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RESOLUTION ADOPTING MUNICIPAL SERVICE REVIEW AND WRITTEN DETERMINATIONS
PREPARED FOR WASTEWATER SERVICE PROVIDERS-OROVILLE REGION

WHEREAS, §56430 of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 requires that LAFCo conduct service reviews prior to or in conjunction with, establishing a Sphere of Influence (SOI) as defined in §56425 or §56426.5; and

WHEREAS, as part of such service reviews, LAFCo must compile and evaluate service-related information and make written determinations regarding 1) growth and population projections for the affected area; 2) present and planned capacity of public facilities and adequacy of public services including infrastructure needs or deficiencies; 3) financial ability of agencies to provide services; 4) status of, and opportunities for, shared facilities; 5) accountability for community service needs, including governmental structure and operational efficiencies; 6) any other matter related to effective or efficient service delivery, as required by commission policy; and

WHEREAS, LAFCo initiated a review of the wastewater treatment and wastewater collection services provided by the Sewerage Commission-Oroville Region, the City of Oroville, the Lake Oroville Area Public Utility District, and the Thermalito Water and Sewer District, beginning in September 2008; and

WHEREAS, LAFCo consulted with affected and interested agencies, and interested parties in the preparation of administrative and public review drafts; and

WHEREAS, LAFCo gathered and compiled the information necessary to conduct the required review and independently evaluated such information; and

WHEREAS, LAFCo issued a Public Notice and the Public Review Draft Municipal Service Review on September 10, 2009, and provided a mandated minimum 21-day public review of said document; and

WHEREAS, LAFCo considered the data, recommendations, and determinations contained in the Public Review Draft Municipal Service Review and the staff report dated September 23, 2009, at a noticed public hearing held on October 1, 2009, and received all oral testimony and evidence, which were made, presented or filed, and all persons present were given the opportunity to hear and be heard in respect to any matter relating to the review; and

WHEREAS, the Commission continued the public hearing open to the November 5, 2009, meeting at which all oral testimony and written evidence, which were made, presented or filed, and all persons present were given the opportunity to hear and be heard in respect to any matter relating to the review, its data, recommendations and determinations contained in the Final Municipal Service Review and the staff report dated October 23, 2009, were considered and incorporated into the Final Municipal Service Review, and

WHEREAS, LAFCo has considered and is approving this Municipal Service Review as a feasibility and planning document and is therefore not subject to the California Environmental Quality Act pursuant to §15262.
NOW, THEREFORE, BE IT RESOLVED, that pursuant to powers provided in §56430 of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, the Local Agency Formation Commission of the County of Butte adopts written determinations as set forth in the Municipal Service Review for Wastewater Service Providers-Oroville Region, dated November 5, 2009, and adopts the Municipal Service Review for Wastewater Service Providers-Oroville Region.

ADOPTED by the Butte Local Agency Formation Commission at a regular meeting of said Commission, held on the 5th day of November 2009, by the following vote:

AYES: Commissioners Lotter, Duncan, Connelly, Sweany, Frith, Dolan and Chair Leverenz

NOES: None

ABSTENTIONS: None

ABSENT: None

ATTEST:

[Signatures]

Clerk of the Commission
Butte Local Agency Formation Commission

[Signature]

CARL LEVERENZ, Chair
1.0 - INTRODUCTION

Role and Responsibility of LAFCo

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (CKH Act) requires all Local Agency Formation Commissions (LAFCos) to prepare a Municipal Service Review (MSR) for each of its incorporated areas and special districts. The fundamental role of a LAFCo is to implement the CKH Act, providing for the logical, efficient, and most appropriate formation of local municipalities, service areas, and special districts. These municipal service reviews must be completed prior to, or in conjunction with, the update of a Sphere of Influence (SOI). This MSR is intended to provide Butte LAFCo with all necessary and relevant information related to the operations and management of the wastewater treatment and collection services performed by the Sewerage Commission-Oroville Region (SC-OR) Joint Powers Authority and the three member agencies that comprise SC-OR – The City of Oroville, the Lake Oroville Area Public Utility District, and the Thermalito Water and Sewer District. This information will be utilized when considering an update to the SOI for the subject agencies and/or when considering any reorganization proposals that may be proposed.

Municipal Service Review Process

The Municipal Service Review (MSR) process is a comprehensive assessment of the ability of government agencies to effectively and efficiently provide services to residents and users. The form and content of the MSR is governed by requirements of the CKH Act and the State of California’s MSR Guidelines (Guidelines), published in August 2003. This MSR considers the operations and management of the wastewater treatment and collection services performed by the Sewerage Commission-Oroville Region (SC-OR) Joint Powers Authority (JPA) and the three member agencies that comprise SC-OR – The City of Oroville, the Lake Oroville Area Public Utility District, and the Thermalito Water and Sewer District.

The process began with a request for information (RFI) delivered to each service provider, seeking information, planning and budgetary documents and records related to the provision of sewage collection, treatment, and disposal services. After reviewing the information collected, LAFCo staff conducted follow-up consultation through numerous e-mails, telephone calls, and meetings to identify remaining information needs, discuss operational and technical issues, and resolve discrepancies in materials received. These meetings also offered LAFCo staff the ability to hear candid assessments of the working relationships between the member agencies which led to recommendations within the document.

Once all necessary information was collected, an analysis was conducted for each of the service providers. This analysis, which considered all of the topics required by the CKH Act, is presented in Sections 3 through 6 of this document. Section 2 of the document focused on the overall structure and operation of the JPA, technical discussions of sewer system infrastructure and regional issues of universal concern. Once the analysis was complete, determinations were made regarding the ability of the service providers to effectively and efficiently provide services. These determinations correspond to the topic areas set forth in the CKH Act. The determinations...
represent the conclusions of Butte LAFCo regarding each of the service providers, based on the information provided and statements made by the service providers.

The Public Review Draft MSR will be released for review by the service providers, as well as the general public, for a 21-day public review period beginning on September 10, 2009. Following public review, the MSR will be presented to the Butte LAFCo Commission at a noticed public hearing on October 1, 2009, for initial consideration. Comments received on the Public Review Draft MSR will be included in the Final Draft MSR, along with responses to each of the comments made. It is anticipated the Final MSR will go before Butte LAFCo in November 2009 for adoption.

**Topic Areas of Analysis**

MSRs are intended to provide LAFCo with a comprehensive analysis of service provision by each of the special districts and other service providers within the legislative authority of the LAFCo. The MSR contains analysis and conclusions, referred to in this document as determinations, regarding five topic areas set forth in the CKH Act for each subject agency. These areas of analysis contain the essential operational and management aspects of each service provider, and together constitute a complete review of the ability of the providers to meet the wastewater treatment service demands of the residents, businesses, and industrial uses in the Oroville region. The five topic areas used for analysis in this MSR are as follows:

1. **Growth and Population Projections**

2. **Present and Planned Capacity of Public Facilities and Adequacy of Public Services, Including Infrastructure Needs or Deficiencies**

3. **Financial Ability to Provide Services**

4. **Status of, and Opportunities for, Shared Facilities**

5. **Accountability for Community Service Needs, Including Governmental Structure and Operational Efficiencies.**

An explanation of the specific operational and management aspects considered in each of these topic areas is provided below.

**1. Growth and Population Projections**

Service efficiency is linked to a service provider’s ability to plan for future needs while meeting existing service demands. A service provider must meet current customer needs, and also be able to determine where future demand may occur. This chapter reviews demand projections and service needs based upon existing and anticipated growth patterns and population projections.
2. Present and Planned Capacity of Public Facilities and Adequacy of Public Services, Including Infrastructure Needs or Deficiencies

Infrastructure can be evaluated in terms of condition, capacity, availability, quality and relationship to operational, capital improvement and finance planning. This section assesses the adequacy and quality of the service providers’ physical infrastructure, and analyzes whether or not sufficient infrastructure and capital are in place (or planned for) to accommodate planned future growth and expansions.

3. Financial Ability to Provide Services

This chapter analyzes the financial structure and health of the subject agencies with respect to the provision of services. Included in this analysis is the consideration of rates, service operations, and the like, as well as other factors affecting the subject Districts’ financial health and stability, including factors affecting the financing of needed infrastructure improvements and services. Compliance with existing State requirements relative to financial reporting and management is also discussed.

4. Status of, and Opportunities for, Shared Facilities

Practices and opportunities that may help to reduce or eliminate unnecessary costs are examined in this chapter. Occurrences of facilities sharing are listed and assessed for efficiency, and potential sharing opportunities so as to better deliver services are discussed.

5. Accountability for Community Service Needs, Including Governmental Structure and Operational Efficiencies.

This chapter addresses the adequacy and appropriateness of the subject Districts’ existing boundaries and sphere of influences, and evaluates the ability of the Districts to meet their service demands under their existing government structure. Also included in this chapter is an evaluation of compliance by the Districts with public meeting and records laws.

Determinations

The Public Review Draft MSR offers determinations as to the data collected and the services provided in each section. A summary list of the determinations is provided below allowing the reader to review a snapshot of the levels and effectiveness of the services provided.
2.0 SC-OR JPA, Regional Issues and Determinations

DETERMINATION 2-1: SC-OR JPA

The JPA arrangement has not historically involved a high level of collaboration, mutual and agreeable comprehensive goal development and the establishment of complimentary policies among its members and underscores the need for greater comprehensive planning for future capacity and treatment improvements at the SC-OR wastewater treatment facility.

DETERMINATION 2-2: SC-OR JPA

Cooperation and collaboration among the SC-OR JPA member entities has been noticeably deficient in recent years resulting in a lack of trust among some of the member entities which has contributed to the lack of a comprehensive mission to deliver the most effective and efficient sewer services to the region and address critical issues of high inflow and infiltration flows into the member entities’ sewer systems and the lack of planning for future capacity and treatment improvements to the SC-OR WWTF.

DETERMINATION 2-3: FUNCTIONAL COLLABORATION OF SC-OR MEMBER ENTITIES

Collaboration opportunities within the SC-OR JPA are significant and have the potential to deliver significant cost savings and service improvement, result in access to operational expertise that improves resource productivity, enhance levels of service, and deliver overall financial benefits. To improve collaboration and cooperation among the SC-OR JPA member entities, there needs to be a concerted commitment to change and the development of a formal set of steps to move discussions and negotiations forward. The SC-OR JPA member entities should undertake the following steps:

- Member agency boards should resolve to actively pursue joint agency collaboration in specified areas of opportunity.
- Continue the current TAC meetings or form a Collaboration Steering Group with Board/GM staff from each participating agency and facilitated workshop(s) to select targeted collaboration area.
- Formation of work groups for each targeted collaboration area.
- Creation of collaboration roadmap and high level work plans for pursuing each targeted collaboration area.
- Periodic (e.g.,) monthly Work Group meetings.
- Quarterly Steering Group progress meetings open to the public.
- Dispute resolution process.
- Decision-making process for carrying recommendations back to respective boards.
**DETERMINATION 2-3A: JPA REORGANIZATION**

To address the issue of more efficient governance and goal development, the SC-OR member entities should evaluate the current JPA structure and make amendments to the JPA granting more authority and autonomy to the SC-OR Board and its staff to address issues of regional concern. Such amendments should allow the SC-OR Board by majority vote to enact policies and practices to address such items as:

- Centralized data collection related to population and growth projections;
- Design and general oversight of a comprehensive I&I reduction program to include incentives and penalties;
- Management of comprehensive data base of all sewer connection and fee collections to include the sole authority to approve all final sewer connections at time of building permit issuance;
- In cooperation with its member entities, develop a manual of standardized system-wide practices and procedures to be utilized by member entities in the design and maintenance of sewer facilities that will allow for a meaningful comparison of data between agencies;
- Management of a system-wide data base of member entities capital improvement plans that will allow for a meaningful comparison of these plans and their relationship to improvements at the WWTF.

**DETERMINATION 2-3B: JPA REORGANIZATION**

In order to address the fundamental issue of promoting comprehensive and cohesive service delivery among member agencies, SC-OR should consider creating a “JPA Coordinator” position to develop, coordinate and implement JPA activities, such as EDU tracking, long-range facilities planning, review of wastewater aspects of environmental documents for development projects, development project tracking, I&I monitoring, and other duties as necessary to increase collaboration and cooperation between the member entities.

**DETERMINATION 2-4: REORGANIZATION OF SC-OR MEMBER ENTITIES**

A reorganization of the SC-OR JPA member entities has the potential to result in more efficient and cost-effective sewer service in the Oroville region. A detailed reorganization study would need to be prepared to show the benefits and cost savings that may result from reorganization. Such a study may not be necessary if the SC-OR JPA member entities undertake steps to significantly increase their functional collaboration and cooperation with each other as outlined in Determination 2-2.

**DETERMINATION 2-5: GROWTH AND POPULATION FOR THE AFFECTED AREA**

The SC-OR service area is expected to grow consistent with the City’s and the unincorporated County historical annual growth rate of approximately 1.1 percent, which is expected to continue during the five year period covered by this MSR.
<table>
<thead>
<tr>
<th>DETERMINATION 2-6: LAND USE</th>
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<tbody>
<tr>
<td>Land in the greater Oroville area was zoned for densities and allocations far exceeding historic growth. However, sewer service infrastructure was planned and developed to serve actual growth rates, not full potential build-out of allocated lands.</td>
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<tr>
<th>DETERMINATION 2-7: LAND USES</th>
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<tbody>
<tr>
<td>There are currently significantly more approved residential lots (10,071) than remaining treatment capacity (approximately 2,800 EDU’s) at the WWTF.</td>
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<tr>
<th>DETERMINATION 2-8: LAND USES</th>
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<tbody>
<tr>
<td>The primary land use within the Oroville region is expected to remain low density residential, and the SC-OR prepared vacant lands inventory for the existing service areas determined that the potential demand for wastewater treatment services is approximately 11,500 EDUs, which greatly exceeds the remaining treatment capacity of the SC-OR WWTF (2,800 EDUs). It should be noted that the vacant lands inventory does not consider existing uses utilizing septic systems which may require future sewer service.</td>
</tr>
<tr>
<td>To ensure that the WWTF will have the treatment capacity for the additional EDUs, the SC-OR Master Planning and Financial Assistance Study identified the capital improvements needed to ensure that such capacity will exist.</td>
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<tr>
<th>DETERMINATION 2-9: LAND USES</th>
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<tbody>
<tr>
<td>SC-OR, in cooperation with the member entities, should prepare a comprehensive study to determine the number of existing dwellings, commercial uses, and industrial uses that currently utilize on-site septic systems for wastewater disposal. The study will provide SC-OR with additional data to help determine the future demand for wastewater treatment services.</td>
</tr>
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<tr>
<th>DETERMINATION 2-10: LAND USE DEVELOPMENT PROCESS</th>
</tr>
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<tbody>
<tr>
<td>Land use jurisdiction within the SC-OR service area is primarily under the jurisdiction of the City of Oroville or the County of Butte. The State of California and the U.S. Department of Interior have land use authority of the parcels owned by them.</td>
</tr>
</tbody>
</table>
DETERMINATION 2-11: LAND USES

Historically, wastewater treatment capacity at the SC-OR WWTF could not be reserved, with connection to the WWTF based on a first-come, first-served basis. As an added tool to ensure sewer service is available, SC-OR adopted several formal agreements to identify and mitigate capacity improvements to ensure SC-OR and the collection agency will have capacity for the proposed development and provide assurance to LAFCo that there will be sufficient treatment capacity at the SC-OR WWTF and in the sewage collection agency’s system for an area proposed for annexation.

DETERMINATION 2-12: INFLOW AND INFILTRATION

Inflow and Infiltration into the SC-OR member entity’s sanitary sewer collection systems is unacceptable, with a 2008 wet weather peaking factor of 5.5 for the City of Oroville, 9.0 for LOAPUD, and 5.5 for TWSD. This excessive I&I impacts capacity in the sewer lines and the wastewater treatment facility where it must be treated like sewage, resulting in higher conveyance and treatment costs, requires new and larger wastewater facilities to convey and treat larger volumes of flow that results in higher capital expenditures, and may result in sewer system overflows, negatively impacting public health and the environment.

DETERMINATION 2-13: SANITARY SEWER SYSTEM I&I FLOWS

The SC-OR member entities’ sewer systems have excessive inflow and infiltration entering their sewer systems, which requires immediate and substantial intervention. Each SC-OR member agency should increase their inspection, cleaning, and maintenance activities to reduce excessive I&I flows to the SC-OR WWTF.

DETERMINATION 2-14: SANITARY SEWER SYSTEM I&I FLOWS

The SC-OR wastewater treatment facility was not designed to handle the excessive amounts of wet weather flow resulting from inflow and infiltration within the sewage collection systems. Excessive wet weather flow causes the WWTF to operate all available equipment to minimize surcharging in the collection system (which could result in sanitary sewer overflows) and must resort to the use of storage ponds for the temporary storage of raw sewage for later treatment after the peak flows have subsided. While contingencies exist to address excessive wet weather flows, they are not the preferred solution to address I&I and reduce the margin of error within the system to an unacceptable level.
**DETERMINATION 2-15: INFLOW AND INFILTRATION PREVENTION**

SC-OR’s existing I&I surcharge program does not appear to significantly deter excessive I&I flows from the member entities’ collection systems and could be strengthened to provide for higher surcharges for excessive I&I flows in order to encourage the member entities to reduce I&I flows in their system. The I&I surcharge should be specifically designed to ensure the member entities’ compliance with the adopted target levels.

Funds raised by the inflow and infiltration surcharge program could be placed in a reserve contingency fund to be used for future capital improvements to address the capital improvements necessary to address the impacts of excessive I&I on the WWTF and for treatment works costs associated with excessive I&I, should that become necessary. Credits or rebates of the I&I surcharge to the SC-OR member entities should be carefully evaluated to ensure quantifiable reductions in I&I occur.

**DETERMINATION 2-16: INFLOW AND INFILTRATION PREVENTION**

SC-OR should be given the authority to create and manage a central I&I control program for the SC-OR member entities, to develop public information materials for the overall program, and to serve as a central clearinghouse for program inquiries and training.

If SC-OR is unable to undertake a central I&I control program, each SC-OR member entity should undertake a comprehensive I&I study to determine the location of I&I within their system and undertake a systemic approach to fixing and preventing I&I. The data collected from the I&I studies should be shared with SC-OR and become a work plan subject for the JPA to continually address.

**DETERMINATION 2-17: SANITARY SEWER SYSTEM I&I FLOWS**

If a portion of the SC-OR system, which includes the satellite sewer systems owned and operated by the SC-OR member entities, is or becomes overloaded due to excessive I&I in a member entities’ collection system, SC-OR should not allow additional sewer connections by that member entity unless an agreement is reached on a plan and schedule for eliminating or collecting and treating the excessive I&I.

**DETERMINATION 2-18: SANITARY SEWER SYSTEM I&I FLOWS**

SC-OR should create and implement an I&I offset program for new development projects to reduce I&I in the member entities’ sewer systems. A project proponent may seek to make a financial contribution to a SC-OR I&I abatement fund in lieu of undertaking mitigation work, subject to approval by SC-OR. Where this alternative is pursued, any funds contributed must be made in accordance with local sewer regulations, and must be retained in a dedicated account to be used only for I&I reduction abatement work.
DETERMINATION 2-19: I&I STUDIES

Each SC-OR member entity should complete a comprehensive I&I study to determine the location of I&I within their system and undertake a systemic approach to fixing and preventing I&I. The data collected from the I&I studies should be shared with SC-OR.

DETERMINATION 2-20: I&I PUBLIC EDUCATION PROGRAM

If not already established by SC-OR, each SC-OR member entity should establish a public education program to notify customers of the I&I problem and how it effects them, such as that I&I results in higher service rates. The member entities should notify and educate the public about inflow and infiltration problems and the steps that are being taken to address those problems. Residents can be educated about inflow and infiltration reduction efforts through mailings included with utility bills, newspaper announcements, and on the entity’s web sites. Informed residents will understand the nature and impact of inflow and infiltration problems and therefore be more likely to voluntarily correct illegal connections and consent to inspections.

DETERMINATION 2-21: PRIVATE SEWER LATERAL REPLACEMENT PROGRAM

LOAPUD recently adopted a private sewer lateral replacement policy, which requires inspection and, if necessary, repair/replacement of a private sewer lateral at the time of a home sale, remodel, or if a defect is found in the lateral. The City of Oroville and TWSD should also consider adopting a sewer lateral inspection and repair policy.

3.0 Sewerage Commission-Oroville Region

DETERMINATION 3-1: SC-OR WASTEWATER TREATMENT PLANT INFRASTRUCTURE

The SC-OR wastewater treatment facility, portions of which were constructed in 1959, has undergone significant improvements since that time, including a major upgrade in 1975 when secondary, tertiary, and solids stabilization facilities were constructed. A majority of the facility's equipment was commissioned during this expansion, which translates to equipment with over 30 years of operation. While some equipment and infrastructure is in need of replacement or upgrading and additional building space is needed, overall the SC-OR WWTF has been well maintained and is in good condition.
**DETERMINATION 3-2: SC-OR WASTEWATER TREATMENT PLANT INFRASTRUCTURE**

The SC-OR wastewater treatment facility was not designed for the excessive amounts of wet weather flow that must be treated by the facility primarily resulting from inflow and infiltration within the SC-OR member entities’ wastewater collection systems. During these times of wet weather flow, the plant must operate all available equipment to minimize surcharging in the collection system (which could result in sanitary sewer overflows) and must resort to the use of storage ponds for the temporary storage of raw sewage for later treatment after the peak flows have subsided. While contingencies exist to address excessive wet weather flows, they are not the preferred solution to address I&I and reduce the margin of error within the system to an unacceptable level.

**DETERMINATION 3-3: SANITARY SEWER OVERFLOWS**

In 2005, SC-OR had one SSO on their West Interceptor trunk line, which was due to excessive I&I flows discharging into that line. SC-OR has not had any reportable sanitary sewer overflows since mandatory reporting began in 2007.

**DETERMINATION 3-4: SANITARY SEWER MANAGEMENT PLAN**

SC-OR has adopted its Sanitary Sewer Management Plan and should place their SSMP on their website, if one is created, for public convenience.

**DETERMINATION 3-5: SC-OR WASTEWATER TREATMENT FACILITY CAPACITY**

The SC-OR WWTF has a design hydraulic and treatment capacity of 10.6 mgd with a permitted capacity of 6.5 mgd. The WWTF experiences an average dry weather flow of 3.1 mgd, a 24-hour average peak wet weather flow of 13.9 mgd, and a single wet weather peak flow event of 23 mgd, which represented 92% of the WWTF’s maximum influent pumping capacity and was 87% attributable to collection system I&I.

The SC-OR WWTF has adequate dry weather capacity, but is significantly impacted during periods of peak wet weather when excessive flows must be routed to the existing storage ponds which, based upon historical storm events, represent approximately 48 hours of influent storage capacity and have been within hours of capacity during several storm events over the years, which could have resulted in significant SSOs in SC-OR’s system if the storm duration had been slightly longer. The routine use of the storage ponds to handle excessive wet weather flows is not the preferred solution to address I&I and relying on their use reduces the margin of error within the entire system to an unacceptable level.
DETERMINATION 3-6: SC-OR EAST INTERCEPTOR TRUNK LINE CAPACITY

The SC-OR East Interceptor trunk line serving only LOAPUD’s sanitary sewer system has capacity to serve LOAPUD’s peak flow of 14 mgd projected for the year 2030 and therefore requires no improvements.

