

LaGrande Water District
Municipal Service Review
Colusa LAFCO



Adopted

Resolution 2009-0003

March 5, 2009

Colusa LAFCO
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1 INTRODUCTION

1.1 LAFCO's Responsibilities

This Municipal Service Review (MSR) has been prepared for the Colusa Local Agency Formation Commission (Colusa LAFCO). Local Agency Formation Commissions are quasi-legislative local agencies created in 1963 to assist the State in encouraging the orderly development and formation of local agencies. This MSR consists of a review of water service as provided by the La Grande Water District.

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Government Code §56000 et seq.) is the statutory authority for the preparation of an MSR, and periodic updates of the Sphere of Influence of each local agency. The Governor's Office of Planning and Research has issued Guidelines for the preparation of an MSR. This MSR adheres to the procedures set forth in the MSR Guidelines.

A Sphere of Influence is a plan for the probable physical boundaries and service area of a local agency, as determined by the affected Local Agency Formation Commission (Government Code §56076). Government Code §56425(f) requires that each Sphere of Influence be updated not less than every five years, and §56430 provides that a Municipal Service Review shall be conducted in advance of the Sphere of Influence update.

1.2 Municipal Service Review Requirements

The statute as amended by AB1744 and regulations call for a review of the municipal services provided in the county or other appropriate area designated by the LAFCO. The LAFCO is required, as part of the MSR, to prepare a written statement of findings of its determinations with respect to each of the following:

1. Growth and Population
2. Capacity and Infrastructure
3. Financial Ability
4. Shared Facilities
5. Government Structure and Accountability

1.3 LAFCO Policies and Procedures Related to Municipal Services

The Colusa LAFCO adopted policies and procedures related to municipal services on February 5, 2004.

1.4 Description of Public Participation Process

Colusa LAFCO is a legislative body authorized by the California Legislature and delegated powers as stated in the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (the Act). The LAFCO proceedings are subject to the provisions of California's open meeting law, the Ralph M. Brown Act (Government Code Sections 54950 et seq.) The Brown Act requires advance posting of meeting agendas and contains various other provisions designed to ensure that the public has adequate access to information regarding the proceedings of public boards and commissions. Colusa LAFCO complies with the requirements of the Brown Act.

The MSR Guidelines provide that all LAFCOs should encourage and provide multiple public participation opportunities in the municipal service review process. MSR policies have been adopted by the Colusa LAFCO. Colusa LAFCO has discussed and considered the MSR process in open session, and has adopted a schedule for completing the various municipal service reviews and sphere of influence updates for Colusa County. Each municipal service review will be prepared as a draft, and will be subject to public and agency comment prior to final consideration by the Colusa LAFCO.

1.5 California Environmental Quality Act (CEQA)

The Municipal Service Review is a planning study that will be considered by LAFCO in connection with subsequent proceedings regarding the LaGrande Water District Sphere of Influence. The Sphere of Influence review or update that would follow has not been approved, adopted, or funded by LAFCO.

This MSR is funded in the Colusa LAFCO's 2008-2009 Budget. This MSR includes an analysis, to the extent required by Section 15262 of the CEQA Guidelines, of the environmental factors that may be affected by the Municipal Service Review process, but will not include the preparation of an environmental review document.

2 SETTING

2.1 Colusa County

Colusa County is one of the original counties of California, created in 1850 at the time of statehood. Parts of the county's territory were given to Tehama County in 1856 and to Glenn County in 1891.

According to the U.S. Census Bureau, the County has a total area of 1,156 square miles including 6 square miles of water. A large number of streams drain the County including Elk Creek and Salt Creek.

The County's eastern boundary is formed, in part, by the Sacramento River. There are two incorporated cities in Colusa County: Colusa and Williams. There is one census-designated place: Arbuckle. ¹

Colusa County Population²					
Year	1980	1990	2000	2005	2006
Population	12,738	16,275	18,804	21,095	21,272

Colusa County is an agricultural based county, and with around 24% of the 2007 workforce classified as agricultural, the employment/unemployment patterns directly reflect that condition. The number of jobs in all industries had a decrease of 5.3% (-410 jobs) in 2007. The forecast for 2008, based on actual data through December, is for a slight turnaround with an increase of 0.1%.

Disregarding the agriculture employment for Colusa County, the seasonal variation remains because of the impact agriculture has on the rest of the employment sectors. Non-farm Employment growth in Colusa County grew in 2007 with a 3.1% (170 jobs) increase. The forecast for 2008, based on actual data through December, is for a slower increase of 0.3% (20 jobs).

The annual Unemployment Rate for Colusa County in 2007 increased a half of a percentage point to 13.1%, up from the 12.6% rate in 2006. The forecast for 2008, based on actual data through December, is a slightly higher 13.2%.³

The total value of agricultural crops produced in Colusa County in 2007 was \$484,525,000, up from \$422,729,000 in 2006. The value of rice, the County's largest crop was \$188,027,000 in 2007.⁴

¹ http://en.wikipedia.org/wiki/Colusa_County,_California

² <http://quickfacts.census.gov/qfd/states/06/06011.html>

³ <http://www.csus.edu/indiv/j/jensena/sfp/sa11/yol2/col/colusa.htm>

⁴ Colusa County Department of Agriculture, Harry A. Krug, Agricultural Commissioner, 100 Sunrise Blvd. Suite F, Colusa CA 95932, Phone: 530-458-0580, "2007 Colusa County Crop Report."

