Attachment M

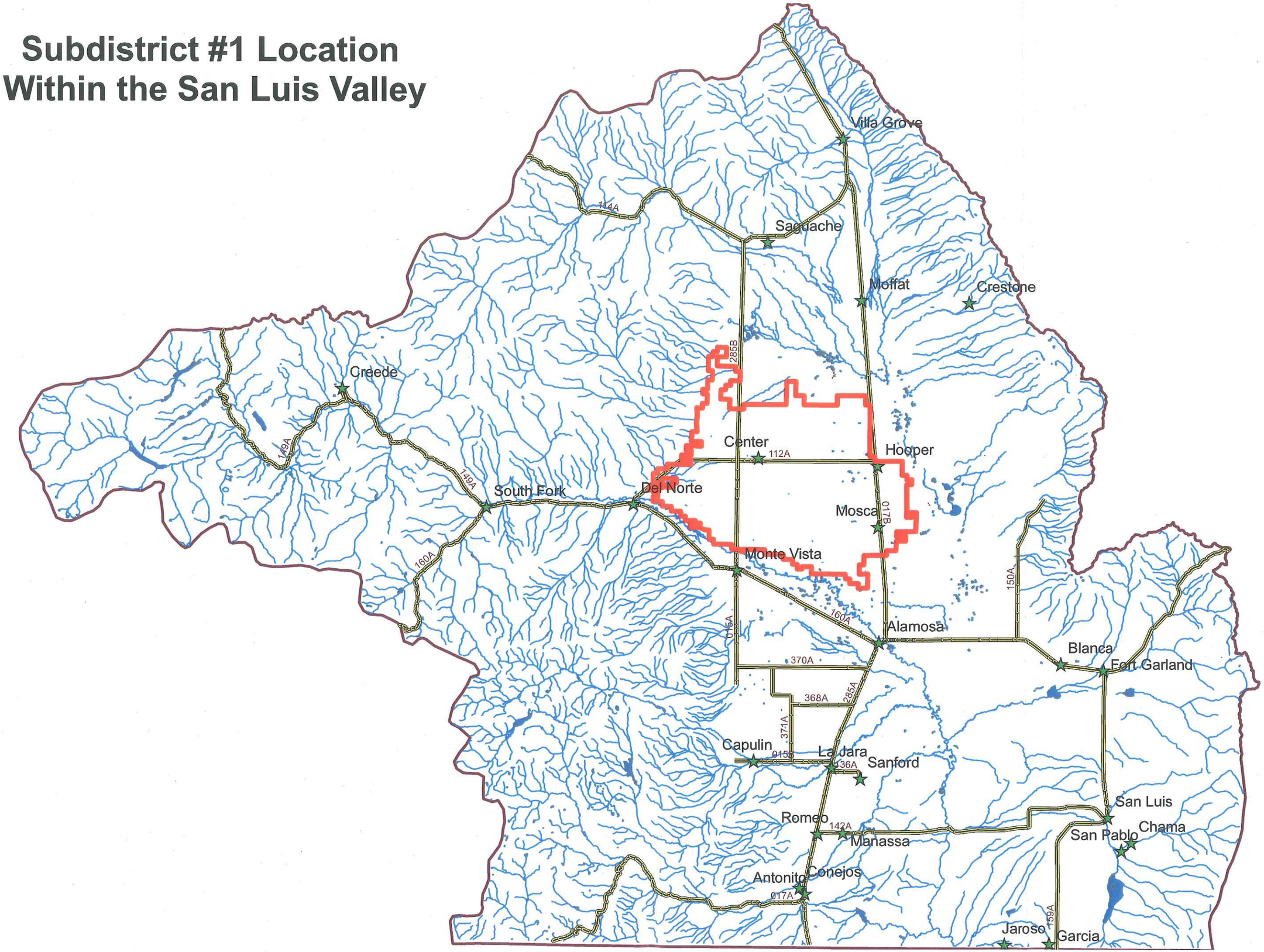
PRESENTATION CONCERNING SPECIAL IMPROVEMENT DISTIRCT NO.1 OF THE RIO GRANDE WATER CONSERVATION DISTRICT FOR CONSIDERATION BY THE WATER RESOURCES REVIEW COMMITTEE OF THE COLORADO LEGISLATURE

SEPTEMBER 26, 2013

Prepared By
The Rio Grande Water Conservation District
10911 E. U.S. Highway 160
Alamosa, Co 81101
www.rgwcd.org
(719) 589-301

Presented By
Steve Vandiver
R.G.W.C.D. General Manager
And
David Robbins
R.G.W.C.D. Attorney

Subdistrict #1 Location Within the San Luis Valley



SPECIAL SUBDISTRICT NO. 1
Closed Basin Subdistrict

N
W E
S

Legend

- Div3_Wells_Structure
- Subdistrict_1
- Roads
- Div3_SLV Canals
- Sprinklers_2010_linear
- Sprinklers_2010

