

4-M WATER DISTRICT
MUNICIPAL SERVICE REVIEW
AND
SPHERE OF INFLUENCE



COLUSA LAFCO

Adopted

Service Review: LAFCo Resolution 2016-0001
Sphere of Influence: LAFCo Resolution 2016-0002

February 4, 2016

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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 4-M 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
6. Location and Characteristics of any Disadvantaged Unincorporated Communities (DUC) within or Contiguous to the District's SOI

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 Colusa LAFCO in connection with subsequent proceedings regarding the 4-M Water District Sphere of Influence. The Sphere of Influence review or update that would follow has not been approved, or adopted by LAFCO.

This MSR is funded in the Colusa LAFCO's 2014-2015 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

2.1.1 Colusa County Background

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.

2.1.2 Colusa County Population

There are two incorporated cities in Colusa County: Colusa and Williams. There is one census-designated place: Arbuckle. The Colusa County population is shown in the following table. Since 2005, the rate of population increase has slowed.

Colusa County Population¹							
Year	1980	1990	2000	2005	2006	2010	2014
Population	12,738	16,275	18,804	21,095	21,272	21,419	21,419

2.1.3 Colusa County Employment

The State of California Employment Development Department reports that in September 2015 the Colusa County Labor Force with 11,050 with 10,030 employed and 1,020 unemployed (9.2%).² Farm employment was 2,680 or 28% of the 9,750 employed workers in the County.³ (Labor Force data includes self-employed individuals but Industry employment excludes self-employed individuals.)

2.1.4 Colusa County Agriculture

The "2014 Colusa County Crop Report" stated the following:⁴

Agriculture continues to be Colusa County's major producing industry. The 2014 gross production for agriculture was \$876,347,000. This represents a decrease of \$43,763,930 or approximately 4.8% when compared to the 2013 value of \$920,110,930. The decrease in gross production is mainly due to the reduction in surface water allocation to Colusa County Farmers. This lack of available water has resulted in approximately 45,000 acres of annual crops being taken out of production in 2014. The price for tomatoes, almonds, and cattle and calves

¹ US Census Bureau, <http://quickfacts.census.gov/qfd/states/06/06011.html>, October 26, 2015.

² State of California, Employment Development Department, Labor Market Information Division, Phone: 916-262-162, <http://www.labormarketinfo.edd.ca.gov>, October 16, 2015.

³ State of California, Employment Development Department, Labor Market Information Division, Phone: 916-262-162, <http://www.labormarketinfo.edd.ca.gov>, October 16, 2015.

⁴ Colusa County Department of Agriculture, 2014 Colusa County Crop Report, Joseph J. Damiano, Agricultural Commissioner, 100 Sunrise Blvd, Suite F, Colusa CA 95932.

increased slightly, while the price for rice and walnuts remained relatively flat when compared to 2013.

Almonds, with a gross value of \$279,147,000 have taken the place of rice, valued at \$221,470,000, as the number one crop in terms of gross value in Colusa County. Walnuts and processing tomatoes are the number three and four crops in terms of gross value, and cattle and calves is now number five.

The Crop Report also showed that 57 different crops (including seeds) were exported to 73 countries around the world from Colusa County.

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 150,000 acres.⁵

The Tehama-Colusa Canal Authority (TCCA) is a Joint Powers Authority comprised of 17 Central Valley Project water contractors. The service area spans four counties (Tehama, Glenn, Colusa, and Yolo) along the west side of the Sacramento Valley, providing irrigation water to farmers growing a variety of permanent and annual crops. TCCA operates and maintains the 140 mile Tehama-Colusa and Corning canals irrigation water supply system. The service area is approximately 150,000 acres, producing over \$250 million in crops per year, and contributing \$1 billion to the regional economy annually.⁶

Water for the 4-M Water District is available from the Central Valley Project according to the total water supply available. 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 new regulatory requirements have altered the operational practices of the Dam.

The Red Bluff Diversion Dam was originally operated to divert water (essentially) year round by lowering the gates thereby ultimately causing the release of water into the TC canal. In 1986 the gates were lowered for only six months for irrigation and later for only two months a year. These curtailments were a result of the endangered species listing of the Chinook salmon and litigation. In 2011 the gates were raised permanently. Water is currently diverted via a newly constructed water pump system.

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

⁶ Tehama-Colusa Canal Authority, <http://tccanal.com/about.php>, September 22, 2014

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 5700 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%.

2.3 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, which 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 an assignment to Westside WD of Westside's 40,000 acre-feet. 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.

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.⁷

2.4 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 4-M Water District getting 57 percent of the irrigation water from surface water and 43 percent of the irrigation water from groundwater in 2003.⁹

⁷ T-C Canal Authority, J. Mark Atlas, Legal Counsel, Phone: 530-934-5416, E-Mail: matlas@jmatlaslaw.com, 332 W. Sycamore Street, Willows CA 95988

⁸ Colusa 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

3 4-M WATER DISTRICT

3.1 4-M Water District Description

3.1.1 4-M Water District History¹⁰

The 4-M Water District was formed on May 13, 1975 under Section 34150 of the California Water Code and related sections for the singular purpose of contracting with the US Bureau of Reclamation for the delivery of irrigation water to the irrigable lands within the District from the Central Valley Project through the Tehama-Colusa canal.

On June 20, 1978, the District entered into a subcontract with the County of Colusa for 5,700 acre feet of the County's 60,000 acre foot contract with the Bureau of Reclamation. The form of the subcontract and the amount specified were presented to the District by the Bureau of Reclamation by letter dated June 14, 1978 which determined that the District had 1,380 irrigable acres.

The District formed Improvement Districts No. 1 and No. 2 to construct an irrigation distribution system. The Improvement District No. 1 has been in operation since 1979 and consists of 950 irrigable acres which is historically planted in alfalfa, beans, wheat, corn and tomatoes. Improvement District No. 2 consists of 430 irrigable acres which is currently not being irrigated. During the 2005-2006 fiscal year, the District was approached by a landowner to have water delivered to specified acres in the Improvement District No. 2. The Board of Directors decided that any expenses related to the delivery of water to the acres requested to be irrigation be the responsibility of the landowner making the request.

3.1.2 4-M Water District Acreage

The 4-M Water District is located southeast of Williams, California in Colusa County. The US Bureau of Reclamation reports the following acreages in this District:

Gross Acres	9,152
Arable Acres	1,738
Irrigable acres	1,651
Productive acres	1,569 ¹¹

Even though the District is fairly large the amount of land irrigated with water from the Tehama-Colusa Canal is much smaller.

¹⁰ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2014, June 29, 2015.

¹¹ USBR, Jacob Berens, jberens@usbr.gov, November 2, 2015.

3.1.3 4-M Water District Board of Directors

The 4-M Water District Board of Directors is listed below:¹²

Glenn E. Mathis, Jr. (President) P. O. Box 338 Maxwell, CA 95955	Elected 2005	Term expires 2017
Marion C. Mathis (Secretary) P. O. Box 338 Maxwell, CA 95955	Elected 2007	Term expires 2019
Glenn E. Mathis, III (D.J.) P. O. Box 37 Maxwell, CA 95955	Elected 2007	Term expires 2019
Wade M. Mathis P. O. Box 662 Maxwell, CA 95955	Elected 2005	Term expires 2017
Jared K. Mathis 1123 B Stuart Street Arlington, VA 22201	Elected 2007	Term expires 2019

Board meetings are held at 3707 Mills Orchard Road, Maxwell, CA 95955. The 4-M Water District Annual Meeting is held in March. Special meetings are held as noticed.¹³ The District retains Andrew Hitchings as Attorney.

3.1.4 4-M Water District Contact Information

The contact information for the 4-M Water District is as follows:

4-M Water District
PO Box 338, Maxwell CA 95955-0338

Phone: 530-438-2849
Fax: 530-438-2596
E-Mail: gmmathis@frontiernet.net

3.1.5 4-M Water District Population

The population of the 4-M Water District is ten people and there are five registered voters.¹⁴

¹² 4-M Water District, PO Box 338, Maxwell, CA 95955, October 29, 2015

¹³ 4-M Water District, PO Box 338, Maxwell, CA 95955, October 29, 2015

¹⁴ 4-M Water District, PO Box 338, Maxwell, CA 95955, October 29, 2015

3.2 4-M Water District Crops

The Tehama-Colusa Canal Authority reports the following crops for the 4-M Water District in 2008¹⁵ and in 2011.¹⁶

4-M WATER DISTRICT CROPS		
CROP	2008	2011
Corn	101	65
Wheat	90	103
Alfalfa	288	175
Tomatoes	70	-
Vegetables	4	-
Melons	6	-
Various Seeds	30	
Almonds	441	481
Sunflower	-	50
Beans	-	25
Other field crops	-	48
Vine seeds other		120
Fallow/Idle		450
Not harvested	197	37
Total	1,127	1,554

Almonds continue from year to year because they are an orchard crop but other crops can be changed to meet changing conditions and markets.

¹⁵ 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.

¹⁶ Tehama-Colusa Canal Authority, Kayla Cushman, E-Mail: kchusman@tccanal.com, November 9, 2015.

3.3 4-M Water District Soils

The following soils are found in the 4-M Water District. The soils are described in more detail in Appendix A at the end of this report.

