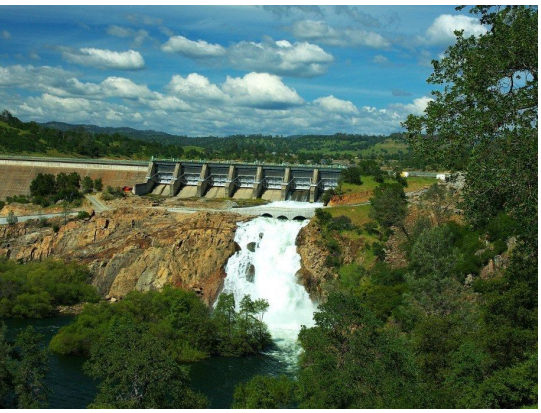

2015 Urban Water Management Plan

for the City of Lathrop

October 2017

Lathrop

eki environment & water

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LIST OF ABBREVIATIONS

°F	degrees Fahrenheit
AF	acre-feet
AOI	Area of Interest
ATY	acre-feet per year
CII	commercial, industrial, and institutional
CIP	Capital Improvement Plan
City	City of Lathrop
CLSP	Central Lathrop Specific Plan
CWC	California Water Code
DGWTP	DeGroot Water Treatment Plant
DOF	Department of Finance
DWR	California Department of Water Resources
EKI	EKI Environment & Water, Inc.
ESJ Subbasin	Eastern San Joaquin Groundwater Subbasin
ETo	reference evapotranspiration
ft bgs	feet below ground surface
GPCD	gallons per capita per day
gpm	gallons per minute
GSA	Groundwater Sustainability Agency
GWMP	Groundwater Management Plan
I-5	Interstate 5
IWRMP	Integrated Water Resources Management Plan
Lathrop	City of Lathrop
LAWTF	Louise Avenue Water Treatment Facility
mg/L	milligrams per liter
MFR	Multi-Family Residential
MSR	Municipal Service Review
pCi/l	picocurie per liter
SCADA	Supervisory Control and Data Acquisition
SCWSP	South County Water Supply Project
SED	Substitute Environmental Document
SFR	Single Family Residential
SGMA	Sustainable Groundwater Management Act
SOI	Sphere of Influence
SSJID	South San Joaquin Irrigation District
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan

1. INTRODUCTION AND PLAN PREPARATION

In 1983, the California legislature enacted the Urban Water Management Planning Act (UWMP Act) (California Water Code [CWC] §10610 - §10656). The UWMP Act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should ensure water service reliability to meet the needs of its customers during normal, dry, and multiple-dry years. The UWMP Act requires urban water suppliers to update their Urban Water Management Plan (UWMP or Plan) for submittal to the Department of Water Resources (DWR) in years ending in five and zero. In accordance with the UWMP Act, EKI Environment & Water, Inc. (EKI) has prepared this 2015 update to the City of Lathrop's Urban Water Management Plan.

1.1 COMPLIANCE WITH THE UWMP ACT

> *10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.*
>
> *10620. (b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.*

In 2015, the City of Lathrop (City or Lathrop) provided water to more than 6,000 customers, and is therefore subject to requirements of the UWMP Act. The City's 2015 UWMP is an individual UWMP (see Appendix A, DWR Table 2-2) that describes how the current and future water resources and demands within the City's service area will be managed to provide an adequate and reliable water supply. Additionally, and as applicable, the City's 2015 UWMP reflects the following significant revisions to the UWMP Act that have been made since 2010.

- Demand Management Measures – California Water Code (CWC) §10631(f)(1) and (2) Assembly Bill 2067, 2014;
- Submittal date – CWC §10621(d) and Assembly Bill 2067, 2014;
- Electronic submittal – CWC §10644(a)(2) and Assembly Bill 2067, 2014;
- Standardized forms – CWC §10644(a)(2) and Assembly Bill 2067, 2014;
- Water Loss – CWC §10631(e)(1)(J) and (e)(3)(A) and (B) Senate Bill 1420, 2014;
- Estimating future water savings – CWC §10631(e)(4) and Senate Bill 1420, 2014;
- Voluntary reporting of energy intensity – CWC §10631.2(a) and (b) Senate Bill 1036, 2014; and
- Defining water features – CWC §10632(b) and Assembly Bill 2409, 2010.

The City's 2015 UWMP has been prepared in general accordance with the format suggested in DWR's *2015 Urban Water Management Plans Guidebook for Urban Water Suppliers*, dated March 2016 (Guidebook) (DWR, 2016b). Relevant text from the UWMP Act has been included in italicized font in blue text boxes at the beginning of applicable sections of the Plan. The information

presented in the respective UWMP sections and the associated text, figures, tables and charts are collectively intended to fulfill the requirements of the UWMP Act. To the extent practicable, supporting documentation has also been provided in Appendices A through L. Other sources for the information contained herein are provided in the references section of the document.

1.2 COORDINATION AND OUTREACH

As described below, this UWMP has been prepared in coordination with the City's wholesale water supplier, water suppliers sharing a common water source, San Joaquin County, relevant water management agencies, the public, and other appropriate entities.

1.2.1 Wholesale Coordination

> *10631. (j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).*

The City's wholesale surface water supplier is the South San Joaquin Irrigation District (SSJID). As described in detail in Section 5.1.1, the City purchases Stanislaus River water from SSJID, as provided by the South County Water Supply Project (SCWSP). The SSJID notifies the City of the deliveries that it can expect to receive from the SCWSP on an annual basis. The City in turn notifies the SSJID each year of the deliveries that it expects to receive over the next three years.

As part of the coordination effort for the 2015 UWMP, and in compliance with CWC §10631(j), the City provided SSJID with its water demand projections through 2040. As described in Section 6.1.1, the City relied on allocation projections from SSJID's 2015 UWMP for the purposes of analyzing the reliability of its surface water supplies during normal and dry years through 2040.

1.2.2 Agency Coordination and Notification

> *10620 (d) (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.*

The City's surface water supply source, the SCWSP, is supplied as part of a collaborative effort with SSJID and the cities of Manteca, Escalon, and Tracy. Among other things, the City coordinates with the entities involved in the SCWSP to schedule water deliveries.

The remainder of the City's normal year water supply comes from groundwater extracted from the Eastern San Joaquin Groundwater Subbasin (DWR Basin 5-22.01) of the San Joaquin Valley Groundwater Basin. The City also overlays the Tracy Groundwater Subbasin of the San Joaquin Valley Groundwater Basin (DWR Basin 5-22.15), but does not currently own or operate groundwater wells in the Tracy Subbasin. The City has informed the San Joaquin County Public Works, the entity involved in development of the Joint Exercise of Powers Agreement (JPA) in accordance with the Sustainable Groundwater Management Act (SGMA; see Section 5.2.2.5), of this UWMP update

On 9 June 2017, the City sent a letter to the agencies identified in Table 1-1 to inform them that the City was in the process of updating its UWMP and was soliciting their input. The letter sent to each of the agencies also informed them that the document would be available for review and welcomed their input and comments on the document. The Public Review Draft 2015 UWMP was available for public review at the Department of Public Works and on the City's website. An email was also sent to these agencies informing them that the UWMP public hearing would be occurring at City Hall. A sample copy of the notification letters described above is included in Appendix B.

1.2.3 Public Participation

> *10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.*

The City notified the public and solicited the public's input throughout the 2015 UWMP preparation process. Consistent with Government Code 6066[1], on 1 and 8 September 2017, the City published a notice in *Manteca Bulletin* informing the public that the Public Review Draft 2015 UWMP would be available for public review at the Public Works Department and on the City's website. The notice also informed the public that the 2015 UWMP public hearing would be held at Lathrop City Hall on 18 September 2017. A copy of the newspaper announcement is included in Appendix B.

[1] Government Code Section 6066. Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

Table 1-1
Notification to Cities, Counties, and Other Agencies (DWR Table 10-1)

Entity Name	Notification Required (a)	60-Day Notice (b)	Notice of Public Hearing (b)	Provided Comments
City of Escalon	No	☑	☑	No
City of Manteca	No	☑	☑	No
City of Tracy	No	☑	☑	No
San Joaquin County Department of Public Works	Yes	☑	☑	No
South San Joaquin Irrigation District	No	☑	☑	No

Notes:

(a) The notifications listed in this table are required to be sent to any city or county within which the water supplier provides water, per CWC §10621 and §10642.

(b) The 60-day notices and public hearing notices were combined into a single notice letter distributed to recipients on 9 June 2017.

1.3 RELATIONSHIP OF THE 2015 UWMP TO OTHER PLANNING EFFORTS

In addition to the efforts mentioned above, the City's 2015 UWMP was prepared in close coordination with development of the City's Integrated Water Resources Master Plan (IWRMP), which is a comprehensive update to the City's Potable Water, Wastewater, and Recycled Water Master Plans. The IWRMP project was initiated in 2016 and is anticipated to be completed by the end of 2017. As of July 2017, the City has completed the preliminary planning tasks that constituted the first phase of the IWRMP project and is now developing the water, wastewater, and recycled water master plans.

The IWRMP is a major planning effort that will provide critical information and a unifying framework to support the City's General Plan, utility operations, Capital Improvement Program (CIP) development and implementation, the establishment of annual budgets and rate studies, and land use planning and development fees. It is also informing the City's response to regulatory requirements, such as development of the City's 2015 UWMP update, Water Supply Assessments, and its strategic response to SGMA.

As part of the progress to date, work on the IWRMP has included: (1) update of the City's land use-specific water use factors based on an analysis of the City's water billing data and parcel-level land use data, (2) establishment of development projections based on the City's General Plan and input from the development community, (3) estimated future water demands by sector and development area, and (4) evaluation of key water supply and reliability issues. These analyses are used to inform significant portions of this UWMP.

The IWRMP is being developed in close coordination with multiple city departments, including the Public Works, Finance, and Planning departments, as well as the City Manager's Office. To facilitate participation of City staff, monthly progress meetings have been held throughout development of the IWRMP to review project status and major findings, as well as discuss key project decisions. In addition, the City has been actively involving stakeholders during the IWRMP process and soliciting their input into the project development and decision making process. To date, the City has organized two stakeholder meetings to discuss major IWRMP submittals, findings, and decisions; these meetings were held during October 2016 and April 2017.

1.4 UWMP STRUCTURE, STANDARD UNITS AND BASIS FOR REPORTING

Per CWC §10644(a)(2), selected information for the 2015 UWMP updates must be presented in standardized tables for electronic submittal to DWR. A complete set of DWR tables is included in Appendix A. In addition, to the extent applicable, text and tables in the main body of the UWMP document have been cross-referenced to the companion DWR tables.

Per the Guidebook, the UWMP preparer is requested to complete a checklist of specific UWMP requirements to assist the DWR review of the submitted UWMP. The completed checklist is included in Appendix C.

Information presented in this UWMP is reported on a calendar year basis. The units of measure for reporting water volumes is acre-feet (AF) and is maintained consistently throughout the Plan, unless otherwise noted (see Appendix A, DWR Table 2-3).

This Plan generally reports the historic data since January 2011 to December of 2016. Data from 2016 is reported to represent current conditions, whereas data from 2015 is reported when its specifically requested for by the UWMP Act or the Guidebook.

Further, consistent with the Guidebook, the terms “water use”, “water consumption”, and “water demand” are used interchangeably in this UWMP.

2. SERVICE AREA AND SYSTEM DESCRIPTION

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

The City of Lathrop is located in San Joaquin County, approximately 10 miles south of the City of Stockton and directly west of the City of Manteca. The City lies east of the Coastal Range that separates California's Central Valley from the San Francisco Bay Area. Interstate 5 (I-5), a major north-south interstate corridor, bisects the City. The City is also connected by Highway 120 which runs east-west through the southeastern-most part of the City, and by Interstate 205, which connects Interstate 580 to I-5. The City is also served by the Altamont Commuter Express (ACE) train, which travels along the southern and eastern border of the City. The community is developed primarily east of I-5. However, major new developments have recently been constructed west of I-5 and others are currently planned or under construction in this area.

This section provides an overview of the City's service area, including discussions of the City's service area boundaries, planned developments, population, climate, and the City's water system infrastructure.

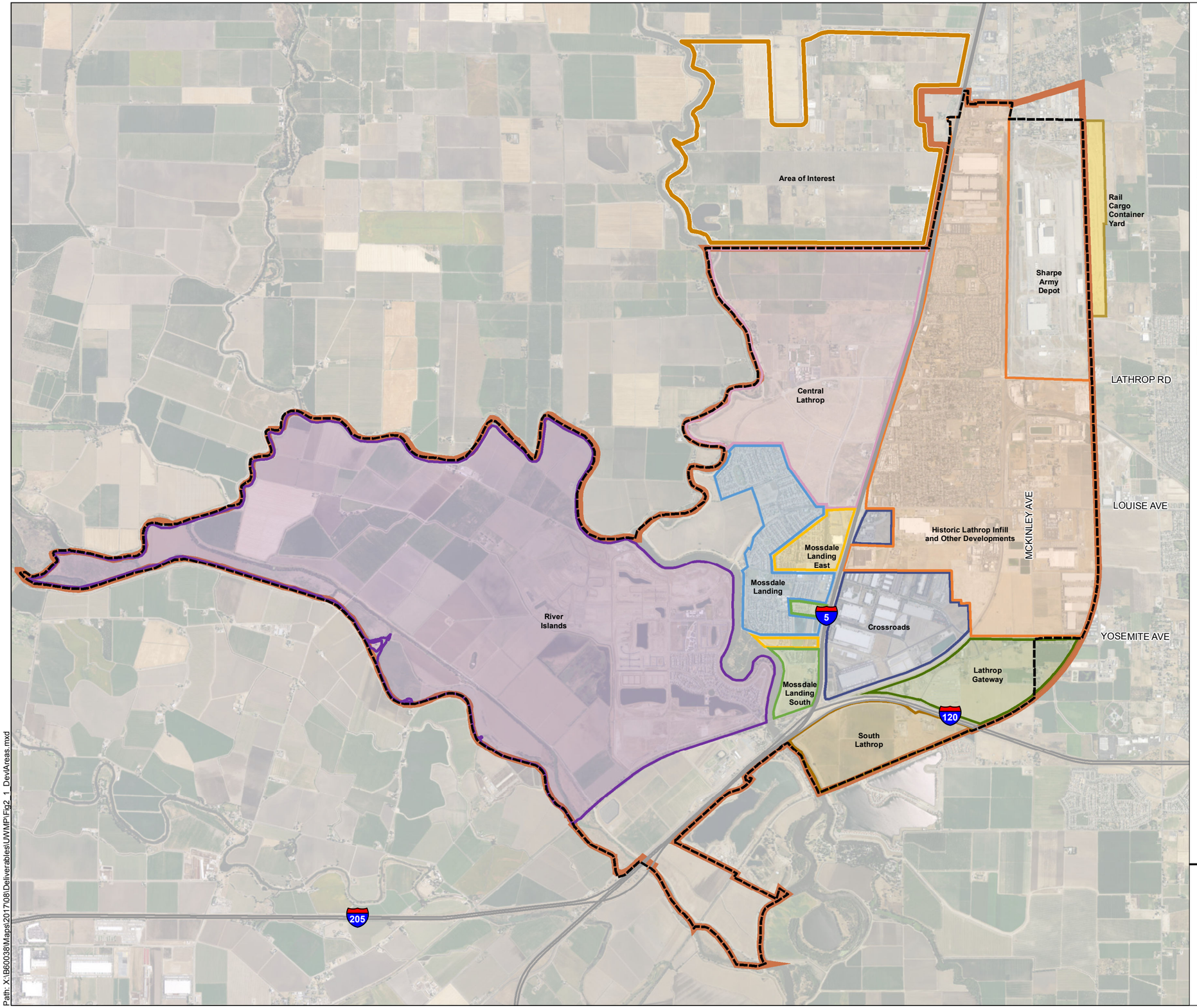
2.1 CITY LIMITS, SPHERE OF INFLUENCE, AND SERVICE BOUNDARIES

The City currently encompasses an area of approximately 13,400 acres, or about 20.9 square miles, however its Sphere of Influence (SOI) is slightly larger with an area of about 13,600 acres, or 21.2 square miles. The City's SOI includes two unincorporated areas:

1. approximately 134 acres northeast of the City boundary and along Roth Road that is designated Freeway Commercial and Light Industrial, and
2. approximately 62 acres southeast of the City boundary that is pre-zoned for industrial uses and part of the Lathrop Gateway Business Park Specific Plan area.

The City reduced their SOI in 2016 to exclude an additional unincorporated area (approximately 2,100 acres) located north of the Central Lathrop Specific Plan (CLSP) area and west of I-5. A majority of this area does not have a General Plan land use designation. The City has designated this area as an Area of Interest (AOI) (Lathrop, 2016). Figure 2-1 shows the City limits, SOI, and AOI.

The City's water service area is generally contiguous with the City limits and includes the railroad cargo container commercial enterprise that is outside of the City limits.



Legend

- City Limit
- Sphere of Influence
- Area of Interest
- Rail Cargo Container Yard

Development Areas

- Central Lathrop
- Crossroads
- Historic Lathrop Infill and Other Developments
- Lathrop Gateway
- Mossdale Landing
- Mossdale Landing East
- Mossdale Landing South
- River Islands
- Sharpe Army Depot
- South Lathrop

Notes

1. All locations are approximate.

Sources

1. Aerial photograph provided by ESRI's ArcGIS Online, 3 August 2017.

N

0 4,000 8,000

(Scale in Feet)

City of Lathrop Boundaries and Development Areas

City of Lathrop
Lathrop, CA
August 2017
B60038.01

Figure 2-1

eki environment & water

Path: X:\B60038\Maps\2017\08\Deliverables\UWMP\Fig2_1_DevAreas.mxd

The 724 acre Sharpe Army Depot is located in the northeast part of the City and is not currently served by the City's water system. However, the City maintains an emergency water inter-tie with Sharpe Army Depot and has explored providing water and sewer service to the Sharpe Army Depot in the future. As discussed below, the existing Army & Air Force Exchange Services (AAFES) portion of the property is anticipated to connect to City service by 2018.

Additionally, the following industrial customers located within the City limits are only served water for domestic purposes by the City and use their own private wells for process water supply:

- J.R. Simplot Company (fertilizer manufacturing) located on South Howland Road south of Louise Avenue; and
- The former site of Pilkington North America (glass manufacturing) located on East Louise Avenue. The site will be used by Kraft Heinz Company.

The City currently provides water service to approximately 6,100 residential, commercial, industrial and institutional/governmental service connections, of which approximately 150 services are dedicated for irrigation uses. The City also provides service to an agriculture customer in the Lathrop Gateway area. All of the City's water services are metered.

2.2 SPECIFIC PLANS AND LARGE PLANNED UNIT DEVELOPMENTS

The City of Lathrop has a number of approved or pending large development projects. The projects are described below per the City's Municipal Service Review (Lathrop, 2016) and shown on Figure 2-1:

- River Islands. The 4,995-acre River Islands development is located west of the San Joaquin River and east of Paradise Cut on land known as the Stewart Tract. The development proposes a mixture of low, medium and high density residential units. In total, River Islands will consist of 11,000 homes, a 260-acre employment center, a 47-acre town center, 265 acres of parks and nine schools. Construction has begun in the River Islands project with the completion of an elementary school for the Banta Elementary School District (Next Generation STEAM Academy) as well as the construction of a Charter School. About 450 low density residential units were constructed and occupied by the end of 2016. The estimated project completion date is 2040.
- Mossdale Landing. Mossdale Landing is a mixed-use master planned community that is anticipated to be completed by 2030. Construction at Mossdale Landing began in 2003 and approximately 1,570 residential units have been constructed thus far. An additional 66 low density and 62 high density units are anticipated by project completion. In addition, the development is allocating approximately 35 acres of land for two schools, 40 acres for parks, and 25 acres for commercial development.
- Mossdale Landing East. Mossdale Landing East (formerly referred to as Lathrop Station) is anticipated to be completed by 2030. Approximately 151 low density and 293 medium density residential units have been constructed so far. An additional 38 low density and 144 high density units are anticipated by project completion. The development plan also includes 6.5 acres of village commercial, 13.2 acres of service commercial, and 27.5 acres of highway commercial land uses.

- Mossdale Landing South. Mossdale Landing South is a proposed 104-acre development that is anticipated to be completed by 2030. The development will consist of about 280 medium density and 150 high density residential units, of which 140 medium density units have been constructed so far. In addition, the project includes 28 acres of commercial, 25 acres of open space, and 9.5 acres of parks.
- Mossdale Landing – Other. The City has identified additional areas for development within Mossdale Landing including the Sylveria property, on which the City anticipates 658 low density dwelling units will be built by City buildout.
- Historic Lathrop Infill and Other Developments East of I-5. The portion of the City east of I-5 is anticipated to expand and add density in the future. Currently, this area consists of approximately 3,076 low density and 78 medium density units, commercial and industrial areas, and a few public parks. Future residential growth of this area is expected on undeveloped/underutilized and redeveloped parcels consolidated from large lots where low density residential units would be demolished. New residential projects are estimated to consist of 34 low density, 158 medium density, and 25 high density residential units, increasing the total existing residential unit count by 217 total units.
- Central Lathrop Specific Plan. The Central Lathrop Specific Plan proposes development of 1,520 acres located west of I-5. The Specific Plan proposes approximately 6,790 low, medium and high density residential units and additional commercial land uses (offices). The project also includes two schools and 200 acres of recreational land use and open space. Phases 1 and 2 of the project are anticipated to be completed by 2040, adding 274 high density units, 2,235 variable density residential units, and 119 acres of commercial land uses.
- Lathrop Gateway Business Park Specific Plan. The Lathrop Gateway Business Park Specific Plan proposes commercial and industrial development of approximately 384 acres to be completed by 2025. The City annexed 213 acres of this area in June 2012 and 99 acres of the remaining 117 acres in May 2016. The project proposes approximately 203 acres of limited industrial, 51 acres of service commercial, and 70 acres of office and commercial retail uses. This would result in approximately 4.7 million square feet of service commercial, limited industrial, distribution, and research and development related uses, and approximately 920,000 square feet of commercial office and retail uses.
- South Lathrop Specific Plan. The South Lathrop Specific Plan was recently approved by the City Council on 20 July 2015, and includes a 315-acre plan area. The Specific Plan proposes approximately 10 acres of commercial office uses, 246 acres of limited industrial, 31 acres of open space, and 27 acres of roads and public facilities. The City South Lathrop Specific Plan area was annexed into the City in May 2016. The South Lathrop Commerce Center, approximately 272 acres within the South Lathrop Specific Plan, is anticipated to be completed by 2025. The South Lathrop Commerce Center will encompass all of the South Lathrop Specific Plan area with the exception of approximately 24 acres of light industrial, 1.2 acres of office commercial, and 19 acres of open space and public roads.
- Sharpe Army Depot. During World War II, the US Army created the Sharpe Army Depot (Depot) in the rural Lathrop Community to allow shipment of major army supplies to the western United States. The Depot is comprised of a 724-acre facility south of Roth Road and has served both the Army and Airforce with a variety of supplies depending on the demand of goods and supplies created by war time efforts. The Depot is occupied by the West Coast Distribution Center that employs 348 workers. Prior to 30 September 2014 the Defense Logistics Agency was also housed at the Depot; its workforce of 700 workers

has since been transferred to the larger Tracy Army Depot. Sharpe Army Depot was included in the City limits as part of the 1989 incorporation and is entirely self-contained: meaning all public services normally necessary to serve urban development such as water, sewer, storm drainage, police and fire services are provided by the United States Army. The City of Lathrop does have an emergency water inter-tie with the Depot. The City and AAFES are currently in discussions to connect the AAFES property, including the West Coast Distribution Center and Building 240, to the City's water and sewer systems and the City anticipates serving AAFES potable water by 2018.

Projected future development within each of the above development areas is presented in Table 2-1**,** based on City and developer projections. Specifically, Table 2-1 lists the number of new residential dwelling units and commercial, industrial, and institutional (CII) acreage that is anticipated to be developed in five-year increments between 2020 and 2040, and at buildout.

2.3 CURRENT AND PROJECTED POPULATION

Values for the historical and current population within the City's water service area were obtained from data reported by the California Department of Finance (DOF) within the City Limits. Although Lathrop's water service area excludes the Sharpe Army Depot and includes a railroad cargo container commercial enterprise that is outside the City limits, the service area population is estimated to be equivalent to the City population. As of January 2016, the population estimate for Lathrop was 22,174 (California DOF, 2016). The historical and current population data within the City's water service area are presented in Table 2-2.

Population in the City has grown by approximately 224% over the 26-year period between 1990 through 2016, from approximately 6,800 to 22,100 (California DOF, 2007, 2012, 2016). Between 2005 and 2016, population increased by 73%, from approximately 12,800 to 22,100.

The City anticipates that its population will continue to grow in the future given the existing entitlements for several large residential developments, discussed above in Section 2.2. The population projections for 2020 through 2040, summarized in Table 2-3, are estimated using the existing population (as determined by California DOF) and adding the amount of new housing anticipated to be permitted in each five-year increment based on Table 2-1. The population added each year is projected by multiplying the number of new housing units by the person per dwelling unit values reported by DOF based on the 2010 census data (3.77 persons per dwelling unit). Current and projected population trends are shown on Figure 2-2. The projected residential buildout is summarized by each development area in Table 2-4. Residential buildout is projected to occur beyond 2045.

Table 2-1
City of Lathrop Development Projections by Development Area

Land Use Designation	Units	Incremental New Development (a)(b)						Total New Development	
		2020	2025	2030	2035	2040	Buildout	2040	Buildout
Central Lathrop									
Low Density Residential	du	600	487	909	--	--	4,102	1,996	6,098
Medium Density Residential	du	--	239	--	--	--	--	239	239
High Density Residential	du	--	274	--	--	--	179	274	453
Commercial	ac	19.0	19.5	20.0	21.4	39.0	159.6	118.9	278.5
Parks	ac	8.6	26.8	31.4	--	--	48.2	66.8	115.0
Schools	ac	--	18.0	--	--	--	36.6	18.0	54.6
Public Landscaping	ac	21.6	2.2	12.5	--	--	10.1	36.3	46.4
Mossdale Landing									
Low Density Residential	du	--	--	66	--	--	--	66	66
High Density Residential	du	62	--	--	--	--	--	62	62
Commercial	ac	--	1.5	--	4.5	--	--	6.0	6.0
Schools	ac	--	16.2	--	--	--	--	16.2	16.2
Mossdale Landing East									
Low Density Residential	du	37	--	--	--	--	--	37	37
High Density Residential	du	54	--	--	78	78	--	210	210
Commercial	ac	--	12.4	--	17.0	--	--	29.4	29.4
Mossdale Landing South									
Medium Density Residential	du	--	64	--	74	--	--	138	138
High Density Residential	du	150	--	--	--	--	--	150	150
Commercial	ac	--	--	--	--	13.0	--	13.0	13.0
Parks	ac	--	4.0	--	--	--	--	4.0	4.0
Mossdale Landing - Other (c)									
Low Density Residential	du	--	--	--	--	--	658	0	658
River Islands									
Low Density Residential	du	1,517	1,609	1,413	1,868	1,389	--	7,797	7,797
Medium Density Residential	du	253	330	290	383	285	--	1,539	1,539
High Density Residential	du	--	400	810	--	--	--	1,210	1,210
Commercial	ac	10.0	50.0	90.0	100.0	70.0	--	320.0	320.0
Schools	ac	11.0	23.0	57.0	11.0	11.0	--	113.0	113.0
Animal Campus	ac	--	10.0	--	--	--	--	10.0	10.0
Parks and Landscape Parcels (d)	ac	24.0	37.0	40.0	36.0	27.0	--	164.0	164.0
South Lathrop									
Light Industrial / R&D Flex	ac	164.5	56.7	--	--	--	21.6	221.2	242.8
Office Commercial	ac	--	8.8	--	--	--	--	8.8	8.8
Open Space-Parks	ac	6.8	--	--	--	--	--	6.8	6.8
Public Landscaping	ac	0.8	--	--	--	--	--	0.8	0.8
Lathrop Gateway									
Light Industrial / R&D Flex	ac	--	--	--	--	167.6	--	167.6	167.6
Office Commercial	ac	--	--	--	--	139.7	--	139.7	139.7
Open Space	ac	--	--	--	--	1.6	--	1.6	1.6
Crossroads									
Industrial	ac	63.0	2.0	--	--	23.0	--	88.0	88.0
Commercial	ac	2.2	19.8	--	--	--	--	22.0	22.0
Historic Lathrop and Other Development Areas									
Low Density Residential (e)	du	6	6	6	6	5	5	29	34
Medium Density Residential (e)	du	27	27	26	26	26	26	132	158
High Density Residential	du	5	4	4	4	4	4	21	25
Commercial	ac	14.0	26.6	8.0	8.0	8.0	25.5	64.6	90.1
Industrial	ac	82.0	41.0	--	--	--	143.0	123.0	266.0
Sharpe Army Depot									
Industrial	ac	(f)	--	--	--	--	--	(f)	(f)

Notes:

(a) Dwelling unit counts and acreages based on information provided by developers and the City in November 2016, December 2016, May 2017, and July 2017.

(b) Includes dwelling units and acreages that are assumed to be developed during the preceding five-year period.

(c) Includes low density residential units for the Sylveria Property.

(d) Area of landscape parcels and parks to be irrigated with potable water, per O'Dell Engineering, 'Phase 1A &1B Irrigation Coverage Exhibit', 30 August 2016, and 'Stage 2A Irrigation Coverage Exhibit', 25 August 2016.

(e) Number of infill residential units from Appendix A, 2016 Housing Element Update (De Novo, 2016) distributed evenly over the planning period, except for parcels 196-050-20, 196-070-04 & -05 identified by the City as where development is highly unlikely.

(f) The existing AAFES facility at the Sharpe Army Depot will be connected to City's water service by 2020. Water demand for the AAFES facility is estimated using historical metered consumption, as described in Section 3.

Table 2-2
Historical Service Area Population

Year	Service Area Population (a)	Annual Growth Rate
1990	6,841	
1991	7,018	2.6%
1992	7,063	0.6%
1993	7,434	5.3%
1994	8,410	13.1%
1995	8,713	3.6%
1996	9,031	3.6%
1997	9,172	1.6%
1998	9,508	3.7%
1999	9,786	2.9%
2000	10,445	6.7%
2001	10,802	3.4%
2002	11,616	7.5%
2003	12,089	4.1%
2004	12,482	3.3%
2005	12,768	2.3%
2006	14,489	13.5%
2007	16,271	12.3%
2008	17,282	6.2%
2009	17,589	1.8%
2010	18,023	2.5%
2011	18,688	3.7%
2012	19,090	2.2%
2013	19,642	2.9%
2014	20,158	2.6%
2015	20,796	3.2%
2016	22,174	6.6%

Notes:
(a) Historical and current population is based on population estimates by the California DOF for the City of Lathrop included in DOF, 2007; DOF, 2012; and DOF, 2016.

Table 2-3
Current and Projected Service Area Population (DWR Table 3-1)

Current and Projected Service Area Population (a)(b)							
Year	2016	2020	2025	2030	2035	2040	Buildout
Population Served	22,174	32,395	45,364	58,649	67,841	74,577	93,485

Notes:

(a) Current population is based on population estimates by the California DOF for the City of Lathrop included in DOF, 2016.

(b) Projected populations for 2020 through 2040 and buildout are based on residential unit counts from Table 2-1, multiplied by the City's person per dwelling units figure reported by DOF in 2010 based on census data (3.77 persons per dwelling unit).

Figure 2-2
Historical and Projected Service Area Population

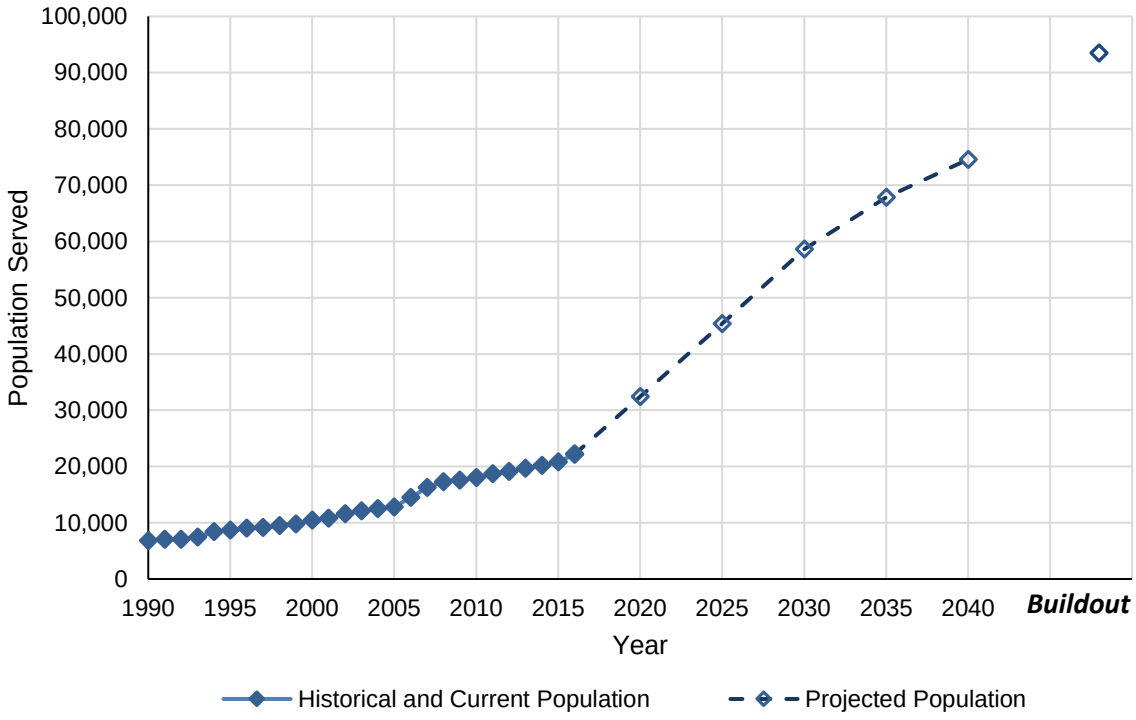


Table 2-4
Residential Buildout - Lands within Existing City Limits

Planning Area	Dwelling Units (a)	Estimated Population (b)
Historic Lathrop - Existing	3,293	12,415
Historic Lathrop - Underutilized	240	905
Mossdale Landing	1,697	6,398
Mossdale Landing East	626	2,360
Mossdale Landing South	430	1,621
Mossdale Landing - Other	658	2,481
Central Lathrop	6,790	25,598
River Island	11,000	41,470
Total	**24,734**	**93,247**

Notes:
(a) Dwelling Unit Counts at buildout provided by City Staff.
(b) Population estimates are based on the 2010 census figure for persons per household (3.77).

2.4 CLIMATE

The Lathrop area's climate is considered semi-arid. Spring, summer, and fall are generally warm, with temperatures often reaching over 100 degrees Fahrenheit (°F) on summer days. Lathrop's winters are usually mild, although the dense "Tule fog" can last for weeks. As shown in Table 2-5 and Figure 2-3, rainfall in the area averages 13.8 inches per year and is generally confined to the wet season from late October to early May. The average reference evapotranspiration (ETo) for the region is 52.1 inches per year.

Since the average annual ETo is approximately 38 inches more than the average annual precipitation, and because nearly 90% of the annual precipitation occurs between the months of November and April, growing turf or other plantings in this region requires a significant amount of irrigation during the dry season. This irrigation demand contributes to the overall and observed seasonal variation in water demand throughout the City's service area.

2.5 WATER UTILITY INFRASTRUCTURE

The City's existing water distribution system facilities consist of six groundwater wells (Wells 6, 7, 8, 9, 10 and 21), the Louise Avenue Water Treatment Facility (LAWTF) for treatment of groundwater from Wells 6-10, the Well 21 Treatment Facility[2], one surface water turnout for delivery of SCWSP supply to the system from the SSJID, storage tanks, booster pumps, and pipelines. The City has a Supervisory Control and Data Acquisition (SCADA) system for control and monitoring of facilities. Figure 2-4 shows the City's service area and locations of the City's major water system facilities.

A second SSJID turnout in the River Islands area is currently under design. The City also has an intertie with SSJID near the Tracy Pump Station, which is located near the intersection of Stewart Road and Manthey Road. The intertie is not in operation due to metering issues.

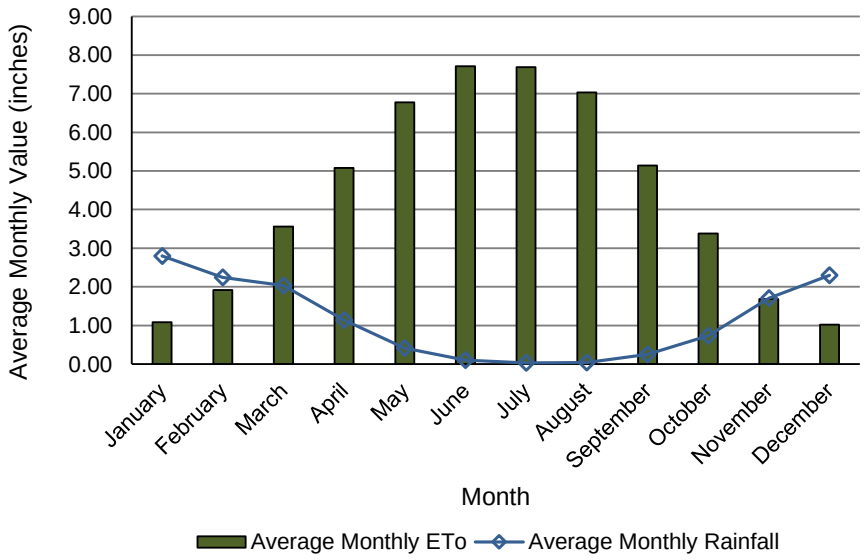
[2] Well 21 and the Well 21 Treatment Facility are not currently in operation. As discussed in Section 5.2, the City is currently designing Well 21 Facility Upgrades, which will be completed in two phases.

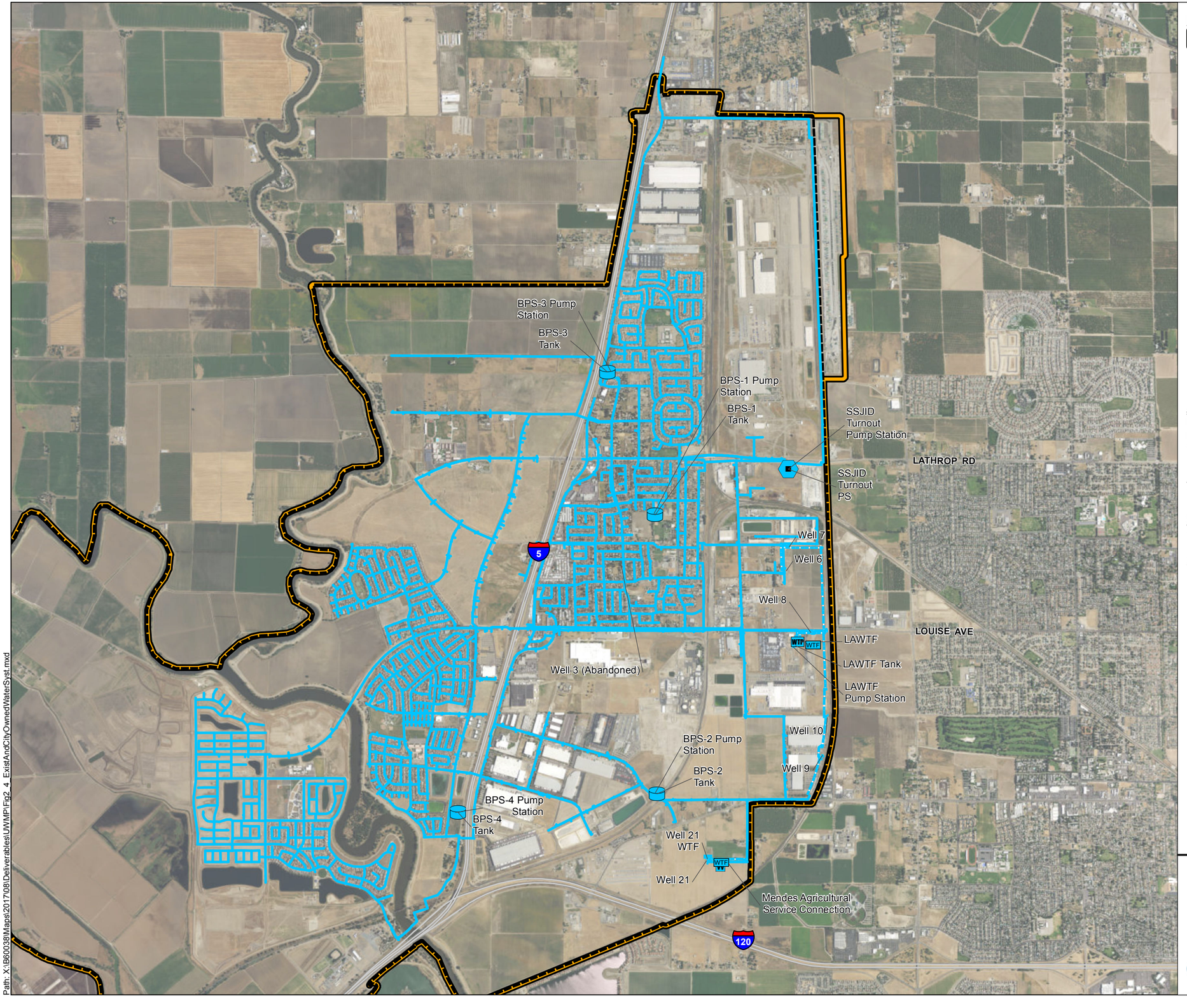
Table 2-5
Average Monthly Climatic Conditions

Month	Average Temperature (a) Min (°F)	Average Temperature (a) Max (°F)	Standard Average ETo (b) (inches)	Average Rainfall (a) (inches)
January	37.6	53.7	1.08	2.80
February	40.4	60.6	1.92	2.24
March	42.6	65.9	3.56	2.03
April	46.1	72.8	5.08	1.14
May	51.6	81.0	6.78	0.41
June	56.9	88.5	7.71	0.10
July	60.4	94.2	7.69	0.03
August	59.7	92.7	7.03	0.04
September	57.0	88.3	5.14	0.25
October	50.2	78.3	3.38	0.73
November	42.2	64.4	1.68	1.71
December	37.5	54.0	1.02	2.30
Annual	**48.5**	**74.5**	**52.07**	**13.78**

Notes:
(a) Temperature and precipitation data from Western Regional Climate Center Stockton Metro AP Station (048558) for the period 1 October 1948 through 9 June 2016.
(b) ETo data from CIMIS Manteca Station (70) for the period 12 November 1987 through 21 September 2016.
(c) Totals may not add exactly due to rounding.

Figure 2-3
Average Monthly Climatic Conditions





Legend

- City of Lathrop Water Service Area
- City Limit

Infrastructure Features

- Enclosed Storage Facility
- Production Well
- Pump Station
- Water Treatment Facility
- Turnout
- Potable Water Main
- Raw Water Main

Abbreviations

BPS	=	booster pump station
LAWTF	=	Louise Avenue Water Treatment Facility
SSJID	=	South San Joaquin Irrigation District

Notes

1. All locations are approximate.

Sources

1. Grid number consistent with map book (March 2012), prepared by Stantec.
2. Aerial photograph provided by ESRI's ArcGIS Online, 3 August 2017.

N

0 3,000 6,000

(Scale in Feet)

Existing Potable Water System Infrastructure

City of Lathrop
Lathrop, CA
August 2017
B60038.01

Figure 2-4

eki environment & water

Path: X:\B60038\Maps\2017\08\Deliverables\UWMP\Fig2_4_ExistAndCityOwnedWaterSyst.mxd

3. SYSTEM WATER DEMANDS

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

- *(A) Single family residential.*
- *(B) Multifamily.*
- *(C) Commercial.*
- *(D) Industrial.*
- *(E) Institutional and governmental.*
- *(F) Landscape.*
- *(G) Sales to other agencies.*
- *(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use or any combination thereof.*
- *(I) Agricultural.*
- *(J) Distribution system water loss.*

10631. (e) (2) The water use projections shall be in the same five-year increments described in subdivision (a).

(3)(A) For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

The following sections describe historical and projected water demands within the City. The sections discuss and quantify water use for residential, commercial, industrial, institutional, landscape irrigation, and agricultural purposes within the City (Water use sectors A through F and I, as defined in CWC §10631(e)(1)). Water use sector J is discussed in Section 3.1.3. As described in Section 3.2.4, this discussion does not include demands for water use sectors G and H as they are not applicable or present within the City's service area.

3.1 CURRENT AND HISTORICAL WATER DEMAND

Table 3-1**,** Figure 3-1**,** and Figure 3-2 provide historical context by summarizing the City's potable water use, service area population, and per capita potable water use for the years 2000 through 2016. Historical water use was based on total annual SCWSP water purchases and groundwater production. Total potable water use in 2016 was 3,646 AF.

Potable water use has generally increased over the past 16 years, although significant variations have occurred from year to year, generally correlated with changing hydrologic and economic conditions. The City experienced a decrease in both total and per capita demand in 2009 and 2010. This decreased demand likely reflects the impacts of the economic recession. The subsequent increase in water use in 2012 and 2013 is thought to reflect improved economic

conditions. Between 2013 and 2015, total and per capita water use declined as the recent drought intensified. The City experienced particularly significant decreases in demand during 2014 and 2015, with total potable water demand decreasing by approximately 26% relative to 2013 demands. This decrease in demand is likely attributable to the severe drought conditions that persisted into 2016 and resulted in mandatory state-wide restrictions in urban water use imposed by the State Water Resources Control Board (SWRCB; see Section 7.3). Total water use increased slightly in 2016, but per capita water use remained steady.

Although the City's population has steadily increased over the past 15 years, the increase in total water demand has been buffered by a general decline in per capita water use since 2004, as shown in Figure 3-2. Specifically, per capita water use dropped to 147 gallons per capita per day (GPCD) in 2016, which is below the City-adopted 2020 Senate Bill (SB) x7-7 Target of 188 GPCD (see Section 4.3).[3] While recent declines may be attributed in part to behavioral changes and responses to regulatory mandates and media during the recent drought, the longer-term decline in per capita water use is likely representative of increased residential development within the City, which has increased the population and minimized the proportion of total per capita water demands associated with non-residential uses. Increases in water use efficiency through retrofits of existing properties and the construction of new, water-efficient development may also have contributed to the observed downward trend in per capita water use.[4]

3.1.1 Current and Historical Potable Water Demand

The City's potable water demands were quantified for each the following water use sectors, which were established based upon the categories assigned to each account in the City's water billing system: *Single Family Residential* (*SFR*), *Multi-Family Residential* (*MFR*), *Commercial*, *Industrial*, *Institutional/Governmental (CII)*, and *Other/Construction.* Additionally, dedicated irrigation accounts were separated into an *Irrigation* sector, which includes both dedicated irrigation accounts and those accounts in other sectors that have irrigation sub-meters. The City also provides water to one agricultural customer at an average rate of approximately 34 AFY.

Table 3-2 and Figure 3-3 summarize the number of customer service connections in each of the above water use sectors over the period 2011 through 2016. The *SFR* sector comprises approximately 92% of all customer service connections in the City, and the number of SFR service connections has grown by between 109 and 340 each year. The number of *Irrigation* service connections has also grown each year as existing accounts are transitioned to sub-metered accounts. In contrast, the number of connections in the *CII* sector has remained constant over the past five years.

[3] As discussed in Section 4, the Water Conservation Act of 2009 (SBx7-7) required water retailers to set a total GPCD water use reduction target of 20% by year 2020 from a calculated baseline water use. The target is measured in GPCD, which represents the total water use divided by the population, as opposed to Residential GPCD (R-GPCD), which only includes residential water use divided by the population. The City adopted its 2020 SBx7-7 target in 2012.

[4] Water use per dwelling unit has not declined in new homes, likely due to an increase in the number of persons per dwelling unit in the newer homes. The increased persons per household appears to have counteracted improved water efficiency on a per dwelling unit basis.

Table 3-1
Current and Historical Potable Water Use and Population

Year	Potable Water Use (acre-feet) (a)	Service Area Population (b)	Per Capita Potable Water Use (GPCD) (c)
2000	2,518	10,445	215
2001	2,689	10,802	222
2002	3,105	11,616	239
2003	3,326	12,089	246
2004	3,471	12,482	248
2005	3,372	12,768	236
2006	3,640	14,489	224
2007	4,076	16,271	224
2008	4,528	17,282	234
2009	4,214	17,589	214
2010	3,672	18,023	182
2011	3,798	18,688	181
2012	4,332	19,090	203
2013	4,686	19,642	213
2014	4,008	20,158	177
2015	3,445	20,796	148
2016	3,646	22,174	147

Notes:

(a) Detailed historical and current water demand data from 2011 through 2016 are documented in Table 3-3.

(b) Historical and current population is based on population estimates by the California DOF for the City of Lathrop included in DOF, 2007; DOF, 2012; and DOF, 2016.

(c) Per capita potable water use is calculated by dividing the total annual potable water demand by service area population and the number of days in a year.

Figure 3-1
Current and Historical Potable Water Use and Population

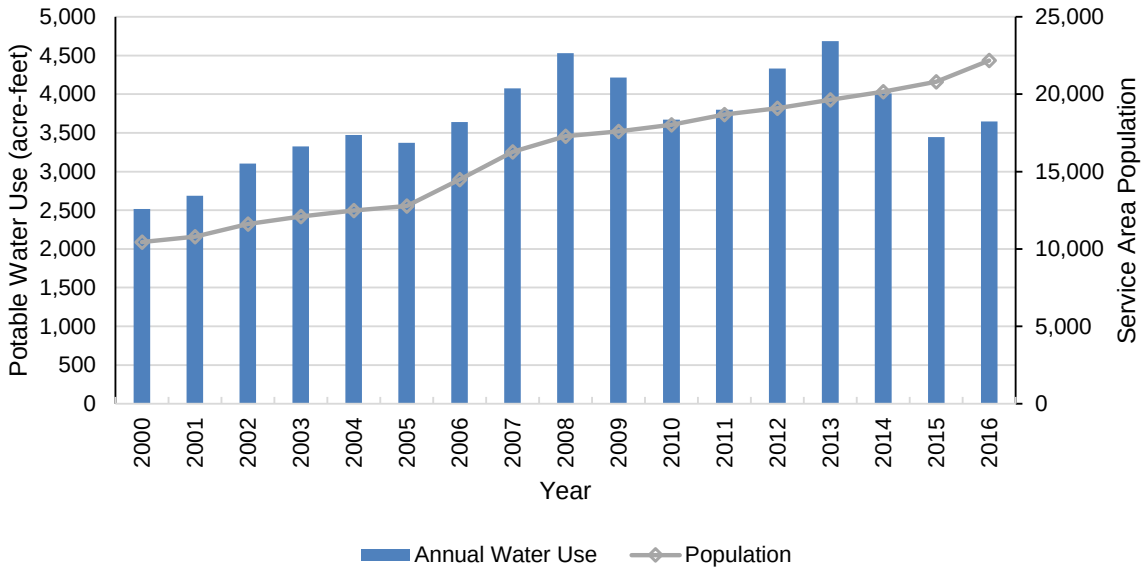


Figure 3-2
Current and Historical Per Capita Potable Water Use

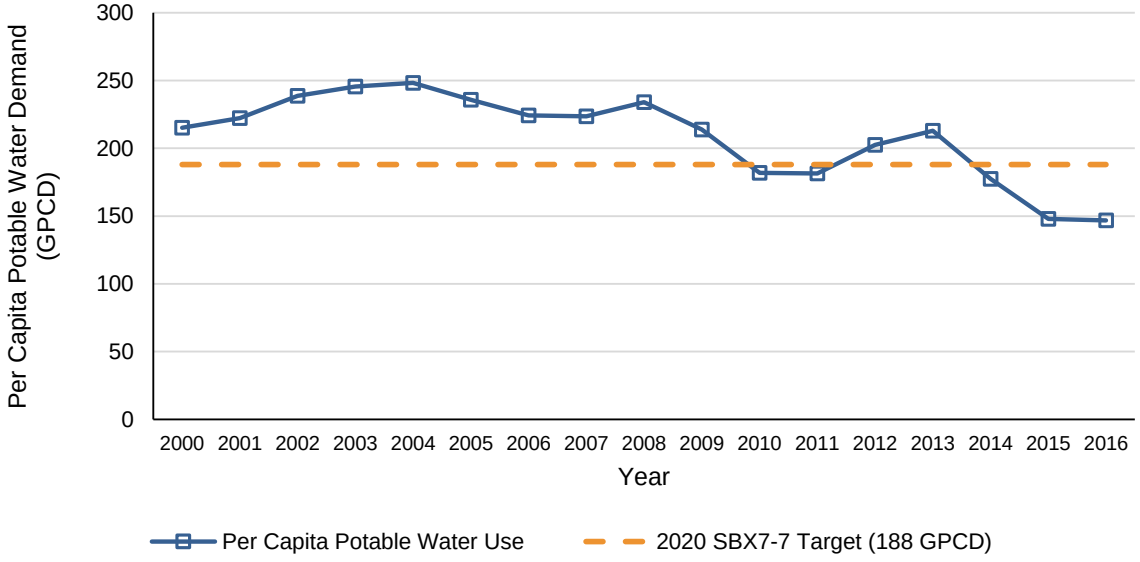
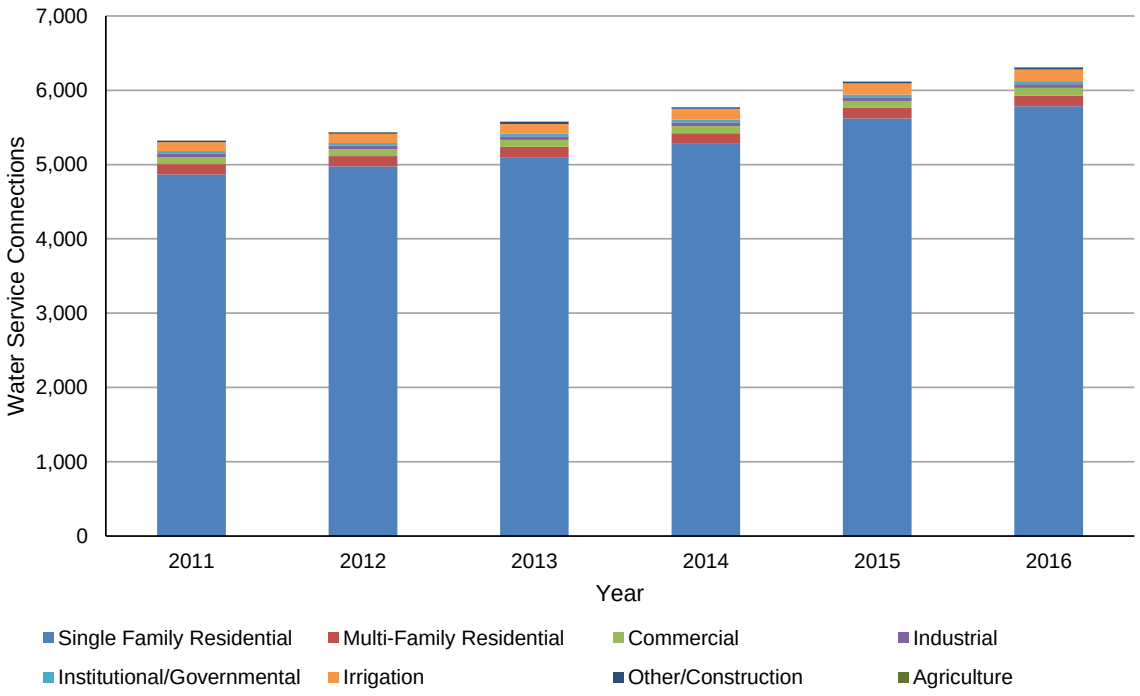


Table 3-2
Number of Current and Historical Potable Water Services by Sector

Water Use Sector	Number of Potable Water Service Connections (a)					
	2011	2012	2013	2014	2015	2016
Residential Service Connections						
Single Family Residential	4,867	4,976	5,099	5,280	5,620	5,786
Multi-Family Residential	140	140	139	141	141	140
Subtotal Residential	*5,007*	*5,116*	*5,238*	*5,421*	*5,761*	*5,926*
CII Service Connections						
Commercial	91	93	95	99	97	106
Industrial	45	46	47	47	47	48
Institutional/Governmental	37	36	37	37	37	42
Subtotal CII	*173*	*175*	*179*	*183*	*181*	*196*
Other Service Connections						
Irrigation	122	122	129	148	151	159
Agriculture	1	1	1	1	1	1
Other/Construction	20	21	29	17	22	26
Subtotal Other	*143*	*144*	*159*	*166*	*174*	*186*
Total Number of Services	**5,323**	**5,435**	**5,576**	**5,770**	**6,116**	**6,308**

Notes:
(a) Number of service connections processed from water billing data provided by the City on 5 July 2016 and 1 March 2017 based on the number of unique billing data account locations in each land use classification.