DETERMINATION 3-7: SC-OR MAIN INTERCEPTOR TRUNK LINE CAPACITY

Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF.

DETERMINATION 3-8: SC-OR WEST INTERCEPTOR TRUNK LINE CAPACITY

The SC-OR West Interceptor trunk sewer line (which serves TWSD’s sanitary sewer system and a portion of the City of Oroville’s wastewater flows) is currently operating above 100% hydraulic capacity during the peak wet weather flow and has been identified by SC-OR for capacity improvements in its Capital Improvement Program.

With a reduction in I&I flowing into the West Interceptor due to TWSD’s I&I reduction program, and due to SC-OR’s recently-adopted developer agreement, which requires impact mitigation, SC-OR anticipates that the West Interceptor will operate below its design capacity. Until such time identified improvements are implemented, this facility should be considered at capacity.

DETERMINATION 3-9: SC-OR WASTEWATER TREATMENT FACILITY REMAINING CAPACITY

The SC-OR WWTF in its existing configuration and under its existing Waste Discharge Requirements has the capacity to treat a total of 20,400 EDUs, and as of October 1, 2009, has a remaining dry weather flow treatment capacity of approximately 2,743 EDUs.
**DETERMINATION 3-10: SC-OR WASTEWATER TREATMENT FACILITY REMAINING CAPACITY**

An average of 227 EDUs have been added annually to the SC-OR WWTF over the last 30 years. At this historical growth rate, the SC-OR wastewater treatment plant has approximately 12 years of dry weather treatment capacity before expansion would be required unless 1) new housing starts above historical growth rates occur; 2) large EDU intensive industrial uses are established in the Oroville area; or 3) there is a necessity to connect existing septic systems to a sanitary sewer.

**DETERMINATION 3-11: SC-OR WASTEWATER TREATMENT FACILITY REMAINING CAPACITY**

WWTP capacity projections should include a scenario that evaluates the potential for substantial new connections resulting from the conversion of septic systems to sanitary sewer services. Until such an analysis is considered, current capacity projections cannot be considered definitive and planned capacity improvements may not be adequate to address all potential sewer service needs.

**DETERMINATION 3-12: SC-OR CAPITAL IMPROVEMENT PROGRAM**

SC-OR has prepared a five-phase, $56 million (in 2009 dollars) capital improvement plan that has identified the necessary capacity improvements to the SC-OR wastewater treatment plant and other SC-OR infrastructure needed to meet future wastewater treatment demands. The identified improvements also include capacity improvements to SC-OR’s Main Interceptor and West Interceptor sewer trunk lines.

**DETERMINATION 3-13: SC-OR EDU PROJECTIONS**

Future capacity improvements and funding for SC-OR infrastructure are based upon population growth estimates provided by each of the SC-OR member entities and indicate a need to have treatment capacity for approximately 32,179 EDUs by 2030. However, the population growth rates utilized for EDU projections are far higher (from 1.7 to 6.4%) than historical averages (1%) and are not expected to be attained in the near term. Use of the inflated population estimates may result in the SC-OR EDU projections being too high, which effects the timing of the proposed capacity improvements to SC-OR infrastructure and the amount of the SC-OR regional facility charge. To ensure that the EDU projections are accurate, and to ensure that the necessary funds are being accumulated for capacity improvements, SC-OR should prepare new EDU projections based on more realistic population growth estimates and adjust their regional facility charge accordingly.
### DETERMINATION 3-14: FUTURE REGULATORY REQUIREMENTS

In the coming years, SC-OR may face new regulatory requirements, such as a reduction in ammonia in the WWTF effluent, cessation of the use of chlorine, and reduction in odors, all of which may require substantial and costly improvements to their wastewater treatment facility and are not currently evaluated in the SC-OR Master Planning and Financial Assistance Study. The costs for these improvements are anticipated to be significant and will be borne by the SC-OR ratepayers, resulting in higher monthly sewer service and regional facility charges.

Until the requirements of the new permit are issued in 2010, the future of the SC-OR WWTF and its capacity are very uncertain. Therefore, this portion of the MSR will need to be updated after the Regional Board has issued the WWTF’s next NPDES permit, when the regulatory requirements and their impact on the WWTF are clearer.

### DETERMINATION 3-15: FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES

SC-OR’s primary source of revenue is monthly service fees and regional facility charges, with additional revenue from septage disposal and earned interest. It would be beneficial to SC-OR to provide a unified point of authorization and accounting for new connections and fees paid rather than relying on the current pass-through system from its member agencies.

### DETERMINATION 3-16: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

Current monthly sewer service fees and regional facility charges, combined with income from other sources, are adequate to cover the current costs of providing services; however, SC-OR should continue to review and revise their monthly sewer service fee and regional facility charge to recover operational and maintenance costs and to build capital reserves.

### DETERMINATION 3-17: OPPORTUNITIES FOR SHARED FACILITIES

While SC-OR appears to utilize internal cost avoidance opportunities, facilities sharing efforts are not actively pursued. SC-OR and the SC-OR member entities should consider establishing a program to 1) share equipment, materials, personnel, expertise, and training and 2) consider purchasing supplies and materials in bulk.

### DETERMINATION 3-18: GOVERNMENTAL STRUCTURE

SC-OR is governed by representatives appointed from its member entities and holds meetings which are open and accessible to the public. SC-OR maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements. SC-OR’s service area is tied directly to those of its member entities and will thus be directly affected by any changes involving expansion or reorganization.
DETERMINATION 3-19: MANAGEMENT EFFICIENCIES

SC-OR operates with minimal staff, and contracts for some services such as engineering consulting and legal services. The overall management structure of SC-OR is sufficient to account for necessary services and to maintain operations in an efficient and effective manner. SC-OR is adequately staffed at this time but additional staff should be added as wastewater treatment capacity increases.

DETERMINATION 3-20: WEBSITE

SC-OR should develop a website that can be used to provide public information, which could include the posting of SC-OR Board of Commissioners meeting notices/agendas, meeting minutes, staff reports and memorandums, fees, and I&I information.

4.0 City of Oroville (Sewage Collection System)

DETERMINATION 4-1: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

The City’s sanitary sewer system has been built gradually over time, with some small portions of the system being more than 100 years old and in need of repair or replacement.

DETERMINATION 4-2: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

In recent years, using old camera technology, the City has televised 0.5 to 4.0 miles (0.6 to 5.5%) of their sewer system per year, which is not sufficient to assess the overall physical condition of the system, find blockages, identify I&I, and comprehensively rehabilitate the system.

The City is credited with purchasing a new closed-circuit television unit, which will increase their inspection rate and will compliment a recently ordered trailer-mounted sanitary sewer flexible rodder system, which will offer enhanced sewer system cleaning capabilities.

DETERMINATION 4-3: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

Historically, the City’s sewer system has not been efficiently maintained, which has resulted in increased system deterioration and unacceptable levels of I&I that has increased over time. In order to correct this historical maintenance deficit, the City recently initiated a program to address the deferred maintenance. Until such time rehabilitation is substantially implemented, impacts of new development on the SCOR WWTF should be curtailed.
DETERMINATION 4-4: CITY OF OROVILLE SEWAGE DISPOSAL MASTER PLAN UPDATE

The City’s Draft Sewage Disposal Master Plan Update describes sanitary sewer system design storm hydraulic deficiencies, contains a capital improvement program for improvements, and determines the revenue and rates necessary to finance identified improvements. The Plan identifies thirty-four projects needed to 1) increase the capacity of those sewer pipes that are capacity deficient for the 10-year design storm event, and 2) accommodate future growth.

The City should adopt the Draft Sewage Disposal Master Plan Update and all necessary funding needs as soon as possible so that improvements identified in the Plan can begin to be implemented.

DETERMINATION 4-5: SANITARY SEWER OVERFLOWS

The City has had nine reportable sanitary sewer overflows in the last three years and has paid 17 claims for damages since 2004 due to sewer blockages/backups in the City’s sewer system totaling $234,100. This number of SSOs, claims, and paid damages are an indication that the City has not been able to adequately maintain their sewer system and the system is in need of an expanded inspection and cleaning program. The City has made system maintenance and rehabilitation a priority as evidenced by the passage of a 13% monthly sewer service rate increase in August 2009.

DETERMINATION 4-6: SANITARY SEWER MANAGEMENT PLAN

The City has not met the deadline for adoption of its Sanitary Sewer Management Plan, but expects adoption of all the SSMP elements by the fourth quarter of 2009. The City should expedite the adoption of their SSMP and place the SSMP on their webpage for public convenience.

DETERMINATION 4-7: SANITARY SEWER SYSTEM FLOWS

The City of Oroville has an average dry weather flow of 1.9 mgd for which the City’s collection system has adequate capacity to handle, although blockages in the pipes from grease buildups and root intrusion has resulted in numerous sanitary sewer overflows. The City’s sewer system is aging and has not been inspected, cleaned, and repaired consistently over the years. The City has recently developed a comprehensive approach to rate increases, increased staffing and other measures that should help rehabilitate the collection system and reduce I&I and SSO’s in future years.
DETERMINATION 4-8: TWSD EAST TRUNK LINE CAPACITY

The Thermalito Water and Sewer District (TWSD) reports that their East Trunk Line is currently at 123% capacity during peak wet weather flow. The City of Oroville and TWSD both agree that this sewer line is capacity limited. Both of these agencies should limit the number of new connections that would flow through the East Trunk Line until the wet weather flow capacity issue is resolved.

DETERMINATION 4-9: SC-OR MAIN INTERCEPTOR SEWER TRUNK LINE CAPACITY

Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF.

DETERMINATION 4-10: SC-OR WEST INTERCEPTOR SEWER TRUNK LINE CAPACITY

The SC-OR West Interceptor trunk sewer line (which serves TWSD’s sanitary sewer system and a portion of the City of Oroville’s wastewater flows) is currently operating above 100% hydraulic capacity during the peak wet weather flow and has been identified by SC-OR for capacity improvements in its Capital Improvement Program.

With a reduction in I&I flowing into the West Interceptor due to TWSD’s I&I reduction program, and due to SC-OR’s recently-adopted developer agreement, which requires impact mitigation, SC-OR anticipates that the West Interceptor will operate below its design capacity. Until such time identified improvements are implemented, this facility should be considered at capacity.

DETERMINATION 4-11: SANITARY SEWER SYSTEM I&I FLOWS

The City of Oroville has an average dry weather flow of 1.91 mgd, peak wet weather flows that on occasion can exceed of 10 mgd, and a peaking factor range of 3.5 – 5.5, which indicate that the City has excessive inflow and infiltration entering their sewer system which requires the development of a long term and comprehensive I&I reduction strategy.

DETERMINATION 4-12: INSPECTION AND MAINTENANCE FOR I&I

The City of Oroville has not been able inspect and clean their sewer system at the necessary frequencies to effectively reduce I&I and SSOs.
DETERMINATION 4-13: SANITARY SEWER SYSTEM INSPECTION AND MAINTENANCE FOR I&I

City staff has recently acknowledged existing deficiencies in the City’s sewer system and is aware that the inspection, cleaning, and maintenance programs are under resourced, and that hydraulically deficient pipes, defective pipes, pipe joints, and private laterals, and extensive root intrusion can lead to excessive I&I and SSOs.

DETERMINATION 4-14: RATE INCREASES FOR SANITARY SEWER SYSTEM INSPECTION, CLEANING, AND MAINTENANCE FOR I&I AND SSO REDUCTION AND PREVENTION

The City of Oroville City Council should fully implement the city staff recommendation to continually increase annual sewer service rates over the next eight years to fund increased inspections, cleaning, maintenance, and repair of the City’s sewer system infrastructure in order to reduce I&I and SSO’s and reduce peak flows into the WWTF.

DETERMINATION 4-15: SEWER LATERAL TESTING PROGRAM

The City of Oroville should adopt a comprehensive sewer lateral testing and repair program, similar to the program recently adopted by LOAPUD, which will help reduce I&I in private sewer laterals and should consider assistance and outreach programs to landowners to encourage greater participation in this program.

DETERMINATION 4-16: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

The City of Oroville receives funds for the provision of public utilities and services through impact fees, taxes, and connection and usage fees. The City should continue to explore opportunities for creating benefit assessment districts or other similar funding mechanisms to secure long-term funding for the maintenance and operation of its sanitary sewer system.

DETERMINATION 4-17: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

The City’s current sewer service charges are not sufficient to cover the cost of adequately inspecting, cleaning, and repairing the City’s sanitary sewer system. The City recently increased the sewer service rates by 13% and is proposing annual increases to the sewer service rates over the next eight years, resulting in an increase by 332% from the current rates. The City should continue to raise the sewer service rate annually to ensure that adequate funds are collected for enhanced inspection, cleaning, maintenance, and repair of the City’s sewer system.

DETERMINATION 4-18: OPPORTUNITIES FOR COST AVOIDANCE AND SHARED FACILITIES

While the City appears to utilize internal cost avoidance opportunities, facilities sharing efforts are not actively pursued. The City and the other SC-OR member entities should consider establishing a program to 1) share equipment, materials, personnel, expertise, and training and 2) consider purchasing supplies and materials in bulk.
DETERMINATION 4-19: GOVERNMENTAL STRUCTURE

The City is governed by a seven-member City Council elected at large and by voters within the City. The City holds regular meetings twice monthly, which are open and accessible to the public. The City maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements.

DETERMINATION 4-20: MANAGEMENT EFFICIENCIES

The City of Oroville’s sewer system is operated under adequate management efficiency.

DETERMINATION 4-21: MANAGEMENT EFFICIENCIES

The number of City of Oroville sewer system maintenance personnel is very low and appears to be insufficient to properly inspect, clean, and repair the City’s sewer system. The City should consider creating and filling new sewer system maintenance personnel positions to ensure that their sewer system is properly inspected, cleaned, and maintained.

DETERMINATION 4-22: WEBSITE

The City maintains a website that contains a large amount of public information, which should be augmented by including staff reports, staff memorandums, environmental review documents, and the City’s Sanitary Sewer Management Plan and Sewage Disposal Master Plan, when adopted. The City should also consider adding information on I&I to their website.

5.0 Lake Oroville Area Public Utility District

DETERMINATION 5-1: SEWER LATERAL PROGRAM

The sewer lateral inspection program is a fundamental component of the District’s overall efforts to increase system efficiency and reduce I&I levels. It is recognized that the inspection program may not yield significant results for many years considering the number of laterals and the criteria for conducting the inspections.

DETERMINATION 5-2: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

The District’s sanitary sewer system, most of which has been constructed in the last 35 years, is generally in good condition. LOAPUD’s collection system currently has no significant capacity issues. However, large development projects may be required to upgrade the existing collection system downstream if additional capacity is required.
<table>
<thead>
<tr>
<th>DETERMINATION 5-3: SANITARY SEWER OVERFLOWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAPUD has had one minor sanitary sewer system overflow since mandatory reporting of SSOs began in 2007 resulting from operator error. This low number of SSOs is an indication that LOAPUD’s sewer system is being adequately operated and maintained.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 5-4: SANITARY SEWER MANAGEMENT PLAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAPUD has adopted all elements of its Sanitary Sewer Management Plan as required by the State Water Quality Control Board. The District should place their SSMP on their webpage for public convenience.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 5-5: SANITARY SEWER SYSTEM CAPACITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on a system-wide average dry weather flow of 0.81 mgd, LOAPUD’s sewer system has adequate capacity to handle existing and future wastewater flows. The District adds new lines and upgrades existing lines as needed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 5-6: SC-OR EAST INTERCEPTOR SEWER TRUNK LINE CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>The SC-OR East Interceptor trunk sewer line, which serves only LOAPUD’s sanitary sewer system, has a current capacity of 15 mgd which is greater than LOAPUD’s peak flow of 14 mgd projected for the year 2030.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 5-7: SC-OR MAIN INTERCEPTOR SEWER TRUNK LINE CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&amp;I reduction programs recently implemented by the member entities is expected to reduce I&amp;I flows into the WWTF.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 5-8: INFLOW AND INFILTRATION FLOWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>During 2008, LOAPUD had an average dry weather flow of 0.81 mgd, but an average wet weather flow of 4.8 mgd, with a wet weather peaking factor of 9.0, all of which indicate that LOAPUD has excessive inflow and infiltration entering their sewage collection system.</td>
</tr>
</tbody>
</table>
**DETERMINATION 5-9: SANITARY SEWER SYSTEM INSPECTION**

LOAPUD utilizes smoke testing, CCTV equipment, flow meters, and manhole inspections to help identify the locations of I&I which have resulted in numerous repairs to their collection system. LOAPUD should continue to use this approach to solving I&I in their collection system.

**DETERMINATION 5-10: SANITARY SEWER SYSTEM INSPECTION**

LOAPUD currently cleans and inspects approximately 15 miles (21 percent) of their sewer system each year and should consider enhancing this program each year in a greater effort to reduce I&I and prevent sanitary sewer overflows.

**DETERMINATION 5-11: SEWER LATERAL TESTING PROGRAM**

LOAPUD recently adopted a comprehensive sewer lateral testing program that will help reduce I&I entering private sewer laterals and should consider assistance and outreach programs to landowners to encourage greater participation in this program.

**DETERMINATION 5-12: FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES**

LOAPUD’s primary source of revenue is service fees (82%) with additional revenue from connection charges, property taxes, and earned interest.

**DETERMINATION 5-13: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES**

Current sewer service and connection charges, combined with income from other sources, are adequate to cover the costs of providing services; however, the District should continue to review and revise their sewer service and connection charges to recover operational and maintenance costs, build a capital reserve and reduce its reliance on revenue from property taxes.

As the implementation of the new SSMP/SSO requirements proceed, it is likely that all of the SC-OR member entities will require rate increases to cover increased SSMP-related operating expenses (systematic sewer collection system cleaning, inspection, repair, and reporting costs).

The District submits its annual budget to the County Auditor in compliance with California Government Code Section 53901.

**DETERMINATION 5-14: OPPORTUNITIES FOR COST AVOIDANCE AND SHARED FACILITIES**

While the District appears to utilize internal cost avoidance opportunities, facilities sharing efforts are not actively pursued. LOAPUD and the other SC-OR member entities should consider establishing a program to 1) share equipment, materials, personnel, expertise, and training and 2) consider purchasing supplies and materials in bulk.
DETERMINATION 5-15: GOVERNMENTAL STRUCTURE

LOAPUD is governed by a five-member Board of Directors elected at large by voters within the District. LOAPUD holds meetings which are open and accessible to the public. LOAPUD maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements.

DETERMINATION 5-16: MANAGEMENT EFFICIENCIES

The Lake Oroville Area Public Utility District operates with minimal staff, and contracts for some services such as engineering consulting. The overall management structure of LOAPUD is sufficient to account for necessary services and to maintain operations in an efficient and effective manner. LOAPUD is adequately staffed at this time.

DETERMINATION 5-17: WEBSITE

LOAPUD maintains a website that contains useful public information. The District should consider providing additional information on their website by including staff reports and memorandums, environmental review documents, the District’s adopted Sanitary Sewer Management Program, and financial information, such as the District’s approved and draft budgets and financial statements. LOAPUD should also consider placing information on I&I and the District’s sewer lateral testing program on their website.

DETERMINATION 5-18: SPHERE OF INFLUENCE UPDATE

The District should submit their SOI update request to LAFCo as soon as possible to ensure that their SOI is current. Failure of the District to have their SOI updated may result in sphere amendments and annexation applications being rejected or deemed incomplete due to lack of a current SOI.

6.0 Thermalito Water and Sewer District (Sewage Collection System)

DETERMINATION 6-1: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

The District’s sanitary sewer system, most of which has been constructed in the last 35 years, is generally in good condition.

DETERMINATION 6-2: SANITARY SEWER OVERFLOWS

The District has had three sanitary sewer system overflows since reporting of SSOs began in 2007, all of which were caused by grease buildup or root intrusion. The District has implemented an aggressive inspection and cleaning program for its sewer system, which should help prevent future SSOs.
**DETERMINATION 6-3: SANITARY SEWER MANAGEMENT PLAN**

The District has adopted some elements of its Sanitary Sewer Management Plan, with final adoption of all elements expected prior to its May 2010 deadline.

The District should consider placing its SSMP, when adopted, on its webpage for public convenience.

**DETERMINATION 6-4: SANITARY SEWER SYSTEM CAPACITY**

The District has an average dry weather flow of 0.5 mgd. With the exception of their East Trunk Line, the District’s collection system has adequate capacity to handle existing and future wastewater flows. The District adds new lines and upgrades existing lines as needed. Large developments may be required to upgrade the existing collection system downstream if additional capacity is required.

**DETERMINATION 6-5: TWSD EAST TRUNK LINE CAPACITY**

The Thermalito Water and Sewer District (TWSD) reports that their East Trunk Line is currently at 123% capacity during peak wet weather flow. The City of Oroville and TWSD both agree that this sewer line is capacity limited. Both of these agencies should limit the number of new connections that would flow through the East Trunk Line until the wet weather flow capacity issue is resolved.

**DETERMINATION 6-6: SC-OR WEST INTERCEPTOR SEWER TRUNK LINE CAPACITY**

The SC-OR West Interceptor trunk sewer line (which serves TWSD’s sanitary sewer system and a portion of the City of Oroville’s wastewater flows) is currently operating above 100% hydraulic capacity during the peak wet weather flow and has been identified by SC-OR for capacity improvements in its Capital Improvement Program.

With a reduction in I&I flowing into the West Interceptor due to TWSD’s I&I reduction program, and due to SC-OR’s recently-adopted developer agreement, which requires impact mitigation, SC-OR anticipates that the West Interceptor will operate below its design capacity. Until such time identified improvements are implemented, this facility should be considered at capacity.
### DETERMINATION 6-7: SC-OR MAIN INTERCEPTOR SEWER TRUNK LINE CAPACITY

Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF.

### DETERMINATION 6-8: WET WEATHER FLOW CAPACITIES

The District has an average dry weather flow of 0.5 mgd, but an average wet weather flow of 2.4 mgd, which is an average wet weather peaking factor of 4.8, all of which indicate that the District has a significant amount of inflow and infiltration entering their sewer system.

### DETERMINATION 6-9: INFLOW AND INFILTRATION

The District has taken an aggressive approach to identifying and fixing I&I problems in its collection system utilizing smoke testing, CCTV equipment, flow meters, and manhole inspections. The District should continue to use this aggressive approach to reducing I&I in its collection system.

### DETERMINATION 6-10: SANITARY SEWER SYSTEM INSPECTION AND CLEANING

The District has completed inspecting approximately 65% of its sewer system with CCTV equipment and expects 100% inspection and cleaning of the system by the end of 2009.

### DETERMINATION 6-11: SEWER LATERAL INSPECTION PROGRAM

The District should adopt a specific lateral inspection program as a fundamental component of its overall efforts to increase system efficiency and reduce I&I levels.

### DETERMINATION 6-12: FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES

The District’s primary source of revenue is service fees and connection charges. The District also receives some grants and interest income on investments.
**DETERMINATION 6-13: SEWER SERVICE CHARGES**

Previously, the District sewer service fees and sewer connection charges were very low and were not sufficient to cover the costs of providing sewer service and building capital reserves. Over the last five years, the District has gradually, but significantly, raised its sewer service and connection charges. It should continue to review and revise its sewer service and connection charges to recover operational and maintenance costs and to build a capital reserve.

As the implementation of the new SSMP/SSO requirements proceed, it is likely that all of the SC-OR member entities will require rate increases to cover increased SSMP-related operating expenses (systematic sewer collection system cleaning, inspection, repair, and reporting costs).