SOILS IN THE 4-M WATER DISTRICT, Colusa County, California			
Map Unit	Map Unit Name	Acres	Percent
102	Capay clay loam, 0 to 1 percent slopes	413.4	4.50%
112	Westfan loam, 0 to 2 percent slopes	54.0	0.60%
127	Mallard clay loam, 0 to 1 percent slopes	288.2	3.10%
144	Hillgate clay loam, 0 to 2 percent slopes	0.4	0.00%
145	Hillgate loam, 0 to 2 percent slopes	393.8	4.30%
147	Hillgate loam, 1 to 5 percent slopes	32.9	0.40%
155	Alcapay clay, 0 to 1 percent slopes	0.4	0.00%
200	Clear Lake clay, drained, 0 to 8 percent slopes	13.1	0.10%
204	Capay clay, 0 to 3 percent slopes, occasionally flooded	169.4	1.80%
205	Capay clay, 0 to 3 percent slopes	65.0	0.70%
206	Capay clay, 5 to 9 percent slopes	141.1	1.50%
210	Corval loam, 0 to 3 percent slopes	125.1	1.40%
213	Ayar clay, 15 to 30 percent slopes	5.6	0.10%
215	Altamont-Sehorn complex, 15 to 30 percent slopes	793.3	8.60%
218	Sehorn-Altamont complex, 30 to 50 percent slopes	120.4	1.30%
220	Altamont silty clay, 5 to 9 percent slopes	154.4	1.70%
230	Corning clay loam, 1 to 5 percent slopes	200.1	2.20%
253	Millsholm-Altamont-Rock outcrop complex, 5 to 15 percent slopes	230.4	2.50%
255	Millsholm-Rock outcrop complex, 9 to 30 percent slopes	578.5	6.30%
257	Millsholm-Capay complex, 3 to 9 percent slopes	242.4	2.60%
332	Millsholm-Rock outcrop association, 30 to 75 percent slopes	758.7	8.20%
334	Millsholm-Contra Costa association, 30 to 75 percent slopes	4,388.3	47.70%
652	Water	33.4	0.40%
TOTAL		9,202.3	100.00%

3.4 4-M Water District General Plan and Zoning Designations

The Colusa County General Plan and Zoning designations for the 4-M Water District area are shown on maps at the end of this report. The General Plan Designations are General Agriculture and Upland Agriculture which are defined in the Colusa County General Plan as follows:

Agriculture General

The Agriculture General (AG) designation identifies areas to be retained for agriculture and/or uses that are complementary to existing or nearby agricultural uses. This designation includes lands under agricultural preservation and/or conservation contracts and easements; land having present or future potential for agricultural production, and contiguous or intermixed smaller parcels on which non-compatible uses could

*jeopardize the long-term agricultural use of nearby agricultural lands. Lands designated Agriculture General are planned to be preserved for agricultural uses and the intent of the designation is to preserve such lands for existing and future agricultural use and protect these lands from the pressures of development.*¹⁷

Agriculture Upland

*The Agriculture Upland (AU) designation is used to identify agricultural areas suitable for cattle and sheep grazing, areas with undeveloped, uninhabited forests, chaparral and grasslands, and intermixed areas suitable for crop production. Soils range from very good soils to those that are less suitable for crop production, but are suitable for livestock and other agricultural activities. Land divisions for non-agricultural purposes are discouraged in these areas to prevent conflicts with ranching and to minimize exposure to natural hazards.*¹⁸

4-M WATER DISTRICT COLUSA COUNTY GENERAL PLAN DESIGNATIONS	
General Plan Designation	Acres
AG Agriculture General	1,523.86
AU Agriculture Upland	7,569.67
No Designation	92.77
Total Acres	9,186.31

4-M WATER DISTRICT COLUSA COUNTY ZONING DESIGNATIONS	
Zoning Designation	Acres
E-A Exclusive Agriculture (40 acre minimum parcel size)	1,327.93
A-P Agriculture Preserve (80 acre minimum parcel size)	7,765.61
No Designation	92.77
Total Acres	9,186.31

3.5 Service Provision

Although the 4-M Water District is allocated 5700 acre-feet of water according to the Tehama-Colusa Canal Authority, the District does not always receive the full allocation. The T-C Canal Authority charges \$8.42 per acre-foot for Canal maintenance.¹⁹ According to the US Bureau of Reclamation the 4-M Water District used 3,095 acre-feet of water at \$16.70 per acre-foot in 2007. The District was also able to transfer in another 500 acre-feet of water.²⁰ The District received no water in 2015.²¹

The 4-M Water District receives the water from the Tehama-Colusa and has an underground system with a return pond.²²

¹⁷ Colusa County General Plan, Adopted July 31, 2012 Page 8-3.

¹⁸ Colusa County General Plan, Adopted July 31, 2012 Pages 8-3 and 8-4.

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

²⁰ USBR, Jacob Berens, jberens@mp.usbr.gov, August 14, 2008

²¹ Tehama-Colusa Canal Authority, Kayla Cushman, E-Mail: kchusman@tccanal.com, November 9, 2015.

²² 4-M Water District, PO Box 338, Maxwell, CA 95955, October 29, 2015

3.6 Finances

3.6.1 Budget

The 4-M Water District supplied the following financial information to the State Controller's Office for the fiscal year ended on June 30, 2015.

Operating Revenues

Water Sales Irrigation	373,940
Water Service Standby or Availability Charge	3,675
Total Operating Revenues	\$377,615

Operating Expenses

Water Purchases	336,728
Other	20,566
Pumping	628
Administration and General	1,013
Transmission and Distribution	20,392
Total Operating Expenses	\$379,327
Operating Income (Loss)	(1,712)

Non-Operating Revenues

Interest Income	36
Property Assessments	26,252
Total Non-Operating Revenues	\$26,288

Non-Operating Expenses

Interest on Long-Term Debt	7,645
Total Non-Operating Expenses	\$7,645
Non-Operating Income (Loss)	\$18,643
Income (Loss) Before Operating Transfers	\$16,931
Fund Equity, Beginning of Period	\$755,813
Fund Equity, End of Period	\$722,744

General Obligation Bonds, Revenue Bonds, Certificates of Participation and Other

Year of Authorization	1978
Principal Amount Authorized and Issues	\$698,647
Beginning Maturity Date	1980
Ending Maturity Date	2016
Principal Amount Matured During Fiscal Year	\$48,902
Principal Amount Unmatured, End of Fiscal Year	\$26,673

Assets

Cash and Cash Equivalents	\$88,512
Buildings and Improvements	\$710,905
Liabilities	
Long-term Indebtedness	\$26,673

The District has a good financial position and files the necessary forms with the State Controller's Office.

3.6.2 Audit

The Colusa County Auditor-Controller shows the following information for the 4-M Water District Annual Audit for Fiscal Year ended June 30, 2014 and on the Fiscal Year ended June 30, 2015.

4-M WATER DISTRICT BALANCE SHEET					
			JUNE 30, 2014 ²³	JUNE 30, 2015 ²⁴	
ASSETS					
Cash on deposit in Bank of America Checking Account			9,128		13,585
Cash on deposit in Bank of America Money Market Account			110,712		74,281
Cash on deposit in State Treasury LAIF Account			643		645
Total Cash on deposit			120,483		88,511
Equipment			0		0
Improvements-Improvement District No. 1 Irrigation Distribution System			710,905		710,905
Land			0		0
Total Assets			\$831,388		\$799,416
LIABILITIES					
2014 Loan Payable-Principal \$23,739 + Interest \$4,535		\$28,274			
Short Term Loan Payable	06/30/14	\$23,739			
Long Term 30 year Loan	06/30/14	\$28,097			
Total Liabilities			\$75,575		\$26,673
EQUITY					
Fund Balance Unavailable Add/(Deduct) thru 06/30/14	07/01/13	0			
Fund Balance Available Add/(Deduct) thru 6/30/14	07/01/13	66,770			
		53,713			
Fund Balance Available	06/30/14		120,483	6/30/15	88,511
Reserve for Loans Add/(Deduct) thru 06/30/14	07/01/13	(75,575)			
		0			
Reserve for Bonds/Loans	06/30/14		(75,575)	6/30/15	(26,673)
Fixed Assets Investment Add/(Deduct) thru 06/30/14	07/01/13	710,905			
		0			
Fixed Assets Investment	06/30/14		\$710,905	6/30/15	\$710,905
Total Equity			\$755,813		\$772,743
Total Liabilities and Equity			\$831,388		\$799,416

²³ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2014, June 29, 2015.

²⁴ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2015, December 10, 2015.

The above table shows the difference between the cash on deposit and the value of the investment in the irrigation infrastructure.

4-M WATER DISTRICT CHANGES IN EQUITY AS OF JUNE 30, 2014²⁵					
	Invest Fixed Assets	Reserve for Loan	Fund Balance Unavailable	Fund Balance Available	TOTAL
Equity Balance 07/01/13	710,905	(75,575)	0	66,770	702,100
Add/(Deduct)	0	0	0	53,713	53,713
Equity Balance 06/30/14	\$710,905	(\$75,575)	\$0	\$120,483	\$755,813

4-M WATER DISTRICT CHANGES IN EQUITY AS OF JUNE 30, 2015²⁶					
	Invest Fixed Assets	Reserve for Loan	Fund Balance Unavailable	Fund Balance Available	TOTAL
Equity Balance	710,905	(75,575)	0	120,483	755,813
Add/(Deduct)	0	48,902	0	(31,972)	16,930
Equity Balance 06/30/15	\$710,905	(26,673)	\$0	\$88,511	\$722,743

The above tables show that the 4-M Water District is paying off the loan for the infrastructure over time.

The following table shows the cash flow for the two years audited of 2014 and 2015.

²⁵ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2014, Prepared by Janet Dawley, Special District Auditor, June 29, 2015.