Figure 3-3
Number of Current and Historical Potable Water Services by Sector



In addition to the metered water consumption described above, the City's potable water demand also includes non-revenue water, including water used for fire hydrant flushing and testing and for water main flushing, as well as distribution system water losses. The volume of non-revenue water is estimated herein by comparing metered water demand (i.e., consumption) against total water purchases and groundwater production.

Current and historical potable water demands for the customer sectors discussed above are provided in Table 3-3 and on Figure 3-4 and Figure 3-5. Over the period 2011 through 2016, *SFR* water use comprised nearly half of all water use in the City (50%). Of the metered water consumption, the *Industrial* and *Irrigation* sectors comprised 19% and 17% of the City's water demands, respectively. Water use in the *Commercial* (4%) and *Institutional/Governmental* (2%), and *Agricultural* (1%) sectors was relatively minor compared to total water use. The relative percentage of the total potable water demand represented by each sector remained relatively constant over the period 2011 through 2016. The average non-revenue water over this period was approximately 5%.

3.1.2 Current and Historical Non-Potable Water Demand

The City applies tertiary effluent to 173 acres of agricultural land application areas. In 2015, the City applied 429 AFY of recycled water for agricultural irrigation (see Section 5.3).

3.1.3 Distribution System Water Losses

> *10631 (e)(3)(A) For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.*
>
> *(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.*

Distribution system water losses are defined in the Guidebook to be: "the physical water losses from the water distribution system and the supplier's storage facilities, up to the point of customer consumption." The total differential between water supply and metered water use is categorized as non-revenue water in Table 3-2 and the discussion in Section 3.1.1. However, this category includes unbilled water uses such as system flushing, leak repair flushing, hydrant leaks, and street sweeping.

The City's distribution system water losses for Fiscal Year 2016-17 were estimated using the DWR Water Audit Method (i.e., the American Water Works Association Water Audit Software). This analysis separates water loss into "apparent" and "real" losses. Apparent losses include metering inaccuracies, systematic data handling errors, and unauthorized consumption. Real losses represent water loss attributable to the distribution system and include physical water losses from the pressurized system and storage tanks up to the point of customer consumption.

Table 3-3
Current and Historical Potable Water Use by Sector (DWR Table 4-1)

Water Use Sector	Potable Water Demand (acre-feet) (a)						
	2011	2012	2013	2014	2015	2016	Average
Residential Water Use							
Single Family Residential	1,967	2,073	2,218	1,976	1,778	1,834	1,974
Multi-Family Residential	103	100	102	92	82	84	94
Subtotal Residential	*2,070*	*2,173*	*2,319*	*2,068*	*1,861*	*1,918*	*2,068*
CII Water Use							
Commercial	114	123	204	142	131	157	145
Industrial	690	842	890	799	668	676	761
Institutional/Governmental	96	112	122	104	66	83	97
Subtotal CII	*901*	*1,078*	*1,217*	*1,045*	*865*	*916*	*1,004*
Other Water Use							
Irrigation	613	746	832	749	526	533	667
Agricultural	68	7	72	7	26	23	34
Other/Construction	26	34	27	33	46	50	36
Subtotal Other	*707*	*787*	*930*	*789*	*598*	*606*	736
Total Water Consumption	**3,678**	**4,038**	**4,466**	**3,902**	**3,324**	**3,440**	**3,808**
Non-revenue Water (b)	3%	7%	5%	3%	4%	6%	4%
	120	294	219	105	121	206	177
Total Water Demand (c)	**3,798**	**4,332**	**4,686**	**4,008**	**3,445**	**3,646**	**3,986**

Notes:

(a) Water use data was processed from water billing data provided by the City on 5 July 2016 and 1 March 2017.

(b) Non-revenue water includes water used for fire hydrant flushing and testing, for water main flushing, as well as distribution system water losses. This value is calculated as the difference between metered water consumption and total water production.

(c) Total water demand is the sum of metered water consumption and non-revenue water.

(d) Totals may not add exactly due to rounding.

Figure 3-4
Annual Water Use by Sector: 2011-2016

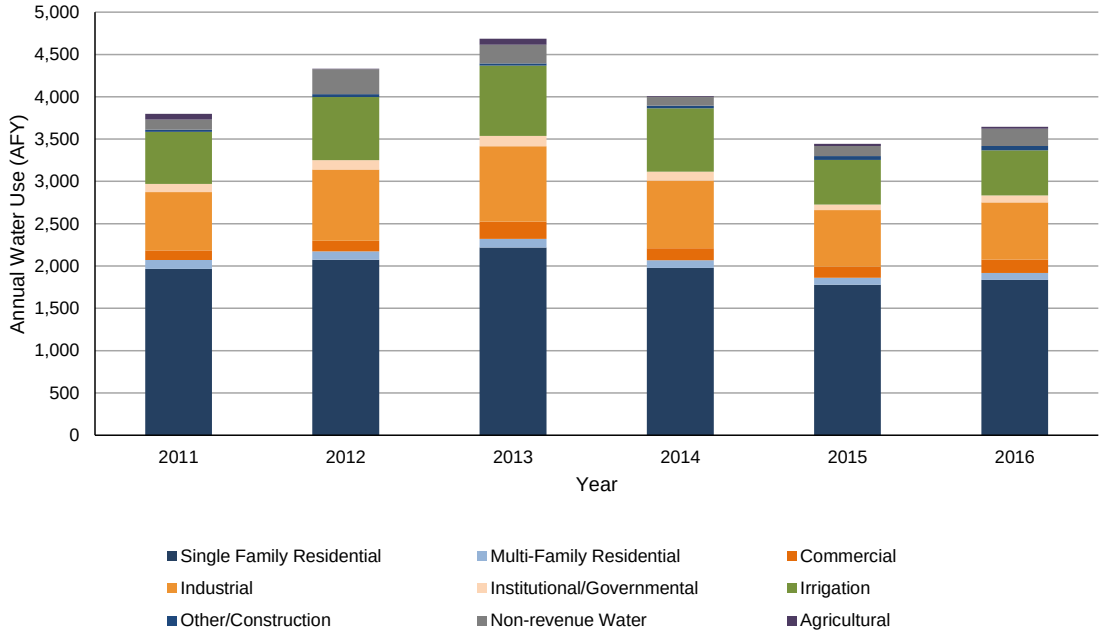
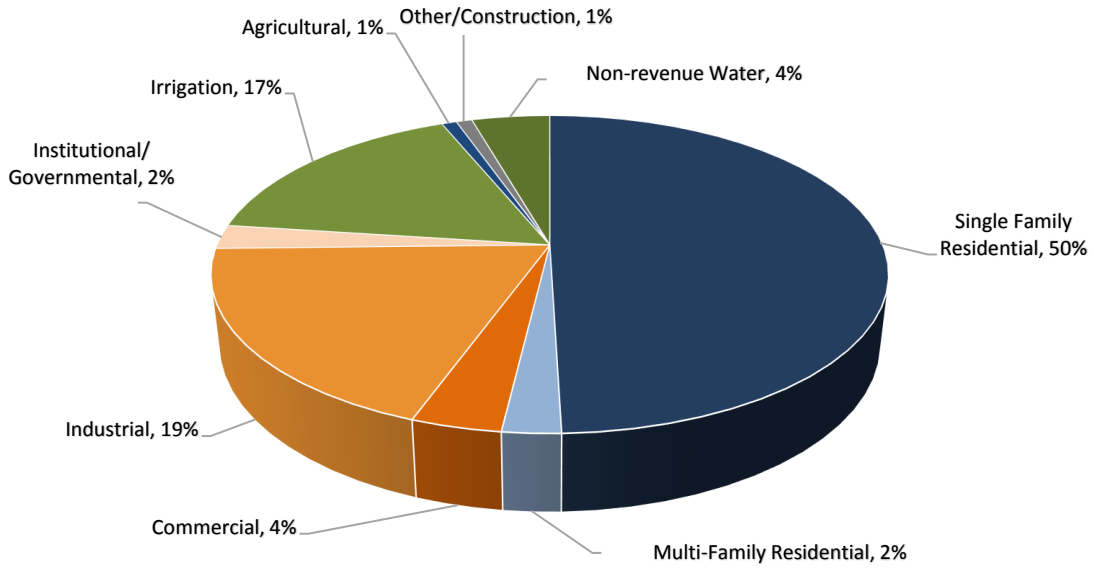


Figure 3-5
Percentage of Total Water Use by Sector: 2011-2016



Of the 3,724 AF of total potable water demand in Fiscal Year 2016-17, 3,572 AF was attributed to metered consumption, 9 AF was estimated from unmetered water use, and 143 AF was estimated to be from distribution system water loss. The water losses calculated in the most recent AWWA Water Loss Worksheet are provided in DWR Table 4-4 (see Appendix A) and the full analysis is included in Appendix E.

3.2 PROJECTED WATER DEMAND

As described in Section 1.3, updated unit water use factors and water demand projections for the City were developed as part of the IWRMP project. These findings are incorporated into this section as well as the City's master plan documents, which are anticipated to be complete by the end of 2017.

The updated water use factors were developed based on the water use in 2013 for each land use category. The factors assign a unit volume of water demand to each acre of CII development (gpd/acre) or an individual dwelling unit (gpd/du). The updated water use factors are listed in Table 3-4.

3.2.1 Projected Potable Water Demand

As described in Section 7.3, the historic drought of 2013-2016 had a significant impact on total and per capita water use in the City (i.e., decreasing it as much as 22%). Forecasting a demand projection from this suppressed 2016 demand would likely have resulted in an underestimate of future water needs. As such, the City opted to develop a more representative "baseline" as the starting point for future demand projections.

Specifically, in order to estimate what Potable water demand projections were calculated as the sum of two major components of future water demands: (1) the volume of potable water demand that best represents existing or "baseline" water demands within the City, and (2) the anticipated potable water demands associated with the future development projects and planning areas. Components of potable water demand projections are described in the sections below. Detailed calculations are included in Appendix F.

3.2.1.1 Baseline Potable Water Demand

The estimate of potable water demands that best represent the City's "baseline" demands was calculated from the sum of (1) the City's 2013 water use, selected as the "representative water year" (i.e., it reflects post-recession, pre-drought conditions), and (2) estimated water use for existing development built between 2013 and 2016. Water demands for existing development built after 2013 were estimated by applying the updated water use factors to the number of dwelling units and acreages of CII land uses added after 2013. The baseline water demands also include non-revenue water, estimated to be 5% of demands based on the average percentage of non-revenue water observed between 2011 and 2016 (see Section 3.1.1).

Based on application of the above methodology, the "baseline" potable water demand is estimated to be 5,122 AFY.

Table 3-4
Updated Water Use Factors

Land Use Category	Updated Potable Water Use Factors (a)
Low Density Residential	430 gpd/du
Medium Density Residential	330 gpd/du
High Density Residential	265 gpd/du
Commercial	1,300 gpd/ac
Industrial	1,400 gpd/ac
Parks / Public Landscaping	3,500 gpd/ac
Schools / Institutional	2,100 gpd/ac

Notes:
(a) Updated water use factors are based on the City's 2013 water use.

3.2.1.2 Demand Associated with Planned Development

Additional water will be required to serve the planned residential and CII developments discussed in Section 2.2. To estimate these demands, the updated water use factors were applied to the anticipated acreages and number of dwelling units associated with each proposed development listed in Table 2-1. Potable water demand associated with planned development also includes 5% non-revenue water, the average percentage of non-revenue water observed between 2011 and 2016.

In addition to future development, the potable water demand projections also account for certain large-scale properties that are planned to be connected to the City's water system. As described in Section 2.1, the AAFES property located within the Sharpe Army Depot site is anticipated to connect to the City's water system by 2018. The property consists of warehouse facilities and has an annual water demand of 15.5 AF.

3.2.1.3 Total Projected Potable Water Demand

Table 3-5 summarizes the City's projected potable water demand and by sector in five-year increments between 2020 and 2040 and at buildout. The City anticipates that total potable water demand in 2040 will be 15,188 AFY, whereas the demand at Buildout is estimated to be 18,549 AFY.

With the exception of River Islands, these demand projections do not consider the use of recycled water or other non-potable sources for irrigation. Some non-potable irrigation demand could potentially be met with recycled water, reducing the total potable water demand projections described herein.

3.2.2 Projected Non-Potable Water Demand

The City plans to continue agricultural land application as a primary re-use method of the City's tertiary effluent. Projected recycled water demands are estimated to be equal to the volume of treated effluent available, as discussed in Section 5.3.5.

3.2.3 Water Use for Lower Income Households

> *10631.1 (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.*

The water demands presented in Section 3.2.1 include projected future water use by lower income households. Per Health and Safety Code 50079.5, a lower income household is defined as household with lower than 80% of the City's median income.

The water demand for lower income households was based on the estimated number of housing units for the 'extremely low income', 'very low income', and 'low income' categories from the Draft 2015-2023 Housing Element (De Novo Planning Group, 2016). During 2010 and 2012, 29% of

the City's housing units served households from the lower income household categories. To project the future potable water demand for lower income households, it is assumed that 29% of the future residential water demand within City's service area will be associated with lower income households.

The projected water demand for lower income households within the City's service area is presented in Table 3-6 for five-year increments between 2020 and 2040. The total water demand for lower income households in 2040 is estimated to be 2,504 AFY.

3.2.4 Water Use Sectors Not Included in the Demand Projections

This section addresses historical and projected water demands for the water demand sectors described in CWC §10631(e)(1) (G) and (H) and listed below:

- *Sales to other agencies*. The City does not sell potable or recycled water to other agencies.
- *Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof*. The City does not use potable or recycled water for saline barriers. The City is constructing a percolation basin to recharge groundwater with recycled water.

3.3 Coordinating Water Use Projections

> *10631. (j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available.*

The City notifies the SSJID each year of the deliveries that it expects to receive over the next three years. As part of the coordination effort for the 2015 UWMP, and in compliance with CWC §10631(j), the City supplied the SSJID with its water demand projections through 2040.

Table 3-5
Projected Potable Water Demand by Sector (DWR Table 4-2)

Water Demand Sector	Projected Potable Water Demand (acre-feet) (a)					
	2020	2025	2030	2035	2040	Buildout
Projected Residential Water Demand						
Single Family Residential	3,651	4,908	6,177	7,258	8,045	10,349
Multifamily Residential	178	379	621	645	669	724
Subtotal Residential	*3,829*	*5,287*	*6,798*	*7,903*	*8,714*	*11,073*
Projected CII Water Demand						
Commercial	309	511	683	902	1,295	1,565
Industrial	1,409	1,566	1,566	1,566	1,865	2,123
Institutional/Governmental	246	404	538	564	590	676
Subtotal CII	*1,965*	*2,481*	*2,787*	*3,032*	*3,750*	*4,364*
Projected Other Water Demand						
Irrigation	1,144	1,418	1,747	1,888	2,000	2,229
Agricultural	66	66	66	66	0	0
Subtotal Other	*1,210*	*1,484*	*1,813*	*1,954*	*2,000*	*2,229*
Total Projected Water Consumption	**7,003**	**9,252**	**11,398**	**12,890**	**14,465**	**17,666**
Non-revenue Water (b)	350	463	570	645	723	883
Total Projected Water Demand (c)	**7,354**	**9,714**	**11,968**	**13,535**	**15,188**	**18,549**

Notes:

(a) Water demand projections are calculated as the sum of the existing baseline water use and demands associated with future development. Baseline urban water use of 5,102 AFY is the sum of 2013 water usage and new development built between 2013-2016 multiplied by their corresponding water demand factors (see Appendix F, Table F-1). Future demands are calculated using the updated unit water demand factors summarized in Table 3-4, and assumptions about planned development as seen in Table 2-1 (see Appendix F, Table F-2).

(b) Non-revenue water includes water used for fire hydrant flushing and testing, for water main flushing, and for construction water, as well as distribution system water losses. This value is estimated to be 5% of consumption, based upon the City's historical non-revenue water presented in Table 3-3.

(c) Total water demand is the sum of metered water consumption and unaccounted-for-water. Totals may not add exactly due to rounding.

Figure 3-6
Existing and Projected Water Demand by Sector

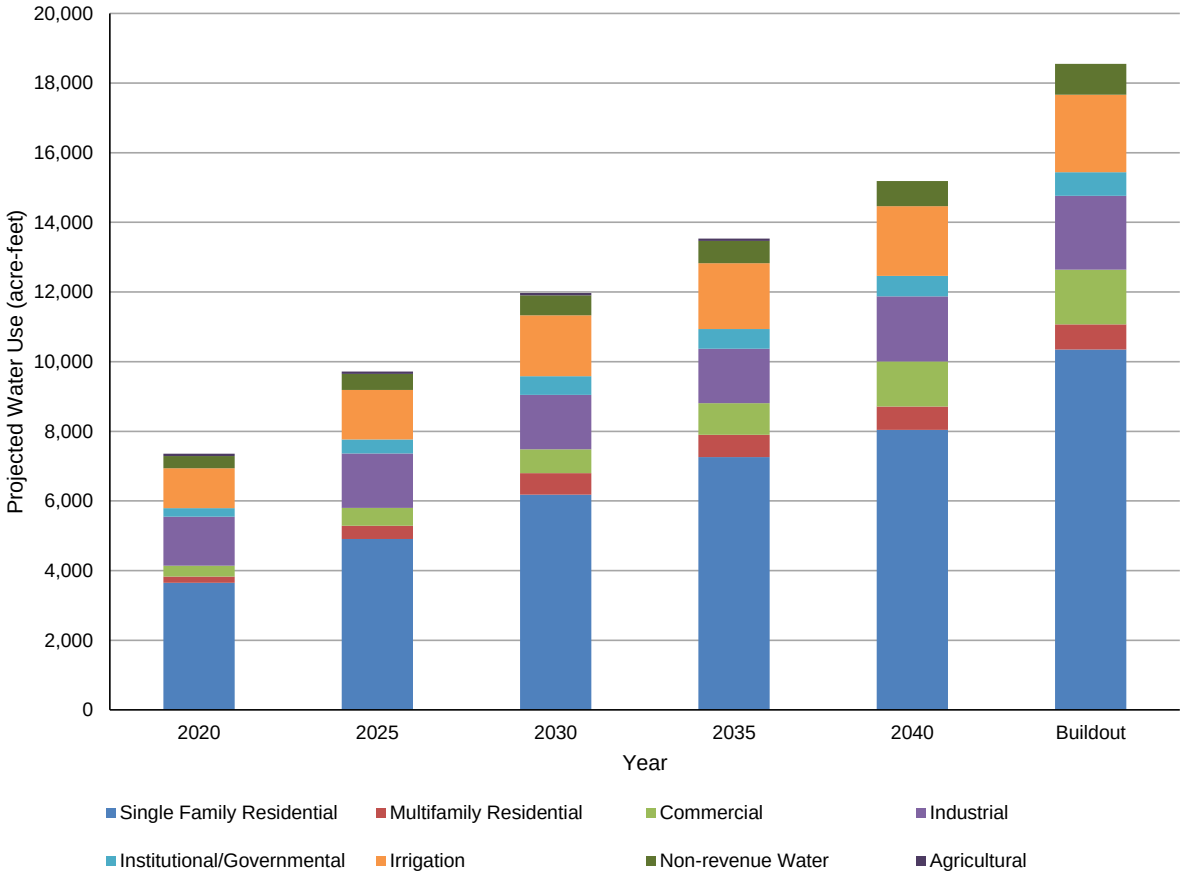


Table 3-6
Projected Lower Income Water Demand

Lower Income Water Demand Sector (a)	Projected Water Demand (acre-feet) (b)				
	2020	2025	2030	2035	2040
Projected Potable Water Demand (c)					
Single Family Residential	1,049	1,410	1,775	2,086	2,312
Multi-Family Residential	51	109	178	185	192
Total Potable Demand	**1,100**	**1,519**	**1,954**	**2,271**	**2,504**

Notes:

(a) Per Health and Safety Code 50079.5, a lower income household is defined as a household with lower than 80% of the City's median income.

(b) The demands for lower income households are included in the total demand projections shown in Table 3-5.

(c) Projected Water Demands are calculated as the product of the ratio of lower income households (De Novo, 2016) at 28% and the projected demands by sector from Table 3-5.

4. BASELINE WATER USE AND WATER CONSERVATION TARGETS

The Water Conservation Act of 2009 (Water Conservation Act) directed DWR to develop technical methodologies and criteria to ensure the consistent implementation of the Water Conservation Act and to provide guidance to urban retail water suppliers in developing baseline and compliance water use. The Water Conservation Act was incorporated into Division 6 of the CWC commencing with §10608 of Part 2.55. The methodologies for developing baseline and compliance water use are established in *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water, California Department of Water Resources Division of Statewide Integrated Water Management Water Use and Efficiency Branch*, March 2016 update (Methodologies) (DWR, 2016c).

The Water Conservation Act specifically calls for developing seven methodologies and a set of criteria for adjusting daily per capita water use at the time compliance is required (the 2015 and 2020 compliance years) under CWC §10608.20(h):

> *1. The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:*
>
> *A. Methodologies for calculating base daily per capita water use, baseline commercial industrial, and institutional water use, compliance daily per capital water use, gross water use, service area population, indoor residential water use, and landscaped area water use.*
> *B. Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.*

The CWC Sections 10608.20 and 10608.28 allow water suppliers the choice of complying individually or regionally by mutual agreement with other water suppliers or regional agencies. The DWR has also developed a methodology for regional compliance. The following calculation methodologies have been developed and are described in Methodologies (DWR, 2016c):

- Methodology 1: Gross Water Use
- Methodology 2: Service Area Population
- Methodology 3: Base Daily Per Capita Water Use
- Methodology 4: Compliance Daily Per Capita Water Use
- Methodology 5: Indoor Residential Use
- Methodology 6: Landscaped Area Water Use
- Methodology 7: Baseline Commercial, Industrial, and Institutional Water Use
- Methodology 8: Criteria for Adjustments to Compliance Daily Per Capita Water Use
- Methodology 9: Regional Compliance

The City adopted its water use targets in August 2012.[5] The following sections summarizes the City's service area population and baseline water use, summarizes the City's adopted water use targets, and analyzes the City's compliance with its 2015 interim water use target. Water use

[5] *Resolution No. 12-3451*, 20 August 2012

targets and 2015 compliance data are summarized in Table 4-1 through Table 4-3. Detailed calculations are included in Appendix G.

4.1 SERVICE AREA POPULATION

10608.20 (e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

10608.20 (g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

Methodology 2 Service Area Population. DWR will examine discrepancy between the actual population estimate and DOF's projections for 2010; if significant discrepancies are discovered, DWR may require some or all suppliers to update their baseline population estimates. (DWR, 2016b)

Table 4-1 provides estimates of the City's service area population for each of the baseline years and the 2015 compliance year, based upon data from the California DOF. Per the Methodologies, DWR examined the actual population estimates and the DOF's projections for 2010, and is requiring that water suppliers calculate their baseline population for the 2015 UWMPs using 2000 and 2010 Census. The DOF data presented in Table 4-1 incorporates 2010 Census data, and thus satisfies this requirement. The 2015 compliance year population for the City is 20,796.

4.2 BASELINE WATER USE

Water suppliers must define a 10- or 15-year base (or baseline) period for water use that is then used to develop their future target per capita water use. Water suppliers must also calculate water use over a 5-year baseline period and use that value to determine a minimum required reduction in water use by 2020. Utilizing a 15-year baseline period is only allowed for water suppliers that meet at least 10% of their 2008 measured retail water demand through recycled water; the City does not meet this criterion and thus selected a 10-year baseline.

The 10-year baseline water use was calculated as 230 GPCD using gross per capita water usage data (calculated as total water entering the City's water distribution system divided by total population) for the 10-year period between 1 January 2000 and 31 December 2009. The 5-year baseline water use was calculated as 236 GPCD using per capita water usage data for the 5-year period between 1 January 2003 and 31 December 2007. The 5- and 10-year baseline water uses are shown in Table 4-2.

Table 4-1
SBx7-7 Service Area Population (DWR SBx7-7 Table 3)

		Population
10 to 15 Year Baseline Population		
Year 1	2000	10,445
Year 2	2001	10,802
Year 3	2002	11,616
Year 4	2003	12,089
Year 5	2004	12,482
Year 6	2005	12,768
Year 7	2006	14,489
Year 8	2007	16,271
Year 9	2008	17,282
Year 10	2009	17,589
5 Year Baseline Population		
Year 1	2003	12,089
Year 2	2004	12,482
Year 3	2005	12,768
Year 4	2006	14,489
Year 5	2007	16,271
2015 Compliance Year Population		
2015		20,796

Notes:

(a) Historical and current population is based on population estimates by the California DOF for the City of Lathrop included in DOF, 2007; DOF, 2012; and DOF, 2016.

Table 4-2
SBx7-7 Baselines and Targets (DWR Table 5-1)

Baseline Period	Baseline Years		Average GPCD	SBx7-7 Targets	
	Start Year	End Year		2015 Interim (GPCD)	Confirmed 2020 (GPCD)
10-15 Year	2000	2009	230	209	188
5 Year	2003	2007	236		

Notes:
(a) This table is based on information provided in SBx7-7 Tables 1, 5, 7-F, and 8 (Appendix G).

4.3 WATER USE TARGETS

10608.20 (b) An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards: (A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute. (B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas. (C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following: (A) Consider climatic differences within the state. (B) Consider population density differences within the state. (C) Provide flexibility to communities and regions in meeting the targets. (D) Consider different levels of per capita water use according to plant water needs in different regions. (E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state. (F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

The Water Conservation Act requires that agencies calculate their 2020 water use targets (2020 Targets) using one of the following four methods:

- Method 1: 80% of the water supplier's baseline per capita water use;
- Method 2: Per capita daily water use estimated using the sum of performance standards applied to indoor residential use, landscaped area water use, and commercial, industrial, and institutional uses;

- Method 3: 95% of the applicable state hydrologic region target as stated in the State's 20x2020 Water Conservation Plan, dated February 2010; or
- Method 4: Total savings subtracted from baseline water use. Savings include metering savings, residential savings, commercial, industrial, and institutional savings, and landscape and water loss savings.

In addition, water suppliers must establish an "Interim Target" in 2015, which is established as the midpoint between the City's baseline water use and the 2020 Target.

The City's 2020 Target and 2015 Interim Target are presented in Table 4-2. The City's 2020 Target of 188 GPCD was calculated using Method 4. The 2015 Interim Target is calculated as 209 GPCD, which is the mid-point between the 10-year baseline (230 GPCD) and the 2020 Target.

Under CWC §10608.22, water suppliers must confirm that the 2020 Target will reduce 2020 water use by a minimum of 5% from the 5-year base daily per capita water use. As discussed in Section 4.2, the City's 5-year baseline water use is 236 GPCD. The 2020 Target (188 GPCD) is less than 95% of the 5-year baseline water use, so the selected 2020 Target is in compliance with the UWMP Act.

4.4 2015 TARGET COMPLIANCE

10608.24 (a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

10608.24 (d) (1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

The CWC §10608.24(a) directs that water suppliers must calculate their actual water use in 2015 to determine whether or not they have met their 2015 Interim Target and to assess their progress toward meeting their 2020 Target. Per the Methodologies, there are several allowable adjustments that can be made to a supplier's 2015 per capita water use calculations as part of

evaluating target compliance. However, no adjustments were made to the City's 2015 per capita water use calculations.

As above, in 2015, actual water demand within the City's service area was 3,445 AF and the service area population was 20,796. Therefore, the calculated per capita water use in 2015 was 148 GPCD, approximately 71% of the City's 2015 Interim Target of 209 GPCD (Table 4-3). Therefore, the City is in compliance with its 2015 Interim Target.

4.5 WATER USE REDUCTION PLAN

The City's actual per capita water demand in 2015 was substantially lower than its 2015 Interim Target. As shown in Figure 3-1 and Table 3-1, per capita water use in the City has generally declined since 2004 as water use in the City has become more efficient. However, the dramatic decline in per capita water use in 2014 and 2015 was influenced heavily by the recent drought. In 2013, the City's per capita water use (213 GPCD) was higher than both its 2020 Target and 2015 Interim Target. The degree to which the recent reduction in water use is a temporary condition in response to the drought, and not a permanent reduction from water conservation activities, is unknown. It is likely, however, that water demand in the City's service area will rebound following the drought, although a full rebound to pre-drought levels may not occur. The City's ability to meet its 2020 Target will depend heavily upon the degree to which water use rebounds and future water conservation actions (see Section 8).

Table 4-3
2015 SBx7-7 Compliance (DWR Table 5-2)

Actual and Interim Target GPCD			
2015 Actual GPCD		**2015 Interim Target**	
148		209	
Optional Adjustments to 2015 GPCD			
Extraordinary Events	**Economic Adjustment**	**Weather Normalization**	**Adjusted Actual 2015 GPCD**
0	0	0	148
SBx7-7 Compliance			
Actual (or Adjusted Actual) 2015 GPCD as Percent of Target		**In Compliance? (y/n)**	
71%		Yes	

Notes:

(a) This table is based on information contained in SBx7-7 and 8 (Appendix G).

5. WATER SYSTEM SUPPLIES

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631. (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

The City obtains water from both imported surface water and local groundwater sources. The City receives Stanislaus River water through the SCWSP that is operated by the SSJID and discussed in Section 5.1. The City also owns and operates six groundwater production wells, discussed in Section 5.2. The City's surface water and groundwater production over the period 2011 through 2016 is summarized in Table 5-1 and Figure 5-1. Due to the relatively high cost of SCWSP water, the City has historically relied upon its groundwater wells as the primary source of supply.

Over the period 2011 through 2016, the City's annual water production ranged from 3,646 AF in 2016 to 4,686 AF in 2013. Surface water production (i.e., SCWSP purchases) has steadily declined from 1,053 AF in 2011 to 252 AF in 2016. Groundwater production has varied from as low as 2,744 AF in 2011 to as high as 4,082 AF in 2013. The City's increased reliance on groundwater is evidenced by groundwater's percentage of the City's total water production, which increased each year of this time period, from 72% in 2011 to 93% in 2016. The City's current and potential future water supplies are further described in the following sections.

5.1 PURCHASED OR IMPORTED WATER

The City purchases imported surface water from SSJID through the SCWSP, which supplies Stanislaus River water. Information related to the contractual entitlements and treatment processes for the surface water source is provided below. The reliability of this water supply is discussed in Section 6.1.1.

5.1.1 Stanislaus River Water

The SCWSP is a partnership between the City, SSJID, and the cities of Manteca, Tracy, and Escalon.[6] The SCWSP water supply is based on SSJID's senior, pre-1914 appropriative water rights to the Stanislaus River, a tributary of the San Joaquin River, coupled with a 1988 agreement with the United States Bureau of Reclamation (USBR) to store water in the New Melones Reservoir.[7]

[6] The City of Escalon is under contract to purchase water from the SCWSP but has not yet constructed a pipeline to convey the water to its facilities.

[7] This agreement recognized and protected SSJID's senior water rights on the Stanislaus River, because those rights could potentially be affected by the USBR's operation of the New Melones Reservoir as part of the Central Valley Project. The agreement entitles the senior water rights holders, SSJID and Oakdale Irrigation District, to access up to 600,000 AFY of water from New Melones Reservoir in years in which inflow to the reservoir exceeds 600,000 AF. SSJID's share of this allotment is 300,000 AF. In years in which inflow does not meet this threshold, the entitlement is reduced based on a pre-determined formula.

Table 5-1
Current and Historical Potable Water Supply

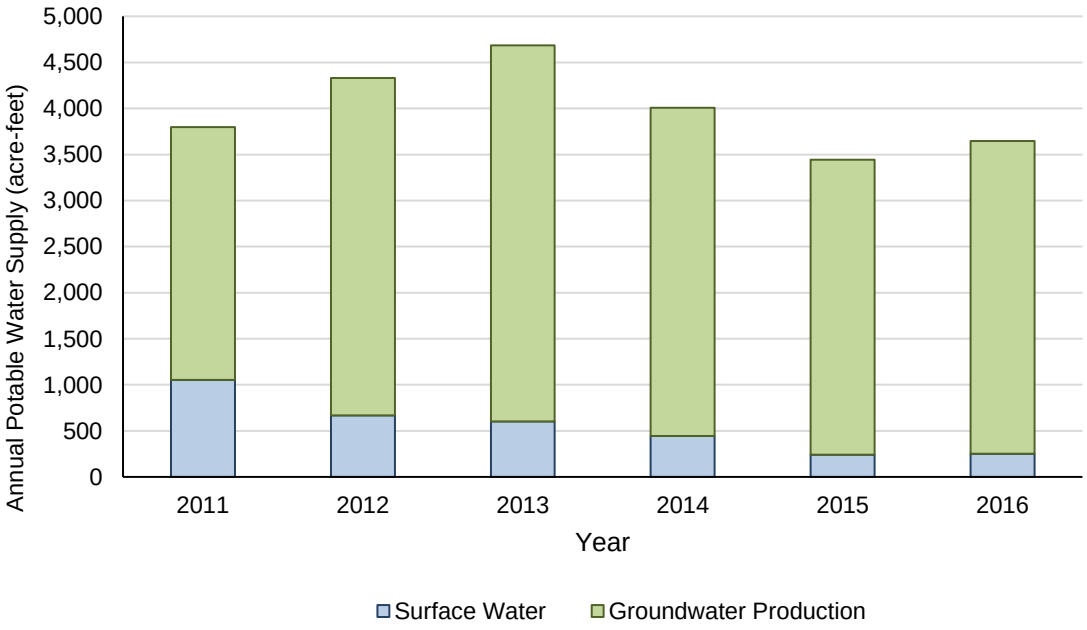
Potable Water Source	Annual Production (acre-feet) (a)					
	2011	2012	2013	2014	2015	2016
Surface Water						
SCWSP	1,053	667	603	445	241	252
Percentage of Supply	28%	15%	13%	11%	7%	7%
Groundwater Production						
Production Wells (b)	2,744	3,665	4,082	3,563	3,204	3,394
Percentage of Supply	72%	85%	87%	89%	93%	93%
Total	**3,798**	**4,332**	**4,686**	**4,008**	**3,445**	**3,646**

Notes:

(a) Production data provided by the City in March 2017.

(b) The City recorded groundwater production prior to 2015 as the sum of the production volume from individual wells; due to inaccuracies discovered with the well meters, the City is recording groundwater production from 2016 and onwards as the metered production of the LAWTF.

Figure 5-1
Current and Historical Potable Water Supply



The SCWSP was planned to be implemented in two phases. Phase 1 was completed in 2005 and consists of an intake facility at Woodward Reservoir, the Nick C. DeGroot Water Treatment Plant (DGWTP), and about 35 miles of pipe ending in the City of Tracy. The DGWTP is located near Woodward Reservoir in San Joaquin County, and the treatment process at the facility includes pre-chlorination, coagulation, dissolved air flotation pretreatment for removal of solids and dissolved material, chemical stabilization to minimize internal pipe corrosion, membrane filtration, and chlorination for disinfection. Phase 2 will increase the treatment capacity of the DGWTP. However, the timing of Phase 2 implementation is unknown at this time.

Each of the four participating cities has an agreement with SSJID to receive treated water through December 2029. If SSJID and the cities do not agree to extend the contract past 2029, then the District agrees to transfer the project to a Joint Powers Authority composed of the four cities, which would then be responsible for operation and maintenance of the SCWSP.

The total Phase 1 capacity of the SCWSP is approximately 31,500 AFY. Phase 2 is anticipated to increase the treatment capacity of the DGWTP to approximately 43,000 AFY. The SSJID has experienced increased demand in recent years and is exploring options to expand the distribution system under Phase 1 and potentially expand the treatment capacity as part of Phase 2, but the schedule for these expansions are uncertain (Provost & Pritchard, 2016).

The *1995 Water Supply Development Agreement* between the City and SSJID provided the City with a Phase 1 allocation of 8,007 AFY and a total allocation of 11,791 AFY after completion of Phase 2. In August 2013, the City sold 1,120 AFY of SCWSP water to the City of Tracy.[8] Therefore, the City's remaining SSJID allocation is 6,887 AFY for Phase 1 and a total of 10,671 AFY after completion of Phase 2.

The future reliability of the City's full SCWSP allocation is potentially uncertain due to ongoing planning efforts by the SWRCB. On 15 September 2016, the SWRCB proposed draft revisions to the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) in a Draft Substitute Environmental Document (Draft SED) (SWRCB, 2016). The proposed changes update the water quality requirements for salinity in the south Delta and water flows in major tributaries to the San Joaquin River, including the Stanislaus River, which drains into the Southern Delta. The Draft SED recommends increasing flows on the San Joaquin River and its tributaries to 30% to 50%, with a starting point of 40%, of unimpaired flow from February to June. Biological conditions would determine how the flow criteria are adjusted within the 30% to 50% range. Historical median February through June flows from 1984 to 2009 in the Stanislaus River were approximately 40% of unimpaired flows, meaning that flows were below the starting goal of 40% in half of the years between 1984 and 2009. At this time, it is uncertain how these new flow criteria, if adopted, would directly affect SCWSP supplies. Given current uncertainties, these proposed changes are not explicitly included in the water supply reliability evaluation.

5.2 GROUNDWATER

The City straddles two groundwater basins – the western portion of the City overlies the Tracy Groundwater Subbasin (DWR 5-22.15) and the eastern portion of the City overlies the Eastern San Joaquin Groundwater Subbasin (DWR 5-22.01). Both basins are subbasins of the San

[8] "Lathrop-Tracy Purchase, Sale and Amendment Agreement," dated 6 August 2013.

Joaquin Valley Groundwater Basin (DWR 5-22) and the San Joaquin River forms the boundary between the basins. The basin boundaries and a summary of local and regional groundwater management is shown on Figure 5-2. All of the City's groundwater production wells are located in the Eastern San Joaquin Groundwater Subbasin (ESJ Subbasin). The City does not currently own or operate groundwater wells in the Tracy Subbasin. A description of each basin is provided below. The groundwater basins underlying the City and the locations of the City's production wells are shown on Figure 5-3.

5.2.1 Groundwater Basin Description

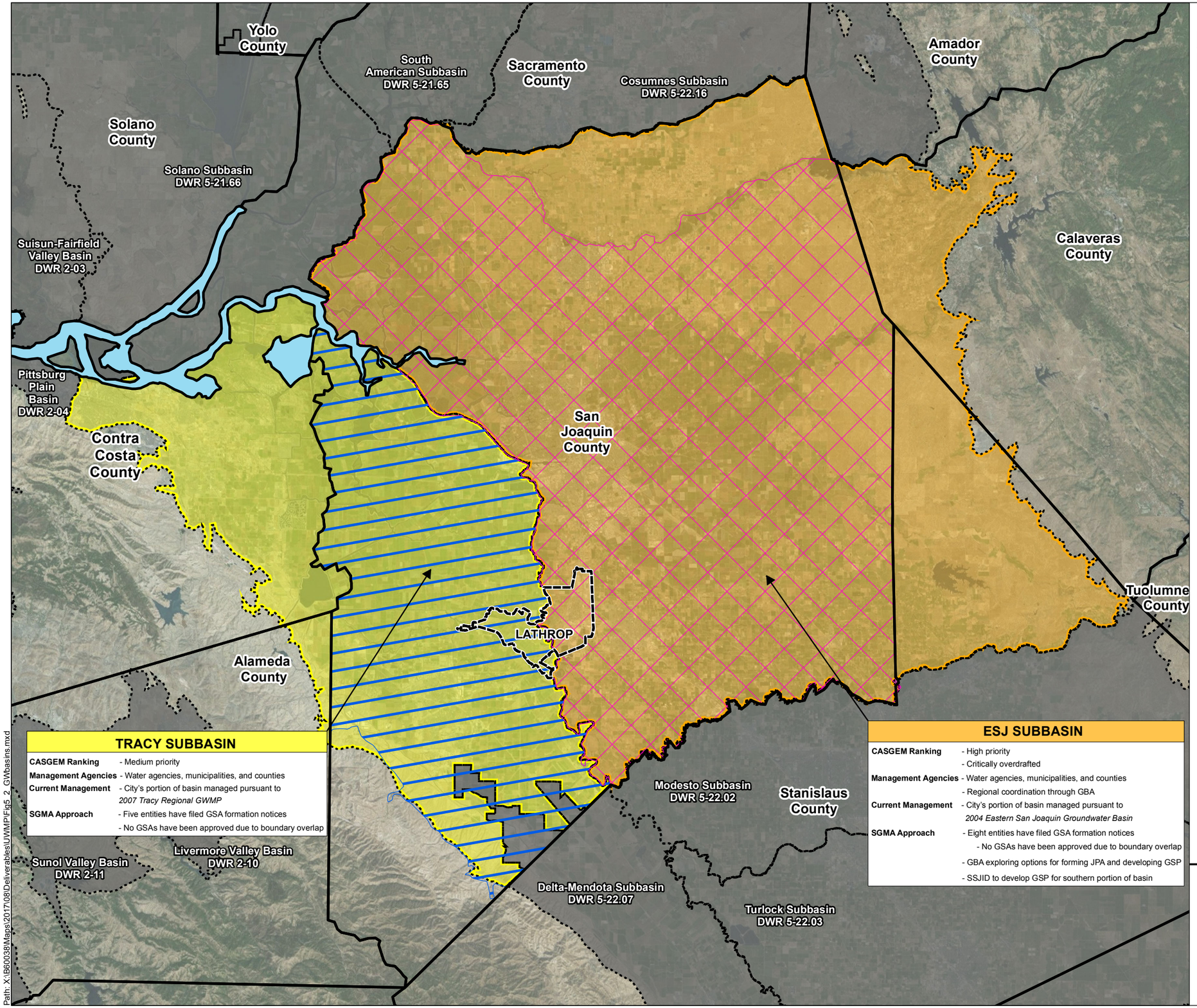
10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

The following sections describe the ESJ Subbasin and the Tracy Subbasin, including their water-bearing formations, water levels, and water quality.

5.2.1.1 ESJ Subbasin Hydrogeology

The ESJ Subbasin has a surface area of 707,000 acres (1,105 square miles) and is located in the San Joaquin River Hydrologic Region, a part of the Central Valley aquifer system that occupies most of a large basin in central California between the Sierra Nevada and the Coastal Range Mountains. The ESJ Subbasin is drained by the San Joaquin River and several of its major tributaries namely, the Stanislaus, and Calaveras, and Mokelumne Rivers. The ESJ Subbasin is not adjudicated and, as a high priority and critically overdraft basin, is subject to the requirements of SGMA, as discussed in Section 5.2.2.1.



Legend

- County
- City Limit
- Sacramento-San Joaquin River Delta

GWMPs Within City Limit

- Eastern San Joaquin GWMP
- Tracy GWMP

DWR Groundwater Basins

- 5-22.01: Eastern San Joaquin Subbasin
- 5-22.15: Tracy Subbasin
- Other (Subbasin or Basin)

Abbreviations

CASGEM	=	California Statewide Groundwater Elevation Monitoring Program
DWR	=	California Department of Water Resources
GBA	=	Eastern San Joaquin County Groundwater Basin Authority
GSA	=	Groundwater Sustainability Agency
GSP	=	Groundwater Sustainability Plan
GWMP	=	Groundwater Management Plan
JPA	=	Joint Powers Authority
SGMA	=	Sustainable Groundwater Management Act
SSJID	=	South San Joaquin Irrigation District

Notes

1. All locations are approximate.

Sources

1. Groundwater basins from DWR's Final 2016 Bulletin 118 Groundwater Basin Boundaries, downloaded 24 October 2016. Basin boundaries reflect the final revisions approved as part of the 2016 basin boundary modification process.
2. CASGEM priority ranking from June 2014 Basin Prioritization Process.
3. Basemap: Esri's World Reference and World Terrain Base, accessed 3 August 2017.

N

0 6 12

(Scale in Miles)

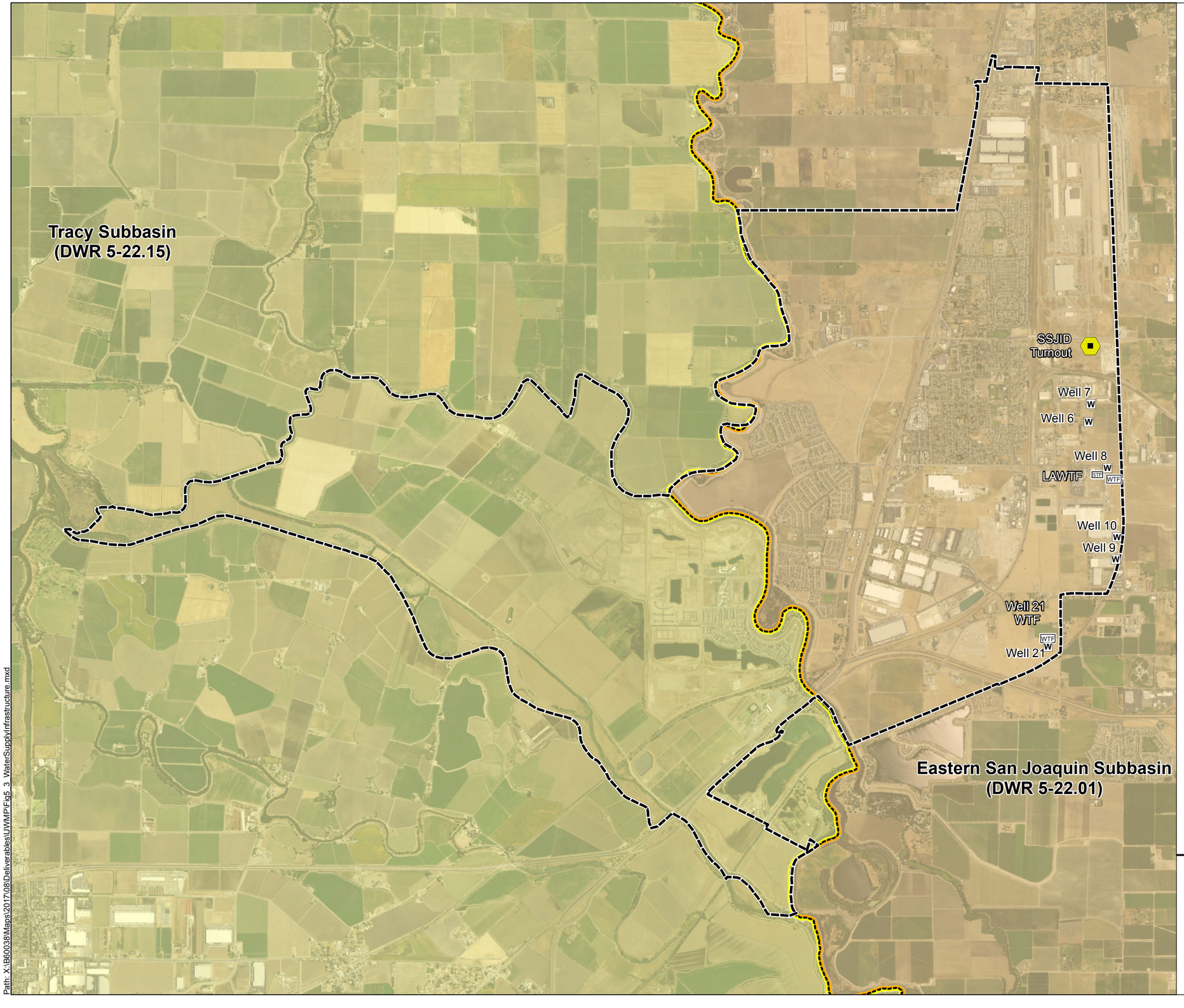
Summary of Local and Regional Groundwater Management

City of Lathrop
Lathrop, CA
August 2017
B60038.01

Figure 5-2

eki environment & water

Path: X:\B60038\Maps\2017\08\Deliverables\UWMP\Fig5_2_GWbasins.mxd



Legend

- County
- City Limit

DWR Groundwater Basins

- 5-22.01: Eastern San Joaquin Subbasin
- 5-22.15: Tracy Subbasin
- Other (Subbasin or Basin)

Infrastructure Features

- W Production Well
- WTF Water Treatment Facility

Abbreviations

CASGEM	=	California Statewide Groundwater Elevation Monitoring Program
DWR	=	California Department of Water Resources
LAWTF	=	Louise Avenue Water Treatment Facility
WTF	=	Water Treatment Facility

Notes

1. All locations are approximate.

Sources

1. Groundwater basins from DWR's Final 2016 Bulletin 118 Groundwater Basin Boundaries, downloaded 24 October 2016. Basin boundaries reflect the final revisions approved as part of the 2016 basin boundary modification process.
2. CASGEM priority ranking from June 2014 Basin Prioritization Process.
3. Basemap: Esri's World Reference and World Terrain Base, accessed 3 August 2017.

N

0 4,000 8,000

(Scale in Feet)

Water Supply Infrastructure

eki environment & water

City of Lathrop
Lathrop, CA
August 2017
B60038.01

Figure 5-3

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In October 2016, DWR modified the boundaries of the ESJ Subbasin, at the request of San Joaquin County, to expand the basin further north.[9] As such, the current basin boundaries differ from those presented in previous reports. As shown on Figure 5-2, the current ESJ Subbasin is bounded on the north by the San Joaquin county line, on the west by the San Joaquin River, on the south by the San Joaquin county line and the Stanislaus River, and on the east by the extent of alluvium. The ESJ Subbasin is adjacent to three subbasins of the San Joaquin Valley Groundwater Basin, including the Tracy Subbasin to the west, the Cosumnes Subbasin (5-22.16) to the northeast, and the Modesto Subbasin (5-22.03) to the south. To the northwest, the ESJ Subbasin also borders two subbasins of the Sacramento Valley Groundwater Basin (DWR 5-21): the Solano Groundwater Subbasin (5-21.66) and the South American Subbasin (5-21.65).

A comprehensive discussion of the hydrogeology of the ESJ Subbasin is provided in the *Eastern San Joaquin Groundwater Basin Groundwater Management Plan* (ESJ GWMP)[10] (San Joaquin County, 2004) and summarized below. Most of the fresh groundwater within the subbasin is estimated to be located at depths of less than 1,000 feet, and most of this shallow groundwater is unconfined. Several hydrologic formations underlie the Lathrop area; however, only the top two, the Victor and the Laguna formations, are currently utilized as a source of fresh water. The Victor formation is the uppermost formation and extends from the ground surface to a maximum depth of about 150 feet. The formation consists primarily of stream-deposited unconsolidated gravel, sand, silt, and clay. Compared to the underlying formations, the Victor formation is generally more permeable and the groundwater is typically unconfined.

The underlying Laguna formation includes discontinuous lenses of unconsolidated to semi-consolidated sands and silts interspersed with lesser amounts of clay and gravel. The Laguna formation is hydraulically connected to the Victor formation and is estimated to be 400 feet to 1,000 feet thick from the Mokelumne River area to the Stockton area, respectively. Regionally, yields of 1,500 gallons per minute (gpm) have been reported from highly permeable beds, but average well yields are roughly 900 gpm. Groundwater occurs under unconfined to locally semiconfined conditions within this unit. Most of the municipal and industrial wells in the Lathrop area penetrate through the Victor formation into the Laguna formation. Some studies have reported that the Corcoran Clay extends into the Laguna Formation, forming an aquitard between the Laguna Formation and underlying formations (Brown & Caldwell, 1985).

Underlying Lathrop, the groundwater surface generally slopes from south to north, with the highest groundwater elevations occurring near Yosemite Avenue, east of McKinley Avenue, and the lowest groundwater elevations occurring along Roth Road. There are some localized depressions due to industrial and municipal groundwater pumping operations. Groundwater

[9] The SGMA established a process whereby local agencies are able to petition DWR to modify the boundaries of existing groundwater basins or subbasins, which were defined in the Act as the boundaries included in *Bulletin 118 – Update 2003* (DWR, 2003). In 2016, DWR hosted a Basin Boundary Modification Period where local agencies could submit requests to modify basin boundaries based upon jurisdictional considerations or scientific evidence. San Joaquin County submitted a request to consolidate that portion of the Cosumnes Subbasin that underlies the County with the ESJ Subbasin. Minor changes to the eastern margins of the ESJ Subbasin were also proposed. The DWR approved the County's request and incorporated the modified basin boundary into *Bulletin 118 – Interim Update* (DWR, 2016a).

[10] Accessible at: http://www.gbawater.org/Studies-Projects/Groundwater-Management-Plan.

elevations in the fall, after the high-use summer months, average about three feet lower than groundwater elevations in the spring.

Historical use of groundwater throughout the ESJ Subbasin has created an overdraft condition in the groundwater aquifer, where the rate of groundwater extraction exceeds the rate of groundwater recharge. With the publication of *Bulletin 118-80* in 1980, DWR determined that the ESJ Subbasin was in a critical condition of overdraft due to extraction rates higher than the aquifer safe yield (DWR, 1980). This designation was maintained in 2003 with the publication of *Bulletin 118 – Update 2003* (DWR, 2003). The SGMA directs DWR to identify groundwater basins and subbasins in conditions of critical overdraft.[11] In July 2015, DWR released the 'Draft List of Critically-Overdrafted Basins', which once again designated the ESJ Subbasin as a critically-overdrafted basin based on evaluation period of 1989 to 2009[12]. As discussed in Section 5.2.2, "critically-overdrafted" basins are subject to an accelerated compliance timeline under SGMA.