0 1 2 3 4 5 6 Miles

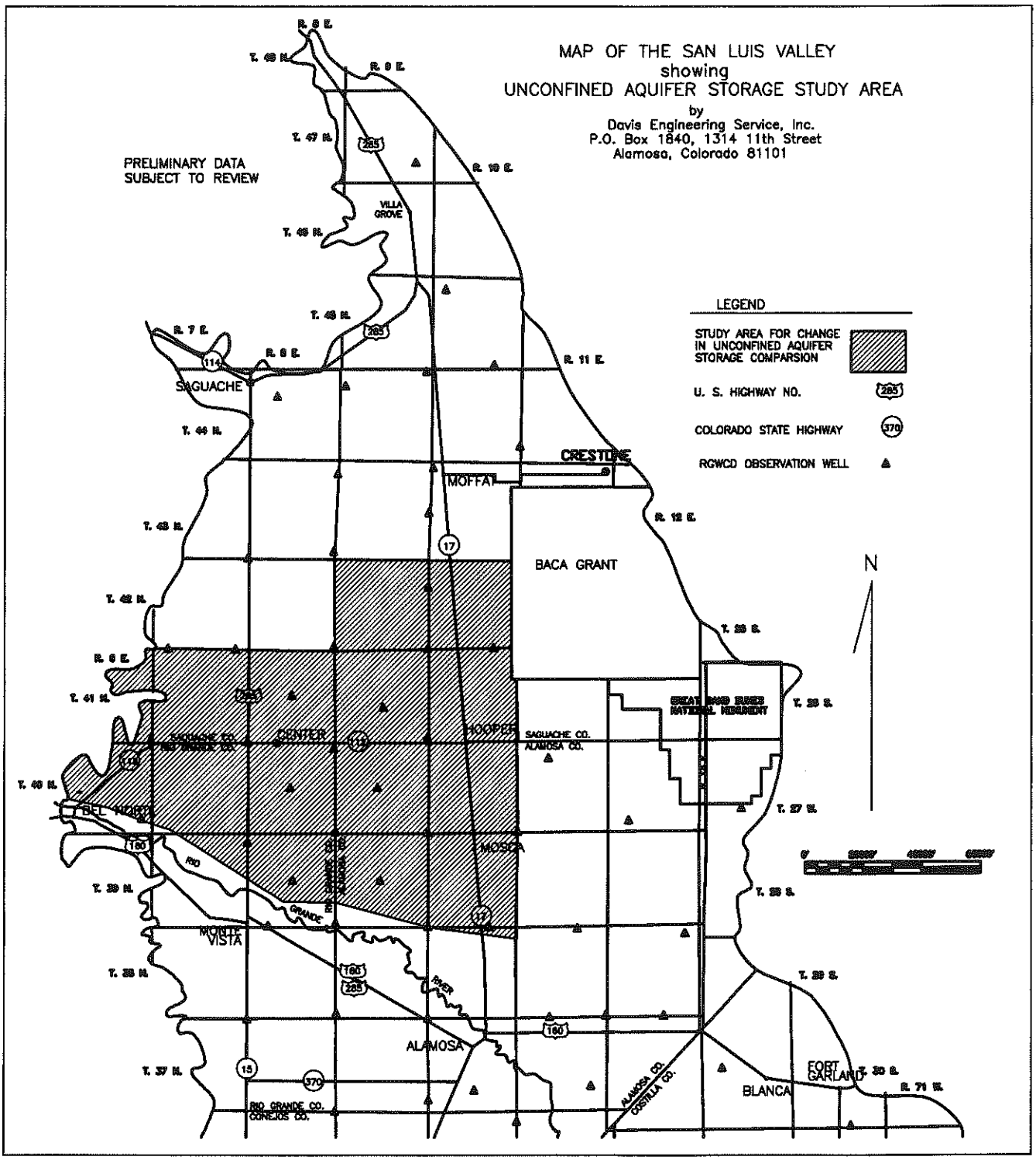
Prepared 08/09/2012

SINCE 1948
Davis Engineering Service, Inc.
1314 11th Street
P.O. Box 1840
Alamosa, CO 81101
(719)589-3004

PERTINENT FACTS CONCERNING SPECIAL IMPROVEMENT DISTRICT NO. 1 OF THE RIO GRANDE WATER CONSERVATION DISTRICT FOR CONSIDERATION BY THE WATER RESOURCES REVIEW COMMITTEE OF THE COLORADO LEGISLATURE