²⁶ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2015, December 10, 2015.

4-M WATER DISTRICT STATEMENT OF CASH RECEIPTS, CASH DISBURSEMENTS AND CASH BALANCES				
	JUNE 30, 2014²⁷		JUNE 30, 2015²⁸	
Cash on deposit at Bank of America	July 1, 2013	\$66,770	July 1, 2014	\$120,483
REVENUE				
Assessment Income	29,558		26,252	
Operations and Maintenance Fee			3,675	
Sale of Water	254,080		373,940	
Interest	16		36	
Total Receipts	283,654		403,903	
DISBURSEMENTS				
Bank Fees	36		36	
Legal and Accounting	724		842	
License and Fees	67		136	
Loan Debt Principal 2015			25,163	
Loan Debt Interest 2015			3,110	
Loan Debt Principal 2014			23,739	
Loan Debt Interest 2014			4,535	
Office Expense	0		0	
Repairs	0		0	
Utilities	5,638		628	
Water Restoration Fees	15,666		15,976	
Water Conveyance-Tehama-Colusa Canal Authority	23,937		20,392	
Water Purchase-Bureau of Reclamation	183,873		336,728	
Water right fee –State Board of Equalization			4,590	
Total Disbursements	229,941		435,875	
Excess of Receipts over Disbursements		\$53,713		(\$31,972)
Cash on deposit, June 30, 2014		\$120,483		\$88,511

The above table shows that even though a substantial amount of funds are received, most of the funds are paid out to the Tehama-Colusa Canal Authority and the US Bureau of Reclamation.

²⁷ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2014, Prepared by Janet Dawley, Special District Auditor, June 29, 2015, Page 5.

²⁸ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2015, December 10, 2015.

The Colusa County Special District Auditor, Janet Dawley, describes the finances of the 4-M Water District as follows:

4-M Water District Year-End Balance		
Account	June 30, 2014²⁹	June 30, 2015³⁰
Bank of America Money Market Account	\$110,712	\$74,281
Bank of America Checking Account	\$9,128	\$13,585
LAIF Account with State Treasury	\$642	\$645

Revenue consisted of an assessment levied to the landowners within the boundary of the District based on irrigable acres to cover the expenses of the Improvement District No. 1 which is collected by the Colusa County Tax Collector. Revenue also included the sale of irrigation water and interest earned. All revenue was deposited into the District's accounts at Bank of America and was reconciled to the Bank's monthly statements.

Expenditures were paid by check upon demand, were recorded in the District's accounting system and were reconciled to the Bank's monthly statements.

In 1980, the District procured a 30 year loan to provide the financing for the development and construction of an underground water delivery system in the Improvement District No. 1 and No. 2. The final loan payment will be paid in 2015. The annual payment for the 2013-14 fiscal year in the amount of \$28,273 was paid on 7/15/14. As of June 30, 2014, the unmatured balance was \$75,575.³¹ As of June 30, 2015, the unmatured balance was \$26,673.³²

From the time the District obtained its water service contract, it has been the District's intention to have water delivered to the remaining irrigable acres within the Improvement District No. 2 although they have never been irrigated. During the 2005-2006 fiscal year, the District has been approached about water being delivered to specified acres in the Improvement District No. 2. The Board of Directors decided that any expenses related to the delivery of water to the acres requested to be irrigated be the responsibility of the landowner.

The District has no insurance.³³

²⁹ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2014, Prepared by Janet Dawley, Special District Auditor, June 29, 2015, Page 3.

³⁰ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2015, December 10, 2015.

³¹ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2014, Prepared by Janet Dawley, Special District Auditor, June 29, 2015, Page 3.

³² Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2015, December 10, 2015.

³³ Colusa County Auditor-Controller, 546 Jay Street, Suite 202, Colusa, CA 95932, 4-M Water District, Annual Audit for Fiscal Year Ended June 30, 2014, Prepared by Janet Dawley, Special District Auditor, June 29, 2015, Page 2.

4 MUNICIPAL SERVICE REVIEW

The Municipal Service Review determinations are required by the State Law. They serve the purpose of helping Colusa 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 4-M Water District Area³⁴

Purpose:

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

4.1.1 Population Growth

The population within the 4-M Water District is ten.³⁵ The area in the 4-M 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 within the District Boundary because this would cause conflicts with the agricultural uses.

4.1.2 MSR Determinations on Growth and Population for 4-M Water District

- 1-1) It is expected that the population within the 4-M Water District will remain at ten.
- 1-2) The population projections for Colusa County and for Williams are found in the Colusa County and City of Williams general plans. Population growth within the District boundaries will be minimal since the 4-M Water District 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.

³⁴ California Government Code Section 56430. (a) (1)

³⁵ 4-M Water District, PO Box 338, Maxwell, CA 95955, October 29, 2015

4.2 Location and Characteristics of any Disadvantaged Unincorporated Communities (DUC) within or Contiguous to 4-M Water District³⁶

Purpose:

To comply with the State Law to examine any unincorporated areas which could be provided with better services by annexing to an adjacent city.

4.2.1 Determination of 4-M Water District Area Disadvantaged Unincorporated Community Status

The 4-M Water District does not include any Disadvantaged Unincorporated Communities.

4.2.2 MSR Determinations on Disadvantaged Unincorporated Communities near 4-M Water District

- 2-1) The 4-M Water District does not include any Disadvantaged Unincorporated Communities.

4.3 Capacity and Infrastructure

Purpose: To evaluate the present and planned capacity of public facilities, adequacy of public services, and infrastructure needs or deficiencies including needs or deficiencies related to sewers, municipal and industrial water, and structural fire protection in any disadvantaged, unincorporated communities within or contiguous to the sphere of influence.³⁷

4.3.1 Infrastructure Background 4-M Water District

The 4-M 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.

4.3.2 MSR Determinations Regarding Capacity and Infrastructure for 4-M Water District

- 3-1) The infrastructure of the 4-M Water District is adequate to accomplish the task of the District which is to provide US Bureau of Reclamation water to the growers when it is available.

³⁶ California Government Code Section 56430. (a) (2)

³⁷ California Government Code Section 56430. (a)(3).

4.4 Financial Ability to Provide Services³⁸

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.

4.4.1 Financial Considerations

The 4-M Water District is self-taxing and collects the funds as required by the US Bureau of Reclamation and the Tehama-Colusa Canal Authority.

4.4.2 MSR Determinations on Financial Ability for 4-M Water District

- 4-1) The 4-M Water District controls costs to the extent possible.
- 4-2) The 4-M Water District must pay the water rates set by the USBR and the TCCA.
- 4-3) The 4-M Water District has sound financial management.
- 4-4) 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.
- 4-5) The District contributes to the local economy through salaries and equipment purchases.
- 4-6) The District's budget is designed to cut costs where possible.
- 4-7) The District cooperates with other water districts to build and maintain water supply.
- 4-8) The 4-M Water District 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.

³⁸ California Government Code Section 56430. (a)(4)

4.5 Opportunities for Shared Facilities³⁹

Purpose:

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

4.5.1 Facilities

The 4-M Water District shares the facilities and the costs of Shasta Dam, the Red Bluff Diversion 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.⁴⁰ The cost of combining the Districts would far exceed any benefit derived.

4.5.2 MSR Determinations on Shared Facilities for 4-M Water District

- 5-1) The District works with other districts and agencies whenever it is legally and physically possible.
- 5-2) 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.
- 5-3) The District uses the services of the Special Districts Auditor in the Colusa County Auditor's Office to prepare the annual audit.

³⁹ California Government Code Section 56430. (a)(5)

⁴⁰ Tehama-Colusa Canal Authority, J. Mark Atlas, Attorney, 332 West Sycamore Street, Willows, CA 95988, 530-934-5416, jma@jmatlaslaw.com, E-Mail: January 9, 2009.

4.6 Accountability for Community Service Needs, Governmental Structure and Operational Efficiencies⁴¹

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.

4.6.1 Government Structure

The 4-M Water District has a five-member Board of Directors. A Water District is a landowner voter District. The District was open to providing the information requested by Colusa LAFCO.

4.6.2 MSR Determinations on Government Structure and Accountability for 4-M Water District

- 6-1) The Water District is the most suitable form of organization for the 4-M Water District.
- 6-2) The Board meets as needed.
- 6-3) The District has an elected Board.
- 6-4) The District Boundary should remain the same.
- 6-5) 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.

⁴¹ California Government Code Section 56430. (a)(6).

5 *SPHERE OF INFLUENCE FOR 4-M WATER DISTRICT*

5.1 *SOI Requirements*

5.1.1 *LAFCO's Responsibilities*

This Sphere of Influence (SOI) 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 SOI consists of a review of water service as provided by the 4-M Water District and the District Boundary.

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.

5.1.2 *Sphere of Influence Requirements*

In determining the Sphere of Influence for each local agency, LAFCO must consider and prepare a written statement of determinations with respect to each of the following:

1. The present and planned land uses in the area, including agricultural and open space lands;
2. The present and probable need for public facilities and services in the area;
3. The present capacity of public facilities and adequacy of public services which the agency provides, or is authorized to provide; and
4. The existence of any social or economic communities of interest in the area if the commission determines that they are relevant to the agency.
5. For an update of an SOI of a city or special district that provides public facilities or services related to sewers, municipal and industrial water, or structural fire protection, the present and probable need for those public facilities and services of any disadvantaged unincorporated communities within the existing sphere of influence.

5.1.3 LAFCO Policies and Procedures Related to Spheres of Influence

The Colusa LAFCO adopted policies and procedures related to Spheres of Influence on February 5, 2004.