Estimates of overdraft within the ESJ Subbasin vary. The DWR has estimated that overdraft of the basin is approximately 113,000 AFY (DWR, 2006). This estimate is based on a USBR Study which used 1990 groundwater pumping rates for the water budget calculations (USBR, 1996). Of this total overdraft, DWR estimated that 70,000 AFY occurs in the northeastern portion of San Joaquin County, and approximately 35,000 AFY occurs in the Stockton East Water District (SEWD) service area to the north of the City. The ESJ GWMP provides a simplified groundwater balance, which estimated a higher rate of overdraft in the ESJ Subbasin, between 150,000 and 160,000 AFY. This higher rate of overdraft includes the effect of lateral saline intrusion near the City of Stockton. Excluding overdraft due to saline intrusion, the difference in inflows and outflows estimated in the ESJ GWMP (approximately 107,000 AFY) is comparable to the overdraft estimated by DWR.

The sustainable or "safe yield" of a groundwater basin is defined under SGMA as the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing undesirable results.[13] The estimated safe yield of the previously-defined ESJ Subbasin has been reported as approximately 618,000 AFY, although it is unclear if this safe yield refers to the entire basin, or just the portion of the basin that lies within San Joaquin County (DWR, 2006). If the DWR safe yield refers to the entire basin, then the per-acre safe yield is 0.87 AFY/acre. If the DWR safe yield refers only to the portion of the basin that underlies San Joaquin County, then the per-acre safe yield is 1.12 AFY/acre. The ESJ GWMP does not provide an estimate of the total safe yield of the ESJ Subbasin but reports that the per-acre safe yield is 1.0 AFY/acre[14].

[11] CWC §12924(a)
[12] Pursuant to SGMA, DWR is required to designate entire basins or subbasins as critically-overdrafted, rather than portions of a basin or subbasin.
[13] Undesirable results are defined as significant and unreasonable effects associated with the following conditions: chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, land subsidence, and depletions of interconnected surface water (CWC §10721(x)).
[14] These safe yield estimates do not reflect the new basin configuration and will be updated as part of SGMA.

Measurements of groundwater levels over the past 40 years show a fairly continuous decline in groundwater levels in the eastern portion of the ESJ Subbasin. Groundwater levels have declined at an average rate of 1.7 feet per year and have dropped as much as 100 feet in some areas. The City's groundwater levels, however, have remained stable over the past two decades when taking into account seasonal variations and droughts.

5.2.1.2 Tracy Subbasin Hydrogeology

The Tracy Subbasin has a surface area of 345,000 acres (539 square miles) and, like the ESJ Subbasin, is located in the San Joaquin River Hydrologic Region. The Tracy Subbasin is drained by the San Joaquin River and one of its major westside tributaries, Corral Hollow Creek. The Tracy Subbasin is not adjudicated and, as a Medium priority basin, is subject to the requirements of SGMA, as discussed in Section 5.2.2. It has not been designated by DWR as being in a condition of critical overdraft.

The Tracy Subbasin is bounded on the north and the east by the San Joaquin River, on the south by a combination of the San Joaquin-Stanislaus County line and the jurisdictional boundaries of water agencies,[15] and on the west by the extent of sedimentary deposits bounded by the Diablo Range. The Tracy Subbasin is adjacent to the Solano Subbasin to the north, the ESJ Subbasin to the west, and the Delta-Mendota Subbasin (5-22.07) to the south.

A discussion of the hydrogeology of the Tracy Subbasin is provided in the *Tracy Regional Groundwater Management Plan* (Tracy GWMP) (GEI, 2007) and is summarized below. The base of fresh water, defined as water with a total dissolved solids (TDS) concentration of less than 2,000 milligrams per liter (mg/L) ranges from 800 to 2,000 feet below ground surface (ft bgs). The Tracy Subbasin consists of two primary aquifers: a shallow, unconfined aquifer and a deeper confined aquifer.

The unconfined aquifer in the region of the City of Tracy is primarily composed of older and younger alluvium. The older alluvium tends to be loosely to moderately compacted silt, sand, and gravel deposits with a thickness of approximately 150 feet. Younger alluvium is generally unconsolidated silt, sand, and gravel with a thickness of less than 100 feet. Groundwater recharge to the unconfined aquifer is from the Coast Ranges, and groundwater may be discharging to the San Joaquin River. Groundwater elevations in the unconfined aquifer have been relatively steady over time, and groundwater flows from south to north.

The confined aquifer is primarily composed of the Tulare Formation and is separated from the unconfined aquifer by the Corcoran Clay. The Tulare Formation is moderately permeable, and most of the larger production wells extract from this formation. The thickness of the Tulare Formation is approximately 1,400 feet. Groundwater elevations in the confined aquifer are monitored by the City of Tracy, who operates several production wells for municipal use. Historically, groundwater production by the City of Tracy has resulted in a pumping depression.

[15] The San Luis & Delta-Mendota Water Authority submitted a basin boundary modification request to extend the Delta-Mendota Subbasin into the Tracy Subbasin such that the service areas of the Del Puerto Water District and the West Stanislaus Irrigation District would not be split between the two basins. The DWR approved the request and incorporated the modified basin boundary into *Bulletin 118 – Interim Update.*

In its most recent UWMP, however, the City of Tracy reported that groundwater elevations have risen steadily in the past decade and the pumping depression has decreased in size as the City has reduced its reliance on groundwater (EKI, 2016).

Groundwater storage capacity in the Tracy Subbasin has not been estimated. However, based on values reported for the Tracy-Patterson Storage Unit (Hotchkiss and Balding, 1989), it has been inferred that the storage capacity of the southern portion of the Tracy Subbasin – extending from the southern boundary of the basin to one-mile north of the City of Tracy – is 1.3 million AF.

5.2.2 Groundwater Management

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631. (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

The following sections describe groundwater management that occurs at a regional level in the ESJ and Tracy Subbasins.

5.2.2.1 Historical ESJ Subbasin Groundwater Management

In 2001, agencies in the ESJ Subbasin came together to form the Northeastern San Joaquin County Groundwater Banking Authority (GBA) to develop a consensus-based approach to water resources planning and conjunctive water management.[16] The GBA consists of the City of Stockton, City of Lodi, Woodbridge Irrigation District, North San Joaquin Water Conservation District, Central San Joaquin Water Conservation District, SEWD, Central Delta Water Agency, South Delta Water Agency, San Joaquin Flood Control and Water Conservation District, California Water Service Company and the San Joaquin Farm Bureau Federation.

The ESJ GWMP was prepared in September 2004 by the GBA and is compliant with the requirements of SB 1938. The planning area of the ESJ GWMP includes the portion of the ESJ Subbasin underlying San Joaquin County, including the eastern portion of the City. Various local agencies and interest groups were actively involved in the planning process, including the City. The objectives of the ESJ Subbasin GWMP are as follows:

1. Maintain long-term sustainability of the ESJ Subbasin through the development of management objectives, practices and conjunctive use projects to benefit the social, economic and environmental viability of Eastern San Joaquin County.
2. Prevent further saline intrusion and degradation of groundwater quality throughout the ESJ Subbasin.
3. Increase understanding of ESJ Subbasin dynamics through the development of a sound research program to monitor, evaluate, and predict ESJ Subbasin conditions.

[16] The GBA has since changed its name to the Eastern San Joaquin County Groundwater Banking Authority. The GBA website is accessible at: http://www.gbawater.org/.

4. Maintain local control of the groundwater ESJ Subbasin through the responsible management of groundwater resources by overlying cities, counties, water districts, agencies, and landowners.
5. Formulate rational and attainable ESJ Subbasin management objectives to comply with SB 1938 and retain State funding eligibility.
6. Formulate voluntary policies, practices and incentive programs to meet established Basin Management Objectives (BMOs).
7. Formulate appropriate financing strategies for the implementation of the ESJ Subbasin GWMP.

The California Ambient Groundwater Elevation Monitoring (CASGEM) Program is a groundwater elevation monitoring program that was developed by DWR per the requirements of SB 7-6. While a voluntary program, entities lose eligibility for certain state funding and grant programs unless a Monitoring Entity is formed for their portion of a basin and a monitoring plan is approved by DWR. In May 2015, after years of effort developing an adequate monitoring plan, the San Joaquin County Flood Control and Water Conservation District was approved as the Designated Monitoring Entity under CASGEM for the portion of the ESJ Subbasin underlying San Joaquin County. Calaveras County and Stanislaus County are each Monitoring Entities for their respective portions of the ESJ Subbasin.

5.2.2.2 Historical Tracy Subbasin Groundwater Management

In the Tracy Subbasin, Byron-Bethany Irrigation District, Banta-Carbona Irrigation District, the City of Tracy, and San Joaquin County formed a Groundwater Advisory Committee to facilitate the development of a regional groundwater management plan for the Tracy Subbasin. The City of Tracy received a grant from DWR to develop the plan, and in 2007 the entities adopted the Tracy GWMP. The planning area of the Tracy GWMP encompasses the portion of the Tracy Subbasin underlying San Joaquin County, including the western portion of the City.

The key results of the Tracy GWMP include the following:

- Developing a general consensus among stakeholders regarding the characterization of the area's water problems, current and future demands, and groundwater conditions;
- Documenting the region's groundwater management goals and establishing BMOs to help measure progress in attaining the goals;
- Developing specific solutions and common programs for the basin; and
- Providing an implementation plan to direct future groundwater management activities.

The Tracy GWMP concluded that the Tracy Subbasin is full, but experiences groundwater quality issues in portions of the basin associated with nitrate, boron, sulfate, chloride, and TDS. As such, many of the groundwater management options that were recommended focused on creating available storage and managing pumping in order to increase water quality water within the basin.

San Joaquin County is the designated Monitoring Entity under CASGEM for the portion of the Tracy Subbasin underlying the county. Diablo Water District is the Monitoring Entity for the portion of the basin underlying Contra Costa County and Zone 7 of the Alameda County Flood Control and Water Conservation District is the Monitoring Entity for the small portion of the basin underlying Alameda County.

5.2.2.3 San Joaquin County Groundwater Export Ordinance

Historically, entities within San Joaquin County that receive Central Valley Project (CVP) water conducted water transfers that resulted in groundwater being pumped into the Delta-Mendota Canal for conveyance and use in other areas. This additional groundwater extraction, for the purpose of selling to other CVP users, raised concerns amongst groundwater users in San Joaquin County regarding groundwater overdraft and water quality degradation. In response to these concerns, San Joaquin County enacted a Groundwater Export Ordinance in June 2000 that requires an entity to secure a permit from San Joaquin County prior to exporting groundwater out of the County.[17]

5.2.2.4 Sustainable Groundwater Management Act

The first comprehensive groundwater legislation in California history, the SGMA was enacted on 16 September 2014 as part of a three-bill package including Assembly Bill 1739 (Dickinson), Senate Bill 1169 (Pavley), and Senate Bill 1319 (Pavley). The legislation provides a framework for the sustainable management of groundwater by local agencies, with an emphasis on the preservation of local control. The state agencies primarily responsible for implementing SGMA are DWR and the SWRCB.

Basins that were designated as High or Medium priority under the 2014 CASGEM basin prioritization process are subject to the requirements of SGMA. The first major SGMA milestone was the requirement to form Groundwater Sustainability Agencies (GSAs) by 30 June 2017. If an entire basin was not covered by one or multiple GSAs by this date, the SWRCB may designate the basin as "probationary" and intervene in the management of the basin. Overlapping GSA boundaries are not permitted, and any overlap issues must be resolved between the agencies to the satisfaction of DWR and the SWRCB.[18] Any local public agency that has water supply, water management, or land use responsibilities within a groundwater basin is eligible to become a GSA for the portion of the basin that lies within their service area.[19] Mutual water companies and water companies regulated by the California Public Utilities Commission may participate in a GSA through a memorandum of understanding or other legal agreement. Within portions of a basin that are not covered by a GSA (i.e., "white areas"), the county is presumed to be the GSA. A list of all the GSA formation notices filed to date is accessible at the following link: http://www.water.ca.gov/groundwater/sgm/gsa_table.cfm. The GSAs established within the City limits are shown on Figure 5-4.

The Groundwater Sustainability Plan (GSP) is the fundamental tool for managing groundwater under SGMA. The deadline for GSP adoption is January 2020 for critically-overdrafted basins and

[17] *San Joaquin County Ordinance 4064*
[18] In September 2015, Senate Bill 13 amended SGMA such that, among other things, no GSA will be found to be exclusive if its proposed boundary overlaps the boundary of another proposed or existing GSA. In order to form a GSA, an agency must submit a GSA formation notice to DWR, which then reviews the notice for completeness and posts the notice on its website. The proposed GSA takes effect 90 days after DWR posts the notice, unless another agency has filed a GSA notice within the boundaries of the proposed GSA. If overlap occurs, the agencies must re-submit GSA notices with non-overlapping boundaries.
[19] CWC §10723(a)

January 2022 for all other Medium and High priority basins. If one or multiple[20] GSPs are not adopted by these deadlines such that an entire basin is covered by a GSP, the basin will be subject to SWRCB intervention. The *Groundwater Sustainability Plan Emergency Regulations* (GSP Regulations), developed by DWR and finalized in May 2016, provide the framework for what will be required in a GSP, how the GSP must be implemented, and the process/criteria by which GSPs will be reviewed by DWR.

The City will be required to comply with SGMA in both the ESJ Subasin and the Tracy Subbasin, and the approach taken by the City will likely be different in each basin. The implementation of SGMA within both basins, but particularly within the ESJ Subbasin, will have significant implications for the City's groundwater supply reliability going forward. Although many of the key elements of SGMA implementation have not been established in either basin, the following sections summarize the general approaches that been taken in each basin to date.

5.2.2.5 SGMA Compliance in the ESJ Subbasin

As discussed in Section 5.2.1.1, the ESJ Subbasin is a high priority, critically-overdrafted basin, and is therefore subject to the accelerated deadline for GSP adoption (i.e., January 2020). The GBA, through the leadership of San Joaquin County, has taken the lead on SGMA planning to date in the ESJ Subbasin. The GBA established a SGMA Working Group in August 2015 to pursue a coordinated approach to SGMA implementation within the basin, and the group has held monthly meetings since then. In addition, an Ad Hoc Technical Review Committee meets regularly. The Lathrop City Council approved the City to join the GBA and participate in the SGMA Working Group in September 2015.

One of the principle roles of the SGMA Working Group was to resolve issues surrounding GSA overlap in the ESJ Subbasin. Through the framework of the GBA, as well as through one-on-one meetings and negotiations, the GBA entities have worked together and resolved the GSA boundary overlaps. As of August 2017, the entire ESJ Subbasin is covered by exclusive or submitted GSAs without overlap.

The GBA members developed a JPA "for the purpose of coordinating the various GSAs' management of the Basin, in accordance with SGMA." The details of the JPA were finalized in early 2017 and included the establishment of the Eastern San Joaquin Groundwater Authority, composed of the JPA member agencies. As shown on Figure 5-4, the City has formed a GSA for its jurisdiction within the ESJ Subbasin and is coordinating with other GSAs in the ESJ Subbasin through the Eastern San Joaquin Groundwater Authority.

The City intends to actively participate in SGMA implementation within the ESJ Subbasin to ensure that the GSP properly accounts for the City's future water demands. In the ESJ GWMP, the future urban water demand projections included the City at a much lower water use factor (0.85 AFY/acre) than the other cities in the ESJ Subbasin (average of 2.00 AFY/acre).[21] Average

[20] If multiple, non-overlapping GSPs may be adopted within the same basin, the GSPs must comply with substantial coordination requirements (GSP Regulations §357.4).
[21] These water demand projections utilize a water use per acre factor that is calculated based on the 1996 water demands and land use reported in the San Joaquin County Water Management Plan (San Joaquin County, 2001). The ESJ GWMP acknowledges that the City's projections at the time indicated that water

groundwater use within the City over the past five years has been approximately 0.44 AFY/acre,[22] and it is projected that this factor will increase to 0.90 AFY/acre by 2030[23] (see Section 5.7). If groundwater production within the ESJ Subbasin is limited to the per-acre sustainable yield listed in the ESJ GWMP (1.0 AFY/acre; see Section 5.2.1.1) the City's ability to expand groundwater production may be limited in the future.

Implementation of SGMA within the ESJ Subbasin will be an important driver in determining the City's ability to rely on groundwater in the future. All of the City's production wells are located within the ESJ Subbasin, and the City may need to increase groundwater production in the future to meet growing demands. The ability to do so may be critical to the City's ability to provide water to projected growth within the City. As such, the City is actively engaged in SGMA discussions within the ESJ Subbasin, in large part to ensure that the ESJ Subbasin GSP recognizes the City's right to pump groundwater to meet its future demands, especially given the stable groundwater conditions found proximate to the City.

5.2.2.6 SGMA Compliance in the Tracy Subbasin

As discussed in Section 5.2.1.2, the Tracy Subbasin is a Medium priority basin, and is therefore subject to the January 2022 GSP adoption deadline. Unlike the centralized approach that is being pursued in the ESJ Subbasin, a coordinated approach to SGMA in the Tracy Subbasin has not yet been established.

As of August 2017, the entire Tracy Subbasin is covered by exclusive or submitted GSAs without overlap. Five exclusive GSAs have been formed in the Tracy Subbasin.[24] In addition, eight entities have filed GSA formation notices and are within their 90-day notice period. This includes the Stewart Tract GSA filed by the developer of River Islands for the portion of the City overlaying the Tracy Subbasin (see Figure 5-4).

While the City does not currently plan to utilize the Tracy Subbasin for groundwater supply, it does recharge groundwater within the Tracy Subbasin through land application of recycled water. The City is planning to expand land application of recycled water (i.e., recharge activities) within the Tracy Subbasin in the future.

use would increase to at least 1.40 AFY/acre, and goes on to state that this increase in water use would have only a minor impact on the total ESJ Subbasin demand.

[22] Average groundwater use from 2011 to 2015 was 3,452 AFY. The total land area of the City within the ESJ Subbasin is 7,859 acres.

[23] Based on projected groundwater production of 7,100 AFY, assuming implementation of the Well 21 blending project.

[24] Including, in order of filing date, the following entities: San Joaquin County, BCID, West Side Irrigation District, City of Tracy, and Contra Costa County.

Tracy Subbasin
(DWR 5-22.15)

City of Lathrop GSA
(Exclusive GSA)

Stewart Tract GSA
(Exclusive GSA)

Eastern San Joaquin Subbasin
(DWR 5-22.01)

SAN JOAQUIN VALLEY

Legend

- County
- City Limit
- Sacramento-San Joaquin River Delta

Groundwater Sustainability Agencies

- City of Lathrop GSA
- Stewart Tract GSA

DWR Groundwater Basins

- 5-22.01: Eastern San Joaquin Subbasin
- 5-22.15: Tracy Subbasin

Abbreviations

DWR = California Department of Water Resources
GSA = Groundwater Sustainability Agency

Notes

1. All locations are approximate.

Sources

1. Groundwater basins from DWR's Final 2016 Bulletin 118 Groundwater Basin Boundaries, downloaded 24 October 2016. Basin boundaries reflect the final revisions approved as part of the 2016 basin boundary modification process.
2. CASGEM priority ranking from June 2014 Basin Prioritization Process.
3. Basemap: Esri's World Reference and World Terrain Base, accessed 4 October 2017.

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Feet

Groundwater Sustainability Agencies Within City Limit

Water System Master Plan
City of Lathrop
Lathrop, CA
August 2017
B60038.01

Figure 5-4

eki environment & water

Path: X:\B60038\Maps\2017\09\Deliverables\UWMP\Fig5_4_GSAs.mxd

5.2.3 Groundwater Production

This section describes the City's historical and projected uses of groundwater

5.2.3.1 Groundwater Supply Wells

The City currently operates five municipal groundwater supply wells: Wells 6, 7, 8, 9, and 10. As shown on Figure 5-3, these wells are located within the ESJ Subbasin on the eastern side of the City's distribution system. Groundwater from wells 6, 7, 8, 9, and 10 is treated to remove arsenic at the LAWTF, which came online in 2012. The City owns an additional well located on the southeast side of the water system, Well 21, which includes a treatment facility (Well 21 WTF) designed for disinfection and manganese treatment. The City last operated Well 21 between January 2012 and November 2013. Well 21 has remained inactive since November 2013 due to sanding in the well and elevated levels of arsenic and uranium. However, as discussed further below, the City is pursuing upgrades and blending options that will allow Well 21 to resume production.

Information regarding the City's groundwater production wells are summarized in Table 5-2. The combined maximum pumping capacity of the City's wells, including Well 21, is 8,750 gpm. However, the maximum pumping capacity of Wells 6 through 10 (7,250 gpm) is limited by the treatment capacity of the LAWTF (6,300 gpm). Since Well 21 is temporarily offline as the City addresses arsenic and uranium levels in the well, the City's current maximum groundwater capacity is 6,300 gpm. For the purposes of this evaluation, it is assumed that the City's wells are pumped at 50% of their maximum capacity on an annual basis. Given this supply assumption, the City's current annual groundwater supply capacity is equivalent to approximately 5,850 AFY.

As discussed below, the City anticipates that the Well 21 WTF upgrades will be completed in two phases with each phase increasing the available Well 21 capacity. When the City completes the planned Well 21 improvements, the total well capacity will increase to 12.6 MGD, or approximately 7,060 AFY, assuming a 50% operating factor.

The City conducted a study in March 2015 to (1) determine the extent of arsenic and uranium near Well 21, (2) evaluate the potential to blend with Wells 9 and 10, and (3) evaluate the feasibility of constructing a wellfield near Well 21 (UNICO Engineering, 2015). The studies determined that both uranium and arsenic are present in nearby wells screened over similar intervals as Well 21. Since Well 21 was constructed with a gravel filter pack, water quality sampling at discrete intervals within the well is not possible. However, sampling in two test wells associated with Well 21 provide insight into the vertical distribution of groundwater in the aquifer (UNICO Engineering, 2015). These results suggest arsenic concentrations increase with depth, confirming the pattern of arsenic occurrence reported in groundwater in the region (O'Leary, Izbicki and Metzger, 2015). The test well sampling results also suggest that concentrations of gross alpha, an indicator for uranium, increase with depth.

Table 5-2
Groundwater Production Well Capacities and Annual Yields

Groundwater Wells	Maximum Pumping Capacity	
	Measured Flow Rate (gpm)	Estimated Annual Yield (a) (AFY)
Well 6	1,650	1,330
Well 7	1,400	1,130
Well 8	1,100	890
Well 9	1,400	1,130
Well 10	1,700	1,370
Subtotal	**7,250**	**5,850**
LAWTF Treatment Capacity (b)	**6,300**	**5,850**
Well 21 (c)	1,500	1,210
Current Well Capacity (d)	**6,300**	**5,850**
Future Well Capacity (e)	**8,750**	**7,060**

Notes:
(a) Assumes wells are operated at 50 percent maximum capacity on an annual basis.
(b) Maximum capacity of LAWTF is 6,300 gpm. Estimated annual yield assumes that annual yield of Wells 6-10 is not limited by LAWTF capacity on an annual basis.
(c) Well 21 is not currently in operation. The City is upgrading the well and water treatment facility over multiple phases to be able to utilize full capacity of Well 21.
(d) Current capacities do not include Well 21.
(e) Future well capacities assumes that the Well 21 upgrades have been completed and Wells 9 and 10 are treated at the Well 21 WTF. They includes the full capacity of Wells 6-10 and Well 21.

This trend is consistent with the findings of Jurgens et al. (2010), who studied the occurrence of uranium in the ESJ Subbasin and found that uranium in this region is leached from shallow sediments that come into contact with high bicarbonate water. This mobilized uranium has migrated downwards as groundwater production has increased, causing public supply wells to encounter uranium in the upper portions of their screened intervals.

The Well 21 WTF can be modified to treat for arsenic through the addition of a coagulant (UNICO Engineering, 2015). Treatment for uranium, however, is considered to be prohibitively expensive, and therefore the City is planning to blend the water produced from Well 21 with water from one or both of Wells 9 and 10 to reduce uranium concentrations to levels below the maximum contaminant level (MCL).

Well 21 improvements are currently in design. The Draft Basis of Design Report (H2O Urban Solutions, 2017) calculates a required blending ratio of Well 21 to Well 9 or Well 10 of approximately 1:1.5, or 1 gpm from Well 21 for every 1.5 gpm from Well 9 or Well 10.[25]

Design of near-term improvements is anticipated to be completed in fall 2017. Phase 1 improvements will include the following:

1. Construction of a pipeline from Well 10 to the Well 21 WTF;
2. Increasing the pump head at Well 10 to account for new operating conditions and maximize Well 21 production;
3. Reconfiguring the existing chemical room for storage and dosing to include the use of two (2) new chemicals for arsenic and solids conditioning;
4. Adding new instrumentation;
5. Adding a new chlorine injection location and appurtenances;
6. Purchase and installation of a new pump in Well 21;
7. Modifications to the backwash recovery tank;
8. Construction of a new solids conditioning tank(s) and conveyance equipment
9. Construction of solids drying beds; and
10. Control and programming modifications.

Near-term improvements will not expand the existing Well 21 WTF capacity, which is limited to approximately 2,500 gpm. Therefore, with the proposed blending requirement of 1:1.5, Well 21 capacities would be limited to approximately 1,000 gpm.

Future improvements have been proposed to expand the capacity of the Well 21 WTF to 4,500 gpm in order to treat the maximum production capacity of Wells 9, 10, and 21. Well 21 WTF

[25] Required blending ratio assumes concentrations of gross alpha from Well 9/Well 10 and Well 21 of 7 picocurie per liter (pCi/l) and 25 pCi/l, respectively, resulting in a blended gross alpha concentration of 14.2 pCi/l. Higher levels of gross alpha have been reported in the wells, thus the mixing ration may need to be adjusted, resulting in less production from Well 21 (H2O Urban Solutions, 2016)

improvements needed to expand capacity include installation of a third filter vessel, a clearwell and booster pump station or Well 9 and Well 10 pump upgrades, and a treated water pipe extension to the west.

5.2.3.2 Historical Groundwater Use

> *10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:*
>
> *10631. (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

Groundwater production over the period of 2011 through 2016 is presented in Table 5-1. Over this time frame, the City's groundwater production has varied from year to year. Maximum groundwater production occurred in 2013 (4,082 AF) and minimum total groundwater production occurred in 2011 (2,744 AF).

5.2.3.3 Projected Future Groundwater Use

> *10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:*
>
> *10631. (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*
>
> *10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:*
>
> *10631. (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

The City plans to utilize its existing groundwater wells to supply water in the future. As discussed in Section 5.2.3.1, the City's current estimated annual groundwater yield is 5,850 AFY. For purposes of supply planning, the Well 21 improvement project is anticipated to add additional water supplies of 403 AFY by 2020 after completion of near-term improvements, and a total of 1,210 AFY by 2025 after completion of future improvements.

The City has no plans to expand its groundwater production beyond bringing Well 21 online. In previous water supply planning documents (RBF, 2009; West Yost, 2013), the City has included plans to construct a wellfield surrounding Well 21, including up to three additional wells (Wells 22 through 24). However, due to the arsenic and uranium issues experienced at Well 21 (see Section 6.2.2.1), the feasibility of such a wellfield is in question. As described below, there are also concerns that such a wellfield would induce the migration of higher TDS water towards the City's wells.

In 2004, a flow and particle tracking model (SGI Model) was developed to model groundwater flow in the region. In 2004, the SGI Model projected that operation of the City's wells could cause high TDS water, located to the west of Wells 6 through 10, to migrate towards the wells over time. As part of the 2009 Water Supply Study, the SGI Model was updated. The updated model suggested that the direction of groundwater flow, and therefore TDS migration, appeared to be more easterly (i.e., towards the City's wells) than originally reported (RBF, 2009). Based on these findings, it was estimated that pumping the City's wells could result in the arrival of high TDS water (i.e., greater than 500 mg/L) within 10 years.

The SGI Model was most recently updated in September 2014 when SGI conducted a groundwater modeling study to, among other things, evaluate whether or not expanded groundwater production in the vicinity of Well 21 would induce the migration of the Occidental Chemical Corporation (OCC) groundwater plume towards the proposed wellfield (SGI, 2014).[26] The results of the SGI model suggest that construction and operation of Wells 22 through 24 in the proposed locations surrounding Well 21 could induce enough drawdown that groundwater will flow directly east towards the City's wells, rather than the historic gradient to the northeast. As a result, Wells 6 through 10 are at risk of experiencing degraded water quality due to increases in TDS or other constituents of concern (UNICO Engineering, 2015).

Additionally, the City's ability to expand groundwater production within the ESJ Subbasin is uncertain due to SGMA (see Section 5.2.2.4). It is anticipated that the future GSP will require the City to limit groundwater production to maintain a sustainable groundwater budget. Assuming the ESJ Subbasin is limited to the per-acre sustainable yield listed in the ESJ GWMP of 1.0 AFY/acre, the City's production would be limited to 7,859 AFY.[27] The City's current estimated groundwater supply, including Well 21, of 7,060 AFY is 90% of the likely sustainable yield allocation.

5.3 WASTEWATER AND RECYCLED WATER

Water recycling can offset the use of potable supplies and reduce the quantity of discharged wastewater. Recycling water involves treating wastewater to an acceptable level such that it can be reused for irrigation, cooling, and other non-potable applications.

The regulatory requirements for recycled water are defined in the California Code of Regulations, Title 22, Article 3. The extent of treatment needed varies for different permitted uses as listed in Table 14. Because recycled water is treated wastewater, its availability is closely linked to the treatment capability of the City's wastewater treatment plants.

The following sections describe the City's existing and planned wastewater treatment and water recycling facilities and discusses existing and projected uses of recycled water.

[26] The OCC groundwater plume is described in Section 6.2.2.3.
[27] City's safe yield calculated by multiplying the area of the City's Sphere of Influence within the ESJ Subbasin (7,859 acres) by the sustainable yield listed in the ESJ GWMP (1.0 AFY/acre).

5.3.1 Coordination

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.

The City is the sole agency responsible for water, wastewater, groundwater, and planning within the City's service area. However, the City's efforts to increase use of recycled water has required coordination between the City and local stakeholders.

5.3.2 Wastewater Collection, Treatment and Disposal

10633. (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.
10633. (b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

Wastewater from the City is treated at two facilities: the regional Manteca Wastewater Quality Control Facility (MWQCF) and the City-owned Lathrop Consolidated Treatment Facility (Lathrop CTF). Tertiary effluent from the Lathrop CTF is currently conveyed through the recycled water system to storage ponds and sprayfields, where the recycled water is used for agricultural irrigation of fodder crops. The City's wastewater collection system, including the City's lift station and pump station drainage areas, is shown on Figure 5-5. Figure 5-6 shows the location and components of the current recycled water distribution system. The City's wastewater and recycled water utilities are discussed in more detail in the sections below.

5.3.2.1 Wastewater Collection

Wastewater generated in the areas east of Interstate 5 (I-5) and north of Louise Avenue is conveyed to the MWQCF, as shown on Figure 5-5. Most of the City's wastewater generated east of I-5 in the Historic Lathrop area is conveyed via gravity sewers and lift stations to a regional pump station, the O Street Pump Station. The O Street Pump Station then conveys wastewater via a 12-inch-diameter force main to the MWQCF. This 12-inch-diameter force main also conveys wastewater from the McKinley Avenue Pump Station, the Louise Avenue Water Treatment Facility Pump Station, and other private pump stations that serve the industrial areas east of I-5 to the MWQCF. In 2015, 1,043 AF of wastewater was collected from the City's service area and conveyed to MWQCF (Table 5-4).

Wastewater generated in the Crossroads industrial area and the areas west of I-5, including the Mossdale, River Island, and Central Lathrop developments, is conveyed to the Lathrop CTF. Currently, wastewater from the CLSP and River Islands development areas is conveyed to the Mossdale Pump Station via the CLSP Low Flow Storm and Sewer Pump Station and the River Islands Interim Pump Station, respectively. The City plans to expand the CLSP pump station and construct a new River Islands Pump Station to convey wastewater from these development areas

directly to the Lathrop CTF as development proceeds. In 2015, 429 AF of wastewater was collected from the City's service area and conveyed to Lathrop CTF (Table 5-4).

Several large industrial facilities (e.g., Simplot, a future Kraft-Heinz facility, Sharpe Army Depot, and former Carpenter Company facility) as well as the NextGeneration STEAM Academy in River Islands manage their wastewater onsite. California Natural Products manages the majority of their wastewater and sends the remaining flows to either the J Street Lift Station or the McKinley Avenue Pump Station.

The City's two collection systems are connected by the Mossdale Intertie, which crosses beneath I-5 on River Islands Parkway and Louise Avenue. The intertie is not routinely operated, but could potentially be utilized in the future to reroute Lathrop CTF influent to the MWQCF to improve system efficiency and cost effectiveness.

5.3.2.2 Wastewater Treatment Facilities

Table 5-5 shows the volume of wastewater that is treated within the City's service area in 2015.

Manteca Water Quality Control Facility (MWQCF)

The City owns 14.7% of the MWQCF capacity by contract with the City of Manteca. However, the City does not participate in the operation of the plant, nor does it receive recycled water from the MWQCF. As listed in Table 5-3, the current MWQCF design capacity is 9.87 MGD and the City's allocated capacity is approximately 1.45 MGD (Lathrop, 2016). The MWQCF is permitted for future expansions of up to 26.97 MGD, of which the City would be allocated up to 3.97 MGD, should the City elect to maintain its proportional allotment.

Table 5-3. Wastewater Capacity Allocation at MWQCF

Phase	Allocated Capacity at MWQCF (MGD)		
	City of Manteca	City of Lathrop	Total
Existing	8.42	1.45	**9.87**
Build-Out (2050)	23.00	3.97	**26.97**

Treatment at the MWQCF consists of primary sedimentation followed by roughing biotowers, conventional activated sludge, secondary clarification, tertiary filtration, and ultraviolet disinfection. Disinfected tertiary effluent is discharged to the San Joaquin River. A portion of the secondary effluent is not disinfected and is used to irrigate crops on 190 acres of land owned by the City of Manteca (WDR Order No. R5-2015-0026).

North Harlan PS
Stonebridge PS
Valley Crossings LS
Woodfield LS
California Natural Products PS (Private)
CLSP Low FLow Sewer PS
LATHROP RD
J St. PS
McKinley Ave PS
LAWTF PS
LOUISE AVE
Mossdale PS
O St. PS
Easy Ct LS
SSI PS (Private)
LIP PS (Private)
Lathrop MWQCF Flow Meter
Lathrop CTF
MWQCF
Crossroads PS
River Islands Interim PS
5
120
205

Legend

- Approximate Area of WWTF
- Pump Station or Lift Station
- Gravity Main
- Force Main

Pump Station Drainage Area

- CLSP
- Crossroads
- Easy Ct
- J St
- Manteca
- McKinley
- Mossdale
- O St
- River Islands
- Stonebridge
- Valley Crossing
- Woodfield

WWTF Drainage Area Boundaries

- MWQCF Collection System
- Lathrop CTF Collection System

Abbreviations

CLSP	=	Central Lathrop Specific Plan
CTF	=	Consolidated Treatment Facility
LAWTF	=	Louise Avenue Water Treatment Facility
LIP	=	Lathrop Industrial Park
LS	=	lift station
MWQCF	=	Manteca Water Quality Control Facility
PS	=	pump station
SSI	=	Super Store Industries
WWTF	=	wastewater treatment facility

Notes

1. All locations are approximate.

Sources

1. Aerial photograph provided by ESRI's ArcGIS Online, 3 August 2017.

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(Scale in Feet)

Wastewater Pump Station Drainage Areas

City of Lathrop
Lathrop, CA
August 2017
B60038.01

Figure 5-5

eki environment & water

Path: X:\B60038\Maps\2017\08\Deliverables\UWMP\Fig5_5_WWPumpStationDrainageAreas.mxd

Table 5-4
Wastewater Collected Within Service Area in 2015 (DWR Table 6-2)

Recipient of Collected Wastewater		
Name of Wastewater Treatment Agency Receiving Collected Wastewater	City of Lathrop	City of Manteca
Treatment Plant Name	Lathrop Consolidated Treatment Facility	Manteca Water Quality Control Facility
Is WWTP Located Within UWMP Area?	Yes	No
Is WWTP Operation Contracted to a Third Party?	Yes	--
Wastewater Collection		
Name of Wastewater Collection Agency	City of Lathrop	City of Lathrop
Wastewater Volume Metered or Estimated?	Metered	Metered
Volume of Wastewater Collected in 2015 (AFY)	429	1,043

Notes:
(a) The volume of wastewater collected within the City's service area is measured at the treatment plant flow meters.
(b) The Manteca Water Quality Control Facility is jointly owned and operated by the cities of Manteca and Lathrop.

Table 5-5
Wastewater Treatment and Discharge Within Service Area in 2015 (DWR Table 6-3)

Wastewater Treatment and Discharge	
Wastewater Treatment Plant Name	Lathrop Consolidated Treatment Facility
Discharge Location Name	A01 - A38 (a)
Discharge Location Description	City Agricultural Irrigation Use Areas
Wastewater Discharge ID Number	RWQCB No. R5-2016-0028
Method of Disposal	Land Disposal
Does This Plant Treat Wastewater Generated Outside the Service Area?	No
Treatment Level	Tertiary
2015 Volumes (AFY)	
Wastewater Treated	429
Discharged Treated Wastewater	429
Recycled Within Service Area	-
Recycled Outside of Service Area	-

Notes:
(a) See RWQCB No. R5-2016-0028 for a list of discharge locations within the City.

Lathrop Consolidated Treatment Facility

Daily operation of the Lathrop CTF is contracted to a private contractor, Veolia Water North America. In August 2015, the City began diverting wastewater from the Crossroads area to the Lathrop CTF and decommissioned the adjacent Crossroads wastewater treatment facility (WWTF). The Lathrop CTF currently has a treatment capacity of 1.0 MGD.[28] The City is currently constructing the Phase 2 CTF expansion, which will increase the treatment capacity to a total of 2.5 MGD. The Phase 2 expansion is anticipated to be completed by mid-2018. The City has the ability to further upgrade the Lathrop CTF to increase the treatment capacity up to 9.0 MGD as needed[29].

Wastewater treatment and disposal at the City's Lathrop CTF is regulated under Waste Discharge Requirements (WDR) Order No. R5-2016-0028. Because the Lathrop CTF applies treated effluent to land, it is not subject to the National Pollution Discharge Elimination System (NPDES) requirements for discharges to surface water. Wastewater treatment processes at the Lathrop CTF include secondary treatment, tertiary infiltration, and disinfection prior to storage and disposal. The Lathrop CTF produces disinfected tertiary recycled water suitable for irrigation at parks, landscape strips, median islands, pond berms, and agricultural fields. Currently, the treated effluent is used for agricultural irrigation as described further below.

The City is currently designing a 10-acre percolation basin at former land application site LAS-3, located northeast of the Lathrop CTF for the disposal of 0.3 MGD of tertiary treated effluent. The City has prepared a comprehensive analysis of percolation basins for groundwater recharge in Percolation Disposal Capacity Evaluation (Stantec, 2014) and completed design work in November of 2015.

5.3.2.3 Recycled Water Distribution System

The recycled water distribution system conveys tertiary effluent from a storage pond at the Lathrop CTF to lined storage ponds and agricultural land application areas scattered throughout the City (Figure 5-6). The system consists of approximately 113,000 linear feet of recycled water piping infrastructure and four booster pump stations. The pond parcels total 52 acres, with a combined capacity of approximately 139 million gallons. These distributed storage ponds are used to store recycled water during low irrigation demand periods (i.e., winter) for use during high irrigation demand periods (i.e., summer).

The storage ponds and agricultural land application areas are located in East Lathrop, Mossdale Landing, Mossdale Landing East, and River Islands areas. The total area of agricultural land receiving recycled water from the City is approximately 173 acres. Recycled water is applied to land application areas for irrigation of fodder crops, predominantly alfalfa and rye grass, by drip irrigation, flood irrigation, or sprinklers at agronomic rates for both nitrogen and water application.

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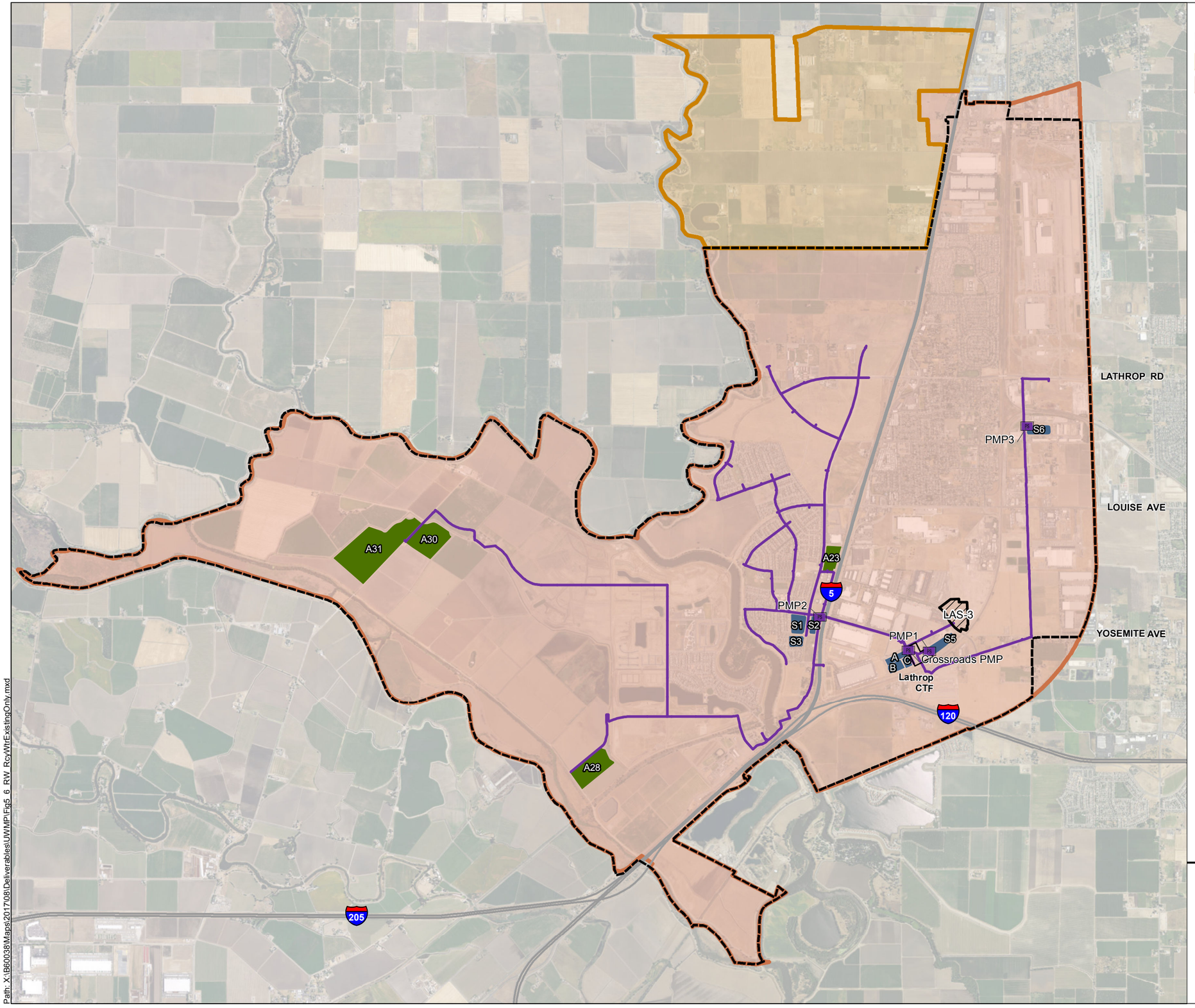
[28] The existing pond and spray field capacity is only 0.75 MGD. Therefore, the CTF is currently permitted for only 0.75 MGD.

[29] The City had previously completed a project-level Environmental Impact Report (EIR) for treatment capacity up to 6.0 MGD at the CTF. Post combination with Crossroads WWTF, the program-level EIR treatment capacity at the CTF has increased to 9.0 MGD.



Legend

- City Limit
- AOI
- SOI
- Recycled Water Storage Pond
- Agricultural Irrigation Area
- Approximate Area of WWTF
- Pump Station or Lift Station
- Recycled Water Main
- Percolation Basin Project Location

Abbreviations

AOI	=	Area of Interest
PMP	=	pump
SOI	=	Sphere of Influence
WWTF	=	wastewater treatment facility

Notes

1. All locations are approximate.

Sources

1. Aerial photograph provided by ESRI's ArcGIS Online, 7 August 2017.

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(Scale in Feet)

Existing City Owned Recycled Water System Infrastructure

City of Lathrop
Lathrop, CA
August 2017
B60038.01

Figure 5-6

eki environment & water

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5.3.3 Current Recycled Water Use

10633. (c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

Recycled water uses in the City are regulated under WDR Order No. R5-2016-0028. Permitted uses under the WDR include the following:

- Irrigation of agricultural fields;
- Irrigation of public landscape areas, including roadway medians, parks, pond berms, and open spaces; and
- Percolation into the ground at former land application site LAS-3, which is currently being converted into a percolation pond.

The City currently only uses recycled water for agricultural irrigation on selected sprayfields, consistent with the 2014 Recycled Water Master Plan Amendment (RMC, 2014). During 2015, the City recycled 429 AFY of tertiary effluent from the Lathrop CTF (Table 5-5). The City has yet to implement the planned use of recycled water for public landscape irrigation for various reasons discussed in Section 5.3.5.

5.3.4 Comparison of Previously Projected Use and Actual Use

10633. (e) A description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

There were no recycled water use projections made for 2015 in previous City UWMPs (see Appendix A, DWR Table 6-5)."

5.3.5 Potential and Projected Uses of Recycled Water

10633. (d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.
10633. (e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years.
10633. (f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.
10633. (g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

In the near-term, the City plans to continue agricultural land applications and construct additional storage and percolations ponds and agricultural sprayfields as the City's wastewater flow to the Lathrop CTF increases. Projected recycled water used for agricultural irrigation is estimated to be equal to the volume of treated effluent available, as shown in Table 5-6. Agricultural land application remains as the primary recycling method for the City's tertiary effluent.

For the longer term, the City is currently developing a recycled water implementation plan that will support the use of recycled water to irrigate public landscaping. All major new developments (Mossdale, River Islands, and Central Lathrop) are connected to the recycled water system to enable the future use of recycled water for public landscape areas. The City's planned recycled water landscaping areas in these developments (excluding River Islands)[30] total to approximately 96 acres and are summarized in the City's WDR. These landscaping areas include existing and planned golf courses, parks and playgrounds, schoolyards, roadway medians, commercial landscaping and open space.

Moreover, River Islands plans to construct a municipal irrigation system which utilizes a combination of recycled water, stormwater, and San Joaquin river water to supply the needs of the public landscape areas.[31] The recycled water implementation plan will determine monitoring and reporting requirements, required staffing resources, the development of a recycled water rate structure, and necessary operational changes and system improvements.

The potential use of recycled water in existing and proposed developments will be further evaluated as part of the City's IWRMP project.

5.4 WATER TRANSFERS

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

The City has participated in water transfers in the past, such as the 2013 sale of SSJID Phase 1 water to the City of Tracy, discussed in Section 5.1.1. Water transfers may be considered on a case-by-case basis in the future, but the City has not included water transfers in its water supply projections.

[30] River Islands non-potable irrigation areas are excluded from this total because the landscaping areas used to calculate projected potable water demands in Section 3 already exclude these areas.
[31] The non-potable irrigation demand in the River Islands development area is not included in total water demand projections presented in Section 3 and is not quantifiable at this point in time.

Table 5-6
Current and Projected Recycled Water Uses Beneficial Uses (DWR Table 6-4)

Use Type	Level of Treatment	Current and Projected Recycled Water Uses (AFY)					
		2015	2020	2025	2030	2035	2040
Agricutural Irrigation	Tertiary	429	1,159	2,103	3,061	3,775	4,479
Total		**429**	**1,159**	**2,103**	**3,061**	**3,775**	**4,479**

Notes:

(a) Recycled water projections for agricultural irrigation are calculated by subtracting LAS-3 percolation pond capacity (0.3 MGD) from projected daily flows to Lathrop CTF, as developed in the City's draft IWRMP.

5.5 DESALINATED WATER

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

Desalination is not currently a viable water supply opportunity for the City. Significant infrastructure investments would be required for the conveyance of ocean water for desalination, and the cost of treating brackish water and saline groundwater sources does not make this a feasible option for the City at this time.

5.6 POTENTIAL WATER SUPPLY PROJECTS AND PROGRAMS

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single dry, and multiple dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

As discussed in Section 5.2.3.3, the City is currently planning phased upgrades to the Well 21 WTF, which will eventually expand the Well 21 WTF to 4,500 gpm to treat the total maximum capacity of Wells 9, 10, and 21. For purposes of supply planning, EKI has assumed that near-term improvements will be completed by 2020, which will develop the capacity of Well 21 to 1,000 gpm. The future Well 21 WTF improvements are anticipated to be completed for by 2025.

In addition to groundwater wells, the City's SSJID supply is anticipated to increase from 6,887 AFY to 10,671 AFY with the implementation of Phase 2 of the SCWSP (see Section 5.1.1). The timing of Phase 2 is unknown, but for water supply planning purposes it is assumed that SSJID Phase 2 water will be available to the City by 2040.

5.7 TOTAL WATER SUPPLIES

10631. (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision 10631(a).

10631. (b) (4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

The City's current and potential future water supplies are summarized in Sections 5.1 through 5.6. The City's projected potable water supply entitlements are summarized in Table 5-7 and Figure 5-7. The values presented in this table reflect the City's contractual allotments from the SCWSP and the City's current and planned future groundwater production. The actual availability of these water supplies depends on several factors and is discussed in detail in Section 6.

Table 5-7
Current and Projected Potable Water Supply Entitlements

Potable Water Source	Water Right or Contract	Reliability	Current and Projected Potable Water Supply (AFY)					
			2015	2020	2025	2030	2035	2040
Current Supplies								
SCWSP	SSJID Contract (a)	Pre-1914	6,887	6,887	6,887	6,887	6,887	6,887
Groundwater	(b)	--	5,850	5,850	5,850	5,850	5,850	5,850
Anticipated Future Supplies								
SCWSP	SSJID Contract (c)	Pre-1914	--	--	--	--	--	3,784
Groundwater	(d)	--	--	403	1,210	1,210	1,210	1,210
		Total	**12,737**	**13,140**	**13,947**	**13,947**	**13,947**	**17,731**

Notes:

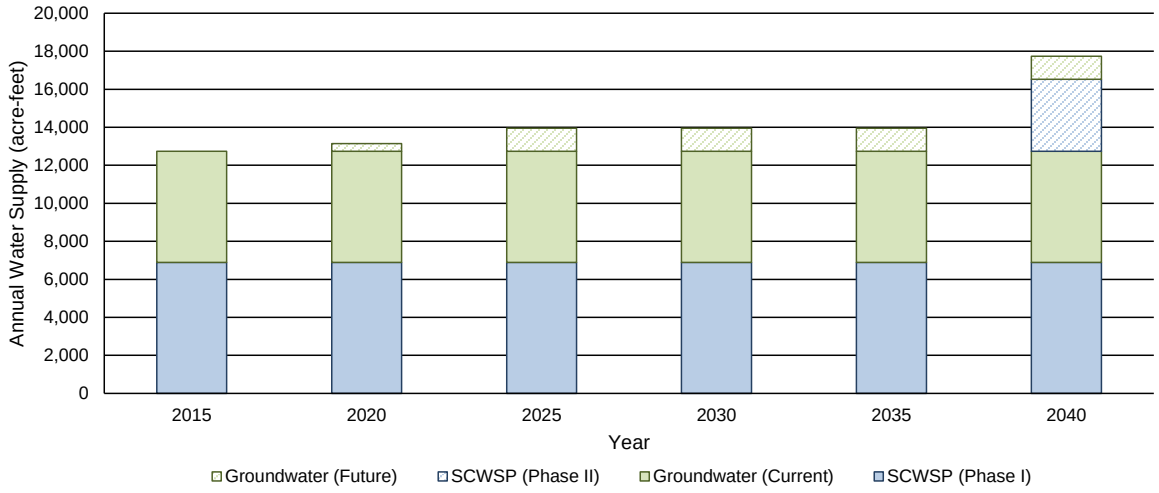
(a) The City's total Phase I allotment of SCWSP water, following the 2013 sale to the City of Tracy of 1,120 AFY, is 6,887 AFY.

(b) Reflects the City's firm groundwater capacity, assuming implementation of the near-term Well 21 WTF upgrades by 2020 without Well 9 or 10 improvements until 2025.

(c) The City's total Phase II allotment of SCWSP water, following the 2013 sale to the City of Tracy, is 10,671 AFY.

(d) Additional groundwater supplies will be obtained through the Well 21 facility upgrade project, which will be completed in two phases. Phase I is anticipated to be completed by 2020 and Phase 2 is anticipated to be completed by 2025.

Figure 5-7
Current and Projected Potable Water Supply Entitlements



6. WATER SUPPLY RELIABILITY

10631. (c)(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

10620 (f). An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

This section describes the constraints on the City's potable water supply sources, as well as the management strategies that the City has employed or will employ to address these constraints. This section also provides an estimate of the supply volumes available to the City and the corresponding supply and demand reliability assessments in normal years, single dry years, and multiple dry year periods.

6.1 PROJECTED SUPPLY RELIABILITY BY SOURCE

The following sections describe the projected reliability of each of the City's water supplies, including the water supply from SCWSP and groundwater production.

6.1.1 Surface Water Supply Reliability

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water -year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

The City has access to 6,887 AFY of Stanislaus River water provided by the SCWSP (see Section 5.2.1). Due to the seniority of the water rights underlying the SCWSP, SSJID's pre-1914 appropriative rights to Stanislaus River water, the City has historically assigned a high reliability to SCWSP water. However, the experiences of the recent drought have caused the City to revise its reliability projections for SCWSP water in dry years. In August 2014, due to concerns about decreasing water levels in the New Melones Reservoir, SSJID curtailed water deliveries to the SCWSP contracting cities to 80% of their monthly allocations. This 20% curtailment translated to an allocation to the City of approximately 85% of its annual contractual entitlement in 2014. In 2015, SSJID allocated water to each SCWSP contracting city based upon actual water use in 2013. Under this allocation scheme, the City was assigned 85% of its actual 2013 water use. In both 2014 and 2015, however, the City purchased less than its dry year allocation and instead relied primarily on groundwater.

As discussed in Section 5.2.1, future reliability of SCWSP water is somewhat uncertain due to the SWRCB's Bay-Delta planning efforts, which could limit diversions from the Stanislaus River. However, due to the current uncertainty of how these efforts will affect SCWSP supplies, this evaluation does not account for reduced SCWSP supplies as a result of the Bay-Delta Plan revisions.

