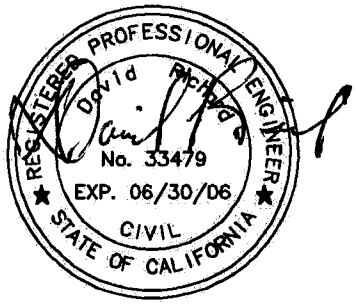
# CITY OF LATHROP

# 2003 Urban Water Management Plan





**August 2004**

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**Community Development Department**
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The water supplier is a: Municipality

The water supplier is a: Retailer

Utility services provided by the water supplier include: water supply and distribution

Is this agency a bureau of reclamation contractor? No

Is this agency a state water project contractor? No

# 1.0 INTRODUCTION

The following plan has been prepared in accordance with State of California Assembly Bill 797 (AB 797) and the Urban Water Management Planning Act outlined in Section 10610 of Division 6 of the California Water Code. AB 797, adopted in 1983, required all water suppliers in California with more than 3,000 customers or a demand exceeding 3,000 acre-feet (ac-ft) annually to prepare and adopt an urban water management plan (UWMP) by 1985. The legislation also required the suppliers to adopt follow-up plans by December 31, 1990. Assembly Bill 2661, adopted in July 1990, formally extended the process, requiring suppliers to update their plans every five years. Subsequently, Senate Bill 553 (SB 553) was signed into law on September 28, 2000. SB 553 revised the Urban Water Management Planning Act by replacing the content of the 16 Demand Management Measures (DMMs) with the 14 Best Management Practices (BMPs) currently being implemented by Group 1 signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California. The Urban Water Management Planning Act, however, continues to use the title DMM in place of BMP.

In response to AB 797, the City of Lathrop (City) has prepared this UWMP because the City now provides water to more than 3,000 customers.

## 1.1 UWMP Contents

This section provides a brief description of the contents of the plan by section.

**Section 1.0 – Introduction:** This section provides a review of the plan contents and background information regarding the City of Lathrop including the City water supply strategy.

**Section 2.0 – Public Participation:** Section 2.0 provides a summary of public outreach activities, plan adoption information, and agency coordination.

**Section 3.0 – Water Sources:** This section reviews the potential sources for water in the City of Lathrop, including groundwater and surface water.

**Section 4.0 – Reliability Planning:** This section discusses the frequency and magnitude of supply deficiencies, plans to ensure a reliable water supply, and transfer and exchange opportunities.

**Section 5.0 – Water Use Provisions:** Past, current, and projected water use is summarized in Section 5.0. Water use is quantified for five-year increments through the year 2025 for uses such as single-family residential, industrial, and commercial.

**Section 6.0 – Supply and Demand Comparison Provisions:** This section compares current and projected water supply and demand.

**Section 7.0 – Water Demand Management Measures:** Section 7.0 provides a description of each water DMM that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures.

**Section 8.0 – Water Recycling:** This section discusses wastewater generation, collection, and treatment, as well as disposal and potential recycled water uses. It also discusses actions taken to encourage recycled water use.

**Appendix A – City of Lathrop Water Ordinances**

**Appendix B – Urban Water Management Plan Adoption Resolution**

**Appendix C – Water Supply Development Agreement and Contract Amendment**

**Appendix D – City of Lathrop Capital Improvement Program**

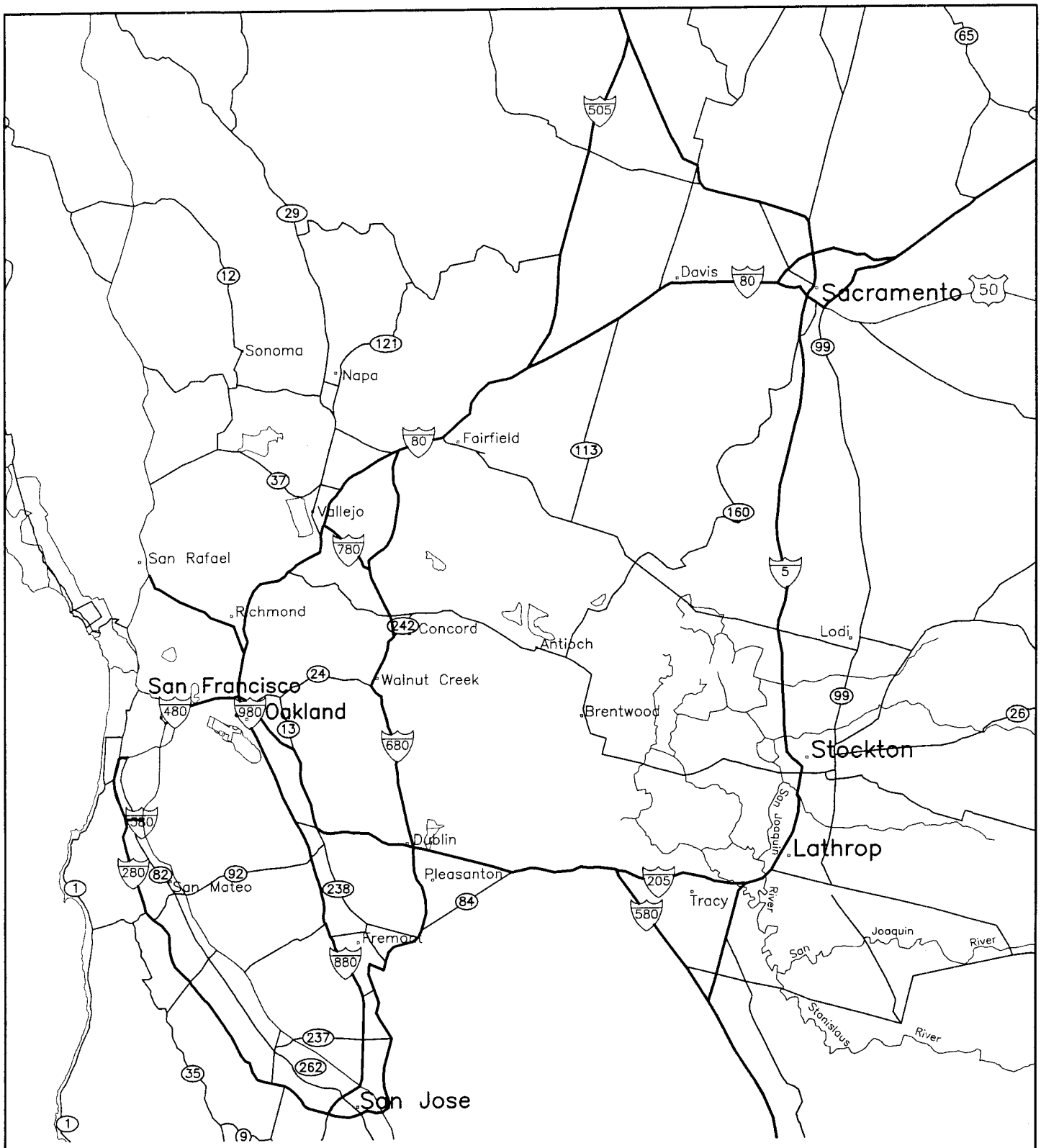
## 1.2 Background

This section presents history and growth information for the City, as well as a summary of the City's climate and water supply strategy.

The City is located south of Stockton and west of Manteca along the Interstate 5/Interstate 205/State Route 120 corridor (see Figure 1). While the existing community is developed primarily east of Interstate 5 (I-5), major new developments are projected west of I-5 (see Figure 2). Future water supply for the City will consist of treated surface water delivered through the South County Water Supply Program (SCWSP) and groundwater extracted within the City. The water utility system is a self-supporting City enterprise. The water utility is responsible for operation, maintenance, and repair of the City's water treatment and distribution system, as well as water quality monitoring, meter installation, and meter reading. For reference, background information is presented below for the City service area including projected population and climate.