5.1.4 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.

SOI policies have been adopted by the Colusa LAFCO. Colusa LAFCO has discussed and considered the SOI 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 Sphere of Influence will be prepared as a draft, and will be subject to public and agency comment prior to final consideration by the Colusa LAFCO.

5.1.5 Possible Approaches to the Sphere of Influence

LAFCO may recommend government reorganizations to particular agencies in the county, using the SOIs as the basis for those recommendations. Based on review of the guidelines of Colusa LAFCO as well as other LAFCOs in the State, various conceptual approaches have been identified from which to choose in designating an SOI. These seven approaches are explained below:

1) Coterminous Sphere:

The Sphere of Influence for a city or special district that is the same as its existing boundaries. (This is the recommendation for the 4-M Water District.)

2) Annexable Sphere:

A sphere larger than the agency's boundaries identifies areas the agency is expected to annex. The annexable area is outside its boundaries and inside the sphere.

3) Detachable Sphere:

A sphere that is smaller than the agency's boundaries identifies areas the agency is expected to detach. The detachable area is the area within the agency bounds but not within its sphere.

4) Zero Sphere:

A zero sphere indicates the affected agency's public service functions should be reassigned to another agency and the agency should be dissolved or combined with one or more other agencies.

5) Consolidated Sphere:

A consolidated sphere includes two or more local agencies and indicates the agencies should be consolidated into one agency.

6) Limited Service Sphere:

A limited service sphere is the territory included within the SOI of a multi-service provider agency that is also within the boundary of a limited purpose district which provides the same service (e.g., fire protection), but not all needed services. Territory designated as a limited service SOI may be considered for annexation to the limited purpose agency without detachment from the multi-service provider.

This type of SOI is generally adopted when the following conditions exist:

- a) the limited service provider is providing adequate, cost effective and efficient services,
- b) the multi-service agency is the most logical provider of the other services,
- c) there is no feasible or logical SOI alternative, and
- d) inclusion of the territory is in the best interests of local government organization and structure in the area.

Government Code §56001 specifically recognizes that in rural areas it may be appropriate to establish limited purpose agencies to serve an area rather than a single service provider, if multiple limited purpose agencies are better able to provide efficient services to an area rather than one service district.

Moreover, Government Code Section §56425(i), governing sphere determinations, also authorizes a sphere for less than all of the services provided by a district by requiring a district affected by a sphere action to "establish the nature, location, and extent of any functions of classes of services provided by existing districts" recognizing that more than one district may serve an area and that a given district may provide less than its full range of services in an area.

7) Sphere Planning Area:

LAFCO may choose to designate a sphere planning area to signal that it anticipates expanding an agency's SOI in the future to include territory not yet within its official SOI.

5.1.6 SOI Update Process

LAFCO is required to establish SOIs for all local agencies and enact policies to promote the logical and orderly development of areas within the SOIs. Furthermore, LAFCO must update those SOIs every five years. In updating the SOI, LAFCO is required to conduct a municipal service review (MSR) and adopt related determinations.

This report identifies preliminary SOI policy alternatives and recommends the SOI option for the 4-M Water District. Development of actual SOI updates will involve additional steps, including opportunity for public input at a LAFCO public hearing, and consideration and changes made by Commissioners.

LAFCO must notify affected agencies 21 days before holding a public hearing to consider the SOI and may not update the SOI until after that hearing. The LAFCO Executive Officer must issue a report including recommendations on the SOI amendments and updates under consideration at least five days before the public hearing.

5.1.7 SOI Amendments and CEQA

LAFCO has the discretion to limit SOI updates to those that it may process without unnecessarily delaying the SOI update process or without requiring its funding agencies to bear the costs of environmental studies associated with SOI expansions. Any local agency or individual may file a request for an SOI amendment. The request must state the nature of and reasons for the proposed amendment, and provide a map depicting the proposal.

LAFCO may require the requester to pay a fee to cover LAFCO costs, including the costs of appropriate environmental review under CEQA. LAFCO may elect to serve as lead agency for such a review, may designate the proposing agency as lead agency, or both the local agency and LAFCO may serve as co-lead agencies for purposes of an SOI amendment. Local agencies are encouraged to consult with LAFCO staff early in the process regarding the most appropriate approach for the particular SOI amendment under consideration.

Certain types of SOI amendments are likely exempt from CEQA review. Examples are SOI expansions that include territory already within the bounds or service area of an agency, SOI reductions, and zero SOIs. SOI expansions for limited purpose agencies that provide services (e.g., fire protection, levee protection, cemetery, and resource conservation) needed by both rural and urban areas are typically not considered growth-inducing and are likely exempt from CEQA. Similarly, SOI expansions for districts serving rural areas (e.g., irrigation water) are typically not considered growth-inducing.

Remy et al. write

In *City of Agoura Hills v. Local Agency Formation Commission* (2d Dist.1988) 198 Cal.App.3d480, 493-496 [243 Cal.Rptr.740] (*City of Agoura Hills*), the court held that a LAFCO's decision to approve a city's sphere of influence that in most respects was coterminous with the city's

existing municipal boundaries was not a “project” because such action did not entail any potential effects on the physical environment.⁴²

Since the recommendation is to keep the Sphere of Influence for the 4-M Water District the same and the Boundary of the District there will be no environmental impacts from the adoption of the Sphere and no environmental document is required.

5.2 Land Use

5.2.1 *Present and Planned Land Uses in the 4-M Water District Area, Including Agricultural and Open Space Lands*⁴³

The Colusa County General Plan and Zoning for the 4-M Water District area are shown on maps at the end of this report.

The zoning Designations are Agriculture Preserve (80 acre minimum parcel size) and Exclusive Agriculture (40 acre minimum parcel size).

The land use in the area is agricultural. The General Plan and the zoning of Colusa County support the agricultural use of this land. There is no conflict with the 4-M Water District and the Colusa County General Plan and Zoning.

5.2.2 *SOI Determinations Present and Planned Land Use for 4-M Water District*

- 1-1] The Sphere of Influence for the 4-M Water District will be the same as the District Boundary.
- 1-2] There are no conflicts with the 4-M Water District and existing or proposed land uses in the area because the Colusa County General Plan designates the area for agricultural land use.
- 1-3] The 4-M Water District has water-rights and water to serve the land within the present boundary but does not have the capacity to substantially expand.
- 1-4] There are no logical areas for expansion of the 4-M Water District since other districts serve most of the surrounding land.
- 1-5] If the 4-M Water District proposes an annexation or detachment in the future a revised Municipal Service Review and Sphere of Influence will be required.

⁴² Remy, Michael H., Tina A. Thomas, James G. Moose, Whitman F. Manley, *Guide to CEQA*, Solano Press Books, Point Arena, CA, February 2007, page 111.

⁴³ California Government Code Section 56425 (e)(1)

5.3 Present and Probable Need for Public Facilities and Services in the 4-M Water District Area⁴⁴

5.3.1 Service Need for 4-M Water District

The lands within the 4-M Water District need the services that are provided. There is no additional water to provide service for more land. Therefore, the Sphere of Influence for the 4-M Water District will be the same as the District Boundary with the proposed detachment and annexation.

5.3.2 SOI Determinations for Facilities and Services Probable Need for 4-M Water District

- 2-1] The land within the 4-M Water District will need irrigation water as long as agriculture is a profitable business in Northern California.
- 2-2] The 4-M Water District makes a valuable contribution to the local economy for Colusa County by providing water for agriculture. This generates many jobs.

5.4 Present Capacity of Public Facilities and Adequacy of Public Services⁴⁵

5.4.1 Facilities and Capacity

The 4-M District's water-rights are established by agreements with the US Bureau of Reclamation. However, if there is not sufficient water stored at Shasta Dam (due to lack of precipitation) the District could still face a cut in the water supply.

5.4.2 SOI Determinations for Public Facilities Present and Future Capacity for 4-M Water District

- 3-1] The 4-M Water District has adequate water rights to provide irrigation water to the landowners as it is available from the USBR for the foreseeable future.
- 3-2] The District promotes water conservation and the use of technology to prevent waste.

⁴⁴ California Government Code Section 56425 (e)(2)

⁴⁵ California Government Code Section 56425 (e)(3)

5.5 Social or Economic Communities of Interest⁴⁶

5.5.1 4-M Water District

The 4-M Water District does not serve a community in the traditional sense of the word because there are only ten residents within the District. There is an economic community of landowners who formed the District and who benefit from the agricultural water service provided.

5.5.2 *SOI Determinations for Social or Economic Communities of Interest for 4-M Water District*

4-1] Most of the landowners for the 4-M Water District live within the District.

5.6 Disadvantaged Unincorporated Community Status⁴⁷

5.6.1 Disadvantaged Unincorporated Communities

Senate Bill 244 was a significant piece of LAFCO related legislation passed in 2011. This bill required LAFCO to make determinations regarding “Disadvantaged Unincorporated Communities” (DUCs). Disadvantaged Unincorporated Communities are defined as inhabited territory that constitutes all or a portion of a community with an annual median household income that is less than 80 percent of the statewide annual household income (MHI).

State law requires identification and analysis of service issues within DUCs as part of municipal service reviews (MSRs) and sphere of influence (SOI) reviews. State law also places restrictions on annexations to cities if the proposed annexation is adjacent to a DUC.

There are only ten residents within the 4-M Water District.

5.6.2 4-M Water District Disadvantaged Unincorporated Community Status

5-1] There are no DUCs within the 4-M Water District.