- Wells permitted in SLV in the confined and tributary aquifers which underlies most of the SLV and in the alluvial aquifers around the valley until 1972.
- Wells were permitted in the unconfined aquifer in the closed basin area until 1981.
- A Moratorium on new wells for new appropriations has been in place since those times for both aquifers.
- Agreements involving allocation of the production of the Closed Basin Project in 1985 kept surface users from pursuing the idea of groundwater administration.
- The drought of 2002-4 unmasked the depletions of wells on streams in the valley and many surface water users from pushing the idea of groundwater administration.
- SEO was working on a groundwater model to be able to determine the depletions of wells on the SLV streams.
- The State Engineer promulgated rules and regulations concerning new withdrawals from the Confined Aquifer in June of 2004 which were ultimately approved by the Supreme Court in March of 2008.
- The State Engineer is currently drafting Groundwater use rules to administer all groundwater in the SLV.
- The Subdistrict concept was created to be an alternative to the State regulating wells and the local interests managing the aquifers in a much more flexible way while accomplishing all the goals of individual augmentation plans.
- In 2004 the RGWCD prepared to form Special Groundwater Improvement Districts (Subdistricts) to locally address the decline in aquifer storage and replace injurious well depletions to the streams.
- The concept of the subdistricts was to form "community of interest" areas with similar hydrology and geology. Members of the Subdistrict could then pool resources in the form of fees on pumping and irrigated acres to create a revenue stream that would be used to purchase water to replace depletions to the river and to fallow ground to reduce pumping from the aquifers.
- Subdistrict #1 was formed July 19 2006, by the District Court with opposition from those who thought all well owners should only be allowed to have individual augmentation plans.
- Two District court trials and a successful trip to the Supreme Court finally confirmed Subdistrict #1 and the Plan of Water Management in December of 2011.
- The Subdistrict has acquired approval of a Conservation Reserve Enhancement Program (CREP) program thru USDA to help in the retirement of up to 40,000 acres to restore and maintain the aquifer system. At the present time the aquifer is down some 1,300,000 acre-feet from the level of storage in 1976.
- The Subdistrict #1 prepared the first Annual Replacement Plan in April of 2012 and was initiated on May 1, 2012 and was immediately challenged by the objectors who petitioned the Court to shut down the operation of the ARP which.
- A trial was held in the fall of 2012 in which the Subdistrict interests prevailed but the opposition to the Plan filed an appeal with the Colorado Supreme Court and that appeal has yet to be heard.
- Well pumping in Subdistrict #1 was approximately 20% less in 2012 than in 2011 and it presently appears it will be further reduced in 2013.

- Additional water was acquired by the Subdistrict in 2013 with funds from fees on pumping in 2012 and is currently being released at the rates of flow and amounts required by the modeling results to replace the depletions to the Rio Grande calculated by the model.
- In April of 2013 the Subdistrict prepared and submitted to the Water Court and the State Engineer the Annual Replacement Plan describing the operations for the coming year. That Plan was not challenged as it was in 2012 and the Plan was approved by the State Engineer with several added provisions.
- In the spring of 2013 Subdistrict #1 purchased two quarter sections of farm ground and the appurtenant water rights, both surface and Groundwater, to retire the wells permanently and use the surface water for recharge of the aquifer.
- Over the last two years, Subdistrict #1 has met all the replacement obligations to the river as required by the State Engineer.
- The Subdistrict was also able to fallow approximately 9,000 acres of ground with the variable fee revenue for the 2013 year to help reduce the pumping in the Subdistrict. Other federal conservation programs are in place that has greatly enhanced the reduction in pumping.
- Many areas of the Subdistrict have reduced groundwater levels at a point the wells are pumping reduced amounts and are having a difficult time meeting irrigation requirements.
- The Subdistrict #1 area depends heavily on ditch diversions from the Rio Grande to recharge the aquifer and the past five years have been very short on streamflow and therefore this situation has contributed to a continuing dramatic decline in the aquifer levels.
- Currently we are hoping this year's fallowing program, preventive planting insurance programs and voluntary cut backs will reduce pumping considerably.
- Very high commodity prices have been an obstacle to convincing well owners that they need to cut back pumping from their irrigation wells or participating in the fallowing and CREP programs.