Current/Projected City Population

The population of the City at the end of 2003 was 12,062 [1]. Based on the anticipated rate of development described in the City of Lathrop Master Plan [2], population projections for the City are shown in Table 1. Population projections for the River Islands at Lathrop and




# FIGURE 1

CITY OF LATHROP
URBAN WATER MANAGEMENT PLAN

## VICINITY MAP
## CITY OF LATHROP

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\\sas1\project\sa1549\cadd\lp\Figure-1.dwg

Mossdale Landing projects have been updated to reflect information presented in their respective CEQA documents [3, 4].

TABLE 1
**CITY OF LATHROP POPULATION PROJECTIONS**

| Year | East Lathrop[a] | Central Lathrop[b] | Mossdale Landing | Stewart Tract[c] | Total |
|---|---|---|---|---|---|
| 2003 | 12,062 | - | - | - | 12,062 |
| 2005 | 12,300 | 5,993 | 4,507[d] | - | 22,800 |
| 2010 | 12,900 | 9,292 | 5,408 | 6,254 | 33,854 |
| 2015 | 13,600 | 13,492 | 5,408 | 12,412 | 44,912 |
| 2020 | 14,200 | 15,492 | 5,408 | 22,046[e] | 57,146 |
| 2025 | 14,800 | 16,891 | 5,408 | 31,680 | 68,779 |

[a] Includes existing development within the City.
[b] Central Lathrop population projections from the Master Plan less Mossdale Landing population projections.
[c] Includes River Islands at Lathrop.
[d] Population projection for 2007.
[e] Population interpolated based on 2015 and 2025 population projections.

## Climate

The Lathrop area is considered semi-arid, characterized by hot, dry summers and mild, wet winters. During winter the average daily temperature ranges from 45°F to 55°F. Low temperatures at night vary from 35°F in winter to 60°F in summer. During summer the average daily temperature ranges from 70°F to 80°F. Daytime summer temperatures can reach 105°F.

Average precipitation in the area ranges from about eight inches annually east of Lathrop near Tracy to approximately seventeen inches north of Lathrop near Lodi. Near Lathrop, the annual rainfall is approximately twelve inches. Annually, most of the precipitation occurs during the months of November through March.

## Water Supply Strategy

The City of Lathrop adopted Master Plan Documents (Master Plans), including a Potable Water Supply and Distribution Master Plan, in February 2001. The following summarizes the City's near-term and long-term water supply strategy as outlined in the Master Plans. A discussion of system storage and recycled water use are also included for reference. Detailed water source information is provided in Section 3.0 of this UWMP.

*Background*

Potable water supply for the City of Lathrop (City) will be a combination of groundwater from the City's existing well system augmented by new wells to meet near-term water demand and surface water from the South County Water Supply Program (SCWSP) as the principal long-term source. Potable water supplies must have sufficient capacity to meet maximum day demands under various emergency conditions. Peak hour demands will be met through storage. The storage components will include provisions for equalization, fire fighting, and emergencies.

The development of new water supplies assumes the following:

1. Water demand will increase as summarized in Table PW-18 of the Master Plans. In Year 2030, the City average annual water demand is estimated at 18,800 ac-ft/yr (16.8 mgd). Maximum day demand is estimated as twice the average day demand or 33.6 mgd.

2. The SCWSP will be operational in 2005.

3. Phase I of the SCWSP will supply up to 14.6 mgd of water to the City and Phase II will increase the SCWSP supply to the City's total allocation of 21.1 mgd. Phase II will be completed by 2020. Wells will supply the balance of the City maximum day demand or 12.5 mgd.

4. The capacity of the well system is based upon one well out of service with a second well on standby mode.

*Existing Water Supply*

The City currently has four municipal groundwater wells (Well Nos. 6, 7, 8, and 9). The pumps at each of the four wells utilize electric motors with diesel generators for back-up power. Two of the wells are equipped with variable speed pumps. The typical mode of operation is to utilize one or both of the variable speed pumps during periods of low demand so that demand and pumping variations can be matched. As demand increases, the fixed speed pumps are activated. The combined capacity of the four wells is approximately 5,000 gallons per minute (gpm) or 7.2 mgd, which is an average of 1,250 gpm per well (1.8 mgd per well). However, using the Master Plan criteria that well capacity is based on one well out of service and one well in standby mode, only 3.6 mgd is currently available to meet maximum day demands. Based on 2003 demands, the existing water supply system does not comply with this criterion.

*Future Water Supply*

As noted above, using the Master Plan criteria of one well out of service and one well on stand-by status, the City's existing well capacity is 3.6 mgd. Assuming each new well increases the City's water supply capacity by 1.8 mgd, four new wells (Well Nos. 10, 21, 22, and 23) will increase the City's well capacity to 10.8 mgd.

The Master Plan assumes that wells will initially be installed to meet near-term water demands (i.e., prior to implementation of Phase 1 of the SCWSP). As previously discussed, future water supply for the City will be provided by a combination of groundwater and surface water. As phases of the SCWSP become operational and new developments are constructed, groundwater use will fluctuate. However, after Well Nos. 10, 21, 22, and 23 are constructed, no additional groundwater wells are scheduled for installation until after Year 2025 when groundwater supply capacity will increase from 10.8 mgd in 2025 to 12.6 mgd in 2030.

*Water Storage*

The City's water supply strategy also includes the use of wells to meet emergency storage requirements. There are three components of water supply storage: equalization, fire, and emergency. The Master Plan assumes that equalization and fire storage will be provided primarily by tanks and the majority of emergency storage will be provided by wells. The following provides additional detail regarding emergency storage requirements for the City.

The Master Plan Assumptions Report includes criteria that twice the average day demand be available for emergency supply and that the system be capable of operating with one storage tank out of service. In the event one of the 2-MG storage tanks is out of service, the emergency supply would require additional storage or additional well capacity. Construction of two new wells dedicated to emergency use only was recommended in the Master Plans. These two "emergency-use only" wells are in addition to the seven wells required for groundwater supply production at build-out.

*Recycled Water*

The Master Plan assumes recycled water will be used in the future for landscape irrigation at golf courses, parks and playgrounds, schoolyards, roadway medians, commercial landscaping, and open space. It was estimated in the Master Plans that the annual recycled water demand is approximately 4,700 af-ft/yr at build-out.

**NORMAI YEARS[a]**

| Year | Projected Demand[b] ac-ft/yr | Projecteal Demanc ac-ft/yr | Difference: Single-Dry Year ac-ft/yr | Difference: Multi-Dry Year ac-ft/yr |
|---|---|---|---|---|
| 2005 | 4,514 | 3,612 6 | 3,350 | 3,612 |
| 2010 | 7,891 | 6,313 4 | 3,578 | 4,172 |
| 2015 | 10,410 | 8,328 0 | 1,940 | 2,902 |
| 2020 | 13,189 | 10,551 1 | 291 | 2,720 |
| 2025 | 15,868 | 12,694 3 | 1,023 | 3,246 |

[a] Assumed reduction in demand of
[b] Existing City baseline demand pl
[c] Existing City baseline demand pl
[d] Groundwater pumping could be i
[e] SCWSP delivery to City of Lathr

Future estimates of potable water demand for the City do not account for the use of recycled water to offset potable water demands. Recycled water treatment, storage, and distribution systems will require years to design, construct, and fully implement. Currently, only estimates of recycled water use are available for the City. When a recycled water system is fully operational actual reuse potential can be quantified and taken into consideration in re-evaluating future potable water requirements.

