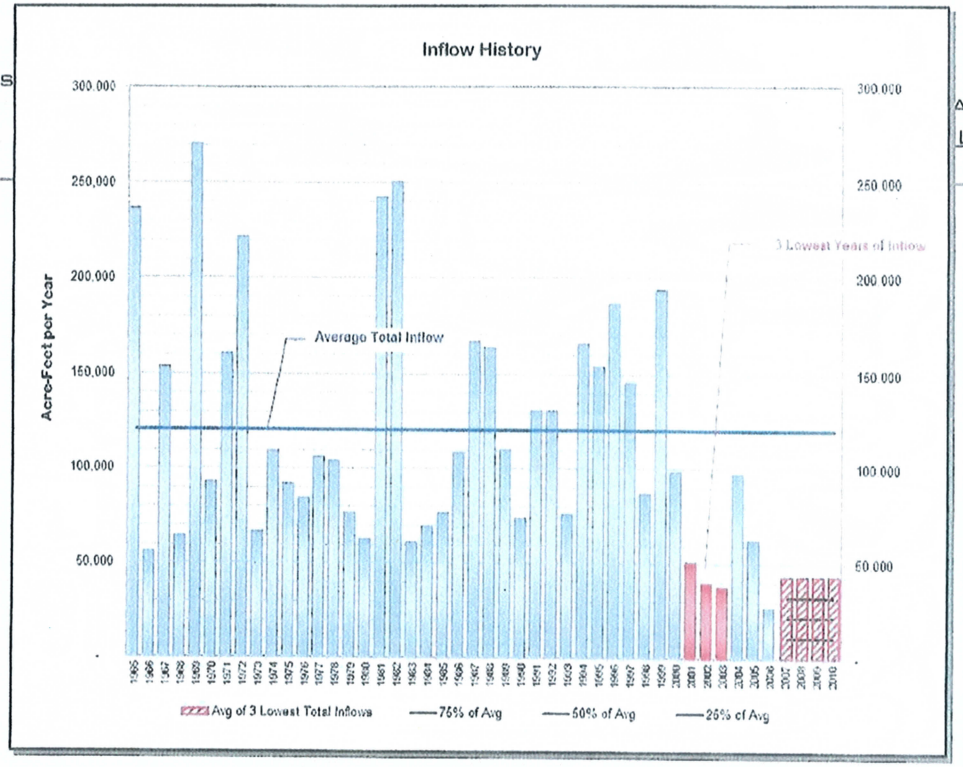
0 Inflow
25% of 3 Low Yr AVG
50% of 3 Low Yr AVG
75% of 3 Low Yr AVG
3 Yr AVG of Lowest Inflows

Note: Usable Storage is a term to describe the water volume above 47 feet, though approx. 35,000 acre-feet exists between depths of 37 feet to 47 feet that can be withdrawn for use.

A

# LAKE MEREDITH - Drought Planning

Using Historical Climatological Data & Assumptions







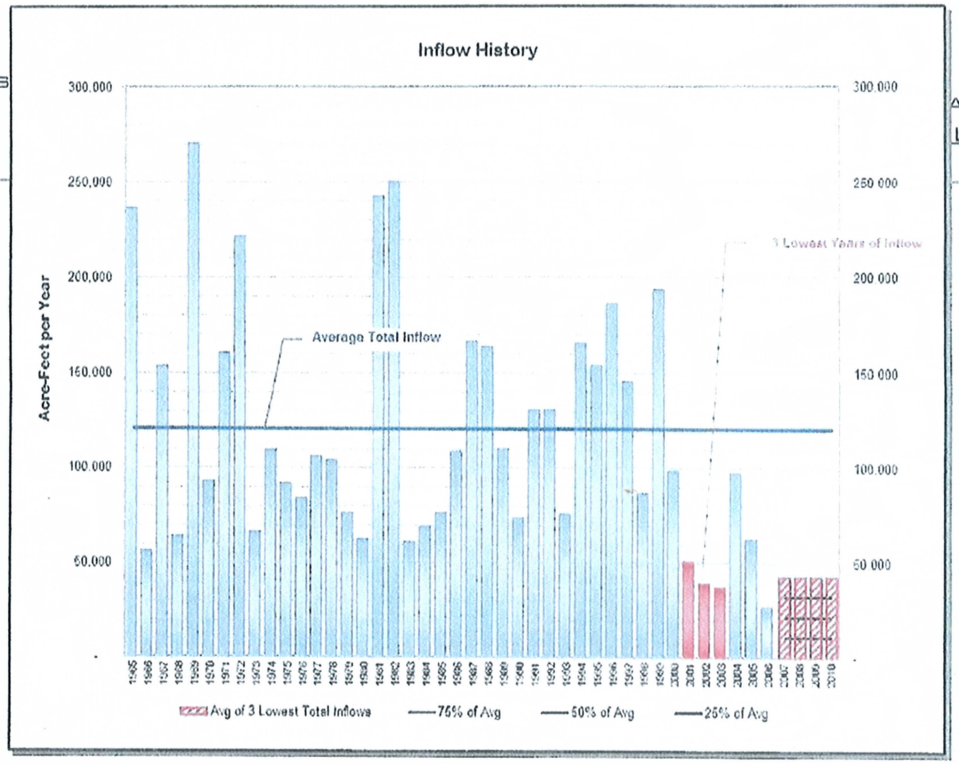
Note: Usable Storage is a term to describe the water volume above 47 feet, though approx. 35,000 acre-feet exists between depths of 37 feet to 47 feet that can be withdrawn for use.