EXPLANATION

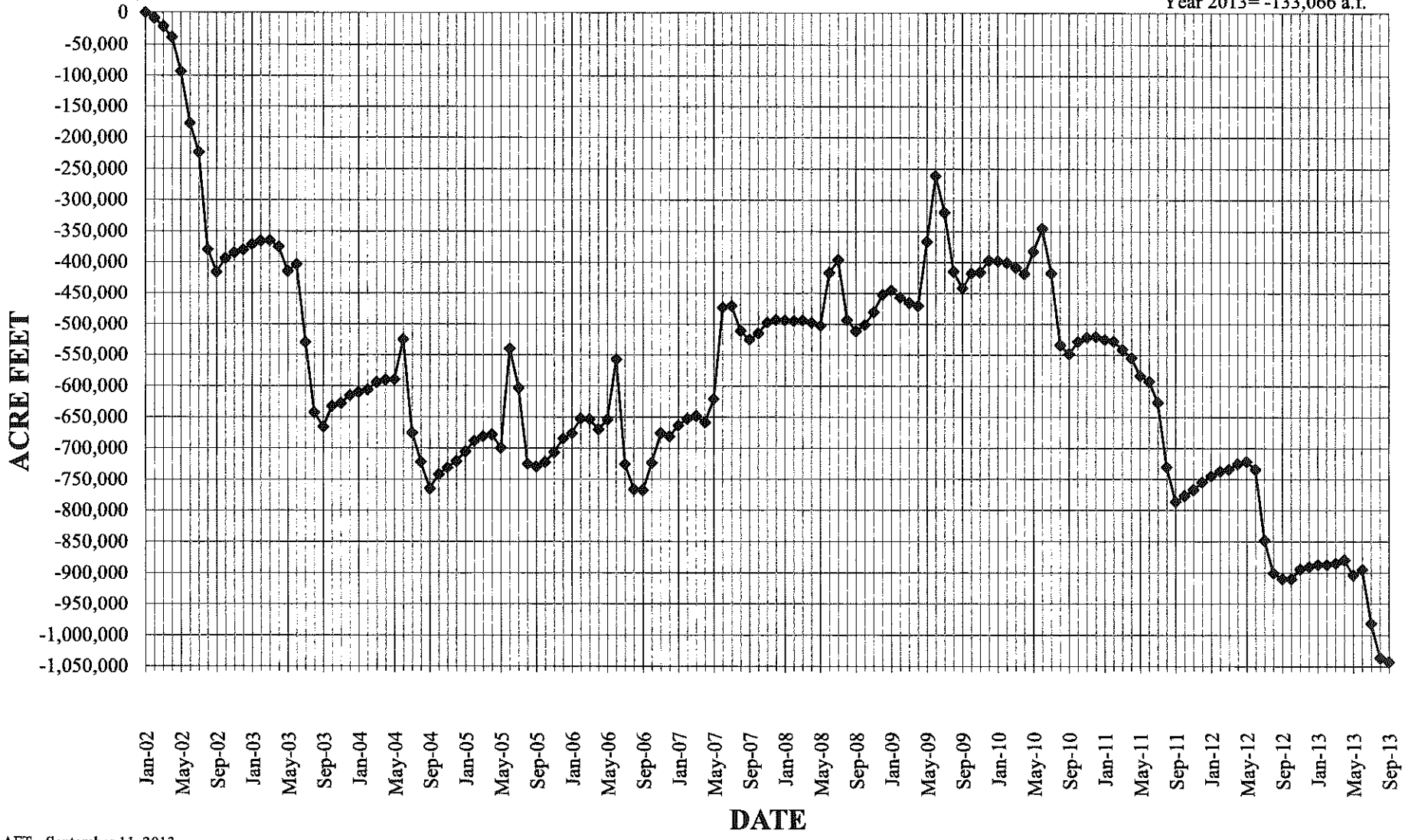
Change in unconfined aquifer storage has been calculated for a defined area which is shown on the above map. The changes in aquifer storage were based on approximately 27 RGWCD monitoring wells located within the area. The method of computing the change in aquifer storage was in accordance with the Thiessen mean method whereby a polygon is constructed around each observation well and the assumption is made that the change in water level throughout the area of the polygon is the same as the change in the well within the polygon. A graph showing changes since 1976 is attached. Zero on the vertical axis of the graph was assumed as corresponding to 1976 for graphing purposes; however, it should not be assumed that the unconfined aquifer was at equilibrium as of that date.

Changes: Comparing
September of each year
Year 2002 = -439,816 a.f.
Year 2003 = -250,214 a.f.
Year 2004 = -99,285 a.f.
Year 2005 = +35,612 a.f.
Year 2006 = -38,228 a.f.
Year 2007 = +242,380 a.f.