*Summary*

The City has implemented a conjunctive use water supply program to ensure adequate water is available for the City as it continues to develop over the next twenty-five years. Recognizing that new development land use plans have been updated since adoption of the Master Plans, water demands have been updated accordingly in each development's SB 610 Water Supply Assessment Report. In addition, as new wells are drilled and capacities are confirmed, specific infrastructure required for each development (i.e., tanks, wells, distribution system piping) has been tailored to reflect the most current information. However, the overall strategy of using a combination of groundwater wells and surface water from the SCWSP to meet City water demands has not changed. Groundwater wells are still required to meet near-term water demands, and in the future they provide approximately a third of the overall water supply for the City.

# 2.0 PUBLIC PARTICIPATION

## 2.1 Public Outreach

The City has actively encouraged community participation in its urban water management planning efforts. Advertisements were placed in the Manteca Bulletin and The Rush and the UWMP was made available to the public for review and comment before the City Council's approval. Copies of the draft UWMP were available at City offices and the library. Additionally, community input was sought during the development of the City's Water Ordinances (Appendix A) in 1991.

## 2.2 Plan Adoption

This UWMP was prepared from Summer 2003 through Winter 2003. The plan was submitted to the Department of Water Resources in August 2004 and the Plan was adopted by City Council on July 20, 2004. See Appendix B for a copy of the resolution approving the filing of the Urban Water Management Plan. This plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning).

## 2.3 Agency Coordination

The development of this plan was coordinated with City of Lathrop Public Works and Planning Department staff. The Public Works Department is responsible for utility billing and maintains statistical data regarding water consumption. The Planning Department is responsible for overseeing all development activities in the City. This UWMP was also coordinated with SB610 Water Supply Assessment Reports that have recently been prepared or are currently being prepared for new developments in the City.

## 3.0 WATER SUPPLY SOURCES

As noted previously, the City currently relies exclusively on groundwater as a potable water supply. The municipal system serves residential and commercial customers. Agricultural and industrial users (i.e., manufacturing) rely upon private wells. This section reviews the sources for water in the City of Lathrop, including groundwater and surface water. A description of existing facilities, information about the City's emergency connection to Sharpe and the City of Stockton, and a summary of historic groundwater pumping are provided, as well as projected groundwater pumping and potential impacts. Finally, a summary of the SCWSP is discussed, the Recycled Water Master Plan is summarized, and a water supply summary is provided at the end of the section.

### 3.1 Description of Existing Facilities

The City maintains four municipal groundwater wells. Well No. 5 has not been in use since 1995 due to potential groundwater contamination from Sharpe and has since been abandoned. Capacity and characteristics of active Well Nos. 6, 7, 8, and 9 are described in Table 2.

TABLE 2
**SUMMARY OF ACTIVE LATHROP MUNICIPAL WELL CHARACTERISTICS**

| Parameter | Well No. 6 | Well No. 7 | Well No. 8 | Well No. 9 |
|---|---|---|---|---|
| Year Drilled | 1986 | 1989 | 1991 | 1993 |
| Motor Horsepower | 100 | 100 | 100 | 100 |
| Type of Pump | Deep Well Turbine, Fixed Speed | Deep Well Turbine, Fixed Speed | Deep Well Turbine, Variable Speed | Deep Well Turbine, Variable Speed |
| Pump Design Flow, gpm | 1,250-1,300 | 1,200 | 1,400 | 1,200 |
| Well Capacity, gpm (mgd) | 1,400 (2.0) | 1,100 (1.6) | 1,250 (1.8) | 1,250 (1.8) |
| Casing Depth, feet | 270 | 270 | 273 | 282 |
| Pump Design Head, feet | -- | 200 | -- | 221 |

The existing potable water storage and distribution system consists of three above-ground storage tanks, two booster pump stations, and more than 47 miles of underground pipes used to distribute water to the City's approximately 3,012 water service connections. Connections to the City's water system are currently increasing at a rate of about one hundred new connections per year. The existing system is illustrated in Figure 3.

The existing above-ground steel storage tank located near the intersection of Howland Road and Vierra Road is a 75-foot diameter, 30-feet high tank with a storage capacity of one million gallons. A second existing aboveground storage tank is located near J-Street and Ruby Court. This 22-1/2 feet high, 55-foot diameter tank has a storage capacity of about 400,000 gallons. A booster pump station equipped with one fire booster pump and one potable water booster pump is located at each of the two existing storage tank sites.

A one million gallon, 85-foot diameter by 24-foot high above ground steel storage tank and pump station was recently completed at Harlan Road and Warren Avenue near I-5. The pump station at this site includes one fire booster pump and two potable water booster pumps.

## 3.2 Emergency Connection to DDJC-Sharpe and the City of Stockton

Groundwater contamination beneath Sharpe consists primarily of trichloroethene, tetrachloroethene, and cis-1,2-dichloroethene and is located at depths of approximately 50 to 150 feet below ground surface (bgs). Three groundwater extraction and treatment systems are located at the former Army depot site to contain and treat existing groundwater contamination. An ongoing groundwater sampling and analysis program provides continuous data to ensure the existing contaminant plumes do not migrate. These systems have successfully ensured that contamination does not extend to other wells on which the City has relied for its potable water supply.

Groundwater contamination at City Well No. 5, allegedly emanating from Sharpe, led to a water supply agreement between the City and the federal government. Under terms of this agreement, the federal government can provide water to the City for temporary, occasional, critical, and essential water supply needs. Water is not to be provided unless the City's existing water system is unable to meet the City's water demand.

Sharpe uses four separate water supply wells (completed to a depth of approximately 300 feet bgs) to provide drinking water for the facility. Water from Sharpe can be delivered to the City's water distribution system via an interconnecting pipeline between the two water systems. This interconnection also permits delivery of water from the City to the Sharpe water system. Delivery from the Sharpe water system, on an emergency basis, is limited to a maximum of 180,000 gpd, with an estimated maximum annual delivery of 16,200,000 gallons per year.

To receive water from the Sharpe system, the City must provide a Certificate of Need to the federal government. The Certificate must verify that the City has critical and essential water supply needs; identify the nature, cause and expected duration of such needs; and certify that the City's water system is unable to meet such needs. Water delivery from

Sharpe to the City will not be made unless pressure in the City's water system near the point of interconnection between the two water systems is 45 pounds per square inch (psi), or less.

The Water Supply Agreement, dated April 27, 1998, was intended to be a short-term solution to the City's diminished water supply resulting from the shutdown of Well No 5. The Agreement is subject to cancellation with a 30-day prior written notification by either party. In the case of a federal government emergency, the Agreement is cancelable without prior notice to the City.

The City of Lathrop also has an emergency inter-tie with the City of Stockton. Should an emergency arise, either city can supply the other with potable water on a temporary basis under the terms of their agreement.