B

- 0 Inflow
- 25% of 3 Low Yr AVG
- 50% of 3 Low Yr AVG
- 75% of 3 Low Yr AVG
- 3 Yr AVG of Lowest Inflows

# LAKE MEREDITH - Drought Planning

Using Historical Climatological Data & Assumptions







Note: Usable Storage is a term to describe the water volume above 47 feet, though approx. 35,000 acre-feet exists between depths of 37 feet to 47 feet that can be withdrawn for use.

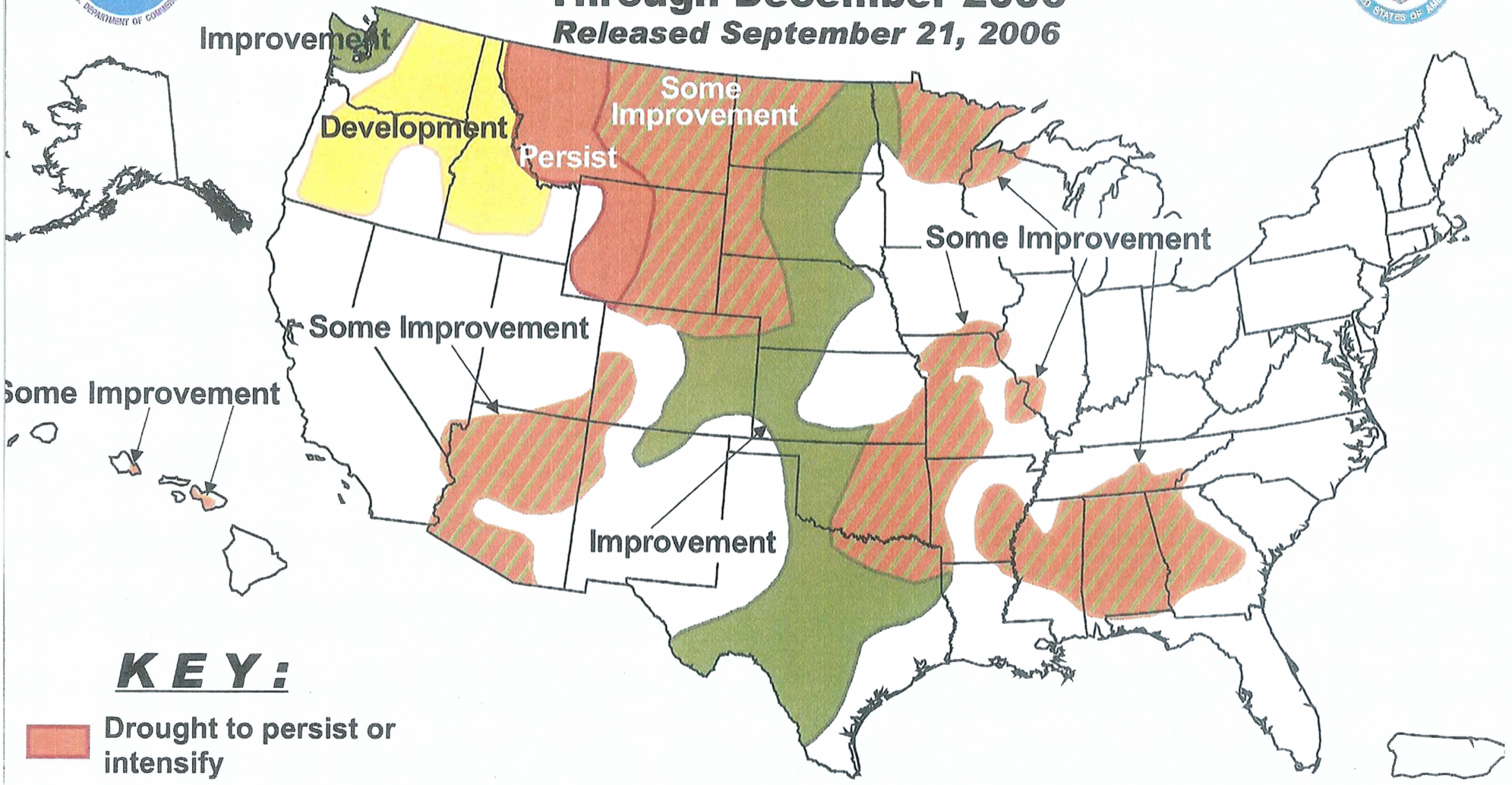