2.2 Central Valley Project and Tehama-Colusa Canal

The Sacramento Canals Unit of the Central Valley Project, which includes the Tehama-Colusa and Corning Canals, was designed to provide irrigation water in the Sacramento Valley, principally in Tehama, Glenn, Colusa and Yolo Counties. Authorized in 1950, the unit consists of Red Bluff Diversion Dam, Funks Dam, Corning Pumping Plant, Tehama-Colusa Canal (TCC), and Corning Canal. Full and supplemental irrigation service is provided to about 140,000 acres.⁵

Water for the La Grande Water District is available from the Central Valley Project. The water is diverted from the Sacramento River into the TCC and thence conveyed to the District. The system was designed to divert water from the Sacramento River into the TCC by virtue of the Red Bluff Diversion Dam across the Sacramento River located in Red Bluff, California. Although the system operated in this manner for some years, environmental concerns and regulatory requirements have altered the operational practices of the Dam.

Where, at one time, the Red Bluff Diversion Dam was operated to divert water essentially year round, current regulations generally prevent the dam gates from being lowered until May 15th.⁶ This restricts water diversions, although a system of temporary and research pumps, and a diversion at Stony Creek allows for some water delivery even when the gates are out.

To overcome this limitation and provide water to irrigators, the Bureau of Reclamation installed three pumps in the latter half of the 1990's, each with a capacity of between 80 and 100 cfs (cubic feet per second), with provisions for the placement of a fourth pump. The installation of the fourth pump occurred in 2006. Current temporary and research pumping capacity is 465 cfs. However, irrigation demand can reach between 800 and a 1000 cfs before May 15th, when the Dam becomes operational.

Current practice is to dam up Stony Creek in Orland and back flow water through canal gates that were actually intended to let water out of the canal into Stony Creek. Between the pumps on the Sacramento River at Red Bluff, and the reverse flow diversion at Stony Creek, the demands of irrigators have been met, but generally without any reserve.⁷

The District's CVP water supply is available under two water service contracts with the Bureau of Reclamation. The District contracts with the Bureau to purchase up to 7,200 acre feet of water per year from the CVP. If there is not sufficient CVP water available (due to lack of precipitation or regulatory restrictions), the District's supply can be reduced by up to 100%.

⁵ <http://www.usbr.gov/dataweb/html/sacramento.html#general>

⁶ <http://www.tccanal.com/>

⁷ <http://www.tccanal.com/>

2.3 Colusa County Water

The “Colusa County Groundwater Management Plan” explains the importance of surface water in Colusa County as follows:

*The surface water supplies available for use in Colusa County are significant. Surface water is used on 74 to 86 percent of the irrigated or developed land within the Sacramento Valley portion of the County. Groundwater is used on 10 to 22 percent of that land. Of the land where groundwater is used, 6 to 11 percent is not within the service area of an organized entity. Clearly, the surface water supplies are critical to the socio-economic and environmental well-being of Colusa County.*⁸

The “Colusa County Groundwater Management Plan” shows the LaGrande Water District getting 99 percent of the irrigation water from surface water and one percent of the irrigation water from groundwater in 2003.⁹

2.4 Colusa County Water Rights from the T-C Canal

At one time Colusa County held rights to about 5% of the total T-C Canal water supplies, but this is no longer the case. Colusa County had a master contract for 60,000 acre-feet, that was subcontracted to 8 water agencies as follows:

Colusa County WD	Glenn Valley WD
Holthouse WD	Myers-Marsh Mutual Water Company
Cortina WD	LaGrande WD
4-M WD	Westside Water District

In 2004, Colusa County approved a 40,000 acre-feet assignment to the Westside Water District, the largest of the water assignments.

In 2007, the last of the assignments to the other 7 agencies of their respective subcontracts was finalized. Colusa County retained 1 acre-foot, in order to hold onto its master contract. The assignments of these 7 agreements allow Colusa County to require an assignment back of up to 5% of each contractor's supply. This option expires 10 years after the assignments. If Colusa County were to exercise its option as to each subcontractor, the County could recover a total of 1000 acre-feet. The rest is permanently assigned to the respective subcontractors. If the ten years expires without exercise of the option, that will be true of the balance too.

⁸Colusa County, “Colusa County Groundwater Management Plan”, September 2008, by Wood Rodgers Inc. P. iv.

⁹ Colusa County, “Colusa County Groundwater Management Plan”, September 2008, by Wood Rodgers Inc., Table II.5

The contractors are each separately responsible for their respective contract supplies -- ordering, paying USBR charges, paying TCCA charges, use, Reclamation Reform Act of 1982 (RRA) compliance, etc.¹⁰

3 LAGRANDE WATER DISTRICT

3.1 LaGrande Water District Description

The LaGrande Water District includes 1448 acres¹¹ in central Colusa County, west of Interstate 5, northwest of Williams between the Glenn-Colusa Irrigation District Canal and the Tehama-Colusa Canal. The US Bureau of Reclamation breaks down the acreage as follows:

LaGrande Water District Acreage¹²

Gross Acres = 1,470
Arable Acres = 1,465
Irrigable acres = 1,392
Productive acres = 1,322

The District gets water from the Sacramento River through the Tehama-Colusa Canal.