⁴⁶ California Government Code Section 56425 (e)(4)

⁴⁷ California Government Code Section 56425 (e)(5)

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	4-M Water District
DUC	Disadvantaged Unincorporated Community
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
LAIF	Local Agency Investment Fund
MHI	Median Household Income
MSR	Municipal Service Review
NMFS	National Marine Fisheries Service
RRA	Reclamation Reform Act of 1982
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).

Agriculture: Use of land for the production of food and fiber, including the growing of crops and/or the grazing of animals on natural prime or improved pasture land.

Aquifer: An underground, water-bearing layer of earth, porous rock, sand, or gravel, through which water can seep or be held in natural storage. Aquifers generally hold sufficient water to be used as a water supply.

Bond: An interest-bearing promise to pay a stipulated sum of money, with the principal amount due on a specific date. Funds raised through the sale of bonds can be used for various public purposes.

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.⁴⁸

California Environmental Quality Act (CEQA): A State Law requiring State and local agencies to regulate activities with consideration for environmental protection. If a proposed activity has the potential for a significant adverse environmental impact, an environmental impact report (EIR) must be prepared and certified as to its adequacy before taking action on the proposed project.

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.⁴⁹

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.⁵⁰

Exempt land: Irrigation land in a district to which the acreage limitation and pricing provisions of Reclamation law do not apply.⁵¹

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.

⁴⁸ <http://www.usbr.gov/library/glossary/#hmr>

⁴⁹ <http://www.usbr.gov/dataweb/html/cvp.html>

⁵⁰ http://en.wikipedia.org/wiki/Drip_irrigation

⁵¹ <http://www.usbr.gov/library/glossary/#hmr>

Land Use Classification: A system for classifying and designating the appropriate use of properties.

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

Local Agency Formation Commission (LAFCO): A five-or seven-member commission within each county that reviews and evaluates all proposals for formation of special districts, incorporation of cities, annexation to special districts or cities, consolidation of districts, and merger of districts with cities. Each county's LAFCO is empowered to approve, disapprove, or conditionally approve such proposals. The LAFCO members generally include two county supervisors, two city council members, and one member representing the general public. Some LAFCOs include two representatives of special districts.

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.

Sphere of Influence (SOI): The probable physical boundaries and service area of a local agency, as determined by the Local Agency Formation Commission (LAFCO) of the county.

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.⁵²

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. The US Bureau of Reclamation water year is March 1st to February 28th and October 1st to September 30th is the water account year.

Watershed: The land area from which water drains into a stream, river, or reservoir.

Zoning: The division of a city by legislative regulations into areas, or zones, that specify allowable uses for real property and size restrictions for buildings within these areas; a program that implements policies of the general plan.

⁵² http://www.delta.dfg.ca.gov/afrp/acronym_template.asp?code=371

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APPENDIX A SOIL INFORMATION⁵³

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
Mean annual precipitation:	14 to 16 inches
Mean annual air temperature:	61 to 63 degrees F.
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

⁵³ US Natural Resources Conservation Service, Soil Survey of Colusa County California.

112—Westfan loam, 0 to 2 percent slopes

Map Unit Setting

General location: Near Williams and Arbuckle

Map unit geomorphic setting: Alluvial fan

Elevation: 65 to 150 feet

Mean annual precipitation: 14 to 16 inches

Mean annual air temperature: 61 to 63 degrees F.

Frost-free period: 225 to 250 days

Westfan loam—80 percent

Minor components: 20 percent

Major Component Description: Westfan loam

Component geomorphic setting: Alluvial fan

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: None noted

Slowest permeability class: Moderately slow

Salinity: Not saline

Sodicity: Sodic within 40 inches

Available water capacity: About 8.8 inches (High)

Component Hydrologic Properties

Present flooding: Rare

Present ponding: None

Current water table: None noted

Natural drainage class: Well drained

Interpretive Groups

Land capability irrigated: 1

Land capability nonirrigated: 4s

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
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 61 to 63 degrees F.
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
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 61 to 63 degrees F.
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
Mean annual precipitation:	14 to 16 inches
Mean annual air temperature:	61 to 63 degrees F.
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

147—Hillgate loam, 1 to 5 percent slopes

Map Unit Setting

General location: West of Arbuckle and foothill valleys

Geomorphic setting: Terraces

Elevation: 95 to 400 feet

Mean annual precipitation: 14 to 16 inches

Mean annual air temperature: 61 to 63 degrees F.

Frost-free period: 225 to 250 days

Composition: Hillgate loam—90 percent Minor components—10 percent

Major Component Description: Hillgate loam

Geomorphic setting: Terraces

Parent material: Alluvium

Typical vegetation: Irrigated crops

Properties and qualities

Slope: 1 to 5 percent

Runoff rate: Low

Percentage of the surface covered by rock fragments: None

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)

Hydrologic properties

Present flooding: None

Present ponding: None

Current water table: None noted

Natural drainage class: Well drained

Land capability classification: Irrigated: 2e-3

155—Alcapay clay, 0 to 1 percent slopes

Map Unit Setting

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

Geomorphic setting: Basin floors

Elevation: 45 to 110 feet

Mean annual precipitation: 14 to 16 inches

Mean annual air temperature: 61 to 63 degrees F

Frost-free period: 225 to 250 days

Composition Alcapay clay—90 percent Minor components—10 percent

Major Component Description: Alcapay clay

Geomorphic setting: Basin floors

Parent material: Alluvium

Typical vegetation: Irrigated crops

Properties and qualities

Slope: 0 to 1 percent

Runoff rate: Very low

Percentage of the surface covered by rock fragments: None

Slowest permeability class: Slow

Salinity: Saline within a depth of 40 inches

Sodicity: Sodic within a depth of 40 inches

Available water capacity: About 8.9 inches (high)

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 drainage ditches used in the production of rice.

Land capability classification: Irrigated: 3w-5, Nonirrigated: 4w-5

Management Major Use: Irrigated crops

200—Clear Lake clay

Map Unit Setting

General location: Small areas in foothill basins

Geomorphic setting:

Basins Elevation: 175 to 1,360 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 57 to 63 degrees F.

Frost-free period: 185 to 250 days

Composition: Clear Lake clay, occasionally flooded—90 percent

Minor components—10 percent

Major Component Description Clear Lake clay, occasionally flooded

Geomorphic setting: Basin floors

Parent material: Alluvium

Typical vegetation: Annual grasses and forbs

Properties and qualities

Slope: 0 to 2 percent

Runoff rate: Very low

Percentage of the surface covered by rock fragments: None

Slowest permeability class: Slow

Salinity: Not saline

Sodicity: Not sodic

Available water capacity: About 8.9 inches (high)

Hydrologic properties

Present flooding: Occasional

Present ponding: None

Current water table: Present

Natural drainage class: Poorly drained

Altered hydrology: Flood-control structures on the Sacramento River have changed flooding frequency and duration and lowered water tables. The soil has been drained by stream incisement.

Land capability classification:

Irrigated: 3w-5

Nonirrigated: 4w-5

Use and Management: Major use: Livestock grazing

204—Capay clay, 0 to 3 percent slopes, occasionally flooded

General location:	Small areas in foothill basins
Geomorphic setting:	Basin
Elevation:	175 to 350 feet
Mean annual precipitation:	16 to 22 inches
Mean annual air temperature:	57 to 61 degrees F.
Frost-free period:	225 to 250 days

Capay clay, occasionally flooded—90 percent
Minor components: 10 percent

Major Component Description Capay clay, occasionally flooded

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

Component Properties and Qualities

Slope:	0 to 3 percent
Runoff:	High
Surface features:	Polygonal surface cracking; polygons are approximately 24 inches in diameter

Percent area covered by surface coarse fragments:	None noted.
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Depth to restrictive feature:	None noted
Slowest permeability class:	Very slow
Salinity:	Not saline
Sodicity:	Not sodic
Available water capacity:	About 8.9 inches (High)

Component Hydrologic Properties

Present flooding:	Occasional
Present ponding:	None
Current water table:	Present
Natural drainage class:	Moderately well drained

Interpretive Groups

Land capability irrigated: 2w-5
Land capability nonirrigated: 4w-5

205—Capay clay, 0 to 3 percent slopes

Map Unit Setting

General location: Foothill basins

Geomorphic setting: Basins

Elevation: 175 to 1,200 feet

Mean annual precipitation: 16 to 28 inches

Mean annual air temperature: 57 to 61 degrees F

Frost-free period: 225 to 250 days

Composition Capay clay—90 percent

Minor components—10 percent

Major Component Description Capay clay

Geomorphic setting: Basin floors

Parent material: Alluvium

Typical vegetation: Annual grasses and forbs

Properties and qualities

Slope: 0 to 3 percent

Runoff rate: High

Surface features: Polygonal surface cracking; polygons are approximately 24 inches in diameter.

Percentage of the surface covered by rock fragments: None

Slowest permeability class: Very slow

Salinity: Not saline

Sodicity: Not sodic

Available water capacity: About 8.9 inches (high)

Hydrologic properties

Present flooding: Rare

Present ponding: None

Current water table: Present

Natural drainage class: Moderately well drained

Land capability classification: Irrigated: 2s-5, Nonirrigated: 4s-5

Management: Major use: Livestock grazing

206—Capay clay, 5 to 9 percent slopes

Map Unit Setting

General location: Foothill basins

Geomorphic setting: Basins

Elevation: 175 to 400 feet
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 57 to 61 degrees
Frost-free period: 225 to 250 days

Composition Capay clay—90 percent Minor components—10 percent

Major Component Description Capay clay

Geomorphic setting: Toeslopes
Parent material: Alluvium
Typical vegetation: Annual grasses and forbs

Properties and qualities

Slope: 5 to 9 percent
Runoff rate: Very low
Surface features: Polygonal surface cracking; polygons are approximately 24 inches in diameter.