CHANGE IN UNCONFINED AQUIFER STORAGE

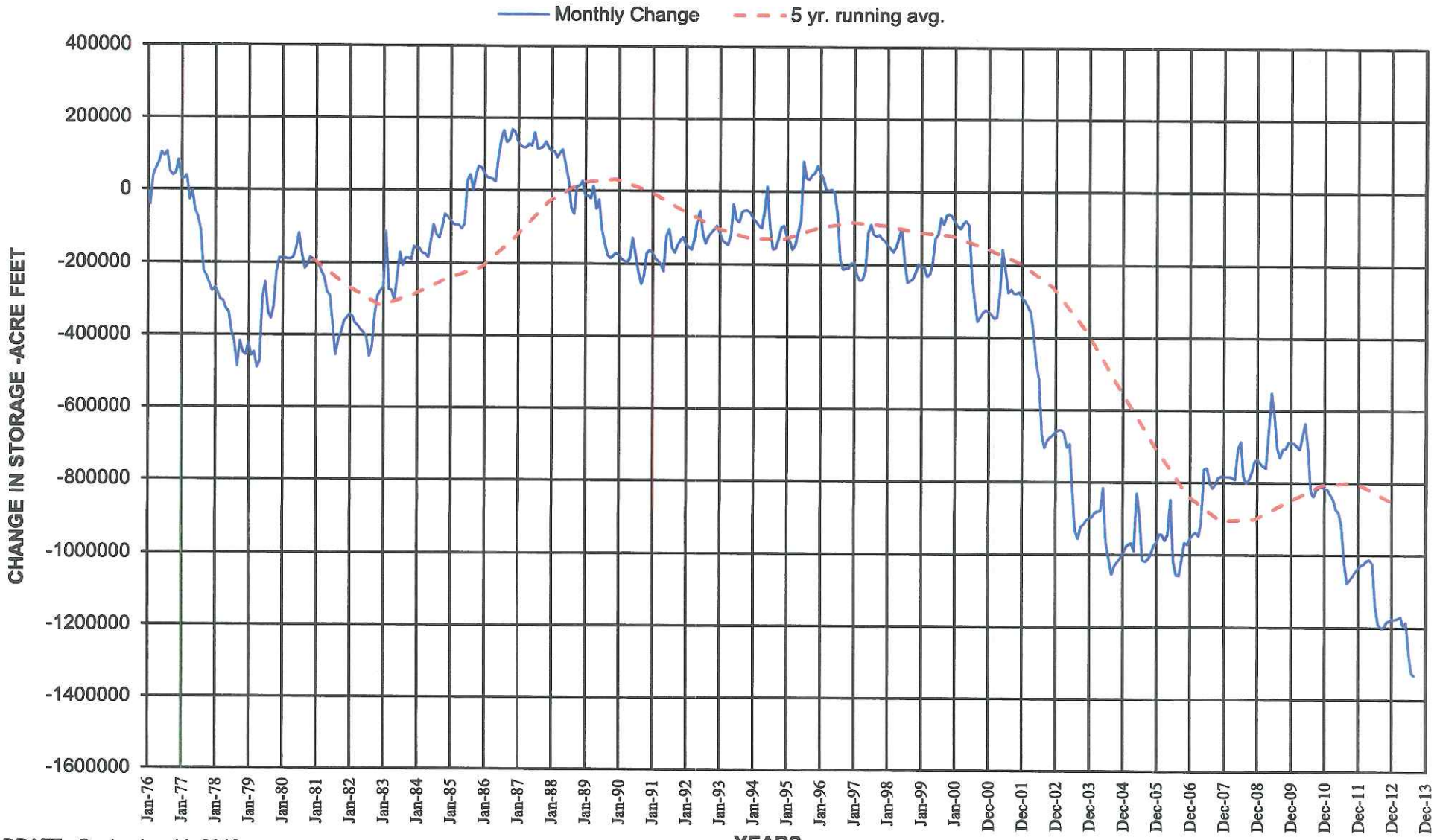
YEAR 2002 - 2013

Changes: Comparing
September of each year
Year 2008 = +14,057 a.f.
Year 2009 = +69,864 a.f.
Year 2010 = -106,745 a.f.
Year 2011 = -238,480 a.f.
Year 2012 = -123,126 a.f.
Year 2013= -133,066 a.f.



DRAFT - September 11, 2013
By Davis Engineering Service, Inc.

CHANGE IN UNCONFINED AQUIFER STORAGE
WEST CENTRAL SAN LUIS VALLEY



DRAFT - September 11, 2013
Data through September 10, 2013

Prepared by Davis Engineering Service, Inc,
For Rio Grande Water Conservation Dist.

Rio Grande at Del Norte (acre-feet)	
Ave. 1890-2012	644,441
Ave. 1930-2012	603,020
Ave. 1950-2012	593,219
Ave. 1928-1937	**593,604** (Compact Study Period)
Ave. 1930-1979	585,343
Ave. 1950-1959	**502,582**
Ave. 1950-1970	**546,685**
Ave. 1950-1980	559,367
Ave. 1980-1989	728,468
Avg. 1988-2012	577,110
Ave. 2000-2012	**539,609**

Record Five Year Droughts

1899-1903

1899	393,400
1900	506,120
1901	477,220
1902	**251,820**
1903	784,200
Average	**482,552**

1950-1955

1950	470,325
1951	309,202
1952	826,422
1953	401,540
1954	381,312
Average	**477,760**

1974-1977

1974	337,526
1975	808,067
1976	591,769
1977	215,108
1978	406,595
Average	**471,813**