The Board of Directors of the LaGrande Water District is as follows:¹³

<u>Director</u>	<u>Term</u>
Ron LaGrande, President Phone: 530-473-5923	12/2/2005-12/4/2009
Ken LaGrande, Vice-President Phone: 530-458-4744	12/7/2007-12/2/2011
Larry LaGrande, Director Phone: 530-473-2184	12/2/2005-12/4/2009
Zachary Dennis-Director	12/2/2005-12/4/2009
Mike LaGrande	12/7/2007-12/2/2011

¹⁰T-C Canal Authority, J. Mark Atlas, Legal Counsel, Phone; 530-934-5416, E-Mail: matlas@jmatlaslaw.com, 134 W. Sycamore Street, Willows CA 95988

¹¹ Tehama-Colusa Canal Authority, Jeff Sutton, General Manager, PO Box 1025, Willows CA 95988, Phone 530-934-2125, Fax 530-934-2355, Fax August 15, 2008.

¹² USBR, Jacob Berens, jberens@mp.usbr.gov, April 30, 2008.

¹³ LaGrande Water District, Doris Pearson, Secretary, PO Box 756, Williams, CA 95987, Phone 530-473-3433, Fax October 7, 2008.

Contact information for the LaGrande Water District is as follows:

LaGrande Water District, PO Box 756, Williams CA 95987
Phone: 530-473-3433 (Doris Pearson, Secretary)

3.2 LaGrande Water District Crops

The following crops are grown in the LaGrande Water District:¹⁴

Crop	Acres
Rice	1182
Wheat	22
Irrigated pasture	86
Non-agricultural	35
Fallow/Idle	<u>123</u>
Total	1448

3.3 LaGrande Water District Soils

The following soils are found in the LaGrande Water District. Each soil is described in detail in Appendix A at the end of this report.¹⁵

102—Capay clay loam, 0 to 1 percent slopes

127—Mallard clay loam, 0 to 1 percent slopes

144—Hillgate clay loam, 0 to 2 percent slopes

145—Hillgate loam, 0 to 2 percent slopes

155—Alcapay clay, 0 to 1 percent slopes

215—Altamont-Sehorn complex, 15 to 30 percent slopes

3.4 Service Provision and Water Supply

The 2008 water contract for the LaGrande Water District from the Tehama-Colusa Canal Authority was 7200 acre-feet.¹⁶ However, the District will only

¹⁴ Tehama-Colusa Canal Authority, Jeff Sutton, General Manager, PO Box 1025, Willows CA 95988, Phone 530-934-2125, Fax 530-934-2355, Fax August 15, 2008.

¹⁵ USDA Natural Resource Conservation Service http://www.ca.nrcs.usda.gov/mlra02/colusa/manorslo_qd.html

¹⁶ Tehama-Colusa Canal Authority, Jeff Sutton, General Manager, PO Box 1025, Willows CA 95988, Phone 530-934-2125, Fax 530-934-2355, August 14, 2008.

receive 45% of this water due to low rainfall.¹⁷ In 2007 the LaGrande Water District received 5423 acre-feet which cost \$17.90 per acre-foot.¹⁸ The water cost is paid directly to the US Bureau of Reclamation (USBR) and the Canal Maintenance cost (\$8.42 per acre-foot) is paid to the T-C Canal Authority.¹⁹

3.5 LaGrande Water District Finances

2008 LaGrande Water District Budget ²⁰		
Income		
Interest	\$500	
Refunds and Reimbursements	0	
Water Charges	0	
Total Income	\$500	
Expenses		
Bank Charges		200.00
Bookkeeping		3900.00
Custom Work		3400.00
Dues/Donations		200.00
Fees (SWRCB)		5000.00
Insurance		6000.00
Legal & Professional		4000.00
Meeting Expense		325.00
Misc		500.00
O&M-TCCA --\$4451.81/month		53,421.72
Office Supplies		300.00
Postage		50.00
Repairs & Maintenance		4000.00
Utilities		7500.00
Water		51,224.40
Water Order Service		1,225.00
Total Expenses		\$141,246.12
Water Cost		
	Total	Per Acre-Foot
Water Purchases (Assuming 3240 A-F)	\$51,224.40	\$15.81
TCCA O&M	\$53,421.72	\$16.49
District O&M	\$38,475.00	\$11.25
Total	\$143,121.12	\$43.55

¹⁷ LaGrande Water District, Doris Pearson, Secretary, PO Box 756, Williams, CA 95987, Phone 530-473-3433

¹⁸ USBR, Jacob Berens, jberens@mp.usbr.gov, August 14, 2008.

¹⁹ Tehama-Colusa Canal Authority, Jeff Sutton, General Manager, PO Box 1025, Willows CA 95988, Phone 530-934-2125, Fax 530-934-2355, August 14, 2008.

²⁰ LaGrande Water District, Doris Pearson, Secretary, PO Box 756, Williams, CA 95987, Phone 530-473-3433, Fax October 7, 2008.