C

- 0 Inflow
- 25% of 3 Low Yr AVG
- 50% of 3 Low Yr AVG
- 75% of 3 Low Yr AVG
- 3 Yr AVG of Lowest Inflows

# U.S. Seasonal Drought Outlook

## Through December 2006

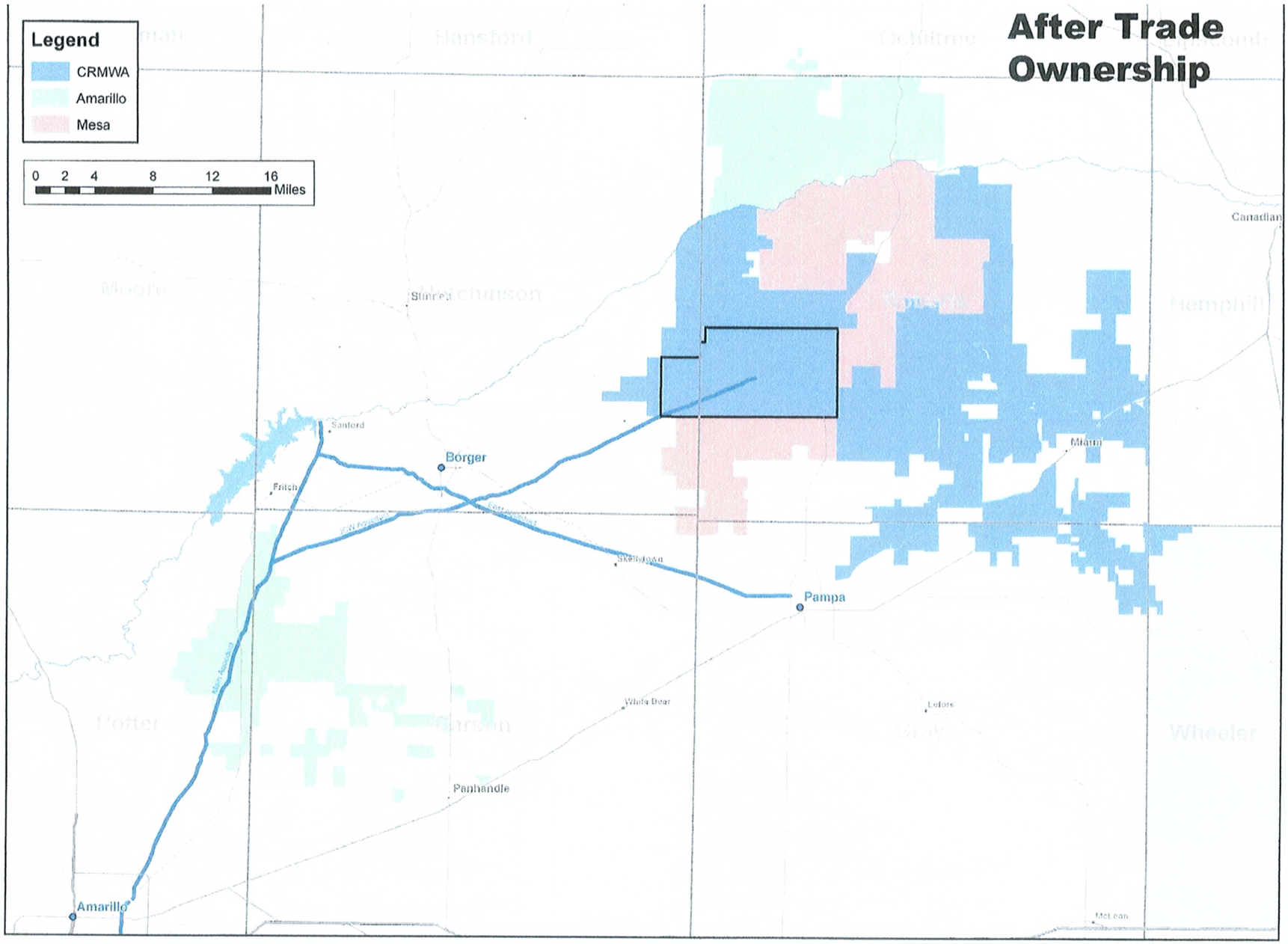
***Released September 21, 2006***




**KEY:**

- Drought to persist or intensify
- Drought ongoing, some improvement
- Drought likely to improve, impacts ease
- Drought development likely