The District submits its annual budget to the County Auditor in compliance with California Government Code Section 53901.

**DETERMINATION 6-14: OPPORTUNITIES FOR SHARED FACILITIES**

While the District appears to utilize appropriate internal cost avoidance opportunities, facilities sharing opportunities are not actively pursued. **The District and the other SC-OR member entities should consider 1) establishing a program to share equipment, materials, personnel, expertise, and training, and 2) purchasing supplies and materials in bulk.**

**DETERMINATION 6-15: GOVERNMENTAL STRUCTURE**

The District is governed by a five-member Board of Directors elected by divisions by voters within the divisions. It holds meetings which are open and accessible to the public. It maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements.

**DETERMINATION 6-16: MANAGEMENT EFFICIENCIES**

The Thermalito Water and Sewer District operates with minimal staff, and contracts for some services such as engineering consulting. The overall management structure of the District is sufficient to account for necessary services and to maintain operations in an efficient and effective manner. It is adequately staffed at this time but should consider adding staff as the District’s system expands.

**DETERMINATION 6-17: WEBSITE**

The District should place a priority on developing a website so that information on the District is readily available to the public.
<table>
<thead>
<tr>
<th>DETERMINATION 6-18: SPHERE OF INFLUENCE UPDATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that it has a current sphere of influence (SOI), the District should submit its SOI update request to LAFCo as soon as possible to ensure that its sphere is current. Failure of the District to have its SOI updated may result in sphere amendments and annexation applications being rejected or deemed incomplete due to lack of a current SOI.</td>
</tr>
</tbody>
</table>
2.0 – SC-OR JPA, REGIONAL ISSUES, AND DETERMINATIONS

INTRODUCTION

This chapter is intended to provide a review of the issues that are common to all the service providers and that can best be analyzed in a regional context. Primarily this chapter assesses the structure of the Sewerage Commission-Oroville Region Joint Powers Authority. In addition, this chapter looks at population growth in the Oroville region and provides general information on how sanitary sewer systems function and on inflow and infiltration into sewer systems and how it effects the SC-OR member entities.

SEWERAGE COMMISSION-OROVILLE REGION JOINT POWERS AGENCY STRUCTURE

The Sewage Commission-Oroville Region (SC-OR) Joint Powers Agency (JPA), which owns and operates a wastewater treatment facility, sewer interceptors, pump stations, and outfall, was created in order to provide efficient and effective wastewater treatment services for the greater Oroville region. SC-OR was created on June 18, 1971, following the adoption of a Joint Powers Agreement by the City of Oroville, the Lake Oroville Area Public Utility District (formerly North Burbank PUD), and the Thermalito Water and Sewer District (formerly Thermalito Irrigation District). These three agencies are known as the SC-OR member entities. The service region of SC-OR is composed of three separate member entities jurisdictional boundaries and respective service areas (Figure 2-1).

Prior to creation of SC-OR, the City of Oroville and Lake Oroville Area Public Utility District (LOAPUD) each owned and operated a wastewater treatment plant. Wastewater from the Thermalito Water and Sewer District (TWSD) was conveyed to the City of Oroville’s wastewater treatment facility. The City’s wastewater treatment facility (WWTF) on South 5th Avenue was taken over by SC-OR and LOAPUD’s wastewater treatment facility, also on South 5th Avenue, was abandoned.

Appendix A of this document contains the most recent adopted SC-OR JPA agreement, which was approved on April 24, 2002. The current JPA agreement runs for a period of 20 years and expires April 24, 2022, unless it is extended by written agreement of all the entities. The JPA agreement can be rescinded or terminated only by the unanimous agreement of the entities.

Sections 3.0 through 6.0 of this document provide a specific review of each of the member entities, including the SC-OR wastewater treatment facility. Table 2.1 below provides general information on each of the member entities.
Figure 2-1
SC-OR Service Area Boundaries

Legend
- City of Oroville
- LOAPUD
- TWSD
- Highways
- Rivers
- Lakes
- Parcels

SC-OR Service Area
(consisting of the boundaries of the City of Oroville, LOAPUD, and TWSD)

Source: Butte County GIS Data
Date: September 8, 2009
Prepared by: Butte LAFCo
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<table>
<thead>
<tr>
<th>Entity</th>
<th>Service Population</th>
<th>Service Area (sq miles)</th>
<th>Miles of Sewer Lines*</th>
<th>Number of Laterals</th>
<th>Number of Manholes</th>
<th>Number of Pump Stations</th>
<th>EDUs</th>
<th>ADWF (mgd)</th>
<th>AWWF (mgd)</th>
<th>Peak Wet Weather Flow</th>
<th>Wet Weather Peaking Factor</th>
<th>No. of Reported SSOs (2007 to present)</th>
<th>No. of Full Time Equivalent Employees</th>
<th>Operating Budget FY 2007-08 (millions)</th>
<th>Monthly Sewer Service Fee (per EDU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Oroville</td>
<td>14,639</td>
<td>13.0</td>
<td>66.0</td>
<td>3,750</td>
<td>1,700</td>
<td>7</td>
<td>7,889</td>
<td>1.9</td>
<td>6.7</td>
<td>10.4</td>
<td>5.5</td>
<td>9</td>
<td>4</td>
<td>$1.6</td>
<td>$9.79</td>
</tr>
<tr>
<td>LOAPUD</td>
<td>12,000</td>
<td>13.2</td>
<td>78.5</td>
<td>4,412</td>
<td>1,547</td>
<td>9</td>
<td>5,911</td>
<td>0.8</td>
<td>4.8</td>
<td>7.2</td>
<td>9.0</td>
<td>1</td>
<td>9</td>
<td>$1.7</td>
<td>$8.40</td>
</tr>
<tr>
<td>TWSD</td>
<td>9,140</td>
<td>23.2</td>
<td>36.3</td>
<td>2,108</td>
<td>572</td>
<td>4</td>
<td>2,675</td>
<td>0.5</td>
<td>2.4</td>
<td>2.8</td>
<td>5.5</td>
<td>3</td>
<td>2.5</td>
<td>$1.3</td>
<td>$11.50</td>
</tr>
<tr>
<td>SC-OR</td>
<td>N/A</td>
<td>N/A</td>
<td>2.8</td>
<td>-</td>
<td>55</td>
<td>2</td>
<td>-</td>
<td>3.2</td>
<td>13.9</td>
<td>23.0</td>
<td>7.4</td>
<td>0</td>
<td>9</td>
<td>$3.6</td>
<td>$7.80</td>
</tr>
</tbody>
</table>

*Includes gravity flow and force mains
Usage of JPA’s: Under the California Joint Powers Law, Article 1, Chapter 5, Division 7, Title 1 (California Government Code 6500), two or more public agencies, including special districts, can enter into Joint Powers Agreements to exercise powers common to the contracting parties. California Government Code Section 6506 specifically applies to the formation of JPA agencies. Under JPA Agreements CGC Section 6508, a JPA agency can be empowered to provide a range of management services, including, but not limited to, 1) making and entering into contracts; 2) applying for and accepting grants, advances, and contributions; 3) acquiring property, by eminent domain or otherwise, and holding/disposing of property; 4) employing or contracting for the services of agents, employees, consultants and others; 5) making plans and conducting studies; 6) incurring debts, liabilities or obligations; 7) issuing bonds; 8) designing, constructing and operating facilities and works; and 9) suing or being sued subject to limitations in the JPA agreement.

Governance of JPAs: JPA agencies and their specified activities are overseen by governing boards made up of officials appointed by the member agencies. The make-up of the JPA board by respective member agencies and their specific voting rights are spelled out in the JPA agreement. With good communications, open meetings and active member agency board participation provides a sound mechanism for retention of local control over the JPA agency. JPA agencies can be dissolved by the member agencies when they have completed their assigned activities or are no longer providing intended benefits.

SC-OR is governed by a six member board of commissioners who meet in regular session once monthly on the fourth Wednesday of each month at 5:00 pm at the SC-OR board room at 2880 South 5th Avenue, Oroville. Special meetings are held as needed.

SC-OR’s Board of Commissioners is comprised of two representatives from each of the member entities, with one of the appointees designated a voting member and the other an alternate. Each January, the member entities make their appointments to the SC-OR Board. For the City of Oroville, the Mayor and his/her appointee serve as SC-OR Commissioners. For LOAPUD, the LOAPUD Board President makes the appointments and designates the voting member. For TWSD, the TWSD Board President makes the appointments and designates the voting member on a staggered, rotating 2 year schedule. At the June meeting, SC-OR commissioners appoint the SC-OR Chair and Vice Chair.
SC-OR’s Board members receive a $300/mo. stipend; no additional compensation is offered for special meetings or for any other reason or circumstance.

Pursuant to Paragraph 4 of the SC-OR Joint Powers Agreement, SC-OR has the power to acquire, construct, operate, maintain, repair, and replace Regional Sewerage Facilities, which includes the:

- Wastewater treatment facility;
- West, East, and Main Interceptor trunk lines;
- Feather River and Ruddy Creek pump stations;
- Effluent pipe leading to the Feather River; and
- Feather River outfall and diffuser.

SC-OR is also empowered and authorized, in its own name to make and enter into contracts; to employ agents and employees; to acquire, construct, manage, maintain and operate any building, works or improvements; to acquire by eminent domain or otherwise, and to hold or dispose of any property; to sue and be sued in its own name; to incur debts, liabilities and obligations; to issue various forms of bonds and financial instruments to the extent, and on the terms, provided by law. SC-OR has the power to apply for, accept, receive and disburse grants, loans and other aids from any agency of the United States of America or of the State of California.

JPA Agreements, like the one used for the SC-OR joint powers agency, have widespread application among government organizations and public agencies throughout California, including sewer services agencies involved in wastewater collection, treatment and biosolids management. Under the JPA Agreements, JPA agencies perform a wide-range of services and function on behalf of the member agencies. These formalized collaborative service arrangements are provided using the Joint Power Agreements. JPAs and similar contract vehicles are a practical mechanism for the SC-OR member entities to collaborate on a wide-range of activities and services while retaining local control. However, a JPA arrangement that does not involve a high level of cooperation, mutual and agreeable goal development and complimentary policies among its members may not be an efficient practice.

From a LAFCO government efficiency perspective, there is no ‘fatal flaw’ in doing functional collaboration using JPAs provided they represent an efficient and effective form of governance and service delivery. The application of JPAs by sewer services agencies is typically outside the LAFCO process since individual agencies retain their existing status, obligations and sphere of influence (i.e., sanitary district, community services district, city). The LAFCO is limited to reviewing the JPA policies and actions in the context of its role in preparing service reviews for its member entities.

Collaboration, cooperation, comprehensive goal development and the establishment of complimentary operating policies between the SC-OR member entities have not been consistent or never established since its inception. Arguably, with abundant treatment capacity, slow population growth and low service rates over the years, the JPA has functioned adequately without much intervention. However, under current conditions of increased demand, diminishing treatment capacity, aging facilities and higher rate structures, the absence of a better defined comprehensive mission has led to less than optimum cooperation between the entities.
when addressing various types of concerns, such as monitoring treatment capacity trends and correcting or preventing high inflow and infiltration flows in the member entities’ sewer systems. The historical limited collaboration and cooperation between the member entities underscores the need for greater comprehensive planning for future capacity and treatment improvements at the SC-OR wastewater treatment facility. As stated previously, with abundant treatment capacity and low rates over the years, the JPA did not seek to initiate the collaboration and comprehensive goal development that is needed presently. It may be difficult to implement such collaboration between the agencies as the SC-OR Board of Directors does not have control over the operation of the member entities’ sewer systems and the individual member entities can agree to participate, or not participate, in specific functional collaboration activities. A successful functional collaboration should result in access to operational expertise that improves resource productivity, enhances levels of service, and delivers overall financial benefits.

In the last year, there has been an increased awareness by community leaders and the SC-OR JPA member entities that something needs to be done to improve cooperation and collaboration. In an effort to bring about a renewed focus on this issue, several entities openly sought to have LAFCO apply attention to the matter which ultimately resulted in the preparation of this document. Beyond the preparation of the MSR, LAFCo facilitated many meetings with the SC-OR member entities in attendance to discuss the issues facing the SC-OR JPA. SC-OR staff began hosting quarterly technical advisory committee (TAC) meetings that have been well attended by the member entities as well as allied agencies such the County Department of Development Services. Issues such as I&I reduction, creation of common development and construction standards, issuance of will-serve letters, and establishment of a system to track tentatively approved development projects have all been discussed. However, the TAC meetings have not as yet resulted in any specific measures (such as comprehensive mission statement, unified standards, etc.) or policy directive being adopted in common by each entity that have significantly improved collaboration and cooperation among the member entities. The TAC meetings, though, have resulted in greater dialog between the member entities, which was lacking prior to the establishment of the meetings. These meetings should continue as a consistent method to minimize operational isolation, develop common policies and practices and promote an environment of greater trust and cooperation.

**DETERMINATION 2-1: SC-OR JPA**

The JPA arrangement has not historically involved a high level of collaboration, mutual and agreeable comprehensive goal development and the establishment of complimentary policies among its members and underscores the need for greater comprehensive planning for future capacity and treatment improvements at the SC-OR wastewater treatment facility.

**Collaboration Opportunities**

Collaboration opportunities within the SC-OR JPA are numerous as outlined below and has the potential to deliver significant cost savings to the customer, service improvements and the possibility of reducing future year budget increases for the member entities agencies with respect
to service costs. As the collaborations demonstrate successful results, they will provide a vehicle for building additional trust and positive working relationships among the SC-OR entities.

Summarized below are three functional collaboration opportunities that could result in more efficient and cost-effective sewer services in the Oroville region.

1) Sanitary Sewer Overflow (SSO)/Sanitary Sewer Management Plans (SSMP) Program Activities: Collaboration on the implementation of specific elements of the plan(s) to prevent and manage SSO events, including cleaning, TVing, and inspection of collection systems.

2) Capital Projects: Collaboration on the identification of and planning for capital projects; financing of capital projects, delivering design, construction services and construction management.

3) Shared Resources and Staffing: Collaboration on the sharing of specialized equipment and staff resources; access to resources and staff expertise not currently available to all agencies.

Both individually and collectively, these functional collaborations have the potential to achieve significant improvements in both resource productivity and the effectiveness of the SC-OR JPA. The following section looks at each one of these potential collaboration programs.

SSO/SSMP Program Collaboration

The potential areas of collaboration on SSO/SSMP include:

- **Common SSMP templates, agency plans, and incident response protocols** – A single contract can provide economies of scale and incremental savings for SSMP plan development. Many common elements can be developed as a generic template for customization by each agency.

- **Shared sewer collection maintenance, CCTV inspection, cleaning, blockages, repairs** – Shared sewer collection system maintenance on pipes and pump stations provides potential annualized operational savings on services such as sewer cleaning/inspections, blockages, fully utilized cleaning equipment and crews, blanket contracts for external services (e.g., Roto Rooter).

- **Pooled capital expenditures for replacement and rehabilitation of aging infrastructure** using pooled design, construction, construction management, and financing.

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1 Much of the information in this section was obtained from the *Southern Marin County Sewer Service Alternatives Study Report*, prepared by Marin LAFCo.
• **Shared set-up and operation of a regional emergency call center and shared incident response and reporting of SSO events.** An integrated call center and incident response capability can be achieved through some combination of shared staff resources and outsourced services.

Table 2-2 is an overview of potential advantages and disadvantages of potential SSMP/SSO Program Collaboration.

| Table 2-2. Advantages and Disadvantages of SSO/SSMP Program Collaboration |
|---------------------------------|-----------------|
| **Advantages** | **Disadvantages/Issues** |
| Consistent, coordinated SSO response process for SC-OR member entities with 24/7 coverage. | Some administrative resources and costs to collaborate on SSMP plan development and implementation. |
| Shared incident response call center/dispatch services with 24/7 coverage. | Need for developing equitable costing and funding allocations for participating agencies. |
| Economies of scale/cost savings by shared engineering, legal, public relations and other SSMP-related activities. | Need to insulate member agencies from the overall financial/legal risk generated by the JPA. |
| Economies of scale/cost savings for SSO/SSMP-related activities, e.g. shared equipment and crews for periodic sewer cleaning and CCTV inspection. | |
| Shared vacuum/flushing trucks – higher utilization and elimination of redundant capital equipment purchases. | |
| Higher volume of work for negotiating third party cleaning/TV inspection contracts if outsourced. | |
| Each agency can set up tailored cleaning and inspection program to meet individual agency needs. | |
| Consistent, integrated SSMP plans for SC-OR member entities provide an integrated regional approach. | |
| Economies of scale/cost savings in SSMP plan development. | |
| Economies of scale for pooled capital expenditures to replace or rehabilitate the sewer collection system. | |

**Capital Improvement Program Collaboration**

Capital Improvement Program collaboration can include any or all of the following shared services for SC-OR member entities.
• Contracts for pooled engineering/design services.
• Contracts for pooled construction management services.
• Contracts for pooled construction services.
• Issuance of debt/revenue bonds to finance member agency capital projects.

Table 2-3 summarizes potential advantages to be gained by collaboration on capital projects.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages/Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Annual recurring savings on capital spending using pooled services for design, construction and construction management.</td>
<td>• Incremental risks of lawsuits for capital projects-related disputes.</td>
</tr>
<tr>
<td>• Closer construction management and day-to-day project oversight for aggregate group of projects.</td>
<td>• Administrative/JPA oversight requirements</td>
</tr>
<tr>
<td>• Potential savings on collaborative financing through jointly issued revenue bonds.</td>
<td>• Differences in asset condition and level of capital spending requirements will need to be considered in cost allocation formula.</td>
</tr>
<tr>
<td>• Potential reduction in mobilization/demobilization costs and contractor overhead.</td>
<td>• Managing projects across municipal boundaries.</td>
</tr>
<tr>
<td></td>
<td>• Differing design and construction management philosophies.</td>
</tr>
</tbody>
</table>

Capital program savings are also possible for the current capital spending budget through pooled design, construction, and construction management services. Additional savings could be achieved through pooled financing. Pooling capital investment design, construction and construction management/inspection will allow each agency to achieve savings and improve quality (e.g., shared inspection resource) even during lower capital spending periods. Small agencies will always benefit from these economies of scale.

Shared Services/Resources

Examples of potential shared resources and staffing consolidations include:

• Shared Administrative Resources including insurance, worker pool and training
• Mechanical and Electrical/Instrumentation Maintenance
• Monitoring and Laboratory analytical services
• Consolidation/shared General Manager/Management Resources
• Vehicle/Fleet Maintenance
• Human resource management (benefits, grievances, training, certification, promotional criteria, job descriptions and classifications, etc)
• Shared human resources services (hiring, contract negotiations, payroll and taxes, retirement, benefits)
Table 2-4 lists examples of the advantages and disadvantages of shared equipment and facilities.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages/Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Higher equipment utilization and availability (where back-up is critical)</td>
<td>• Limited salvage/disposal value for redundant used vehicles and equipment</td>
</tr>
<tr>
<td>• Better justification of high cost specialty equipment</td>
<td>• Longer drive times for field staff</td>
</tr>
<tr>
<td>• Cash for sale of redundant facilities, vehicles and equipment</td>
<td>• Establishing equitable formula for distribution of proceeds from redundant assets disposal</td>
</tr>
<tr>
<td>• Reduced capital costs for redundant assets</td>
<td>• Transitioning from fleet car benefits</td>
</tr>
<tr>
<td>• Reduced operating and maintenance costs for redundant assets</td>
<td></td>
</tr>
<tr>
<td>• Integrated radio, cell phone and field communications systems</td>
<td></td>
</tr>
</tbody>
</table>

The services collaboration should also enhance customer services and responsiveness while controlling costs and required sewer fees. For example, a regionally integrated SSO plan could provide a single integrated call/incident response service. All agencies could have access to a computerized maintenance management and reporting system so that maintenance tasks are effectively shifted to the lower cost “planned” basis versus the higher cost “reactive” basis that characterizes significant portions of current operations. All agencies could benefit from access to human resources and information systems specialists, accessed through collaborative contracts. Collaboration on capital spending for sewer replacement should also provide opportunities for minimizing traffic disruption in roadways and reduction unit costs for the actual construction. A systematic sewer cleaning/inspection program will result in higher cleaning/inspection equipment and crew utilization and should reduce blockage and reportable SSO incidents.

Reorganization of SC-OR Agencies

The three SC-OR member entities were formed many years ago, when the regional area was very rural and consisted primarily of agricultural and very low density residential uses. If considered today, given the urbanized and interconnected nature of the Oroville Region’s infrastructure, the governance structure for a highly efficient and effective wastewater utility would most likely be a single agency that provides both sewage collection and sewage treatment services. While we do not have the benefit of starting anew, a reorganization study of the existing governance structure in some manner has the potential to result in more efficient and cost-effective sewer services provided to the Oroville region. Table 2-5 provides a summary of the potential advantages and disadvantages of reorganization of the SC-OR agencies.
### Table 2-5. Advantages and Disadvantages of Reorganization of SC-OR Agencies

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages/Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Higher resource productivity for sewer collection maintenance, cleaning,</td>
<td>• Staff transitions issues (salaries, tenure, role in new organization, retirement</td>
</tr>
<tr>
<td>inspection and SSMP program management</td>
<td>• Differences in infrastructure condition and future capital investment requirements for replacement/rehabilitation</td>
</tr>
<tr>
<td>• Higher resource productivity for pump station maintenance and related</td>
<td>• Sewer rate differences, including phase out of property tax contribution</td>
</tr>
<tr>
<td>mechanical, electrical/instrumentation maintenance</td>
<td>• Stakeholder opinion- perceived loss of local control</td>
</tr>
<tr>
<td>• Potential for staff specialists/crews if cost savings over contractor –</td>
<td>• Transition of existing debt/bond issue obligations</td>
</tr>
<tr>
<td>higher work volume (e.g., electrical/instrumentation maintenance and</td>
<td>• Implementation issue of multiple corporate yards must be addressed</td>
</tr>
<tr>
<td>sewer inspection</td>
<td>• Treatment of reserves and dispensation must be addressed</td>
</tr>
<tr>
<td>• Consolidation of GM positions</td>
<td>• Disparity of geographic rate assignments for different needs</td>
</tr>
<tr>
<td>• Career path resulting from expanded staff</td>
<td>• Retention of local area expertise &amp; knowledge becomes a potential issue</td>
</tr>
<tr>
<td>• More efficient 24/7 off-shift coverage, relief staffing and emergency</td>
<td>• Likelihood of existing boundaries continuing despite the consolidations</td>
</tr>
<tr>
<td>response capability from larger staff.</td>
<td></td>
</tr>
<tr>
<td>• Better regional sewer service integration for the Oroville region as</td>
<td></td>
</tr>
<tr>
<td>well as coordinated management of watershed environmental impacts</td>
<td></td>
</tr>
<tr>
<td>• More staff and financial resources to address future program needs and</td>
<td></td>
</tr>
<tr>
<td>capital investments (e.g., SSO/SSMP, regional water quality)</td>
<td></td>
</tr>
</tbody>
</table>

On the surface and absent a focused study, a reorganization of the SC-OR agencies into a more comprehensive sewer collection and treatment agency/district would appear to be a logical approach to providing improved and cost-effective sewer services to the Oroville region. In order to determine if a reorganization of the SC-OR agencies would result in efficient and cost-effective sewer services, a detailed study would need to be prepared. Marin LAFCo prepared a very through sewer service alternative study report that analyzed the consolidation of eleven sewer service providers into one agency. The study (*Southern Marin County Sewer Service Alternatives Study Report*) can be found at the following web address:

(http://lafco.marin.org/staff_reports/pdf/Sewer%20Services%20Report%20FINAL_29Jul05.pdf)

A reorganization study would be costly to prepare due to the highly detailed analysis that would be required. A specific funding source would need to be identified before Butte LAFCo could go forward with a reorganization study for SC-OR.
### DETERMINATION 2-2: SC-OR JPA

Cooperation and collaboration among the SC-OR JPA member entities has been noticeably deficient in recent years resulting in a lack of trust among some of the member entities which has contributed to the lack of a comprehensive mission to deliver the most effective and efficient sewer services to the region and address critical issues of high inflow and infiltration flows into the member entities’ sewer systems and the lack of planning for future capacity and treatment improvements to the SC-OR WWTF.