4. MUNICIPAL SERVICE REVIEW FOR LAGRANDE WATER DISTRICT

The Municipal Service Review Findings are required by the State Law. They serve the purpose of helping LAFCO to understand the special district or city involved in an annexation, detachment or reorganization proposal.

The determinations are not binding proposals for the special district or city. The determinations are subject to change because the jurisdiction involved is constantly changing, improving or growing. The State requires the MSR to be reviewed every five years as part of the SOI update process.

4.1 Growth and Population Projections for the Affected Area

Purpose:

To evaluate service needs based on existing and anticipated growth patterns and population projections.

4.1.1 Population Growth

There is no population within the LaGrande Water District. The area in the LaGrande Water District is zoned for agriculture and designated for agricultural use on the Colusa County General Plan. The District does not want to encourage population growth because this would cause conflicts with the agricultural uses.

4.1.2 MSR Determinations on Growth and Population for LaGrande Water District

- 1-1) It is expected that the population within the LaGrande Water District will remain at zero.
- 1-2) The population projections for Williams are found in the Colusa County and City of Williams general plans. Population growth within the District boundaries will be minimal since LWD is not in the urban water business.
- 1-3) The District should maintain an active relationship with Colusa County and City of Williams planning departments to make sure that the District goals are considered when land use changes and land use regulations are made.

4.2 Capacity and Infrastructure

Purpose:

To evaluate the infrastructure needs and deficiencies in terms of supply, capacity, condition of facilities and service quality.

4.2.1 Infrastructure Background

The LaGrande Water District pays for maintenance of the Tehama-Colusa Canal and participates in the Tehama-Colusa Canal Authority. The infrastructure within the District is the minimum needed to deliver the water from the T-C Canal to the fields. The District strives to maintain service levels within the changing dynamics of population growth in the surrounding area, escalating costs, limited funding and increasing water demands for Northern California water.

4.2.2 MSR Determinations Regarding Capacity and Infrastructure for LaGrande Water District

- 2-1) The infrastructure of the LaGrande Water District is adequate to accomplish the task of the District which is to provide US Bureau of Reclamation water to the growers.

4.3 Financial Ability

Purpose:

To evaluate factors that affect the financing of needed improvements and to identify practices or opportunities that may help eliminate unnecessary costs without decreasing service levels.

4.3.1 Financial Considerations

The LaGrande Water District is self-taxing and collects the funds as required by the US Bureau of Reclamation and the Tehama-Colusa Canal Authority.

4.3.2 MSR Determinations on Financial Ability for LaGrande Water District

- 3-1) The LaGrande Water District controls costs to the extent possible.
- 3-2) The LaGrande Water District must pay the water rates set by the USBR and the TCCA.
- 3-3) The LaGrande Water District has sound financial management.

- 3-4) The financial position of the District is better when the District can supply the maximum amount of water allowed by the water-rights agreement with the US Bureau of Reclamation.
- 3-5) The District contributes to the local economy through salaries and equipment purchases.
- 3-6) The District's budget is designed to cut costs where possible.
- 3-7) The District cooperates with other water districts to build and maintain water supply.
- 3-8) The LWD rates must allow the growers to irrigate and grow the crops at a reasonable cost or they will not be able to stay in business and purchase water in the future.

4.4 Opportunities for Shared Facilities

Purpose:

To evaluate the opportunities for a jurisdiction to share facilities and resources to develop more efficient service delivery systems.

4.4.1 Facilities

The District shares the facility and the cost of Shasta Dam and the Tehama-Colusa Canal. There are many reasons that it would not be feasible for the District to be combined with other similar districts in Colusa County. Even though there are other districts which obtain water from the Tehama-Colusa Canal; these districts may have different enabling acts, different contracts with the Bureau of Reclamation, and different means of financing their water conveyance infrastructure.²¹ The cost of combining the Districts would far exceed any benefit derived.

4.4.2 MSR Determinations on Shared Facilities for LaGrande Water District

- 4-1) The District works with other districts and agencies whenever it is legally and physically possible.
- 4-2) The District receives water flowing through Shasta Dam and diverted from the Sacramento River so the water use must be coordinated by the US Bureau of Reclamation and the Tehama-Colusa Canal Authority.

²¹ Tehama-Colusa Canal Authority, J. Mark Atlas, Attorney, 134 West Sycamore Street, Willows, CA 95988, 530-934-5416, jma@jmatlaslaw.com, E-Mail: January 9, 2009.

4.5 Government Structure and Accountability

Purpose:

To consider the advantages and disadvantages of various government structures that could provide public services, to evaluate the management capabilities of the organization and to evaluate the accessibility and levels of public participation associated with the agency’s decision-making and management processes.

4.5.1 LaGrande Water District Government Structure

The LaGrande Water District has a five-member Board of Directors. A Water District is a landowner voter District. The District was open to share the information requested by Colusa LAFCO.

The LaGrande Water District plans to apply for an annexation of 77.2 acres adjacent to the Tehama-Colusa Canal. This area should be included in the Sphere of Influence. The land use will remain the same, agriculture, and the District will benefit from increased flexibility for water use.