Depicts general, large-scale trends based on subjectively derived probabilities guided by numerous indicators, including short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more that a few days in advance, so use caution if using this outlook for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4). For weekly drought updates, see the latest Drought Monitor map and text. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought


After Trade Ownership
Legend
CRMWA
Amarillo
Mesa
0 2 4 8 12 16
Miles
Hansford
Ochiltree
Lipscomb
Moore
Hutchinson
Roberts
Hemphill
Canadian
Stinnett
Sanford
Borger
Fritch
Miami
Skellytown
Pampa
Potter
Carson
White Deer
Lefors
Gray
Wheeler
Panhandle
Amarillo
McLean

# Section 7 – Existing Water Supply - CRMWA

## d. CRMWA Water Right Purchases and Well Field Development Projects

## Item 11 – Water Rights / Infrastructure

The 2005 Bond Issue was in the amount of $50 M. This included $20 M for infrastructure and $30 M for water rights. The 2006 Bond Issue was $50 M entirely for water rights. We have spent or committed about $74.8 M for water rights not including testing and legal etc. After we figure interest earned and estimate future interest, we should have around $25.6 M remaining.

The wellfield expansion will be done in two phases. We consider Phase I to be the original John C. Williams Wellfield. Phase II is the addition of wells in that wellfield which was expected to add up to 10,000 AF/yr in 2007. There were several sites considered but the two most cost effective (gpm/$) sites would add around 7,200 AF/yr and are the only ones recommended by staff in light of budget constraints. Phase III is a separate wellfield and is expected to increase the TOTAL well production to equal the capacity of the 54" wellfield pipeline.

Our infrastructure needs estimate was done in 2004 and was based on "recent" projects. Since these projects were completed, there have been major increases in steel prices and construction costs (we paid $125/ft for installed 54" in '99 and today it is $350/ft!). Another major cost increase is moving Phase III from the impacted area of Phase I to another area. This was made possible by the Amarillo trade. The $20 M that was set aside for infrastructure would be very marginal in allowing us to move Phase III away from our current production and still get the capacity needed. We recommend the completion of all water right transactions currently pending (as listed in Item 9) and hold off on any further water right contracts until after construction of Phase III is complete.

As stated above, we currently have about $25.6 M available. We recommend allocating all of that $25.6 M for infrastructure to accomplish as many of these goals as possible. There will be contingency money set aside for construction uncertainties and if that is available at the end of the projects, we could then complete our water right purchases.

The following is a list of goals from CRMWA staff's perspective:

1. 69,000 AF/yr "dependable" production from all wells (Phases I, II, & III) to equal capacity of our existing 54" wellfield pipeline.

2. 7,000 AF to 10,000 AF additional well capacity (Phase II) during 2007. This will help meet short term needs.

3. Separate wellfield (Phase III) to reduce impact on John C. Williams Wellfield (reduce drawdown, extend life and increase recharge). This goal has been added with the prospect of the Amarillo trade and has increased costs but is a MUCH better option.