2000-2004

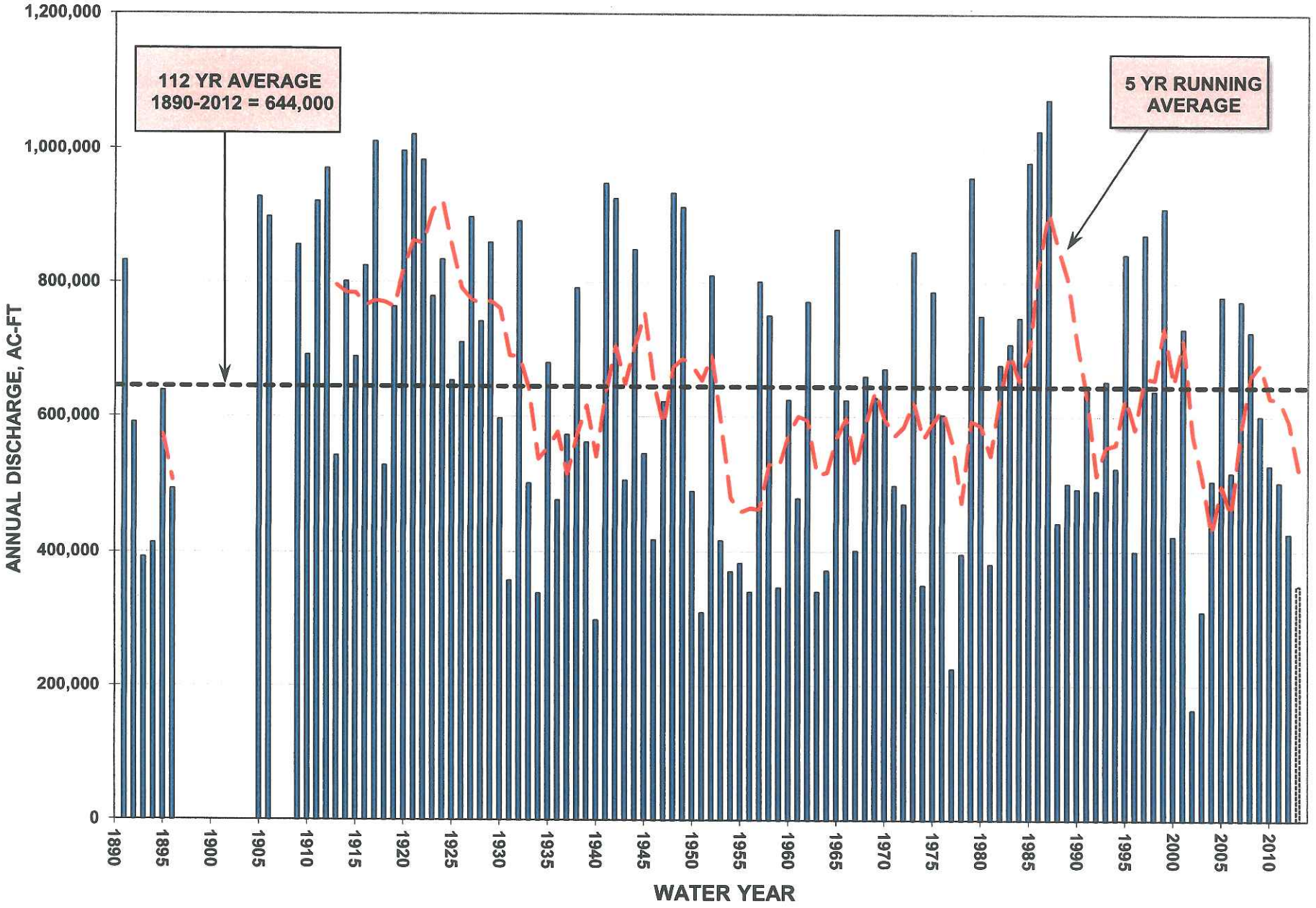
2000	391,200
2001	725,400
2002	**156,400**
2003	319,100
2004	527,800
Average	**423,980**

Record Ten Year Droughts

Year	Ave. Annual Flow
1893-1902	520,283
1931-1940	546,944
1950-1959	502,582
1955-1964	519,830
1969-1978	546,893
2002-2011	548,832