There are two processes which determine how much SCWSP water the City has access to in dry years. Since SSJID serves water to both the SSJID and agricultural customers, the first allocation occurs as SSJID determines how much water will be delivered to the SCWSP as a whole. Second, the total SCWSP water is allocated between the four participating cities.

When total SSJID demands exceed available supplies, Section 8(b) of the *1995 Water Supply Development Agreement* stipulates that if SSJID imposes a percentage reduction in water deliveries to the SCWSP participants, the percentage shall be "approximately equal" to the percentage reduction of deliveries to agricultural customers. Given the inconsistency in SCWSP allocations in recent years and the uncertainty regarding dry year allocations in the future, the City has relied upon the dry year allocations adopted by SSJID in its 2015 UWMP (Provost & Pritchard, 2016), which assumes a proportionate reduction in deliveries to urban and agricultural users. The projected urban and agricultural demands presented in SSJID's 2015 UWMP are summarized in Table 6-1. The urban demand is assumed to be equal to the Phase 1 contract amount (31,552 AFY). Agricultural demands within the SSJID service area are projected to decrease gradually as irrigation practices become more efficient.

Table 6-1. SCWSP Projected Water Demands

	Estimated Demand (AFY)			
	2020	**2025**	**2030**	**2035**
Contracted Urban Demand	31,552	31,552	31,552	31,552
Projected Agricultural Demand	274,100	271,800	269,500	267,200
Total Demand	**305,652**	**303,352**	**301,052**	**298,752**

Table 6-2 summarizes projected SCWSP supplies and demands in normal years, single dry years, and multiple dry years over the period 2020 through 2035. Projected SSJID supplies are held constant over the forecast period. At the same time, demands decrease slightly over this period due to the agricultural water use efficiencies discussed above. Therefore, projected SCWSP shortages decrease over time. The SSJID anticipates that minor shortfalls (i.e., less than 2%) may be experienced by the SCWSP in normal years, based upon the availability of water supplies in 2010. In single dry years, SSJID projects that the SCWSP will receive a shortfall of up to 26%. The single dry year reliability is based on SSJID's water supplies in 1977. In a three-year, multiple dry year scenario, SSJID projects SCWSP shortages of up to 15% in the first year, up to 12% in the second year, and up to 17% in the third year. The multiple dry years reliability assumptions are based upon SSJID's experiences over the period 1990 through 1992.

Section 8(a) of the *1995 Water Supply Development Agreement* stipulates that reductions in SCWSP deliveries shall be distributed pro rata among the SCWSP participants based upon each participant's allotment. Therefore, it is assumed that the percent shortfalls presented in Table 6-2 will be the same percent shortfall experienced by the City in dry years. The City's projected SSJID

supply in normal years, single dry years, and multiple dry years is summarized in Table 6-3. The City anticipates that it will have access to more than 98% of its SCWSP supply in normal years. In single dry years, the City projects that it will receive between 74% and 75% of its SCWSP supply. In a three-year, multiple dry year scenario, the projects SCWSP allocations ranging from 85% to 87% in the first year, 88% to 90% in the second year, and 83% to 85% in the third year.

6.1.2 Groundwater Supply Reliability

The City currently relies upon groundwater production from its five active wells (Wells 6-10) to meet its demands. In the future, the City anticipates relying upon increased groundwater production from Well 21. The reliability of the City's groundwater supplies has historically been limited by water quality constraints. However, the City has demonstrated the ability to modify its groundwater operations to adapt to changing water quality conditions. Therefore, the City is projecting to receive 100% of its groundwater supplies in all year types. As SGMA is implemented in the ESJ Subbasin, the City's groundwater supply reliability may need to be re-evaluated.

6.2 WATER QUALITY IMPACTS ON RELIABILITY

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

The water quality of the City's SCWSP water and groundwater, and the implications of water quality on the reliability of these supplies, is described in the following sections.

6.2.1 SCWSP Water Quality

The SCWSP receives water from the Stanislaus River, which is considered to be of high quality prior to treatment and excellent quality following treatment at the DGWTP. The *2011 Stanislaus River Watershed Sanitary Survey*, prepared by the Stanislaus/Calaveras River Group and SEWD, identified several potential sources of contamination in the upper Stanislaus River watershed (Stanislaus/Calaveras River Group and Stockton East Water District, 2011). These sources included recreational activities at Woodward Reservoir, confined animal facilities, cattle grazing, old septic systems, and wastewater disposal. Source control measures have been implemented to mitigate for these potential water quality threats. If water quality begins to degrade, SSJID will evaluate watershed management programs or modifications to the treatment process at the DGWTP.

Table 6-2
SCWSP Supply and Demand Comparison

	Estimated Supply and Demand (AFY)			
	2020	**2025**	**2030**	**2035**
Normal Year				
Total SCWSP Projected Supply	30,969	31,203	31,442	31,684
Total SCWSP Projected Demand	31,552	31,552	31,552	31,552
Surplus or Deficit	*-583*	*-349*	*-110*	*132*
Percent Shortfall	*1.8%*	*1.1%*	*0.3%*	*--*
Single Dry Year				
Total SCWSP Projected Supply	23,226	23,403	23,581	23,763
Total SCWSP Projected Demand	31,552	31,552	31,552	31,552
Surplus or Deficit	*-8,326*	*-8,149*	*-7,971*	*-7,789*
Percent Shortfall	*26%*	*26%*	*25%*	*25%*
Multiple Dry Years - First Year				
Total SSJID Projected Supply	26,839	27,043	27,250	27,459
Total SSJID Projected Demand	31,552	31,552	31,552	31,552
Surplus or Deficit	*-4,713*	*-4,509*	*-4,302*	*-4,093*
Percent Shortfall	*15%*	*14%*	*14%*	*13%*
Multiple Dry Years - Second Year				
Total SCWSP Projected Supply	27,614	27,823	28,036	28,251
Total SCWSP Projected Demand	31,552	31,552	31,552	31,552
Surplus or Deficit	*-3,938*	*-3,729*	*-3,516*	*-3,301*
Percent Shortfall	*12%*	*12%*	*11%*	*10%*
Multiple Dry Years - Third Year				
Total SCWSP Projected Supply	26,086	26,284	26,484	26,688
Total SCWSP Projected Demand	31,552	31,552	31,552	31,552
Surplus or Deficit	*-5,466*	*-5,268*	*-5,068*	*-4,864*
Percent Shortfall	*17%*	*17%*	*16%*	*15%*

Table 6-3
SCWSP Supply Available to City by Year Type

	Estimated Supply and Demand (AFY)				
	2020	**2025**	**2030**	**2035**	**2040**
Contracted Phase I Allotment	6,887	6,887	6,887	--	--
Contracted Phase II Allotment	--	--	--	10,671	10,671
Normal Year					
Projected SCWSP Allocation	98%	99%	100%	100%	100%
Projected SCWSP Supply	6,760	6,811	6,863	10,671	10,671
Single Dry Year					
Projected SCWSP Allocation	74%	74%	75%	75%	75%
Projected SCWSP Supply	5,070	5,108	5,147	8,037	8,037
Multiple Dry Years - First Year					
Projected SCWSP Allocation	85%	86%	86%	87%	87%
Projected SCWSP Supply	5,858	5,903	5,948	9,287	9,287
Multiple Dry Years - Second Year					
Projected SCWSP Allocation	88%	88%	89%	90%	90%
Projected SCWSP Supply	6,027	6,073	6,119	9,555	9,555
Multiple Dry Years - Third Year					
Projected SCWSP Allocation	83%	83%	84%	85%	85%
Projected SCWSP Supply	5,694	5,737	5,781	9,026	9,026

6.2.2 Groundwater Quality

One of the biggest threats to the City's ability to use groundwater to meet potable water demands is water quality. The primary water quality concerns in the City's groundwater are arsenic, manganese, uranium, TDS, and groundwater contamination from industrial processes.

6.2.2.1 Arsenic and Uranium

As discussed in Section 5.2.3.3, the City's groundwater supplies have been limited by groundwater quality constraints. Wells 6 through 10 are currently treated for arsenic at LAWTF, and the City is planning to improve and expand the Well 21 WTF to include treatment for arsenic. Well 21 has also experienced elevated concentrations of uranium, and the City is further planning to blend water from Well 21 with water from Well 9 and Well 10 to reduce the blended concentrations to below the MCL.

The presence of arsenic and uranium in groundwater underlying the City impacts the reliability of the City's groundwater supply. Expansion of groundwater production in the future is limited by the costs associated with treatment and the availability of adequate supplies to conduct blending.

6.2.2.2 Total Dissolved Solids

The City's groundwater supply reliability is also impacted by the migration of groundwater with TDS concentrations in excess of the secondary MCL of 500 mg/L. As discussed in Section 5.2.3.3, the planned wellfield near Well 21 may not be feasible due to the potential for expanded pumping to induce the migration of high TDS water. Wells 6 through 10 are located immediately east of groundwater with high TDS concentrations, based on water quality data from City wells and sampling and analysis data from both shallow and deep monitoring wells collected by private entities (SGI, 2008). Previous studies have indicated that TDS concentrations may be higher in the vicinity of Well 21 than in Wells 6 through 10. In September 2014, TDS concentrations in Well 9 and Well 10 ranged from 270 mg/L to 310 mg/L (UNICO Engineering, 2015).[32] During the same sampling event, concentrations of TDS within Well 21 ranged from 630 mg/L to 660 mg/L.[33]

6.2.2.3 Industrial Contamination

Groundwater contamination has been identified at several locations in the City due to industrial processes. Contamination plumes are associated with pollution from Sharpe Army Depot and OCC.[34]

Contamination of groundwater at the Sharpe Army Depot consists primarily of trichloroethene, tetrachloroethene, and cis-1,2-dichloroethene. The plume is located at depths of approximately

[32] These values are generally confirmed by the City's Consumer Confidence Reports for 2014 and 2015, where TDS concentrations in groundwater ranged from 280 mg/L to 387 mg/L. Since Well 21 was offline during this period, these values are representative of water quality within Wells 6 through 10.
[33] Samples were also collected in two private wells in the vicinity of Well 21. Concentrations of TDS in these wells ranged from 500 mg/L to 570 mg/L.
[34] The OCC site is now owned by J.R. Simplot.

50 to 150 ft bgs. Due to concerns of potential contamination from the plume, the City abandoned Well 5 and constructed Well 10 as a replacement well. Three groundwater extraction and treatment systems are located at Sharpe Army Depot and are used to treat existing groundwater contamination (RBF, 2009).

The OCC plume consists primarily of the pesticides 1,2-dibromo-3-chloropropane (DBCP) and ethylene dibromide (EDB), and the chemical solvent sulfolane. The OCC has been conducting investigation and remediation activities at the site since 1979, and a groundwater remedial system has been in place since 1982. The current groundwater remedial system extracts groundwater from up to 18 extraction wells and treats the groundwater using granular activated carbon. Treated water is then re-injected into the confined aquifer beneath the Corcoran Clay layer, which is located between 230 ft bgs and 300 ft bgs.

As discussed in Section 5.2.3.3, the SGI groundwater model was recently updated and estimated that the construction and operation of proposed Wells 22 through 24 in the locations surrounding Well 21 could induce enough drawdown that groundwater will flow directly east from OCC towards the City's wells, rather than the historic gradient to the northeast, risking contamination of the City's existing Wells 6 through 10.

Given the above issues, the City is not currently pursuing development of any additional wells or increased groundwater production beyond 7,060 AFY.

6.2.3 Projected Supply Reliability by Year Type

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631. (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

The City's projected water supply reliability in normal years, single dry years, and multiple dry years is described in the following sections.

6.2.3.1 Normal Years

The City's projected water supplies in normal years are presented in Table 6-4 and Figure 6-1. In normal years, the City expects to receive between 98% and 100% of its SCWSP supplies (see Section 6.1.1) and 100% of its groundwater supply (see Section 6.1.2). The normal year supply reliability is based upon SSJID's water supplies in 2010.

6.2.3.2 Single Dry Year

The City's projected water supplies in single dry years are presented in Table 6-5 and Figure 6-2. In single dry years, the City expects to receive between 74% and 75% of its SCWSP supplies

(see Section 6.1.1) and 100% of its groundwater supply. The single dry year supply reliability is based upon SSJID's water supplies in 1977.

6.2.3.3 Multiple Dry Years

The City's projected water supplies in multiple dry years are presented in Table 6-6 and Figure 6-3. In multiple dry years, the City expects to receive between 83% and 85% of its SCWSP supplies (see Section 6.1.1) and 100% of its groundwater supply. The multiple dry year supply reliability is based upon SSJID's water supplies over the period 1990 through 1992.

Table 6-4
Projected Potable Water Supply in Normal Years

Potable Water Source	Water Right or Contract	Reliability	Allocation	Contractual Entitlement (AFY) 2020	2025	2030	2035	2040
Current Supplies								
SCWSP Phase 1	SSJID Contract (a)	Pre-1914	(b)	6,760	6,811	6,863	6,887	6,887
Groundwater	(c)	--	100%	5,850	5,850	5,850	5,850	5,850
Anticipated Future Supplies								
SCWSP Phase 2	SSJID Contract (d)	Pre-1914	(b)	--	--	--	--	3,784
Groundwater	(e)	--	100%	403	1,210	1,210	1,210	1,210
			Normal Year Total	**13,013**	**13,871**	**13,923**	**13,947**	**17,731**

Notes:

(a) The City's total Phase I allotment of SCWSP water, following the 2013 sale to the City of Tracy, is 6,887 AFY.
(b) During a normal water year, the City expects to receive between 98% and 100% of its SCWSP water supply allocation. The City's projected SCWSP allocations are presented in Table 6-3.
(c) Reflects the City's estimated groundwater yield for Wells 6-10.
(d) The City's total Phase II allotment of SCWSP water, following the 2013 sale to the City of Tracy, is 10,671 AFY.
(e) Additional groundwater supplies will be obtained through the Well 21 facility upgrade project, which will be completed in two phases. Phase I is anticipated to be completed by 2020 and Phase 2 is anticipated to be completed by 2025.
(f) This table contains information required in DWR Table 7-1.

Figure 6-1
Projected Normal Year Potable Water Supply

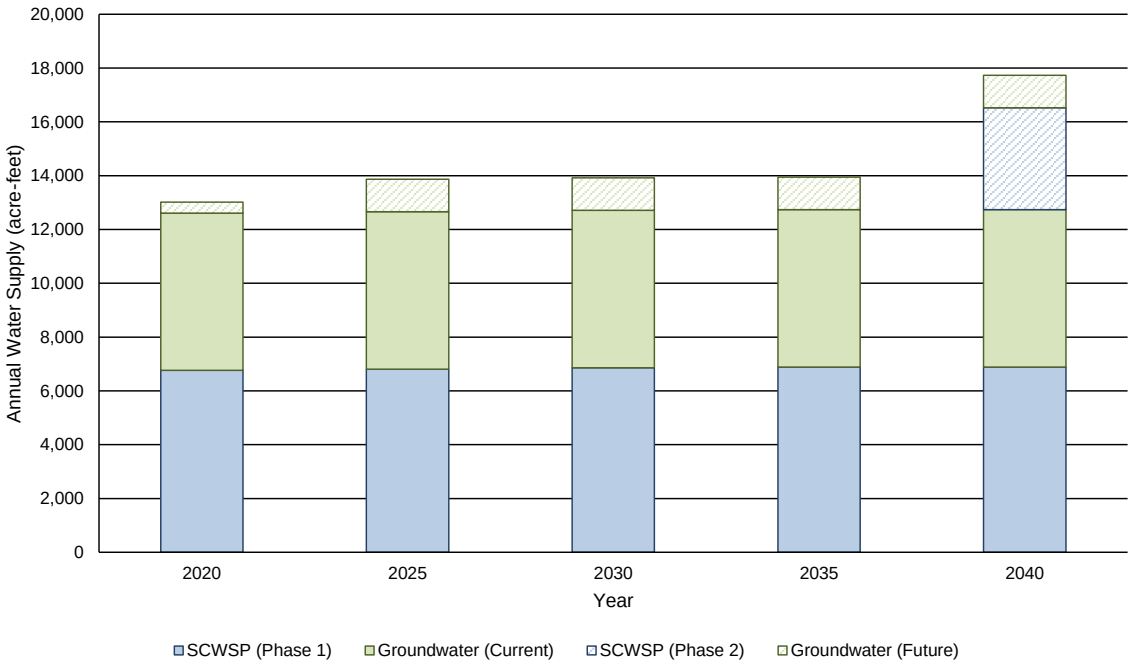


Table 6-5
Projected Potable Water Supply in Single Dry Years

Potable Water Source	Water Right or Contract	Reliability	Allocation	Contractual Entitlement (acre-feet) 2020	2025	2030	2035	2040
Current Supplies								
SCWSP Phase 1	SSJID Contract (a)	Pre-1914	(b)	5,070	5,108	5,147	5,187	5,187
Groundwater	(c)	--	100%	5,850	5,850	5,850	5,850	5,850
Anticipated Future Supplies								
SCWSP Phase 2	SSJID Contract (d)	Pre-1914	(b)	--	--	--	--	2,850
Groundwater	(e)	--	100%	403	1,210	1,210	1,210	1,210
		Single Dry Year Total		**11,323**	**12,168**	**12,207**	**12,247**	**15,097**

Notes:

(a) The City's total Phase I allotment of SCWSP water, following the 2013 sale to the City of Tracy, is 6,887 AFY.
(b) During a single dry water year, the City expects to receive between 74% and 75% of its SCWSP water supply allocation. The City's projected SCWSP allocations are presented in Table 6-3.
(c) Reflects the City's estimated groundwater yield for Wells 6-10.
(d) The City's total Phase II allotment of SCWSP water, following the 2013 sale to the City of Tracy, is 10,671 AFY.
(e) Additional groundwater supplies will be obtained through the Well 21 facility upgrade project, which will be completed in two phases. Phase I is anticipated to be completed by 2020 and Phase 2 is anticipated to be completed by 2025.
(f) This table contains information required in DWR Table 7-1.

Figure 6-2
Projected Single Dry Year Potable Water Supply

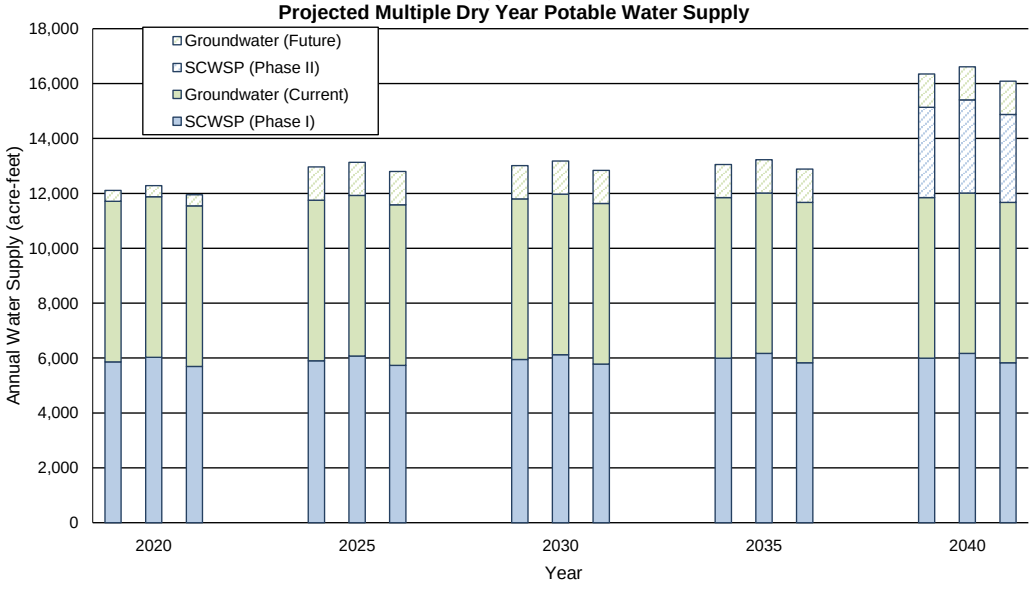
Table 6-6
Projected Potable Water Supply in Multiple Dry Years

Potable Water Source	Water Right or Contract	Reliability	Allocation	Contractual Entitlement (acre-feet) 2020	2025	2030	2035	2040
Multiple Dry Years - First Year								
Current Supplies								
SCWSP Phase I	SSJID Contract (a)	Pre-1914	(b)	5,858	5,903	5,948	5,994	5,994
Groundwater	(c)	--	100%	5,850	5,850	5,850	5,850	5,850
Anticipated Future Supplies								
SCWSP Phase II	SSJID Contract (d)	Pre-1914	(b)	--	--	--	--	3,293
Groundwater	(e)	--	100%	403	1,210	1,210	1,210	1,210
Multiple Dry Years (First Year) Total				**12,111**	**12,963**	**13,008**	**13,054**	**16,347**
Multiple Dry Years - Second Year								
Current Supplies								
SCWSP Phase I	SSJID Contract (a)	Pre-1914	(b)	6,027	6,073	6,119	6,167	6,167
Groundwater	(c)	--	100%	5,850	5,850	5,850	5,850	5,850
Anticipated Future Supplies								
SCWSP Phase II	SSJID Contract (d)	Pre-1914	(b)	--	--	--	--	3,388
Groundwater	(e)	--	100%	403	1,210	1,210	1,210	1,210
Multiple Dry Years (Second Year) Total				**12,280**	**13,133**	**13,179**	**13,227**	**16,615**
Multiple Dry Years - Third Year								
Current Supplies								
SCWSP Phase I	SSJID Contract (a)	Pre-1914	(b)	5,694	5,737	5,781	5,825	5,825
Groundwater	(c)	--	100%	5,850	5,850	5,850	5,850	5,850
Anticipated Future Supplies								
SCWSP Phase II	SSJID Contract (d)	Pre-1914	(b)	--	--	--	--	3,201
Groundwater	(e)	--	100%	403	1,210	1,210	1,210	1,210
Multiple Dry Years (Third Year) Total				**11,947**	**12,797**	**12,841**	**12,885**	**16,086**

Notes:

(a) The City's total Phase I allotment of SCWSP water, following the 2013 sale to the City of Tracy, is 6,887 AFY.
(b) During multiple dry years, the City expects to receive between 83% and 85% of its SCWSP water supply allocation. The City's projected SCWSP allocations are presented in Table 6-3.
(c) Reflects the City's estimated groundwater yield for Wells 6-10.
(d) The City's total Phase II allotment of SCWSP water, following the 2013 sale to the City of Tracy, is 10,671 AFY.
(e) Additional groundwater supplies will be obtained through the Well 21 facility upgrade project, which will be completed in two phases. Phase I is anticipated to be completed by 2020 and Phase 2 is anticipated to be completed by 2025.
(f) This table contains information required in DWR Table 7-1.

Figure 6-3
Projected Multiple Dry Year Potable Water Supply



6.3 SUPPLY AND DEMAND ASSESSMENT

10635 (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

The City's projected water demands are described in Section 3.2.1, the City's projected water supplies are discussed in Section 5, and the reliability of these supplies in normal years and dry years is described in Section 6.1. The following sections compare the City's total water supplies to its projected demands.

6.3.1 City-Wide Supply and Demand by Year Type

The following sections compare the City's total water supplies under each year type discussed in Section 6.2.3 – normal years, single dry years, and multiple dry years – to the City's projected water demands through 2040 and Buildout.

6.3.1.1 Normal Years

As shown in Table 6-7 and Figure 6-4, the City is projected to have sufficient supplies to meet projected demands in normal years until 2040. The City is only projected to experience a supply shortfall in normal years after 2040, with a projected supply shortfall at Buildout of 818 AFY (4% of demands).

6.3.1.2 Single Dry Year

As shown in Table 6-8 and Figure 6-5, the City is projected to have adequate supplies to meet projected demands in single dry years until 2035. The projected single dry year supply shortfall in 2035, 2040, and at Buildout are 1,288 AFY (10%), 91 (0.6%), and 3,452 AFY (19%), respectively.

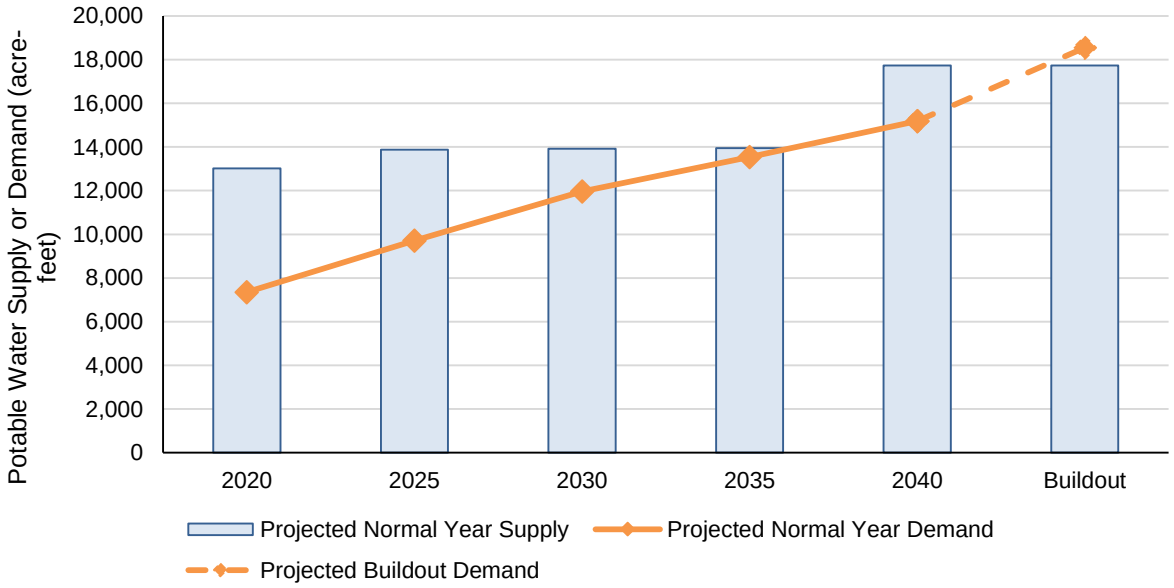
6.3.1.3 Multiple Dry Years

As shown in Table 6-9 and Figure 6-6, the City is projected to have adequate supplies to meet projected demands in multiple dry years through 2040. The City is only projected to experience a supply shortfall in multiple dry years in 2035 and Buildout. The projected supply shortfall in 2035 is 481 AFY (4%), 308 AFY (2%) and 649 AFY (5%) during first, second and third dry years respectively. The projected supply shortfall during Buildout is 2,202 AFY (12%), 1,934 AFY (10%) and 2,463 AFY (13%).

Table 6-7
Projected Potable Supply vs. Demand for Normal Year Scenario

	Estimated Supply and Demand (AFY) (a)(b)					
	2020	**2025**	**2030**	**2035**	**2040**	**Buildout**
Projected Potable Water Supply (a)	13,013	13,871	13,923	13,947	17,731	17,731
Projected Potable Water Demand (b)	7,354	9,714	11,968	13,535	15,188	18,549
Surplus or Deficit	*5,659*	*4,156*	*1,955*	*412*	*2,543*	*-818*
Percent Shortfall	--	--	--	--	--	*4%*

Figure 6-4
Normal Year Potable Water Supply vs. Demand

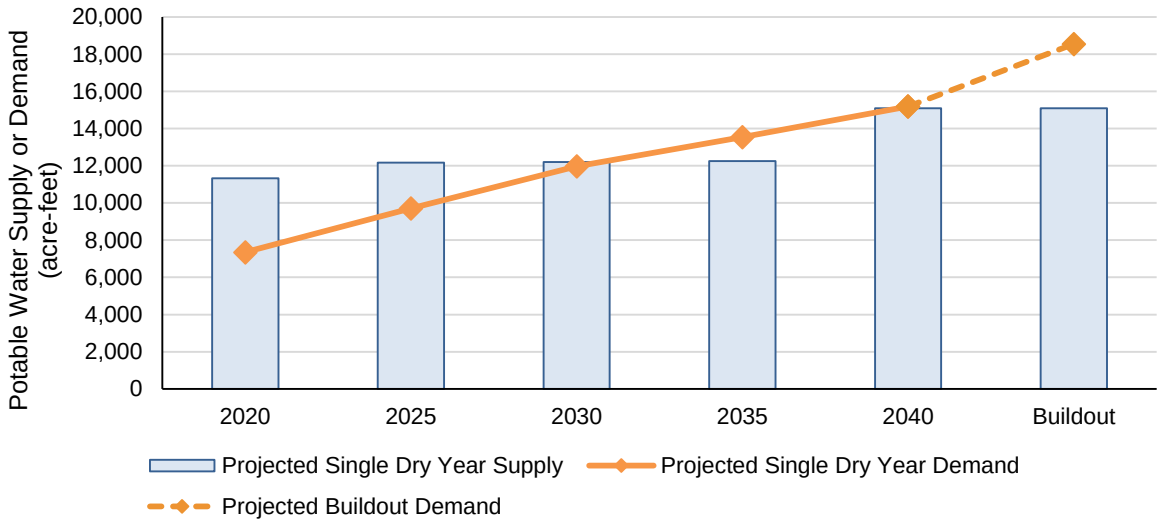


Notes:
(a) Projected available potable water supplies during normal years are summarized in Table 6-4.
(b) Values for projected potable water demand are summarized in Table 5-1.

Table 6-8
Projected Potable Supply vs. Demand for Single Dry Year Scenario

	Estimated Supply and Demand (AFY) (a)(b)					
	2020	**2025**	**2030**	**2035**	**2040**	**Buildout**
Projected Potable Water Supply (a)	11,323	12,168	12,207	12,247	15,097	15,097
Projected Potable Water Demand (b)	7,354	9,714	11,968	13,535	15,188	18,549
Surplus or Deficit	*3,969*	*2,454*	*239*	*-1,288*	*-91*	*-3,452*
Percent Shortfall	*--*	*--*	*--*	*10%*	*0.6%*	*19%*

Figure 6-5
Single Dry Year Potable Water Supply vs. Demand

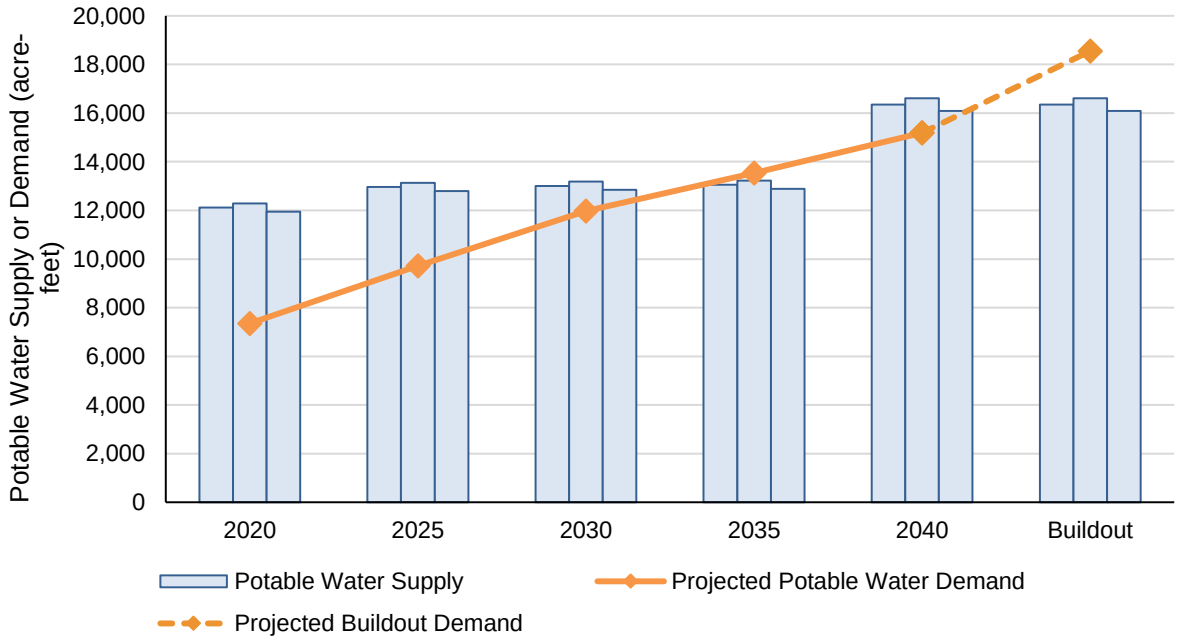


Notes:
(a) Projected available potable water supplies during single dry years are summarized in Table 6-4.
(b) Values for projected potable water demand are summarized in Table 5-1.

Table 6-9
Projected Potable Supply vs. Demand for Multiple Dry Years Scenario

	Estimated Supply and Demand (AFY) (a)(b)					
	2020	2025	2030	2035	2040	Buildout
First Dry Year						
Projected Potable Water Supply	12,111	12,963	13,008	13,054	16,347	16,347
Projected Potable Water Demand	7,354	9,714	11,968	13,535	15,188	18,549
Surplus or Deficit	*4,758*	*3,248*	*1,040*	*-481*	*1,159*	*-2,202*
Percent Shortfall	--	--	--	*4%*	--	*12%*
Second Dry Year						
Projected Potable Water Supply	12,280	13,133	13,179	13,227	16,615	16,615
Projected Potable Water Demand	7,354	9,714	11,968	13,535	15,188	18,549
Surplus or Deficit	*4,927*	*3,419*	*1,211*	*-308*	*1,427*	*-1,934*
Percent Shortfall	--	--	--	*2%*	--	*10%*
Third Dry Year						
Projected Potable Water Supply	11,947	12,797	12,841	12,885	16,086	16,086
Projected Potable Water Demand	7,354	9,714	11,968	13,535	15,188	18,549
Surplus or Deficit	*4,593*	*3,083*	*873*	*-649*	*898*	*-2,463*
Percent Shortfall	--	--	--	*5%*	--	*13%*

Figure 6-6
Multiple Dry Year Potable Water Supply vs. Demand



Notes:
(a) Projected available potable water supplies during multiple dry years are summarized in Table 6-4.
(b) Values for projected potable water demand are summarized in Table 5-1.

6.4 WATER MANAGEMENT TOOLS

10620 (f). An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

The supply versus demand assessment presented in Section 6.3 has shown that, based on the City's water supply and demand projections, the City could be temporarily facing a 9% supply shortfall during a single dry year and a 4% supply shortfall during the third year of a multiple dry year period by 2035. The City is projected to have adequate supplies to meet projected demands in dry years through 2040. However, to mitigate the need to import water and minimize the potential for water supply shortfalls, the City implemented programs designed to reduce potable water demand (see Section 8). Additionally, as discussed in Section 5.3.5, the City is currently developing a recycled water implementation plan that will support the use of recycled water to irrigate public landscaping, which will offset potable water demand for irrigation purposes within the City.

Further, in response to anticipated future dry-year shortfalls, the City has developed a robust Water Shortage Contingency Plan that systematically identifies ways in which the City can reduce water demands and augment supplies during dry years. The Water Shortage Contingency Plan is described in Section 7.

7. WATER SHORTAGE CONTINGENCY PLANNING

This section presents the City's Water Shortage Contingency Plan (WSCP), which has been developed to serve as a flexible framework of planned response measures to mitigate future water supply shortages. The City's Water Conservation Ordinance contains provisions related to water conservation and rationing and was incorporated to Lathrop Municipal Code (LMC; Section 13.08) in 1991.

The City's WSCP is updated herein to incorporate the mandatory prohibitions required by the SWRCB. While the SWRCB rescinded its mandatory conservation standards in April 2017, the updated WSCP provides the City with additional tools to be able to meet potential future mandatory conservation standards. This WSCP builds upon and supersedes the 2010 WSCP. The updates made to the WSCP reflect lessons learned during the recent drought and are intended to improve the City's ability to respond effectively and efficiently in the event of a future water supply shortage or emergency.

7.1 GUIDING PRINCIPLES

The City developed this WSCP based on the following guiding principle:

> *This WSCP concentrates on the reduction of non-essential water uses such as landscape irrigation and other discretionary outdoor water use and gives the highest priority to preserving water uses that are essential to the health, safety, welfare, and economic vitality of the City's residents.*

7.2 METHODOLOGY

To assist in development of the WSCP, the City used the Drought Response Tool (DRT),[35] an Excel spreadsheet model. The DRT provides a quantitative framework that allowed the City to:

- Evaluate a pre-drought baseline water use by each water use sector and major end use (i.e., indoor versus outdoor water use);
- Identify water use sectors and end uses to target for water savings;
- Evaluate a menu of drought response actions to implement in each stage of action; and
- Estimate the water savings potential of the responses selected for each stage of action based on assumed implementation and water savings rates.

Data inputs to the DRT are largely consistent with data that has been reported herein and to the SWRCB in response to Resolution 2015-0032 via the DRINC Portal (www.drinc.ca.gov), including total production, residential water use, and population. The Drought Response Actions section of the DRT is designed to be highly modifiable, in order to allow users to explore the potential water savings associated with implementing different sets of actions, based on varying levels of implementation, and their understanding of their own community and the water savings potential. A detailed Drought Response Tool User's Guide is provided in Appendix I which walks the user through the model structure, and the key input parameters, assumptions, and calculations that

[35] ©2015 EKI Environment & Water, Inc. (formerly known as Erler & Kalinowski, Inc.)

form the basis for the DRT. The results of quantitative assessment of drought response actions included in each of the WSSCP stages is provided in Appendix I.

7.3 BASELINE WATER USE PROFILE

Using the DRT, the City developed a pre-drought baseline water use profile that reflected usage patterns within the City's service area by major water use sector for 2013 (selected as a representative "pre-drought" period). Additionally, data from the SWRCB was analyzed to understand the impact of WSCP actions on water use in 2016, in the midst of the historic drought. Key findings from these analyses are presented below.

Residential Per Capita Demand

The City's baseline residential gallons per capita per day (R-GPCD) demand for 2013 was approximately 105 R-GPCD. As shown in Table 7-1 and associated chart, this R-GPCD is slightly less than the statewide average of 109 GPCD in 2013 and significantly less than the average R-GPCD of fellow water suppliers in the San Joaquin River Hydrologic Region in 2013 (146 R-GPCD).

Proportion of Outdoor Water Use

As shown on Table 7-2 and the associated charts, outdoor water use, which can generally be considered as a "discretionary or non-essential water use", was estimated to be approximately 49% of the City's total consumption during this pre-drought time period. The high proportion of outdoor water use within both residential and commercial sectors (41% and 39%, respectively) indicates that there is the potential achieve significant water savings across these sectors, simply by focusing on outdoor uses. As further shown in the Table 7-2 and associated charts, the seasonal variation in baseline water use reflects increased irrigation demands during the summer and fall months. Therefore, the greatest potential for reductions in non-essential water use are expected during these months.

Historical Drought Response

The Governor and the SWRCB played a fundamental role in promoting and requiring water conservation across the state. On 1 April 2015, Governor Brown issued the fourth in a series of Executive Orders regarding actions necessary to address California's severe drought conditions. Executive Order B-29-15 directed the SWRCB to impose the first-ever mandatory restrictions on urban water suppliers to achieve a statewide 25% reduction in potable urban water usage through February 2016.[36] The Executive Order also requires CII users to implement water efficiency measures, prohibits irrigation with potable water of ornamental turf in public street medians, and prohibits irrigation with potable water outside newly constructed homes and buildings that is not delivered by drip or microspray systems, along with numerous other directives.

[36] Executive Order B-29-15 is located online at https://www.gov.ca.gov/docs/11.13.15_EO_B-36-15.pdf, accessed 2 March 2016.

Table 7-1
Baseline (2013) Residential Per Capita Water Demand

	Residential Per Capita Water Demand (R-GPCD)
City of Lathrop (a)	105
San Joaquin River Hydrologic Region Agencies (b)	146
Statewide Average (b)	109

Notes:
(a) Average City of Lathrop R-GPCD between 2013 calculated using metering data.
(b) Average R-GPCD for San Joaquin River Region and average statewide R-GPCD for 2013 calculated using residential water use and population provided in by the SWRCB (SWRCB, n.d.).

Figure 7-1
Baseline (2013) Residential Per Capita Water Demand

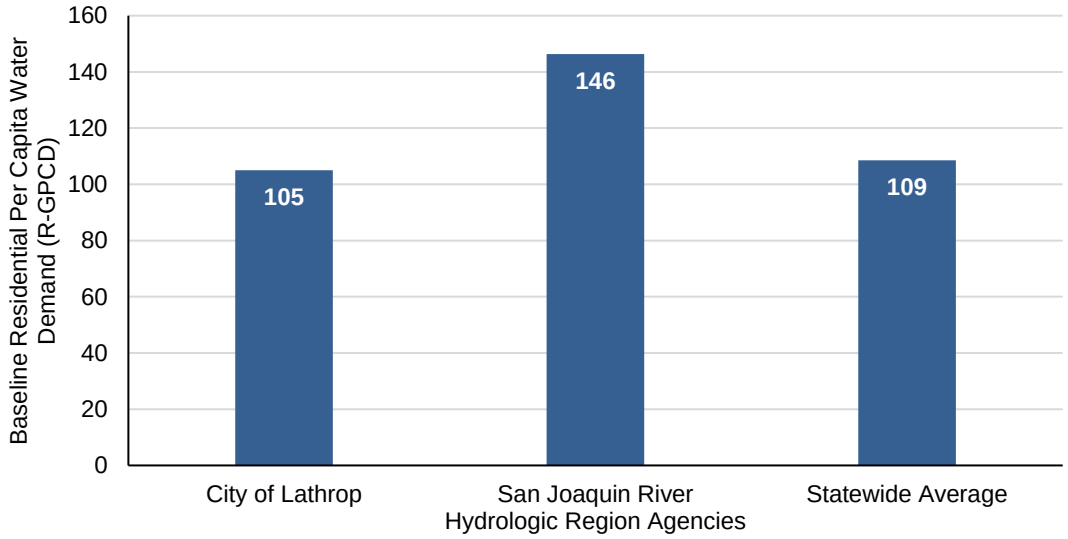


Table 7-2
Baseline (2013) Water Use Profile

Sector	End-Use	Baseline (2013) Average Water Use (acre-feet) (a)													Annual % of Total by Sector
		January	February	March	April	May	June	July	August	September	October	November	December	Annual	
Residential	Indoor (b)	117	105	117	113	117	113	117	117	113	117	113	117	1,373	59%
	Outdoor (b)	0	3	25	33	102	149	138	161	130	110	68	30	948	41%
	Subtotal Residential	*117*	*108*	*141*	*146*	*219*	*261*	*255*	*277*	*243*	*226*	*181*	*146*	*2,321*	-
CII	Indoor (b)	65	59	65	63	65	63	65	65	63	65	63	65	765	61%
	Outdoor (b)	12	17	15	24	50	70	77	93	19	87	0	18	482	39%
	Subtotal CII	*77*	*76*	*80*	*87*	*115*	*133*	*142*	*158*	*82*	*152*	*63*	*83*	*1,246*	-
Dedicated Irrigation	Outdoor	8	7	27	47	99	124	109	125	119	100	47	24	836	100%
Non-Revenue	Non-Revenue	10	10	12	14	22	26	25	28	22	24	15	13	220	100%
Total	Indoor	182	164	182	176	182	176	182	182	176	182	176	182	2,138	46%
	Outdoor	21	27	67	105	251	342	324	379	268	297	115	71	2,265	49%
	Non-Revenue	10	10	12	14	22	26	25	28	22	24	15	13	220	5%
	Total	**212**	**200**	**261**	**294**	**454**	**544**	**531**	**588**	**466**	**502**	**306**	**266**	**4,623**	-

Notes:

(a) Baseline water use is calculated using the average of the City's monthly metering data from 2013 for each sector.

(b) Indoor water use was estimated to be the lowest monthly water use for each sector, accounting for the number of days in each month. Outdoor water use for each sector was estimated to be the difference between the total water use and the estimated indoor water use.

(c) Non-revenue water is 5% of water consumption.

Figure 7-2
Baseline Year (2013) Annual Water Use by Sector and End Use

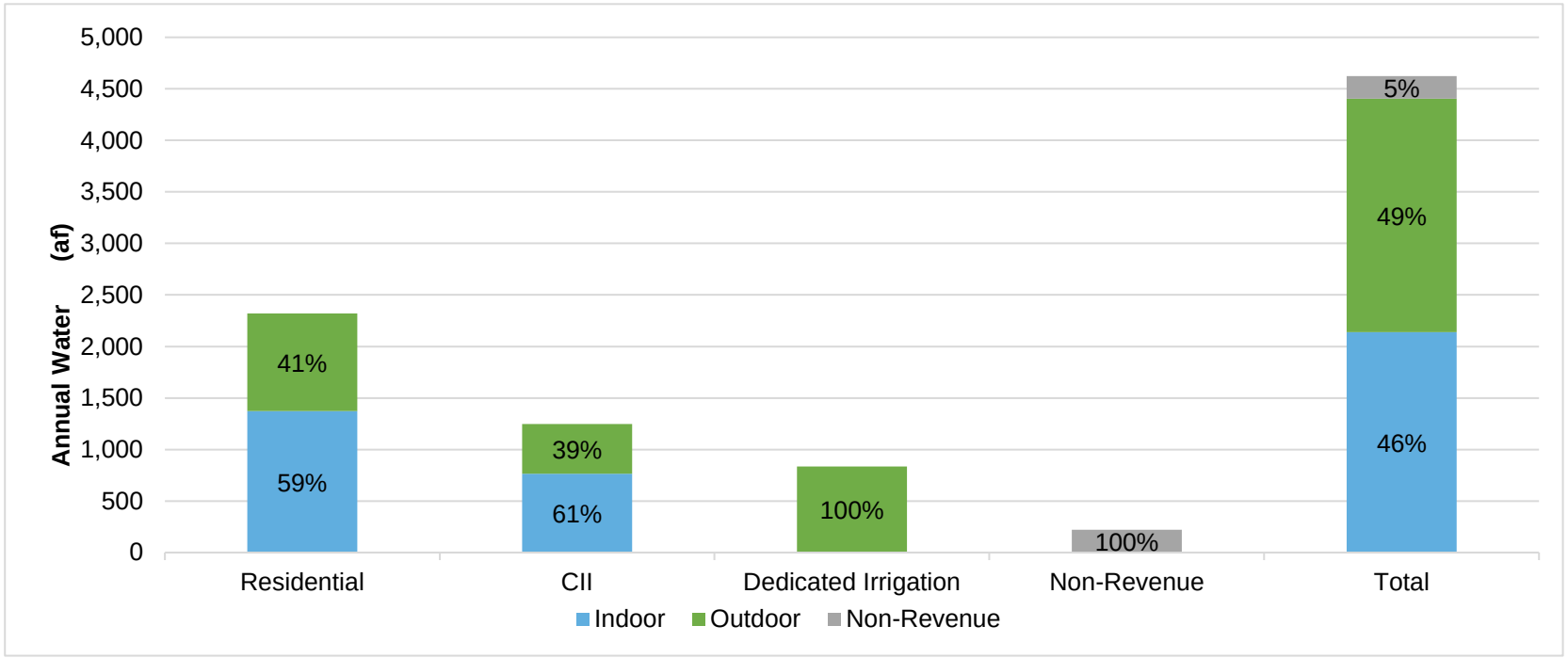
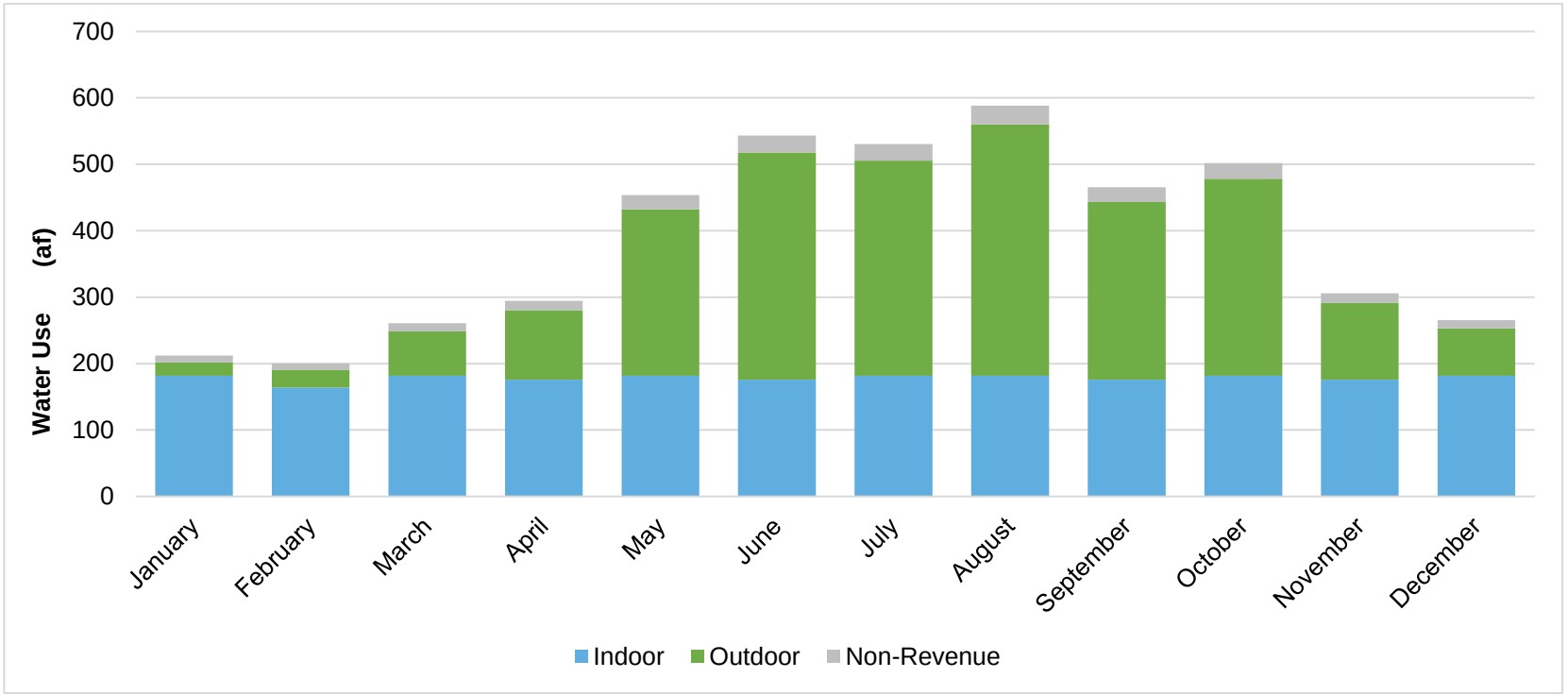


Figure 7-3
Baseline Year (2013) Monthly Indoor vs. Outdoor Water Use



On 5 May 2015, the SWRCB adopted Resolution 2015-0032, which mandated minimum actions by water suppliers and their customers to conserve water supplies into 2016 and assigned a mandatory water conservation savings goal to each water supplier based on their R-GPCD. The mandatory conservation standards established by the SWRCB and included in CWC §865(c) ranged from 8% for suppliers with an R-GPCD below 65 R-GPCD, up to 36% for suppliers with an R-GPCD of greater than 215 GPCD. As with the emergency drought regulations adopted by the SWRCB in 2014, the new water conservation regulation was primarily intended to reduce outdoor urban water use.

The City was originally assigned a mandatory water conservation standard of 20%, which was effective from June 2015 through February 2016. Prior to the 2015 SWRCB Resolution, the City Council had already declared Phase II of the WSCP by Urgency Ordinance 14-342 to respond to 2014 SWRCB actions. The City observed a 14% reduction in water use as a result of the Phase II restrictions. The City Council then enacted Phase III of the 2010 WSCP on 18 June 2015 by Urgency Ordinance 15-347 to achieve and surpass the SWRCB mandated water reduction goal of 20%. Both urgency ordinances are included in Appendix K.

On 2 February 2016, the SWRCB voted to extend the reduction targets through October 2016 with some modifications.[37] As part of this revised emergency regulation, the City qualified for an adjustment due to climate considerations and, effective March 2016, the City's conservation standard was reduced to 18%.[38] As shown in Table 7-3, the City achieved high savings (up to a 38% reduction in total demand) during the late spring through summer months of 2016, likely corresponding to large cut-backs in irrigation water uses. As of April 2017, the City had achieved a cumulative water conservation savings of 25.9% relative to its 2013 water use, exceeding its original mandatory standard by almost 6%.

On 7 April 2017, Governor Brown issued Executive Order B-40-17, which lifted the drought emergency in most of California while maintaining prohibitions on wasteful practices and water reporting requirements. The City is incorporating these permanent prohibitions into the Mandatory Prohibitions stage of its WSCP update included in this document.

[37] Adopted text of the extended Emergency Regulations located online at http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/docs/emergency_reg/final_reg_enacted.pdf, accessed 2 March 2016

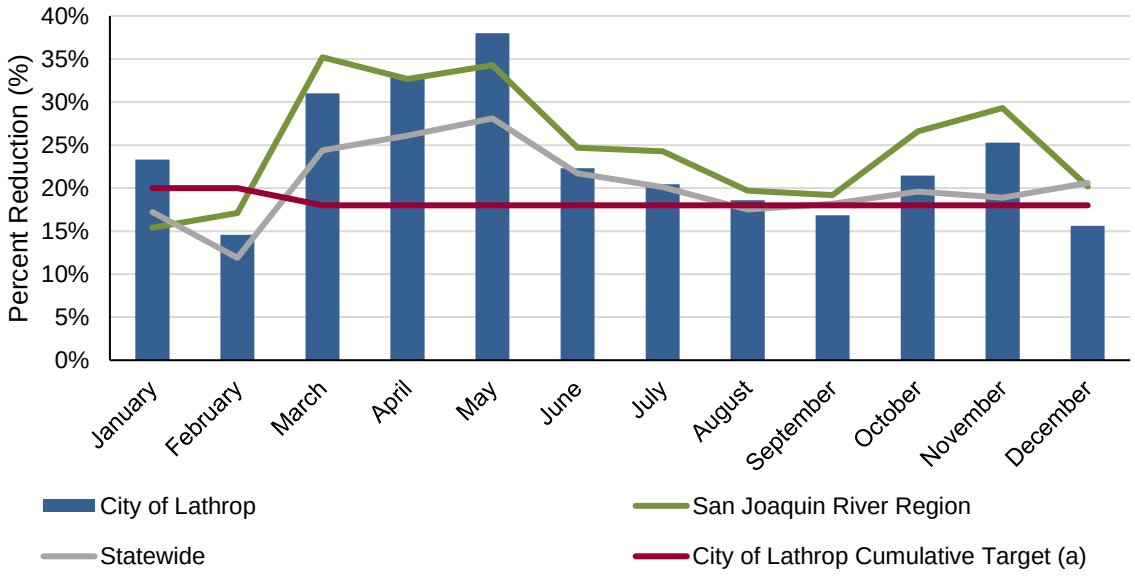
[38] On 18 May 2016, the SWRCB established a mechanism whereby water suppliers are able to receive a new mandatory water conservation standard. This approach – where water suppliers self-certify the level of available water supplies they anticipate receiving if the drought were to continue for an additional three years – is intended to better reflect actual water supply conditions that a supplier is facing. The City did not submit a self-certification.