### DETERMINATION 2-3: FUNCTIONAL COLLABORATION OF SC-OR MEMBER ENTITIES

Collaboration opportunities within the SC-OR JPA are significant and have the potential to deliver significant cost savings and service improvement, result in access to operational expertise that improves resource productivity, enhance levels of service, and deliver overall financial benefits. To improve collaboration and cooperation among the SC-OR JPA member entities, there needs to be a concerted commitment to change and the development of a formal set of steps to move discussions and negotiations forward. The SC-OR JPA member entities should undertake the following steps:

- Member agency boards should resolve to actively pursue joint agency collaboration in specified areas of opportunity.
- Continue the current TAC meetings or form a Collaboration Steering Group with Board/GM staff from each participating agency and facilitated workshop(s) to select targeted collaboration area.
- Formation of work groups for each targeted collaboration area.
- Creation of collaboration roadmap and high level work plans for pursuing each targeted collaboration area.
- Periodic (e.g.,) monthly Work Group meetings.
- Quarterly Steering Group progress meetings open to the public.
- Dispute resolution process.
- Decision-making process for carrying recommendations back to respective boards.
DETERMINATION 2-3A: JPA REORGANIZATION

To address the issue of more efficient governance and goal development, the SC-OR member entities should evaluate the current JPA structure and make amendments to the JPA granting more authority and autonomy to the SC-OR Board and its staff to address issues of regional concern. Such amendments should allow the SC-OR Board by majority vote to enact policies and practices to address such items as:

- Centralized data collection related to population and growth projections;
- Design and general oversight of a comprehensive I&I reduction program to include incentives and penalties;
- Management of comprehensive data base of all sewer connection and fee collections to include the sole authority to approve all final sewer connections at time of building permit issuance;
- In cooperation with its member entities, develop a manual of standardized system-wide practices and procedures to be utilized by member entities in the design and maintenance of sewer facilities that will allow for a meaningful comparison of data between agencies;
- Management of a system-wide data base of member entities capital improvement plans that will allow for a meaningful comparison of these plans and their relationship to improvements at the WWTF.

DETERMINATION 2-3B: JPA REORGANIZATION

In order to address the fundamental issue of promoting comprehensive and cohesive service delivery among member agencies, SC-OR should consider creating a “JPA Coordinator” position to develop, coordinate and implement JPA activities, such as EDU tracking, long-range facilities planning, review of wastewater aspects of environmental documents for development projects, development project tracking, I&I monitoring, and other duties as necessary to increase collaboration and cooperation between the member entities.

DETERMINATION 2-4: REORGANIZATION OF SC-OR MEMBER ENTITIES

A reorganization of the SC-OR JPA member entities has the potential to result in more efficient and cost-effective sewer service in the Oroville region. A detailed reorganization study would need to be prepared to show the benefits and cost savings that may result from reorganization. Such a study may not be necessary if the SC-OR JPA member entities undertake steps to significantly increase their functional collaboration and cooperation with each other as outlined in Determination 2-2.

Population and Population Growth

The Oroville Region as a whole has experienced very slow growth over the last 20 years, with an average annual population growth rate of 1.2 percent a year. From 1990 to 2000, the City of Oroville’s population increased by 9.4 percent, from 11,885 to 13,004, which was an average
annual growth rate of 0.9 percent. This trend continued from 2000 to 2009, during which time Oroville’s population increased by approximately 12.5 percent, from 13,004 to 14,639 residents, which was an average annual growth rate of 1.4 percent. The growth between 2000 and 2007 included annexation activity which brought substantial developed island area populations into the City, which, if subtracted from the population increases, would reduce the growth rate over this period. The 2008-2009 growth rate for the City of Oroville was 1.6%, which is above the past average growth rate and is not due to annexations.

The population of the greater Oroville area, which is generally considered the area within the City’s Sphere of Influence (SOI), which includes the boundaries of City of Oroville, LOAPUD, and TWSD, is substantially larger than the incorporated city limits, due to the existence of independent water and sewer service providers and the willingness of the County to approve urban density development near the city. The California Department of Finance estimates that the 2006 population of the SOI, including the population living within the city limits, is 39,645 residents.

The Butte County Association of Governments (BCAG) has projected that the City of Oroville will grow at an average rate of 3.16 percent a year over the next 25 years. However, the City of Oroville 2030 General Plan Final EIR (adopted March 31, 2009) projects that the City will have a slightly lower annual growth rate of 2.93 percent. The City’s projected growth rate is lower than BCAG’s because the City’s rate accounts for development within both the city limit and the SOI, including recently-approved development in the SOI. Compared to BCAG’s growth projections, the City projects a smaller rate of development but considers a larger area. Considering the amount of speculative development interest that has been shown in Oroville, the City believes it is prudent to plan for a growth rate that is greater than the historic growth rate. This course of action has the result of overestimating the number of new connections to the WWTF and decreases the per parcel regional facility charge which, without the realized growth, reduces the expected funding and timeframe for identified infrastructure improvements.

Population growth data for Butte County shows that the unincorporated area of the county has lost population over the last fifteen years. The 1990 population of the unincorporated area of Butte County was 98,652, while the 2009 population estimate was 83,915. The decrease in the population of the unincorporated area, which began in 1995, is due to numerous annexations to the cities of substantial developed island area populations. This statistic is less relevant given the areas of changed jurisdiction were primarily in the Chico area.

BCAG’s projected growth rate for the unincorporated area of Butte County is 1.1 percent, which is based upon historic growth rates. The California Department of Finance estimates that the 2006 population of the unincorporated SOI was 25,094, and that the combined unincorporated

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5 Butte LAFCo, Draft City of Oroville MSR, August 2009
6 City of Oroville 2030 General Plan Final EIR, March 31, 2009
and incorporated populations within the SOI was approximately 39,645. According to this estimate, the SOI accounts for just over 18 percent of Butte County’s total population and is the second largest urban area in Butte County. In 2006, the unincorporated SOI population of 25,094 alone represented 28 percent of the entire unincorporated population of the County.

While the City of Oroville uses a 2.93 percent growth rate, this MSR will utilize a one percent population growth rate for population estimates for the City of Oroville. The use of the lower growth rate for the City is appropriate in that this MSR covers a much smaller timeframe than the period of the City’s General Plan (five years versus twenty years) and is based upon the historic growth rate. It is expected that for the five-year timeframe of this MSR, the Oroville region will continue to experience the historic growth rate. Using a population growth rate of one percent for the City of Oroville and a 1.1 percent growth rate for the unincorporated area, the Oroville Region is estimated to have the following population:

| Table 2-6. Estimated Population Growth in the Oroville Region (2009-2015) |
|---------------------------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| City of Oroville*        | 14639 | 14785 | 14933 | 15083 | 15233 | 15386 | 15540 |
| Unincorp. Area of Oroville Region** | 23496 | 23754 | 24016 | 24280 | 24547 | 24817 | 25090 |
| Total Oroville Region    | 38135 | 38540 | 38949 | 39363 | 39780 | 40203 | 40630 |

*Estimated annual population growth rate of 1%
**Estimated annual population growth rate of 1.1%

**DETERMINATION 2-5: GROWTH AND POPULATION FOR THE AFFECTED AREA**

The SC-OR service area is expected to grow consistent with the City’s and the unincorporated County historical annual growth rates of approximately 1.0 to 1.1 percent, which is expected to continue during the five year period covered by this MSR.

**LAND USES**

**Existing Land Uses**

Land uses within the 41.4 square mile area encompassed by the SC-OR member entities fall under the jurisdiction of the City of Oroville for parcels within the City of Oroville’s incorporated limits and the County of Butte for all other areas. LOAPUD and TWSD do not have any land use authority within their districts and have limited influence of land use decisions. Portions of LOAPUD and TWSD are within the incorporated limits of the City of Oroville. Land in the greater Oroville area was zoned for densities and allocations far exceeding historic growth. However, infrastructure was planned and developed to serve actual growth, not potential build-out of allocated lands.

A large portion of the unincorporated area in the Oroville region falls under both the Butte County General Plan and, for those areas within the City of Oroville’s Sphere of Influence, the City’s General Plan. The City of Oroville recently adopted its 2030 General Plan and the County
recently released its Draft 2030 General Plan for public review. The County’s and the City’s General Plans are inconsistent with each other with regards to land uses and land use densities within the City’s SOI. As an example, the County’s Draft General Plan designates the majority of the Thermalito area as Rural Residential (up to 0.9 dwelling unit per 5 acres) or Very Low Density Residential (1 dwelling unit per five acres to 0.9 dwelling units per acre). However, the City’s General Plan designates the majority of the Thermalito area as Medium Low Density Residential (3-6 dwelling units per acre), which is a much higher density than the County’s General Plan proposes. The General Plans’ lack of consistency with each other makes it difficult for SC-OR and the member entities to determine future wastewater collection and treatment needs in their areas.

**DETERMINATION 2-6: LAND USE**

| Land in the greater Oroville area was zoned for densities and allocations far exceeding historic growth. However, sewer service infrastructure was planned and developed to serve actual growth rates, not full potential build-out of allocated lands. |

City of Oroville

The City of Oroville contains the highest density of urban development within SC-OR. Low density residential is the primary land use in the City of Oroville, which is found throughout the City of Oroville. Medium to high density residential uses in Oroville are primarily found in the downtown and north areas of the city. Numerous commercial uses are found in downtown Oroville and along the major roads in the area, such as Oro-Dam Boulevard (SR 162), Olive Highway, and Table Mountain Boulevard. Industrial uses in Oroville are found primarily in the southern portion of the city and at the Oroville Municipal Airport.

Many of the parcels within Oroville’s incorporated boundaries utilize individual, on-site septic systems for sewage disposal. It is not known how many parcels in the city utilize septic systems.

Lake Oroville Area Public Utility District

Land uses within the Lake Oroville Public Utility District (LOAPUD) are primarily very low density residential uses, although low density residential uses are found in certain parts of the district, such as the Kelly Ridge and South Oroville areas. Commercial and industrial uses in the district are found primarily along major roads, such as Olive Highway (SR 162), Lincoln Boulevard, and Lower Wyandotte Road. Two casinos (Feather Falls Casino and Lodge, which is located near the intersection of Lower Wyandotte Road and Ophir Road, and the Gold Country Casino and Hotel on Olive Highway) are located within LOAPUD and utilize LOAPUD services. Both of the casinos are under federal trust status. A large portion of LOAPUD’s district is within the state-owned Lake Oroville State Recreation Area, which includes several marinas, campgrounds, and a visitor’s center.

Many of the parcels within LOAPUD’s boundaries utilize individual, on-site septic systems for sewage disposal. It is not known how many parcels in LOAPUD utilize septic systems.
Thermalito Water and Sewer District

Land uses within TWSD are primarily very low and low density residential. The few commercial and industrial uses in the district are found primarily along major roads in the district, such as Oro-Dam Boulevard West (SR 162) and Grand Avenue. Approximately 8,934 acres of the District, mainly located north of the Thermalito Forebay, consists of lands designed for agricultural uses and is used predominantly for livestock grazing.

Many of the parcels within TWSD’s boundaries utilize individual, on-site septic systems for sewage disposal. It is not known how many parcels in TWSD utilize septic systems.

Future Land Uses in the Oroville Region

During the last five to ten years, the Oroville Region has experienced a significant amount of development speculation in both the City of Oroville and in the unincorporated area. In the last four years, the City of Oroville alone has approved tentative subdivision maps within the city limits for 1,751 lots and approved 559 lots and the 2,400 unit Oro Bay Specific Plan within the unincorporated area of their SOI. Table 2-7 lists approved tentative maps, final maps, or anticipated projects with 20 or more lots located in the SC-OR service area or expected to be served by SC-OR.

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Location</th>
<th>Number of Proposed Lots</th>
<th>Sewage Collection Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia Park</td>
<td>Northeast Oroville</td>
<td>20</td>
<td>City of Oroville</td>
</tr>
<tr>
<td>Ashlock &amp; Hammons</td>
<td>South Oroville</td>
<td>190</td>
<td>LOAPUD</td>
</tr>
<tr>
<td>Bloom</td>
<td>Thermalito</td>
<td>140</td>
<td>TWSD</td>
</tr>
<tr>
<td>Butte Woods</td>
<td>Southeast Oroville</td>
<td>167</td>
<td>City or Oroville</td>
</tr>
<tr>
<td>Buena Vista</td>
<td>Thermalito</td>
<td>40</td>
<td>TWSD</td>
</tr>
<tr>
<td>Canal View Estates</td>
<td>North Oroville</td>
<td>23</td>
<td>City of Oroville</td>
</tr>
<tr>
<td>Communities at Cottonwood Creek</td>
<td>South Oroville</td>
<td>644</td>
<td>LOAPUD</td>
</tr>
<tr>
<td>Deer Creek</td>
<td>North Oroville</td>
<td>79</td>
<td>City of Oroville</td>
</tr>
<tr>
<td>Emerald Oaks</td>
<td>Thermalito</td>
<td>95</td>
<td>TWSD</td>
</tr>
<tr>
<td>Forebay Estates</td>
<td>Thermalito</td>
<td>122</td>
<td>TWSD</td>
</tr>
<tr>
<td>Heritage Oaks Subdivision</td>
<td>East Oroville</td>
<td>79</td>
<td>City of Oroville</td>
</tr>
<tr>
<td>Highlands Estates</td>
<td>Northeast Oroville</td>
<td>32</td>
<td>City of Oroville</td>
</tr>
<tr>
<td>Jasco</td>
<td>Southeast Oroville</td>
<td>30</td>
<td>LOAPUD</td>
</tr>
<tr>
<td>Linkside Estates Phase 2</td>
<td>Thermalito</td>
<td>59</td>
<td>City of Oroville/TWSD</td>
</tr>
<tr>
<td>Linkside Estates Phase 3</td>
<td>Thermalito</td>
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<td>City of Oroville/TWSD</td>
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<tr>
<td>Los Olivos</td>
<td>Thermalito</td>
<td>131</td>
<td>TWSD</td>
</tr>
<tr>
<td>Maan</td>
<td>South Oroville</td>
<td>175</td>
<td>LOAPUD</td>
</tr>
<tr>
<td>Martin Ranch</td>
<td>North Oroville</td>
<td>237</td>
<td>City of Oroville</td>
</tr>
<tr>
<td>Monte Vista Estates</td>
<td>South Oroville</td>
<td>110</td>
<td>LOAPUD</td>
</tr>
<tr>
<td>Monte Vista Park/Van Zile</td>
<td>South Oroville</td>
<td>114</td>
<td>LOAPUD</td>
</tr>
<tr>
<td>Nelson 56</td>
<td>Thermalito</td>
<td>197</td>
<td>TWSD</td>
</tr>
<tr>
<td>Oak Park</td>
<td>Northeast Oroville</td>
<td>222</td>
<td>City of Oroville</td>
</tr>
<tr>
<td>Orchard Crest</td>
<td>Thermalito</td>
<td>97</td>
<td>TWSD</td>
</tr>
</tbody>
</table>
In addition to the above projects, it is anticipated that the unincorporated community of Palermo, located south of the City of Oroville, will require the services of SC-OR at some point in the future. All of the dwellings in the Palermo area currently utilize on-site septic systems for wastewater disposal. However, high groundwater levels are found throughout Palermo, which has resulted in septic system failures. Because of the potential for increased groundwater pollution, it is expected that the use of septic systems in Palermo will cease and the dwellings connected to a public sanitary sewer system, which most likely would be LOAPUD. It is estimated that the conversion of the Palermo area to a public sanitary sewer system will result in approximately 850 additional connections to SC-OR. On October 27, 2009, the Butte County Board of Supervisors approved an agreement with a consulting firm to prepare a wastewater study for the Palermo area. The wastewater study is expected to be completed in May 2010.

The City’s and County’s approval process for subdivision maps grants applicants 24 months from approval to meet the conditions of approval and finalize their maps. Applicants can utilize the map extension provisions of the Subdivision Map Act to extend the life of the tentative map for an additional period of up to 36 months. It is difficult to estimate how many currently approved maps will expire and how many lots will be created. It is also impossible to estimate how many of the proposed developments will actually be submitted and approved. This is due in part to the national economic situation, which has greatly impacted regional housing markets.

Both the City of Oroville and the County of Butte have seen a significant drop in the number of development applications, including permits for single-family dwellings, submitted to them in the last several years. New development projects in the Oroville region are expected to remain at low levels for the foreseeable future due to the downturn in the national economy.

Currently, the SC-OR WWTF has adequate dry weather capacity to handle approximately 2,800 additional equivalent dwelling units (one EDU equals the sewage flow from a typical single-family dwelling). Wastewater treatment capacity at the SC-OR WWTF has not been reserved in any manner for any of the identified developments. As shown in Table 2-7, there are over 10,000 tentatively approved or proposed lots that will require sewer service from SC-OR and the SC-OR member entities.

SC-OR recently prepared a vacant land inventory within the existing service boundaries of the three SC-OR member entities to help determine the estimated number of EDUs (from both
residential and commercial uses) that may require SC-OR wastewater treatment services. The vacant lands inventory was based on existing zoning and assumed that residential lands would be developed at approximately three units per acre and that commercial uses would generate approximately 600 gpd of wastewater per acre. Table 2-8 shows that the SC-OR WWTF would have to have capacity for approximately 11,500 new EDUs, which exceeds the remaining available treatment capacity of the SC-OR WWTF.

Table 2-8. Vacant Land Inventory

<table>
<thead>
<tr>
<th>Entity</th>
<th>EDU</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWSD</td>
<td>4,000</td>
</tr>
<tr>
<td>City of Oroville</td>
<td>3,500</td>
</tr>
<tr>
<td>LOAPUD</td>
<td>4,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11,500</strong></td>
</tr>
</tbody>
</table>

To ensure that the WWTF will have the treatment capacity for the additional EDUs and peak flows based on current growth projections, the *SC-OR Master Planning and Financial Assistance Study* identified the capital improvements needed to ensure that such capacity will exist.

**DETERMINATION 2-7: LAND USES**

There are currently significantly more approved residential lots (10,071) than remaining treatment capacity (approximately 2,800 EDU’s) at the WWTF.

While population growth and the resulting housing starts are considered the primary driver for capacity analysis, there is a significant, yet difficult to evaluate factor related to the number of dwellings in the SC-OR service area that are currently utilizing septic systems. These on-site septic systems are found on a range of parcel sizes and are largely unevaluated with respect to their expected life spans, on-site replacement areas and potential for stricter regulations promulgated by the State Water Resources Control Board. Should a substantial change in any of these factors occur, the resulting capacity requirements could rapidly exhaust the remaining WWTF capacity and require new projections to be prepared and greater improvements planned.
DETERMINATION 2-8: LAND USES

The primary land use within the Oroville region is expected to remain low density residential, and the SC-OR prepared vacant lands inventory for the existing service areas determined that the potential demand for wastewater treatment services is approximately 11,500 EDUs, which greatly exceeds the remaining treatment capacity of the SC-OR WWTF (2,800 EDUs). It should be noted that the vacant lands inventory does not consider existing uses utilizing septic systems which may require future sewer service.

To ensure that the WWTF will have the treatment capacity for the additional EDUs, the SC-OR Master Planning and Financial Assistance Study identified the capital improvements needed to ensure that such capacity will exist.

DETERMINATION 2-9: LAND USES

SC-OR, in cooperation with the member entities, should prepare a comprehensive study to determine the number of existing dwellings, commercial uses, and industrial uses that currently utilize on-site septic systems for wastewater disposal. The study will provide SC-OR with additional data to help determine the future demand for wastewater treatment services.

LAND DEVELOPMENT PROCESS

As previously noted, land use planning within the SC-OR area is primarily under the jurisdiction of either the City of Oroville or the County of Butte. The State of California has land use jurisdiction over State-owned lands, including the Lake Oroville State Recreation Area and the area adjacent to the Thermalito Forebay. Land use authority for the two casinos in Federal Trust Status lies with the U.S. Department of Interior.

For the area within the City of Oroville, all ministerial and discretionary development projects must be reviewed and approved by city authorities. The city has an optional predevelopment process in place to review development proposals, such as use permits and tentative parcel/subdivision maps, before an application is submitted to the city. The city Planning Commission reviews discretionary projects. The Oroville City Council reviews Environmental Impact Reports for development projects and hears appeals of Planning Commission decisions. Ministerial projects, such as building permits, are reviewed by city staff for compliance with applicable city development and building standards.

For the area within the County of Butte, all ministerial and discretionary development projects must be reviewed and approved by county authorities. The county has established an optional predevelopment process to review discretionary development proposals, such as use permits and tentative maps, before an application is submitted to the county. The county Planning Commission reviews discretionary projects. The Butte County Board of Supervisors reviews Environmental Impact Reports for development projects and hears appeals of Planning Commission decisions.
Commission decisions. Ministerial projects, such as building permits, are reviewed by county staff for compliance with applicable county development and building standards.

Development projects that require connection to the SC-OR system must obtain a “will serve” letter from LOAPUD or TWSD. The will serve letter states that the wastewater collection district currently has capacity for the proposed project but does not reserve that capacity. The LOAPUD and TWSD will serve letters are valid for a period of one year. The City of Oroville does not issue a will serve letter nor does the city reserve capacity in their collection system for a tentative project. Approval of a development permit, such as a building permit or a tentative parcel/subdivision map, serves as a will serve letter, indicating that the city can provide wastewater conveyance services to the development. All of the SC-OR member entities have development agreements that require the developer of a project to either construct, or provide funding, for any wastewater conveyance improvements that are needed to serve the project.

SC-OR does not have any control over land uses and has not historically issued will-serve letters. SC-OR has never formally reserved capacity at the WWTF for approved projects, and access to available treatment capacity is allocated on a “first come, first served” basis. To ensure SC-OR has the funding for capacity improvements needed due to new, large developments, SC-OR developed a new tool with the approval of a Capacity Agreement on July 22, 2009. The Agreement requires all proposed developments with twenty or more residential units, or commercial/industrial uses with equivalent wastewater flows, to fund the preparation of a site specific study (“Capacity Impact Study”) to assess the impact of the development on SC-OR’s WWTF capacity and to determine whether any necessary expansion or other modification or improvement of capacity in SC-OR’s WWTF is required as a result of the development’s impact. Following completion and acceptance of the Capacity Impact Study by SC-OR and if the developer decides to proceed with development of the project, a mitigation agreement is executed which describes generally the required improvements, their timing, as well as their financing and construction, and all other requirements of SC-OR and the sewage collection agency that the developer must complete prior to the receipt of service to the project. With the mitigation agreement(s) with SC-OR and the collection agency in place, the collection agency and SC-OR will issue a “Sewer Service Availability” letter to the developer which reserves service from the SC-OR WWTF and in the sewer collection system.