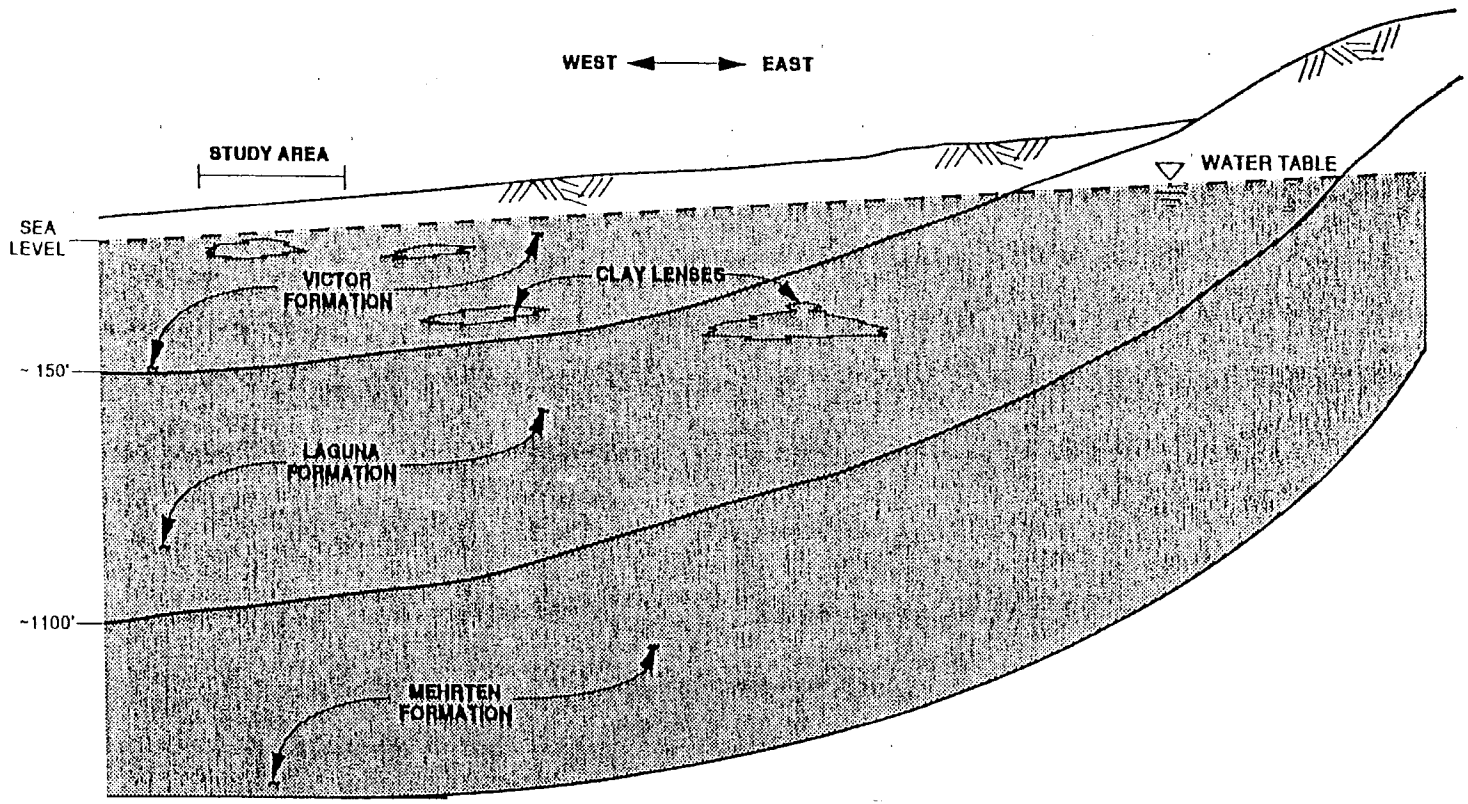
## 3.3 Groundwater

A brief description of the groundwater basin and a discussion of historic and projected groundwater pumping is provided below.

Basin Boundaries, Soils, Storage Capacity

The groundwater basin in the Lathrop area is part of the Sacramento-San Joaquin Delta sub-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 [5]. This groundwater basin is not adjudicated. To avoid overdraft conditions, the safe yield of the groundwater basin was estimated in the *Eastern San Joaquin County Groundwater Study* [6] at approximately 1 ac-ft/ac-yr. In predicting cumulative groundwater impacts and conditions for the year 2025, the Environmental Impact Report (EIR) for the South County Surface Water Supply Project (now referred to as the SCWSP) projected that a total of 7,200 acres in Lathrop would be devoted to urban and agricultural uses [7]. Based on this analysis, the average safe yield for the City would be equivalent to a groundwater extraction rate of 7,200 ac-ft/yr. The average safe yield determined for the City considers the regional groundwater basin. Specific siting studies and hydrogeological assessments are recommended for new wells to minimize the potential impacts while optimizing groundwater extraction.

Most of the fresh groundwater is encountered at depths of less than 2,500 feet, and most of this shallow groundwater is unconfined. Several hydrologic formations depicted on Figure 4 underlie the Lathrop area; however, only the top two, the Victor and the Laguna formations, are currently being used as a source of fresh water [8]. The Victor formation is




SOURCE: DWR BULLETIN 146, 1967

**FIGURE 4**

CITY OF LATHROP
URBAN WATER MANAGEMENT PLAN

**GROUNDWATER BASIN GENERALIZED GEOLOGIC CROSS SECTION**

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N:\SA1549\CADD\IP\FIGURE 4.DWG KCH 11/11/03

the uppermost formation, and extends from the ground surface to a maximum depth of about 150 feet.

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 750 to 1,000 feet thick. Most of the municipal and industrial wells in the Lathrop area penetrate through the Victor formation into the Laguna formation.

Groundwater elevation data is collected from various sources by the San Joaquin County Flood Control and Water Conservation District and are reported twice a year in the report Groundwater Report, San Joaquin County Flood Control & Water Conservation District [9]. The report includes contour maps of groundwater elevation for the spring and fall of each year.

Interpretation of the maps for the Lathrop area for the period from spring 1990 through fall 1997 is the source for the groundwater elevations shown in Table 3. 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 elevations in the fall, after the high-use summer months, average about 3 feet lower than groundwater elevations in the spring. Since 1993, there have been several years of above-average precipitation, and over the following 6-year period the groundwater elevation in the Lathrop area increased about 4 feet.

TABLE 3
**GROUNDWATER ELEVATION IN FEET FOR THE LATHROP AREA 1990-1997 [8]**

| Date | Lowest Elevation (Near Roth Road) | Highest Elevation (Near Yosemite Avenue) | Average Elevation |
|---|---|---|---|
| Spring 1990 | -10 | 8 | 0 |
| Fall 1990 | -13 | -1 | -6 |
| Spring 1991 | -10 | 9 | -2 |
| Fall 1991 | -14 | 4 | -4 |
| Spring 1992 | -9 | 8 | -1 |
| Fall 1992 | -13 | 6 | -4 |
| Spring 1993 | -8 | 10 | 0 |
| Fall 1993 | -10 | 5 | -3 |
| Spring 1994 | -7 | 8 | 1 |
| Fall 1994 | -10 | 7 | 0 |
| Spring 1995 | -8 | 8 | 2 |
| Fall 1995 | -8 | 6 | 0 |
| Spring 1996 | -4 | 9 | 4 |
| Fall 1996 | -5 | 5 | 1 |
| Spring 1997 | 0 | 8 | 5 |
| Fall 1997 | -4 | 4 | 0 |

Historic Groundwater Pumping

The quantity of water pumped from municipal wells and used by the City for the period from 1988 through 2003 is summarized in Table 4 [10]. Water is delivered to primarily residential and commercial customers. Based on the 2003 records, the City currently pumps approximately 3,326ac-ft/yr.