Table 7-3
2016 Water Use Reductions

Month	2016 Monthly Water Savings From 2013 Baseline		
	City of Lathrop (a)	San Joaquin River Hydrologic Region (b)	Statewide (b)
January	23.3%	15.4%	17.2%
February	14.6%	17.1%	11.9%
March	31.0%	35.2%	24.4%
April	32.9%	32.7%	26.1%
May	38.0%	34.3%	28.1%
June	22.3%	24.7%	21.7%
July	20.4%	24.3%	20.1%
August	18.6%	19.7%	17.5%
September	16.9%	19.2%	18.2%
October	21.5%	26.6%	19.6%
November	25.3%	29.3%	18.9%
December	15.6%	20.2%	20.6%

Notes:
(a) City of Lathrop conservation data from SWRCB (SWRCB, n.d.)
(b) San Joaquin River Region and Statewide conservation data from SWRCB (SWRCB, 2017).

Figure 7-4
Monthly Water Use Reduction for 2016 Compared to 2013 Baseline



Notes:
(a) The City of Lathrop's conservation standard was reduced from 20% to 18%, effective March 2016

7.4 STAGES OF ACTION

10632. (a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier: (1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

Based on lessons learned during the recent drought, recent permanent SWRCB prohibitions, and future projections of future dry-year shortfalls (see Section 6.3.1.3), the City updated the stages of action to be taken in response to water supply shortages. This WSCP establishes (1) mandatory prohibitions that are in force at all times with the intent to eliminate water waste and (2) a set of four stages of increasingly restrictive actions to be implemented in response to water supply reductions, including a 50% supply reduction as required by CWC §10632(a). Besides the mandatory prohibitions, each stage of the WSCP is implemented by a formal declaration by the City Council recognizing the need for a reduction in water use and enacting a specific stage of action due to a water supply shortage or emergency. All of the stages allow for adequate water to protect public health and safety and satisfy the fire protection needs of the City. Table 7-4 summarizes the water supply reductions and supply conditions associated with each stage of action.

Table 7-5 describes the customer restrictions and prohibitions and consumption reduction methods (i.e., the actions to be taken by the City) associated with each stage of action. Specific prohibitions and consumption reduction methods are discussed in Sections 0 and 7.7, respectively. The monthly and cumulative annual water savings associated the restrictions, prohibitions, and consumption reduction methods were quantitatively estimated using the DRT for each stage of actions, and are included in Appendix J.

Table 7-4
Stages of Water Shortage Contingency Plan (DWR Table 8-1)

Stage	Percent Supply Reduction	Rationale	Water Supply Condition
Mandatory Prohibitions	0%	Mandatory prohibitions to prevent water waste	• Enacted as part of Chapter 13.08 of the City's Municipal Code • In place at all times
I	10%	Single dry year shortfall up to 10% projected at 2035	• Enacted upon the City Council's declaration of a drought or a water emergency (Section 13.08.130 and Section 13.08.140 of the City's Municipal Code). (a) (b) • The specific phase to be implemented depends on the severity of the drought conditions or water emergency
II	20%	The City's 2015 SWRCB-mandated water conservation standard was 20%	
III	30%	Intermediate stage	
IV	50%	Required by UWMP Act	

Notes:

(a) Per Section 13.08.130 of the City Municipal Code, the City Council shall declare a drought when one or more of the following conditions exist:
  i. The groundwater basin reaches ten feet below normal pumping levels;
  ii. A drought is declared by the Governor of California covering the water sources used by the City, and subsequent reductions of water supplied to the City will occur or are likely to occur;
  iii. Any unusual situation or circumstance which affects the quantity or quality of the water supply.

(b) Per Section 13.08.140 of the City Municipal Code, the City Council shall declare a water emergency when one or more of the following conditions exist:
  i. A decrease in the ability to draw groundwater due to well contamination, well failure or other equipment or system failure, and no alternative source of water is available;
  ii. Contamination of the water system;
  iii. Natural disasters affecting water deliveries;
  iv. During times of floods which would affect water quality;
  v. Sabotage or threats of sabotage against the water system; and
  vi. Any unusual situation or circumstance which affects the quantity of quality of the water supply.

Table 7-5
Stages of Action and Water Shortage Responses (DWR Tables 8-2 and 8-3)

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers) (a)
Mandatory Prohibitions **Goal:** **0% Reduction**	• Provide notice to a customer when there is indication that a leak may exist within the end-user's exclusive control.	• The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited. • The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use, is prohibited. • The application of potable water to driveways and sidewalks is prohibited. • The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system, is prohibited. • The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall is prohibited. • The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased, is prohibited. • The irrigation with potable water of ornamental turf on public street medians is prohibited. • Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language. • Repair all controllable leaks on premises.

Table 7-5 (Continued)
Stages of Action and Water Shortage Responses (DWR Tables 8-2 and 8-3)

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)

Stage I
 	
Goal:
10% Reduction
	• Continue with actions and measures from Mandatory Prohibitions except where superseded by more stringent requirements.
	• Given the experience in the recent (2014-2016) drought, the City's reductions were substantially driven by State media campaigns. Therefore, at this stage of the WSCP, the City may rely on statewide media campaigns. If the State does not implement media campaigns, the City may:
	  ○ Publicize the water shortage and conservation measures using a media campaign, newspaper articles, and website.
	  ○ Promote water conservation programs.
	  ○ Hold water efficiency workshops and public events.
	  ○ Distribute water bill inserts with information about water shortage and conservation.
	• The days and times during which residential, commercial and industrial uses of water are restricted shall be established by resolution of city council.
		• Continue with Mandatory Prohibitions except where superseded by more stringent requirements.
		• Irrigating outdoor landscapes or turf is limited to no more than three (3) days per week following schedules established by resolution of city council.
		• Watering only after 7 p.m. in the evening and before 10 a.m. in the morning.
		• The water of landscapes at times and on days other than those specified by city council or during high winds that cause water to blow away from the landscapes being watered is prohibited.
		• Irrigation with potable water outside of newly constructed homes and buildings that is not delivered by drip or microspray systems is prohibited.
		• The use of potable water for street washing is prohibited.
		• All leaks must be repaired within 24 hours.
		• Restaurants shall post at every table and in restrooms notice of drought conditions and water restrictions.
		• No person, firm or corporation may drill, dig or install a water well within the city service area or the city for any purpose without the consent of the city.

Table 7-5 (Continued)
Stages of Action and Water Shortage Responses (DWR Tables 8-2 and 8-3)

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)
Stage II **Goal:** **20% Reduction**	• Continue with action and measures from Stage I except where superseded by more stringent requirements. • Schedule staff for enforcement and customer service. • Accelerate leak detection and repair program. • Conduct surveys targeting high water users with CII, irrigation, and residential accounts.	• Continue with action and measures from Stage I except where superseded by more stringent requirements. • All schools, institutions, and dedicated irrigation customers, which do not already have one on file, shall be required to submit a copy of a water conservation plan and landscape watering schedule that meets a water reduction of twenty percent (20%) from previous use within thirty (30) days of the beginning of mandatory restrictions. • Use of potable water for dust control or construction is prohibited. • Irrigating outdoor landscapes or turf is limited to no more than two (2) days per week following schedules established by resolution of city council. • All pools must be covered when not in use.

Table 7-5 (Continued)
Stages of Action and Water Shortage Responses (DWR Tables 8-2 and 8-3)

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)

Stage III
 	
Goal:
30% Reduction
	• Continue with action and measures from Stage II except where superseded by more stringent requirements.
	• Suspend routine flushing of water mains except when necessary to address immediate health or safety concerns.
		• Continue with action and measures from Stage II except where superseded by more stringent requirements.
		• The filling of a pool, hot tub, or jacuzzi, except in cases where necessary repairs must be made, is prohibited. Exceptions: public pools, hot tubs, or jacuzzis or privately owned pools, hot tubs, or jacuzzis which are open to the general public for recreational purposes. However, the owner and/or manager of the pool, hot tub, or jacuzzi must provide notice to the public works director of such filling before it occurs. Water used in excess of the allotted usage will be subject to payment under the excess use rate schedule; however, no additional surcharges or fines will be assessed.
		• Car washing shall be allowed only at facilities using recycled or recirculating water.
		• Automobile and recreational vehicle dealerships shall be allowed to continue washing vehicles with a hose and a hand-held trigger nozzle under the following conditions:
		  ○ Automobiles and recreational vehicles may be washed only on Fridays using the method outlined above.
		  ○ An automobile, motorcycle, boat or motor home may be washed the day before or the day of delivery to the purchaser.
		• The owner and manager of every facility with a restroom on the premises open to the public shall post in every such public restroom a placard or decal with notice of drought condition information in a form approved by the public works director or designee.
		• Irrigating outdoor landscapes or turf is limited to no more than one (1) day per week following schedules established by resolution of city council.

Table 7-5 (Continued)
Stages of Action and Water Shortage Responses (DWR Tables 8-2 and 8-3)

Stage	Consumption Reduction Methods by Water Supplier	Restrictions and Prohibitions on End Uses (Customers)
Stage IV **Goal:** **50% Reduction**	• Continue with action and measures from Stage III except where superseded by more stringent requirements. • Impose penalties for excess water usage that increase with increments of greater water use (b). • Implement excess water use surcharge. • Reduce distribution system pressures. • Increase enforcement and water waste patrols.	• Continue with action and measures from Stage III except where superseded by more stringent requirements. • Residential per capita consumption shall not exceed 50 gallons per capita per day. Excess water use will be subject to payment under the excess use rate schedule. • Use of potable water for irrigation is prohibited for all customers.

Notes:

(a) The first eight prohibitions implemented as Mandatory Prohibitions are those mandated in Section 864 of the California Water Code.
(b) See Table 7-6 for details on penalties and charges.

7.5 PROHIBITIONS ON END USES

10632. (a) (4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

Restrictions and prohibitions associated with each stage of action in the City's WSCP are presented in Table 7-5. As discussed above, these responses focus on the reduction of non-essential water uses such as ornamental landscape irrigation, and preserve water uses that are estimated to the health, safety, welfare, and economic vitality of the City's customers. In addition, mandatory prohibitions are enforced at all times (see Table 7-5).

On 18 May 2016, the SWRCB adopted Resolution No. 2016-0029, which prohibited specific water-wasting actions permanently in response to Executive Order B-37-16. The City's 2017 WSCP includes each of the permanent prohibitions on end uses mandated by the SWRCB in its May 2016 emergency regulations as Mandatory Prohibitions. Prohibitions in subsequent stages go beyond the SWRCB requirements and become increasingly restrictive.

7.5.1 Defining Water Features

10632. (b) Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

As required by CWC §10632(b), the City distinguishes between "decorative water features" such as ponds, lakes, water play features and fountains that are artificially supplied with water and "recreational water features" such as swimming pools and spas. Prohibitions on water use for decorative water features are listed separately from those for recreational water features (see Table 7-5).

7.6 PENALTIES, CHARGES, AND OTHER ENFORCEMENT

110632. (a) (6) Penalties or charges for excessive use, where applicable.

The City is authorized under LMC 13.08.300 to enforce the requirements of the WSCP. Enforcement of the City's water use restrictions and prohibitions is focused on soliciting cooperation from water customers who are unaware of the restrictions or have failed to comply with the provisions of the WSCP. Table 7-6 summarizes the penalties and charges to be imposed if the provisions of the LMC are violated. In addition, SWRCB Resolution No. 2017-0024 specifies that infractions of the SWRCB-mandated prohibitions and requirements are punishable by a fine of up to five hundred dollars for each day in which the violation occurs in addition to any other civil or criminal remedies.

Table 7-6
Water Shortage Contingency - Penalties and Charges

Stage	Warnings, Penalties, and Charges (a)
I	None
II	1. One warning/notification. 2. Levy heavy fine: $50, second notification; $75, third notification; $100, fourth notification; Failure to pay assessed fines will result in termination of service until such time as payment in full is collected from customer. 3. Installation of flow restrictor by City staff at customer's expense upon fourth notification; flow restrictor to remain in place for remainder of the drought or water emergency.
III	Same as Stage II
IV	Same as Stage II, with the addition of the following excess water use surcharges: 1. One notification if user's water use exceeds water ration 2. If the water user again exceeds water ration during the following billing period, the excess use fee shall be imposed as a surcharge upon all water use in excess of that user's water ration, dating back to the original billing period for which notice of excess use had been given and extending forward until the water user consumes no more than allowed under the Stage IV rationing standard. Surcharge rates are as follows: • 1-5 units over base - $12.50/unit • 6-10 units over base - $15.00/unit • 11-15 units over base - $17.50/unit • 16-25 units over base - $30.00/unit • 26-50 units over base - $42.50/unit • More than 50 units over base - $100.00/unit

Notes:
(a) Warnings, penalties, and charges are in City of Lathrop Municipal Code Chapter 13.08.300.

7.7 CONSUMPTION REDUCTION METHODS

As discussed above, the WSCP lists consumption reduction methods that the City will implement during each stage of action to reduce the City's own water consumption and encourage reduction in water use by its customers. Consumption reduction methods associated with each stage of action are presented in Table 7-5.

A main focus of the City's planned consumption reduction measures is to increase public outreach and keep customers informed on actions they can take to reduce consumption. Consumption reduction methods also include measures to reduce system losses through repair of leaks and water conservation plans for schools, institutions, and dedicated irrigation customers.

7.8 DETERMINING WATER SHORTAGE REDUCTIONS

10632. (a) (9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

The City's water production (including deliveries from SSJID and City well production) is metered and continuously monitored by the City's SCADA system. Daily water flow data and monthly customer billing data are compiled into a Monthly Water Usage Report. As discussed in 8.1.2, The City is continuously working on automating and improving the reporting function of the City's customer billing system.

During a water shortage, production totals versus consumption will be reported more frequently, on an as needed basis, to monitor the effectiveness of imposed water use restrictions and consumption reduction methods. Water use monitoring mechanisms are summarized in Table 7-7. Based on the compiled data, the City will compare total water production to total metered water consumption on a monthly basis to further evaluate the effectiveness of water conservation programs and better quantify losses within the water system.

Table 7-7. Water Use Monitoring Mechanisms

Mechanism for Determining Actual Reductions	Type of Data Expected
Groundwater Well Monitoring	Production Volume
SSJID Turnout Monitoring	Delivery Volume
Customer Water Meters & Customer Billing System	Customer Water Use (Demand)

7.9 REVENUE AND EXPENDITURE IMPACTS

10632 (a) (7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

Revenues from water rates are needed to enable water suppliers to cover the costs in pumping, storing, treating, and delivering water. Revenues also need to be collected to build reserves for future water system repairs, maintenance, and replacement. However, water shortages that result in the implementation of the Water Conservation and Rationing Plan are expected to result in reduced water usage, and accordingly, reduced operating revenues.

Also, during a water shortage, the City's expenditures for water-related services may be impacted. Expenditures may increase for a number of reasons, including the following:

- Increased conservation program costs to implement, monitor, and enforce new or more intensive water conservation programs;
- Increased staff costs for operation and maintenance of facilities to ensure efficient operation of available facilities;
- Increased costs for acquisition and treatment of additional surface water supplies, if needed to compensate for decreased groundwater supplies; and
- Increased costs for groundwater pumping, if additional groundwater pumping is needed to compensate for decreased surface water supplies or if more energy is required because of increased pumping lifts associated with decreasing groundwater levels (although these increased groundwater pumping costs may be offset by overall lower groundwater production costs due to the lower overall demand).

In order to mitigate the financial impacts of a water shortage, the City will need to rely on reserves and increased water rates, when justified. Section 13.08.210 of the LMC has the following provision for temporary rate increases.

> *Section 13.08.210. Temporary Rate Increases. When drought conditions or water emergency conditions prevail for more than two months, it may become necessary to implement a temporary rate increase to cover lost revenues due to water consumption reductions. Rates shall be increased as recommended by the Public Works Director and at the City Council's discretion when it is determined that revenues are inadequate to maintain the water enterprise. Such increase will be accomplished by resolution action.*

Other potential funding sources and/or short-term management options include careful monitoring of system costs, managing the short-term water reduction plans, initiating a water contingency fund and/or temporary deferral of capital improvement projects. There may also be additional external funding sources made available to water agencies for emergency situations.

7.10 WATER SHORTAGE CONTINGENCY ORDINANCE AND RESOLUTION

10632 (a) (8) A draft water shortage contingency resolution or ordinance.

The City's WSCP update was adopted on 2 October 2017. The adoption ordinance is included as Appendix H of this UWMP.

7.11 CATASTROPHIC SUPPLY INTERRUPTION PLAN

10632 (a) (3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

The City's Emergency Plan for Water Utility Management (Plan) outlines the water system response plan in the event of a disaster such as an earthquake, major fire, flooding, or sabotage. The City has emergency standby generators at all wells and at all pump stations to provide uninterrupted water supply. The Plan includes the following:

- Description of water system components (wells, distribution system, storage tanks);
- Protective measures to be taken prior to a disaster;
- List of City emergency operation personnel;
- Information regarding coordination with police and fire department personnel;
- List of water testing laboratories, water system contractors, and pipe repair and installation contractors; and
- Utility service numbers for traffic signal repairs, gas and electrical repairs, and water works suppliers.

7.12 ESTIMATE OF MINIMUM SUPPLY FOR NEXT THREE YEARS

10632 (a) (2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

Based on the multiple dry year supply reliability analysis presented in Section 6.3.1.3, the City can expect to have 11,708 AF of water available in 2018, 11,877 AF in 2019, and 11,947 AF in 2020 (see Table 7-8). These values are calculated based on the projected multiple dry year supply in 2020, shown in Table 6-9. For 2018 and 2019, the estimated available volumes do not include 403 AFY of Well 21 groundwater supply, which is not anticipated to be available until 2020.

Table 7-8
Estimated Minimum Three-Year Potable Water Supply (DWR Table 8-4)

	2020 Normal Year Potable Water Supply (AF)	Multiple-Dry Year Potable Water Supply (AF) (a)		
		2018	2019	2020
Available Water Supply	13,140	11,708	11,877	11,947

Notes:

(a) Calculated as the multiple dry year potable supply for 2020, as shown in Table 6-3. For 2018, the potable water supply is less additional groundwater supplies that will be obtained through completion of the City's Well 21 WTF Upgrade Phase I. Assuming completion of Phase I improvements by 2019, 403 acre-feet in additional groundwater supplies are included for 2020.

8. DEMAND MANAGEMENT MEASURES

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:
10631 (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:
(1) (A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.
(1) (B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

- *(i) Water waste prevention ordinances.*
- *(ii) Metering.*
- *(iii) Conservation pricing.*
- *(iv) Public education and outreach.*
- *(v) Programs to assess and manage distribution system real loss.*
- *(vi) Water conservation program coordination and staffing support.*
- *(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.*

This section provides an overview of the City's current and planned Demand Management Measures (DMMs), which include specific types and groupings of water conservation measures typically implemented by water suppliers.

8.1 LATHROP WATER CONSERVATION

The City implements all of the DMMs include in the UWMP Act, as described below and summarized in Table 8-1 and the associated chart.

8.1.1 DMM 1 – Water Waste Prevention Ordinances

Prohibition of water uses to prevent water waste is included in LMC Chapter 13.08.170. Updated prohibitions are included in the 2017 WSCP, which will be adopted by ordinance as part of LMC 13.08, and are in place at all times. The updated WSCP Mandatory Prohibitions builds upon the water waste prohibitions included in the current LMC and enacts the permanent SWRCB-mandated prohibitions at all times, regardless of the water supply conditions or stage of action. The following permanent prohibitions and requirements are listed in the City's WSCP Mandatory Prohibitions:

Table 8-1
Summary of DMMs and Implementation over the Past Five Years (2010-2015)

DMM Category	Program or Activity	Target Sector	Nature of Implementation	Extent of Implementation
1	Water Waste Prevention Ordinances	SFR, MFR, CII, And IRR	Prohibition of water uses to prevent water waste is included in LMC Chapter 13.08.170. Updated prohibitions are included the 2017 WSCP, to be adopted in the LMC. It incorporates all the SWRCB mandated water waste prohibitions, which is in place at all times, regardless of the water supply conditions.	Prohibitions of water uses to prevent water waste were in place during 2011-2016.
2	Metering	SFR, MFR, CII, And IRR	All water service connections are metered. Meters are radio-capable, and City staff drives a route around the City to receive signals from each meter. Meter reading occurs between the 10th and 15th of each month.	All accounts are metered and read on a monthly basis.
3	Conservation Pricing	SFR, MFR, CII, And IRR	The current water rate structure includes only a flat water consumption charge. The WSCP includes penalties and surcharges for excess water usage in higher stages.	The City does not currently implement conservation pricing.
4	Water Conservation Kits and Information Booklets	SFR, MFR	Information booklets on water conservation included with water conservation kits.	373 water conservation kits have been distributed from 2014 through mid-2017.
4	Public Education Programs	SFR, MFR	The City has booths focused on water conservation at several city-wide or school events, including Lathrop Beautification Day, National Night Out, and the Manteca Unified School District Planet Party – Earth Day.	Lathrop Beautification Day – approximately 100-150 attendees annually. National Night Out – approximately 100-150 attendees annually. Manteca Unified School District Planet Party – Earth Day – approximately 2,000 attendees annually.
4	Website Updates	SFR, MFR	Information about water conservation in the City updated to the City website intermittently. The City website includes a page describing the water conservation ordinances and suggestions for how to save on residential water bills: http://www.ci.lathrop.ca.us/residents/conservation.aspx	The City maintained water conservation website updates during 2011-2016.
4	Conservation Information on Annual Consumer Confidence Reports	SFR, MFR	Annual Consumer Confidence Report (CCR) includes section on water conservation that described current drought status.	CCR with water conservation information distributed to all SFR and MFR customers during 2015-2017.
4	Monthly City Newsletters	SRF, MFR, CII, And IRR	The City distributes monthly newsletters that include information on water conservation.	Monthly newsletters are distributed to all residents during 2011-2016.

Table 8-1 (Continued)
Summary of DMMs and Implementation over the Past Five Years (2010-2015)

DMM Category	Program or Activity	Target Sector	Nature of Implementation	Extent of Implementation
5	AWWA Water Loss Worksheet	Non-revenue	The City has completed a AWWA Water Loss Worksheet for 2016, which allows the City to estimate "real water loss." Real water loss consists of water loss attributable to the distribution system and includes physical water loss from the pressurized system and storage tanks up to the point of customer consumption.	2016 AWWA Validity Score = 69
6	Water Conservation Coordinator	SFR, MFR, CII And IRR	City employs a Water Conservation Coordinator; the water conservation efforts are additionally supported by several employees in the Public Works and Finance Departments.	Approximately 7 employees spend a portion of their time on water conservation efforts
7	Large Landscape Conservation Programs	IRR, CII	The City's Design & Construction Standards specify that irrigation system controllers installed should be programmed to match the irrigation rate with the evapotranspiration rate for the irrigated turf or plants.	The City has 160 irrigation service connections by 2016.
7	Water Conservation Kits	SFR, MFR, CII	Water-saving fixtures and other items are available to all residents, budget permitting. These water conservation kits include a low flow showerhead, a faucet aerator for the kitchen or bathroom, a water displacement bag for toilet tanks, a fill cycle diverter, toilet leak detection dye tablets, and a shower timer.	373 water conservation kits have been distributed from 2014 through mid-2017.

Prohibitions

- The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited.
- The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use, is prohibited.
- The application of potable water to driveways and sidewalks is prohibited.
- The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system, is prohibited.
- The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall is prohibited.
- The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased, is prohibited.
- The irrigation with potable water of ornamental turf on public street medians is prohibited.

Requirements

- Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.
- Water periods are limited to early morning and night time hours.
- All leaks on premises must be repaired.

In subsequent stages of the WSCP, the City is empowered to further reduce or eliminate water waste during periods of water supply shortage or emergency. These measures, described in more detail in Section 7 of this UWMP, include restrictions on landscape irrigation, sidewalk and car washing, and other residential, recreational, and commercial uses of water.

Enforcement of the water waste prohibition is documented in LMC Chapter 13.08.300 and water waste violations are enforced in the same manner as violations of the WSCP (see Section 7.6), which involves a series of warning/notification informing customers of the identified violations and the need for corrective action. If the first warning/notification does not induce compliance, the City levies a fine with any second, third, or fourth notifications necessary. If those do not result in compliance, the City installs a flow restrictor to remain in place for the remainder of the drought or water emergency.

Lathrop enforces its water waste ordinance on a year-round basis. Between 2011 and 2016, no citations had to be issued and no fines were levied.

8.1.2 DMM 2 – Metering

All water service connections are metered and billed by volume of use in the City. The City has installed radio-capable water meters at all of its water service connections. About 40% of these meters can send signals to antennae installed in several neighborhoods, while the remainder require City staff to drive a route around the City to receive signals from each meter. The ability

to perform meter readings remotely via radio enhances data acquisition and can potentially alert customers or the City when there is a leak, potentially reducing wasted water. Meter reading begins on the 10th of every month and is complete by the 15th. The City intends to adapt the metering system to deliver signals directly to City Hall in the future to reduce lag time and the number of employee hours necessary to compile meter readings.

Some non-residential and multifamily customers have separate irrigation meters to monitor water use for landscape irrigation separately from indoor uses. The City adopted the DWR Model Water Efficient Landscaping Ordinance (MWELO) in LMC Chapter 17.92.060, which requires certain residential and non-residential projects to install separate irrigation meters if landscaped areas meet specific size thresholds.[39]

8.1.3 DMM 3 – Conservation Pricing

The City's water rate structure consists of a base service rate and a commodity rate.[40] The City's base service rate is tied to the size of each customer's meter. Current (2017) meter service charges range from $14.40 per month for a 5/8-inch diameter meter, to $2,496.00 for a 12-inch meter. The City's current (2017) commodity rate is $3.49 per 1,000 gallons.

The City Council maintains the authority to adopt conservation pricing and water use surcharges in times of need (see Section 7.9).

8.1.4 DMM 4 – Public Education Outreach

The City distributes information about water conservation to the public through information in water conservation kits, website updates, annual Consumer Confidence Reports (CCRs), monthly city newsletters, and community events. The City's public information program is managed by the City's Water Conservation Coordinator and includes the following:

- Monthly City newsletters are provided to residents that include information on upcoming community events, water conservation tips, and other important notices.
- The City maintains an internet website that posts public information to promote water conservation practices.
- Annual consumer confidence reports are distributed to the City's water customers and contain water conservation information.
- The City sets up information booths at the City's annual birthday celebration, Earth Day, Lathrop Recycles Day and at other City events (see descriptions below).

[39] Per California Code of Regulation §492.7(a)(1)(A), landscape water meters must be installed for residential irrigated landscapes of 5,000 square feet or greater and for non-residential irrigated landscapes between 1,000 square feet and 5,000 square feet (at which point CWC §535 applies).
[40] The City's current water rate structure is available online at: http://www.ci.lathrop.ca.us/forms/12_19%20PMFinance%20%20_12_19%20PM.pdf.

In addition, the City conducts the following public and school education activities:

- Lathrop Beautification Day: The Solid Waste and Conservation Coordinator provides education to the volunteer groups involved that day (e.g., Lathrop High School, residents, Cub Scouts).
    - Year started: 2003
    - Number of persons reached: Medium scale, 100-150 residents/children
- National Night Out: This event is for all the residents of Lathrop and their families. The Solid Waste and Conservation Coordinator includes indoor/outdoor water conservation kit information and pamphlets on how residents can lower their water bill by conserving.
    - Year started: 2003
    - Number of persons reached: Medium scale, 100-150 residents/children
- Manteca Unified School District (MUSD) Planet Party (Earth Day): This event includes all of MUSD's 6th grade students. The Solid Waste and Conservation Coordinator gives the students a 10-minute presentation on clean air, water, recycling, energy, conservation/agriculture, or green innovations. Water conservation was the main topic presented in April 2010 and included information on the water cycle and water pollution prevention. The presentation also included a pop-quiz that awarded the highest scoring 6th grade class with an end of the school year pizza party.
    - Year started: April 2010
    - Number of persons reached: Large scale, 2,000 6th grade students

8.1.5 DMM 5 – Programs to Assess and Manage Distribution System Real Loss

The City currently evaluates monthly consumption reports for extreme variations, and, if a variation is noted, the City checks the meter for leaks. If a leak is detected, the City notifies the customer and the leak is repaired.

The City has completed an AWWA Water Loss Worksheet for 2016, which is included as Appendix E. Completion of this worksheet allows the City to estimate real water loss, which consists of water loss attributable to the distribution system and includes physical water loss from the pressurized system and storage tanks up to the point of customer consumption. City staff have also attended Water Loss Technical Assistance Program (TAP) workshops and trainings to receive instruction on the proper utilization of this software.

8.1.6 DMM 6 – Water Conservation Program Coordination and Staffing Support

The City Water Conservation Coordinator is responsible for coordinating the implementation of DMMs and providing water conservation information to residents.

Activities performed by the Water Conservation Coordinator include:

- Interprets and responds to inquiries regarding related City ordinances.

- Educates the public in resource conservation, green waste, recycling, composting, and household waste for cross contamination and distributes a recycling and conservation guide.
- Coordinates solid waste cleanup, resource conservation, and recycling efforts with other City departments, including Lathrop Beautification Day and National Night Out described in Section 8.1.4.
- Responds to public inquiries and provides information regarding the City's resource conservation, solid waste, and recycling services.
- Leads and conducts a variety of activities and programs at recreation facilities, schools, City events, and staff training, including the Manteca Unified School District (MUSD) Planet Party (Earth Day) described in Section 8.1.4.
- Coordinates activities related to programs managed such as marketing and public relations programs, including news releases and publicity; develops flyers, pamphlets, and brochures for public distribution; distributes indoor/outdoor conservation kits.
- Maintains awareness of local and state-wide supply issues; reviews proposed and newly implemented legislative changes; monitors activities of governmental regulatory agencies; and prepares appropriate analysis for the management staff, outside agencies, the City Council, and the public. Prepares Conservation Report for the SWRCB and distributes the CCR.
- Establishes positive working relationships with and provides information to representatives of community organizations, state/local agencies and associations, City management and staff, and the public.

8.1.7 DMM 7 – Other DMMs

Other DMMs provided by the City, in addition to those discussed above, include the following:

- Large Landscape Conservation Programs: The City has a large landscape conservation program which was started in 2005. As of 2016, the City had 160 landscape accounts. The City currently complies with the State Water Model Ordinance Standards for design of new landscaping. The City has also implemented a program in which evapotranspiration (ET) irrigation controllers are installed for lawns, parks, and other landscaped areas within future developments at the expense of the homebuilders.[41] All of the existing parks and most of the streetscapes are currently controlled by ET irrigation controllers.
- Water Conservation Kits: The City offers free water conservation kits free of charge to all residents (as the budget allows for the City's program). Each kit contains a low flow showerhead, a faucet aerator for the kitchen or bathroom, a water displacement bag for toilet tanks, a fill cycle diverter, toilet leak detection dye tablets, and a shower timer. Also included with the kits is an instructional booklet with installation instructions and other water saving tips that is provided as Appendix L. The City gave out 373 water conservation kits between 2014 and mid-2017.

[41] These requirements are documented in the City Design and Construction Standards, available online at: http://www.ci.lathrop.ca.us/lathrop/pwd/standards/Default.aspx.

8.2 IMPLEMENTATION OVER THE PAST FIVE YEARS

10631. (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following: (1)(A) … a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.

Table 8-1 summarizes the DMMs implemented by the City and the extent of implementation (e.g., number of surveys, number of rebates) for each of the programs listed under DMM-7 each year between 2010 and 2015. Through implementation of the DMMs, the City has been able to help its customers achieve water and cost savings.

8.3 PLANNED IMPLEMENTATION TO MEET WATER USE TARGETS

10631.(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(A) …The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

To achieve the SBx7-7 water use targets described in Section 4, the City intends to continue and expand implementation of the DMMs discussed above. In the future, specific program offerings may change as the market evolves.

Previously conducted cost-benefit analyses, as prepared by Nolte Associates for the City's 2005 UWMP, indicated that it would not be cost effective for the City to implement residential ultra-low flush toilet replacement programs and high efficiency washing machine rebates. However, it is possible that the City may revisit these analyses to asses if high efficiency appliance rebate programs should be implemented in the future. The City will also continue to publicize rebate programs offered through PG&E.

As discussed in Section 4.3, the City is relying upon continued implementation of these DMMs and natural replacement with efficient fixtures to achieve its 2020 Target of 188 GPCD.

9. PLAN ADOPTION AND SUBMITTAL

Preparation of the UWMP began in June 2017 for completion in August 2017, with notifications and interactions between stakeholders as discussed further below.

9.1 NOTIFICATION AND UWMP PREPARATION

> *110621. (b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.*

As described in Section 1.2, on 9 June 2017, the City sent a letter to 5 entities, including the County, SSJID, and SCWSP member agencies informing them that the City was in the process of updating its UWMP and soliciting their input in the update process. A list of the entities contacted is provided in Table 1-1. The letter was sent more than 60 days before the public hearing as required by code. A sample outreach letter is included in Appendix B.

9.2 NOTIFICATION OF PUBLIC HEARING

> *10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.*

On 15 August 2017, the City sent a letter to each of the above mentioned entities informing them the locations at which the Public Review Draft 2015 UWMP would be available for review and welcoming their input and comments to the document. The draft 2015 UWMP was available for public review at the Department of Public Works and on the City's website. The letter also informed the agencies that the UWMP public hearing would be occurring at City Hall on 18 September 2017. A sample copy of the notification letter is included in Appendix B.

On 1 and 8 September 2017, the City published a notice in *Manteca Bulletin* informing the public that the 2015 UWMP would be available for public review at the Department of Public Works and on the City's website, consistent with requirements of California Government Code 6066. The notice also informed the public that the 2015 UWMP public hearing would be held at City Hall on 18 September 2017. A copy of the newspaper announcement is included in Appendix B.

9.3 PUBLIC HEARING AND ADOPTION

10608.26 (a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

As described above, the City informed the public and the appropriate agencies of (1) its intent to prepare an updated UWMP, (2) when and where the UWMP was available for public review, and (3) when the public hearing regarding the UWMP would be held. All notifications were completed in compliance with Section 10608.26 of the Water Code and Section 6066 of the Government Code.

This 2015 UWMP was adopted by Resolution No. 17-4301 by the City Council during its 2 October 2017 meeting[42]. A copy of the resolution is included in Appendix D.

9.4 PLAN SUBMITTAL

10621. (d) An urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.
10635. (b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.
10644. (a) (1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption.
10644. (a) (2) The plan, or amendments to the plan, submitted to the department pursuant to paragraph (1) shall be submitted electronically.

A copy of the adopted 2015 UWMP including any amendments will be provided to DWR, the California State Library, San Joaquin County, and SSJID within 30 days of the adoption. An electronic copy of the adopted 2015 UWMP will be submitted to the DWR using the DWR online submittal tool.

[42] On 18 September 2017, City Council decided to continue the public hearing on 2 October 2017.

9.5 PUBLIC AVAILABILITY

> *10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.*

A copy of the adopted 2015 UWMP will be available for public review at the Department of Public Works, 390 Towne Centre Drive, during normal business hours and on the City's website within 30 days after filing the plan with DWR.

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APPENDIX A:
DWR STANDARDIZED TABLES

Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
CA3910015	City of Lathrop	6,116	3,445
	TOTAL	6,116	3,445
NOTES:			

Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* *drop down list*
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	20,796	32,395	45,364	58,649	67,841	74,577
NOTES:						

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
Drop down list *May select each use multiple times* *These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family		Drinking Water	1,778
Multi-Family		Drinking Water	83
Commercial		Drinking Water	131
Industrial		Drinking Water	668
Institutional/Governmental		Drinking Water	66
Landscape		Drinking Water	526
Agricultural irrigation		Drinking Water	26
Other	Construction/Other	Drinking Water	46
Losses	Non-revenue Water (a)	Drinking Water	121
		TOTAL	3,445

NOTES:
(a) Losses includes water used for fire hydrant flushing and testing, for water main flushing, as well as distribution system water losses. This value is calculated as the difference between metered water consumption and total water production.

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type *(Add additional rows as needed)*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*		2020	2025	2030	2035	2040-opt
Single Family		3,651	4,908	6,177	7,258	8,045
Multi-Family		178	379	621	645	669
Commercial		309	511	683	902	1,295
Industrial		1,409	1,566	1,566	1,566	1,865
Institutional/Governmental		246	404	538	564	590
Landscape		1,144	1,418	1,747	1,888	2,000
Agricultural irrigation		66	66	66	66	0
Losses	Non-revenue Water (a)	350	463	570	645	723
	TOTAL	7,353	9,715	11,968	13,534	15,187

NOTES:
(a) Losses includes water used for fire hydrant flushing and testing, for water main flushing, as well as distribution system water losses. This value is calculated as the difference between metered water consumption and total water production.
(b) Totals may be different from text Table 3-5 due to rounding.

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	3,445	7,353	9,715	11,968	13,534	15,187
Recycled Water Demand* *From Table 6-4*	429	1,159	2,103	3,061	3,775	4,479
TOTAL WATER DEMAND	3,874	8,512	11,818	15,029	17,309	19,666
**Recycled water demand fields will be blank until Table 6-4 is complete.*						
NOTES:						

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
07/2016	143
** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	
NOTES:	

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES:	

Table 5-1 Baselines and Targets Summary

Retail Agency or Regional Alliance Only

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*2000*	*2009*	*230*	*209*	*188*
5 Year	*2003*	*2007*	*236*		

*All values are in Gallons per Capita per Day (GPCD)

NOTES:

Table 5-2: 2015 Compliance

Retail Agency or Regional Alliance Only

Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD Enter "0" if no adjustment is made *From Methodology 8*					2015 GPCD* *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
148	209	0	0	0	0	148	148	Yes

**All values are in Gallons per Capita per Day (GPCD)*

NOTES:

Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	Eastern San Joaquin Groundwater Subbasin (DWR 5-22.01)	2744	3665	4082	3563	3204
	TOTAL	2,744	3,665	4,082	3,563	3,204
NOTES:						

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
Add additional rows as needed						
City of Lathrop	Metered	1,043	City of Manteca	Manteca Wastewater Quality Control Facility	No	
City of Lathrop	Metered	429	City of Lathrop	Lathrop Consolidated Treatment Facility	Yes	
Total Wastewater Collected from Service Area in 2015:		1,472				
NOTES:						

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015

☐	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level *Drop down list*	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
Lathrop Consolidated Treatment Facility	A01 - A38 (a)	City Agricultural Irrigation Use Areas	RWQCB No. R5-2016-0028	Land disposal	No	Tertiary	429	0	429	0
						Total	429	0	429	0

NOTES:
(a) See RWQCB No. R5-2016-0028 for a list of discharge locations within the City.

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

☐	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.

Name of Agency Producing (Treating) the Recycled Water:	City of Lathrop
Name of Agency Operating the Recycled Water Distribution System:	City of Lathrop
Supplemental Water Added in 2015	
Source of 2015 Supplemental Water	

Beneficial Use Type	General Description of 2015 Uses	Level of Treatment *Drop down list*	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation		Tertiary	429	1,159	2,103	3,061	3,775	4,479
Landscape irrigation (excludes golf courses)								
Golf course irrigation								
Commercial use								
Industrial use								
Geothermal and other energy production								
Seawater intrusion barrier								
Recreational impoundment								
Wetlands or wildlife habitat								
Groundwater recharge (IPR)*								
Surface water augmentation (IPR)*								
Direct potable reuse								
Other *(Provide General Description)*								
		Total:	429	1,159	2,103	3,061	3,775	4,479

**IPR - Indirect Potable Reuse*

NOTES:
Recycled water projections for agricultural irrigation are calculated by subtracting LAS-3 percolation pond capacity (0.3 MGD) from projected daily flows to Lathrop CTF, as developed in the City's draft IWRMP.

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual			
☑	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.		
Use Type		**2010 Projection for 2015**	**2015 Actual Use**
Agricultural irrigation			
Landscape irrigation (excludes golf courses)			
Golf course irrigation			
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	*Type of Use*		
Total		0	0
NOTES:			

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☐	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Section 5.3.5	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Add additional rows as needed			
Expand Sprayfields and Pond Storage	Construct additional agricultural sprayfields as the City's wastewater flow to the Lathrop CTF increases.	2015	4,050
		Total	4,050
NOTES:			

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List*	Expected Increase in Water Supply to Agency *This may be a range*
	Drop Down List (y/n)	*If Yes, Agency Name*				
Add additional rows as needed						
Phase 2 of SCWSP	Yes	SSJID	See Section 5.1.1	2040	All Year Types	3,784
Well 21 WTF Upgrade	No		See Section 5.2.3.3	2020	All Year Types	1,210
NOTES:						

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		Actual Volume	Water Quality *Drop Down List*	Total Right or Safe Yield *(optional)*
Add additional rows as needed				
Purchased or Imported Water	South County Water Supply Project	241	Drinking Water	6,887
Groundwater		3,204	Drinking Water	5,850
Recycled Water		429	Recycled Water	429
	Total	3,874		13,166
NOTES:				

Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply *Report To the Extent Practicable*									
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		**2020**		**2025**		**2030**		**2035**		**2040** *(opt)*	
		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Add additional rows as needed											
Recycled Water		1,159	1,159	2,103	2,103	3,061	3,061	3,775	3,775	4,479	4,479
Groundwater		6,253	6,253	7,060	7,060	7,060	7,060	7,060	7,060	7,060	7,060
Purchased or Imported Water	South County Water Supply Project	6,760	6,887	6,811	6,887	6,863	6,887	6,887	6,887	10,671	10,671
Total		14,172	14,299	15,974	16,050	16,984	17,008	17,722	17,722	22,210	22,210

NOTES: During a normal water year, the City expects to receive between 98% and 100% of its SCWSP water supply allocation.

Table 7-1 Retail: Basis of Water Year Data

Year Type	Base Year *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000*	Available Supplies if Year Type Repeats	
		☑	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location: Section 6.3
		☐	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	**% of Average Supply**
Average Year			100%
Single-Dry Year			
Multiple-Dry Years 1st Year			
Multiple-Dry Years 2nd Year			
Multiple-Dry Years 3rd Year			
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			

Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.

NOTES:

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	14,172	15,974	16,984	17,722	22,210
Demand totals *(autofill from Table 4-3)*	8,512	11,818	15,029	17,309	19,666
Difference	5,660	4,156	1,955	413	2,544
NOTES: Supply and demand totals are not equal to the supplies presented in text Table 6-7 because they include recycled water supply and demand.					

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	12,482	14,271	15,268	16,022	19,576
Demand totals	8,512	11,817	15,029	17,310	19,667
Difference	3,970	2,454	239	(1,288)	(91)

NOTES:
Supply and demand totals are not equal to the supplies presented in text Table 6-8 because they include recycled water supply and demand.

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	13,270	15,066	16,069	16,829	20,826
	Demand totals	8,512	11,817	15,029	17,310	19,667
	Difference	4,758	3,248	1,040	(481)	1,159
Second year	Supply totals	13,439	15,236	16,240	17,002	21,094
	Demand totals	8,512	11,817	15,029	17,310	19,667
	Difference	4,927	3,419	1,211	(308)	1,427
Third year	Supply totals	13,106	14,900	15,902	16,660	20,565
	Demand totals	8,512	11,817	15,029	17,310	19,667
	Difference	4,594	3,083	873	(649)	898
Fourth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fifth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0

NOTES:
Supply and demand totals are not equal to the supplies presented in text Table 6-9 because they include recycled water supply and demand.

Table 8-1 Retail
Stages of Water Shortage Contingency Plan

Stage	Complete Both	
	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition (*Narrative description*)
Add additional rows as needed		
Mandatory Prohibitions	0%	• Enacted as part of Chapter 13.08 of the City's Municipal Code • In place at all times
1	10%	• Enacted upon the City Council's declaration of a drought or a water emergency (Section 13.08.130 and Section 13.08.140 of the City's Municipal Code). (a) (b) • The specific phase to be implemented depends on the severity of the drought conditions or water emergency
2	20%	
3	30%	
4	50%	

[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*

NOTES:

(a) Per Section 13.08.130 of the City Municipal Code, the City Council shall declare a drought when one or more of the following conditions exist:

i. The groundwater basin reaches ten feet below normal pumping levels;

ii. A drought is declared by the Governor of California covering the water sources used by the City, reductions of water supplied to the City will occur or are likely to occur;

iii. Any unusual situation or circumstance which affects the quantity or quality of the water supply.

(b) Per Section 13.08.140 of the City Municipal Code, the City Council shall declare a water emergency when one or more of the following conditions exist:

i. A decrease in the ability to draw groundwater due to well contamination, well failure or other equipment or system failure, and no alternative source of water is available;

ii. Contamination of the water system;

iii. Natural disasters affecting water deliveries;

iv. During times of floods which would affect water quality;

v. Sabotage or threats of sabotage against the water system; and

vi. Any unusual situation or circumstance which affects the quantity of quality of the water supply.

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
Add additional rows as needed			
Mandatory Prohibitions	Landscape - Restrict or prohibit runoff from landscape irrigation	The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited.	Yes
Mandatory Prohibitions	Other - Require automatic shut of hoses	The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use, is prohibited.	Yes
Mandatory Prohibitions	Other - Prohibit use of potable water for washing hard surfaces	The application of potable water to driveways and sidewalks is prohibited.	Yes
Mandatory Prohibitions	Water Features - Restrict water use for decorative water features, such as fountains	The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system, is prohibited.	Yes
Mandatory Prohibitions	Landscape - Other landscape restriction or prohibition	The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall is prohibited.	Yes
Mandatory Prohibitions	CII - Restaurants may only serve water upon request	The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased, is prohibited.	Yes
Mandatory Prohibitions	Landscape - Prohibit certain types of landscape irrigation	The irrigation with potable water of ornamental turf on public street medians is prohibited.	Yes
Mandatory Prohibitions	CII - Lodging establishment must offer opt out of linen service	Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.	Yes
Mandatory Prohibitions	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Repair all controllable leaks on premises.	Yes
I	Other	Continue with Mandatory Prohibitions except where superseded by more stringent requirements.	Yes
I	Landscape - Limit landscape irrigation to specific days	Irrigating outdoor landscapes or turf is limited to no more than three (3) days per week following schedules established by resolution of city council.	Yes
I	Landscape - Limit landscape irrigation to specific times	Watering only after 7 p.m. in the evening and before 10 a.m. in the morning.	Yes
I	Landscape - Restrict or prohibit runoff from landscape irrigation	The water of landscapes at times and on days other than those specified by city council or during high winds that cause water to blow away from the landscapes being watered is prohibited.	Yes
I	Landscape - Prohibit certain types of landscape irrigation	Irrigation with potable water outside of newly constructed homes and buildings that is not delivered by drip or microspray systems is prohibited.	Yes
I	Other - Prohibit use of potable water for washing hard surfaces	The use of potable water for street washing is prohibited.	Yes
I	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	All leaks must be repaired within 24 hours.	Yes
I	CII - Other CII restriction or prohibition	Restaurants shall post at every table and in restrooms notice of drought conditions and water restrictions.	Yes
I	Other	No person, firm or corporation may drill, dig or install a water well within the city service area or the city for any purpose without the consent of the city.	Yes
II	Other	Continue with action and measures from Stage I except where superseded by more stringent requirements.	Yes
II	Landscape - Other landscape restriction or prohibition	All schools, institutions, and dedicated irrigation customers, which do not already have one on file, shall be required to submit a copy of a water conservation plan and landscape watering schedule that meets a water reduction of twenty percent (20%) from previous use within thirty (30) days of the beginning of mandatory restrictions.	Yes

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
Add additional rows as needed			
II	Other - Prohibit use of potable water for construction and dust control	Use of potable water for dust control or construction is prohibited.	Yes
II	Landscape - Limit landscape irrigation to specific days	Irrigating outdoor landscapes or turf is limited to no more than two (2) days per week following schedules established by resolution of city council.	Yes
II	Pools and Spas - Require covers for pools and spas	All pools must be covered when not in use.	Yes
III	Other	Continue with action and measures from Stage II except where superseded by more stringent requirements.	Yes
III	Other water feature or swimming pool restriction	The filling of a pool, hot tub, or jacuzzi, except in cases where necessary repairs must be made, is prohibited. Exceptions: public pools, hot tubs, or jacuzzis or privately owned pools, hot tubs, or jacuzzis which are open to the general public for recreational purposes. However, the owner and/or manager of the pool, hot tub, or jacuzzi must provide notice to the public works director of such filling before it occurs. Water used in excess of the allotted usage will be subject to payment under the excess use rate schedule; however, no additional surcharges or fines will be assessed.	Yes
III	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Car washing shall be allowed only at facilities using recycled or recirculating water.	Yes
III	Other	Automobile and recreational vehicle dealerships shall be allowed to continue washing vehicles with a hose and a hand-held trigger nozzle under the following conditions: (1) Automobiles and recreational vehicles may be washed only on Fridays using the method outlined above. (2) An automobile, motorcycle, boat or motor home may be washed the day before or the day of delivery to the purchaser.	Yes
III	CII - Other CII restriction or prohibition	The owner and manager of every facility with a restroom on the premises open to the public shall post in every such public restroom a placard or decal with notice of drought condition information in a form approved by the public works director or designee.	Yes
III	Landscape - Limit landscape irrigation to specific days	Irrigating outdoor landscapes or turf is limited to no more than one (1) day per week following schedules established by resolution of city council.	Yes
IV	Other	Continue with action and measures from Stage III except where superseded by more stringent requirements.	Yes
IV	Other	Residential per capita consumption shall not exceed 50 gallons per capita per day. Excess water use will be subject to payment under the excess use rate schedule.	Yes
IV	Landscape - Prohibit all landscape irrigation	Use of potable water for irrigation is prohibited for all customers.	Yes
NOTES:			

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*
Add additional rows as needed		
Mandatory Prohibitions	Reduce System Water Loss	Provide notice to a customer when there is indication that a leak may exist within the end-user's exclusive control.
I	Other	Continue with actions and measures from Mandatory Prohibitions except where superseded by more stringent requirements.
I	Expand Public Information Campaign	Given the experience in the recent (2014-2016) drought, the City's reductions were substantially driven by State media campaigns. Therefore, at this stage of the WSCP, the City may rely on statewide media campaigns. If the State does not implement media campaigns, the City may: (1) Publicize the water shortage and conservation measures using a media campaign, newspaper articles, and website. (2) Promote water conservation programs. (3) Hold water efficiency workshops and public events. (4) Distribute water bill inserts with information about water shortage and conservation.
I	Other	The days and times during which residential, commercial and industrial uses of water are restricted shall be established by resolution of city council.
II	Other	Continue with action and measures from Stage I except where superseded by more stringent requirements.
II	Increase Water Waste Patrols	Schedule staff for enforcement and customer service.
II	Reduce System Water Loss	Accelerate leak detection and repair program.
II	Offer Water Use Surveys	Conduct surveys targeting high water users with CII, irrigation, and residential accounts.
III	Other	Continue with action and measures from Stage II except where superseded by more stringent requirements.
III	Decrease Line Flushing	Suspend routine flushing of water mains except when necessary to address immediate health or safety concerns.
IV	Other	Continue with action and measures from Stage III except where superseded by more stringent requirements.
IV	Implement or Modify Drought Rate Structure or Surcharge	Impose penalties for excess water usage that increase with increments of greater water use (a).
IV	Implement or Modify Drought Rate Structure or Surcharge	Implement excess water use surcharge.
IV	Reduce System Water Loss	Reduce distribution system pressures.
IV	Increase Water Waste Patrols	Increase enforcement and water waste patrols.
NOTES: (a) See text Table 7-6 for details on penalties and charges.		

Table 8-4 Retail: Minimum Supply Next Three Years			
	2018	2019	2020
Available Water Supply	11,708	11,877	11,947
NOTES:			

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
City of Lathrop	☑	☑
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
San Joaquin County	☑	☑
NOTES:		

APPENDIX B:
COORDINATION AND OUTREACH DOCUMENTATION

City of Lathrop

Department of Public Works
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390 Towne Centre Drive, Lathrop, CA 95330
Phone (209) 941-7430 – fax (209) 941-7449
www.ci.lathrop.ca.us

June 9, 2017

Brandon Nakagawa
Water Resource Coordinator
San Joaquin County Public Works
1810 East Hazelton Avenue
Stockton, CA 95205

Subject: **Notice of Preparation of Urban Water Management Plan - 2015 Update**

Dear Mr. Nakagawa:

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of Lathrop (City) to update its Urban Water Management Plan (UWMP) every five years. The City is currently reviewing its existing 2005 UWMP, which was adopted in 2009, as well as its draft 2010 UWMP, and considering revisions to the document. We invite the County's participation in this revision process.

A draft of the 2015 UWMP will be made available for public review and a public hearing will be scheduled later this year. In the meantime, if you would like more information regarding the City's UWMP and the schedule for preparing the 2015 UWMP, or if you would like to participate in the preparation of the 2015 UWMP, please contact Greg Gibson at:

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Sincerely,

Timothy McCoy
Director of Public Works

City of Lathrop

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June 9, 2017

Juston Collins
Public Works Superintendent
City of Escalon
2060 McHenry Ave.
Escalon, CA 95320

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June 9, 2017

Mark Houghton
Public Works Director
City of Manteca
1001 West Center Street
Manteca, CA 95337

Subject: **Notice of Preparation of Urban Water Management Plan - 2015 Update**

Dear Mr. Houghton:

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of Lathrop (City) to update its Urban Water Management Plan (UWMP) every five years. The City is currently reviewing its existing 2005 UWMP, which was adopted in 2009, as well as its draft 2010 UWMP, and considering revisions to the document. We invite your city's participation in this revision process.

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June 9, 2017

Peter M. Rietkerk
General Manager
South San Joaquin Irrigation District
P.O. Box 747
Ripon, CA 95366

Subject: **Notice of Preparation of Urban Water Management Plan - 2015 Update**

Dear Mr. Rietkirk:

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of Lathrop (City) to update its Urban Water Management Plan (UWMP) every five years. The City is currently reviewing its existing 2005 UWMP, which was adopted in 2009, as well as its draft 2010 UWMP, and considering revisions to the document. We invite your agency's participation in this revision process.

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June 9, 2017

Kuldeep Sharma
Director of Utilities
City of Tracy
333 Civic Center
Tracy, CA 95376

Subject: **Notice of Preparation of Urban Water Management Plan - 2015 Update**

Dear Mr. Sharma:

The Urban Water Management Planning Act (California Water Code §10608–10656) requires the City of Lathrop (City) to update its Urban Water Management Plan (UWMP) every five years. The City is currently reviewing its existing 2005 UWMP, which was adopted in 2009, as well as its draft 2010 UWMP, and considering revisions to the document. We invite your city's participation in this revision process.

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August 15, 2017

Brandon Nakagawa
Water Resource Coordinator
San Joaquin County Public Works
1810 East Hazelton Avenue
Stockton, CA 95205

Subject: **Notice of Preparation of Urban Water Management Plan - 2015 Update**

Dear Mr. Nakagawa:

This is to notify you that the Lathrop City Council will hold a public hearing on Monday, September 18, 2017, at or after 7:00 PM, in the City Hall Council Chamber, 390 Towne Centre Drive, to consider adopting the 2015 Urban Water Management Plan (UWMP). We invite the County's participation in the process.