A developer is not required to complete the capacity agreement or mitigation agreement. However, without these agreements, the developer is not given assurance that the SC-OR WWTF or the sewage collection agency will have sufficient capacity to provide service to the proposed development. Without such assurances of available sewer service, governing bodies of the two land use entitlement agencies will be constrained in their ability to adequately evaluate or mitigate impacts to the sewage service agencies.

On July 22, 2009, SC-OR also approved a Pre-Annexation Agreement, which is substantially the same as the capacity agreement, only which will be completed for projects requiring an annexation into the City of Oroville, LOAPUD, or TWSD. The pre-annexation agreement provides assurance to LAFCo that there will be sufficient treatment capacity at the SC-OR WWTF and in the sewage collection agency’s system for the area proposed for annexation.
Without the *Pre-Annexation Agreement*, LAFCo may not have the foundational assurance it needs to determine if service is available and to approve an annexation.

Appendix C of this MSR contains the adopted capacity and pre-annexation agreements along with the SC-OR resolution adopting the developer agreement program.

**DETERMINATION 2-10: LAND USE DEVELOPMENT PROCESS**

| Land use jurisdiction within the SC-OR service area is primarily under the jurisdiction of the City of Oroville or the County of Butte. The State of California and the U.S. Department of Interior have land use authority of the parcels owned by them. |

**DETERMINATION 2-11: LAND USES**

| Historically, wastewater treatment capacity at the SC-OR WWTF could not be reserved, with connection to the WWTF based on a first-come, first-served basis. As an added tool to ensure sewer service is available, SC-OR adopted several formal agreements to indentify and mitigate capacity improvements to ensure SC-OR and the collection agency will have capacity for the proposed development and provide assurance to LAFCo that there will be sufficient treatment capacity at the SC-OR WWTF and in the sewage collection agency’s system for an area proposed for annexation. |

**Sanitary Sewer Systems**

A historical review of collection systems in the United States helps with understanding the problems associated with modern sewer collection systems. Many of the early sewers, including some from before the turn of the century, are still in service. As cities grew, the need for stormwater and wastewater conveyance became a necessity to protect human health. Stormwater and sanitary waste were generally conveyed to the nearest natural water body. In fact, the modern word “sewer” is derived from the old English word meaning “seaward.”

A sanitary sewer system is a wastewater collection system, typically owned by a municipality, authority or utility district, which is specifically designed to collect, convey, and treat only sanitary wastewater (domestic sewage from homes, and wastewaters from industrial and commercial facilities). Storm water is typically conveyed through a separate system. Some sanitary sewer systems also provide wastewater treatment and disposal services. Sanitary sewer systems that only collect and convey wastewater, such as the City of Oroville, LOAPUD, and TWSD, are referred to as “satellite sewer systems” because they convey wastewater to another entity for treatment and disposal.

Wastewater is not just sewage. All the water used in the home that goes down the drains or into the sewage collection system is wastewater. This includes water from baths, showers, sinks, dishwashers, washing machines, and toilets. Businesses and industries often contribute large

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amounts of wastewater to sewage collection systems. The average American contributes approximately 150 gallons of wastewater each day. Wastewater is about 99 percent water by weight and is generally referred to as influent as it enters the wastewater treatment facility. “Domestic wastewater” is wastewater that comes primarily from individuals, and does not generally include industrial or agricultural wastewater.

Sanitary sewer systems are usually comprised of sewer laterals (also referred to as service laterals), sewer mains, interceptors, pump stations, wastewater treatment facility, and disposal facility. Sewer laterals, which, in the Oroville region, are usually owned and maintained by the landowner, are the pipes that convey sewage from a structure (such as a house or a business) to the public sewer system main, which usually run down the middle of the street. Figure 2-3 shows a typical lateral. The portion of the lateral located on private property is often referred to as a side sewer. Vertical openings (called manholes) allow access for maintenance. Manholes run from the sewer main up to street level, where they are covered by manhole covers. The sewer main opens into progressively larger pipes until the wastewater reaches large-diameter sewer pipes called interceptors that convey water to treatment facilities.

Sewers usually are built to follow the natural slope of the land, using gravity to move the wastewater along. This design allows gravity to do most of the work transporting the wastewater to treatment facilities. When gravity doesn't work, pump stations force the wastewater to a higher level, where gravity is able to take over again. Sewer lines that are under pressure are referred to as force mains.

Sewage treatment is a multi-stage process to clean wastewater before it enters a body of water, is applied to the land, or is reused. The goal is to reduce or remove organic matter, solids, nutrients, disease-causing organisms, and other pollutants from wastewater. Each receiving body of water has limits to the amount of pollutants it can receive without degradation. Therefore,
each sewage treatment facility must hold a permit from the California Regional Water Quality Control Board listing the allowable levels of biological oxygen demand (BOD), suspended solids, coliform bacteria, and other pollutants. The discharge permits are called Waste Discharge Requirements. SC-OR’s current Waste Discharge Requirements (Order No. R5-2005-0010, NPDES Permit No. CA0079235) was approved on January 27, 2005, and allows for treated effluent to be discharged into the Feather River. SC-OR’s current Waste Discharge Requirements are found in Attachment B of this document. SC-OR’s Waste Discharge Requirements expire on January 1, 2010, and SC-OR recently submitted an application to RWCB for renewal of its waste discharge requirements.

The SC-OR member entities do not require individual waste discharge requirements since they do not treat and dispose of wastewater. However, on May 2, 2006, the State Water Resources Control Board (SWRCB) enacted Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR), which was subsequently amended by Order No. WQ 2008-0002.EXEC on February 20, 2008. The GWDR requires any public agency that owns or operates a sanitary sewer system more than one mile in length that conveys treated or partially treated wastewater to a publicly owned treatment facility in the State of California, comply with the requirements of the WDR. The GWDR prohibits sanitary sewer overflows (SSOs), requires reporting of SSOs using the statewide electronic reporting system, and requires the development and implementation of a Sewer System Management Plan (SSMP).

Wastewater treatment plants typically have a useful life of 20-50 years before they require expansion or rehabilitation. Pipes have life cycles that can range from 15 to over 100 years depending on the type of material and the environment.  

The following section is a brief description of the wastewater treatment process, which is shown in Figure 2-5.

1. Preliminary treatment
Upon arrival via the sewer system, the wastewater is sent through a bar screen, which removes large solid objects such as sticks and rags. Leaving the bar screen, the wastewater flow is slowed down entering the grit tank. This allows sand, gravel, and other heavy material that was small enough not to be caught by the bar screen to settle to the bottom. All the collected debris from the grit tank and bar screen is disposed of at a sanitary landfill.

2. Primary treatment
Primary treatment is the second step in wastewater treatment. It allows for the physical separation of solids and greases from the wastewater. The screened wastewater flows into a primary settling tank where it is held for several hours. This allows solid particles to settle to the bottom of the tank and oils and greases to float to the top. The solids drawn off the bottom and skimmed off the top receive further treatment as sludge. Primary treatment does not remove colloidal or dissolved solids.

8 U.S. EPA - [http://www.epa.gov/waterinfrastructure/basicinformation.html](http://www.epa.gov/waterinfrastructure/basicinformation.html)
9 Solids that are not truly dissolved and yet do not settle readily
3. Secondary treatment
Secondary treatment is a biological treatment process that removes dissolved organic material from wastewater. The partially treated wastewater from the settling tank flows by gravity into an aeration tank. Here it is mixed with solids containing micro-organisms that use oxygen to consume the remaining organic matter in the wastewater as their food supply. The aeration tank uses air bubbles to provide the mixing and the oxygen, both of which are needed for the micro-organisms to multiply.

From here the liquid mixture, composed of solids with micro-organisms and water, is sent to the final clarifier. Here the solids settle to the bottom where some of the material is sent to the solids handling process, and some is recirculated to replenish the population of micro-organisms in the aeration tank to treat incoming wastewater.

4. Final treatment
Wastewater that remains is disinfected to kill harmful micro-organisms before being released into receiving waters. Although there are many methods available to kill these micro-organisms, chlorine and ultraviolet disinfection are the most widely used. Disinfection at the SC-OR WWTF is accomplished by chlorine disinfection.

Dechlorination occurs in the final wastewater treatment step. SC-OR uses gaseous sulfur dioxide for dechlorination, which is injected into the plant effluent.

Following disinfection and dechlorination, the treated wastewater (now called final effluent) can be conveyed to the receiving waters or to ponds. The flow is conveyed to an outfall and discharged through a series of diffusers into a surface water body or stream.

5. Solids processing
Primary solids from the primary settling tank and secondary solids from the clarifier are sent to the digester. During this process, micro-organisms use the organic material present in the solids as a food source and convert it to by-products such as methane gas and water. Digestion results in a 90% reduction in pathogens and the production of a wet soil-like material called “biosolids” that contain 95-97% water. To remove some of this water and reduce the volume, mechanical equipment such as filter presses or centrifuges are used to squeeze water from the biosolids. The biosolids are then sent to landfills, incinerated, or beneficially used as a fertilizer or soil amendment.
The required capacity or size of sewer system facilities is dependent on the flow rate of the wastewater. For conveyance facilities like interceptor sewers and pump stations, the capacity is usually the maximum flow rate expected during a one-hour period. For treatment plants, the facilities must handle not only the maximum hourly rate, but the processes are designed to meet permit limits, usually specified as a peak month condition. The introduction of non-contaminated, clear water inflow and infiltration (I&I) into the sewer system increases the volume of wastewater flow and consumes the capacity of sewer pipes, pump stations and treatment plants intended to serve future development. During significant rainfall events, portions of the interceptor system are at risk of spilling wastewater into the environment as a result of excessive I&I.

Overall capacity for a wastewater treatment facility is based on influent loading and process configuration, which includes both hydraulic capacity and treatment capacity. Hydraulic capacity refers to the infrastructure's ability to convey a liquid quantity without causing bottlenecks or generating conditions that exceed system specifications (i.e., extreme pipe velocity). Infrastructure such as sewer interceptors, influent pumps, process piping, channels and weirs impact the hydraulic capacity. Treatment capacity refers to the plant's ability to consistently reduce organic, nutrient, and solids loadings of raw sewage and comply with regulatory waste discharge requirements. Process facilities and equipment such as aerators, basin volumes, clarifier size, filters, and disinfection equipment have an effect on treatment capacity.

While the average dry weather flow is usually thought of as the rated capacity of a treatment plant, the design of treatment systems must also accommodate significant variations in influent

![Figure 2-5. Typical Wastewater Treatment Process](image-url)
flow. A treatment plant must be designed to prevent hydraulic overloads and wash out of solids during peak day and peak hour events. It must also be able to meet discharge limits during the sustained higher flows experienced during the peak month of wet weather.

The volume of wastewater flow in a sewer system is typically expressed in **million gallons per day (mgd)**. Peak wastewater flows through a sewer system or wastewater treatment facility is the maximum flow that occurs over a specific length of time (e.g., daily, hourly, instantaneous). The maximum amount of wastewater that can be conveyed through a sewer system or wastewater treatment facility is the hydraulic capacity. Hydraulic capacity is reached when there is more wastewater to transport than the pipes and lift stations have the ability to carry. Ultimately, exceeding the hydraulic capacity of a sewer system can cause sewage to overflow from manholes and lift stations.

The **average dry weather flow (ADWF)** is the average flow in a sanitary sewer system or wastewater treatment facility during periods of dry weather in which the sanitary sewer is under minimum influence of inflow and infiltration. Under its current Waste Discharge Requirements issued by the California Regional Water Quality Board, the SC-OR WWTF can discharge up to 6.5 mgd of effluent to the Feather River during periods of dry weather. However, the 6.5 mgd limit can be exceeded during periods of wet weather, when heavy flows from inflow and infiltration significantly dilute the wastewater, thus increasing the amount of effluent that can be treated and subsequently discharged. The discharged effluent cannot exceed the effluent pollutant limitations as established by the Waste Discharge Requirements.

The **average wet weather flow (AWWF)** is the average dry weather flow combined with infiltration and inflow. The **wet weather peaking factor (WWPF)** is the ratio of average dry weather flow to average wet weather flow. The higher the peaking factor the higher the amount of I&I is entering a sewer system. A wet weather peaking factor of 4.0 to 5.0 is considered to be acceptable for a sanitary sewer system provided it does not exceed the hydraulic capacity of the facility.

Treatment capacity at a wastewater treatment facility can be described in terms of **equivalent dwelling units (EDUs)**. Pursuant to SC-OR Policy, one EDU is equal to 260 gallons per day, which is the average daily wastewater flow from a single-family dwelling unit. For commercial users one EDU is equal to 16 fixture units.

Typical diurnal (daily) variations in influent flow are depicted by a wave form, which is depicted in Figure 2-6. The flow variation is characterized by two peaks (resulting from morning and early evening water usage) and decreasing flows late at night and early in the morning. The maximum flow of the diurnal flow period is defined as the "peak hourly flow." Variations in the wave form of any given collection system can be expected to occur on a day-to-day basis. The pattern of variation will vary slightly from day to day with distinct differences between working days, weekends (even between Saturdays and Sundays) and holidays. These variations can take the form of time lags, advances in the wave form, or increases or decreases in observed peaks.

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10 SC-OR Policy # 7510  
11 SC-OR Policy # 7210
Systems with excessive inflow can be expected to exhibit wave forms and peak values in response to storm events and abnormal diurnal flow patterns, which is shown in Figure 2-8.

**Figure 2-6. Typical Residential and Commercial Wastewater Flow Diurnal Curves**

![Figure 2-6](image)

*Graphic Credit: City of Lacey, WA, 2005 Wastewater Comprehensive Plan Update*

**Inflow and Infiltration**

**Inflow and infiltration (I&I)** are terms used to describe the ways that groundwater and/or stormwater flow into a wastewater system, due to cracked sewer lines, leaky manholes or through erroneously connected storm drains (Figure 2-7). Most inflow comes from stormwater and most infiltration comes from groundwater. It has been shown through previous studies that I&I typically increases with time as a sewer system ages and decays. Sewer laterals are often the largest source of I&I to a system.

Inflow occurs when rainwater is misdirected into the sanitary sewer system instead of storm sewers. Inflow enters the wastewater system through improper connections, such as catch basins, yard, roof and footing drains, downspouts, groundwater sump pumps, and through holes in manhole covers. Inflow typically occurs as a result of storm events. Peak inflow occurs during heavy storm events when storm sewer systems are full, resulting in backups and ponding. Many communities typically experience higher flow rates in their wastewater collection systems during rain events. These flow responses to rainfall will usually vary according to storm volume.
and intensity, as well as the amount and duration of antecedent rainfall (rainfall in the days preceding the particular rain event).

Infiltration occurs when ground water seeps into the sanitary sewer system through cracks or leaks in sewer pipes. The cracks or leaks may be caused by age related deterioration, loose joints, damage or root infiltration. Infiltration amounts often exhibit seasonal variation in response to groundwater levels. Storm events can trigger a rise in groundwater levels and increase infiltration flows. The highest infiltration flows are observed following significant storm events or following prolonged periods of precipitation when the ground is saturated with water.

**Figure 2-7. Typical Sources of Inflow and Infiltration**

Figure 2-8 demonstrates how peak I&I flows can far exceed base flows.
Inflow and infiltration are major causes of sanitary sewer overflows that release raw sewage into lakes, streams, streets, homes, and businesses. Sewer back-ups into homes or businesses may result in protracted litigation and potential liability for the SC-OR entities. Sanitary sewer overflows may also have significant environmental cleanup costs, along with State-required fines.

Excess storm water entering the sanitary sewer system through inflow and infiltration is a problem because:

- It takes up capacity in the sewer pipes and ends up at the SC-OR wastewater treatment plant where it must be treated like sewage. I&I that enters the collection and treatment system also triggers higher operating costs for the region. Operating costs for conveyance facilities such as pump stations are proportional to flow volumes passing through the facilities. I&I also increases treatment costs because more chemicals and electricity are used during peak flows at the treatment plant.
- The extra capacity required to convey and treat I&I results in higher capital and operating costs to the regional system that are born uniformly by all agencies and passed onto ratepayers in each jurisdiction.
- Under certain conditions the SC-OR member entities are required to pay an I&I surcharge and/or an excess peak I&I surcharge if they have wastewater flow in excess of the allowable average and peak flows, potential resulting in higher service fees to the member entities' ratepayers.
- I&I flows contribute to sanitary sewer overflows into local homes and the region's waterways, negatively impacting public health and the environment. Sanitary sewer overflows may result in high cleanup costs and large regulatory fines.
The point where I&I enters a sewer system is also where exfiltration of sewage into the surrounding soil can occur, which can lead to groundwater and soil contamination.

The amount of infiltration and inflow depends on the condition of the all the elements that constitute the sanitary sewer system. Elements such as the number of illicit connections, the physical condition of main lines and privately owned side sewers, the level of groundwater and the porosity of the soil affect the amount of I&I. As depicted in Figure 2.9, approximately 50% to 70% of I&I comes from private property sources.

Figure 2-9. Sources of I&I

![Diagram showing estimated sources of excess flow in sewer systems]

The following pictures, taken recently by the Thermalito Water and Sewer District utilizing their closed circuit television equipment, show typical pipe damage that can cause I&I. The pipe damages shown are typical of those found in the collection/conveyance systems of the SC-OR member entities.

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12 Executive’s Recommended Regional Infiltration and Inflow Control Program, King County, Washington, December 2005
Sanitary Sewer Overflows

A sanitary sewer overflow is any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs can occur at any location in a sanitary sewer system, including: manholes, cracks and other defects in sewer lines, emergency relief outlets, and elsewhere. SSOs do not include overflows from privately-owned service laterals when these overflows are caused by blockages or other problems within the privately-owned lateral. These overflows are known as private lateral sewage discharges (PLSDs). SSOs do include overflows from privately-owned laterals when the cause is a problem within the publicly-owned sanitary sewer system. Figure 2-10 shows a SSO occurring at a manhole.

Since mandatory reporting of SSOs to the California Regional Water Quality Control Board began in 2007, the SC-OR member entities have had thirteen SSO’s, as shown in Table 2-9. Additional information on these SSOs can be found in each member entities’ chapter in this MSR.
Table 2-9. Sanitary Sewer Overflows (SSOs)

<table>
<thead>
<tr>
<th>Entity</th>
<th>Number of SSOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Oroville</td>
<td>9</td>
</tr>
<tr>
<td>LOAPUD</td>
<td>1</td>
</tr>
<tr>
<td>TWSD</td>
<td>3</td>
</tr>
<tr>
<td>SC-OR</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 2-10. Manhole SSO

In a study on the cause of SSO events in communities that had fewer than 100 SSOs per year, the U.S Environmental Protection Agency determined that 48 percent of all SSO events with a known cause were the result of the complete or partial blockage of a sewer line, and 26 percent of SSO events were caused by wet weather and I&I. In communities that reported more than 100 SSOs per year, the EPA found that a significantly higher percentage of their SSO events were due to blockages (74 percent) and a smaller percentage to I&I (26 percent). In general, SSOs attributed to wet weather and I&I are caused by insufficient sewer system capacity, while the other types of spills are attributable to sewer system operation and maintenance.

13 U.S. Environmental Protection Agency, Report to Congress on the Impacts and Control of CSOs and SSOs
EPA studies showed that grease from restaurants, homes, and industrial sources is the most common cause of reported blockages in sewer lines. Grease is problematic because it solidifies, reduces conveyance capacity, and blocks flow. Grit, rocks, and other debris that find their way into the sewer system account for nearly a third of the reported blockages. Roots are responsible for approximately one quarter of reported blockages. Roots are problematic because they penetrate weaknesses in sewer lines at joints and other stress points, and cause blockages.

I&I Flows from SC-OR Member Entities

The amount of I&I generated by the City of Oroville, LOAPUD, and TWSD wastewater collection systems has not been definitively quantified by any detailed study. However, wastewater flowing into the SC-OR WWTF is monitored and recorded on a daily basis, which provides a valuable measurement to determine the approximate amount of I&I generated by each entity. Table 2-10 shows the average dry weather flow, the average wet weather flow, the peak wet weather flow, and the wet weather peaking factor from each entity’s system for 2008.
Table 2-10. Wastewater Flows from SC-OR Member Entities - 2008

<table>
<thead>
<tr>
<th>Agency</th>
<th>Average Dry Weather Flow (mgd)</th>
<th>24-Hour Average Wet Weather Flow (mgd)</th>
<th>Peak Wet Weather Flow (mgd)</th>
<th>Wet Weather Peaking Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Oroville</td>
<td>1.9</td>
<td>6.7</td>
<td>10.4</td>
<td>5.5</td>
</tr>
<tr>
<td>LOAPUD</td>
<td>0.8</td>
<td>4.8</td>
<td>7.2</td>
<td>9.0</td>
</tr>
<tr>
<td>TWSD</td>
<td>0.5</td>
<td>2.4</td>
<td>2.8</td>
<td>5.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3.2</strong></td>
<td><strong>N/A</strong></td>
<td><strong>N/A</strong></td>
<td><strong>N/A</strong></td>
</tr>
</tbody>
</table>

A review of 10 case studies by EPA found that peak wet weather flow ranged from 3.5 to 20 times the average dry weather flow. Typically, as the ratio approaches 4 to 5, the likelihood of surcharge and overflow increases.\(^{14}\)

The SC-OR WWTF has adequate capacity to handle dry weather flows from the member entities. However, significant amounts of inflow and infiltration enter the SC-OR member entities’ sewer systems, which is conveyed to the SC-OR WWTF. SC-OR must provide adequate capacity to treat all of the flows sent by the member agencies through their collection systems. Depending on the severity of a storm, some of the wet weather flows coming into the WWTF are greater than the WWTF is permitted to treat and actually exceed the hydraulic capacity of the facility.

According to SC-OR, peak flow to the WWTF has exceeded maximum day flow at least 25 times in the last ten years. Flow greater than the 10.6 mg hydraulic capacity of the WWTF must be pumped to the emergency storage ponds for temporary storage until inflow to the WWTF subsides and treatment capacity becomes available. Under such uninterrupted storm conditions, SCOR has approximately two days of emergency storage capacity in its ponds. Several times over the last ten years, the two-day storage has been reduced to just hours. This scenario could have had catastrophic consequences if the storm event had a slightly longer duration. It can take up to several weeks to empty the storage ponds through the WWTF due to increased wet weather influent flow to the facility. Figure 2-13 shows a graph of the wet weather peak flow at the WWTF from 1997 to 2007. The thick red line in the graph depicts the average wet weather flow at the WWTF.

SC-OR records the wastewater flows from the member entities on flow charts, which provide a graphical depiction of the incoming flows. Figure 2-14 is the SC-OR WWTF influent flow chart for December 31, 2005, which depicts the flows that occurred during a 5 to 10-year storm event. The blue line on the chart shows that inflow to the WWTF was approximately 23 mgd, which is seven times more than the average dry weather flow. The heavy black line depicts the normal dry weather flow.

\(^{14}\) EPA Region 4 Introduction to Conducting Evaluations of Municipal Wastewater Collection System Management, Operation, and Maintenance Programs, Version 1.0, September 2003
Figure 2-13. SC-OR Peak Flows, 1997-2007

Figure 2-14. SC-OR Peak Flow, December 31, 2005
Locating I&I

Finding the location of sources of I&I within a sanitary sewer system can be an expensive and time-consuming process. Most wastewater collection agencies are only able to inspect a small portion of their system in any one year. On average, the City of Oroville inspects approximately 1.75 miles (2.6%) of their sewer system per year of their system, LOAPUD inspects approximately 15 miles (21 percent), and TWSD inspects approximately 9 miles (25 percent).