TABLE 4
**GROUNDWATER PUMPING 1988 THROUGH 2003**
**FOR THE CITY OF LATHROP [9]**

| | Annual Groundwater Pumping, ac-ft/yr | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | Well No. 4 | Well No. 5 | Well No. 6 | Well No. 7 | Well No. 8 | Well No. 9 | Total |
| 1988 | 296 | 313 | 936 | - | - | - | 1,545 |
| 1989 | - | 24 | 1,084 | - | - | - | 1,108 |
| 1990 | 104 | 2 | 563 | 969 | - | - | 1,638 |
| 1991 | - | 38 | 292 | 916 | - | - | 1,246 |
| 1992 | - | 23 | 299 | 715 | 215 | - | 1,252 |
| 1993 | - | 45 | 378 | 932 | 112 | - | 1,467 |
| 1994 | - | 13 | 118 | 256 | 398 | 917 | 1,702 |
| 1995 | - | - | 385 | 297 | 63 | 1,116 | 1,861 |
| 1996 | - | - | 445 | 169 | 159 | 849 | 1,622 |
| 1997 | - | - | 130 | 451 | 452 | 873 | 1,906 |
| 1998 | - | - | 273 | 157 | 872 | 639 | 1,941 |
| 1999 | - | - | 69 | 656 | 1,021 | 588 | 2,334 |
| 2000 | - | - | 135 | 639 | 882 | 862 | 2,518 |
| 2001 | - | - | 248 | 812 | 963 | 666 | 2,689 |
| 2002 | - | - | 436 | 803 | 892 | 975 | 3,105 |
| 2003 | - | - | 484 | 791 | 862 | 1,189 | 3,326 |

In addition to the municipal potable water supply system, there are multiple private wells in the service area that serve private industrial plants (manufacturing) and agriculture. Two of the largest industrial facilities are Libbey-Owens-Ford (LOF) and Simplot. Based on data from February 2003 through August 2003, LOF pumps approximately 0.2 mgd (216 ac-ft/yr) from its private supply well [11]. Simplot estimates its usage at 0.5 mgd (560 ac-ft/yr) [12]. There are also 83 private agricultural wells within or near the City. Water usage for these wells is projected at 150 to 250 ac-ft/yr considering typical agricultural operations. Combining municipal, industrial, and private (agricultural) demands results in an annual groundwater pumping rate ranging from 4,030 to 4,130 ac-ft/yr.

Projected Amount to be Pumped

Groundwater extractions will likely increase on a short-term basis until surface water deliveries are available to the City. Currently, Well No. 21 is under construction and Well

No. 22 will be designed shortly thereafter. Well No. 21 is expected to become operational prior to completion of the first phase of the SCWSP, which will significantly augment the City's ability to meet average day supply needs. Groundwater pumping can be reduced with the delivery of surface water, and then increased with additional demand created by new developments. It is expected that groundwater pumping would gradually increase to a level of 5,100 ac-ft/yr by the year 2025. Projected groundwater extractions are summarized in Table 5.

TABLE 5
**PROJECTED GROUNDWATER PUMPING FOR THE CITY OF LATHROP**

| Year | Projected Groundwater[a] Pumping, ac-ft/yr | Year | Projected Groundwater Pumping, ac-ft/yr |
|---|---|---|---|
| 2004 | 4,250 | 2015 | 4,350 |
| 2005 | 2,700 | 2016 | 4,515 |
| 2006 | 2,865 | 2017 | 4,680 |
| 2007 | 3,030 | 2018 | 4,845 |
| 2008 | 3,195 | 2019 | 5,010 |
| 2009 | 3,360 | 2020[b] | 2,700 |
| 2010 | 3,525 | 2021 | 2,700 |
| 2011 | 3,690 | 2022 | 2,878 |
| 2012 | 3,855 | 2023 | 3,285 |
| 2013 | 4,020 | 2024 | 3,693 |
| 2014 | 4,185 | 2025 | 5,100 |

[a] Depending upon the implementation schedule for the SCWSP, groundwater pumping could be increased to a maximum of 6,400 ac-ft/yr. The schedule for future groundwater pumping will be dependent upon the rate of absorption for future development and the associated water demands.

[b] Phase II of the SCWSP scheduled for operation.

Impact of Pumping

Groundwater extractions will be maintained within the safe yield of the groundwater basin. As described earlier in previous studies, groundwater extractions up to 7,200 ac-ft/yr in Lathrop (including an allowance of approximately 800 ac-ft/yr for industry) should not impact regional groundwater levels. In addition, a localized groundwater model was developed as part of the Master Plan process. The groundwater model predicted that increased pumping of groundwater (7,200 ac-ft/yr) could result in a drawdown of existing groundwater levels by approximately 25 feet at the City's well field, and by approximately 45 feet at the existing Sharpe wells. The reduction in groundwater levels would not be expected to interfere with the operation of these wells because each of these wells has

casing depths of approximately 270 feet, which extend well below the predicted post-drawdown groundwater elevations.

By 2025, the productivity of some shallow, low-capacity private non-industrial wells in the City service area could potentially be impacted by planned groundwater extraction. The land served by these wells, however, is projected for development (i.e., Stewart Tract and Central Lathrop Specific Plan area developments). It is assumed therefore, that these wells would cease operation, and water would be supplied by the City municipal water system. Consequently, increased pumping would result in a less than significant groundwater supply impact on existing private non-industrial wells.

The increase in groundwater pumping up to 7,200 ac-ft/yr could contribute to the eastward migration of a groundwater salinity front. Using a groundwater total dissolved solids (TDS) of 500 mg/L as a baseline, the groundwater model developed for the Master Plan predicts that the 500 mg/L TDS contour line could begin to encroach upon the City's McKinley Corridor well field by the year 2025. This would create a potential degradation in potable water quality. This impact however, will be mitigated through the implementation of the SCWSP and the subsequent blending of groundwater with low TDS surface water. In addition, groundwater pumping rates less than the safe yield of the basin will help mitigate the migration of the groundwater salinity front.

## 3.4 South County Water Supply Program

The principal component of future water supply for Lathrop is deliveries from the SCWSP. The SCWSP is a joint effort of the SSJID and the cities of Escalon, Manteca, Lathrop, and Tracy, to supply treated potable water to the participating cities. The City has entered into a development agreement with SSJID for its share of the SCWSP (see Appendix C).

The project includes a new water treatment plant (WTP) located near Woodward Reservoir and 36.5 miles of pipeline ranging in diameter from 20-inch to 54-inch to transport treated water to various turnouts for each of the four cities. The treatment plant will have an initial capacity of 31,000 ac-ft/yr with an ultimate capacity of 44,000 ac-ft/yr. Capacity allocations of the new water treatment plant as a percentage for each of the participating cities are summarized in Table 6. Initially, the SCWSP is anticipated to provide about half of Lathrop's annual water supply and by the year 2020, surface water deliveries will likely meet 75 percent of the City's water requirements.

TABLE 6
**CAPACITY ALLOCATION (PERCENTAGE) OF PROPOSED WATER TREATMENT PLANT FOR PARTICIPATING CITIES IN SOUTH COUNTY WATER SUPPLY PROGRAM**

| | Percentage Allocation | |
|---|---|---|
| Participating Cities | Initial Capacity | Ultimate Capacity |
| Manteca | 39 | 43 |
| Escalon | 0 | 6 |
| Lathrop | 21 | 27 |
| Tracy | 40 | 23 |
| Total | 100 | 100 |

Specific expectations for the SCWSP are as follows:

1. The SCWSP will be operational by 2005.
2. Phase I of the SCWSP will supply from 5,200 to 8,000 ac-ft/yr of water to the City.
3. Phase II will increase the SCWSP supply to the City to 11,791 ac-ft/yr.
4. Phase II will be completed by 2020.

## 3.5 Recycled Water

Wastewater from the City is currently treated and disposed at two facilities: a City-owned treatment plant (Water Recycling Plant No. 1 [WRP-1]) and a regional wastewater treatment plant located in Manteca. Recently, WRP-1 was upgraded to treat 0.25 mgd and produce secondary effluent suitable for agricultural irrigation. Effluent from the Manteca Wastewater Quality Control Facility (WQCF) is discharged to the San Joaquin River, in addition to limited land application. Land application of treated industrial process wastewater is also practiced by California Natural Products (CNP), Simplot, and LOF.