An electronic copy of the draft 2015 UWMP is available for download at the following link https://ekiconsult.sharefile.com/d-s97e51c12d924f0e8.

Please direct all comments and questions regarding the City's draft UWMP 2015 to Greg Gibson, Senior Civil Engineer at:

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Please direct all comments and questions regarding the City's draft UWMP 2015 to Greg Gibson, Senior Civil Engineer at:

City of Lathrop
Department of Public Works
390 Towne Centre Drive
Lathrop, CA 95330
Phone: (209) 941-7442
Fax: (209) 941-7449
E-Mail: ggibson@ci.lathrop.ca.us

Sincerely,

Timothy McCoy
Director of Public Works

City of Lathrop

Department of Public Works
We are building a City!

390 Towne Centre Drive, Lathrop, CA 95330
Phone (209) 941-7430 – fax (209) 941-7449
www.ci.lathrop.ca.us

August 15, 2017

Mark Houghton
Public Works Director
City of Manteca
1001 West Center Street
Manteca, CA 95337

Subject: **Notice of Preparation of Urban Water Management Plan - 2015 Update**

Dear Mr. Houghton:

This is to notify you that the Lathrop City Council will hold a public hearing on Monday, September 18, 2017, at or after 7:00 PM, in the City Hall Council Chamber, 390 Towne Centre Drive, to consider adopting the 2015 Urban Water Management Plan (UWMP). We invite your city's participation in the process.

An electronic copy of the draft 2015 UWMP is available for download at the following link https://ekiconsult.sharefile.com/d-s97e51c12d924f0e8.

Please direct all comments and questions regarding the City's draft UWMP 2015 to Greg Gibson, Senior Civil Engineer at:

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Sincerely,

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www.ci.lathrop.ca.us

August 15, 2017

Peter M. Rietkerk
General Manager
South San Joaquin Irrigation District
P.O. Box 747
Ripon, CA 95366

Subject: **Notice of Preparation of Urban Water Management Plan - 2015 Update**

Dear Mr. Rietkirk:

This is to notify you that the Lathrop City Council will hold a public hearing on Monday, September 18, 2017, at or after 7:00 PM, in the City Hall Council Chamber, 390 Towne Centre Drive, to consider adopting the 2015 Urban Water Management Plan (UWMP). We invite your agency's participation in the process.

An electronic copy of the draft 2015 UWMP is available for download at the following link https://ekiconsult.sharefile.com/d-s97e51c12d924f0e8.

Please direct all comments and questions regarding the City's draft UWMP 2015 to Greg Gibson, Senior Civil Engineer at:

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Sincerely,

Timothy McCoy
Director of Public Works

City of Lathrop

Department of Public Works
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Phone (209) 941-7430 – fax (209) 941-7449
www.ci.lathrop.ca.us

August 15, 2017

Kuldeep Sharma
Director of Utilities
City of Tracy
333 Civic Center
Tracy, CA 95376

Subject: **Notice of Preparation of Urban Water Management Plan - 2015 Update**

Dear Mr. Sharma:

This is to notify you that the Lathrop City Council will hold a public hearing on Monday, September 18, 2017, at or after 7:00 PM, in the City Hall Council Chamber, 390 Towne Centre Drive, to consider adopting the 2015 Urban Water Management Plan (UWMP). We invite your city's participation in the process.

An electronic copy of the draft 2015 UWMP is available for download at the following link https://ekiconsult.sharefile.com/d-s97e51c12d924f0e8.

Please direct all comments and questions regarding the City's draft UWMP 2015 to Greg Gibson, Senior Civil Engineer at:

City of Lathrop
Department of Public Works
390 Towne Centre Drive
Lathrop, CA 95330
Phone: (209) 941-7442
Fax: (209) 941-7449
E-Mail: ggibson@ci.lathrop.ca.us

Sincerely,

Timothy McCoy
Director of Public Works

TRANSMITTAL

ATTN: LEGAL AD PUBLICATIONS

PLEASE PUBLISH**: September 1st and September 8th, 2017**

PLEASE FAX CONFIRMATION TO tvargas@ci.lathrop.ca.us

CITY OF LATHROP – PUBLIC HEARING NOTICE

Notice is hereby given that the City of Lathrop City Council will hold a Public Hearing meeting to consider the following proposals. Said meeting will be held at **7:00 p.m., Monday, September 18, 2017**, City Hall Council Chambers, 390 Towne Centre Dr., Lathrop, CA, at which time all interested parties may attend and be heard:

ADOPTION OF THE CITY OF LATHROP'S URBAN WATER MANAGEMENT PLAN - 2015, (DRAFT)

Council to Consider the Following:

1. Hold a Public Hearing; and
2. Adopt a Resolution of the City Council of the City of Lathrop Certifying and Adopting the City of Lathrop Urban Water Management Plan 2015

Copies of the City of Lathrop's Urban Water Management Plan – 2015 (Draft) report are available public for review and comment at the following locations:

- City of Lathrop website: http://www.ci.lathrop.ca.us/lathrop/newslist.aspx

- City of Lathrop, Public Works Department
  390 Towne Centre Drive, Lathrop, CA 95330

Please direct any questions or comments regarding the City's draft UWMP 2015 to:

Greg Gibson, Senior Civil Engineer
390 Towne Centre Drive
Lathrop, CA 95330
e-mail: ggibson@ci.lathrop.ca.us

If you challenge any decision of the City Council in court, you may be limited to raising only those issues you or someone else raised at the meeting described in this notice, or in written correspondence delivered to the City Council at, or prior to, the meeting.

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please call (209) 941-7230. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility.

TERESA VARGAS – CITY CLERK

APPENDIX C:
UWMP CHECKLIST

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	Section 1.1
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	Section 1.2
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	Appendix B
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Section 2
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Section 2.4
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Section 2.3
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Section 2.2
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Sections 2.3 and 4.1
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	Section 3
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	Section 3.1.3
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	Section 3.2.3
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	Section 4.3 and Appendix G

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	Section 4 and Appendix G
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply is the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	Section 4.3 and Appendix G
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	Section 4.4 and Appendix G
1608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	N/A
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	N/A
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	Section 4.5 and Appendix G
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Section 5
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Section 5.2
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	Section 5.2.2
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	Section 5.2.1

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	Section 5.2.1
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	Section 5.2.1
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.4	Section 5.2.3
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	Section 5.2.3.3
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Section 6.7	Section 5.4
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	Section 5.6
10631(i)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Section 5.5
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	Appendix B
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	N/A

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	Section 5.3.1
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	Section 5.3.2
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	Section 5.3.2
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	Section 5.3.3
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	Section 5.3.5
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	Section 5.3.5
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	Section 5.3.7
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	Section 5.3.7
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	Section 6.4

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	Section 6
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	Section 6.1
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	Section 6.4
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	Section 6.2
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	Section 6.3
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	Section 7
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three- year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	Section 7.12
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	Section 7.11
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Section 7.5
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Section 7.7

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10632(a)(6)	Indicate penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Section 7.6
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	Section 7.9
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Section 7.10 and Appendix H
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	Section 7.8
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	Sections 8
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	N/A
10631(j)	CUWCC members may submit their 2013- 2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	N/A
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	Section 9.3 and Appendix D

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	Section 9.1 and Appendix B
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	N/A
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Appendix M
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	Appendix B
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	Section 9.2 and Appendix B
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Appendix D
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	Appendix M
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Appendix M
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	Appendix M

CWC Section	UWMP requirement	Subject	Guidebook Location	UWMP Section
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	Appendix M

APPENDIX D:
RESOLUTION 2017-099, URBAN WATER MANAGEMENT PLAN, 2015 UPDATE

RESOLUTION 17-4301

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LATHROP CERTIFYING AND ADOPTING THE CITY OF LATHROP URBAN WATER MANAGEMENT PLAN 2015

WHEREAS, the State of California Urban Water Management Planning Act requires all urban water purveyors serving over 3,000 connections or over 3,000 acre-feet of water annually to prepare an Urban Water Management Plan (UWMP) every five years and submit the report to the Department of Water Resources (DWR); and

WHEREAS, for the past year, EKI is has been working with Staff and stakeholders in preparing an update to the City's Water Master Plan, and has developed the prerequisite information needed to prepare the City's UWMP 2015; and

WHEREAS, on June 5, 2017, EKI was awarded a contract to prepare the City's 2015 UWMP and working with Staff, a draft UWMP 2015 was prepared in accordance with UWMP Act requirements and using the UWMP 2015 guidelines published by DWR; and

WHEREAS, the draft UWMP 2015 has been posted on the City's website and a copy of the document and a copy of the document has been made available for public review at City Hall; and

WHEREAS, public notification soliciting public review and comment, and a public hearing on the UWMP 2015 has been done in accordance with the requirements of Government Code 6066.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Lathrop hereby certifies and adopts the City of Lathrop UWMP 2015 in accordance with the Urban Water Management Planning Act, and authorizes Staff to submit a copy of the report to the Department of Water Resources.

The foregoing resolution was passed and adopted this 2nd day of October 2017, by the following vote of the City Council, to wit:

AYES: Dresser, Elliott, Salcedo, and Akinjo

NOES: None

ABSENT: Dhaliwal

ABSTAIN: None

Paul Akinjo, ~~Vice~~ Mayor

ATTEST:

Teresa Vargas, City Clerk

APPROVED AS TO FORM:

Salvador Navarrete, City Attorney

APPENDIX E:
AWWA WATER LOSS SPREADHEET (FISCAL YEAR 2016-17)

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0
American Water Works Association.

? Click to access definition
+ Click to add a comment

Water Audit Report for: City of Lathrop (1020)
Reporting Year: 2016-2017 | 7/2016 - 6/2017

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

					Pcnt:	Value:	
Volume from own sources:	3	1,117.200	MG/Yr	3	0.00%		MG/Yr
Water imported:	7	96.450	MG/Yr	5	0.00%		MG/Yr
Water exported:	n/a	0.000	MG/Yr				MG/Yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 1,213.650 MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	7	1,163.926	MG/Yr			
Billed unmetered:	n/a	0.000	MG/Yr			
Unbilled metered:	n/a	0.000	MG/Yr			
Unbilled unmetered:	5	3.034	MG/Yr		3.034	MG/Yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: ? 1,166.960 MG/Yr

WATER LOSSES (Water Supplied - Authorized Consumption)

46.690 MG/Yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		3.034	MG/Yr	0.25%		MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	3	2.917	MG/Yr	0.25%		MG/Yr
Systematic data handling errors:		2.910	MG/Yr	0.25%		MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: ? 8.861 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 37.829 MG/Yr

WATER LOSSES: 46.690 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 49.724 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	9	101.9	miles
Number of active AND inactive service connections:	9	6,162	
Service connection density:		60	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	9	54.0	psi

COST DATA

Total annual cost of operating water system:	10	$5,940,848	$/Year	
Customer retail unit cost (applied to Apparent Losses):	9	$2.63	$/1000 gallons (US)	
Variable production cost (applied to Real Losses):	5	$354.40	$/Million gallons	☐Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 55 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Customer metering inaccuracies
3: Variable production cost (applied to Real Losses)

AWWA Free Water Audit Software: Water Balance

WAS v5.0

American Water Works Association.

Water Audit Report for:	City of Lathrop (1020)	
Reporting Year:	2016-2017	7/2016 - 6/2017
Data Validity Score:	55	

Own Sources (Adjusted for known errors): *1,117.200*

Water Imported: *96.450*

System Input: *1,213.650*

Water Exported: *0.000*

Water Supplied: *1,213.650*

Authorized Consumption: *1,166.960*

Water Losses: *46.690*

Billed Authorized Consumption: *1,163.926*

Unbilled Authorized Consumption: *3.034*

Apparent Losses: *8.861*

Real Losses: *37.829*

Billed Water Exported

Billed Metered Consumption (water exported is removed): *1,163.926*

Billed Unmetered Consumption: *0.000*

Unbilled Metered Consumption: *0.000*

Unbilled Unmetered Consumption: *3.034*

Unauthorized Consumption: *3.034*

Customer Metering Inaccuracies: *2.917*

Systematic Data Handling Errors: *2.910*

Leakage on Transmission and/or Distribution Mains: *Not broken down*

Leakage and Overflows at Utility's Storage Tanks: *Not broken down*

Leakage on Service Connections: *Not broken down*

Revenue Water: 0.000

Revenue Water: 1,163.926

Non-Revenue Water (NRW): 49.724

APPENDIX F:
BASELINE AND PROJECTED DEMANDS BY DEVELOPMENT AREA

Table F-1
Baseline Urban Water Demand by Development Area (a)

Land Use Designation	Existing Development Built After 2013	Units	Water Demand Factor	Existing Water Demand (AFY)
Central Lathrop				
			2013 Central Lathrop Water Demand	142
Schools/Institutional	*12*	*ac*	*2,100 gpd/ac*	*27.7*
			Total Estimated Water Demand for Existing Development Built After 2013	28
			Total Baseline Central Lathrop Water Demand	**170**
Mossdale Landing				
			2013 Mossdale Landing Water Demand	874
Low Density Residential	*136*	*du*	*430 gpd/du*	*66*
Medium Density Residential	*3*	*du*	*330 gpd/du*	*1.1*
			Total Estimated Water Demand for Existing Development Built After 2013	67
			Total Baseline Mossdale Landing Water Demand	**941**
Mossdale Landing East				
			2013 Mossdale Landing East Water Demand	192
Medium Density Residential	*17*	*du*	*330 gpd/du*	*6*
			Total Estimated Water Demand for Existing Development Built After 2013	6
			Total Baseline Mossdale Landing East Water Demand	**198**
Mossdale Landing South				
			2013 Mossdale Landing South Water Demand	69
Medium Density Residential	*1*	*du*	*330 gpd/du*	*0.4*
Parks	*4.8*	*ac*	*3,500 gpd/ac*	*18.8*
			Total Estimated Water Demand for Existing Development Built After 2013	19.2
			Total Baseline Mossdale Landing South Water Demand	**88**
Mossdale Landing - Other				
			2013 Mossdale Landing - Other Water Demand	0
			Total Estimated Water Demand for Existing Development Built After 2013	0
			Total Baseline Mossdale Landing - Other Water Demand	**0**
River Islands				
			2013 River Islands Water Demand	41
Low Density Residential	*449*	*du*	*430 gpd/du*	*216*
Commercial	*4.7*	*ac*	*1,300 gpd/ac*	*6.9*
Schools	*30*	*ac*	*2,100 gpd/ac*	*70.6*
Parks and Landscaping Parcels	*12*	*ac*	*3,500 gpd/ac*	*47*
			Total Estimated Water Demand for Existing Development Built After 2013	341
			Total Baseline River Islands Water Demand	**382**
South Lathrop				
			2013 South Lathrop Water Demand	0
			Total Estimated Water Demand for Existing Development Built After 2013	0
			Total Baseline South Lathrop Water Demand	**0**
Lathrop Gateway				
			2013 Lathrop Gateway Water Demand	0
			Total Estimated Water Demand for Existing Development Built After 2013	0
			Total Baseline Lathrop Gateway Water Demand	**0**
Crossroads				
			2013 Crossroads Water Demand	355
Industrial	*11*	*ac*	*1,400 gpd/ac*	*17*
			Total Estimated Water Demand for Existing Development Built After 2013	17
			Total Baseline Crossroads Water Demand	**373**
Historic Lathrop and Other Development Areas				
			2013 Historic Lathrop Water Demand	2,632
Low Density Residential	*27*	*du*	*430 gpd/du*	*13*
Commercial	*44*	*ac*	*1,300 gpd/ac*	*64*
Parks	*4.8*	*ac*	*3,500 gpd/ac*	*19*
			Total Estimated Water Demand for Existing Development Built After 2013	96
			Total Baseline Historic Lathrop Water Demand	**2,727**
			Total Baseline Urban Water Consumption	**4,878**
			Non-revenue Water (5%)	**244**
			TOTAL BASELINE URBAN WATER DEMAND	**5,122**

Notes:
(a) Does not include agricultural demands.

Table F-2
Projected Water Demand by Development Area

Land Use Designation	Updated Demand Factor	Projected New Water Demand (AFY) (a) 2020	2025	2030	2035	2040	Buildout
Central Lathrop							
Low Density Residential	430 gpd/du	289	524	961	961	961	2,937
Medium Density Residential	330 gpd/du	0	88	88	88	88	88
High Density Residential	265 gpd/du	0	81	81	81	81	134
Commercial	1,300 gpd/ac	28	56	85	116	173	406
Parks	3,500 gpd/ac	34	139	262	262	262	451
Schools	2,100 gpd/ac	0	42	42	42	42	128
Public Landscaping	3,500 gpd/ac	85	93	142	142	142	182
New Central Lathrop Demand		435	1,024	1,663	1,694	1,751	4,327
Existing Central Lathrop Demand		170	170	170	170	170	170
Projected Central Lathrop Demand		*605*	*1,194*	*1,833*	*1,864*	*1,921*	*4,497*
Mossdale Landing							
Low Density Residential	430 gpd/du	0	0	32	32	32	32
High Density Residential	265 gpd/du	18	18	18	18	18	18
Commercial	1,300 gpd/ac	0	2	2	9	9	9
Schools	2,100 gpd/ac	0	38	38	38	38	38
New Mossdale Landing Demand		18	59	91	97	97	97
Existing Mossdale Landing Demand		941	941	941	941	941	941
Projected Mossdale Landing Demand		*959*	*1,000*	*1,031*	*1,038*	*1,038*	*1,038*
Mossdale Landing East							
Low Density Residential	430 gpd/du	18	18	18	18	18	18
High Density Residential	265 gpd/du	16	16	16	39	62	62
Commercial	1,300 gpd/ac	0	18	18	43	43	43
New Mossdale Landing East Demand		34	52	52	100	123	123
Existing Mossdale Landing East Demand		198	198	198	198	198	198
Projected Mossdale Landing East Demand		*232*	*250*	*250*	*298*	*321*	*321*
Mossdale Landing South							
Medium Density Residential	330 gpd/du	0	24	24	51	51	51
High Density Residential	265 gpd/du	45	45	45	45	45	45
Commercial	1,300 gpd/ac	0	0	0	0	19	19
Parks	3,500 gpd/ac	0	16	16	16	16	16
New Mossdale Landing South Demand		45	84	84	111	130	130
Existing Mossdale Landing South Demand		88	88	88	88	88	88
Projected Mossdale Landing South Demand		*132*	*172*	*172*	*199*	*218*	*218*
Mossdale Landing - Other							
Low Density Residential	430 gpd/du	0	0	0	0	0	317
New Mossdale Landing Sylveria Demand		0	0	0	0	0	317
Existing Mossdale Landing Sylveria Demand		0	0	0	0	0	0
Projected Mossdale Landing Sylveria Demand		*0*	*0*	*0*	*0*	*0*	*317*
River Islands							
Low Density Residential	430 gpd/du	731	1,506	2,187	3,086	3,755	3,755
Medium Density Residential	330 gpd/du	94	215	322	464	569	569
High Density Residential	265 gpd/du	0	119	359	359	359	359
Commercial	1,300 gpd/ac	15	87	218	364	466	466
Schools	2,100 gpd/ac	26	80	214	240	266	266
Animal Campus	2,100 gpd/ac	0	24	24	24	24	24
Parks and Landscaping Parcels	3,500 gpd/ac	94	239	396	537	643	643
New River Islands Demand		959	2,270	3,720	5,074	6,082	6,082
Existing River Islands Demand		382	382	382	382	382	382
Projected River Islands Demand		*1,340*	*2,652*	*4,102*	*5,455*	*6,464*	*6,464*
South Lathrop							
Light Industrial / R&D Flex	1,400 gpd/ac	258	347	347	347	347	381
Office Commercial	1,300 gpd/ac	0	13	13	13	13	13
Open Space	3,500 gpd/ac	27	27	27	27	27	27
Public Landscaping	3,500 gpd/ac	3	3	3	3	3	3
New South Lathrop Demand		288	389	389	389	389	423
Existing South Lathrop Demand		0	0	0	0	0	0
Projected South Lathrop Demand		*288*	*389*	*389*	*389*	*389*	*423*
Lathrop Gateway							
Light Industrial / R&D Flex	1,400 gpd/ac	0	0	0	0	263	263
Office Commercial	1,300 gpd/ac	0	0	0	0	203	203
Open Space	3,500 gpd/ac	0	0	0	0	6	6
New Lathrop Gateway Demand		0	0	0	0	473	473
Existing Lathrop Gateway Demand		0	0	0	0	0	0
Projected Lathrop Gateway Demand		*0*	*0*	*0*	*0*	*473*	*473*
Crossroads							
Industrial	1,400 gpd/ac	99	102	102	102	138	138
Commercial	1,300 gpd/ac	3	32	32	32	32	32
New Crossroads Demand		102	134	134	134	170	170
Existing Crossroads Demand		373	373	373	373	373	373
Projected Crossroads Demand		*475*	*507*	*507*	*507*	*543*	*543*
Historic Lathrop and Other Development Areas							
Low Density Residential	430 gpd/du	3	6	9	12	14	16
Medium Density Residential	330 gpd/du	10	20	30	39	49	58
High Density Residential	265 gpd/du	1	3	4	5	6	7
Commercial	1,300 gpd/ac	20	59	71	82	94	131
Industrial	1,400 gpd/ac	129	193	193	193	193	417
New Historic Lathrop / Other Demand		163	280	306	331	356	631
Existing Historic Lathrop / Other Demand		2,727	2,727	2,727	2,727	2,727	2,727
Projected Historic Lathrop / Other Demand		*2,891*	*3,008*	*3,033*	*3,059*	*3,083*	*3,358*
Sharpe Army Depot							
Industrial	- -	16	16	16	16	16	16
New Sharpe Army Depot Demand		16	16	16	16	16	16
Existing Sharpe Army Depot Demand		0	0	0	0	0	0
Projected Sharpe Army Depot Demand		*16*	*16*	*16*	*16*	*16*	*16*
Total Projected New Urban Consumption		2,059	4,308	6,454	7,946	9,586	12,787
Agricultural Consumption (b)		66	66	66	66	0	0
Baseline Urban Consumption		**4,878**	**4,878**	**4,878**	**4,878**	**4,878**	**4,878**
Total Urban and Agricultural Non-revenue Water (5%)		350	463	570	645	723	883
TOTAL PROJECTED DEMAND		**7,354**	**9,714**	**11,968**	**13,535**	**15,188**	**18,549**

Notes:
(a) Projected residential water demand calculated as the total number of projected residential dwelling units (Table 2-1) multiplied by the applicable water demand factor (Table 3-4). Projected non-residential water demand calculated as the total projected acreage (Table 2-1) multiplied by the applicable water demand factor (Table 3-4).
(b) Agricultural consumption is assumed to be the full allocation at 66 AFY to the City's single agricultural customer and will be replaced by development at Lathrop Gateway.

APPENDIX G:
SBX7-7 COMPLIANCE TABLES

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	4,529	Acre Feet
	2008 total volume of delivered recycled water	29	Acre Feet
	2008 recycled water as a percent of total deliveries	0.64%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	2000	
	Year ending baseline period range[3]	2009	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range[4]	2007	

[1] If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. *[2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.*

[3] The ending year must be between December 31, 2004 and December 31, 2010.

[4] The ending year must be between December 31, 2007 and December 31, 2010.

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☑	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	2000	10,445
Year 2	2001	10,802
Year 3	2002	11,616
Year 4	2003	12,089
Year 5	2004	12,482
Year 6	2005	12,768
Year 7	2006	14,489
Year 8	2007	16,271
Year 9	2008	17,282
Year 10	2009	17,589
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2003	12,089
Year 2	2004	12,482
Year 3	2005	12,768
Year 4	2006	14,489
Year 5	2007	16,271
2015 Compliance Year Population		
2015		20,796
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year *Fm SB X7-7 Table 3*		Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	Deductions					Annual Gross Water Use
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	2000	2,518			-		-	2,518
Year 2	2001	2,689			-		-	2,689
Year 3	2002	3,105			-		-	3,105
Year 4	2003	3,326			-		-	3,326
Year 5	2004	3,471			-		-	3,471
Year 6	2005	3,372			-		-	3,372
Year 7	2006	3,640			-		-	3,640
Year 8	2007	4,076			-		-	4,076
Year 9	2008	4,528			-		-	4,528
Year 10	2009	4,214			-		-	4,214
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**3,494**
5 Year Baseline - Gross Water Use								
Year 1	2003	3,326			-		-	3,326
Year 2	2004	3,471			-		-	3,471
Year 3	2005	3,372			-		-	3,372
Year 4	2006	3,640			-		-	3,640
Year 5	2007	4,076			-		-	4,076
5 year baseline average gross water use								**3,577**
2015 Compliance Year - Gross Water Use								
2015		3,445	-		-		-	**3,445**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source	Groundwater
This water source is:	
☑	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2000	2,518		2,518
Year 2	2001	2,689		2,689
Year 3	2002	3,105		3,105
Year 4	2003	3,326		3,326
Year 5	2004	3,471		3,471
Year 6	2005	2,613		2,613
Year 7	2006	1,981		1,981
Year 8	2007	2,062		2,062
Year 9	2008	3,116		3,116
Year 10	2009	2,561		2,561
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2003	3,326		3,326
Year 2	2004	3,471		3,471
Year 3	2005	2,613		2,613
Year 4	2006	1,981		1,981
Year 5	2007	2,062		2,062
2015 Compliance Year - Water into Distribution System				
2015		3,204		3,204

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution				
Name of Source	SCWSP			
This water source is:				
☐	The supplier's own water source			
☑	A purchased or imported source			
Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2,000	0		0
Year 2	2,001	0		0
Year 3	2,002	0		0
Year 4	2,003	0		0
Year 5	2,004	0		0
Year 6	2,005	759		759
Year 7	2,006	1659		1,659
Year 8	2,007	2014		2,014
Year 9	2,008	1412		1,412
Year 10	2,009	1653		1,653
Year 11	-			0
Year 12	-			0
Year 13	-			0
Year 14	-			0
Year 15	-			0
5 Year Baseline - Water into Distribution System				
Year 1	2,003	0		0
Year 2	2,004	0		0
Year 3	2,005	759		759
Year 4	2,006	1659		1,659
Year 5	2,007	2014		2,014
2015 Compliance Year - Water into Distribution System				
2015		241		241
** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*				
NOTES:				

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2000	10,445	2,518	215
Year 2	2001	10,802	2,689	222
Year 3	2002	11,616	3,105	239
Year 4	2003	12,089	3,326	246
Year 5	2004	12,482	3,471	248
Year 6	2005	12,768	3,372	236
Year 7	2006	14,489	3,640	224
Year 8	2007	16,271	4,076	224
Year 9	2008	17,282	4,528	234
Year 10	2009	17,589	4,214	214
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**230**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2003	12,089	3,326	246
Year 2	2004	12,482	3,471	248
Year 3	2005	12,768	3,372	236
Year 4	2006	14,489	3,640	224
Year 5	2007	16,271	4,076	224
5 Year Average Baseline GPCD				**236**
2015 Compliance Year GPCD				
2015		20,796	3,445	**148**
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	230
5 Year Baseline GPCD	236
2015 Compliance Year GPCD	148
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☐	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☐	Method 3	SB X7-7 Table 7-E
☑	Method 4	Method 4 Calculator
NOTES:		

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
236	224	188	**188**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.

[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
188	230	**209**
NOTES:		

SB X7-7 Table 9: 2015 Compliance								
Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments *(in GPCD)*			TOTAL Adjustments	Adjusted 2015 GPCD	2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
		Enter "0" if Adjustment Not Used						
		Extraordinary Events	Weather Normalization	Economic Adjustment				
148	209	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	-	148	148	**YES**
NOTES:								

User Input -- Provisional Method 4 Target

Target Calculation Option (select one): * Calculate Targets Using Default Indoor Residential Savings

* = Required Data

Water Supplier Name: * City of Lathrop

10-15 Year Baseline Water Use Information

Baseline Period: * 2000-2010

Midpoint of Baseline Period: 2005

Baseline Water Use GPCD: * 230.0

Population in Midpoint Year: * 12,768

5 Year Baseline Water Use Information

Baseline Period: * 2003-2007

Baseline Water Use GPCD: * 236.0

95% of 5-Year Baseline GPCD: 224.2

Unmetered Connections

Number of Unmetered Connections in 2005: * 0

Water Use By Unmetered Connections In 2005: * 0 Acre-Feet

Baseline CII Water Use[1]

CII Water Use in 2005: * 915 Acre-Feet

Per Capita Use: 64.0 GPCD

[1]CII = Commercial, Industrial, Institutional.

If you have chosen to calculate targets using the Default Indoor Residential Savings, you do not need to complete the remaining tables.
Go to the "Calculated Targets" worksheet.

Target Calculation -- Provisional Method 4 Target

Step 1. Calculation of Landscape Water Use and System Water Loss

Urban Supplier	2000-2010 Baseline GPCD	—	Assumed Indoor Residential per Capita Water Use GPCD	—	CII per Capita Water Use GPCD	=	Estimated Landscape Water Use and System Water Loss GPCD
City of Lathrop	230.0		70.0		64.0		96.0

Step 2. Calculation of Savings Using BMP Calculators

(Alternate) STEP 2 BEING USED TO CALCULATE TARGET

Urban Supplier	Indoor Residential Savings Calculators					+	Metering Savings BMP 1.3	+	CII Savings BMP 4	+	Land-scape + Water Loss Savings 21.6%	=	Total Savings GPCD
	Single Family Toilets	Multi Family Toilets	Resi-dential Washers	Resi-dential Showers	Total IR Savings								
City of Lathrop	XXXX	XXXX	XXXX	XXXX	XXXX		XXXX		XXXX		XXXX		XXXX

(Alternate) Step 2. Calculation of Savings Using Default Indoor Residential Savings

Urban Supplier	Default Resi-dential Indoor Savings	+	Metering Savings BMP 1.3	+	CII Savings BMP 4	+	Land-scape + Water Loss Savings 21.6%	=	(alt) Total Savings GPCD
City of Lathrop	15.0		0.0		6.4		20.7		42.1

Step 3. Calculation of Urban Water Use Targets

Urban Supplier	2000-2010 Baseline GPCD	—	Total Savings GPCD	=	**Computed 2020 Target GPCD**	→	**Less Than 95% of 5-Year Baseline**	→	**Final 2020 Target**	→	**Final 2015 Target**
City of Lathrop	230.0		42.1		**187.9**		**TRUE**		**187.9**		**208.9**

APPENDIX H:
DRAFT WATER SHORTAGE CONTINGENCY PLAN ORDINANCE

ORDINANCE NO._____

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF LATHROP AMENDING LATHROP MUNICIPAL CODE SECTION 13.08 WATER CONSERVATION AND RATIONING IN ACCORDANCE WITH THE CITY OF LATHROP'S UWMP 2015 AND WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, on January 17, 2014, Governor Edmund G. Brown Jr. declared a Drought State of Emergency for the State of California due to the possibility of dramatically less water for California's farms and communities, as well as increased risk of fires in urban and rural areas; and

WHEREAS, on July 15, 2014 the SWRCB approved an emergency regulation to ensure agencies and state residents increase water conservation in urban settings or face possible fines or other enforcement; and

WHEREAS, on August 18, 2014 the City held a public hearing and adopted an urgency ordinance amending the Lathrop Municipal Code (LMC) 13.08.180 – Phase II Water Restrictions to meet the emergency mandatory water conservation regulations targeted to achieve a 20% reduction in water use (as compared to 2013 consumption); and

WHEREAS, on March 27, 2015 the State submitted an emergency regulation to keep the 2014 drought emergency water conservation measures in effect; and

WHEREAS, On April 1, 2015, Governor Edmund G. Brown Jr. issued an Executive Order that required the State Water Resources Control Board (SWRCB) to impose restrictions to achieve a state-wide 25% reduction in potable urban water usage compared to the amount used in 2013; and

WHEREAS, On May 5, 2015, the SWRCB adopted the mandatory conservation measures in response to the Governor's Order; and

WHEREAS, On June 15, 2015 the City held a public hearing and adopted an urgency ordinance to declare an emergency drought condition, to continue Phase II Water Restrictions per LMC 13.08.180, modify and establish Phase III Mandatory Water Conservation Measures per 13.08.190 and to suspend LMC 13.08.280; and

WHEREAS, On May 9, 2016 Governor Edmund G. Brown Jr. issued an Executive Order Making Water Conservation a California Way of Life and directing State agencies to update temporary water restrictions and transition to permanent, long term improvements in water use; and

WHEREAS, On April 7, 2017 Governor Edmund G. Brown Jr. issued an Executive Order that terminated the January 17, 2014 drought emergency for all counties in the State except the Counties of Fresno, Kings, Tulare, and Tuolumne, and directed the SWRCB to continue the development of permanent prohibitions on wasteful waster use such as:

- Hosing off sidewalks, driveways and other hardscapes;
- Washing automobiles with hoses not equipped with a shut-off nozzle;
- Using non-recirculated water in a fountain or other decorative water feature;
- Watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation;
- Irrigating ornamental turf on public street medians; and

WHEREAS on June 5, 2017 the City approved an agreement with EKI Environment & Water, Inc. to prepare the City of Lathrop's 2015 Urban Water Management Plan and also in June 2017, Staff approved a contract amendment to EKI's agreement to prepare an update to the City's Water Shortage Contingency Plan in parallel with the UWMP effort; and

WHEREAS, amendments to LMC 13.08 Water Conservation and Rationing are necessary to update the water conservation measures to be consistent with the recent State legislation and the City of Lathrop's UWMP 2015 and associated Water Shortage Contingency Plan.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF LATHROP DOES HEREBY ORDAIN AS FOLLOWS:

Note: additions are shown below in underline font, deletions are shown in strikeout font.

… LMC 13.08.120 Mandatory Requirements in Promotion of Water Conservation

A. To prevent the waste and unreasonable use of water and to promote water conservation, each of the following actions is prohibited, except where necessary to address an immediate health and safety need or to comply with a term or condition in a permit issued by a state or federal agency:

1. The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;

2. The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use;

3. The application of potable water to driveways and sidewalks;

4. The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system;

5. The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall;
6. The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased;
7. The irrigation with potable water of ornamental turf on public street medians;

B. To promote water conservation, operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.

C. To prevent waste of water, all controllable leaks must be repaired on premises.

LMC 13.08.~~120~~130 Enactment of emergency water conditions.

Enactment of this chapter shall cause the immediate implementation of ~~Phase I voluntary conservation~~ Mandatory Requirements as set forth in Section 13.08.~~170~~120. ~~Phases~~ Stages ~~II~~ through IV are established to achieve subsequent reductions in potable water consumption of ten percent (10%), ~~fifteen~~ twenty percent (~~15~~30%), ~~twenty five~~ thirty percent (~~25~~30%), and fifty percent (50%) and more as deemed necessary due to drought conditions or other prolonged water emergencies. ~~Phase~~ Stage changes shall be implemented by resolution following a duly noticed public hearing, and shall be based upon the procedures as set forth in Sections 13.08.~~130~~140 and 13.08.~~140~~150. Affected customers shall be notified of ~~phase~~ stage changes either by notice on the utility bill, or by actual written notification.

LMC 13.08.~~130~~140 Drought declaration.

The city council shall declare a drought and may direct the public works director to implement all provisions of Sections 13.08.~~150~~160 through 13.08.290 by resolution action when one or more of the following conditions exist:

A. The ground water basin reaches ten (10) feet below normal pumping levels.

B. A drought is declared by the Governor of California covering the water sources used by the city, and subsequent reductions of water supplied to the city will occur or are likely to occur.

C. Any unusual situation or circumstance which affects the quantity or quality of the water supply.

LMC 13.08.~~140~~150 Water emergency declaration.

The city council shall declare a water emergency and may direct the public works director to implement appropriate water conservation and/or rationing requirements consistent with this chapter when one or more of the following conditions exist:

A. A decrease in the ability to draw ground water due to well contamination, well failure or other equipment or system failure, and no alternative source of water is available;

B. Contamination of the water system;

C. Natural disasters affecting water deliveries;

D. During times of floods which would affect water quality;

E. Sabotage or threats of sabotage against the water system;

F. Any unusual situation or circumstance which affects the quantity or quality of the water supply.

LMC 13.08.~~150~~160 Implementation of water conservation and rationing.

The public works director shall be charged with the implementation of the provisions contained within this chapter, and of any other applicable restrictions or requirements set forth in this chapter.

LMC 13.08.~~160~~170 Amendments to water conservation and rationing plan.

The provisions of this chapter relating to the water conservation and rationing plan may be amended as deemed necessary by the city council.

~~LMC 13.08.170 Phase I—Voluntary water conservation.~~

~~No restrictions other than the prohibition of excessive runoff shall be imposed in this phase. However, residents and businesses are requested to practice prudent water conservation measures. Examples of useful water conservation measures are as follows:~~

~~A. Watering after seven p.m. in the evening and before ten a.m. in the morning. Controlling water runoff;~~

~~B. Repairing all controllable leaks on premises;~~

~~C. Using a hand-held sprayer with a trigger handle when washing automobiles is required. The washing of building exteriors, sidewalks, and the like is prohibited except in the case of spillage of substances which could cause a threat to the public health or the environment.~~

LMC 13.08.180 Stage I—10% Reduction Goal.

Stage I shall have a ten percent (10%) city-wide reduction goal. All provisions of Mandatory Requirements as set forth in Section 13.08.120 shall apply with the following additions and exceptions:

A. Irrigating outdoor landscapes or turf is limited to no more than three (3) days per week following schedules established by resolution of city council.

B. Irrigating outdoor landscape or turf is only permitted after seven p.m. in the evening and before ten a.m. in the morning;

C. The water of landscapes at times and on days other than those specified by city council in this section or during high winds that cause water to blow away from the landscapes being watered is prohibited.

D. Irrigation with potable water outside of newly constructed homes and buildings that is not delivered by drip or microspray systems is prohibited.

E. The use of potable water for street washing is prohibited.

F. All leaks must be repaired within 24 hours.

G. Restaurants shall post at every table and in restrooms notice of drought conditions and water restrictions.

H. No person, firm or corporation may drill, dig or install a water well within the city service area or the city for any purpose without the consent of the city.

~~LMC 13.08.180 Phase II—Water restrictions.~~

~~Phase II shall have a fifteen percent (15%) city-wide reduction goal. The following restrictions shall apply:~~

~~A. The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited.~~

~~B. No watering is permitted on Monday.~~

~~C. All commercial and industrial customers shall water only on Tuesday and Friday before ten a.m. or after seven p.m.~~

~~D. Customers shall repair all controllable leaks on the premises.~~

~~E. Use of a hand-held sprayer with a trigger handle when washing automobiles is required. The washing of building exteriors, sidewalks and the like is prohibited except in the case of spillage of substances which could cause a threat to the public health or the environment.~~

~~F. All ornamental fountains shall be turned off with the exception of fountains employing the use of water-recycling equipment.~~

~~G. The water of landscapes at times and on days other than those specified in this section or during high winds that cause water to blow away from the landscapes being watered is prohibited.~~

~~H. Restrictions in this phase and the following phases do not apply to water used from reclamation, on-site sources or water delivered to a site from a source other than the city. On-site sources must be equipped with an approved backflow device. The customer will be burdened to demonstrate that an on-site source is separate from the city's water supply.~~

~~I. No person, firm or corporation may drill, dig or install a water well within the city service area or the city for any purpose without the consent of the city.~~

~~J. Residents with odd-numbered addresses may water only on Wednesday and Sunday before ten a.m. or after seven p.m. Residents with even-numbered addresses may water only on Tuesday and Saturday before ten a.m. or after seven p.m.~~

~~K. The days and times during which residential, commercial and industrial uses of water are restricted shall be established by resolution of city council.~~

LMC 13.08.190 Stage II—20% Reduction Goal.

Stage II shall have a twenty percent (20%) city-wide reduction goal. All provisions of Stage I shall apply with the following additions and exceptions:

A. All schools, institutions, and dedicated irrigation customers, which do not already have one on file, shall be required to submit a copy of a water conservation plan and landscape watering schedule that meets a water reduction of twenty percent (20%) from use prior to drought declaration within thirty (30) days of the beginning of mandatory restrictions.

B. Use of potable water for dust control or construction is prohibited.

C. Irrigating outdoor landscapes or turf is limited to no more than two (2) days per week following schedules established by resolution of city council.

D. All pools must be covered when not in use.

~~LMC 13.08.190 Phase III—Water conservation.~~

~~Phase III shall have a twenty-five percent (25%) city-wide reduction goal. The following mandatory water conservation measures and water restrictions shall apply:~~

~~A. The watering of landscapes at times and on days other than those specified in this section or during high winds that create water to blow away from the landscapes being watered is prohibited. The days and times which residential, commercial and industrial uses are permitted shall be established by resolution of city council. Irrigation with potable water of ornamental turf on public street medians is prohibited. Irrigating outdoors during and within forty-eight (48) hours following measurable rainfall is prohibited. The use of potable water outside of newly constructed homes and buildings not in accordance with emergency regulations or other requirements established by the building standards commission and the department of housing and community development is prohibited.~~

~~B. The washing of commercial or noncommercial sidewalks, driveways, porches or other outdoor surfaces is prohibited, except in instances where a spill of a hazardous material or other substance which creates a public nuisance occurs and where it is not feasible to clean the affected area in any other manner. The use of a bucket is not prohibited at any time for cleaning food, grease, oil, or other stains from surfaces.~~

~~C. No restaurant may serve water except upon customer request. Restaurants shall post at every table and in restrooms notice of drought conditions and water restrictions. Acceptable methods of notification to patrons include notices or table tents placed on the tables or in the menus and in restrooms in a form approved or provided by the public works director or designee.~~

~~D. The owner and/or manager of every hotel, motel, inn, guest house, and every other short-term commercial lodging, must offer their guests the option to not have their linens and towels laundered daily, and shall post notice of drought condition information in every guest room, in a form approved or provided by the public works director or designee.~~

~~E. Water conservation plans and landscape watering schedules may be required in the following circumstances: all industrial customers, schools, golf courses, parks and cemeteries, public or private, which do not already have one on file, shall be required to submit a copy of a water conservation plan and landscape watering schedule that meets a water reduction of twenty-five percent (25%) from previous use within thirty (30) days of the beginning of mandatory restrictions.~~

LMC 13.08.200 Stage III—30% Reduction Goal.

Stage III shall have a thirty percent (30%) city-wide reduction goal. All provisions of Stage II shall apply with the following additions and exceptions:

A. The filling of a pool, hot tub, or jacuzzi, except in cases where necessary repairs must be made, is prohibited. Exceptions: public pools, hot tubs, or jacuzzis or privately owned pools, hot tubs, or jacuzzis which are open to the general public for recreational purposes. However, the owner and/or manager of the pool, hot tub, or jacuzzi must provide notice to the public works director of such filling before it occurs. Water used in excess of the allotted usage will be subject to payment under the excess use rate schedule; however, no additional surcharges or fines will be assessed.

B. Car washing shall be allowed only with the use of a bucket at facilities using recycled or recirculating water.

C. Automobile and recreational vehicle dealerships shall be allowed to continue washing vehicles with a hose and a hand-held trigger nozzle under the following conditions:

   1. Automobiles and recreational vehicles may be washed only on Fridays using the method outlined above.

   2. An automobile, motorcycle, boat or motor home may be washed the day before or the day of delivery to the purchaser.

D. No restrictions shall be made to existing laundromats.

E. No restrictions shall be made to car washes employing the use of water recycling equipment.

F. The owner and manager of every facility with a restroom on the premises open to the public shall post in every such public restroom a placard or decal with notice of drought condition information in a form approved by the public works director or designee.

G. Irrigating outdoor landscapes or turf is limited to no more than one (1) day per week following schedules established by resolution of city council.

~~LMC 13.08.200 Phase IV—Mandatory water conservation.~~

~~Phase IV has a fifty percent (50%) city-wide reduction goal. Per capita consumption will be allocated at one hundred (100) gallons per capita per day. All other provisions of Phase III mandatory restrictions shall apply with the following additions and exceptions:~~

~~A. The filling of a hot tub or jacuzzi, except in cases where necessary repairs must be made, is prohibited. Exceptions: public hot tubs or jacuzzis or privately owned hot tubs or jacuzzis which are open to the general public for recreational purposes. However, the owner and/or manager of the hot tub or jacuzzi must provide notice to the public works director of such filling before it occurs. Water used in excess of the allotted usage will be subject to payment under the excess use rate schedule; however, no additional surcharges or fines will be assessed.~~

~~B. Car washing shall be allowed only with the use of a bucket.~~

~~C. Automobile and recreational vehicle dealerships shall be allowed to continue washing vehicles with a hose and a hand-held trigger nozzle under the following conditions:~~

~~1. Automobiles and recreational vehicles may be washed only on Fridays using the method outlined above.~~

~~2. An automobile, motorcycle, boat or motor home may be washed the day before or the day of delivery to the purchaser.~~

~~D. No restrictions shall be made to existing laundromats.~~

~~E. No restrictions shall be made to car washes employing the use of water recycling equipment.~~

~~F. The owner and manager of every facility with a restroom on the premises open to the public shall post in every such public restroom a placard or decal with notice of drought condition information in a form approved by the public works director or designee.~~

LMC 13.08.210 Stage IV—50% Reduction Goal.

Stage IV shall have a fifty percent (50%) city-wide reduction goal. All provisions of Stage III shall apply with the following additions and exceptions:

A. Residential per capita consumption shall not exceed 50 gallons per capita per day. Excess water use will be subject to payment under the excess use rate schedule.

B. Use of potable water for irrigation is prohibited for all customers.

LMC 13.08.~~210~~220 Temporary rate increases.

When drought conditions or water emergency conditions prevail for more than two months, it may become necessary to implement a temporary rate increase to cover lost revenues due to water consumption reductions. Rates shall be increased as recommended by the public works director and at the council's discretion when it is determined that revenues are inadequate to maintain the water enterprise. Such increase will be accomplished by resolution action.

LMC 13.08.~~220~~230 Excess water use surcharge.

A. Water use in excess of the maximum ration allowed in any billing period during ~~Phase~~ Stage IV water rationing will cause the automatic imposition of a use fee/surcharge to the customer.

B. The water user shall be given written notice of any water use in excess of that user's water ration, and notice of an excess water use surcharge shall be collected as a fee on the user's utility bill in the event the water user again exceeds that user's water ration during the next billing cycle.

C. If the water user again exceeds that user's water ration during the following billing period, the excess use fee shall be imposed as a surcharge upon all water use in excess of that user's water ration, dating back to the original billing period for which notice of excess use had been given and extending forward until the water user consumes no more than allowed under the ~~Phase~~ Stage IV rationing standard.

D. Excess water use surcharges shall be calculated as a fee for water use, and shall be calculated as follows:

Excess Water Use	Surcharge
1 — 5 units over base	$12.50/unit
6 — 10 units over base	15.00/unit
11 — 15 units over base	17.50/unit
16 — 25 units over base	30.00/unit
26 — 50 units over base	42.50/unit
More than 50 units over base	100.00/unit

E. The fee shall apply to all water use in excess of the maximum ration applicable to that user. The public works director and designee, following the notification requirement set forth above, shall cause this surcharge to be collected directly from any water user if that user exceeds the monthly ~~Phase~~ Stage IV water ration. Any water user may seek to have the excess water use surcharge waived or forgiven through the rationing variance process set forth in Section 13.08.~~230~~240 upon substantial evidence of the following:

1. The excess water use was beyond the user's control, and was not reasonably correctable due to special and unique circumstances.
2. An incident or condition occurred where public health or safety would have been threatened by decreased water usage.

LMC 13.08.~~230~~240 Variances on usage restrictions or usage allotments.

A. The public works director or designee shall document the number of full time residents for each residential water use, but shall presume each residence has only one occupant for those residences who fail to respond to any reasonable inquiry. The public works director or designee shall also document the type and character of any commercial, industrial or public authority requesting a variance in the assigned water allotment in ~~Phase~~ Stage IV of this subchapter. The public works director or designee shall maintain a separate file of each rationing variance request, and the response to that request. This file shall be available for public inspection during regular business hours.

B. The public works director or designee may grant variances for uses of water otherwise prohibited or adjust any consumer's usage allotment if the public works director or designee finds and determines that to fail to do so would cause an emergency condition affecting health, sanitation or fire protection of the applicant or public.

LMC 13.08.~~240~~250 Appeals.

Any water service customer who considers an action taken by the public works director under the provisions of this chapter to have been erroneously taken may appeal such action and decision to the city council in the following manner:

A. All appeals shall be filed in writing with the secretary of the city and shall state the nature of the appeal or request and the basis upon which the decision of the public works director is considered to be in error.

B. Such appeals, to be effective, must be received by the secretary of the city not later than ten (10) business days following the date that the public works director has given notice of such action from which the appeal is being taken and be accompanied by a fee of fifty dollars ($50.00). The fee of fifty dollars ($50.00) will be refunded if the appeal is granted.

C. The city clerk shall schedule the appeal for consideration by the city council at the earliest next regularly scheduled council meeting.

D. The decision of the city council on the appeals shall be final.

E. A successful appeal by an applicant shall include reimbursement, if any, of an excess use fee by the city in a timely fashion.

LMC 13.08.~~250~~260 Temporary water service.

Notwithstanding any other provisions of this chapter, no restriction or prohibition is imposed upon applications, approvals or installations of water service facilities solely for temporary service to those construction works which are entitled to permanent water service facilities under the terms of this chapter.

~~LMC 13.08.260 Residential lifeline exception.~~

~~Notwithstanding any reduction of water use which would otherwise be required of residential water users pursuant to the mandatory percentage reductions as set forth in this chapter, no residential household shall be required to reduce water consumption below the following per capita standards:~~

~~A. Single-family detached dwelling units (houses): one hundred (100) gallons per day per capita;~~

~~B. Multifamily and clustered dwelling units (apartments, duplexes, condominiums and the like): seventy-five (75) gallons per day per capita;~~

~~C. Livestock, Horses and Cows. Livestock, horses and cows shall be allotted an additional one hundred (100) cubic feet bi-monthly per animal. The customer shall submit documentation on all animals. Domestic animals shall not be considered under this application.~~

LMC 13.08.270 Repair of plumbing, sprinkler and watering systems.

No owner or manager or other person responsible for the day-to-day operation of any premises shall fail to initiate steps to repair any leaking,

broken or defective water pipes, faucets, plumbing fixtures, other water service appliances, sprinklers, watering or watering systems within five working days after the owner, or manager or other responsible person knew or should have known of such leaks, breaks or defects.

LMC 13.08.280 Use of fresh water for construction uses prohibited.

The use of fresh water for dust control or for construction purposes shall be prohibited during a declared drought or water emergency.

LMC 13.08.290 Additional rules and regulations.

Additional rules and regulations concerning the operation of the municipal water system and water conservation and rationing plan may be established by the council from time to time.

LMC 13.08.300 Violation—Penalty.

Citations may be issued for the following violations of the provisions of Section 13.08.120 and Sections 13.08.~~180~~190 through 13.08.~~200~~210, and the corresponding fees and charges will be added to the utility bills of customers who are observed by enforcement personnel listed under Section 13.08.050 in violation of such. Refusal to pay fines as assessed shall result in the termination of service to the customer and/or the placement of a lien against the property. Fines shall be imposed as follows:

A. Any wasteful water usage during, and as defined in ~~Phases~~ Stages II, III or IV, shall carry fines as listed below:
    1. Fifty dollars ($50.00) upon the second notification of such offense;
    2. Seventy-five dollars ($75.00) upon the third notification of such offense;
    3. One hundred dollars ($100.00) upon the fourth notification of such offense, and a fourth notification shall also result in the installation of a flow restrictor by the city staff at the customer's expense, which shall remain in place for the remainder of the drought or water emergency.
B. Failure to pay assessed fines will result in termination of service until such time as payment in full is collected from the customer.

Severability. If any provision of this Ordinance or the application thereof to any person or circumstance is held invalid, the remainder of the Ordinance, including

the application of such part or provision to other persons or circumstances shall not be affected thereby and shall continue in full force and effect. To this end, provisions of this Ordinance are severable. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, subdivisions, paragraphs, sentences, clauses, or phrases be held unconstitutional, invalid, or unenforceable.

The Mayor shall sign this Ordinance and the City Clerk shall cause the same to be published within fifteen (15) days after its passage at least once in a newspaper of general circulation published and circulated in the City.

The foregoing Ordinance was introduced the 18th day of September and adopted this 2nd day of October, 2017 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

_____
Sonny Dhaliwal, Mayor

ATTEST:

_____
Teresa Vargas, City Clerk

APPROVED AS TO FORM:

_____
Salvador Navarrete, City Attorney

APPENDIX I:
DROUGHT RESPONSE TOOL USER GUIDE

Drought Response Tool
User's Guide

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1. INTRODUCTION

The Drought Response Tool (DRT) is an Excel spreadsheet model that has been developed to assist water suppliers with:

- Evaluating baseline water use by sector and by indoor/outdoor use;
- Identifying customer sectors (e.g., Residential; Commercial, Industrial and Institutional [CII]; and Dedicated Irrigation) and uses to target for water savings;
- Evaluating a menu of drought response actions and estimate their water savings potential; and
- Tracking progress against the water use reduction goal associated with a stage of action in the supplier's Water Shortage Contingency Plan.

The following sections guide the user through the model structure and the key input parameters, assumptions, and calculations that form the basis of the DRT.

It should be noted that the DRT is only a predictive tool that generates a water savings potential based on an assumed set of water use and savings inputs by the user, including Drought Response Actions, savings estimates, and implementation rates. The DRT in no way guarantees water savings or other performance metrics.

2. DROUGHT RESPONSE TOOL STRUCTURE AND OVERVIEW

- **Structure:** The DRT consists of six, linked Excel worksheets:

  (1) Home
  (2) Water Use Inputs
  (3) Water Use Profile
  (4) Drought Response Actions
  (5) Estimated Water Savings
  (6) Drought Response Tracking

  A detailed guide to each worksheet is provided in Section 3.

- **Navigation:** Users can navigate between worksheets using buttons at the top of each sheet or the tabs at the bottom of the Excel window.

- **Color Coding:** On each worksheet, the cells highlighted in white indicate locations where supplier inputs are required or the user can adjust default values. The model will automatically populate all charts and cells highlighted in light blue based on the input data and associated model calculations. Certain cells will be highlighted in gray to indicate that the value is overridden and will not factor into calculations (cells highlighted in gray are discussed in more detail in Section 3.4).

- **Default Values:** In some cases, the white cells are populated with default values. If a user modifies the default values, the revisions will be displayed as **bold font** so the user can clearly track where they have made modifications within the DRT.

- **Instructions and Tips:** Instructions and tips are provided in cells marked with the symbol ⓘ and also appear in "pop ups" when certain cells are selected.

- **Data Validation.** Throughout the DRT there are a series of data validation checks to provide support to the user.

- **Functionality:** The DRT is designed to run on systems with Microsoft Office 2007 or later versions. For full functionality of the model, the user must enable the use of macros.[1]

[1] To enable the use of macros, click the Microsoft Office Button at the top left hand corner and then click Excel Options. Choose Trust Center from the menu at the left and then Trust Center Settings at the right. Under Macro Settings, select "Enable all macros." Alternatively you can follow instructions from Microsoft Help.