4.5.2 MSR Determinations on Government Structure and Accountability for the LaGrande Water District

- 5-1) The Water District is the most suitable form of organization for the LaGrande Water District.
- 5-2) The Board meets as needed three times per year.
- 5-3) The District has an elected Board.
- 5-4) The District Boundary could be expanded to meet the needs of the District.
- 5-5) The District has a limited ability to expand or to combine with another District because of US Bureau of Reclamation rules and regulations regarding water supply.

ABBREVIATIONS

AB	Assembly Bill
AF	Acre-foot (of water)
CKH Act	Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CVP	Central Valley Project
District	LaGrande Water District
EIR	Environmental Impact Report (California)
EIS	Environmental Impact Statement (US)
FWS	U.S. Fish and Wildlife Service
I-5	Interstate 5
LAFCO	Local Agency Formation Commission
LWD	LaGrande Water District
MSR	Municipal Service Review
NMFS	National Marine Fisheries Service
SOI	Sphere of Influence
TCC	Tehama-Colusa Canal
TCCA	Tehama-Colusa Canal Authority
USBR	United States Bureau of Reclamation

DEFINITIONS

Acre foot: The volume of water that will cover one acre to a depth of one foot, 325,850 U.S. Gallons or 1,233,342 liters (approximately).

Bureau of Reclamation: (USBR, Reclamation, BOR). The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.²²

Central Valley Project: The Central Valley Project, one of the Nation's major water conservation developments, extends from the Cascade Range in the north to the semi-arid but fertile plains along the Kern River in the south. Initial features of the project were built primarily to protect the Central Valley from crippling water shortages and menacing floods, but the CVP also improves Sacramento River navigation, supplies domestic and industrial water, generates electric power, conserves fish and wildlife, creates opportunities for recreation, and enhances water quality.²³

Drip irrigation: Drip irrigation, also known as trickle irrigation or micro-irrigation is an irrigation method that minimizes the use of water and fertilizer by allowing water to drip slowly to the roots of plants, either onto the soil surface or directly onto the root zone, through a network of valves, pipes, tubing, and emitters. Modern drip irrigation has arguably become the most important innovation in agriculture since the invention of the impact sprinkler in the 1930s, which replaced wasteful flood irrigation. Drip irrigation may also use devices called micro-spray heads, which spray water in a small area, instead of dripping emitters. These are generally used on tree and vine crops with wider root zones.²⁴

Exempt land: Irrigation land in a district to which the acreage limitation and pricing provisions of Reclamation law do not apply.²⁵

Gravity flow: flow of water in a pipe on a descending path.

Irrigate: To supply (dry land) with water by means of ditches, pipes, or streams; water artificially.

Irrigation system: a complete set of system components including the water source, the water distribution network, and the general irrigation equipment.

²² <http://www.usbr.gov/library/glossary/#hmr>

²³ <http://www.usbr.gov/dataweb/html/cvp.html>

²⁴ http://en.wikipedia.org/wiki/Drip_irrigation

²⁵ <http://www.usbr.gov/library/glossary/#hmr>

Lateral: a pipe line other than the main water pressure line used to move water to the various delivery devices.

Operations and maintenance costs: The ongoing, repetitive costs of operating and maintaining a water system.

Pumping plant: Facility that lifts water up and over hills.

Pumplift (pumping lift): The vertical distance that a pump will raise waters. Distance water must be lifted in a well from the pumping level to the ground surface.

Tehama-Colusa Canal: The Tehama Colusa Canal is 110 miles long and serves 14 water districts. The system was designed to divert water from the Sacramento River into the settling basin by virtue of a dam across the Sacramento River located in Red Bluff, California.

Tehama-Colusa Canal Authority: The Tehama-Colusa Canal Authority (TCCA) is a Joint Powers Agency of irrigation districts which operates and maintains the Tehama-Colusa and Corning Canals of the federal Central Valley Project (CVP) under a long-term contract with the Department of the Interior. Through these canals, the TCCA delivers CVP water to 17 districts which serve approximately 300,000 acres of farmland in Tehama, Glenn, Colusa and Yolo Counties.²⁶

Water transfers: Selling or exchanging water or water rights among individuals or agencies. Artificial conveyance of water from one area to another.

Water user: Any individual, district, association, government agency, or other entity that uses water supplied from a Reclamation project.

Water year (WY): Period of time beginning October 1 of one year and ending September 30 of the following year and designated by the calendar year in which it ends. A calendar year used for water calculations.

²⁶ http://www.delta.dfg.ca.gov/afrp/acronym_template.asp?code=371

REFERENCES

Colusa County, “Colusa County Groundwater Management Plan”, September 2008, by Wood Rodgers Inc.

Colusa County Department of Agriculture, Harry A. Krug, Agricultural Commissioner, 100 Sunrise Blvd. Suite F, Colusa CA 95932, Phone: 530-458-0580, “2007 Colusa County Crop Report.”

http://en.wikipedia.org/wiki/Drip_irrigation

http://www.colusa-sun-herald.com/news/corning_1705___article.html/issue_canal.html

LaGrande Water District, Doris Pearson, Secretary, PO Box 756, Williams, CA 95987, Phone 530-473-3433, Fax October 7, 2008.

Tehama-Colusa Canal Authority, J. Mark Atlas, Attorney, 134 West Sycamore Street, Willows, CA 95988, 530-934-5416, jma@jmatlaslaw.com, E-Mail: January 9, 2009.