Percentage of the surface covered by rock fragments: None

Slowest permeability class: Very slow
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 8.9 inches (high)

Hydrologic properties

Present flooding: None
Present ponding: None
Current water table: Present
Natural drainage class: Moderately well drained

Land capability classification

Irrigated: 2s-5, Nonirrigated: 4s-5

Use and Management

Major use: Livestock grazing

210—Corval loam, 0 to 3 percent slopes

General location:	None noted.
Geomorphic setting:	Flood plain and alluvial fan
Elevation:	200 to 1400 feet
Mean annual precipitation:	14 to 22 inches
Mean annual air temperature:	57 to 63 degrees F.
Frost-free period:	185 to 250 days

Corval loam—85 percent
Minor components: 15 percent

Major Component Description Corval loam

Component geomorphic setting:	Flood plain, alluvial fan
Parent material:	Alluvium
Typical vegetation:	Annual grasses and forbs

Component Properties and Qualities

Slope:	0 to 3 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:	Moderately slow
Salinity:	Not saline
Sodicity:	Not sodic
Available water capacity:	About 11.0 inches (Very high)

Component Hydrologic Properties

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

Interpretive Groups

Land capability irrigated: 1
Land capability nonirrigated: 4s

213—Ayar clay, 15 to 30 percent slopes

Map Unit Setting

General location: West of Maxwell, in the lower foothills and near Spring Valley.

Geomorphic setting: Hills

Elevation:	150 to 505 feet
Mean annual precipitation:	14 to 18 inches
Mean annual air temperature:	61 to 63 degrees F.
Frost-free period:	225 to 250 days

Composition Ayar clay—85 percent Minor components—15 percent

Major Component Description: Ayar clay

Geomorphic setting:	Side slopes of hills
Parent material:	Calcareous residuum weathered from sandstone
Typical vegetation:	Annual grasses and forbs

Properties and qualities

Slope:	15 to 30 percent
Runoff rate:	Medium
Surface features:	Polygonal cracking pattern; polygons are approximately 24 inches in diameter.

Percentage of the surface covered by rock fragments: None

Depth to restrictive feature: Bedrock (paralithic)—60 to 80 inches

Slowest permeability class: Slow above the bedrock

Salinity: Not saline

Sodicity: Not sodic

Available water capacity: About 9.4 inches (high)

Hydrologic properties

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

Land capability classification: Irrigated: 4e-5, Nonirrigated: 4e-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
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 61 to 63 degrees F.
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

218—Sehorn-Altamont complex, 30 to 50 percent slopes

Map Unit Setting

General location: The lower Coast Range foothills on steep ridges

Geomorphic setting:	Hills
Elevation:	200 to 800 feet
Mean annual precipitation:	14 to 18 inches
Mean annual air temperature:	61 to 63 degrees F
Frost-free period:	225 to 250 days

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

Major Component Description Sehorn silty clay

Geomorphic setting:	Side slopes of hills
Parent material:	Residuum weathered from sandstone and shale
Typical vegetation:	Blue oak and annual grasses

Properties and qualities

Slope:	30 to 50 percent
Runoff rate:	High
Surface features:	Polygonal cracking pattern; the polygons are approximately 24 inches in diameter.

Percentage of the surface covered by rock fragments: None

Depth to restrictive feature:	Bedrock (lithic)—20 to 40 inches
Slowest permeability class:	Slow above the bedrock
Salinity:	Not saline
Sodicity:	Not sodic
Available water capacity:	About 4.5 inches (low)

Hydrologic properties

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

Land capability classification

Irrigated: Not calculated
Nonirrigated: 6e

220—Altamont silty clay, 5 to 9 percent slopes

General location: West of Maxwell in the lower foothills and Spring Valley

Geomorphic setting: Hill
Elevation: 200 to 800 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 61 to 63 degrees F.
Frost-free period: 225 to 250 days

Altamont silty clay—85 percent
Minor components: 15 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: 5 to 9 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: 2e-5 Land capability nonirrigated: 4e-5

230—Corning clay loam, 1 to 5 percent slopes

General location:	Small areas scattered throughout the foothills
Geomorphic setting:	Terrace
Elevation:	150 to 1295 feet
Mean annual precipitation:	14 to 22 inches
Mean annual air temperature:	57 to 63 degrees F.
Frost-free period:	225 to 250 days

Corning clay loam—90 percent
Minor components: 10 percent

Major Component Description Corning clay loam

Component geomorphic setting:	Terrace
Parent material:	Alluvium
Typical vegetation:	Annual grasses with scattered blue oak

Component Properties and Qualities

Slope:	1 to 5 percent
Runoff:	Medium
Surface features:	None noted.

Percent area covered by surface coarse fragments: None noted.

Depth to restrictive feature:	Abrupt textural change—9 inches
Slowest permeability class:	Slow
Salinity:	Not saline
Sodicity:	Not sodic
Available water capacity:	About 1.7 inches (Very 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: 3e-5
Land capability nonirrigated: 4e-5

253—Millsholm-Altamont-Rock outcrop complex, 5 to 15 percent slopes

Map Unit Setting

General location: The lower Coast Range foothills

Geomorphic setting:	Hills
Elevation:	180 to 350 feet
Mean annual precipitation:	14 to 18 inches
Mean annual air temperature:	61 to 63 degrees F
Frost-free period:	225 to 250 days

Composition Millsholm loam—55 percent Altamont silty clay—20 percent Rock outcrop—15 percent Minor components—10 percent

Major Component Description Millsholm loam

Geomorphic setting:	Side slopes of hills
Parent material:	Residuum weathered from sandstone and shale
Typical vegetation:	Annual grasses and scattered oak

Properties and qualities

Slope: 5 to 15 percent
Runoff rate: Low

Percentage of the surface covered by rock fragments: None

Depth to restrictive feature: Bedrock (lithic)—10 to 20 inches

Slowest permeability class:	Moderate above the bedrock
Salinity:	Not saline
Sodicity:	Not sodic
Available water capacity:	About 2.1 inches (very low)

Hydrologic properties

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

Land capability classification

Irrigated: Not calculated

Nonirrigated: 6e

255—Millsholm-Rock outcrop complex, 9 to 30 percent slopes

Map Unit Setting

General location: The lower Coast Range foothills.

Geomorphic setting:	Hills
Elevation:	200 to 400 feet
Mean annual precipitation:	14 to 18 inches
Mean annual air temperature:	61 to 63 degrees F.
Frost-free period:	225 to 250 days

Composition Millsholm loam—55 percent Rock outcrop—35 percent Minor components—10 percent

Major Component Description: Millsholm loam

Geomorphic setting:	Side slopes of hills
Parent material:	Residuum weathered from sandstone and shale
Typical vegetation:	Annual grasses and scattered oak

Properties and qualities

Slope: 9 to 30 percent
Runoff rate: Medium

Percentage of the surface covered by rock fragments: None

Depth to restrictive feature: Bedrock (lithic)—10 to 20 inches

Slowest permeability class:	Moderate above the bedrock
Salinity:	Not saline
Sodicity:	Not sodic
Available water capacity:	About 2.1 inches (very low)

Hydrologic properties

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

Land capability classification:
Irrigated: 6e
Nonirrigated: 6e

257—Millsholm-Capay complex, 3 to 9 percent slopes

Map Unit Setting

General location: The lower Coast Range foothills

Geomorphic setting: Hills
Elevation: 25 to 400 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 225 to 250 days

Composition
Millsholm loam—50 percent
Capay clay—35 percent
Minor components—15 percent

Major Component Description: Millsholm loam

Geomorphic setting: Side slopes of hills
Parent material: Residuum weathered from sandstone and shale
Typical vegetation: Annual grasses and scattered oak

Properties and qualities

Slope: 3 to 9 percent
Runoff rate: Medium

Percentage of the surface covered by rock fragments: None

Depth to restrictive feature: Bedrock (lithic)—10 to 20 inches
Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.1 inches (very low)

Hydrologic properties

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

Land capability classification

Irrigated: 6e Nonirrigated: 6e

332—Millsholm-Rock outcrop association, 30 to 75 percent slopes

Map Unit Setting

General location: Foothills east of East Park Reservoir and foothills near the Glenn County boundary

Geomorphic setting: Alluvial fans
Elevation: 400 to 600 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 61 to 63 degrees F.
Frost-free period: 225 to 250 days

Composition: Millsholm loam—50 percent
Rock outcrop—40 percent
Minor components—10 percent

Major Component Description: Millsholm loam

Geomorphic setting: Side slopes of hills
Parent material: Residuum weathered from sandstone and shale
Typical vegetation: Annual grasses and scattered oak

Properties and qualities

Slope: 30 to 75 percent
Runoff rate: Medium

Percentage of the surface covered by rock fragments: None

Depth to restrictive feature: Bedrock (lithic)—10 to 20 inches

Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.1 inches (very low)

Hydrologic properties

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

Land capability classification

Irrigated: Not calculated
Nonirrigated: 7e

334—Millsholm-Contra Costa association, 30 to 75 percent slopes

Map Unit Setting

General location: Foothill ridges

Geomorphic setting: Hills

Elevation: 275 to 1,750 feet
Mean annual precipitation: 14 to 24 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 225 to 250 days

Composition

Millsholm loam—70 percent
Contra Costa loam—15 percent
Minor components—15 percent