3. DROUGHT RESPONSE TOOL WORKSHEETS

This section provides a brief summary of the key DRT inputs, outputs and assumptions.

3.1 Worksheet 1 – Home

Input the following agency-specific information, as shown in Figure 1:

- **Agency Name:** Type in the water supplier's name.
- **Total Population Served:** Population is assumed to be constant for the purpose of the DRT modeling.
- **Required Conservation Standard**: Enter the percentage water use reduction goal.
- **Number of Accounts by Sector:** The number of accounts for each sector (Residential, CII, and Dedicated Irrigation) is assumed to be constant for the purpose of the DRT modeling. If single-family and multi-family accounts are tracked separately, enter the combined number of accounts under Residential accounts. If CII accounts are tracked separately, enter the combined number of all CII accounts.
- **Baseline Year(s):** The Baseline Year defines the year that corresponds with potable water production and use data that will be

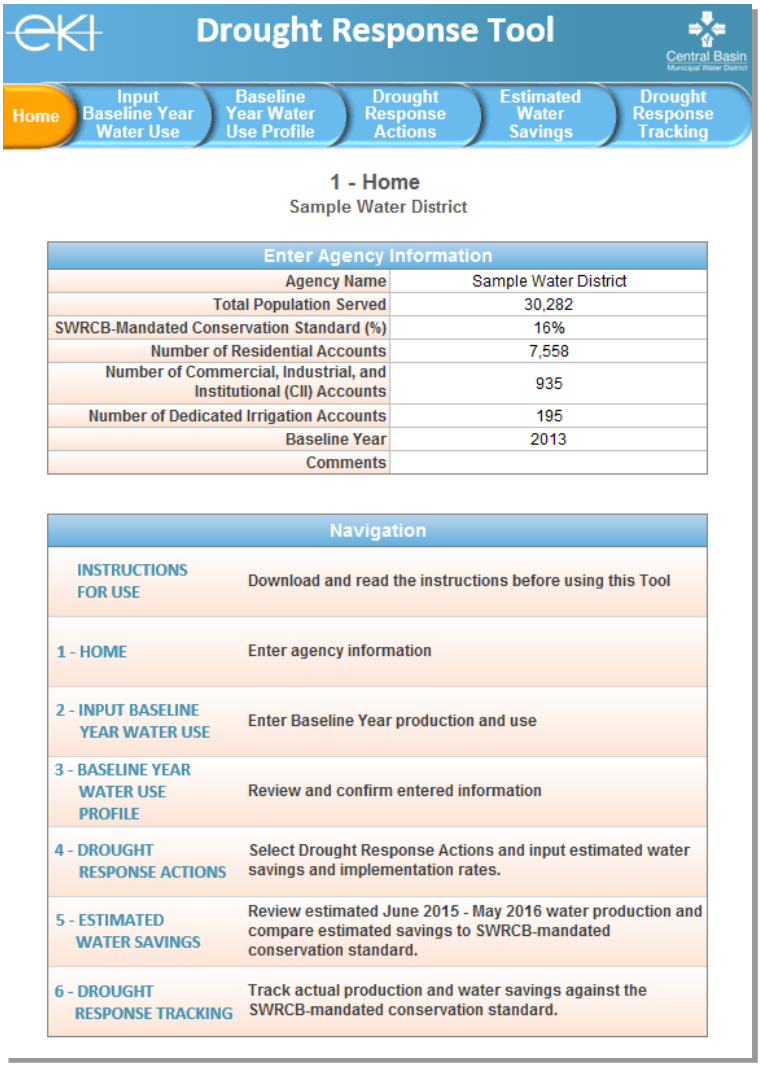


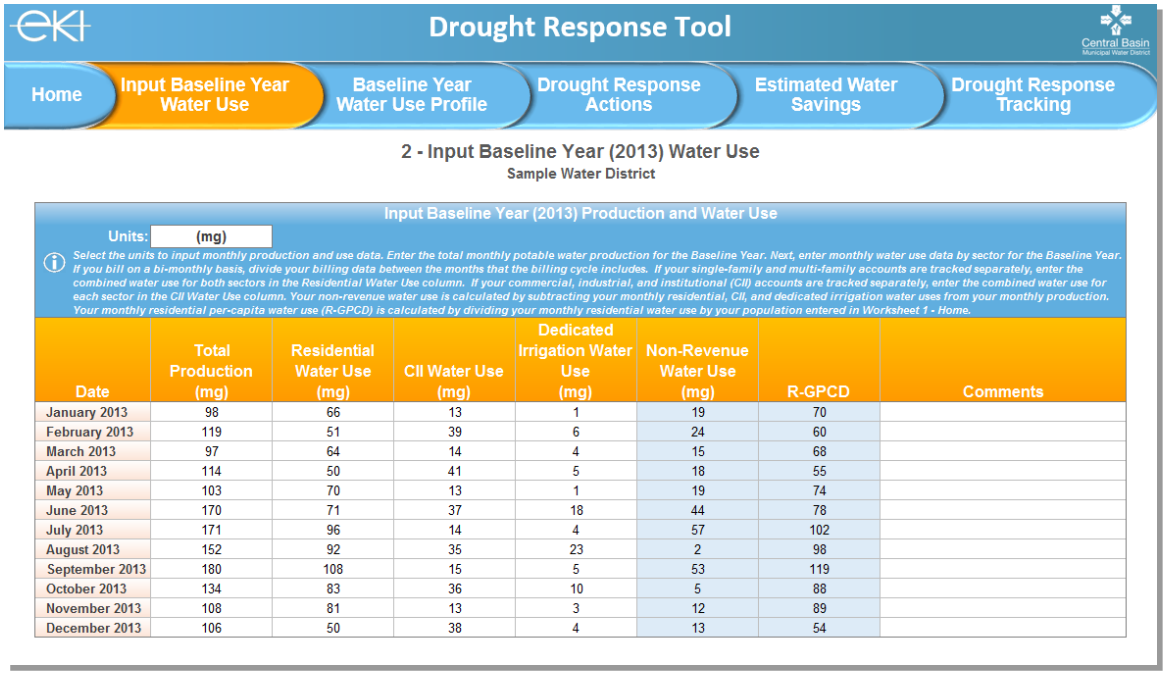
Figure 1: *Worksheet 1 – Home* of the DRT © 2015 Erler & Kalinowski, Inc.

entered in *Worksheet 2 – Water Use Inputs*. The user may enter in a single Baseline Year or an average of several historical years, if desired.

Worksheet 1 – Home also provides users an overview for navigating the DRT and provides a live link to the *Central Basin Drought Response Tool User's Guide*, which is hosted on the Erler & Kalinowski, Inc. website.

3.2 Worksheet 2 – Water Use Inputs

A shown in Figure 2, enter monthly potable water production and water use data for the Baseline Year (e.g., 2013), or the average over multiple historical years (e.g. 2011-2015). A drop down menu is provided in the table header to select the units for the input data (e.g., in million gallons, acre-feet, etc.). Baseline water use inputs include:



Date	Total Production (mg)	Residential Water Use (mg)	CII Water Use (mg)	Dedicated Irrigation Water Use (mg)	Non-Revenue Water Use (mg)	R-GPCD	Comments
January 2013	98	66	13	1	19	70	
February 2013	119	51	39	6	24	60	
March 2013	97	64	14	4	15	68	
April 2013	114	50	41	5	18	55	
May 2013	103	70	13	1	19	74	
June 2013	170	71	37	18	44	78	
July 2013	171	96	14	4	57	102	
August 2013	152	92	35	23	2	98	
September 2013	180	108	15	5	53	119	
October 2013	134	83	36	10	5	88	
November 2013	108	81	13	3	12	89	
December 2013	106	50	38	4	13	54	

Figure 2: *Worksheet 2 – Water Use Data* of the DRT © 2015 Erler & Kalinowski, Inc.

- **Monthly Production Data:** Enter the monthly potable water production for the Baseline Year, in the units selected in the table header.
- **Monthly Water Use Data by Sector:** Enter monthly water use by sector (Residential, CII, and Dedicated Irrigation) for the Baseline Year(s), in the units selected in the table header. Water use data will come from an agency's billing data for the Baseline Year(s). If water use data are collected on a bi-monthly basis, the water use data should be divided between the months that the billing cycle includes. If an agency's single-family and multi-family accounts are tracked separately, enter the combined water use in the Residential column. The same applies for the consolidation of water uses at CII and Dedicated Irrigation accounts, if applicable. If the total water use by

sector exceeds the amount entered for total production for a given month, the row will be highlighted in red.

- **Monthly Non-Revenue Water Use:** The DRT calculates non-revenue water use by subtracting the monthly Residential, CII, and Dedicated Irrigation water use volumes from the total monthly production.
- **R-GPCD:** The DRT calculates the monthly residential gallons per capita per day (R-GPCD) for the Baseline Year(s) by dividing the residential water use by the total population specified in Worksheet 1.

Inputs from Worksheets 1 and 2 are used in the remaining worksheets to estimate water savings potential.

3.3 Worksheet 3 – Water Use Profile

This worksheet provides high-level, graphical summaries of an agency's Baseline Year(s) water use by sector and by major end use (indoor versus outdoor). Users may select the units the data is displayed in from a drop down menu in the table header. By generally estimating how much of an agency's water use can be attributed to indoor use versus outdoor use and by sector, an agency can begin to identify areas and opportunities for water savings, see Figures 3 and 4. These data can also assist an agency is assessing where they can achieve water savings potential with minimal revenue impacts.

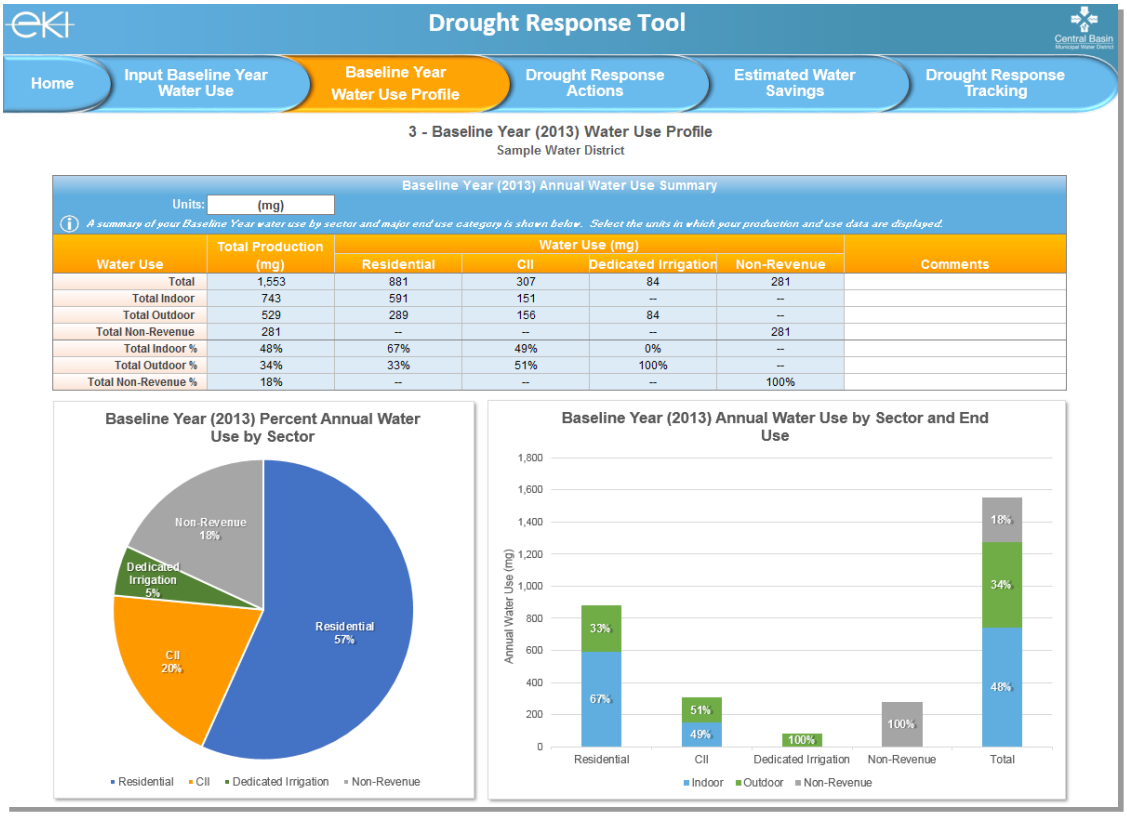


Figure 3: *Worksheet 3 – Water Use Profile* of the DRT © 2015 Erler & Kalinowski, Inc.

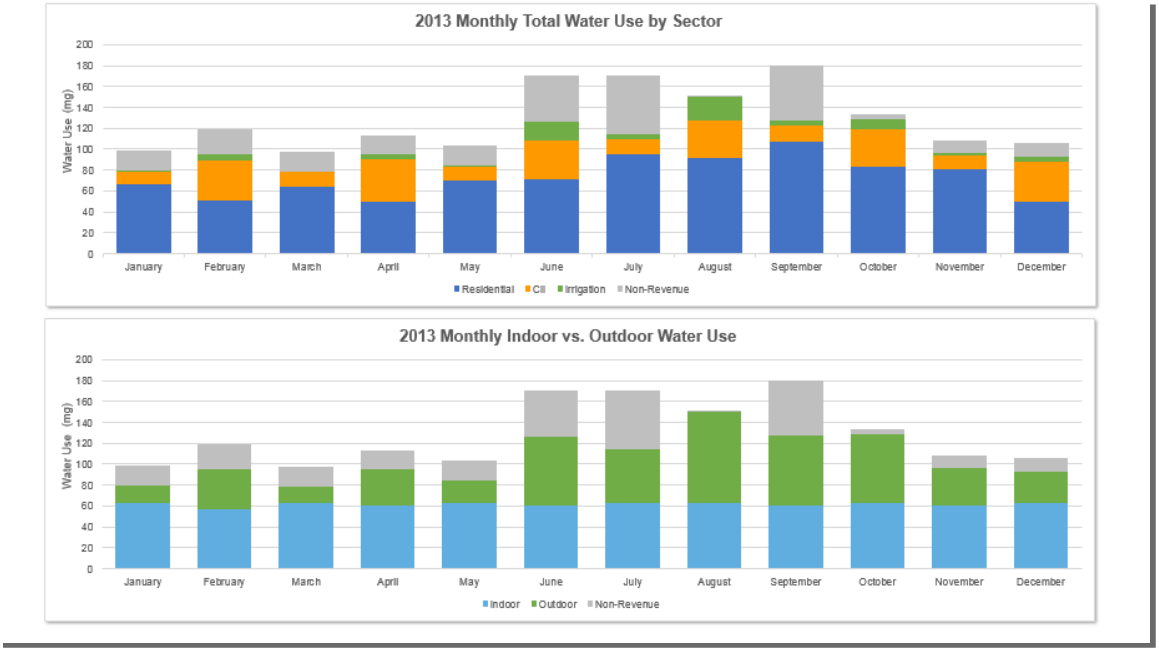


Figure 4: *Worksheet 3 – Water Use Profile* of the DRT © 2015 Erler & Kalinowski, Inc.

The following key assumptions were made in the DRT to support evaluation of supplier water use profiles:

(1) Monthly indoor use for each sector is assumed to be the amount of water used during the lowest water use month, normalized by the number of days in the month, based on the data entered by the user in *Worksheet 2 – Water Use Data*.

(2) Monthly outdoor use for each sector is calculated by subtracting the assumed monthly indoor water use [from (1)] from the total water use data entered by the user in *Worksheet 2 – Water Use Data.*

3.4 Worksheet 4 – Drought Response Actions

This worksheet provides a framework for estimating water savings associated with the implementation and enforcement of various Drought Response Actions. Key inputs include:

- **Maximum Savings Potential**: The DRT allows the agency to establish sector-specific "caps" on the water savings potential that the DRT will estimate. Specifically, these caps limit the potential savings estimated by the DRT based on certain agency-defined criteria. For example, to protect the economic vitality of a City, an agency may want to limit CII indoor reductions to 10%. Therefore, the water savings for indoor water use for the CII sector shown in *Worksheet 5 – Estimated Water Savings* will not exceed 10%, even if the water savings based on the selected indoor CII Drought Response Measures may exceed 10%.

The savings caps in the DRT include:

- Minimum allowable indoor residential use (R-GPCD);
- The maximum percent (%) reductions in residential outdoor use;
- The maximum % reduction in CII indoor use;
- The maximum % reduction in CII outdoor uses; and
- The maximum % reduction in dedicated irrigation use.

Based on the specified sector-specific caps, the DRT calculates the resulting % total maximum annual savings potential.

- **End Use Savings Potential**: Three pie chart graphs are shown towards the top of the worksheet that represent the assumed proportions of major end uses by sector based on published data (see Section 4 and Figure 5). These end use proportions are used in the DRT water savings calculations in two ways:
  - The end use proportions are used in combination with the End-Use Savings Estimates and Implementation Rates to estimate the Drought Response Action-specific water savings; and
  - The end use proportions serve as a "cap" on the potential water savings estimates because the DRT does not allow a Drought Response Action or suite of Actions to "save" more water than the targeted end use uses. For example, no matter how many Actions are implemented that target toilets, the DRT will not attribute a water savings greater than total amount of water assumed to be used by toilets.

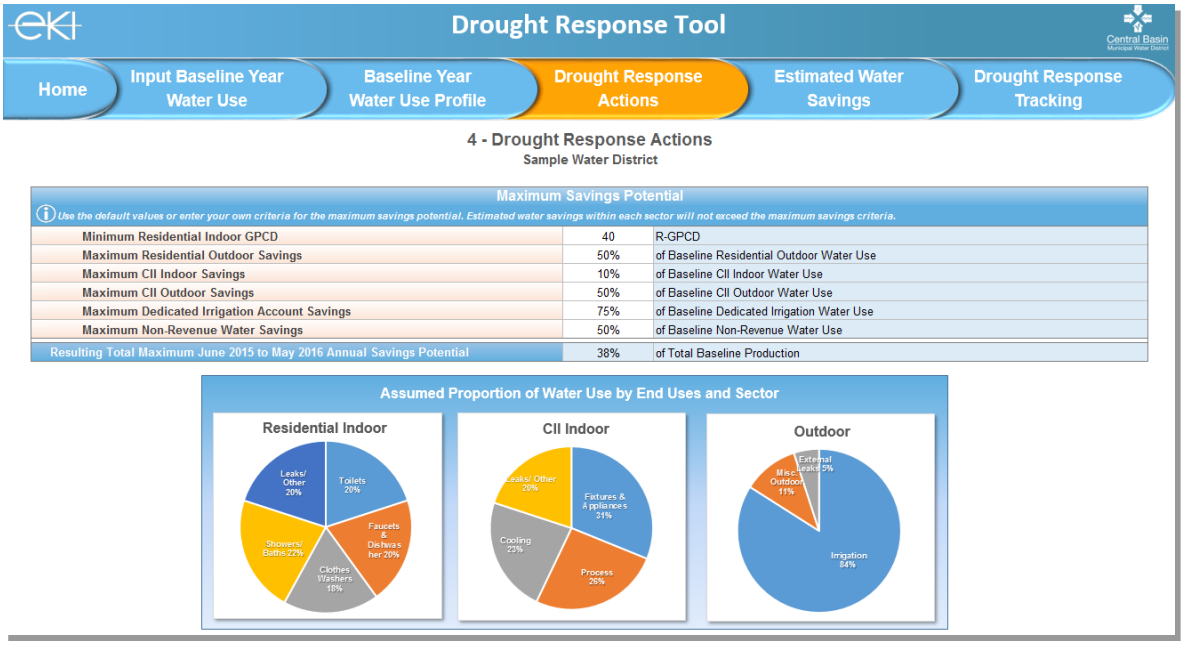


Figure 5: "Maximum Savings Potential" and "End Use Savings Potential" from *Worksheet 4 – Drought Response Actions* of the DRT © 2015 Erler & Kalinowski, Inc.

- **Potential Drought Response Actions**: A customized menu of potential Drought Response Actions or "Actions" is provided for agency consideration (see Figure 6). For each Action the Worksheet lists:
    - The associated end use(s) targeted by that Action;
    - The default estimated savings as a percentage of those end uses compared to baseline uses;
    - The default implementation rate (percentage of accounts that will take advantage of or comply with that Action); and
    - The basis of the default savings and implementation rates.

  Users can select the Drought Response Actions they wish to implement and include in the estimated savings calculations. The Drought Response Actions with cells highlighted in gray indicate that the action is overridden by another selected Action and will not factor into water savings calculations, even if selected.

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Possible Mandatory Prohibitions	All Outdoor	☑	14%	50%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☐			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☐	17%	50%		--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☐	17%	50%	See Appendix D of the DRP	--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☐	17%	50%		--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☐	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☐			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☐			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--

Drought Response Actions

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ Agency Drought Actions / Restrictions						
▶ Agency Actions						
Media Campaign, Newspaper Articles, Website	All	☑	0.5%	50%	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	0.5%	25%	EBMUD, 2011	--
Water Bill Inserts	All	☑	0.5%	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☐	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☐	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☑	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☑			--	--
Establish Drought Hotline	All	☑			--	--
Reduce Distribution System Pressures	Non Revenue Water	☐	4.5%	100%	CUWCC, 2010; DWR, 2015	--

Figure 6: "Passive Residential Savings," "SWRCB Mandatory Prohibitions," and "Accelerate Implementation of Existing Water Conservation Program" actions from Worksheet 4 – Drought Response Actions of the DRT © 2015 Erler & Kalinowski, Inc.

Default values for end use savings and implementation rates are provided based on a variety of local and regional water use studies and generalizations. However, all of these values may be adjusted by users based on their understanding of the

communities they serve and their intended implementation and enforcement actions, wherever possible.

The suites of Actions and associated default water savings and implementation rates are presented in the following groupings and are based on the sources indicated in the Worksheet.

- **SWRCB Mandatory Prohibitions:** The May 2015 SWRCB regulation prohibits certain water uses by water customers (see Figure 6)[2].
- **Agency Drought Actions / Restrictions:** Potential Drought Response Actions and prohibitions that and agency may choose to implement are provided here and shown in Figure 6. These actions and prohibitions are grouped by (1) actions that can be taken by the agency, (2) actions/prohibitions specific to dedicated irrigation accounts, (3) actions/prohibitions that target residential water use, and (4) actions/prohibitions that target CII water use.
- **Customer Actions to Encourage:** These are Actions that the agency may encourage its customers to perform as part of a general education campaign targeting behavioral modifications. These actions are provided for informational purposes; the default savings values assume that the water savings associated with them are captured by an agency's overall public information campaign. Users can, however, adjust the assumed water savings and implementation rates to estimate the amount of additional savings anticipated by aggressively promoting these actions.

3.5 Worksheet 5 – Estimated Water Savings

Worksheet 5 displays the estimated potential monthly water production and savings for the drought year, compared to the Baseline Year(s) production data, and based on the selected suite of Drought Response Actions (and assumed end use savings estimates and implementation rates). As shown on Figure 7, tables and charts display how the estimated savings compare to the specified water use reduction goal by month and cumulatively during the drought year. Users may select the units that the data are displayed in from a drop down menu in the table header. If it appears that an agency will not meet its goal, cells in the Potential Cumulative Savings column will be highlighted in red.

[2] On 5 May 2015, SWRCB adopted Resolution 2015-0032 to mandate minimum actions by water suppliers and their customers to reduce potable water use into 2016 and assigned a mandatory water conservation savings goal to each water supplier based on their residential water use. On 2 February 2016, the SWRCB voted to extend the emergency regulation through October 2016.

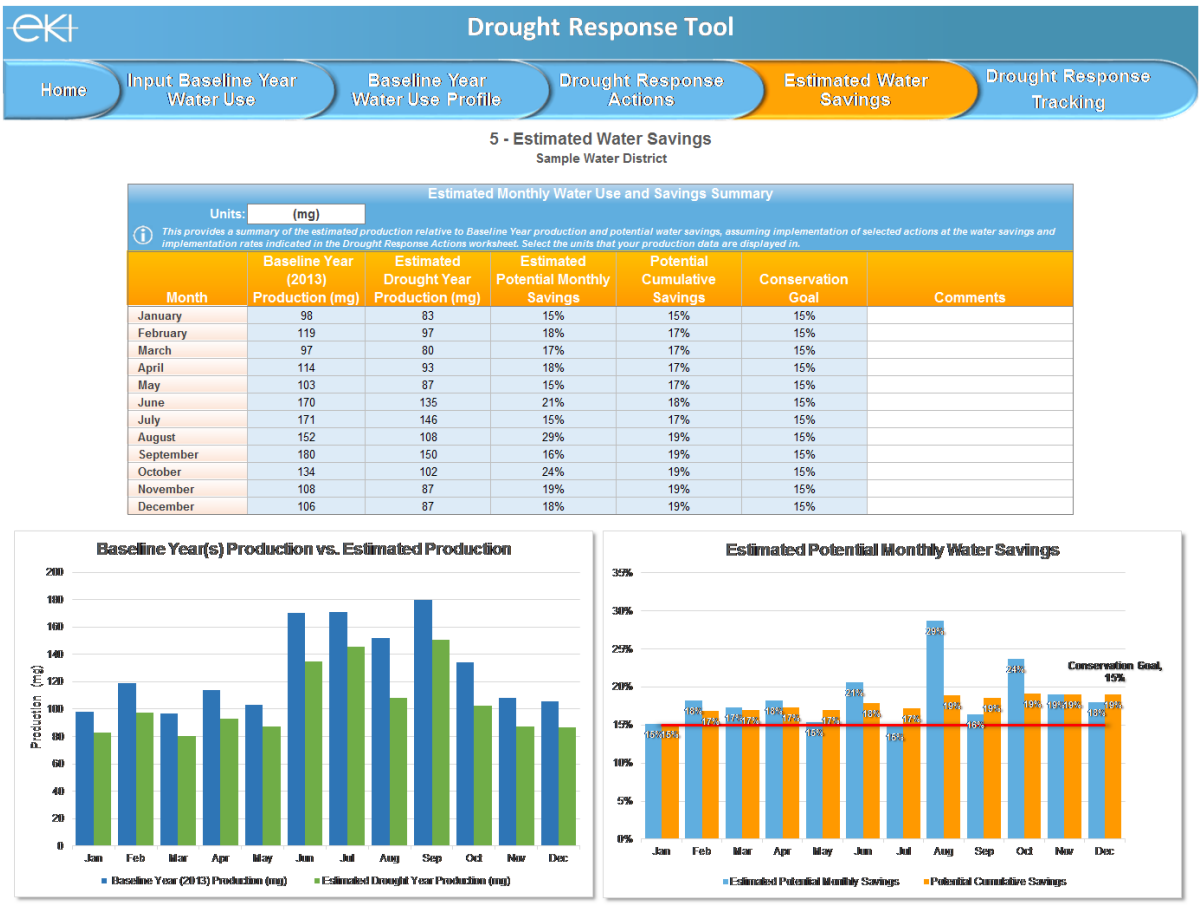


Figure 7: *Worksheet 5 – Estimated Water Savings* of DRT © 2015 Erler & Kalinowski, Inc.

It should be noted that the DRT is only a predictive tool that generates a water savings potential based on an assumed set of water use and savings inputs by the user, including Drought Response Actions, savings estimates, and implementation rates. The DRT in no way guarantees water savings or other performance metrics.

3.6 Worksheet 6 – Drought Response Tracking

Worksheet 6 can be used to track an agency's water production/savings and progress towards meeting its water use reduction goal. Users can input their production data for the drought year. The monthly and cumulative savings compared to the Baseline Year(s) data are then calculated. As shown on Figure 8, tables and charts display these savings compared to the water use reduction goal entered in Worksheet 1. Users may select the units the data are displayed in from a drop down menu in the table header. If an agency did not meet its goal, cells in the Cumulative Savings column will be highlighted in red.

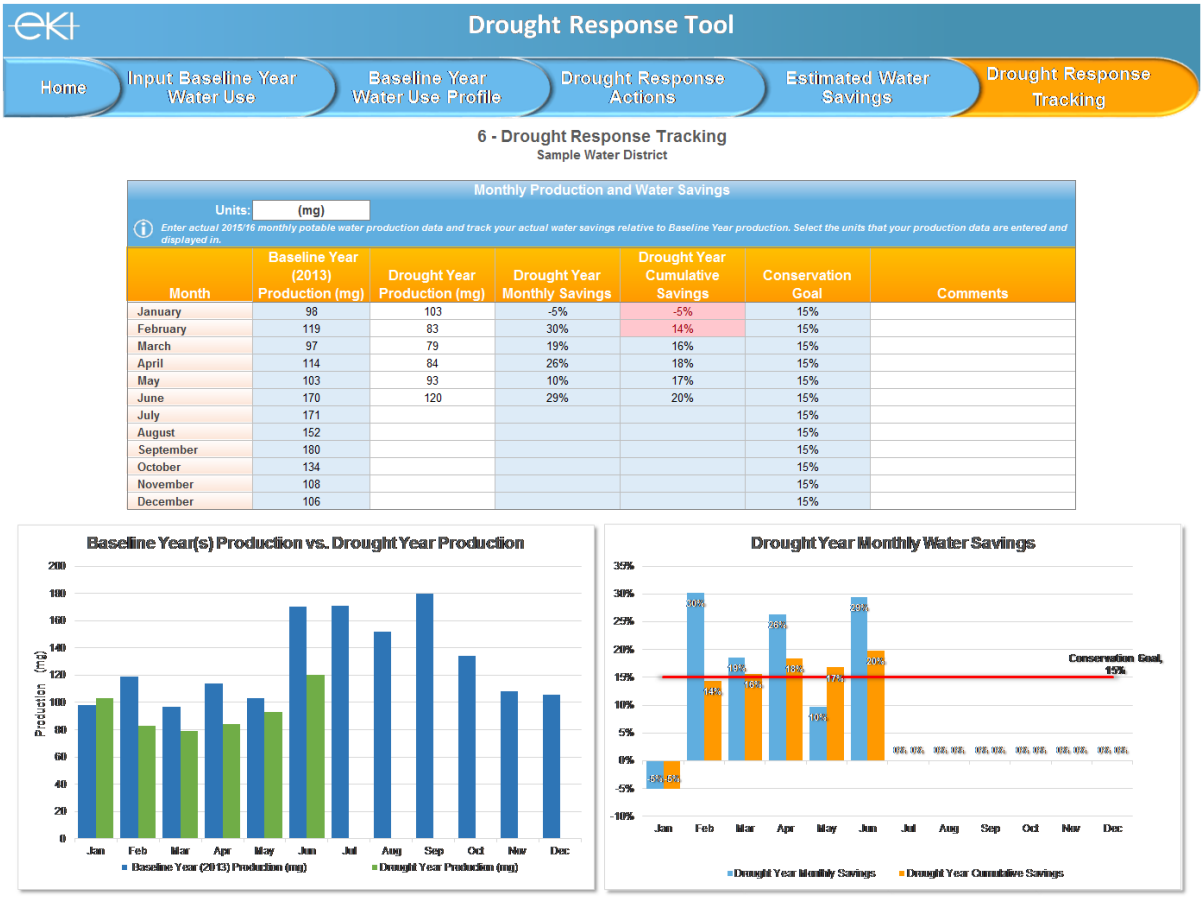


Figure 8: *Worksheet 6 – Drought Response Tracking* of DRT © 2015 Erler & Kalinowski, Inc.

For additional information and guidance, please contact Anona Dutton at adutton@ekiconsult.com or (650) 292-9100.

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APPENDIX J:
DROUGHT RESPONSE TOOL QUANTITATIVE ASSESSMENT

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Lathrop

Enter Agency Information	
Agency Name	City of Lathrop
Total Population Served	19,642
Conservation Goal (%)	10%
Number of Residential Accounts	5,892
Number of Commercial, Industrial, and Institutional (CII) Accounts	192
Number of Dedicated Irrigation Accounts	182
Baseline Year(s)	2013
Comments	

Navigation	
USER'S GUIDE	Download and read the guide before using this Tool
1 - HOME	Enter agency information
2 - INPUT BASELINE YEAR WATER USE	Enter Baseline Year production and use
3 - BASELINE YEAR WATER USE	Review and confirm entered information
4 - DROUGHT RESPONSE ACTIONS	Select Drought Response Actions and input estimated water savings and implementation rates.
5 - ESTIMATED WATER SAVINGS	Review estimated water production and compare estimated savings to conservation target.
6 - DROUGHT RESPONSE TRACKING	Track production and water savings against the conservation target.

Drought Response Tool

Home | Input Baseline Year Water Use | Baseline Year Water Use Profile | Drought Response Actions | Estimated Water Savings | Drought Response Tracking

1 - Home

City of Lathrop

For questions about this tool or for additional information, contact:

Anona Dutton, P.G., C.Hg.
adutton@ekiconsult.com
(650) 292-9100

2 - Input Baseline Year (2013) Water Use

City of Lathrop

Input Baseline Year (2013) Production and Water Use

Units: (af)

Select the units to input monthly production and use data. Enter the total monthly potable water production for the Baseline Year. Next, enter monthly water use data by sector for the Baseline Year. If you bill on a bi-monthly basis, divide your billing data between the months that the billing cycle includes. If your single-family and multi-family accounts are tracked separately, enter the combined water use for both sectors in the Residential Water Use column. If your commercial, industrial, and institutional (CII) accounts are tracked separately, enter the combined water use for each sector in the CII Water Use column. Your non-revenue water use is calculated by subtracting your monthly residential, CII, and dedicated irrigation water uses from your monthly production. Your monthly residential gallons per capita per day (R-GPCD) is calculated by dividing your monthly residential water use by your population entered in Worksheet 1 - Home.

Date	Total Production (af)	Residential Water Use (af)	CII Water Use (af)	Dedicated Irrigation Water Use (af)	Non-Revenue Water Use (af)	R-GPCD	Comments
January	212	117	77	8	10	62	NRW as 5% of water consumption
February	200	108	76	7	10	64	
March	261	141	80	27	12	76	
April	294	146	87	47	14	81	
May	454	219	115	99	22	117	
June	544	261	133	124	26	145	
July	531	255	142	109	25	136	
August	588	277	158	125	28	148	
September	466	243	82	119	22	134	
October	502	226	152	100	24	121	
November	306	181	63	47	15	100	
December	266	146	83	24	13	78	

3 - Baseline Year (2013) Water Use Profile

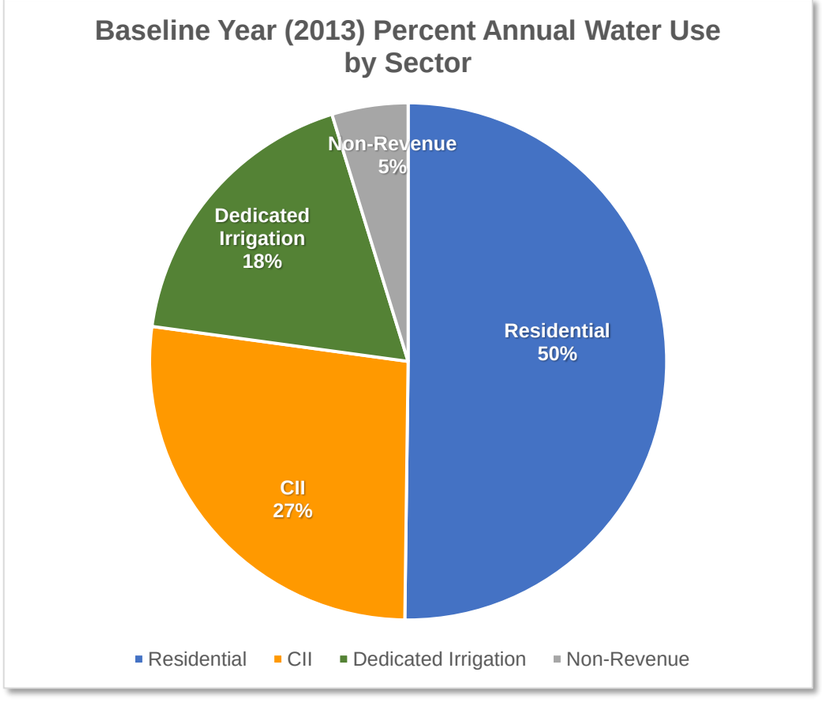
City of Lathrop

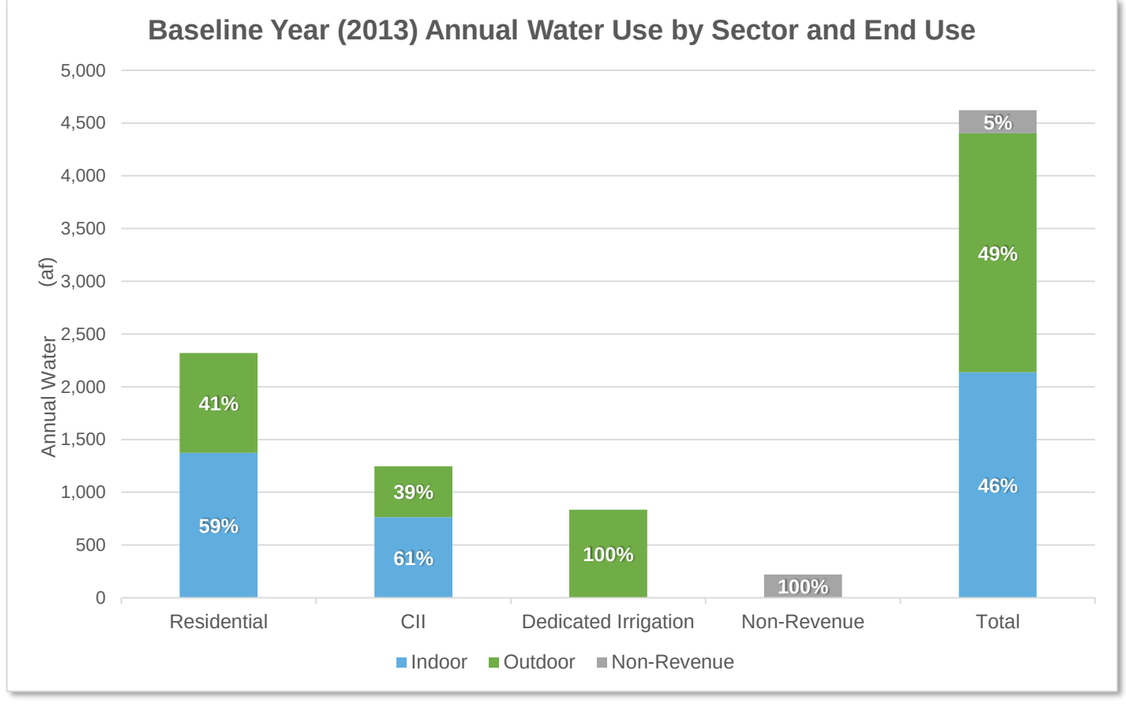
Baseline Year (2013) Annual Water Use Summary

Units: (af)

A summary of your Baseline Year water use by sector and major end use category is shown below. Select the units in which your production and use data are displayed.

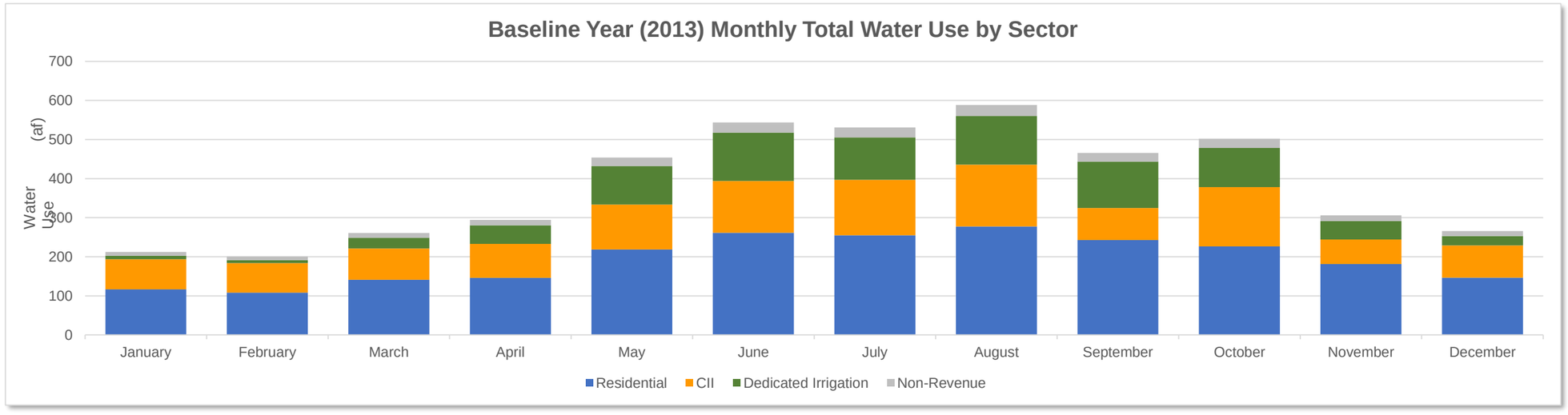
Water Use	Total Production (af)	Water Use (af)				Comments
		Residential	CII	Dedicated Irrigation	Non-Revenue	
Total	4,623	2,321	1,246	836	220	
Total Indoor	2,138	1,373	765	--	--	
Total Outdoor	2,265	948	482	836	--	
Total Non-Revenue	220	--	--	--	220	
Total Indoor %	46%	59%	61%	0%	--	
Total Outdoor %	49%	41%	39%	100%	--	
Total Non-Revenue %	5%	--	--	--	100%	

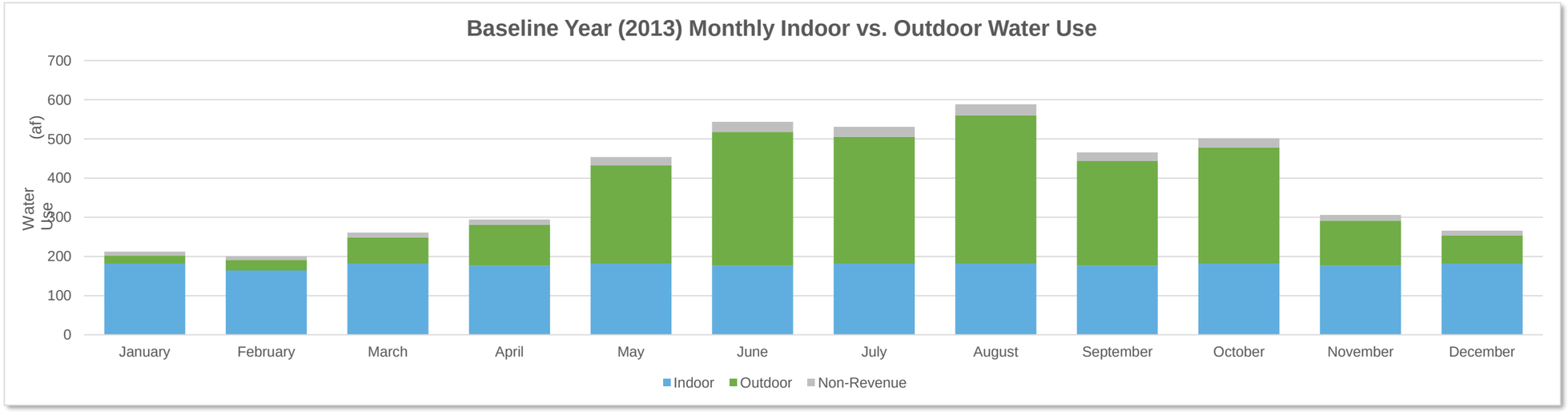




3 - Baseline Year (2013) Water Use Profile

City of Lathrop





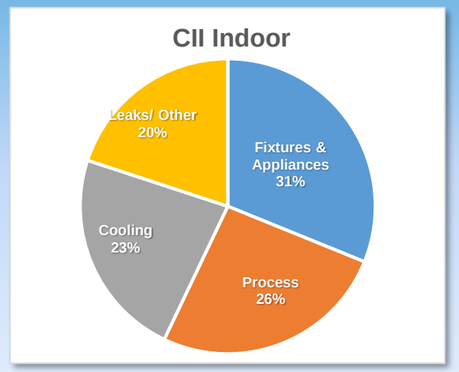
Drought Response Tool

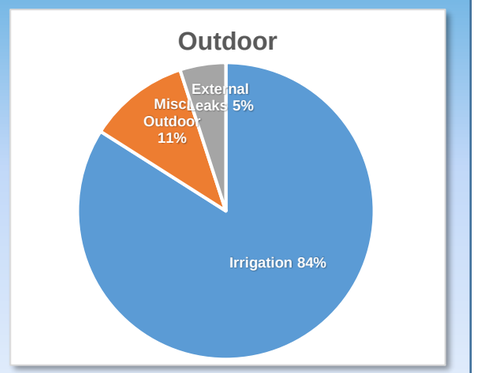
4 - Drought Response Actions

City of Lathrop

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	40	R-GPCD
Maximum Residential Outdoor Savings	75%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	10%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	75%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	75%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	51%	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions

City of Lathrop

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☐	14%	50%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☐	25%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☐	25%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑			--	--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☐	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☐			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☐			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☐	0.5%	50%	EBMUD, 2011	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**5.0%**	50%	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	0.5%	25%	EBMUD, 2011	--
Water Bill Inserts	All	☑	**2.0%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☐	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☐	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☐	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☐	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► **Dedicated Irrigation**						
Conduct Irrigation Account Surveys	Irrigation	☐	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	**17%**	**75%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
- OR -						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	**17%**	**75%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☐	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
- OR -						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
► **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☐	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	**17%**	**75%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☐		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☐	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
- OR -						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings

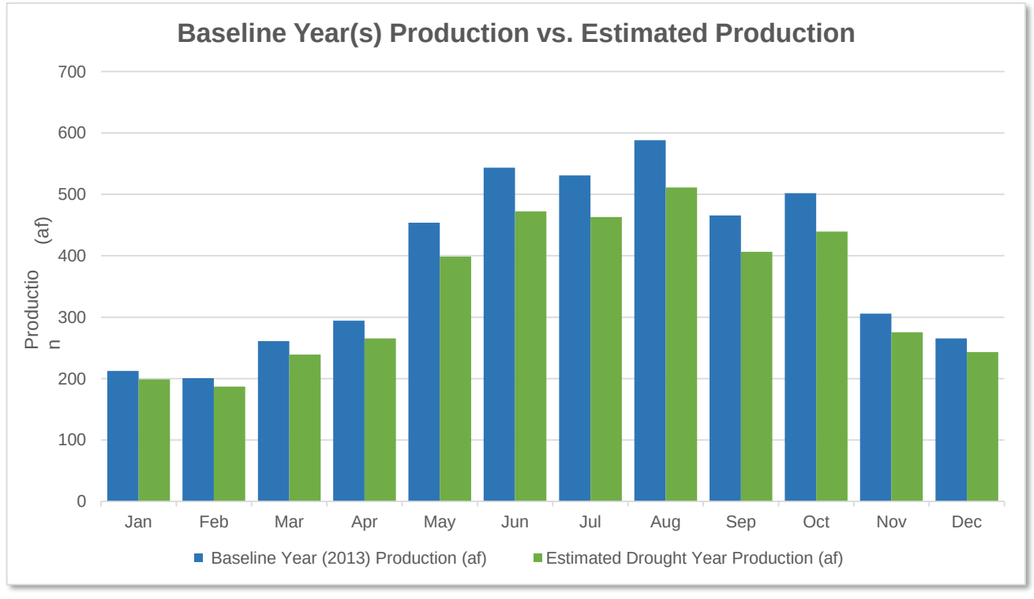
City of Lathrop

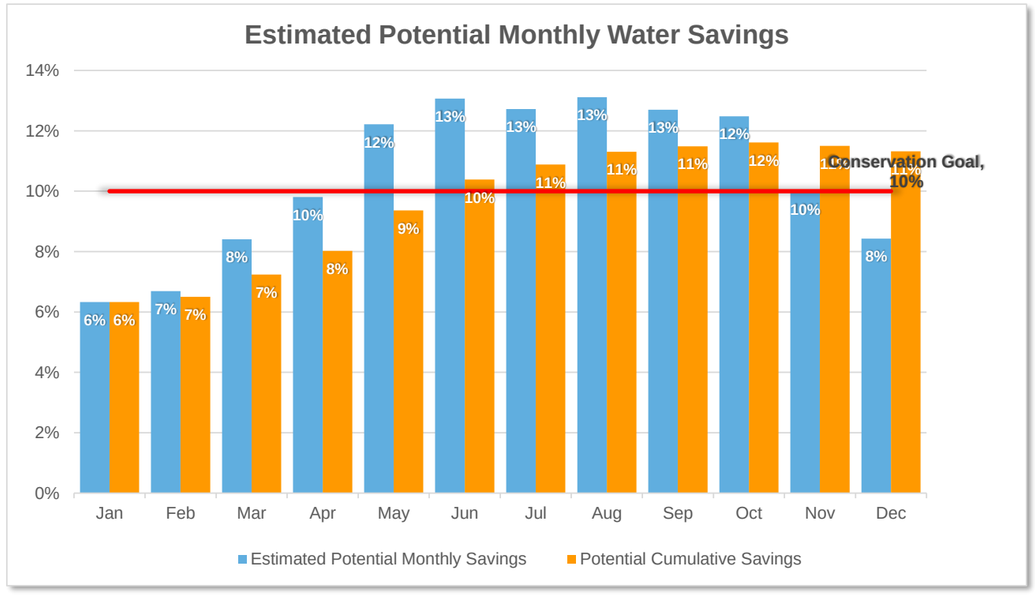
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2013) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	212	199	6%	6%	10%	
February	200	187	7%	7%	10%	
March	261	239	8%	7%	10%	
April	294	265	10%	8%	10%	
May	454	398	12%	9%	10%	
June	544	472	13%	10%	10%	
July	531	463	13%	11%	10%	
August	588	511	13%	11%	10%	
September	466	406	13%	11%	10%	
October	502	439	12%	12%	10%	
November	306	275	10%	11%	10%	
December	266	243	8%	11%	10%	





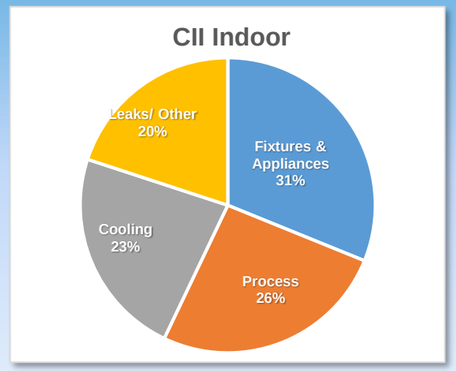
Drought Response Tool

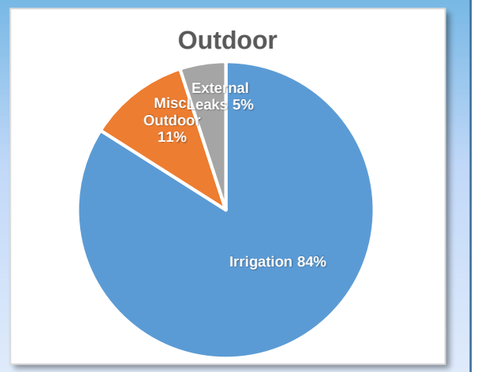
4 - Drought Response Actions

City of Lathrop

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	40	R-GPCD
Maximum Residential Outdoor Savings	75%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	10%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	75%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	75%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	51%	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions

City of Lathrop

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☐	14%	50%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☑	25%	**25%**	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	25%	**25%**		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑			--	--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☑	3%	**25%**	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☐			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☐			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☑	50%	**25%**	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☑	0.5%	**25%**	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☑	0.5%	**25%**	EBMUD, 2011	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**5.0%**	**75%**	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	**1.0%**	25%	EBMUD, 2011	--
Water Bill Inserts	All	☑	**3.0%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☐	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☑	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☐	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☐	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► **Dedicated Irrigation**						
Conduct Irrigation Account Surveys	Irrigation	☑	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	**25%**	**75%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
- OR -						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Residential**						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☑	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	**25%**	**75%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☑	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☐	55%	25%	DeOreo et al., 2011	--
- OR -						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
► **CII**						
Conduct CII Surveys Targeting High Water Users	All CII uses	☑	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	**25%**	**75%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☐		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☐	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☐	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
- OR -						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings

City of Lathrop

Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2013) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	212	188	12%	12%	20%	
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July	531	409	23%	20%	20%	
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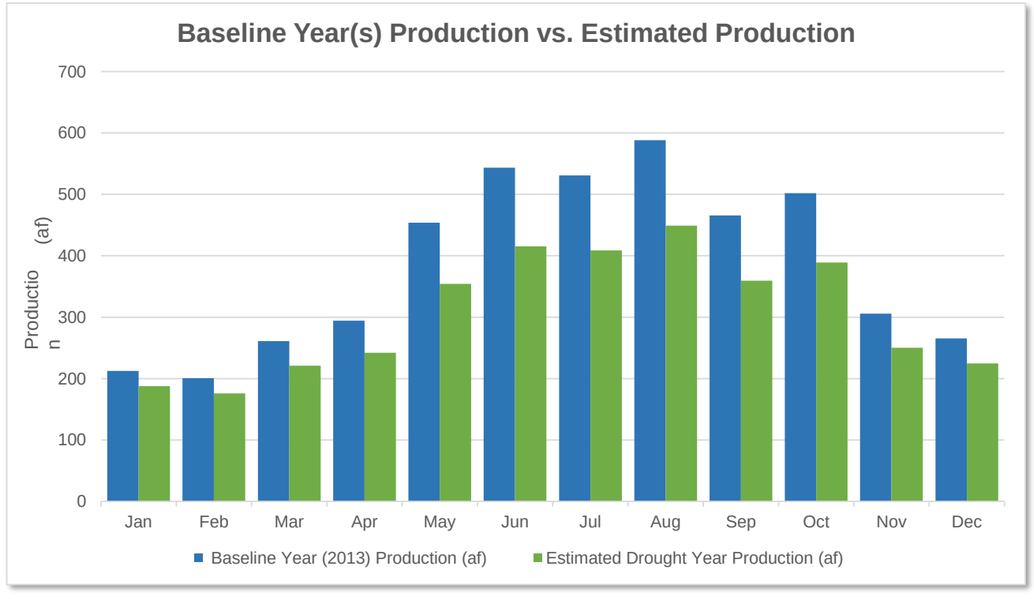
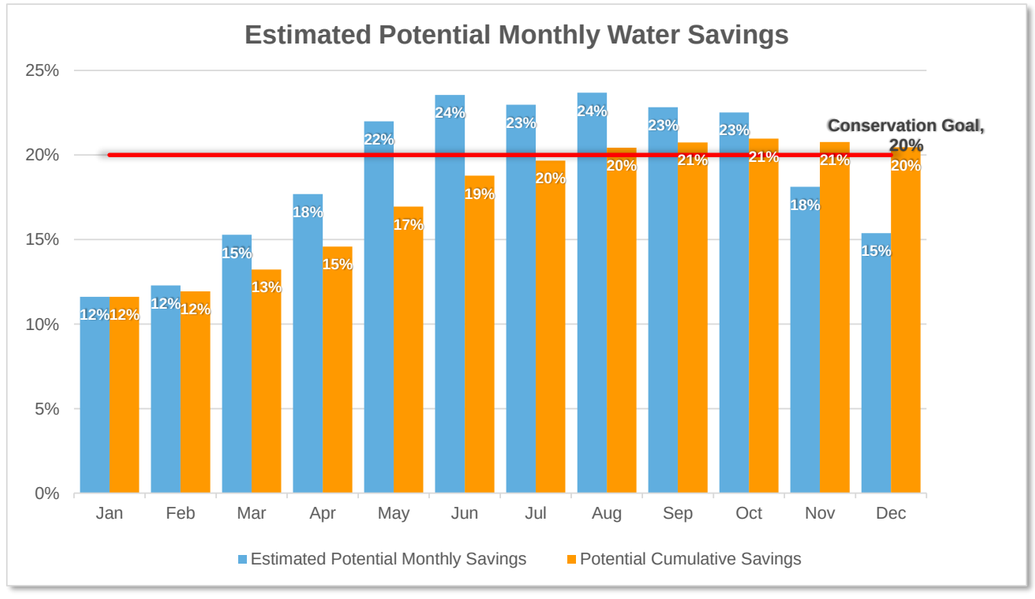