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USBR, Jacob Berens, jberens@mp.usbr.gov,
<http://www.usbr.gov/library/glossary/#hmr>
<http://www.usbr.gov/dataweb/html/cvp.html>

USDA Natural Resource Conservation Service
http://www.ca.nrcs.usda.gov/mlra02/colusa/manorslo_qd.html

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MAPS

Figure 1 USBR Map LaGrande Water District

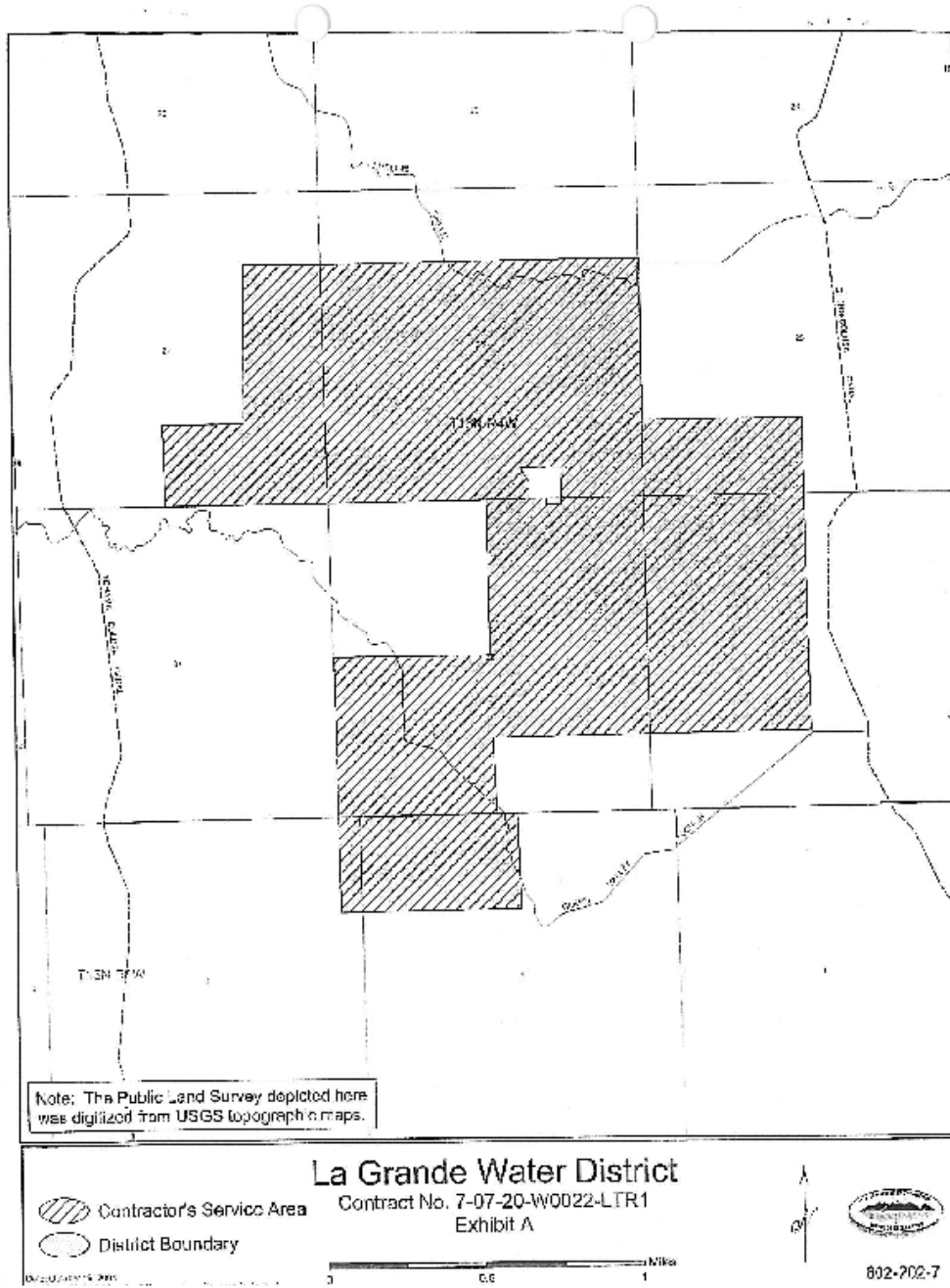
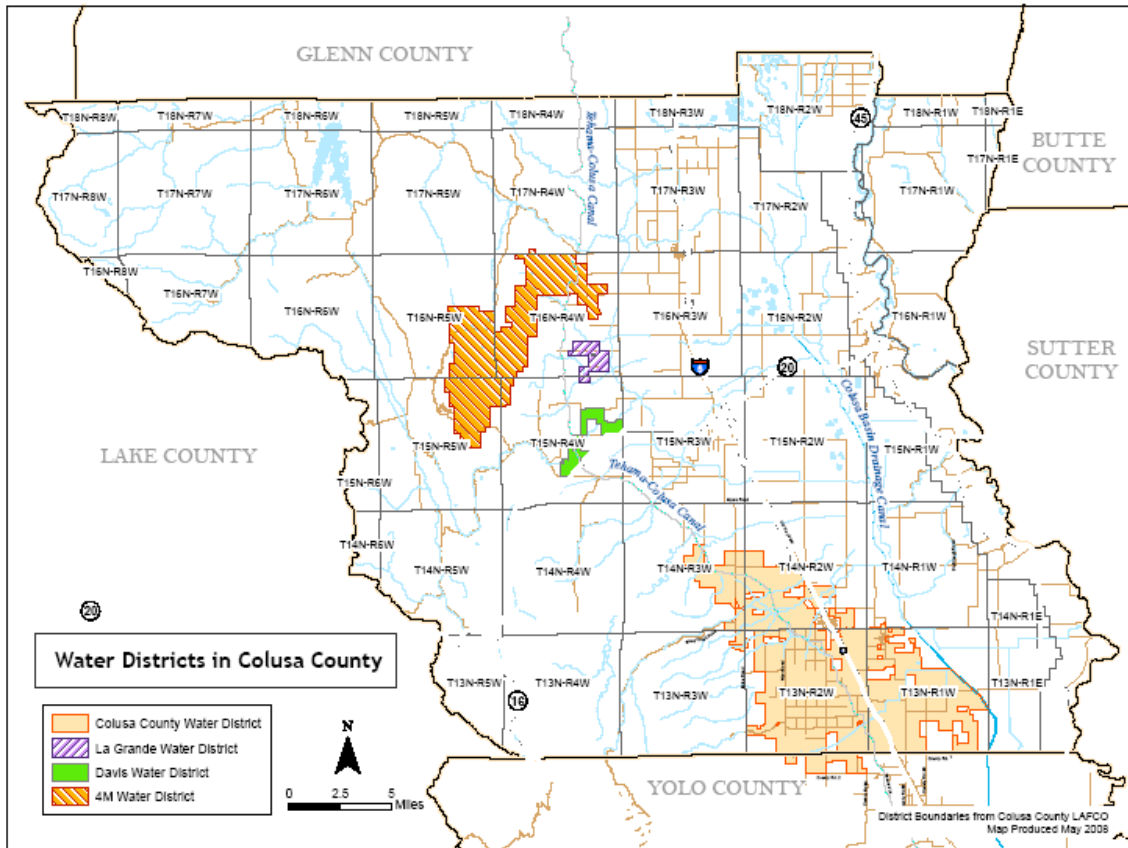