Major Component Description Millsholm loam

Geomorphic setting: Side slopes of hills
Parent material: Residuum weathered from sandstone and shale
Typical vegetation: Annual grasses and scattered oak

Properties and qualities

Slope: 30 to 75 percent, southeast to west aspects
Runoff rate: High

Percentage of the surface covered by rock fragments: None

Depth to restrictive feature: Bedrock (lithic)—10 to 20 inches

Slowest permeability class: Moderate above the bedrock
Salinity: Not saline
Sodicity: Not sodic
Available water capacity: About 2.1 inches (very low)

Hydrologic properties

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

Land capability classification

Irrigated: Not calculated
Nonirrigated; 7e

MAPS

Figure 1 US Bureau of Reclamation Map 4-M Water District

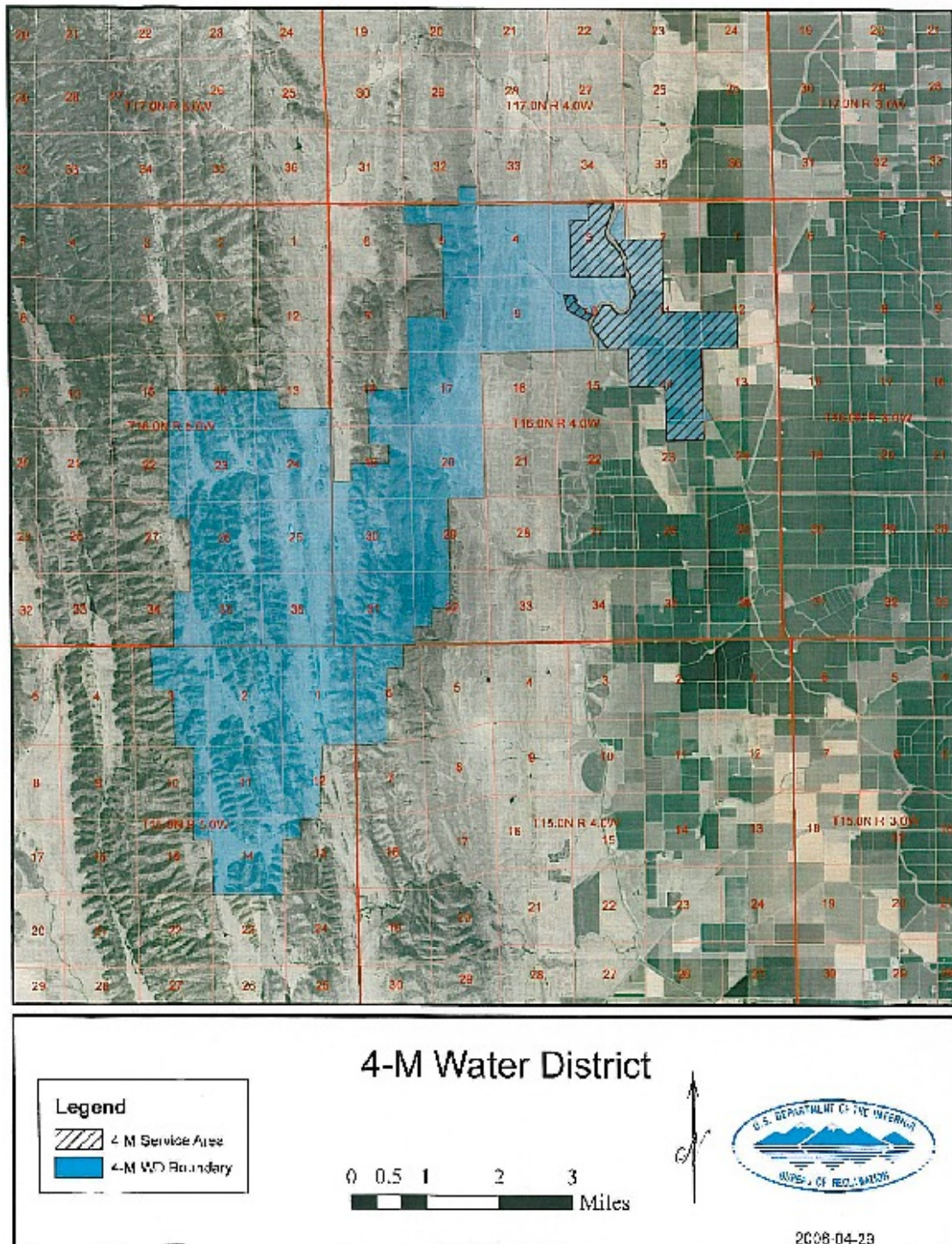


Figure 2 Location Map 4-M Water District

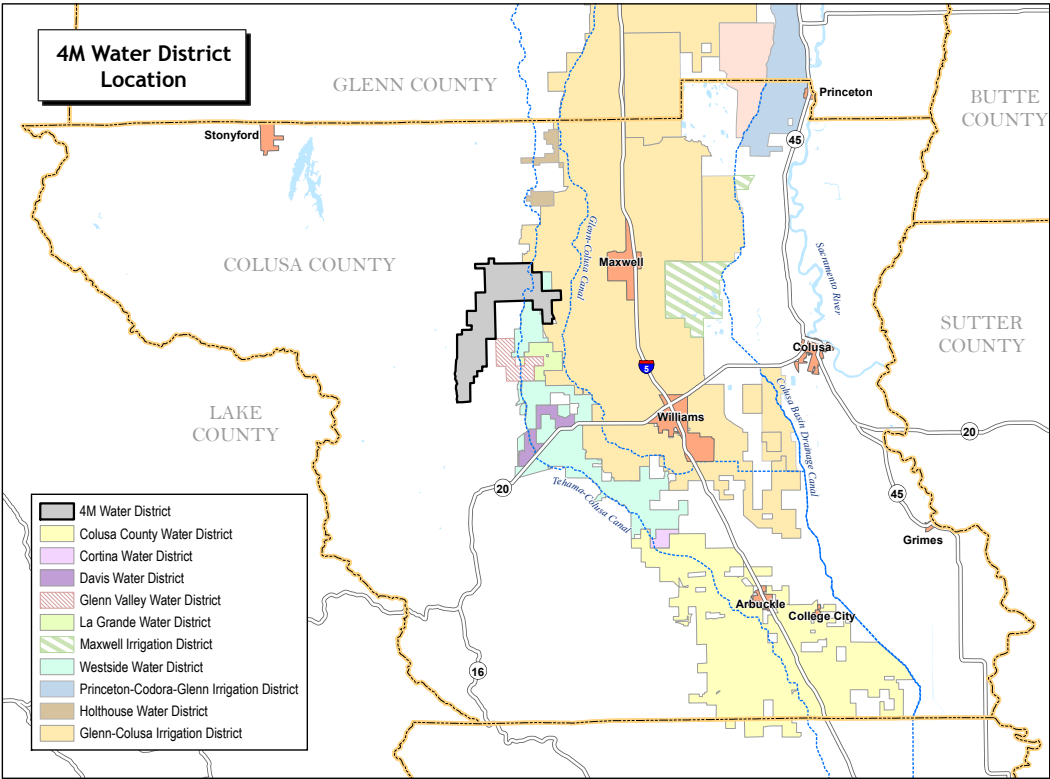


Figure 3 Boundary and Adopted Sphere of Influence (Feb 4, 2016)