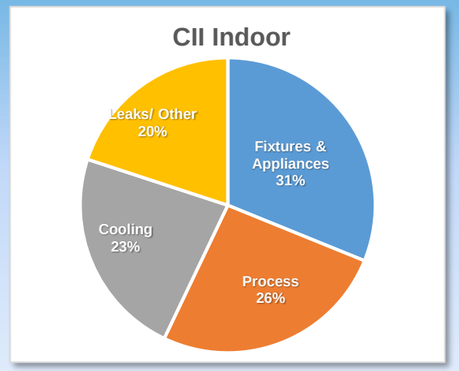
Drought Response Tool

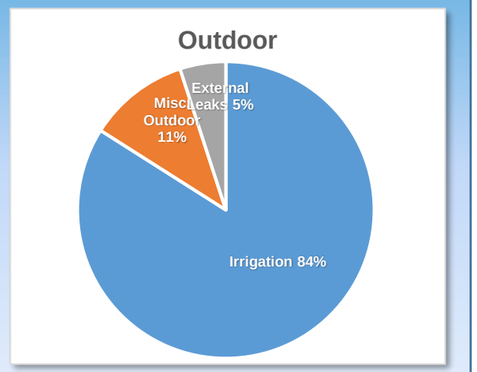
4 - Drought Response Actions

City of Lathrop

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	40	R-GPCD
Maximum Residential Outdoor Savings	75%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	10%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	75%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	75%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	51%	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions

City of Lathrop

Drought Response Actions

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Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
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Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☑	25%	**25%**	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	25%	**25%**		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑			--	--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☑	3%	**25%**	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☑			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☑			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☑	50%	**25%**	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☑	0.5%	**25%**	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☑	0.5%	**25%**	EBMUD, 2011	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**5.0%**	**75%**	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	**1.0%**	25%	EBMUD, 2011	--
Water Bill Inserts	All	☑	**3.0%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☑	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☑	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☐	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☐			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☐	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► **Dedicated Irrigation**						
Conduct Irrigation Account Surveys	Irrigation	☑	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	38%	**90%**	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	**63%**	**75%**		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
- OR -						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	**End Use(s)**	**Implement Program**	**End Use Savings (%)**	**Implementation Rate**	**Source of Default Savings Estimate**	**Source of Default Implementation Rate**
► Agency Drought Actions / Restrictions						
► Residential						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☑	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	38%	90%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	**63%**	**75%**		
Prohibit use of Potable Water for Irrigation	Irrigation	☐	100%	50%		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☐	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☑	55%	25%	DeOreo et al., 2011	--
- OR -						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
► CII						
Conduct CII Surveys Targeting High Water Users	All CII uses	☑	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	38%	90%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	**63%**	**75%**		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☐		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☐	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
- OR -						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

5 - Estimated Water Savings

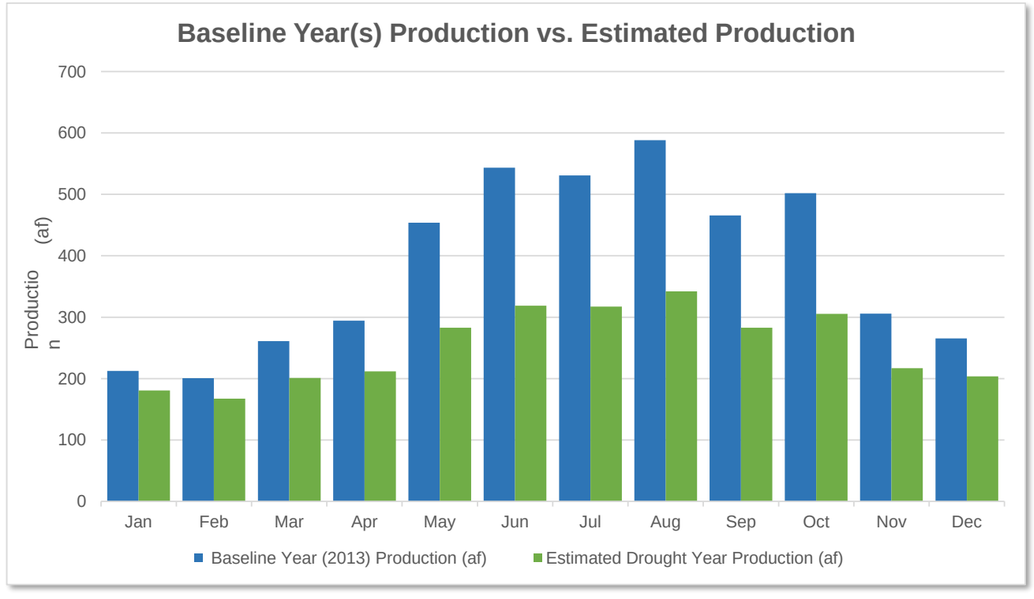
City of Lathrop

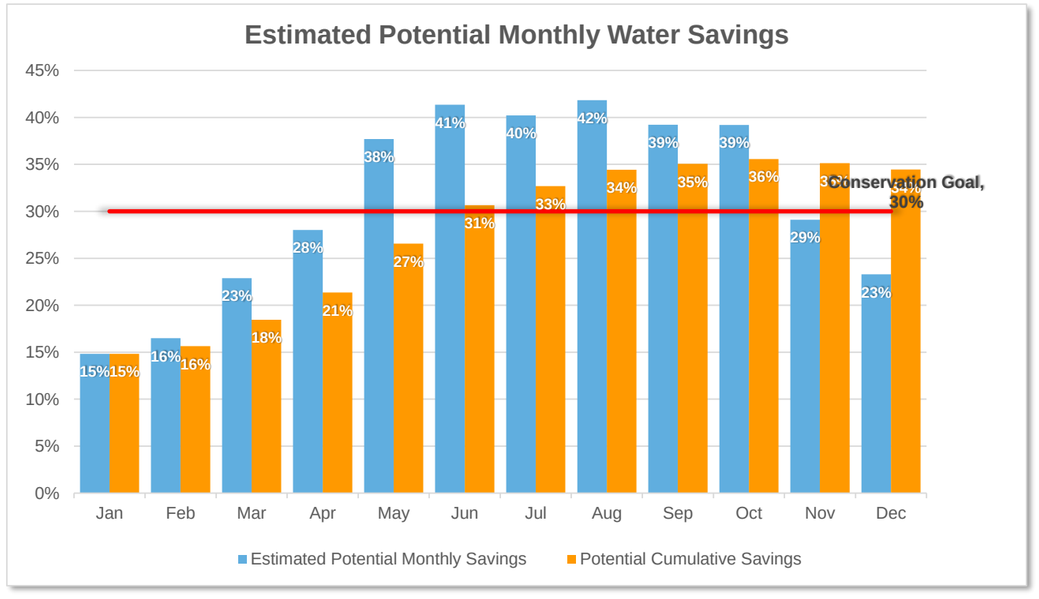
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2013) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	212	181	15%	15%	30%	
February	200	167	16%	16%	30%	
March	261	201	23%	18%	30%	
April	294	212	28%	21%	30%	
May	454	283	38%	27%	30%	
June	544	319	41%	31%	30%	
July	531	317	40%	33%	30%	
August	588	342	42%	34%	30%	
September	466	283	39%	35%	30%	
October	502	305	39%	36%	30%	
November	306	217	29%	35%	30%	
December	266	204	23%	34%	30%	





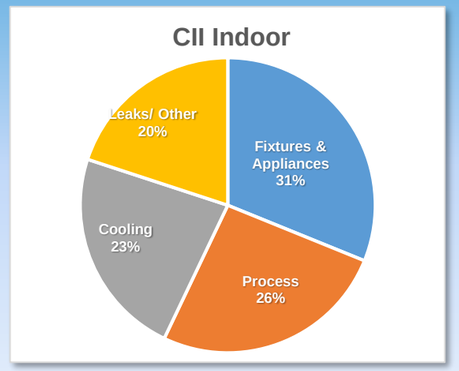
Drought Response Tool

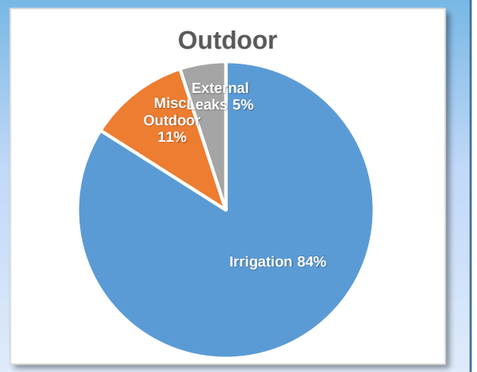
4 - Drought Response Actions

City of Lathrop

Maximum Savings Potential		
Use the default values or enter your own criteria for the maximum savings potential. Estimated water savings within each sector will not exceed the maximum savings criteria.		
Minimum Residential Indoor GPCD	40	R-GPCD
Maximum Residential Outdoor Savings	90%	of Baseline Residential Outdoor Water Use
Maximum CII Indoor Savings	10%	of Baseline CII Indoor Water Use
Maximum CII Outdoor Savings	90%	of Baseline CII Outdoor Water Use
Maximum Dedicated Irrigation Account Savings	90%	of Baseline Dedicated Irrigation Water Use
Maximum Non-Revenue Water Savings	50%	of Baseline Non-Revenue Water Use
Resulting Total Maximum Annual Savings Potential	59%	of Total Baseline Production

Assumed Proportion of Water Use by End Uses and Sector





4 - Drought Response Actions

City of Lathrop

Drought Response Actions

Select the Drought Response Actions you would like to include in your estimated savings calculations. For each selected action, use the default end use savings estimates and implementation rates or input your own values. The "End Use Savings" estimates the percent water use reduction that could occur at a particular end use as a result of a specific action. The "Implementation Rate" refers to the estimated percentage of accounts that will implement a specific action. The water savings potential at each end use is capped based on the assumed distribution of end use water demands shown in the pie charts above. A dash (--) indicates that professional judgement was used to establish the default value, or that savings are expected to be accounted for as part of a Public Information Program; additional basis for the default values are included in the User Manual.

Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Possible Mandatory Prohibitions**	All Outdoor	☑	14%	50%	--	--
Prohibit Irrigation with Potable Water Outside of Newly Constructed Homes and Buildings that is not Delivered by Drip or Microspray Systems	Irrigation	☑			--	--
Require Shut-Off Nozzles on Hoses for Vehicle Washing	Misc. Outdoor	☑	25%	50%	See Appendix D of the DRP	--
Prohibit Use of Potable Water to Wash Sidewalks and Driveways	Misc. Outdoor	☑	25%	50%		--
Prohibit the Use of Potable Water for Street Washing	Misc. Outdoor	☑			--	--
Prohibit Irrigation with Potable Water in a Manner that causes Runoff	Irrigation	☑	3%	50%	DeOreo et al., 2011	--
Prohibit Irrigation with Potable Water within 48 Hours following Measurable Rainfall	Irrigation	☑			--	--
Prohibit Irrigation of Ornamental Turf with Potable Water on Street Medians	Irrigation	☑			--	--
Prohibit Potable Water Use for Decorative Water Features that do not Recirculate Water	Misc. Outdoor	☑	50%	50%	EBMUD, 2008	--
Provide Linen Service Opt Out Options	Fixtures & Appliances	☑	0.5%	50%	EBMUD, 2011	--
Prohibit Serving Drinking Water other than upon Request in Eating or Drinking Establishments	Fixtures & Appliances	☑	0.5%	50%	EBMUD, 2011	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
► **Agency Drought Actions / Restrictions**						
► **Agency Actions**						
Media Campaign, Newspaper Articles, Website	All	☑	**5.0%**	**75%**	EBMUD, 2011	--
Promote Water Conservation / Rebate Programs	All	☑		50%	--	--
Water Efficiency Workshops, Public Events	All	☑	**1.0%**	25%	EBMUD, 2011	--
Water Bill Inserts	All	☑	**3.0%**	100%	EBMUD, 2011	--
Promote / Expand Use of Recycled Water	Irrigation	☐	100%		--	--
Home or Mobile Water Use Reports	All	☐	5%	10%	WaterSmart Software, 2015	--
Decrease Frequency and Length of Line Flushing	Non Revenue Water	☑	25%	50%	See Appendix D of the DRP	Reduced flushing by 50%.
Audit and Reduce System Water Loss	Non Revenue Water	☑	45%	50%	DWR, 2015	Target 50% of leakage.
Implement Drought Rate Structure / Water Budgets	All	☑	5%	100%	CUWCC, 2015	--
Establish Retrofit on Resale Ordinance	All Residential Indoor	☐	21%	6%	SFPUC, 2004	First Tuesday, 2015
Require Net Zero Demand Increase on New Connections	All	☐			--	--
Moratorium on New Connections	All	☐			--	--
Move to Monthly Metering / Billing	All	☐	5%	10%	See Appendix D of the DRP	--
Increase Water Waste Patrols / Enforcement	All	☑			--	--
Establish Drought Hotline	All	☐			--	--
Reduce Distribution System Pressures	Non Revenue Water	☑	4.5%	100%	CUWCC, 2010; DWR, 2015	--
► **Dedicated Irrigation**						
Conduct Irrigation Account Surveys	Irrigation	☑	30%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☑	100%	**100%**		
Require Repair of all Leaks within 24 hours	External Leaks	☑	100%	5%	--	--
- OR -						
Establish Water Budget - 25% Reduction	Irrigation	☐	25%	50%	--	--
Establish Water Budget - 50% Reduction	Irrigation	☐	50%	50%	--	--
Establish Water Budget - 75% Reduction	Irrigation	☐	75%	50%	--	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	**End Use(s)**	**Implement Program**	**End Use Savings (%)**	**Implementation Rate**	**Source of Default Savings Estimate**	**Source of Default Implementation Rate**
► Agency Drought Actions / Restrictions						
► Residential						
Conduct Water Use Surveys Targeting High Water Users	All Residential Uses	☑	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	79%	50%		
Prohibit use of Potable Water for Irrigation	Irrigation	☑	100%	**100%**		
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	**100%**	EBMUD, 2008	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Require Pool Covers	Misc. Outdoor	☐	28%	25%	Maddaus & Mayer, 2001	--
Prohibit Filling of Pools	Misc. Outdoor	☑	55%	**50%**	DeOreo et al., 2011	--
- OR -						
Establish Water Budget - 10% Reduction	All Residential Uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All Residential Uses	☐	20%	50%	--	--
► CII						
Conduct CII Surveys Targeting High Water Users	All CII uses	☑	10%	10%	EBMUD, 2011	--
Limit Irrigation Days, Time and Duration (Select One)						
Limit Irrigation to 2 Days/Week, 15 Minutes/Day, Between 9PM and 6AM	Irrigation	☐	38%	50%	UC IPM, 2014	--
Limit Irrigation to 1 Day/Week, 10 Minutes/Day, Between 9PM and 6AM	Irrigation	☑	**100%**	**100%**		
Prohibit Use of Potable Water for Construction and Dust Control	Misc. Outdoor	☑		100%	--	--
Prohibit Single-Pass Cooling Systems	Cooling	☐	80%	1%	Vickers, 2001	--
Require Repair of all Leaks within 24 hours	Leaks	☑	100%	5%	--	--
Prohibit Vehicle Washing Except with Recycled Water	Misc. Outdoor	☑	50%	**100%**	EBMUD, 2008	--
Require Water-Efficient Pre-Rinse Spray Valves	Fixtures & Appliances	☐	0.8%	50%	EPA, 2015; Pacific Institute, 2003	--
- OR -						
Establish Water Budget - 10% Reduction	All CII uses	☐	10%	50%	--	--
Establish Water Budget - 20% Reduction	All CII uses	☐	20%	50%	--	--
Establish Water Budget - 30% Reduction	All CII uses	☐	30%	50%	--	--

4 - Drought Response Actions

City of Lathrop

Drought Response Actions						
Action Description	End Use(s)	Implement Program	End Use Savings (%)	Implementation Rate	Source of Default Savings Estimate	Source of Default Implementation Rate
▶ **Residential Customer Actions to Encourage**						
Install Bathroom Faucet Aerators	Faucets and Dishwashers	☐			--	--
Install a Water-Efficient Showerhead	Showers/Baths	☐			--	--
Turn Off Water when Brushing Teeth, Shaving, Washing Dishes, or Cooking	Faucets and Dishwashers	☐			--	--
Fill the Bathtub Halfway	Showers/Baths	☐			--	--
Wash Only Full Loads of Clothes	Clothes Washers	☐			--	--
Install a High-Efficiency Toilet	Toilets	☐			--	--
Take Shorter Showers	Showers/Baths	☐			--	--
Run Dishwasher Only When Full	Faucets and Dishwashers	☐			--	--
Reduce Outdoor Irrigation	Irrigation	☐			--	--
Install Drip-Irrigation	Irrigation	☐			--	--
Use Mulch	Irrigation	☐			--	--
Plant Drought Resistant Trees and Plants	Irrigation	☐			--	--
Use a Broom to Clean Outdoor Areas	Misc. Outdoor	☐			--	--
Flush Less Frequently	Toilets	☐			--	--
Re-Use Shower or Bath Water for Irrigation	Irrigation	☐			--	--
Wash Car at Facility that Recycles the Water	Misc. Outdoor	☐			--	--

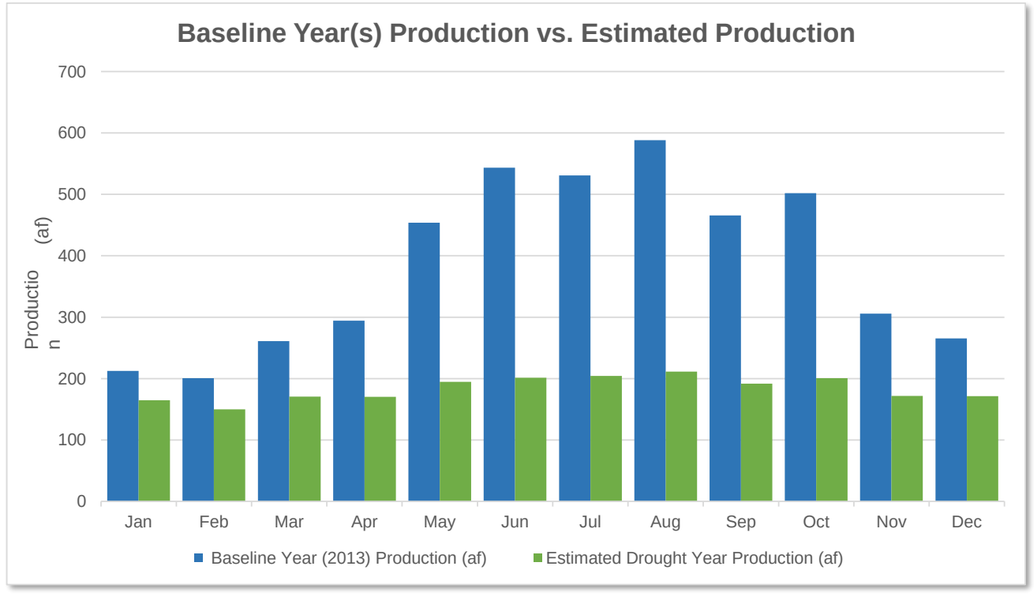
5 - Estimated Water Savings

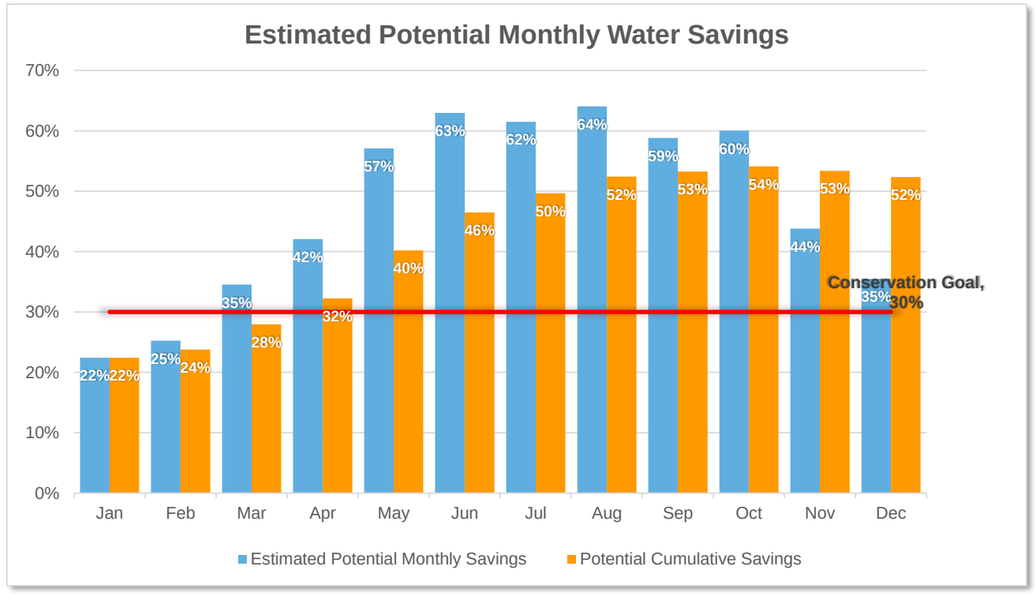
Estimated Monthly Water Use and Savings Summary

Units: (af)

This provides a summary of the estimated production relative to Baseline Year production and potential water savings, assuming implementation of selected actions at the water savings and implementation rates indicated in the Drought Response Actions worksheet. Select the units that your production data are displayed in.

Month	Baseline Year (2013) Production (af)	Estimated Drought Year Production (af)	Estimated Potential Monthly Savings	Potential Cumulative Savings	Conservation Goal	Comments
January	212	165	22%	22%	30%	
February	200	150	25%	24%	30%	
March	261	171	35%	28%	30%	
April	294	170	42%	32%	30%	
May	454	195	57%	40%	30%	
June	544	201	63%	46%	30%	
July	531	204	62%	50%	30%	
August	588	211	64%	52%	30%	
September	466	192	59%	53%	30%	
October	502	201	60%	54%	30%	
November	306	172	44%	53%	30%	
December	266	171	35%	52%	30%	





APPENDIX K:
URGENCY ORDINANCES 14-342 AND 15-347

ORDINANCE NO. 14-342

AN URGENCY ORDINANCE OF THE CITY COUNCIL OF THE CITY OF LATHROP AMENDING LATHROP MUNICIPAL CODE SECTION 13.08.180 BY ESTABLISHING MANDATORY WATER CONSERVATION REGULATIONS

WHEREAS, due to the severe drought conditions that are being experienced throughout the State of California, the State Water Resources Control Board (SWRCB) has recently adopted emergency mandatory water conservation regulations which target outdoor urban water use; and

WHEREAS, Government Code Section 36934 allows City Council to pass and adopt an urgency ordinance immediately upon introduction; and

WHEREAS, Government Code Section 36937 allows an ordinance to take effect immediately for the preservation of the public peace, health, or safety provided the ordinance contains a declaration of the facts constituting the urgency, and is passed by a four-fifths vote of the City Council; and

WHEREAS, although the City already has enacted its Phase II Water Restrictions per LMC 13.08.180 which includes most of the State's mandatory water conservation measures, changes are needed to limit watering to just two days per week by amending the following paragraphs of LMC 13.08.180:

A. ~~Watering after ten a.m. or before seven p.m. is prohibited. Water runoff shall be prohibited.~~ The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited.

C. All commercial and industrial customers shall water only on Tuesday~~,~~ ~~Wednesday~~ and Friday before ten a.m. or after seven p.m.

J. Residents with odd-numbered addresses ~~will~~ may water only on Wednesday~~,~~ ~~Friday~~ and Sunday before ten a.m. ~~and~~ or after seven p.m. Residents with even-numbered addresses ~~will~~ may water only on Tuesday~~, Thursday~~ and Saturday before ten a.m. or after seven p.m.

; and

WHEREAS, this proposed temporary ordinance would allow staff and Council time to hold additional public hearings to consider more permanent regulations on the emergency water conservation practices; and

WHEREAS, the City Council has conducted a properly noticed public hearing pursuant to Government Code section 65090, and has duly considered all written and verbal testimony presented during the hearing; and

NOW THEREFORE, the City Council of the City of Lathrop does hereby ordain as follows, adopted pursuant to the provisions of California Government Code section 36934 and 36937:

1. **Incorporation of Recitals.** The City Council finds that all recitals above are true and correct and are incorporated herein by reference.

2. **Authority; Urgency Statement and Findings**. This is an Urgency Ordinance, adopted as an urgency measure pursuant to Government Code section 36937 and is for the immediate and long-term preservation of the public peace, safety, health, and welfare. This Urgency Ordinance is deemed necessary based on the following findings of the City Council of Lathrop constituting the urgency:

A. On January 17, 2014, Governor Jerry Brown declared a Drought State of Emergency for the State of California due to the possibility of dramatically less water for California's farms and communities, as well as increased risk of fires in urban and rural areas.

B. On July 15, 2014 the SWRCB approved an emergency regulation to ensure agencies and state residents increase water conservation in urban settings or face possible fines or other enforcement.

C. On July 18, 2014, the South San Joaquin Irrigation District (SSJID), which supplies surface water to the cities of Lathrop, Manteca and Tracy, issued a press release on the drought management update announcing that the district will be curtailing the deliveries to each individual city by 20% from their 2013 use in August and September.

D. Emergency water conservation measures are needed to protect the public peace, safety, health, and welfare to avoid adverse impacts such as depleting water supplies or the degradation of water quality in the City's groundwater supplies by over-pumping City wells during the drought conditions.

E. The emergency water conservation measures are needed to preserve public health, safety, and welfare by ensuring that there is enough water available for fire-fighting and storage during times of emergency that is not wasted from excessive outdoor water use on lawns, landscaping, and run-off onto adjacent properties from over-irrigation.

F. Actions are needed to immediately conserve water to avoid far more restrictive water conservation methods in the future that could be imposed upon California residents and water agencies by the SWRCB which could further present a risk to the public peace, safety, health, and welfare.

G. Based on the immediate health and safety concerns recognized by the City Council, this urgency ordinance is needed to comply with the SWRCB emergency regulations and to address the severe drought conditions by helping to conserve limited water supplies.

3. **Severability.** If any provision of this Ordinance or the application thereof to any person or circumstance is held invalid, the remainder of the Ordinance, including the application of such part or provision to other persons or circumstances shall not be affected thereby and shall continue in full force and effect. To this end, provisions of this Ordinance are severable. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, subdivisions, paragraphs, sentences, clauses, or phrases be held unconstitutional, invalid, or unenforceable.

4. **Effective Date.** Pursuant to Government Code Section 36937 (b) this Ordinance shall become effective immediately upon passage and adoption if adopted by at least four-fifths (4/5) vote of the City Council.

5. **Publication.** The Mayor shall sign this Ordinance and the City Clerk shall cause the same to be published within fifteen (15) days after its passage at least once in a newspaper of general circulation published and circulated in the City.

ADOPTED by the City Council of the City of Lathrop on this 18th day of August, 2014.

SONNY DHALIWAL, MAYOR

ATTEST:

Mitzi Ortiz, City Clerk

APPROVED AS TO FORM:

Salvador Navarrete, City Attorney

I, Mitzi Ortiz, City Clerk of the City of Lathrop, California, do hereby certify that the foregoing ordinance was duly and regularly introduced and adopted at a meeting of the City Council on the 18th day of August, 2014, by the following vote, to wit:

AYES: Akinjo, Dresser, Ornelas, Salcedo and Dhaliwal.

NOES: None.

ABSENT: None.

ABSTAIN: None.

This ordinance was duly published in accordance with State law (G.C. 40806).

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the City of Lathrop, California, this 18th day of August, 2014.

CITY CLERK

(SEAL)

ORDINANCE NO. 15-347

AN URGENCY ORDINANCE OF THE CITY COUNCIL OF THE CITY OF LATHROP TO DECLARE AN EMERGENCY DROUGHT CONDITION, TO CONTINUE PHASE II WATER RESTRICTIONS PER LMC 13.08.180, MODIFY AND ESTABLISH PHASE III MANDATORY WATER CONSERVATION MEASURES PER 13.08.190 AND TO SUSPEND LMC 13.08.280

WHEREAS, due to the severe drought conditions that are being experienced throughout the State of California, the State Water Resources Control Board (SWRCB) has recently adopted emergency mandatory water conservation regulations which target outdoor urban water use; and

WHEREAS, Government Code Section 36934 allows City Council to pass and adopt an urgency ordinance immediately upon introduction; and

WHEREAS, Government Code Section 36937 allows an ordinance to take effect immediately for the preservation of the public peace, health, or safety provided the ordinance contains a declaration of the facts constituting the urgency, and is passed by a four-fifths vote of the City Council; and

WHEREAS, the City enacted Phase II Water Restrictions with the intent of reducing water us by 20%, but this resulted in only a 14% reduction in actual use; and

WHEREAS, in order to achieve the required 20% reduction target for Lathrop, and to meet new mandatory restrictions and water conservation measures that are required by the State under the emergency regulations, the City needs to continue implementation of the modified LMC 13.08.180 Phase II Water Restrictions enacted in August 2014, and to modify and enact the LMC 13.08.190 Phase III Mandatory Water Conservation as follows:

Note: additions are shown below in underline font, deletions are shown in strikeout font.

LMC 13.08.180 Phase II Water Restrictions

A. ~~Watering after ten a.m. or before seven p.m. is prohibited. Water runoff shall be prohibited.~~ The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures is prohibited.

B. No Watering is permitted on Monday.

C. All commercial and industrial customers shall water only on Tuesday, ~~Wednesday~~ and Friday before ten a.m. or after seven p.m.

D. Customers shall repair all controllable leaks on the premises.

E. Use of a hand-held sprayer with a trigger handle when washing automobiles is required. The washing of building exteriors, sidewalks and the like is prohibited except in the case of spillage of substances which could cause a threat to the public health or the environment.

F. All ornamental fountains shall be turned off with the exception of fountains employing the use of water-recycling equipment.

G. The water of landscapes at times and on days other than those specified in this section or during high winds that cause water to blow away from the landscapes being watered is prohibited.

H. Restrictions in this phase and the following phases do not apply to water used from reclamation, on-site sources or water delivered to a site from a source other than the city. On-site sources must be equipped with an approved backflow device. The customer will be burdened to demonstrate that an on-site source is separate from the city's water supply.

I. No person, firm or corporation may drill, dig or install a water well within the city service area or the city for any purpose without the consent of the city.

J. Residents with odd-numbered addresses ~~will~~ may water only on Wednesday, ~~Friday~~ and Sunday before ten a.m. ~~and~~ or after seven p.m. Residents with even-numbered addresses ~~will~~ may water only on Tuesday, ~~Thursday~~ and Saturday before ten a.m. or after seven p.m.

K. The days and times during which residential, commercial and industrial uses of water are restricted shall be established by resolution of city council.

LMC 13.08.190 Phase III Water Conservation

A. ~~The filling of any swimming pool that was not filled prior to the declaration of Phase III mandatory restrictions shall be prohibited. The filling of a hot tub or Jacuzzi is not prohibited. Exceptions: public swimming pools and privately-owned swimming pools open to the general public for recreational purposes. All pools, spas, and like, both public and private, must have pool covers to retard water loss. The covers are to be kept in place when the pool, spa, and like are not in use.~~

B. ~~No building permits will be issued for the installation of new swimming pools, spas, hot tubs, and the like during this phase.~~

C. ~~The addition of water above the minimum level necessary to comply with the health requirements for pool, hot tub or Jacuzzi circulation, public or private (that is, adding water to bring the level to the top, where splash-out occurs) is prohibited.~~

D. The watering of landscapes at times and on days other than those specified in this section or during high winds that create water to blow away from the landscapes being watered is prohibited. The days and times which residential, commercial and industrial uses are permitted shall be established by resolution of city council. Irrigation with potable water of ornamental turf on public street medians is prohibited. Irrigating outdoors during and within 48 hours following measurable rainfall is prohibited. The use of potable water outside of newly constructed homes and buildings not in accordance with emergency regulations or other requirements established by the Building Standards Commission and the Department of Housing and Community Development is prohibited.

E. The washing of commercial or noncommercial sidewalks, driveways, porches or other outdoor surfaces is prohibited, except in instances where a spill of a hazardous material or other substance which creates a public nuisance occurs and where it is not feasible to clean the affected area in any other manner. The use of a bucket is not prohibited at any time for cleaning food, grease, oil, or other stains from surfaces.

F. No restaurant may serve water except upon customer request. Restaurants shall post at every table and in restrooms notice of drought conditions and water restrictions. Acceptable methods of notification to patrons include notices or table tents placed on the tables or in the menus and in restrooms in a form approved or provided by the public works director or his or her designee.

G. The owner and/or manager of every hotel, motel, inn, guest house, and every other short-term commercial lodging, must offer their guests the option to not have their linens and towels laundered daily, and shall post notice of drought condition information in every guest room, in a form approved or provided by the public works director or his or her designee.

H. Water conservation plans and landscape watering schedules may be required in the following circumstances: All industrial customers, schools, golf courses, parks and cemeteries, public or private, which do not already have one on file, shall be required to submit a copy of a water conservation plan and landscape watering schedule that meets a water reduction of twenty-five percent (25%) from previous use within thirty (30) days of the beginning of mandatory restrictions.

WHEREAS, in accordance with LMC 13.08.280, the use of fresh water for dust control or construction uses is prohibited during a declared drought or water emergency but the enactment of LMC 13.08.280 may result in violation of SJVAPCD dust control requirements and potentially increase construction costs or severely limit construction activities that require water, so therefore, suspension of LMC 13.08.280 is needed until such time that alternative water supplies for dust control or construction are made available; and

WHEREAS, the City Council has conducted a properly noticed public hearing pursuant to Government Code section 65090, and has duly considered all written and verbal testimony presented during the hearing.

NOW THEREFORE, the City Council of the City of Lathrop does hereby ordain as follows, adopted pursuant to the provisions of California Government Code section 36934 and 36937:

1. **Incorporation of Recitals.** The City Council finds that all recitals above are true and correct and are incorporated herein by reference.

2. **Authority; Urgency Statement and Findings**. This is an Urgency Ordinance, adopted as an urgency measure pursuant to Government Code section 36937 and is for the immediate and long-term preservation of the public peace, safety, health, and welfare. This Urgency Ordinance is deemed necessary based on the following findings of the City Council of Lathrop constituting the urgency:

A. On January 17, 2014, Governor Jerry Brown declared a Drought State of Emergency for the State of California due to the possibility of dramatically less water for California's farms and communities, as well as increased risk of fires in urban and rural areas.

B. On July 15, 2014 the SWRCB approved an emergency regulation to ensure agencies and state residents increase water conservation in urban settings or face possible fines or other enforcement.

C. In August, 2014 the City held a public hearing and adopted an urgency ordinance amending the Lathrop Municipal Code (LMC) 13.08.180 – Phase II Water Restrictions to meet the emergency mandatory water conservation regulations targeted to achieve a 20% reduction in water use (as compared to 2013 consumption).

D. On March 27, 2015 the State submitted an emergency regulation to keep the 2014 drought emergency water conservation measures in effect.

E. On April 1, 2015, Governor Jerry Brown issued an Executive Order that required the State Water Resources Control Board (SWRCB) to impose restrictions to achieve a state-wide 25% reduction in potable urban water usage compared to the amount used in 2013.

F. On May 5, 2015, the SWRCB adopted the mandatory conservation measures in response to the Governor's Order.

G. Emergency water conservation measures are needed to protect the public peace, safety, health, and welfare to avoid adverse impacts such as depleting water supplies or the degradation of water quality in the City's groundwater supplies by over-pumping City wells during the drought conditions.

H. The emergency water conservation measures are needed to preserve public health, safety, and welfare by ensuring that there is enough water available for fire-fighting and storage during times of emergency that is not wasted from excessive outdoor water use on lawns, landscaping, and run-off onto adjacent properties from over-irrigation.

I. Actions are needed to immediately conserve water to avoid far more restrictive water conservation methods in the future that could be imposed upon California residents and water agencies by the SWRCB which could further present a risk to the public peace, safety, health, and welfare.

3. **Severability.** If any provision of this Ordinance or the application thereof to any person or circumstance is held invalid, the remainder of the Ordinance, including the application of such part or provision to other persons or circumstances shall not be affected thereby and shall continue in full force and effect. To this end, provisions of this Ordinance are severable. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, subdivisions, paragraphs, sentences, clauses, or phrases be held unconstitutional, invalid, or unenforceable.

4. **Effective Date.** Pursuant to Government Code Section 36937 (b) this Ordinance shall become effective immediately upon passage and adoption if adopted by at least four-fifths (4/5) vote of the City Council.

The Mayor shall sign this Ordinance and the City Clerk shall cause the same to be published within fifteen (15) days after its passage at least once in a newspaper of general circulation published and circulated in the City.

The foregoing Ordinance was introduced and adopted this 15th day of June, 2015 by the following vote:

AYES: Akinjo, Dresser, Salcedo and Dhaliwal.

NOES:

ABSENT: Ornelas.

ABSTAIN:

Sonny Dhaliwal, Mayor

ATTEST:

Teresa Vargas, City Clerk

APPROVED AS TO FORM:

Salvador Navarrete, City Attorney

I, Teresa Vargas, City Clerk of the City of Lathrop, California do hereby certify that the foregoing ordinance was duly and regularly introduced and adopted at a meeting of the City Council on the 15th day of June, 2015, by the following vote, to wit:

AYES:	Akinjo, Dresser, Salcedo and Dhaliwal.
NOES:	None
ABSENT:	Ornelas
ABSTAIN:	None

This ordinance was duly published in accordance with State law (G.C. 40806).
IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the City of Lathrop, California, this 15th day of June, 2015.

CITY CLERK

APPENDIX L:
WATER CONSERVATION KIT INSTRUCTIONAL BOOKLET

CITY OF LATHROP
390 TOWNE CENTRE DRIVE
LATHROP, CA 95330

Water Conservation Kit Handbook

Save Water, Save Money!

2017

Courtesy of the City of Lathrop Department of Public Works

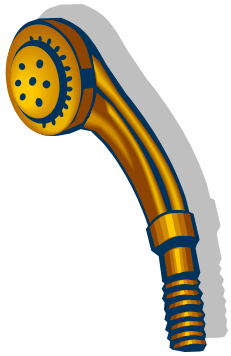
City of Lathrop Public Works Dept. provides residents with two different water conservation kit options:

INDOOR KIT includes:

- Instructions for the following devices:
  - Toilets
  - Faucets
  - Showers
- Water Meter Monitor Forms
- Water-Saving Tips

OUTDOOR KIT includes:

- Instructions for the following devices:
  - 7 position water gun w/ insulated metal handle
  - Rain Gauge
  - Soil Moisture Probe



SHOWERHEAD

Current showerhead flow rates are at 2.08 gallons per minute.

This kit includes a shower head that delivers 1.5 gallons per minute and still delivers good water pressure.

1. Remove old showerhead from the shower arm. If you need to use a wrench to remove it, use a second wrench to hold the shower arm while you loosen
2. Before installing the showerhead, turn on the water to flush out the pipe.
3. Turn the water off.
4. Apply two or three turns of Teflon tape (provided with kit) in a clockwise motion to the threads of the new shower arm before installing the new showerhead. This may help prevent leaks.
5. Screw on the new showerhead and hand tighten.
6. Test showerhead. If it leaks, tighten by using one wrench on the shower arm and another wrench on the showerhead. Tighten until snug. Do NOT over tighten.

DISH SQUEEGEE

Pre-rinsing dishes prior to putting them in a dishwasher can waste up to 6,500 gallons of water per year!

The dish squeegee makes doing dishes simple, fast, and saves water.

1. Simply squeegee off dirty dishes with no pre-rinsing needed.

SOIL MOISTURE METER PROBE

Use this analog-style moisture meter to determine if plants require water. Simply insert into ground and read meter.

Great for monitoring indoor plants too!

DUAL FAUCET AERATOR

Current bathroom faucet flow rates are at 1.88 gallons per minute.

This kit includes aerators that cut flow rates to 1.0 gallons per minute!

1. Remove old aerator. A wrench may be needed to loosen it.
2. Run water to flush the faucet. Be sure the old aerator washer is not left inside the faucet, and that faucet threads are clear of debris.
3. Turn off water and install new aerator by hand tightening.
4. Turn on water. If aerator leaks, use a wrench to tighten, ONLY until snug. Use a cloth to protect the finish.
5. Periodically remove aerator and rinse parts.

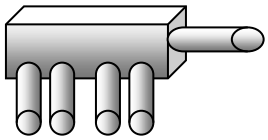
TOILET TANK BANK

This item helps toilets that use 3 - 3.5 gallons or more per flush, to be more efficient, by taking up space in your reserve tank leaving less water needed to refill after each flush.

Estimated savings are 1/2 gallon per flush.

1. Fill the Toilet Tank Bank with water and lower it into your toilet tank.
2. Make sure you place the bag away from the toilet's moving parts.

FILL CYCLE DIVERTER



This item directs more water to your toilet tank and less to the bowl during refill.
The goal is for the tank and bowl to finish filling in the same amount of time (or as close as possible).

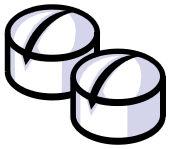
The Fill Cycle Diverter saves 0.5 to 1.5 gallons of water per flush.

1. Remove toilet lid
2. Pull hose out of overflow tube.
3. Remove clip or holder, if any.
4. Insert long end of Diverter into hose end.
5. Push Diverter onto overflow tube with one of its arms inside and one arm outside overflow tube.
6. In some cases, the hose may need to be cut shorter to reduce buckling or tipping.

7 POSITION GARDEN HOSE NOZZLE

This garden hose nozzle features a volume control dial that regulates flow and will help you save water with settings from full force to a light mist, enabling more water efficiency in your outdoor use, with less water waste.

LEAK DETECTION TABLETS



Worn out, old, or poorly made toilet flappers can leak undetected allowing water to continuously flow from your toilet.

These tablets offer a simple way to test your toilet for leaks.

1. Lift off the toilet tank lid.
2. Without flushing, place 2 dye tablets (or 10 drops of food coloring) in the toilet tank.
3. Wait 10 minutes. If color appears in the bowl, the toilet has a leak.

RAIN GAUGE

This UV-resistant one-piece rain gauge will assist your conservation efforts with efficient lawn watering.

With a rain gauge you will be able to determine how much watering your lawn needs after rainfall and to measure how much water your sprinklers are delivering.

Did you know?

- Running the tap uses 2-5 gallons of water per minute.
- Watering 1,000 square feet of grass in the Summer uses 850 gallons of water.
- Landscaping accounts for about half the water Californians use at home.

  Showers account for another 18 percent, while toilets use about 20 percent.
- Never put water down the drain when there may be another use for it.

  Water house plants or garden, or cleaning are good options!
- A toilet that runs continuously can use as much as 4,000 gallons of water per day!

  Even a slow, silent leak can add gallons to your bill.
- Flushing the toilet alone uses 1.5—7 gallons per flush.
- An average bath requires 37 gallons of water
- Water your lawn only when it needs it.

  If you step on the grass and it springs back up when you move, it doesn't need water. If it stays flat, it does need water.
- Taking a shower uses 2-7 gallons PER MINUTE!!
- Use of bowl of water to clean fruits & vegetables rather than running water over them.

Leak Detection Method

The following leak detection methods are usually "point-in-time" tests. They only indicate if water went through the meter during the test period. If you have unexplained high water bills and the first test did not indicate a leak, continue to check for leaks by monitoring the meter. There is a Meter Monitoring Log (page 6) and Trouble-shooting List (page 5) that will help you track a leak.

1. **Locate the water meter.** It should be near the street under a metal, plastic or concrete lid. When water is not being used, none of the indicators on the meter should be moving. Water meters have numbers of spinning dials, which record usage. Most meters also have a small "leak detector" arrow, which senses the lower volumes of water common with leaks. **Turn off every-water using item** inside and outside the home.

2. **Check the meter**. The best time to take the first reading is at night right before everyone has gone to bed. Write down the date, time, meter reading, and if the red triangle is moving. Use the Meter Reading Log to record your readings. Make sure to write down all of the numbers starting from the left. If the triangle is moving, you may have a leak. In some cases, it may move back and forth very slightly, as water pressure in the street fluctuates. If it moves forward continually, even at a slow rate, you have a leak. In the morning, before anyone uses water, take another meter reading. The evening and morning readings should approximately be the same. The reading should be the same, or higher, than the last reading indicated on your most recent water bill. If the current read is lower than what is indicated on the most recent bill, the meter could have been read incorrectly. Contact the Finance Department at (209) 941-7320.

   DO NOT TURN OFF THE ANGLE STOP VALVE LOCATED INSIDE YOUR METER BOX. CITY OF LATHROP EMPLOYEES ARE THE ONLY PERSONNEL ALLOWED TO DO ANY MAINTENANCE WITHIN METER BOX.

   Use the Troubleshooting List as a guide to help you inspect all water-using devices and appliances.

4. **If you still can't locate the leak, find the main shut off valve for your home**. The main water valve will stop all water flow into your home. It can be located indoors or out-doors, but should be near the location where the water line enters the home. Normally it is located on the side of the home, where a water hose can be hooked up to. There are always two sets of valves: one for the water hose, and the other is the main water valve. If you don't know where the shut off valve is, follow a straight line from the water meter to your home, and look for it.

5. **Confirm the location of the leak**. If the main shut off is closed and meter has stopped, the leak is not between the meter and the home. If the meter still runs with the main water shut off, your leak is between the meter and the home. Since outdoor leaks are relatively rare, be sure to double check that all indoor fixtures and outdoor hose and irrigation lines are off. Please call a plumber for all domestic leaks.

Leak Troubleshooting List

The following information is a list of household areas where water is consumed. Inspect every water-using device and appliance in your home, including any rarely used or broken devices. Use checkboxes to mark off items you have inspected.

Throughout the House

- ☐ Hot water heater
- ☐ Hot water heating system
- ☐ Humidifier
- ☐ Water softener
- ☐ Medical equipment
- ☐ Hot tub or spa
- ☐ _____

Basement or Laundry Room

- ☐ Washing machine
- ☐ Clothes Steamer
- ☐ Sink faucet and fixtures
- ☐ _____
- ☐ _____

Outside the House

- ☐ Spigots
- ☐ Irrigation/sprinklers
- ☐ Garden hoses
- ☐ Pool, hot tub, spa
- ☐ Fountain or pond
- ☐ _____
- ☐ _____

Kitchen

- ☐ Sink faucet and fixtures
- ☐ Automatic icemaker
- ☐ Automatic dishwasher
- ☐ _____
- ☐ _____

Bathroom Area 1

- ☐ Toilet
- ☐ Sink faucet and fixtures
- ☐ Shower faucet and fixtures
- ☐ _____

Bathroom Area 2

- ☐ Toilet
- ☐ Sink faucet and fixtures
- ☐ Bathtub faucet and fixtures
- ☐ Shower faucet and fixtures
- ☐ _____

Other Appliances and Devices

- ☐ _____
- ☐ _____
- ☐ _____

Water Meter Monitoring Log

Keep track of your water meter readings here. If you do notice a leak, call your local plumber for inspection and/or repair.

Resident Name:_____

Resident Address:_____

Daytime Phone:_____

Date	Time	Reading	Usage	Is Red Triangle Moving? (circle one)
				Yes No
				Yes No
				Yes No
				Yes No
				Yes No
				Yes No
				Yes No

Looks like you've got a leak!

How to detect leaks in and outside of your home

OUTDOORS

Leaks can occur outdoors in your supply system or irrigation system and they can occur indoors in your plumbing system or from fixtures.

TO DETECT POSSIBLE LEAKS IN IRRIGATION LINES:

1. look for wet spots in lawn.
2. Look for obvious patches of greener sections than your overall grass color.
3. There also may be a small growth of mushrooms in or around wet spots.

Your irrigation system may have a broken emitter or the timer may be off schedule or malfunctioning. There could also be a crack or break in your service line between the meter and the house.

If your home is a newer home: Check your home warranty or contact your home developer. Regarding repair or replacement for irrigation lines.
For older homes: Please seek a professional contractor for further consultation.

INDOORS

At night, when there is the least amount of noise within your home, listen to the toilet bowl. You will hear a distinctive noise of continuous running water. Your toilet should stop running after you flush it, and normally there should be NO NOISE.

Make sure that all faucets do not have any dripping when they are securely shut.

The Water Conservation Kit you picked up today from the City of Lathrop Public Works Department, if used properly, will help reduce wasted water and will also help you and your family keep your water usage down.

Water Saving Tips

to save you money!

- Some refrigerators, air conditioners, and ice-makers are cooled with wasted flows of water. Consider upgrading with air-cooled appliances instead.
- **Adjust sprinklers so that only your lawn is watered moderately; and water does not run onto the sidewalk and street.**
- Run your clothes washer and disherwasher only when they are full. You can save up to 1,000 gallons a month.
- Use the garbage disposal sparingly. Compost vegetable foodwaste instead.
- **Monitor your water bill for unusually high use. Your bill and water meter are tools that can help you discover leaks.**
- If you have an automatic refilling device, on a residential pool, check your pool periodically for leaks.
- **By using food coloring or dye tables in your toilet tank, you can detect possible leaks. Fixing it can save up to 1,000 gallons a month**
- Know where your master water shut-off valve is located. This could save water and prevent damage to your home in the event of a leak.
- Rather than following a set watering schedule, check for soil moisture two to three inches below the surface before watering
- Use a commercial car wash that recycles water.
- Plant in the fall when conditions are cooler and rainfall is more plentiful
- For cold drinks, keep a pitcher of water in the refrigerator instead of running the tap.
- **Replace your showerhead with a water-efficient model.**
- Use a rain gauge, or empty tuna can, to track rainfall on your lawn.
- **Use water-saving aerators on all of your faucets**.

Internet Resources

Below are a few websites with information on recycling, reducing, reusing, State laws, county ordinances, and Lathrop ordinances which you may find helpful.

San Joaquin County Public Works— www.sjgov.org/publicworks/

SJ County Flood Control & Water Conservation District—
www..sjwater.org/

SJ County Master Gardeners Program—http://sjmastergardeners.ucdavis.edu/

State of California Water Resources Control Board— www.swrcb.ca.gov

California Environmental Protection Agency—www.calepa.ca.gov/

California Integrated Waste Management Board—www.ciwmb.ca.gov

Earth911— http://earth911.com

Lathrop Municipal Codes— http://qcode.us/codes/lathrop

SJ County Ordinances—
http://municipalcodes.lexisnexix.com/codes/sanjoaquinweb/

US Dept. of Agriculture-Natural Resources Conservation Services—
www.nrcs.usda.gov/

MANDATORY WATER RESTRICTIONS

1. No watering outside between 10am - 7pm.
2. No watering permitted on MONDAYS.
3. Addresses ending in **odd** numbers (1, 3, 5, 7, & 9) will water outside on WEDNESDAY and SUNDAY ONLY, before 10am and after 7pm.
4. Addresses ending in **even** numbers (0, 2, 4, 6, & 8) will water outside on TUESDAY and SATURDAY ONLY, before 10am and after 7pm.
5. **Commercial and Industrial customers** shall water on TUESDAY and FRIDAY ONLY, before 10am and after 7pm.
6. The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows on to adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures, is prohibited.
7. Irrigation outdoors during and within forty-eight (48) hours following measurable rainfall is prohibited.
8. Hand-held trigger shut-off devices are required with a water hose.
9. Washing of building exteriors, sidewalks, driveways, etc., is prohibited except in the case of spillage of substances that would be harmful to the public health or the environment.
10. All controllable leaks must be repaired.
11. Watering landscapes during high winds that create water to blow away from the landscapes being watered is prohibited.
12. All ornamental fountains shall be turned off with the exception of fountains employing the use of water-recycling equipment.
13. No restaurant may serve water except upon customer request.
14. Hotels, Motels, Inns, Guest Houses and any other short-term commercial lodging must offer their guests the option to not have their linens and towels laundered.

CITY OF LATHROP
DEPARTMENT OF PUBLIC WORKS

Public Works
C/o Water Conservation Kits
390 Towne Centre Drive
Lathrop, CA 95330
Phone: 209-941-7430
Fax: 209-941-7449
E-mail: website_pwk@ci.lathrop.ca.us

APPENDIX M:
PLAN SUBMITTAL DOCUMENTATION

577 Airport Blvd. Suite 500
Burlingame, CA 94010
(650) 292-9100
ekiconsult.com

LETTER OF TRANSMITTAL

TO:	California State Library	**DATE:**	October 4, 2017
	Government Publications Section	**PROJECT #:**	B60038.01
	P.O. Box 942837,		
	Sacramento, CA 94237-0001		

SUBJECT: City of Lathrop 2015 Urban Water Management Plan

WE ARE SENDING YOU THE FOLLOWING:

- CD ROM of the City of Lathrop – 2015 Urban Water Management Plan

REMARKS:

In accordance with California Water Code §10644, EKI Environment & Water, Inc. is please to submit the adopted 2015 Urban Water Management Plan to the California State Library on behalf of the City of Lathrop.

Very truly yours,

EKI Environment & Water, Inc.

Anona L. Dutton, P.G., C.Hg.

Vice President/Principal-in-Charge

577 Airport Blvd. Suite 500
Burlingame, CA 94010
(650) 292-9100
ekiconsult.com

LETTER OF TRANSMITTAL

TO:	Brandon Nakagawa	**DATE:**	October 4, 2017
	San Joaquin County Public Works	**PROJECT #:**	B60038.01
	1810 East Hazelton Avenue		
	Stockton, CA 95205		

SUBJECT: City of Lathrop 2015 Urban Water Management Plan

WE ARE SENDING YOU THE FOLLOWING:

- CD ROM of the City of Lathrop – 2015 Urban Water Management Plan

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Very truly yours,

EKI Environment & Water, Inc.

Anona L. Dutton, P.G., C.Hg.

Vice President/Principal-in-Charge