A Recycled Water Master Plan was prepared for the City as part of its overall master planning document [2]. The Recycled Water Master Plan provides a discussion of reuse options, recycled water quality, design criteria, and projected recycled water demands, as well as recommendations for a recycled water distribution system. Recycled water would be produced at a City water recycling plant (WRP) and then pumped to recycled water storage ponds during the day. At night, when irrigation is feasible, pump stations at the storage ponds would pump into the recycled water distribution network. Booster pump stations and at-grade recycled water storage tanks would be sited at the WRP. The booster

pump stations and distribution network would also serve as a conveyance system for the disposal of tertiary effluent from the recycling facility during low irrigation demand periods, as would occur in the winter months.

The Recycled Water Master Plan assumed three WRPs would be constructed, including WRP-1. However, recent developments have proposed expanding the existing WRP-1, in lieu of building two additional WRPs. The City is currently considering this alternative. For purposes of estimating future potable water demands and supply in the City, however, recycled water use is not considered. This provides a conservative estimate and ensures adequate water supply will be available for the community should recycled water systems not be fully implemented.

Additional information regarding recycled water and the Manteca WQCF is included in Section 8.0.

## 3.6 Water Supply Summary

A summary of past, current, and projected available water supply for groundwater and surface water is presented in Table 7.

TABLE 7
**PAST, CURRENT, AND PROJECTED AVAILABLE WATER SUPPLY (1990-2025) FOR THE CITY OF LATHROP**

| Year | Groundwater Pumping[a] ac-ft/yr | Surface Water Deliveries[b] ac-ft/yr | Total ac-ft/yr |
|---|---|---|---|
| 1990 | 1,638 | -- | 1,638 |
| 2000 | 2,538 | -- | 2,518 |
| 2003 (current) | 3,326 | -- | 3,326 |
| 2005 | 2,700 | 5,200 | 7,900 |
| 2010 | 3,525 | 8,000 | 11,525 |
| 2015 | 4,350 | 8,000 | 12,350 |
| 2020 | 2,700 | 10,780 | 13,480 |
| 2025 | 5,100 | 11,791 | 16,891 |

[a] Groundwater pumping could be increased to 6,400 ac-ft/yr depending upon the implementation schedule for the SCWSP.

[b] SCWSP delivery to City of Lathrop.

## 4.0 WATER USE PROVISIONS

This section quantifies, to the extent records are available, past, current, and projected water use. The water demand information presented in Section 3.0 was based on groundwater pumping data. The water use information summarized in this section is based on actual meter readings for the City's customers. Typically, water supply exceeds metered usage due to unaccounted losses and inefficiencies in the distribution system.

As water demands increase and sources of production capacity are expanded in the future, the utilization of each source of production will shift. Table 8 provides a summary of current and projected population and total water use through the year 2025. In addition, Table 9 presents projected water demands by customer type.

Several steps, including demand reduction, are being taken to help ensure an adequate water supply for the City. Specifically, the City is committed to implementing water conservation measures to reduce overall water demands. Section 7.0 provides a detailed discussion of how the City is evaluating and implementing the 14 DMMs required by the Urban Water Management Planning Act. These DMMs include programs such as water surveys for single-family and multi-family residences, residential plumbing retrofits, and school education.

In addition, the City's water conservation ordinance describes four stages of action to be undertaken to achieve a water use reduction of up to 50 percent. Severity of drought or water emergency determines the conservation phase implemented. A copy of the City's water conservation ordinance is provided in Appendix A and is summarized in Section 5.2.

TABLE 8
**PAST, CURRENT, AND PROJECTED WATER USE FOR THE CITY OF LATHROP**

| | Past | | | Current | Projected | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **1990** | **1995** | **2000** | **2003** | **2005** | **2010** | **2015** | **2020** | **2025** |
| **Population** | 6,756 | 8,735 | 10,905 | 12,062 | 22,800 | 33,854 | 44,912 | 57,146 | 68,779 |
| Growth Rate (% per 5 years) | -- | 29% | 25% | 11% | 89% | 48% | 33% | 27% | 20% |
| Average per capita water use (gallons/day)[a] | 216 | 190 | 206 | 246 | 177 | 208 | 207 | 206 | 206 |
| **Water Demand Totals** | | | | | | | | | |
| Million gallons/day (mgd) | 1.46 | 1.66 | 2.25 | 2.97 | 4.04 | 7.05 | 9.30 | 11.78 | 14.17 |
| Million gallons/year (mgy) | 534 | 607 | 821 | 1,084 | 1,472 | 2,572 | 3,394 | 4,300 | 5,173 |
| Acre-feet/year (ac-ft/yr) | 1,638 | 1,861 | 2,518 | 3,326 | 4,514 | 7,891 | 10,410 | 13,189 | 15,868 |

[a] Includes residential and commercial demands.

TABLE 9
**PAST, CURRENT, AND PROJECTED WATER DEMAND BY CUSTOMER TYPE (2000 – 2025)**
**CITY OF LATHROP**

| Water Demand Totals (acre-feet/year) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Past | Current | Projected | | | | |
| Customer Type | 2000 | 2003 | 2005 | 2010 | 2015 | 2020 | 2025 |
| Residential[a] | 1,406 | 1,794 | 2,849 | 5,465 | 7,602 | 9,832 | 11,976 |
| Commercial[b] | 346 | 133 | 276 | 629 | 918 | 1,219 | 1,509 |
| Industrial[c] | 524 | 896 | 951 | 1,102 | 1,277 | 1,481 | 1,717 |
| Government[d] | 85 | 243 | 258 | 299 | 347 | 402 | 466 |
| Construction[e] | 40 | 22 | 23 | 27 | 31 | 36 | 42 |
| Other | -- | -- | 157 | 369 | 235 | 219 | 158 |
| TOTAL | 2,401 | 3,088 | 4,514 | 7,891 | 10,410 | 13,189 | 15,868 |

[a] 74 percent of the future demand is assumed to be residential (based on SB 610 studies for River Islands at Lathrop, CLSP, Mossdale Landing, and Mossdale Landing East)

[b] 10 percent of the future demand is assumed to be commercial (based on SB 610 studies for River Islands at Lathrop, CLSP, Mossdale Landing, and Mossdale Landing East)

[c] Existing industrial demand is assumed to increase four percent per year.

[d] Existing government demand is assumed to increase four percent per year.

[e] Construction demand is assumed to increase four percent per year.

# 5.0 RELIABILITY PLANNING

The City Public Works Department continues to work closely with the City Community Development Department, the City Council, and regional water suppliers to ensure adequate water supply for planned City growth. Lathrop continues to plan for both short-term supply crisis and long-term supply acquisition.

This section presents a discussion on reliability planning, where reliability is defined as a measure of a water service system's expected success in managing water shortages. This section also provides a summary of the City's Potable Water Supply and Distribution Master Plan, as well as the City's capital improvement program and project funding strategies.

## 5.1 Plans to Ensure a Reliable Water Supply

Future water supply projections for the City assume average annual recharge to the groundwater aquifer and no interruption in SCWSP water deliveries. The ability to practice conjunctive use is a benefit to Lathrop should one or more supplies be cutback or eliminated for any purpose such as prolonged drought or poor water quality. The reliability of the water supply and vulnerability of the water supply to seasonal and climatic shortages are discussed. The reliability planning is performed for: (1) an average water year; (2) a single dry water year; and (3) multiple dry water years.