None of the SC-OR member entities directly inspect the private sewer laterals connected to their sewer systems. However, smoke testing of an entity’s sewer pipes can result in the identification of open or damaged clean-outs on the sewer laterals. Closed-circuit television inspections of an entity’s sewer pipes can also reveal damages on a sewer lateral.

Each SC-OR member entity uses one or more of the following methods to detect I&I:

- **Smoke testing** involves pumping smoke through sewers from manholes in streets and observing and documenting where smoke exits. The exiting smoke can identify locations of stormwater/groundwater entry into the sanitary sewer system. Direct connections including downspouts, area drains, driveway drains, stairwell drains, patio drains, and storm sewer inlets or ditches can be confirmed with smoke testing. Indirect connections from storm sewers or ditches which require I&I to pass through soil seams can also be identified with smoke testing.

The following pictures, provided by TWSD, show smoke testing in progress. The two pictures show smoke emitting from a private sewer lateral.
- **TV inspections** record conditions using a TV camera within the pipes. Closed Circuit TV (CCTV) cameras have been developed that can be slid down sanitary sewer lines and record a video of the conditions that are found in that section of sewer. This can identify breaks, root intrusion, leaking water (especially infiltration from groundwater), and general deteriorating conditions. Estimates can be made for how much infiltration might occur from such leaks. Each of the SC-OR member agencies has its own TV inspection equipment, and the City of Oroville recently purchased a new TV inspection van.

**Equipment in CCTV Truck**

**CCTV Camera**

*Graphic Credit: Metropolitan Council Inflow and Infiltration Tool Box*
• **Dye testing** involves pouring non-toxic fluorescent colored dye down roof drains or catch basins to see if that dye makes its way into the sewer. This provides verification that the storm drainage being tested is directly connected to the sewer.

![Graphic Credit: Metropolitan Council Inflow and Infiltration Tool Box](image)

• **Manhole inspections** are a relatively inexpensive and quick method of detecting inflow/infiltration sources in sanitary sewer systems. Visual manhole inspections provide an additional source of information concerning the presence and degree of inflow/infiltration problems, the general structural condition of the manhole and the accuracy of previous system drawings.

• **Flow monitoring** data collection and evaluation should be an important part of a good operation and maintenance program. A well-designed flow monitoring program will give a snapshot of the current condition of the system. By isolating the portions of the system that are making the greatest contribution to the problem, resources can be directed where they will be of greatest benefit. Techniques used to monitor flow include continuous metering, nighttime field measurements, quantification of pump run-times, and flow measurements taken at the treatment plant. Continuous flow measurement at key locations throughout the collection system will give the most accurate indication of system integrity. The other techniques have been used to some advantage with smaller systems. Use of meters which measure depth of flow and velocity will allow accurate results, even under surcharged conditions. Meters are available which allow continuous data recording.

**Reducing I&I**

Virtually every sewer system will have some infiltration and/or inflow, and some amount of I&I can be tolerated. Infiltration and inflow may be considered excessive when the cost to transport and treat I&I flows exceeds the cost to eliminate I&I. The cost for larger pipe, pumps, and treatment units (including higher energy, chemical and maintenance costs) is compared to the cost to eliminate I&I through system rehabilitation. No collection system is ever completely free of I&I and no rehabilitation program will ever eliminate 100% of I&I in the system. The key concept here is to match system maintenance funding with the acceptable level of risk from I&I.
when considering the consequences (SSO fines, emergency repairs, cost to maintain storage ponds, overall system stress).

The elimination of infiltration/inflow by sewer system rehabilitation and an on-going operation and maintenance program to identify these areas is essential to protect the enormous investment in sewers and wastewater treatment facilities made by cities and special district, as for the protection of the environment.

A collection system corrodes, erodes, collapses, clogs, and ultimately deteriorates. Its capacity can be reduced by accumulations or obstructions that are discharged to the system, such as grease, garbage, rags, paper towels and by materials described as disposable by the manufacturer. This also includes any material that may enter at the joints or through breaks in the sewer line itself, such as roots or soil materials. Sanitary sewer capacity is finite, and common sense dictates that it needs to be preserved.

In the past, many municipalities have not provided the quality program for collection system maintenance necessary to protect both the public’s health and the sizeable investment in their facilities. Collection system maintenance functions are frequently treated as necessary evil, to be given attention only as emergencies arise. Adequate budgets should be provided for supervision, labor, and equipment.

The execution of a basic plan of routine preventive maintenance designed to preclude interruption of service and to protect capital investment is extremely important. Continuous routine inspection for physical damage to the system to be supplemented by immediate and adequate repair of any damage and elimination of the cause cannot be overemphasized.

Generally, rehabilitation of a sewer system includes a broad spectrum of approaches, from repair to replacement that attempt to return the system to near-original condition and performance. 15 Rehabilitated systems can be improved to provide hydraulic conditions and structural integrity better than the original sewer. Repair techniques are used when the existing sewer is structurally sound, provides acceptable flow capacity and can serve as the support or host of the repair method. When the existing sewer is severely deteriorated, collapsed, or increased flow capacity is needed, it is usually replaced. Current rehabilitation methods generally address unsound structural conditions. A wide range of causes can be responsible for sewer line deterioration and failure. These include:

- Inadequate or improper bedding material
- Chemical attack
- Traffic loadings
- Soil movements
- Root intrusion
- Compromised joint integrity
- Subsequent construction damage

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Rehabilitation projects should be planned and implemented using a reasonable expectation of the amount of I&I that may be eliminated. Total basin rehabilitation—rehabilitation and/or replacement of mains, manholes, and laterals in a basin—ultimately appears to be the most effective solution for significant I&I reduction and could serve as an appropriate approach to rehabilitating portions of the collection system that have uniformly degraded over time.\textsuperscript{16} It should be noted that it may take many years of infrastructure upgrades to reverse I&I.

To date, infiltration/inflow has been handled by building oversized sewer system infrastructure - pipes, lift stations and wastewater treatment plants - to transport and treat the peak wet weather and normal flows. Building oversized infrastructure to handle peak wet weather flows requires large capital investments, high ongoing maintenance and high ongoing operating expenses. \textit{Oversized sewer infrastructure treats the symptoms of infiltration/inflow rather than the cause of the infiltration/inflow and does not remove the infiltration/inflow sources or associated flows.}

The efficient solution to the infiltration/inflow problem requires the removal of the defects and illegal connections which allow ground and rain water to enter the wastewater collection system. While this is the obvious solution to the infiltration/inflow problem, history has proven it an extremely difficult task to quickly and efficiently find and quantify the sources of infiltration/inflow on an ongoing basis. Most programs to date focus on rotating inspection crews searching for infiltration/inflow sources on a continuous basis.

Rehabilitation of the wastewater collection system can include repair or replacement of facilities, relining of facilities, and disconnection of inflow sources. An additional component of a rehabilitation program can involve modifying manholes to reduce the surface inflow potential, and sealing the interior barrel sections and bases to reduce or eliminate infiltration.

One primary method of reducing I&I focuses on fixing the broken pipes, manholes, and joint connections. Another focuses on reducing the amount of I&I that enters the sewer system from storm events by disconnecting roof drain downspouts and other building or yard drains that may be directly connected to the sewer.

Some of the methods utilized by the SC-OR member entities to repair sewer pipes include one or more of the following:

\textbf{Stormwater disconnections:}

\begin{itemize}
  \item Stormwater connections such as roof drain downspouts, yard drains, and sump pumps may be disconnected from the sewer system and redirected to a separate stormwater system.
\end{itemize}

\textsuperscript{16} Executive’s Recommended Regional Infiltration and Inflow Control Program, King County, Washington, December 2005
Trenchless technologies - Trenchless repair methods require less digging than traditional “dig and replace” repair methods and minimize damage to yards and landscaping. Trenchless technology pipe repair methods may include pipe bursting, sliplining, and cured-in-place pipe (CIPP):

- Pipe bursting is a technique that pulls a hardened steel breaker head through the old pipe, breaking it up, and replacing it with a new pipe all in one process.
- Sliplining is a well-established method of trenchless rehabilitation. During the sliplining process, a new liner of smaller diameter is placed inside the existing pipe. The annular space, or area between the existing pipe and the new pipe, is typically grouted to prevent leaks and to provide structural integrity.
- CIPP repair involves pulling a resin-saturated liner through a damaged pipe which is then cured with steam or hot water to form a tight-fitting, jointless replacement pipe.

TWSD has utilized a cured-in-place pipe system to make repairs to the sewer lines in their system. The following pictures, provided by TWSD, shows pictures cured-in-place pipe repairs.

All of the SC-OR member entities have taken some steps to help reduce I&I flows, as described below:

City of Oroville

The City has recently recognized that it has not adequately inspected, cleaned, and maintained its sewer system, which has resulted in numerous SSO’s and claims for damages. City staff estimates that the City’s existing sewer system deficiencies total approximately $14 million including undersized pipes for design storm, deficient pipes, manholes and private laterals. The City is currently preparing its Sanitary Sewer Management Plan (SSMP), which will identify the portions of the City’s sewer system that require repair or rehabilitation and enable the City to plan the elements of a long-term I&I reduction and system rehabilitation program. The City is also currently preparing its Master Sewage Disposal Plan Update, which will also the City to
adopt a capital improvement program (CIP) and identify CIP funding for sewer system improvements needed for future development. Subject to approval of the needed revenue increases to fund this work, the City plans on initiating significant I&I reduction and system rehabilitation effort, including the possible replacement of an undetermined number of private laterals, starting in 2010.

The City’s sewer service fee has historically been very low when compared to the fees of other agencies operating sewer systems. City Public Works staff recently recommend to the Oroville City Council that the Council adopt increased sewer service fees annually for the next eight years so that sufficient funding can be obtained to rehabilitate the City sewer system, which would, over time, result in a reduction in I&I flows into the City’s sewer system. The City recently raised the sewer service fee from $8.66 a month to $9.79 per month (a 13% increase). By Fiscal Year 2016-17 the monthly sewer service fee is proposed to be $34.68, which is a 322% increase above the recently-approved fee. With the increases in the sewer service rates, the City expects to collect slightly over $2.5 million annually by Fiscal Year 2016-17 with which to manage the entire operations and maintenance of their sewer system.

LOAPUD

LOAPUD has taken steps to reduce I&I in their system and has implemented an I&I reduction program that focuses on locating and repairing the offending areas. The District inspects and cleans approximately 15 miles (21 percent) of their sewer system each year. LOAPUD repairs approximately 5,000 lineal feet of their sewer system each year. According to LOAPUD, they have spent over $3.4 million over the last ten years on repairs to their sewer system. The District’s 2008-09 budget includes $200,000 in expenditures for sewer system improvements.

The District recently adopted, but not yet implemented, a sewer lateral testing program that, depending on the circumstances, requires testing and maintenance, and repair and replacement if necessary, to private sewer laterals and appurtenances connected to the District’s sewer mains. The purpose of LOAPUD’s lateral testing and repair program is to ensure that sewer service laterals are tested, maintained, and repaired or replaced if necessary to reduce I&I entering the District’s sewer system.

TWSD

TWSD is taking a very aggressive approach to reducing I&I in their system and has implemented an I&I reduction program that focuses on locating and repairing the offending areas. Since 2001 the District has expended approximately $1 million on I&I reduction. In FY 05/06, the budget for rehabilitation of the sewer system was $60,000. Since that time, the District’s budget has increased to $110,000 per year on sewer system rehabilitation.

To help locate I&I intrusion, TWSD smoke tests their entire collection system on an annual basis (this also identifies some private lateral issues), as well as field inspect manholes for I&I intrusion. The District has purchased more efficient cleaning nozzles for its jet rodding cleaning equipment (a device that uses high-velocity jets of water to dislodge materials from sewer pipe walls). The District believes that it will have its entire sewer system cleaned by the end of 2009.
The District has completed inspecting approximately 65% of its sewer system with closed-circuit television (CCTV) equipment and hopes to have their entire collection system inspected by the end of 2009. After the entire collection system is inspected TWSD will place inspections on a maintenance schedule. The District also inspects all new construction with its CCTV equipment. After completion of CCTV inspections, the District will be evaluating and prioritizing sewer lines for replacement. The District has updated their improvement standards and new construction must meet a high standard of inspections and testing before the District will accept the new facilities.

**SC-OR WWTF**

In 1986, SC-OR increased its pumping capacity by 10 mg, added a 10 mg storage pond and appurtenances, and added a third clarifier, all to accommodate large I&I flows into the WWTF. In 2006, SC-OR funded and installed 1,100 feet of parallel sewer line along Cal Oak Road, between S. 7th Avenue and S. 5th Avenue, to relieve surcharging on the West Interceptor due to wet weather flow. In 2008, SC-OR modified its internal piping system so that an existing pond can be used for additional storage, which added an additional 4 mg of storage capacity, increasing wet weather storage from 22 mg to 26 mg.

SC-OR has identified the infrastructure improvements needed to handle I&I flows, which include:

- Increasing the pumping capacity at the WWTF
- Constructing a new 48-inch-diameter Main Interceptor
- Relocating portions of the West Interceptor east of the Feather River
- Replacement of the existing West Interceptor and installation of a new parallel force main west of the Feather River
- Improvements to the Feather River and Ruddy Creek Pump Stations

**Surcharge Program**

To encourage the member entities to reduce I&I in their collection systems, SC-OR created an I&I surcharge program that is designed to recover part (up to 80%) of the costs for treating excess monthly flows and excess peak flows from the member entities. Pursuant to SC-OR Policy, all flows in excess of 7,908 gallons per month per EDU are considered to be excess average flows. The surcharge for exceeding the monthly flow depends on the actual costs to treat the excess flow, typically varying from $150 to $400 per million gallons. Allowable peak flows are based on a peak to average flow ratio of four so that each entity is entitled to a peak flow rate of 1,040 gallons per day per EDU. The surcharge for exceeding the peak flow is $61,300 per million gallons. Any I&I surcharge levied by SC-OR can be offset by the member entities if they show they have made certain repairs to their systems to reduce I&I. In 2008, no I&I surcharges were collected.

Based on documented flow rates, it does not appear that SC-OR’s I&I surcharge program has resulted in any significant reductions in I&I. To encourage the member entities to reduce I&I...
flows in their collection systems, SC-OR could consider lowering the amount of what is considered to be excess I&I and increasing the I&I surcharge. Funds raised by the I&I surcharge program could be placed in a reserve contingency fund to be used for future capital improvements to address the capital improvements necessary to address the impacts of excessive I&I on the WWTF and for treatment works costs associated with excessive I&I, should that become necessary.

**Sewer Lateral Inspection and Repair Program**

Sewer laterals, which are often referred to as service laterals, are often the largest source of I&I to a system. Taps, joints, and locations of structural damage are common points where I&I may be introduced into a sewer system. Service laterals can contribute as much as 70 to 80% of the infiltration to a sewer system. The primary cause of private lateral sewer blockages is root intrusion. On-going root growth widens the openings in the pipe wall, additionally increasing I&I into the collection system. Roots that break away from the inside of a private lateral may become blocked in a sewer main, which may result in a SSO.

Many sewer service providers have created sewer lateral inspection and repair programs in an effort to reduce I&I. In May 2009, the Lake Oroville Area Public Utility District adopted (but has not yet implemented) a sewer lateral testing program that, depending on the circumstances, requires testing and maintenance, and repair and replacement if necessary, to private sewer laterals and appurtenances.

The purpose of LOAPUD’s lateral testing and repair program is to ensure that sewer service laterals are tested, maintained, and repaired or replaced if necessary to reduce I&I entering the District’s sewer system and help maintain compliance of the Waste Discharge Permit (WDR) issued to the District by the State Water Quality Control Board and the WDR issued to SC-OR. Testing of a sewer lateral will be required in the following instances:

- Connection of a new structure to the District’s sewer system.
- Remodeling of a house, building or property served by the District.
- Change of use of a house, building or property served, for example, from residential to commercial, or from office and professional to restaurant, or from garage to apartment.
- Upon repair or replacement of all or part of the building or lateral sewer lines.
- Prior to the close of escrow upon the sale of a house, building or property served by the District, or by private transfer of a house, building or property served, unless the house, building or property served has been tested within the previous seven (7) years as evidenced by certificate of passing inspection.
- Where inflow or infiltration is suspected, or if a defect in the lateral sewer is suspected based upon observation by the District.
- Upon determination by the District General Manager that the cleaning and testing is required for the protection of the public health, safety or welfare.

Presently the maintenance of both the lower lateral (that portion of the sewer lateral from the property line to LOAPUD’s sewer line) and the upper lateral (that portion of a sewer lateral from the property line to a structure) are the responsibility of the property owner. With adoption of this program, the District will assume the maintenance of all newly constructed lower laterals. As existing laterals are tested and certified, the District will issue a Certificate of Passing Inspection and assume maintenance of the lower lateral.

DETERMINATION 2-12: INFLOW AND INFILTRATION

| Inflow and Infiltration into the SC-OR member entity’s sanitary sewer collection systems is unacceptable, with a 2008 wet weather peaking factor of 5.5 for the City of Oroville, 9.0 for LOAPUD, and 5.5 for TWSD. This excessive I&I impacts capacity in the sewer lines and the wastewater treatment facility where it must be treated like sewage, resulting in higher conveyance and treatment costs, requires new and larger wastewater facilities to convey and treat larger volumes of flow that results in higher capital expenditures, and may result in sewer system overflows, negatively impacting public health and the environment. |

DETERMINATION 2-13: SANITARY SEWER SYSTEM I&I FLOWS

| The SC-OR member entities’ sewer systems have excessive inflow and infiltration entering their sewer systems, which requires immediate and substantial intervention. Each SC-OR member agency should increase their inspection, cleaning, and maintenance activities to reduce excessive I&I flows to the SC-OR WWTF. |

DETERMINATION 2-14: SANITARY SEWER SYSTEM I&I FLOWS

| The SC-OR wastewater treatment facility was not designed to handle the excessive amounts of wet weather flow resulting from inflow and infiltration within the sewage collection systems. Excessive wet weather flow causes the WWTF to operate all available equipment to minimize surcharging in the collection system (which could result in sanitary sewer overflows) and must resort to the use of storage ponds for the temporary storage of raw sewage for later treatment after the peak flows have subsided. While contingencies exist to address excessive wet weather flows, they are not the preferred solution to address I&I and reduce the margin of error within the system to an unacceptable level. |
DETERMINATION 2-15: INFLOW AND INFILTRATION PREVENTION

SC-OR’s existing I&I surcharge program does not appear to significantly deter excessive I&I flows from the member entities’ collection systems and could be strengthened to provide for higher surcharges for excessive I&I flows in order to encourage the member entities to reduce I&I flows in their system. The I&I surcharge should be specifically designed to ensure the member entities’ compliance with the adopted target levels.

Funds raised by the inflow and infiltration surcharge program could be placed in a reserve contingency fund to be used for future capital improvements to address the capital improvements necessary to address the impacts of excessive I&I on the WWTF and for treatment works costs associated with excessive I&I, should that become necessary. Credits or rebates of the I&I surcharge to the SC-OR member entities should be carefully evaluated to ensure quantifiable reductions in I&I occur.

DETERMINATION 2-16: INFLOW AND INFILTRATION PREVENTION

SC-OR should be given the authority to create and manage a central I&I control program for the SC-OR member entities, to develop public information materials for the overall program, and to serve as a central clearinghouse for program inquiries and training.

If SC-OR is unable to undertake a central I&I control program, each SC-OR member entity should undertake a comprehensive I&I study to determine the location of I&I within their system and undertake a systemic approach to fixing and preventing I&I. The data collected from the I&I studies should be shared with SC-OR and become a work plan subject for the JPA to continually address.

DETERMINATION 2-17: SANITARY SEWER SYSTEM I&I FLOWS

If a portion of the SC-OR system, which includes the satellite sewer systems owned and operated by the SC-OR member entities, is or becomes overloaded due to excessive I&I in a member entities’ collection system, SC-OR should not allow additional sewer connections by that member entity unless an agreement is reached on a plan and schedule for eliminating or collecting and treating the excessive I&I.

DETERMINATION 2-18: SANITARY SEWER SYSTEM I&I FLOWS

SC-OR should create and implement an I&I offset program for new development projects to reduce I&I in the member entities’ sewer systems. A project proponent may seek to make a financial contribution to a SC-OR I&I abatement fund in lieu of undertaking mitigation work, subject to approval by SC-OR. Where this alternative is pursued, any funds contributed must be made in accordance with local sewer regulations, and must be retained in a dedicated account to be used only for I&I reduction abatement work.
DETERMINATION 2-19: I&I STUDIES

Each SC-OR member entity should complete a comprehensive I&I study to determine the location of I&I within their system and undertake a systemic approach to fixing and preventing I&I. The data collected from the I&I studies should be shared with SC-OR.

DETERMINATION 2-20: I&I PUBLIC EDUCATION PROGRAM

If not already established by SC-OR, each SC-OR member entity should establish a public education program to notify customers of the I&I problem and how it effects them, such as that I&I results in higher service rates. The member entities should notify and educate the public about inflow and infiltration problems and the steps that are being taken to address those problems. Residents can be educated about inflow and infiltration reduction efforts through mailings included with utility bills, newspaper announcements, and on the entity’s web sites. Informed residents will understand the nature and impact of inflow and infiltration problems and therefore be more likely to voluntarily correct illegal connections and consent to inspections.

DETERMINATION 2-21: PRIVATE SEWER LATERAL REPLACEMENT PROGRAM

LOAPUD recently adopted a private sewer lateral replacement policy, which requires inspection and, if necessary, repair/replacement of a private sewer lateral at the time of a home sale, remodel, or if a defect is found in the lateral. The City of Oroville and TWSD should also consider adopting a sewer lateral inspection and repair policy.

SUMMARY OF DETERMINATIONS

DETERMINATION 2-1: SC-OR JPA

The JPA arrangement has not historically involved a high level of collaboration, mutual and agreeable comprehensive goal development and the establishment of complimentary policies among its members and underscores the need for greater comprehensive planning for future capacity and treatment improvements at the SC-OR wastewater treatment facility.

DETERMINATION 2-2: SC-OR JPA

Cooperation and collaboration among the SC-OR JPA member entities has been noticeably deficient in recent years resulting in a lack of trust among some of the member entities which has contributed to the lack of a comprehensive mission to deliver the most effective and efficient sewer services to the region and address critical issues of high inflow and infiltration flows into the member entities’ sewer systems and the lack of planning for future capacity and treatment improvements to the SC-OR WWTF.
DETERMINATION 2-3: FUNCTIONAL COLLABORATION OF SC-OR MEMBER ENTITIES

Collaboration opportunities within the SC-OR JPA are significant and have the potential to deliver significant cost savings and service improvement, result in access to operational expertise that improves resource productivity, enhance levels of service, and deliver overall financial benefits. To improve collaboration and cooperation among the SC-OR JPA member entities, there needs to be a concerted commitment to change and the development of a formal set of steps to move discussions and negotiations forward. The SC-OR JPA member entities should undertake the following steps:

- Member agency boards should resolve to actively pursue joint agency collaboration in specified areas of opportunity.
- Continue the current TAC meetings or form a Collaboration Steering Group with Board/GM staff from each participating agency and facilitated workshop(s) to select targeted collaboration area.
- Formation of work groups for each targeted collaboration area.
- Creation of collaboration roadmap and high level work plans for pursuing each targeted collaboration area.
- Periodic (e.g.,) monthly Work Group meetings.
- Quarterly Steering Group progress meetings open to the public.
- Dispute resolution process.
- Decision-making process for carrying recommendations back to respective boards.