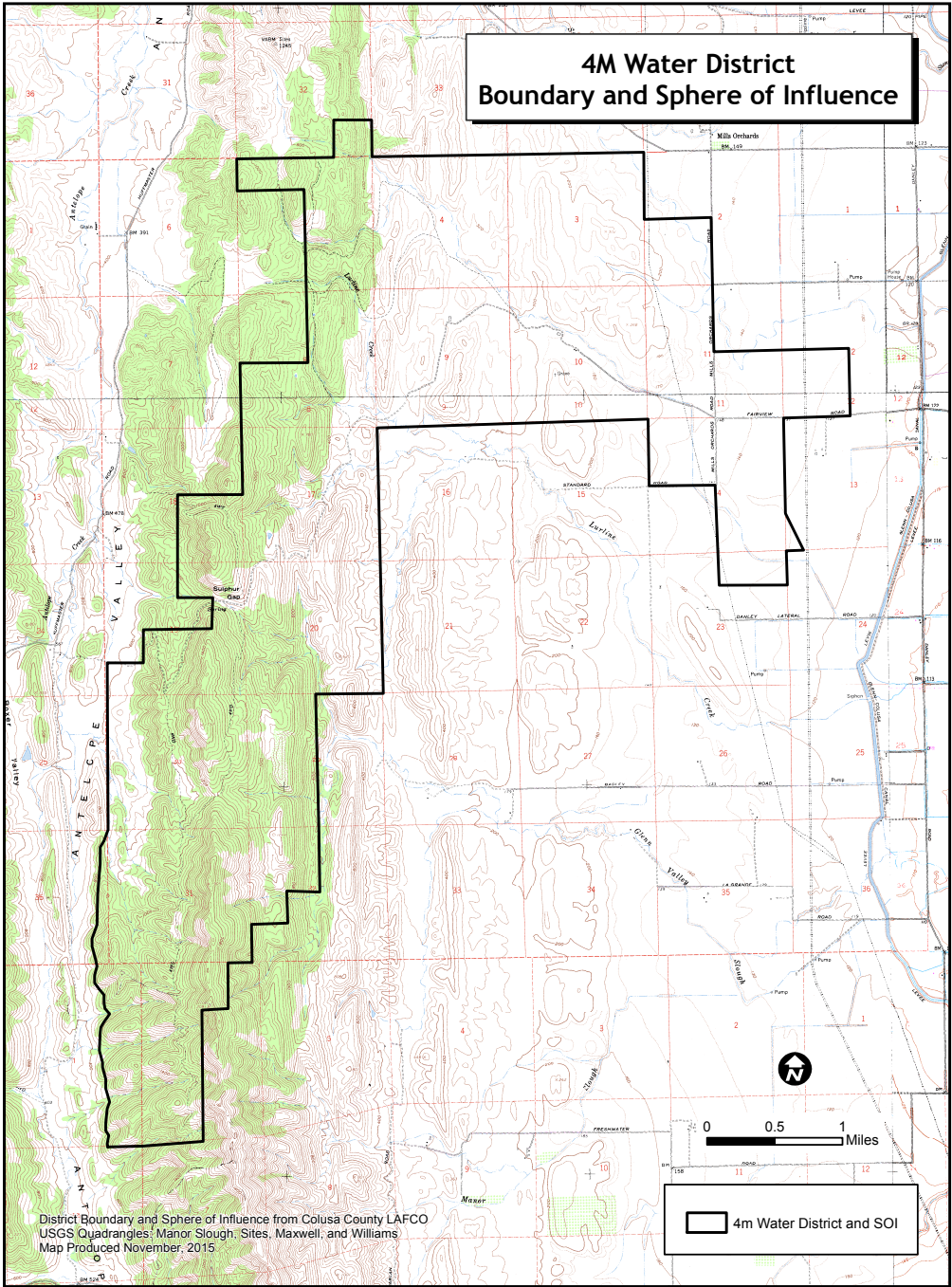


Figure 4 SOILS

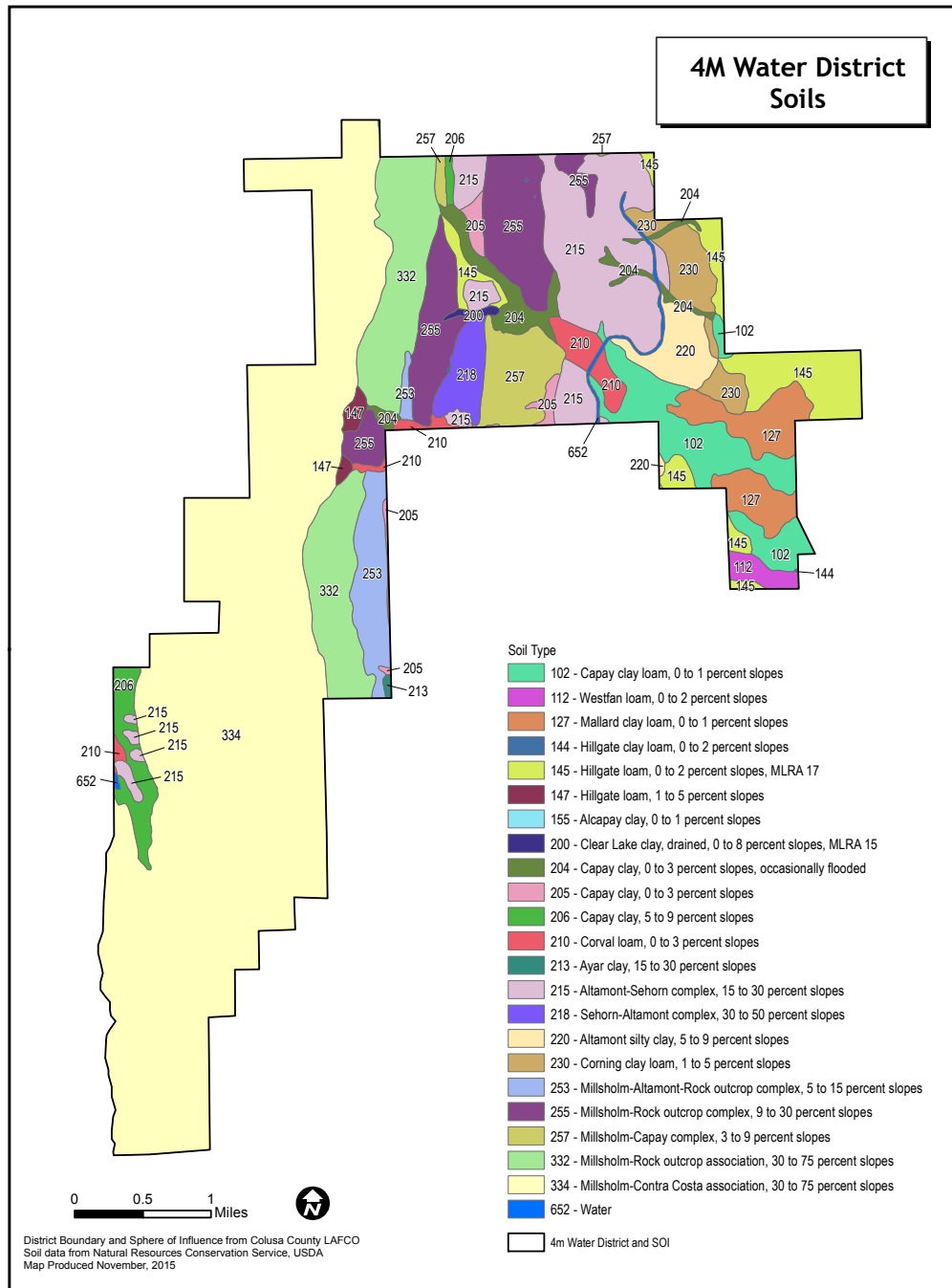


Figure 5 Colusa County General Plan

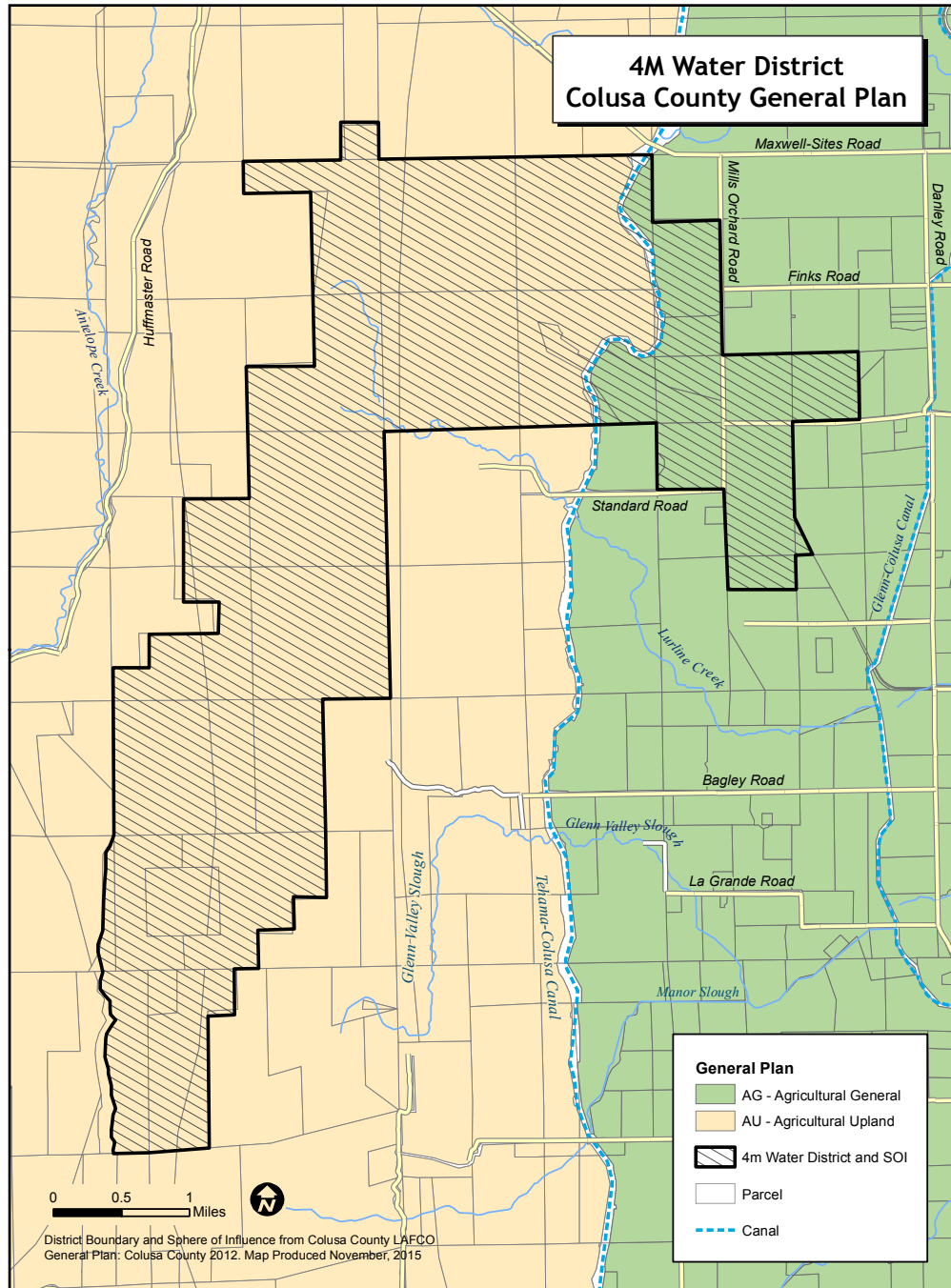


Figure 6, Colusa County Zoning