*(Continued on back of sheet)*

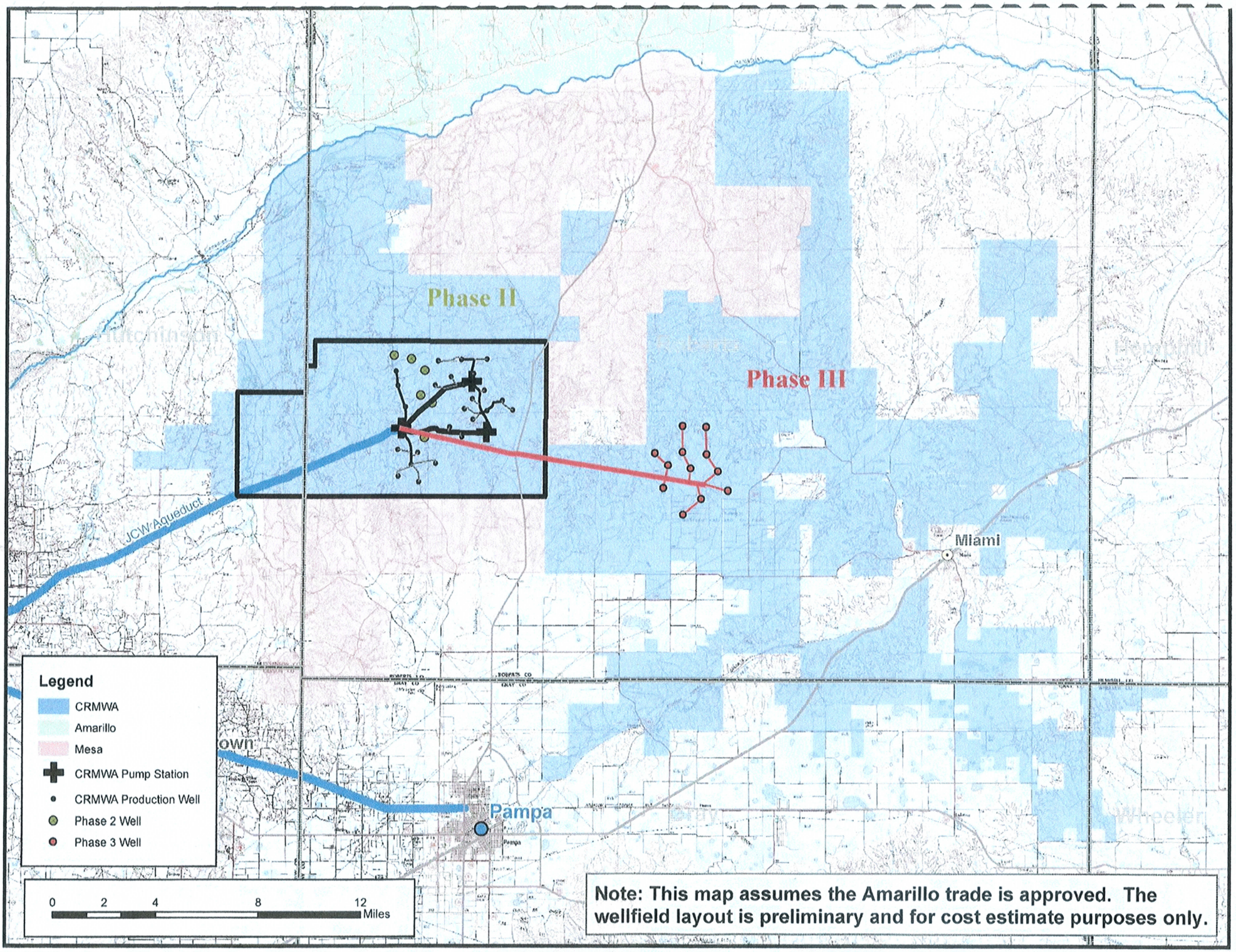
4. Load Factor for wells: 90% (76,000 AF total capacity) to 70% (98,000 AF total