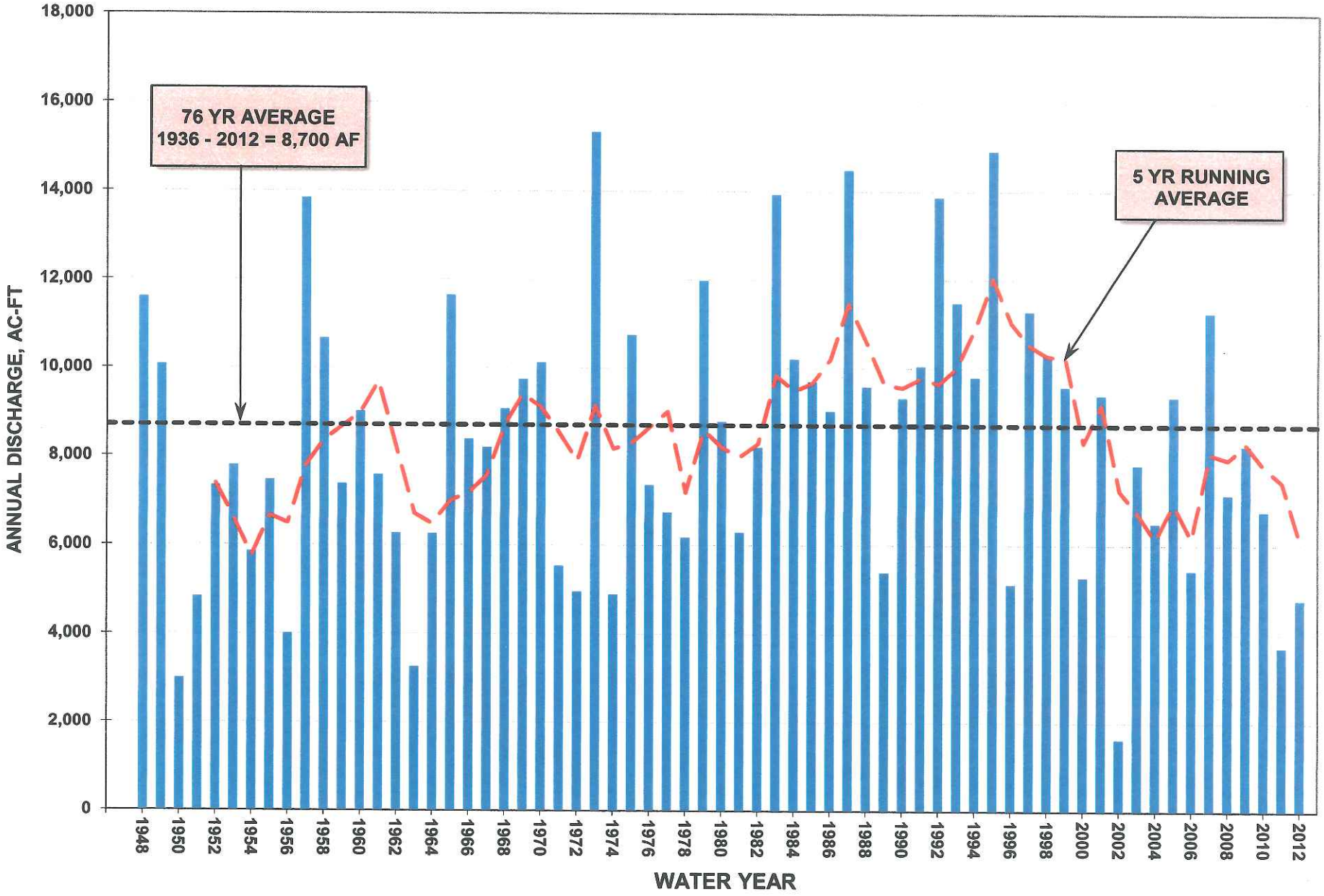
Year	Flow at Del Norte	Change in Storage
2002	**156,400**	(439,816)
2003	319,100	(250,214)
2004	527,800	(99,285)
2005	793,551	35,612
2006	570,039	(38,288)
2007	709,979	none
2008	725,881	14,057
2009	593,074	69,864
2010	542,428	(106,745)
2011	550,068	(238,480)
2012	410,000	(123,126)
2013	465,000	(133,000) estimated.