South San Joaquin Irrigation District (SSJID)

SSJID has agreements to provide surface water to agricultural interests, federal, and state agencies, and cities in the south San Joaquin area. Some agreements are long-term while others are as short as one week for agricultural water deliveries. As an example, a copy of the Water Supply Development Agreement and contract amendment between SSJID and the City is provided in Appendix C. As illustrated in Table 10 these delivery commitments and contracts vary from year to year and are generally less than 300,000 ac-ft/yr due to system losses.

TABLE 10
**PROJECTED ANNUAL SSJID DELIVERIES FOR NORMAL HYDROLOGIC YEAR [7]**

| Year | Total SSJID Deliveries by Year, ac-ft/yr | | |
|---|---|---|---|
| | 2003 | 2011 | 2025 |
| Agricultural demand[a] | 241,000 | 232,000 | 220,000 |
| Stockton East Water District Transfers | 4,000 to 15,000 | 4,000 to 15,000 | 0 |
| Vernalis Adaptive Management Plan | 0 to 11,000 | 0 to 11,000 | 0 to 11,000 |
| Ripon | 0 | 0 | 0 to 6,000 |
| SCWSP | 20,284 | 31,000 | 44,000 |
| Minimum total | 265,284 | 267,000 | 264,000 |
| Maximum total | 287,284 | 289,000 | 281,000 |

[a] Does not reflect system losses.

*SSJID Surface Water Entitlements*

Both the SSJID and the Oakdale Irrigation District (OID) were formed in 1909 following the acquisition of the old Tulloch Ditch Company water rights. SSJID receives a major portion of its water supply from the Stanislaus River, pursuant to a number of pre-1914 water rights, beginning with 1853 diversion rights. Based on these pre 1914 water rights, SSJID and OID are entitled to a combined 1,816.6 cfs of direct surface water diversions from the Stanislaus River annually. These pre-1914 water rights are equally shared with OID and are adjudicated [7, 13].

A 1988 agreement between SSJID, OID, and the United States Bureau of Reclamation (USBR) recognized and protected the OID and SSJID's senior water rights that would be affected by the New Melones Reservoir. The agreement entitles SSJID and OID to 600,000 ac-ft/yr in years when inflow to New Melones Reservoir is equal to or exceeds 600,000 acre feet. In years when inflow to New Melones Reservoir is less than 600,000 ac ft, the entitlement is reduced based on a predetermined formula. During periods of normal flow, SSJID's entitlement is 300,000 ac-ft/yr.

Reliability of SCWSP Deliveries

Surface water for agricultural irrigation dominates SSJID deliveries. A summary of projected SCWSP deliveries to the participating agencies is presented in Table 11. When

complete, the SCWSP would represent approximately 16 percent of the total SSJID entitlement with the USBR.

TABLE 11
**PROJECTED ANNUAL SCWSP DELIVERIES FOR NORMAL HYDROLOGIC YEAR [7]**

| | SCWSP Deliveries, ac-ft/yr | | | | |
|---|---|---|---|---|---|
| Year | Manteca | Escalon | Lathrop | Tracy | Total |
| 2005 | 9,914 | 0 | 5,200 | 10,000 | 25,114 |
| 2010 | 12,064 | 0 | 8,000 | 10,000 | 30,064 |
| 2015 | 14,214 | 2,520 | 8,000 | 10,000 | 34,734 |
| 2020 | 16,364 | 2,799 | 10,780 | 10,000 | 39,943 |
| 2025 | 18,500 | 2,799 | 11,791 | 10,000 | 43,090 |

As noted earlier, SSJID's entitlement to surface water is 300,000 ac-ft/yr in normal hydrologic years. Drought conditions reduce this entitlement. For the SCWSP a drought impact analysis was performed as part of the EIR process [7]. The study was conducted using a computer model that simulated operation of New Melones Reservoir under three different "river conditions" (i.e., planning scenarios): (1) without the SCWSP and other proposed projects, (2) without the SCWSP only, and (3) with the SCWSP and other proposed projects. Planning scenarios were simulated using a 71-year hydrologic history for the area. The simulation of the planning scenarios considered the SCWSP's contribution and other proposed project contributions to the potential water supply shortages in addition to the cumulative effects of other uses. Modeling identified the occurrences and magnitude of surface water shortage years depending on the surface water demands specific to each individual planning scenario. The model results represented the variations to SSJID's surface water supply availability that could be expected in the future, based on the historic 71-year hydrologic sequence [7].

Based on the results of the drought impact analysis, the supply available for single- and multi-dry years has been identified. As shown in Table 12, at build-out a single-dry year would have no impact on SCWSP deliveries and multi-dry years would result in a potential reduction of surface water supplies by about 14%.

TABLE 12
**MAXIMUM POSSIBLE REDUCTIONS IN TOTAL SSJID SURFACE WATER DELIVERIES FOR HYDROLOGIC SINGLE- AND MULTI-DRY YEARS [6]**

| Hydrologic Condition | Maximum Possible Reduction In Surface Water Supplies/Deliveries | |
|---|---|---|
| | ac-ft/yr | Percent Reduction[c] |
| Year – 1998 | | |
| Single-dry year drought[a] | 0 | 0.0% |
| Multi-dry year drought[b] | 11,000 | 3.7% |
| Year – 2010 | | |
| Single-dry year drought[a] | 2,000 | 0.7% |
| Multi-dry year drought[b] | 39,000 | 13.0% |
| Year – 2025 | | |
| Single-dry year drought[a] | 0 | 0.0% |
| Multi-dry year drought[b] | 42,000 | 14.0% |

[a] Single-year drought based on a one year shortage during a one year drought duration.
[b] Multi-year drought based on five years of shortage during a six year drought duration.
[c] Percent reduction based on SSJID normally receiving 300,000 ac-ft/yr.

Assuming that a reduction in available surface water would result in an equivalent change in deliveries from the SCWSP and no supplemental groundwater is provided by SSJID, possible reductions in surface water supply for Lathrop from the SCWSP are presented in Table 13. As summarized in the referenced table, under a worst case scenario, deliveries to Lathrop by SSJID could be reduced by up to approximately 1,700 ac-ft/yr in the Year 2025. This reduction in deliveries could be compensated for through increased groundwater pumping in the City, implementation of water conservation measures, and the use of recycled water.

TABLE 13
**POSSIBLE REDUCTIONS IN SCWSP SURFACE WATER DELIVERIES TO THE CITY OF LATHROP DURING HYDROLOGIC SINGLE- AND MULTI-DRY YEARS [7]**

| Land Use | SCWSP Deliveries to Lathrop by Year, ac-ft/yr | | | | |
|---|---|---|---|---|---|
| | 2005[c] | 2010[c] | 2015[d] | 2020[d] | 2025[d] |
| Normal year | 5,200 | 8,000 | 8,000 | 10,780 | 11,791 |
| Single-dry year drought[a] | 5,164 | 7,944 | 8,000 | 10,780 | 11,791 |
| Multi-dry year drought[b] | 4,524 | 6,960 | 6,880 | 9,271 | 10,140 |

[a] Single-year drought based on a one year shortage during a one year drought duration.
[b] Multi-year drought based on five years of shortage during a six year drought duration.
[c] Based on drought reduction of 0.7% for a single-dry year and a 13.0% for a multi-dry year.
[d] Based on drought reduction of 0% for a single-dry year and a 14.0% for a multi-dry year.