Figure 2 Location Map LaGrande Water District



APPENDIX A SOIL INFORMATION

102—Capay clay loam, 0 to 1 percent slopes

Map Unit Setting

General location: On the west side of the Colusa Basin near the towns of Williams and Maxwell

Map unit geomorphic setting: Basin floor

Elevation: 25 to 140 feet (9 to 43 meters)

Mean annual precipitation: 14 to 16 inches (355 to 405 millimeters)

Mean annual air temperature: 61 to 63 degrees F. (16 to 17 degrees C.)

Frost-free period: 225 to 250 days

Capay clay loam—90 percent Minor components: 10 percent

Major Component Description Capay clay loam

Component geomorphic setting: Basin floor

Parent material: Alluvium

Typical vegetation: Irrigated cropland

Component Properties and Qualities

Slope: 0 to 1 percent

Runoff: Very low

Surface features: None noted.

Percent area covered by surface coarse fragments: None noted.

Depth to restrictive feature: None noted

Slowest permeability class: Very slow

Salinity: Not saline

Sodicity: Not sodic

Available water capacity: About 9.9 inches (High)

Component Hydrologic Properties

Present flooding: Rare

Present ponding: None

Current water table: Present

Natural drainage class: Moderately well drained

Altered hydrology:

Water tables have been lowered by rice drainage ditches. Most of these areas were rarely or occasionally flooded under natural conditions. There are no soil redoximorphic features above 36 inches.

Interpretive Groups: Land capability irrigated: 2s-5
Land capability nonirrigated: 4s-5

127—Mallard clay loam, 0 to 1 percent slopes

Map Unit Setting

General location: Near the towns of Arbuckle and Williams
Map unit geomorphic setting: Alluvial fan
Elevation: 45 to 140 feet (15 to 43 meters)
Mean annual precipitation: 14 to 16 inches (355 to 405 millimeters)
Mean annual air temperature: 61 to 63 degrees F. (16 to 17 degrees C.)
Frost-free period: 225 to 250 days

Mallard clay loam—85 percent
Minor components: 15 percent

Major Component Description Mallard clay loam

Component geomorphic setting: Lower alluvial fan
Parent material: Alluvium
Typical vegetation: Irrigated cropland

Component Properties and Qualities

Slope: 0 to 1 percent
Runoff: Very low
Surface features: None noted.
Percent area covered by surface coarse fragments: None noted.
Depth to restrictive feature: None noted
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 10.4 inches (Very high)

Component Hydrologic Properties

Present flooding: Rare
Present ponding: None
Current water table: Present
Natural drainage class: Somewhat poorly drained
Altered hydrology: Water tables have been lowered by rice drainage ditches.

Interpretive Groups

Land capability irrigated: 2w-3
Land capability nonirrigated: 4w-3

144—Hillgate clay loam, 0 to 2 percent slopes

Map Unit Setting

General location: Western margins of the Sacramento Valley,
west of Williams and north to the Glenn
County boundary

Map unit geomorphic setting: Terrace

Elevation: 130 to 450 feet (40 to 138 meters)

Mean annual precipitation: 14 to 16 inches (355 to 405 millimeters)

Mean annual air temperature: 61 to 63 degrees F. (16 to 17 degrees C.)