RIO GRANDE RIVER NEAR DEL NORTE, CO
ANNUAL DISCHARGE, 1890 - 2012



Source: Co. Division of Water Resources

NORTH CRESTONE CREEK NEAR CRESTONE
ANNUAL DISCHARGE, 1948-2012

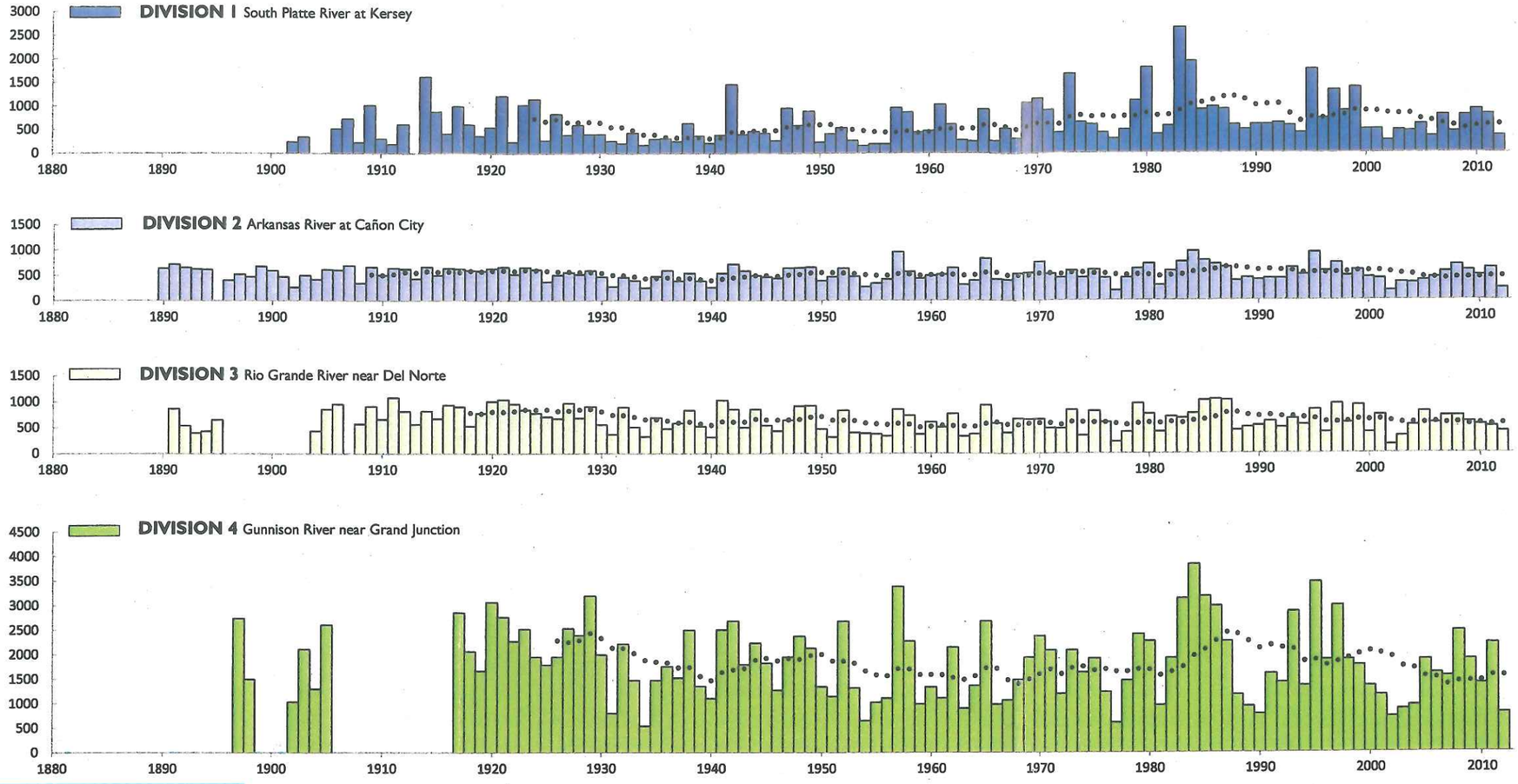


Source: Co. Division of Water Resources

COLORADO RIVERS
HISTORICAL ANNUAL RUNOFF

May 2013 Diagram available online at www.LREwater.com/Runoff

ANNUAL RUNOFF IN 1000 ACRE-FEET



RUNOFF ESTIMATES

The Natural Resource Conservation Service water supply outlook, as of May1, 2013, contains the following estimates of runoff for the April through July 2013 period at the following gages:

(Note: Not all gages shown to the right are forecasted, in which case, a representative gage from the outlook report was chosen.)

Division/River	April-July Forecasted Runoff (1000 AF)	% of 30 yr Avg
1 South Platte River at South Platte*	185	82%
2 Arkansas River at Pueblo Reservoir Inflow*	275	60%
3 Rio Grande River near Del Norte*	225	44%
4 Gunnison River near Grand Junction	660	45%
5 Colorado River near Dotsero	1080	77%
6 Yampa River near Maybell	640	68%
7 Animas River at Durango	170	41%

*Runoff forecasted for April-September 2013 period.

*10 year running average

Current water year data may be provisional. Years with incomplete gage data have been omitted.

Map of Colorado showing Water Divisions

- U.S.G.S. Surface Runoff Gage
- Division Water Court
- 7 Water Division

"After three consecutive months (January-March) of below average snow accumulation in Colorado, multiple storm systems in April finally brought the moisture we had been hoping for all season. The state received above average precipitation during April which primarily occurred as snow, and brought snowpack totals to near normal levels in the northern basins. Unfortunately the southern portion of the state did not benefit from these storm systems."

–NRCS *Colorado Water Supply Outlook Report, May 1, 2013*

LeonardRice ENGINEERS, INC.

www.LREwater.com facebook.com/LREwater Follow @LREwater