## Reliability of Groundwater Deliveries

As presented in Table 13, the surface water supply may decrease 1,700 ac-ft/yr in 2025 for multi-year drought conditions. This shortfall would be made up through increased groundwater pumping and City-wide conservation measures. Groundwater extractions will be maintained within the safe yield of the groundwater basin. As described earlier in previous studies, groundwater extractions up to 7,200 ac-ft/yr in Lathrop (including an allowance of 800 ac-ft/yr for industry) should not impact regional groundwater levels. In addition, a localized groundwater model was developed as part of the Master Plan [2]. The groundwater model predicted that increased pumping of groundwater (7,200 ac-ft/yr) could result in a drawdown of existing groundwater levels by approximately 25 feet at the City's well field, and by approximately 45 feet at the existing Sharpe wells. The reduction in groundwater levels would not be expected to interfere with the operation of these wells because each of these wells has casing depths of approximately 270 feet, which extend well below the predicted post-drawdown groundwater elevations.

Projected total water supply amounts during hydrologic normal year, single year drought and multi-year drought conditions are summarized in Table 14.

TABLE 14
**SUMMARY OF PROJECTED WATER SUPPLY DURING HYDROLOGIC NORMAL, SINGLE-DRY, AND MULTI-DRY YEARS FOR CITY OF LATHROP**

| | Available Water Supply | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Normal Year, ac-ft/yr | | | Single-Dry Year Drought, ac-ft/yr | | | Multi-Dry Year Drought, ac-ft/yr | | |
| Year | Groundwater Pumping[a] | Surface Water[b] Deliveries | Total | Groundwater Pumping | Surface Water Deliveries | Total | Groundwater Pumping | Surface Water Deliveries | Total |
| 2005 | 2,700 | 5,200 | 7,900 | 2,700 | 5,164 | 7,864 | 2,700 | 4,524 | 7,224 |
| 2010 | 3,525 | 8,000 | 11,525 | 3,525 | 7,944 | 11,469 | 3,525 | 6,960 | 10,485 |
| 2015 | 4,350 | 8,000 | 12,350 | 4,350 | 8,000 | 12,350 | 4,350 | 6,880 | 11,230 |
| 2020 | 2,700 | 10,780 | 13,480 | 2,700 | 10,780 | 13,480 | 4,000 | 9,271 | 13,271 |
| 2025 | 5,100 | 11,791 | 16,891 | 5,100 | 11,791 | 16,891 | 5,800 | 10,140 | 15,940 |

[a] Groundwater pumping could be increased to 6,400 ac-ft/yr depending upon the implementation schedule for the SCWSP.
[b] SCWSP delivery to City of Lathrop.

## 5.2 Potential Reduction of Potable Water Demands

The City has the ability to reduce potable water demands through the use of recycled water for irrigation, the City's water conservation and rationing ordinance, and ongoing water conservation programs. Each is described below.

Use of Recycled Water

Wastewater from the Crossroads Commerce Center is treated at Lathrop WRP-1. Recently the facility has been upgraded to treat 0.25 mgd and produce secondary effluent suitable for agricultural irrigation. In parallel with the existing facility, a new 0.75 mgd tertiary treatment plant expandable to 3.0 mgd is under construction. When completed in August 2004, recycled water suitable for unrestricted irrigation of landscaped areas will be available for use. As envisioned in the City Recycled Water Master Plan, up to 4,700 ac-ft/yr of recycled water will be available to reduce overall water demands [2].

Water Conservation and Rationing Ordinance

Various actions to be undertaken by the City in response to water supply shortages are presented in this section. The City recognizes that it is better to enter into a water shortage alert early, at a minimal level, to establish necessary water reduction programs and policies, to gain public support and participation, and to reduce the likelihood of more severe shortage levels later. As the City continues to become more water efficient, it becomes more difficult for customers to reduce their water use during water shortages due to demand hardening. This must be considered when implementing the adopted City Water Conservation Ordinance outlined below.

No resolutions or ordinances have been adopted by the City that guarantee supply to specific users. Sections 13.08.120 through 13.08.300 of the City of Lathrop Code of Ordinances contain the City's water conservation and rationing plan. The ordinances are divided into four phases, as summarized in Table 15. Severity of drought or water emergency determines the conservation phase implemented.

a. Enactment of Phase I triggers voluntary conservation measures such as limiting watering periods to night time hours, controlling water runoff, and car washing restrictions.

b. Phase II has a water reduction goal of 15 percent. The Phase II water restrictions include water schedules for residential and commercial customers, elimination of washing building exteriors and sidewalks, and curtailing use in ornamental fountains.

c. Phase III has a water reduction goal of 25 percent. The Phase III mandatory water conservation ordinance includes special requirements for pools, jacuzzis, restaurants, hotels, motels, and inns. In addition, water conservation plans and

landscape-watering schedules may be required for industrial, school, golf course, park, and cemetery customers.

d. Phase IV has a water reduction goal of 50 percent. The Phase IV mandatory water conservation ordinance includes in addition to the Phase III restrictions a 100 gallons per capita per day consumption allocation. Car washing would be permitted with only the use of a bucket. Under Phase IV, penalties exist for excess water usage. The excess water use surcharge increases with increments of greater water use. For reference, a theoretical 50 percent reduction in short-term water demands would result in a total projected water demand of approximately 8,000 ac-ft/yr for the City in 2025.

TABLE 15
**CITY OF LATHROP**
**WATER CONSERVATION ORDINANCE**

| Ordinance Phase | Reduction Goal | Conservation Summary |
|---|---|---|
| I | - | Voluntary conservation measures:<br>• limiting watering periods to night time hours<br>• controlling water runoff<br>• car washing restrictions |
| II | 15 percent | Water restrictions (in addition to Phase I):<br>• watering schedules for residential and commercial customers<br>• elimination of washing building exteriors and sidewalks<br>• curtailing use in ornamental fountains |
| III | 25 percent | Mandatory water conservation (in addition to Phase II):<br>• special requirements for pools, jacuzzis, restaurants, hotels, motels, and inns<br>• water conservation plans and landscape-watering schedule may be required for industrial, school, golf course, park, and cemetery customers |
| IV | 50 percent | Mandatory water conservation (in addition to Phase III):<br>• a 100 gallons per capita per day consumption allocation<br>• car washing would be permitted with only the use of a bucket<br>• penalties for excess water usage that increase with increments of greater water use |

Water Conservation Programs

To achieve short term and long term conservation, the City has implemented, is planning to implement, or is currently studying the 14 demand management measures (DMMs) summarized in Section 7.0.

Summary of Reduced Potable Water Demands

Based on historical experience in other communities that have implemented similar water conservation programs and ordinances, potable water demands have been reduced typically 10 percent and 20 percent for single dry-year and multi-dry year droughts, respectively. The impact of reduced water demands and the use of recycled water on overall City water demands is presented in Table 16.

TABLE 16
**SUMMARY OF PROJECTED AVERAGE ANNUAL WATER DEMANDS FOR CITY OF LATHROP IN 2025 ASSUMING IMPLEMENTATION OF WATER CONSERVATION MEASURES AND RECYCLED WATER PROGRAM**

| Characteristic | Volume ac-ft/yr |
|---|---|
| Projected City 2025 Water Demand[a] | 15,868 |
| City 2025 Potable Water Demand with Implementation of Recycled Water Program[b] | 11,168 |
| City 2025 Potable Water Demand Under Single-Dry Year Drought Conditions, with Water Conservation Measures and Implementation of Recycled Water Program[c] | 10,050 |
| City 2025 Potable Water Demand under Multi-Dry Year Drought Conditions, with Water Conservation Measures and Implementation of Recycled Water Program[d] | 8,935 |

[a] See Table 14
[b] Projected Water Demand - Recycled Water Demand
[c] Assumes 10 percent reduction in water demand
[d] Assumes 20 percent reduction in water demand

## 5.3 Catastrophic Water Supply Interruption Plan

The *City of Lathrop 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 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
- Utility service numbers for traffic signal repairs, gas and electrical repairs, and water works suppliers
- Local radio station emergency contact information