capacity). This allows for the rotation of wells and down time.

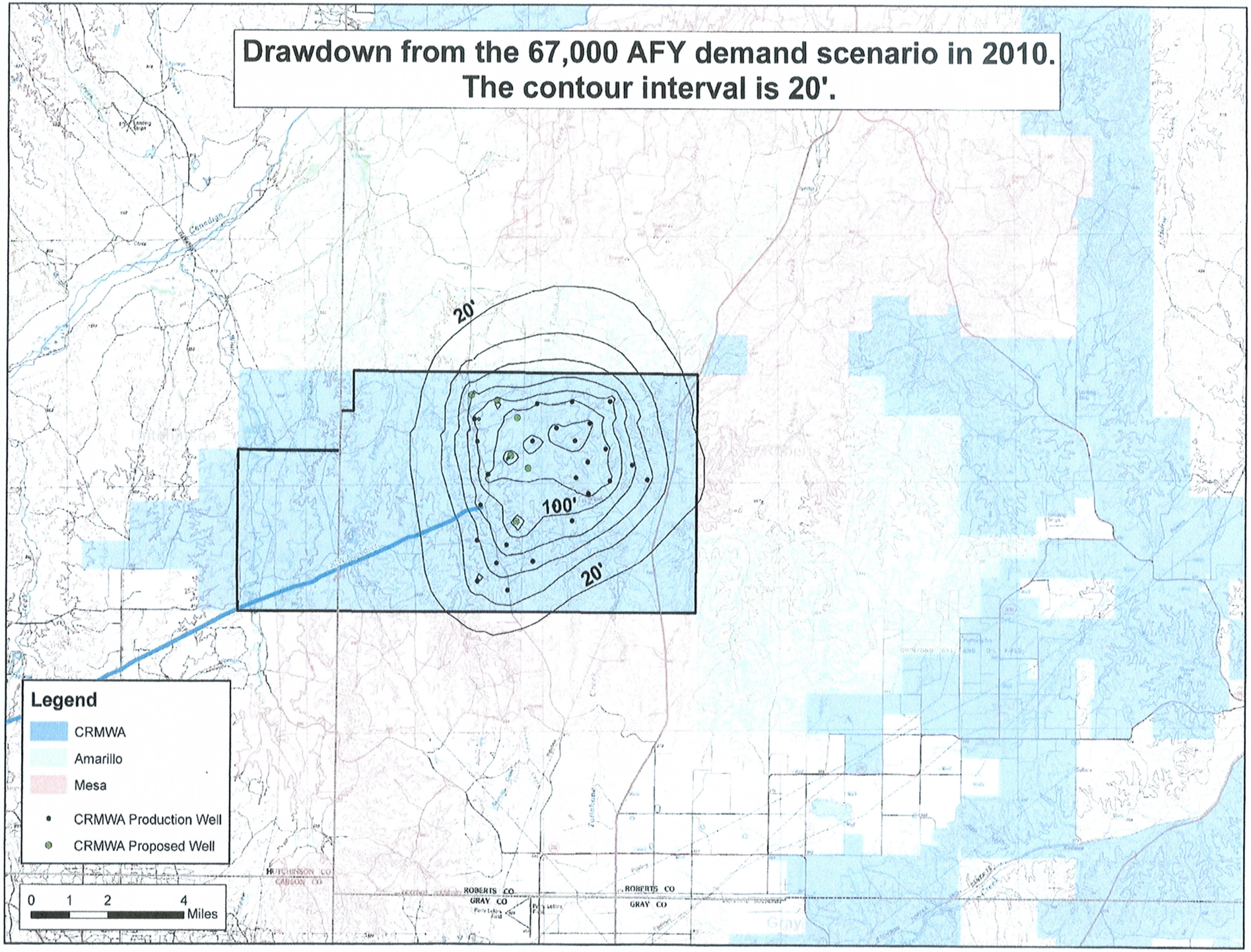
The following 3 goals cannot be met with our current funding:

5. Extend 54" pipeline for future development to the east (would cost an additional $15.4 M over 36").

6. Stand-by pumps for PS-21 and PS-22 on the John C. Williams Pipeline pump stations ($2.7 M).

7. Underground distribution power to reduced lightning damage issues ($\$^1/_2$ M).


Phase II
Phase III
JCW Aqueduct
Miami
Pampa
Legend
CRMWA
Amarillo
Mesa
CRMWA Pump Station
CRMWA Production Well
Phase 2 Well
Phase 3 Well
0 2 4 8 12
Miles
Note: This map assumes the Amarillo trade is approved. The wellfield layout is preliminary and for cost estimate purposes only.


Drawdown from the 67,000 AFY demand scenario in 2010.
The contour interval is 20'.
20'
100'
20'
Legend
CRMWA
Amarillo
Mesa
CRMWA Production Well
CRMWA Proposed Well
0 1 2 4 Miles
ROBERTS CO
GRAY CO
ROBERTS CO
GRAY CO

# OPINION OF PROBABLE COST

**Canadian River Municipal Water Authority**
**Proposed Well Field Expansion -- Bell-Moody Unit**
**Overhead Electrical**

1/16/2007

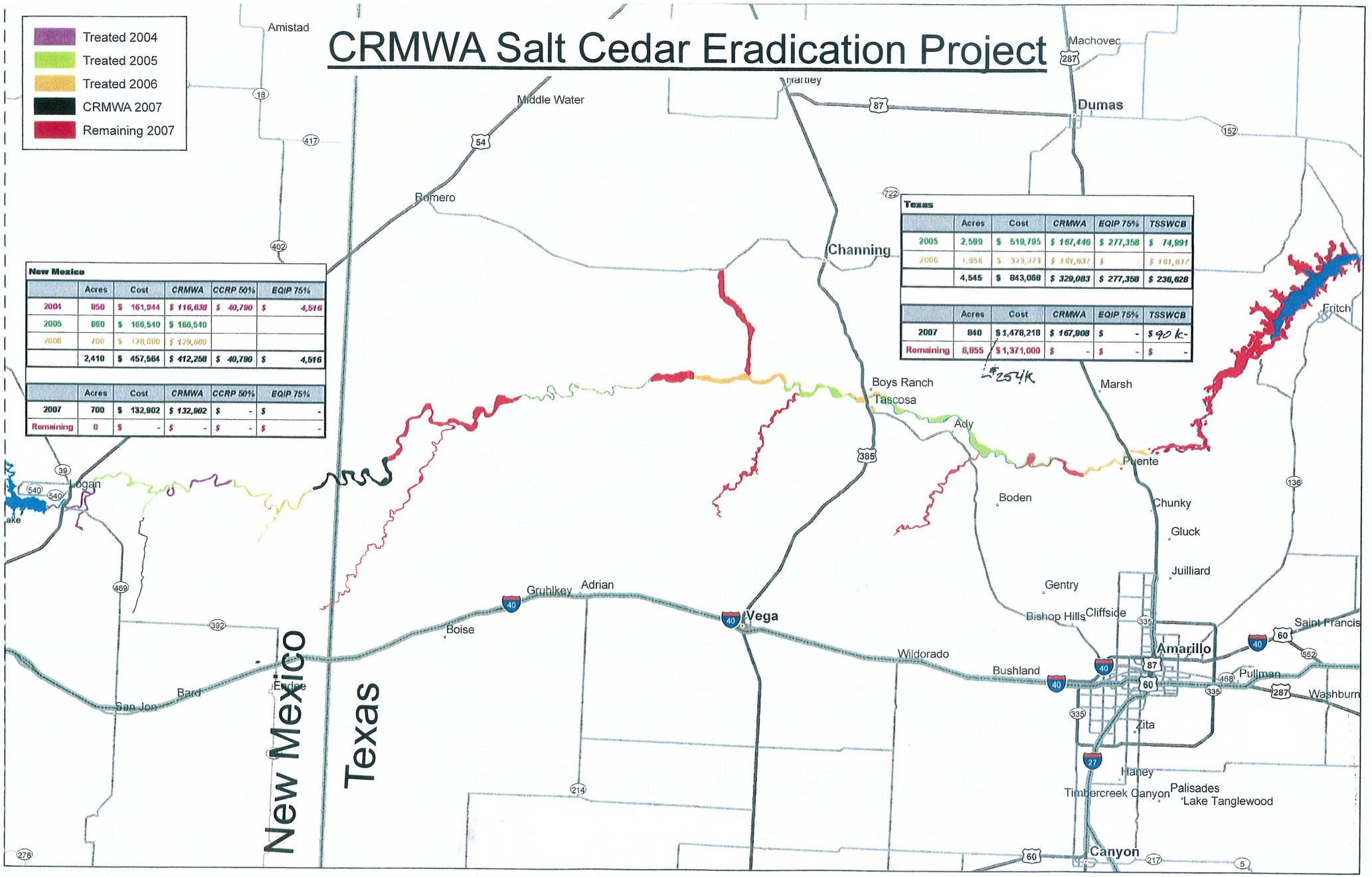
PSC

**Parkhill, Smith, & Cooper, inc.**
**4222 85th Street**
**Lubbock, Texas 79423**

| Item No. | Description | Unit | Quantity | Unit Price | Extension |
|---|---|---|---|---|---|
| | **Wells AEL-27-29,32: Wells AELE 13, 15-21** | | | | |
| | **24,600 AFY** | | | | |
| 1 | Well | EA | 12 | $250,000.00 | $3,000,000 |
| 2 | Pump | EA | 12 | $164,000.00 | $1,968,000 |
| 3 | Seal Block Enclosure | EA | 12 | $3,000.00 | $36,000 |
| 4 | Valves and Header Piping | EA | 12 | $10,000.00 | $120,000 |
| 5 | Meter and Control House | EA | 12 | $30,000.00 | $360,000 |
| 6 | Well Pad and Fencing | EA | 12 | $26,500.00 | $318,000 |
| 7 | Well Site Electrical | EA | 12 | $80,000.00 | $960,000 |
| 8 | Wellfield Access Roads | LF | 41,500 | $25.00 | $1,037,500 |
| 9 | Wellfield Electrical Distribution | LS | 41,500 | $20.00 | $830,000 |
| 10 | 36" Collection Line (Concrete) | LF | 64,240 | $110.00 | $7,066,400 |
| 11 | 30" Collection Line (Concrete) | LF | 7,500 | $85.00 | $637,500 |
| 12 | 24" Collection Line (HDPE) | LF | 5,500 | $77.00 | $423,500 |
| 13 | 20" Collection Line (HDPE) | LF | - | $63.00 | $0 |
| 14 | 18" Collection Line (HDPE) | LF | - | $55.00 | $0 |
| 15 | 16" Collection Line (HDPE) | LF | 5,500 | $44.00 | $242,000 |
| 16 | 12" Collection Line (HDPE) | LF | 23,000 | $35.00 | $805,000 |
| 17 | 10" Collection Line (HDPE) | LF | - | $30.00 | $0 |
| 18 | SCADA | EA | 12 | $15,000.00 | $180,000 |
| 19 | Access Road off Hwy 70 | LF | - | $30.00 | $0 |
| 20 | Well Field Storage Tank | LS | 1 | $500,000.00 | $500,000 |
| 21 | Mobilization | LS | 1 | | $924,195 |
| | **Subtotal** | | | | $19,408,095 |
| | **Construction Contingencies** | | | | $2,911,214 |
| | **Engineering, Surveying, Testing, RPR** | | | | $2,911,214 |
| | **Test Holes** | EA | 24 | $11,000.00 | $264,000 |