DETERMINATION 2-3A: JPA REORGANIZATION

To address the issue of more efficient governance and goal development, the SC-OR member entities should evaluate the current JPA structure and make amendments to the JPA granting more authority and autonomy to the SC-OR Board and its staff to address issues of regional concern. Such amendments should allow the SC-OR Board by majority vote to enact policies and practices to address such items as:

- Centralized data collection related to population and growth projections;
- Design and general oversight of a comprehensive I&I reduction program to include incentives and penalties;
- Management of comprehensive data base of all sewer connection and fee collections to include the sole authority to approve all final sewer connections at time of building permit issuance;
- In cooperation with its member entities, develop a manual of standardized system-wide practices and procedures to be utilized by member entities in the design and maintenance of sewer facilities that will allow for a meaningful comparison of data between agencies;
- Management of a system-wide data base of member entities capital improvement plans that will allow for a meaningful comparison of these plans and their relationship to improvements at the WWTF.
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<th><strong>DETERMINATION 2-3B: JPA REORGANIZATION</strong></th>
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<tr>
<td>In order to address the fundamental issue of promoting comprehensive and cohesive service delivery among member agencies, SC-OR should consider creating a “JPA Coordinator” position to develop, coordinate and implement JPA activities, such as EDU tracking, long-range facilities planning, review of wastewater aspects of environmental documents for development projects, development project tracking, I&amp;I monitoring, and other duties as necessary to increase collaboration and cooperation between the member entities</td>
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<th><strong>DETERMINATION 2-4: REORGANIZATION OF SC-OR MEMBER ENTITIES</strong></th>
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<tr>
<td>A reorganization of the SC-OR JPA member entities has the potential to result in more efficient and cost-effective sewer service in the Oroville region. A detailed reorganization study would need to be prepared to show the benefits and cost savings that may result from reorganization. Such a study may not be necessary if the SC-OR JPA member entities undertake steps to significantly increase their functional collaboration and cooperation with each other as outlined in Determination 2-2.</td>
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<th><strong>DETERMINATION 2-5: GROWTH AND POPULATION FOR THE AFFECTED AREA</strong></th>
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<tr>
<td>The SC-OR service area is expected to grow consistent with the City’s and the unincorporated County historical annual growth rate of approximately 1.1 percent, which is expected to continue during the five year period covered by this MSR.</td>
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<th><strong>DETERMINATION 2-6: LAND USE</strong></th>
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<tr>
<td>Land in the greater Oroville area was zoned for densities and allocations far exceeding historic growth. However, sewer service infrastructure was planned and developed to serve actual growth rates, not full potential build-out of allocated lands.</td>
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<th><strong>DETERMINATION 2-7: LAND USES</strong></th>
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<td>There are currently significantly more approved residential lots (10,071) than remaining treatment capacity (approximately 2,800 EDU’s) at the WWTF.</td>
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DETERMINATION 2-8: LAND USES

The primary land use within the Oroville region is expected to remain low density residential, and the SC-OR prepared vacant lands inventory for the existing service areas determined that the potential demand for wastewater treatment services is approximately 11,500 EDUs, which greatly exceeds the remaining treatment capacity of the SC-OR WWTF (2,800 EDUs). It should be noted that the vacant lands inventory does not consider existing uses utilizing septic systems which may require future sewer service.

To ensure that the WWTF will have the treatment capacity for the additional EDUs, the SC-OR Master Planning and Financial Assistance Study identified the capital improvements needed to ensure that such capacity will exist.

DETERMINATION 2-9: LAND USES

SC-OR, in cooperation with the member entities, should prepare a comprehensive study to determine the number of existing dwellings, commercial uses, and industrial uses that currently utilize on-site septic systems for wastewater disposal. The study will provide SC-OR with additional data to help determine the future demand for wastewater treatment services.

DETERMINATION 2-10: LAND USE DEVELOPMENT PROCESS

Land use jurisdiction within the SC-OR service area is primarily under the jurisdiction of the City of Oroville or the County of Butte. The State of California and the U.S. Department of Interior have land use authority of the parcels owned by them.

DETERMINATION 2-11: LAND USES

Historically, wastewater treatment capacity at the SC-OR WWTF could not be reserved, with connection to the WWTF based on a first-come, first-served basis. As an added tool to ensure sewer service is available, SC-OR adopted several formal agreements to indentify and mitigate capacity improvements to ensure SC-OR and the collection agency will have capacity for the proposed development and provide assurance to LAFCo that there will be sufficient treatment capacity at the SC-OR WWTF and in the sewage collection agency’s system for an area proposed for annexation.
**DETERMINATION 2-12: INFLOW AND INFILTRATION**

Inflow and Infiltration into the SC-OR member entity’s sanitary sewer collection systems is unacceptable, with a 2008 wet weather peaking factor of 5.5 for the City of Oroville, 9.0 for LOAPUD, and 5.5 for TWSD. This excessive I&I impacts capacity in the sewer lines and the wastewater treatment facility where it must be treated like sewage, resulting in higher conveyance and treatment costs, requires new and larger wastewater facilities to convey and treat larger volumes of flow that results in higher capital expenditures, and may result in sewer system overflows, negatively impacting public health and the environment.

**DETERMINATION 2-13: SANITARY SEWER SYSTEM I&I FLOWS**

The SC-OR member entities’ sewer systems have excessive inflow and infiltration entering their sewer systems, which requires immediate and substantial intervention. Each SC-OR member agency should increase their inspection, cleaning, and maintenance activities to reduce excessive I&I flows to the SC-OR WWTF.

**DETERMINATION 2-14: SANITARY SEWER SYSTEM I&I FLOWS**

The SC-OR wastewater treatment facility was not designed to handle the excessive amounts of wet weather flow resulting from inflow and infiltration within the sewage collection systems. Excessive wet weather flow causes the WWTF to operate all available equipment to minimize surcharging in the collection system (which could result in sanitary sewer overflows) and must resort to the use of storage ponds for the temporary storage of raw sewage for later treatment after the peak flows have subsided. While contingencies exist to address excessive wet weather flows, they are not the preferred solution to address I&I and reduce the margin of error within the system to an unacceptable level.

**DETERMINATION 2-15: INFLOW AND INFILTRATION PREVENTION**

SC-OR’s existing I&I surcharge program does not appear to significantly deter excessive I&I flows from the member entities’ collection systems and could be strengthened to provide for higher surcharges for excessive I&I flows in order to encourage the member entities to reduce I&I flows in their system. The I&I surcharge should be specifically designed to ensure the member entities’ compliance with the adopted target levels.

Funds raised by the inflow and infiltration surcharge program could be placed in a reserve contingency fund to be used for future capital improvements to address the capital improvements necessary to address the impacts of excessive I&I on the WWTF and for treatment works costs associated with excessive I&I, should that become necessary. Credits or rebates of the I&I surcharge to the SC-OR member entities should be carefully evaluated to ensure quantifiable reductions in I&I occur.
DETERMINATION 2-16: INFLOW AND INFILTRATION PREVENTION

SC-OR should be given the authority to create and manage a central I&I control program for the SC-OR member entities, to develop public information materials for the overall program, and to serve as a central clearinghouse for program inquiries and training.

If SC-OR is unable to undertake a central I&I control program, each SC-OR member entity should undertake a comprehensive I&I study to determine the location of I&I within their system and undertake a systemic approach to fixing and preventing I&I. The data collected from the I&I studies should be shared with SC-OR and become a work plan subject for the JPA to continually address.

DETERMINATION 2-17: SANITARY SEWER SYSTEM I&I FLOWS

If a portion of the SC-OR system, which includes the satellite sewer systems owned and operated by the SC-OR member entities, is or becomes overloaded due to excessive I&I in a member entities’ collection system, SC-OR should not allow additional sewer connections by that member entity unless an agreement is reached on a plan and schedule for eliminating or collecting and treating the excessive I&I.

DETERMINATION 2-18: SANITARY SEWER SYSTEM I&I FLOWS

SC-OR should create and implement an I&I offset program for new development projects to reduce I&I in the member entities’ sewer systems. A project proponent may seek to make a financial contribution to a SC-OR I&I abatement fund in lieu of undertaking mitigation work, subject to approval by SC-OR. Where this alternative is pursued, any funds contributed must be made in accordance with local sewer regulations, and must be retained in a dedicated account to be used only for I&I reduction abatement work.

DETERMINATION 2-19: I&I STUDIES

Each SC-OR member entity should complete a comprehensive I&I study to determine the location of I&I within their system and undertake a systemic approach to fixing and preventing I&I. The data collected from the I&I studies should be shared with SC-OR.
<table>
<thead>
<tr>
<th>DETERMINATION 2-20: I&amp;I PUBLIC EDUCATION PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>If not already established by SC-OR, each SC-OR member entity should establish a public education program to notify customers of the I&amp;I problem and how it affects them, such as that I&amp;I results in higher service rates. The member entities should notify and educate the public about inflow and infiltration problems and the steps that are being taken to address those problems. Residents can be educated about inflow and infiltration reduction efforts through mailings included with utility bills, newspaper announcements, and on the entity’s web sites. Informed residents will understand the nature and impact of inflow and infiltration problems and therefore be more likely to voluntarily correct illegal connections and consent to inspections.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 2-21: PRIVATE SEWER LATERAL REPLACEMENT PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAPUD recently adopted a private sewer lateral replacement policy, which requires inspection and, if necessary, repair/replacement of a private sewer lateral at the time of a home sale, remodel, or if a defect is found in the lateral. The City of Oroville and TWSD should also consider adopting a sewer lateral inspection and repair policy.</td>
</tr>
</tbody>
</table>
AGENCY OVERVIEW

The Sewage Commission – Oroville Region (SC-OR) provides wastewater treatment and disposal services for the incorporated and unincorporated areas in the Oroville area. Wastewater is conveyed from three wastewater collection agencies - the City of Oroville, the Lake Oroville Area Public Utility District (LOAPUD), and the Thermalito Water and Sewer District (TWSD) - to SC-OR facilities for treatment and disposal. SC-OR’s wastewater treatment facility (WWTF) has a permitted capacity and design capacity of 6.5 million gallons per day (mgd) and currently has an average dry weather flow of 3.1 mgd and an average wet weather flow of 5-6 mgd.

<table>
<thead>
<tr>
<th>District Size:</th>
<th>24,134 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009 Estimated Population Served:</td>
<td>44,527</td>
</tr>
<tr>
<td>Office Location:</td>
<td>2880 S. 5th Avenue, Oroville, CA 95965</td>
</tr>
<tr>
<td>Services:</td>
<td>Wastewater treatment and disposal</td>
</tr>
<tr>
<td>Employees:</td>
<td>9 full time</td>
</tr>
<tr>
<td>Date of Formation:</td>
<td>1971</td>
</tr>
<tr>
<td>Enabling Legislation:</td>
<td>Joint Powers Agreement</td>
</tr>
</tbody>
</table>

In 1971, SC-OR was created by the City of Oroville, the Lake Oroville Area Public Utility District (LOAPUD) and the Thermalito Water and Sewer District (TWSD) (collectively referred to as SC-OR's member entities) to own and operate a regional wastewater treatment facility, main interceptors and associated pump stations. Incorporated as a Joint Powers Agency, SC-OR was organized under the Joint Exercise of Powers Act, as codified in the California Code of Regulations, Government Code section 6500 et al.

Each of SC-OR's member entities own and operate their sanitary sewer collection systems; these collection systems are 'satellite' to SC-OR's treatment facility and are referred to as satellite collection systems. The satellite entities are responsible for routine and non-routine maintenance, inspection, and repair of their sewer systems.

SC-OR is not a special district and therefore does not have a LAFCo adopted official district boundary or sphere of influence. However, the area served by the SC-OR regional wastewater treatment facility is determined by the district boundaries of the three member entities. Figure 3-1 shows the district boundaries of the entities that comprise SC-OR.
PRESENT AND PLANNED CAPACITY OF PUBLIC FACILITIES AND ADEQUACY OF PUBLIC SERVICES, INCLUDING INFRASTRUCTURE NEEDS OR DEFICIENCIES

General

SC-OR owns and operates a wastewater treatment facility (WWTF) and associated interceptor facilities that serve the greater Oroville region. The service region is composed of three separate member entities service areas, who each own and operate their respective collection systems, that together adopted a Joint Powers Agreement in 1971 forming the SC-OR organization. This agreement established a Joint Power Agency consisting of the following member entities:

- City of Oroville
- Lake Oroville Area Public Utility District (LOAPUD) (formerly North Burbank PUD)
- Thermalito Water and Sewer District (TWSD) (formerly Thermalito Irrigation District)

In addition to treating wastewater from the member entities, SC-OR also accepts and treats approximately 1 million gallons per year of domestic septage from within their service area. Approved septage haulers licensed by Butte County and SC-OR pump residential septic tanks and dispose of the waste at the SC-OR WWTF for treatment and disposal. SC-OR voluntarily provides this service to the community and is under no obligation to continue this service.

SC-OR’s office and wastewater treatment facility are located on South 5th Avenue in the southern portion of the City of Oroville. Parts of what is today’s SC-OR’s treatment facility was originally constructed in 1959 by the City of Oroville (primary treatment), prior to the formation of SC-OR, and has since undergone several expansion and improvement projects. The most significant improvement occurred during expansion in 1975 when secondary treatment filtration, and solids stabilization facilities were constructed.

In addition to the WWTF, SC-OR is responsible for 1.8 miles of interceptor sewer trunk lines (East, West and Main) that includes a 0.5 mile force main, two pump stations (Ruddy Creek and Feather River), and the effluent outfall pipe and diffuser on the Feather River. SC-OR’s responsibility for the collection system ends at the termination of its interceptor trunk line junctions with member agency facilities.

SC-OR does not issue permits for new non-industrial sewage connections to the WWTP. Permits for new connections are issued by the SC-OR member entities, who notify SC-OR of new connections and collect all fees on SC-OR’s behalf. In addition to any permit required by member entities, new industrial users must obtain a sewer user permit directly from SC-OR, which may contain various conditions and prohibitions as prescribed by SC-OR pursuant to its Pretreatment Program Policy for Industrial Users.

SC-OR Inceptor System

SC-OR owns and maintains an interceptor system consisting of the West, East, and Main Interceptors that collectively convey wastewater from the member entities’ collection systems to the SC-OR WWTF for treatment and disposal. The three interceptors have a total length of 1.8 miles. Figure 3-2 shows the location of the SC-OR WWTF and interceptor facilities.
The SC-OR interceptor system consists of:

- **The West Interceptor**
  The West Interceptor conveys wastewater generated from the Thermalito Water and Sewer District and a portion of the City of Oroville. The Ruddy Creek and Feather River lift stations and their force mains are part of the West Interceptor. A new 30-inch-diameter PVC parallel relief sewer from 5th Avenue to 7th Avenue along Cal Oak Road was constructed in 2006 to improve performance on this line. The existing 21-inch vitrified clay pipe (VCP) pipeline now acts as an overflow when the new pipe becomes 70 to 80 percent full. The portion of the West Interceptor from the Feather River Bridge eastwards is referred to as Phase I, while the portion of the West Interceptor west of the Feather River Bridge is referred to as Phase II. The Phase I and II nomenclature refers to the timing of proposed improvements to this sewer trunk line.

- **The East Interceptor**
  The East Interceptor, which serves all of LOAPUD, is a 24-inch-diameter reinforced concrete pipe. LOAPUD's 30-inch-diameter trunk sewer discharges into SC-OR's East Interceptor approximately 1,550 feet east of South 5th Avenue.

- **The Main Interceptor**
  The Main Interceptor, which serves the majority of the City of Oroville as well as connecting the West and East interceptors with the treatment facility, consists of 36-inch-diameter reinforced concrete pipe. In addition to the Main Interceptor, there is a bypass to an auxiliary pump station at the plant, which is used to convey wastewater in excess of plant treatment capacity to temporary storage ponds during wet weather periods. This is not part of normal, dry-weather operation.

**Regional Wastewater Treatment Facility (WWTF)**

SC-OR’s Regional Wastewater Treatment Facility is located at 2880 S. 5th Avenue, in south Oroville. The WWTF (primary facilities) were originally constructed in 1959, but significant improvements have been made to it since that time due to the passage of the Clean Water Act in 1972 which required communities to upgrade their WWTF to biological or secondary treatment. The facility is currently permitted to treat up to 6.5 million gallons per day (mgd) during dry weather and experiences a current average dry weather flow of 3.1 mgd and an average wet weather peak flow of 5 to 6 mgd. The WWTF has three storage basins with 26.5 million gallon (mg) storage capacity for flow equalization and emergency storage use. It is important to note that the storage basins are supplemental to the overall system and should not be viewed as additional capacity for normal operating conditions. SC-ORs Waste Discharge Requirements (Order No. R5-2005-0010, NPDES Permit No. CA0079235, approved January 27, 2005) issued by the California Regional Water Quality Control Board (RWQCB) allow for treated effluent to be discharged into the Feather River. SC-OR’s current Waste Discharge Requirements are found in Attachment B of this document. SC-OR’s current Waste Discharge Requirements, which must be renewed every 5 years, expire on January 1, 2010, and SC-OR recently submitted an application to RWQCB for renewal of its waste discharge requirements.
SC-OR’s WWTF is an advanced secondary treatment facility that is capable of processing wastewater under current flow and loading conditions to maintain compliance with the parameters of its Waste Discharge Requirements. The treatment process at SC-OR’s WWTP consists of screening for removal of large solids, grit removal, primary clarification, activated sludge treatment with secondary clarification, filtration, chlorination, and dechlorination. Sludge is aerobically treated, dried on site, and then disposed at the Neal Road Landfill. Effluent is conveyed and discharged to the Feather River. Figure 3-3 shows the general process flow diagram of the treatment facility. Figure 3-4 shows the location of the major components of the SC-OR WWTF.

**Figure 3-3. SC-OR WWTF Process Flowchart**

![Flowchart of SC-OR WWTF process](image)

The WWTF (primary facilities) were originally constructed in 1959, prior to the formation of SC-OR, and has since undergone several expansion and improvement projects. The most significant improvement occurred during the 1975 expansion when secondary, tertiary, and solids stabilization facilities were constructed. A majority of the plant's equipment was commissioned during this expansion, which translates to equipment with over 30 years of operation. The primary treatment facilities constructed in 1959 are now 50 years old.

Several of the WWTF’s systems operate at maximum capacity during the winter season with increased wet weather flows. These high intensity-short duration flows are attributed to inflow and infiltration (I&I) within the three collection systems. I&I is a significant concern to the SC-
OR infrastructure because many of the WWTF systems were not intended to receive such large quantities of flow. The WWTF’s highest recorded peak wet weather flow was 23 mgd, which occurred on December 31, 2005. The WWTF has an influent pumping capacity of 25 mgd. During these times of peak wet weather flow, the plant must operate all available equipment to minimize surcharging in the collection system and maintain compliance with current waste discharge limitations. These excessive flow situations provide little contingency in the event of key equipment failure related to the influent pump facilities, primary clarification, aeration basins, filtration, and flow equalization basins.

Overall plant capacity is based on current influent loading and process configuration, which includes both hydraulic capacity and treatment capacity. Hydraulic capacity refers to the infrastructure's ability to convey a liquid quantity without causing bottlenecks or generating conditions that exceed system specifications (i.e., extreme pipe velocity). Infrastructure such as sewer interceptors, influent pumps, process piping, channels and weirs impact the hydraulic...
capacity. Treatment (permitted) capacity refers to the plant's ability to consistently reduce organic, nutrient, and solids loadings of raw sewage and comply with regulatory Waste Discharge Requirements. Process facilities and equipment such as aerators, basin volumes, clarifier size, filters, and disinfection equipment have an effect on treatment capacity.

The SC-OR facility experiences relatively high peak hour flows during the wet winter months as a result of considerable inflow and infiltration within the member entities’ wastewater collection systems. The existing treatment facility was not intended to treat flows of this magnitude; therefore, to accommodate existing I&I at that time, in 1986, SC-OR constructed an additional 11 mg flow equalization pond and added 10 mg of additional influent pumping, a third secondary clarifier, and appurtenances to attenuate these seasonal flow conditions, although these ponds should not be considered an acceptable substitute for reducing system-wide I&I. Figure 3-5 shows one of the two 11 mg emergency storage ponds. Flow equalization is provided by two storage ponds with a combined storage capacity of approximately 22.5 mg and one of the three solids storage ponds providing an additional 4 mg of equalization, for a total storage volume of 26.5 mg. All of the storage ponds are lined. Wet weather flow is diverted to the two larger ponds by two auxiliary pump stations and by an overflow weir and associated piping in the primary effluent distribution structure. These two storage ponds are hydraulically connected, which allows either pond to overflow to the other depending on operational conditions and/or preferences. Liquid from the emergency storage ponds can be pumped to/from any of the three solids storage ponds that do not contain solids. Winter operations use two of the three ponds for biosolids storage, while the third pond remains empty for emergency use.

**Figure 3-5. SC-OR Wet Weather/Effluent Storage Pond**

SC-OR’s WWTF consists of the following major components:

- **Rag Removal Facility** - The rag removal facility located at the upstream portion of the plant removes rags, trash, grit, and other large solids from the influent raw sewage. The facility includes a mechanical screen and grit removal. Removed materials are bagged and taken to the Neal Road Landfill for disposal.

1 The information contained in this section was extracted from the SC-OR Master Planning and Financial Assistance Study, February 2009, prepared by CH2M HILL
• **Raw Sewage Pump Station** - The raw sewage pump station is part of the original plant construction of 1959 and has been modified and upgraded since its initial startup. This pump station has three pumps and has a total capacity of 13 million gallons per day (mgd). While operations have upgraded to adjustable frequency drives and the pumps and valving have been replaced, the remaining infrastructure is approximately 50 years in age. The facility has been well maintained by plant staff to maximize the operational lifespan. All available space for electrical components is currently at capacity; therefore, any modifications of the system will require additional space for electrical equipment. Increasing pumping power or including additional electrical components for additional pumps may not be feasible.

• **Auxiliary Pump Station No. 1** - Auxiliary Pump Station No.1 (APS No.1) is located downstream of the rag removal facility and upstream of the sewage pump station. APS No.1 consists of a wet well and two centrifugal pumps with a combined capacity of 4.2 mgd that operates in parallel with the raw sewage pump station. The pump station is generally in operation during periods of high flows and discharges to the headworks facility.

• **Auxiliary Pump Station No. 2** - Auxiliary Pump Station No 2. (APS No.2) is located upstream of the rag removal facility and generally operates during high wet weather flow conditions, similar to APS No.1. However, APS No.2 has a pumping capacity of 10 mgd and discharges to the auxiliary headworks structure. The auxiliary headworks structure allows flow to discharge directly to the emergency storage ponds for flow equalization.

• **Headworks** - The headworks facility distributes flow to the primary clarifiers. This above-grade structure receives screened sewage from the raw sewage pump station and auxiliary pump station No.1 and also is connected to the auxiliary headworks to receive unscreened flow returned from the equalization ponds.