Frost-free period: 225 to 250 days

Hillgate clay loam—85 percent Minor components: 15 percent

Major Component Description Hillgate clay loam

Component geomorphic setting: Terrace

Parent material: Alluvium

Typical vegetation: Irrigated cropland

Component Properties and Qualities

Slope: 0 to 2 percent

Runoff: Very low

Surface features: None noted.

Percent area covered by surface coarse fragments: None noted.

Depth to restrictive feature: Abrupt textural change—
19 inches

Slowest permeability class: Slow

Salinity: Not saline

Sodicity: Not sodic

Available water capacity: About 3.6 inches (Low)

Component Hydrologic Properties

Present flooding: None

Present ponding: None

Current water table: None noted.

Natural drainage class: Well drained

Interpretive Groups: Land capability irrigated: 2s-3
Land capability nonirrigated: 4s-3

145—Hillgate loam, 0 to 2 percent slopes

General location: West of Williams and Maxwell in the Sacramento Valley and in the foothill valleys.
Map unit geomorphic setting: Terrace
Elevation: 130 to 450 feet (40 to 138 meters)
Mean annual precipitation: 14 to 16 inches (355 to 405 millimeters)
Mean annual air temperature: 61 to 63 degrees F. (16 to 17 degrees C.)
Frost-free period: 225 to 250 days

Hillgate loam—90 percent
Minor components: 10 percent

Major Component Description Hillgate loam

Component geomorphic setting: Terrace
Parent material: Alluvium
Typical vegetation: Annual grasses and forbs

Component Properties and Qualities

Slope: 0 to 2 percent
Runoff: Very low
Surface features: None noted.
Percent area covered by surface coarse fragments: None noted.
Depth to restrictive feature: Abrupt textural change—19 inches
Slowest permeability class: Slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 3.0 inches (Low)

Component Hydrologic Properties

Present flooding: None
Present ponding: None
Current water table: None noted.
Natural drainage class: Well drained

Interpretive Groups

Land capability irrigated: 2s-3
Land capability nonirrigated: 4s-3

155—Alcapay clay, 0 to 1 percent slopes

General location: North of Maxwell, near Bagley Road and east of Williams

Map unit geomorphic setting: Basin floor

Elevation: 45 to 110 feet (14 to 35 meters)

Mean annual precipitation: 14 to 16 inches (355 to 405 millimeters)

Mean annual air temperature: 61 to 63 degrees F. (16 to 17 degrees C.)

Frost-free period: 225 to 250 days

Alcapay clay—90 percent

Minor components: 10 percent

Major Component Description--Alcapay clay

Component geomorphic setting: Basin floor

Parent material: Alluvium

Typical vegetation: Irrigated Cropland



Wheat, La Grande Ranch Old Antone Soils, Alcapay Series

Component Properties and Qualities

Slope:	0 to 1 percent	Runoff:	Very low
Surface features:	None noted.		
Percent area covered by surface coarse fragments:	None noted.		
Depth to restrictive feature:	None noted		
Slowest permeability class:	Slow		
Salinity:	Saline within 40 inches		
Sodicity:	Sodic within 40 inches		
Available water capacity:	About 8.9 inches (High)		

Component Hydrologic Properties

Present flooding:	Rare
Present ponding:	None
Current water table:	Present
Natural drainage class:	Somewhat poorly drained
Altered hydrology:	Water tables have been lowered by rice drainage ditches.

Interpretive Groups

Land capability irrigated: 3w-5 Land capability nonirrigated: 4w-5

215—Altamont-Sehorn complex, 15 to 30 percent slopes

General location:	Lower Coast Range foothills on steep ridges
Map unit geomorphic setting:	Hill
Elevation:	200 to 800 feet (61 to 244 meters)
Mean annual precipitation:	14 to 18 inches (355 to 458 millimeters)
Mean annual air temperature:	61 to 63 degrees F. (16 to 17 degrees C.)
Frost-free period:	225 to 250 days

Altamont silty clay—45 percent
Sehorn silty clay—35 percent
Minor components: 20 percent

Major Component Description--Altamont silty clay

Component geomorphic setting:	Lower sideslopes and north slopes of hill
Parent material:	Residuum weathered from sandstone-shale
Typical vegetation:	Annual grasses with scattered blue oak

Component Properties and Qualities

Slope:	15 to 30 percent
Runoff:	Medium
Surface features:	Polygonal cracking pattern, approximately 24 inches in diameter.
Percent area covered by surface coarse fragments:	None noted.
Depth to restrictive feature:	Bedrock (paralithic)—40 to 60 inches
Slowest permeability class:	Slow above the bedrock
Salinity:	Not saline
Sodicity:	Not sodic
Available water capacity:	About 7.9 inches (High)

Component Hydrologic Properties

Present flooding:	None
Present ponding:	None
Current water table:	None noted.
Natural drainage class:	Well drained

Interpretive Groups

Land capability irrigated: Not calculated
Land capability nonirrigated: 4e-5