| | **ROW Acquisition, Damages** | LF | 105,740 | $6.00 | $634,440 |
| | **Total** | | | | **$26,128,964** |
| | **Well X-3(1700 GPM)** | | | | |
| 1 | 16" Collection Line | LF | 4,140 | $44.00 | $182,160 |
| 2 | 16" Transmission Pipe | LF | 1,630 | $44.00 | $71,720 |
| 3 | Valves and Header Piping | LS | 1 | $10,000.00 | $10,000 |
| 4 | Meter and Control House | EA | 1 | $25,000.00 | $25,000 |
| 5 | Well Pad and Fencing | LS | 1 | $26,500.00 | $26,500 |
| 6 | Road | LF | 4,140 | $25.00 | $103,500 |
| 7 | Well | LS | 1 | $242,000.00 | $242,000 |
| 8 | Pump | EA | 1 | $175,000.00 | $175,000 |
| 9 | Seal Block Enclosure | EA | 1 | $3,000.00 | $3,000 |
| 10 | Electrical | LS | 1 | $304,000.00 | $304,000 |
| | **Subtotal for X-3** | | | | $1,142,880 |
| | **Construction Contingencies** | | | | $171,432 |
| | **Engineering, Surveying, Testing, RPR** | | | | $171,432 |
| | **ROW Acquisition, Damages** | LF | 5,770 | $6.00 | $34,620 |
| | **Total** | | | | **$1,520,364** |
| | **Well P-66(2880)** | | | | |
| 1 | 18" Collection Line | LF | 300 | $55.00 | $16,500 |
| 2 | Valves and Header Piping | LS | 1 | $10,000.00 | $10,000 |
| 3 | Meter and Control House | EA | 1 | $25,000.00 | $25,000 |
| 4 | Well Pad and Fencing | LS | 1 | $26,500.00 | $26,500 |
| 5 | Road | LF | 300 | $25.00 | $7,500 |
| 6 | Well | LS | 1 | $233,500.00 | $233,500 |
| 7 | Pump | EA | 1 | $220,000.00 | $220,000 |
| 8 | Seal Block Enclosure | EA | 1 | $3,000.00 | $3,000 |
| 9 | Electrical | LS | 1 | $240,000.00 | $240,000 |
| | **Subtotal for P-66** | | | | $782,000 |
| | **Construction Contingencies** | | | | $117,300 |
| | **Engineering, Surveying, Testing, RPR** | | | | $117,300 |
| | **ROW Acquisition, Damages** | LF | 300 | $6.00 | $1,800 |
| | **Total** | | | | **$1,018,400** |
| **TOTAL OPINION OF PROBABLE COST** | | | | | **$28,667,728** |

# Section 7 – Existing Water Supply - CRMWA

## e. CRMWA Salt Cedar Eradication Program




**New Mexico**

| | Acres | Cost | CRMWA | CCRP 50% | EQIP 75% |
|---|---|---|---|---|---|
| 2004 | 850 | $ 161,944 | $ 116,638 | $ 40,790 | $ 4,516 |
| 2005 | 860 | $ 166,540 | $ 166,540 | | |
| 2006 | 700 | $ 128,080 | $ 129,080 | | |
| | 2,410 | $ 457,564 | $ 412,258 | $ 40,790 | $ 4,516 |

| | Acres | Cost | CRMWA | CCRP 50% | EQIP 75% |
|---|---|---|---|---|---|
| 2007 | 700 | $ 132,902 | $ 132,902 | $ - | $ - |
| Remaining | 0 | $ - | $ - | $ - | $ - |

**Texas**

| | Acres | Cost | CRMWA | EQIP 75% | TSSWCB |
|---|---|---|---|---|---|
| 2005 | 2,589 | $ 519,795 | $ 167,446 | $ 277,358 | $ 74,991 |
| 2006 | 1,956 | $ 323,273 | $ 161,637 | $ | $ 161,637 |
| | 4,545 | $ 843,068 | $ 329,083 | $ 277,358 | $ 236,628 |

| | Acres | Cost | CRMWA | EQIP 75% | TSSWCB |
|---|---|---|---|---|---|
| 2007 | 840 | $1,478,218 | $ 167,908 | $ - | $ 90 k- |
| Remaining | 6,855 | $1,371,000 | $ - | $ - | $ - |

~$254K