• **Primary Clarification** - The primary clarifiers' role is to provide continuous removal of suspended solids and particulate fractions that decreases loading to the secondary treatment system. In turn, this routine solids removal decreases the organic loading to the secondary treatment system. Because secondary treatment improvements are generally more costly than primary treatment improvements, it is advantageous to maximize the particulate removal efficiency of the primary clarification system.

Primary clarification is currently provided using two 65-foot-diameter primary clarifiers to remove a portion of settleable solids (Figure 3-6). Both clarifiers were constructed during the initial plant design in 1959. Each clarifier has a relatively shallow side-water depth (SWD) of 8 feet. Because the clarifiers are operated in parallel, plant staff have the flexibility to operate either or both clarifiers at any time. Wet weather flows that typically occur from October to May require plant staff to operate both clarifiers continuously with no redundancy in case of equipment failure. SC-OR operators indicate that they can obtain a combined flow of 10 mgd through primary treatment without adversely affecting performance.
• **Primary Effluent Distribution Box** - The primary effluent distribution box is an above-grade structure installed during the 1975 construction improvements. The structure's function is to provide even distribution of primary effluent and return activated sludge (RAS) to the two existing aeration basins, and to provide a means of controlling flow equalization by directing primary effluent and/or raw sewage bypass to the emergency storage ponds. In general, the structure is in good operating condition.

• **Aeration Basins** - The aeration basins consist of two 0.6-mg complete-mix basins that were constructed as part of the 1975 expansion. Each basin includes four 25-hp mechanical surface aerators to maintain both oxygen requirements and solids suspension. Impeller wear, or other potentially adverse field conditions, has the potential of decreasing the assumed oxygen transfer rate.

• **Mixed Liquor Distribution Box** - The 1975 plant design distributes mixed liquor to the secondary clarifiers using a common channel and weir boxes adjoined to the aeration basins.

• **Secondary Clarification** - Solids separation in the secondary treatment system is provided by three 70-foot-diameter clarifiers. Two clarifiers were constructed as part of the 1975 design expansion and the third was installed in 1984 as part of the I&I improvements. SC-OR staff generally operate the plant with two of the three clarifiers online during dry weather flow conditions, and all three online during wet weather flow conditions. As is the case with the primary clarifiers, there is no redundancy in winter when all secondary clarifiers are in use. WWTP staff has described that poor sludge settling during wet weather flow conditions has resulted in solids carryover from the secondary clarifiers; such carryover has the effect of reducing the WWTP’s ability to treat design peak flows.

• **Ballast Pond-Chlorine Contact Basin** - The plant's combined ballast ponds and chlorine contact basins (Figure 3-7) were installed with the 1975 construction modifications. The two chlorine contact basins together provide a total volume of 1.39 mg. The plant's chlorine contact basins provide adequate contact time for current and future flows.

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Figure 3-6. SC-OR WWTF Primary Clarifiers
• **Disinfection** - SC-OR uses gaseous chlorine for effluent disinfection. Chlorine solution is injected into secondary effluent through a diffuser upstream of the ballast pond-chlorine contact basin. The chlorine residual is carried through the basin and on through the filters. The plant also has the capability of metering chlorine to the solids storage ponds, the plant influent manhole, the mixed liquor distribution box, the primary effluent bypass pipeline, and the filter influent pipeline.

The plant operates a chlorine storage and feed facility to meter the chemical to these locations. Chlorine is delivered and stored in 1-ton containers in an area of the Control Building that is not fully enclosed. A roof provides protection from the elements and a wire fence adds security. The chemical is metered by vacuum to the chlorinators. From here, it is conveyed to the injectors and eventually to diffusers in the process streams. A bank of chlorinator water supply pumps delivers carrier water to the injectors located in the Control Building. The plant currently doses chlorine at 5 to 10 milligrams per liter (mg/L) which results in a daily use of approximately 180 lbs to 300 lbs.

• **Dechlorination** - SC-OR uses gaseous sulfur dioxide for dechlorination. Sulfur dioxide solution is injected into plant effluent through a diffuser downstream of the filters. The plant operates a sulfur dioxide storage and feed facility to meter the chemical similar to the chlorine facilities. Sulfur dioxide is delivered and stored in 1-ton containers in an area of the Control Building that is enclosed so it can be heated to enhance removal rates of gas from the containers. The chemical is metered under vacuum to the sulfonators. From here, it is conveyed to the injectors and eventually to diffusers in the process streams. A bank of sulfonator water supply pumps delivers carrier water to the injectors located in the Control Building.

• **Filter Supply Pump Station** - The filter pump station pumps disinfected secondary effluent through the pressure filtration system. Head is provided by four vertical turbine pumps with a firm capacity (largest pump off-line) of approximately 11 mgd.

SC-OR has installed two adjustable frequency drives (AFDs) in the control building that can operate between any of the four pumps. The current operational strategy is to
provide continuous flow through the filters. The AFDs provide pump speeds that are proportional to the water depth within the contact basins.

- **Filtration** - Filtration, which removes suspended solids remaining in the effluent from the secondary biological wastewater treatment process, is provided by five dual-media pressure filters operating in parallel.

- **Plant Effluent Pipeline and Outfall** - Final effluent is conveyed from the WWTF through the 5-mile-long outfall installed in 1975. The outfall travels southwest and discharges to the Feather River downstream of the Thermalito Afterbay outlet structure by means of a multiport diffuser. Pipe segments of 24-, 27-, 30-, and 36-inch diameters are all incorporated within the outfall pipeline.

- **Biosolids Stabilization** - SC-OR operates two 0.6-mg aerobic digesters for stabilization of primary and waste activated sludge prior to dewatering. The digesters were constructed as part of the 1975 expansion project and comprise two concrete basins with an 11-foot side wall depth. Aeration is supplied within each basin by four 25-hp mechanical surface aerators. Surface aerators are periodically turned off allowing solids to settle for manual decant procedures.

Aerobic digestion operations at the SC-OR plant can be a source of foul odors. The current decant/solids dewatering procedure allows solids to settle in a quiescent (inactive) environment with all aeration equipment temporarily turned off. Once the clear supernatant is decanted, the surface aerators are turned on and churn the settled solids back into suspension. At this time, foul odors are released to the atmosphere that were formed during the stagnant decant cycle. This is a significant concern to SC-OR as commercial developments are currently proposed within close proximity to the SC-OR plant. The probability of odor complaints is expected to increase dramatically as these establishments move closer to the plant and to other nearby industries like Nor-Cal Solid Waste (solid waste transfer station), Pacific Oroville Power (biomass electrical generator) Sierra Pacific (sawmill), Roplast (plastic bag manufacture) and others. Specifically, a Super Wal-Mart is proposed adjacent to the plant. Odor mitigation is a proactive approach to minimize public complaints and maintain positive relations with the economic community; however, these land use conflicts could be addressed by the City of Oroville through its zoning regulations to reduce user conflicts and protect WWTP operations similar to limiting land uses around an airport.

- **Biosolids Dewatering** - The plant currently dries digested sludge using a series of solids storage ponds, or humus ponds. Digested sludge is conveyed to the humus ponds for storage and additional stabilization until favorable passive drying conditions are available. Two surface aerators provide oxygen and minimize algal growth at the water's surface. When sludge has dried to the desired solids content (> 90% solids), it is removed from the ponds and hauled to the Neal Road Landfill for disposal. Two of the three basins are used throughout the winter with the third basin available for wet weather flow equalization (emergency storage).
• **Electrical Systems** - The plant is equipped with a single main feeder from the local power utility and an emergency power generator.

• **Plant Instrumentation and Control** - SC-OR has been replacing the plant's aging analog control systems with programmable logic controllers (PLCs). This equipment was installed to replace outdated relay equipment. The plant's control cabinets located in the control building, housing most of the control equipment, are at capacity. SC-OR anticipates tying in the plant's PLCs, signals, alarms and, eventually, trended data such as flow rate and chlorine residuals, to the computer system. Ultimately, SC-OR would like to install a supervisory control and data acquisition (SCADA) system, which would provide real-time monitoring of critical infrastructure systems and early warning of potential problems. The SC-OR WWTF is not normally staffed 24 hours a day. In the event of an alarm at the WWTF SC-OR’s alarm company will notify the on-call person. During major storm events the WWTF is continuously staffed.

• **Control Building** - The control building is one of the most robust facilities within the SC-OR plant. Currently, the control building houses and provides the following:

  - Administrative Offices
  - Laboratory
  - Board Room
  - Dechlorination Equipment
  - Emergency Generator
  - Instrumentation and Controls
  - Break Room
  - Locker Room
  - Chlorination Equipment
  - Filter Pipe Gallery
  - Power Feed and Electrical Equipment

Several portions of the existing control building are currently at capacity. For example, the electrical room is currently filled to capacity and cannot house any additional electrical equipment while adhering to electrical and building codes. Similarly, the chlorination and dechlorination areas are approaching capacity and will require additional area for expansion purposes. The plant's instrumentation and control systems will be enhanced during the expansion to increase overall plant capacity; therefore, additional room will be needed for such equipment.
• **Solar Power Array** - Although not a part of the wastewater treatment process, SC-OR installed a 520 kilowatt (kw) photovoltaic system in 2002. SC-OR has reduced their electric bill by 51% due to the use of solar power.

### DETERMINATION 3-1: SC-OR WASTEWATER TREATMENT PLANT INFRASTRUCTURE

The SC-OR wastewater treatment facility, portions of which were constructed in 1959, has undergone significant improvements since that time, including a major upgrade in 1975 when secondary, tertiary, and solids stabilization facilities were constructed. A majority of the facility's equipment was commissioned during this expansion, which translates to equipment with over 30 years of operation. While some equipment and infrastructure is in need of replacement or upgrading and additional building space is needed, overall the SC-OR WWTF has been well maintained and is in good condition.

### DETERMINATION 3-2: SC-OR WASTEWATER TREATMENT PLANT INFRASTRUCTURE

The SC-OR wastewater treatment facility was not designed for the excessive amounts of wet weather flow that must be treated by the facility primarily resulting from inflow and infiltration within the SC-OR member entities’ wastewater collection systems. During these times of wet weather flow, the plant must operate all available equipment to minimize surcharging in the collection system (which could result in sanitary sewer overflows) and must resort to the use of storage ponds for the temporary storage of raw sewage for later treatment after the peak flows have subsided. While contingencies exist to address excessive wet weather flows, they are not the preferred solution to address I&I and reduce the margin of error within the system to an unacceptable level.
SANITARY SEWER OVERFLOWS

A sanitary sewer overflow (SSO) is any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system. A sanitary sewer system is any system of pipes, pump stations, sewer lines, or other conveyances, which is owned or operated by a public entity, used to collect and convey wastewater to a treatment facility. SSOs do not include overflows from privately-owned service laterals when these overflows are caused by blockages or other problems within the privately-owned lateral. These overflows are known as private lateral sewage discharges. SSOs do include overflows from privately-owned laterals when the cause is a problem within the publicly-owned sanitary sewer system.

The State Water Resources Control Board (SWRCB) maintains an online database, the California Integrated Water Quality System (CIWQS), where permit violations and SSOs are reported. Mandatory SSO reporting for SC-OR and the SC-OR member entities began on May 2, 2007. The CIWQS webpage shows that SC-OR has not had any reportable sanitary sewer overflows since SSO reporting began. SC-OR did have an SSO in 2005 on their West Interceptor line that was caused by excessive wet weather flows.

<table>
<thead>
<tr>
<th>DETERMINATION 3-3: SANITARY SEWER OVERFLOWS</th>
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</thead>
<tbody>
<tr>
<td>In 2005, SC-OR had one SSO on their West Interceptor trunk line, which was due to excessive I&amp;I flows discharging into that line. SC-OR has not had any reportable sanitary sewer overflows since mandatory reporting began in 2007.</td>
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</tbody>
</table>

Sanitary Sewer Management Plan (SSMP)

The State Regional Water Quality Control Board requires that all wastewater treatment and conveyance agencies prepare and adopt a Sanitary Sewer Management Plan (SSMP). A SSMP is a comprehensive plan which includes provisions to provide proper and efficient management, funding, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Additionally, a SSMP must contain a spill response plan that establishes standard procedures for immediate response to a SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.

The SSMP documents an agency’s program to properly operate and maintain its sanitary sewer system. Each SSMP should address the following elements:

1) Goals,
2) Organization,
3) Legal Authority,
4) Operation and Maintenance Program,
5) Design and Performance Provisions,
6) Overflow Emergency Response Plan,
7) Fats, Oils, and Grease (FOG) Control Program,
8) System Evaluation and Capacity Assurance Plan,

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9) Monitoring, Measurement, and Program Modifications,
10) SSMP Program Audits, and
11) Communication Program.

Agencies are required to certify that the final SSMP and its constituent subparts are in compliance with the Sanitary Sewer Order (Water Quality Order No. 2006-0003) within the required time frames. Agencies are also required to obtain their governing board’s approval of the SSMP Development Plan and Schedule, and final SSMP at a public hearing prior to certification of the SSMP as complete and in compliance. SC-OR has adopted all of the elements of its SSMP, with final adoption occurring on March 25, 2009.

<table>
<thead>
<tr>
<th>DETERMINATION 3-4: SANITARY SEWER MANAGEMENT PLAN</th>
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<tr>
<td>SC-OR has adopted its Sanitary Sewer Management Plan and should place their SSMP on their website, if one is created, for public convenience.</td>
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**SC-OR FACILITIES EXISTING CAPACITIES**

Overall capacity for the SC-OR WWTF is based on current influent organic loading and process configuration, which includes both hydraulic capacity and treatment capacity. Hydraulic capacity refers to the infrastructure's ability to convey a liquid quantity without causing bottlenecks or generating conditions that exceed system specifications (i.e., extreme pipe velocity). Infrastructure such as sewer interceptors, influent pumps, process piping, channels and weirs impact the hydraulic capacity. Treatment capacity refers the plant's ability to consistently reduce organic, nutrient, and solids loadings of raw sewage and comply with regulatory waste discharge requirements. Process facilities and equipment such as aerators, basin volumes, clarifier size, filters, and disinfection equipment have an effect on treatment capacity.

While the average dry weather flow is usually thought of as the rated capacity of a treatment plant, the design of treatment systems must also accommodate significant variations in influent flow. A treatment plant must be designed to prevent hydraulic overloads and wash out of solids during peak day and peak hour events. It must also be able to meet discharge limits during the sustained higher flows experienced during the peak month of wet weather.

The SC-OR WWTF is currently permitted to treat up to 6.5 million gallons per day (mgd) during dry weather, but the current average dry weather flow (ADWF) is 3.1 mgd. As of October 1, 2009, the SC-OR WWTF provides treatment for approximately 17,657 equivalent dwelling units (EDUs) and has a remaining capacity of approximately 2,743 EDUs. SC-OR’s WWTF has a total treatment capacity for approximately 20,400 EDUs. The 24,000 EDU limitation is based upon the current organic treatment capacity of the WWTF. Table 3-1 provides information on the existing capacities of the WWTF.

The organic capacity of the SC-OR WWTF could be impacted by I&I reduction measures in the SC-OR member entity’s collection systems since there is a possibility that the sewer collection system defects that allow I&I to enter in the wet weather season also allow exfiltration of sewage in the dry weather season. According to SC-OR, a reduction of I&I may result in an increase in
dry weather flow and load which cannot be fully evaluated until the member entities significantly reduce I&I.

<table>
<thead>
<tr>
<th>Table 3-1. SC-OR Facilities Flows and Capacities</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWTF permitted (treatment) capacity³</td>
</tr>
<tr>
<td>WWTF peak wet weather flow capacity⁴</td>
</tr>
<tr>
<td>WWTF influent pumping capacity</td>
</tr>
<tr>
<td>Average dry weather flow⁵</td>
</tr>
<tr>
<td>Average wet weather flow⁶</td>
</tr>
<tr>
<td>Wet weather peak flow⁷</td>
</tr>
<tr>
<td>Percentage of peak flow attributable to I&amp;I</td>
</tr>
<tr>
<td>WWTF Wet Weather Peaking Factor</td>
</tr>
<tr>
<td>Overflow storage pond capacity</td>
</tr>
<tr>
<td>Interceptors: West</td>
</tr>
<tr>
<td>East</td>
</tr>
<tr>
<td>Main</td>
</tr>
<tr>
<td>Outfall</td>
</tr>
<tr>
<td>WWTF Treatment Capacity (in EDUs)</td>
</tr>
<tr>
<td>Existing WWTF Treatment (in EDUs)⁸</td>
</tr>
<tr>
<td>WWTF Remaining Treatment Capacity (in EDUs)</td>
</tr>
</tbody>
</table>

The average dry weather flows from the member entities varies greatly, with the City of Oroville discharging the most wastewater to SC-OR facilities. SC-OR monitors and records the quantity of the flows from each of the SC-OR member entities, which is shown in Table 3-2.

<table>
<thead>
<tr>
<th>Table 3-2. Wastewater Flows from SC-OR Member Entities - 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency</td>
</tr>
<tr>
<td>City of Oroville</td>
</tr>
<tr>
<td>LOAPUD</td>
</tr>
<tr>
<td>TWSD</td>
</tr>
</tbody>
</table>

As can be seen in Table 3-2, the SC-OR WWTF has adequate capacity to handle dry weather flows from the member entities. However, a large amount of inflow and infiltration (I&I) enters

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³ As allowed by SC-OR’s Waste Discharge Requirements (RWQCB Order No. R5-2005-0010)
⁴ The maximum amount of liquid that can be conveyed through the WWTF infrastructure without causing bottlenecks or generating conditions that exceed system specifications
⁵ The average dry weather flow (ADWF) is the average flow at the WWTF during the dry weather season, usually defined as May through October
⁶ 24 hr total flow during wet weather season
⁷ The PWWF is the highest wet weather flow at the WWTF sustained for 1 hour, which for the SC-OR WWTF occurred on 12-31-05.
⁸ As of October 1, 2009
⁹ As of October 1, 2009
the SC-OR member entities’ sewer systems, which is conveyed to the SC-OR WWTF where it must be treated. Depending on the severity of a storm, some of the wet weather flows coming into the WWTF exceed the treatment capacity of the facility. According to SC-OR, peak flow to the WWTF has exceeded maximum day treatment flow at least 25 times in the last ten years. Flow greater than the 10.6 mg treatment capacity of the WWTF must be pumped to the emergency storage ponds for temporary storage until inflow to the WWTF subsides and treatment capacity becomes available. Under such uninterrupted storm conditions, SC-OR has approximately two days of emergency storage capacity in its ponds. Several times over the last ten years, the two-day storage has been reduced to just hours. This scenario could have had catastrophic consequences if the storm event had a slightly longer duration. It can take up to several weeks to empty the storage ponds through the WWTP due to increased wet weather influent flow to the facility. Figure 3-9 shows a graph of the wet weather peak flow at the WWTF from 1997 to 2007. The thick red line in the graph depicts the 10.6 mg dry weather treatment capacity at the WWTF.

Figure 3-9. SC-OR WWTF Peak Flows – 1997-2007

SC-OR records the wastewater flows from the member entities on flow charts, which provide a graphical depiction of the incoming flows over a 7-day period. Figure 3-10 is the SC-OR WWTF influent flow chart for the week of December 28, 2005, which depicts the flows that occurred during a 5 to 10-year storm event occurring on Dec. 31. The blue line on the chart shows that inflow to the WWTF was approximately 23 mgd, which is seven times more than the average dry weather flow. The heavy black line depicts the normal dry weather flow. Figure 3-
10 illustrates that storm flows are not isolated events but typically go on for several days, and it is this antecedent moisture that can amplify the impact of a peak flow event; that is, the rainfall occurring days before a peak flow event will dramatically affect the impact of that peak flow event on the WWTF.

In the event of a significant overflow at the SC-OR WWTF caused by I&I, untreated sewage would exit the storage pond at southwest corner of the WWTF and then flow overland to Dry Creek. Dry Creek flows due south along the west side of the plant, then west under Feather River Boulevard to the Feather River.

**Figure 3-10. SC-OR WWTF Influent Flow Chart**

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**Main Interceptor Capacity and Proposed Improvements**

The Main Interceptor sewer trunk line, which serves the City of Oroville and connects the East and West Interceptors to the WWTF, has a current capacity of 25 mgd with all pumps operating during peak wet weather flows. SC-OR states that the Main Interceptor is currently at
approximately 92 percent of peak hydraulic capacity during the peak wet weather flow. The effective capacity of the Main Interceptor is in part impacted by the combined pumping capacity located at the treatment plant. That is, if the influent flow exceeds the pumping capacity, an upstream manhole will flood with little lag time. There is no storage available in the existing pipes and no other place for the influent wastewater to discharge.

To ensure that the Main Interceptor has adequate capacity, SC-OR has proposed to increase influent pumping capacity to 30 mgd as an intermediate expansion. The increased pumping capacity will allow for quicker transfer of influent from the Main Interceptor to the temporary storage ponds. For a permanent fix, SC-OR proposes to construct a new 48-inch-diameter Main Interceptor prior to the total SC-OR WWTF EDU reaching 24,600 (30 mgd peak wet weather flow). The new length of pipe would total approximately 2,470 feet and would cost approximately $3,411,800.

**West Interceptor Capacity and Proposed Improvements**

The West Interceptor sewer trunk line, which serves all of TWSD’s system and a significant portion of the City of Oroville flows, experiences critical conditions during the peak wet weather flow. The West Interceptor operates at 100 percent hydraulic capacity during the peak wet weather flow at the Ruddy Creek Pump Station and is over capacity at the Feather River Pump Station during the peak wet weather flow. Figure 3-11 shows the capacities and peak wet weather flows along the western segment of the West Interceptor. The lack of capacity on the West Interceptor could result in sanitary sewer overflows as was the case on December 31, 2005, when a manhole overflowed as a result of excessive wet weather flows.

![Figure 3-11. SC-OR West Interceptor Flows and Capacities](image-url)

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10 SC-OR Master Planning and Financial Assistance Study, February 2009
12 SC-OR Master Planning and Financial Assistance Study, February 2009
Capacity on the West Interceptor was analyzed in two reports prepared by SC-OR:

- **West Interceptor - Phase I Analysis of Alternatives** (Kennedy/Jenks 2006), which analyzed the segment of the West Interceptor from the Feather River Bridge east to S. 5th Avenue.
- **SC-OR: West Interceptor Phase II Study** (CH2M HILL 2007), which analyzed the segment of the West Interceptor west of the Feather River Bridge.

The section of the West Interceptor east of the Feather River is a flow-limited segment with shallow manholes, and routine maintenance is difficult due to the current alignment underlying Oro Dam Boulevard. If implemented, the Phase I improvements would extend the Feather River force main located in front of the Wal-Mart on Oro Dam Boulevard around the corner onto Feather River Boulevard and then south, where it would connect to the recently upsized sewer line on Cal Oak Road. The Phase I improvements are estimated to cost approximately $2.2 million.

The preferred alternative for the Phase II improvements to the West Interceptor would include replacement of the existing trunk line, a new parallel force main, and improvements to the Feather River and Ruddy Creek Pump Stations, all of which is estimated to cost approximately $7.5 million. It should be noted that the Phase II costs assumed that a new parallel force main across the Feather River could be installed on the Feather River Bridge. Recent information from the California Department of Transportation suggests that this approach may not be possible, and other alternatives will need to be evaluated and will most likely impact the Phase II project cost. It should also be noted that development of the Oro-Bay Subdivision project could result in increased Phase II costs due to additional infrastructure improvements being required to handle the additional wastewater flows from that large 2,400 unit development.

**East Interceptor Capacities**

According to SC-OR, the East Interceptor sewer trunk line, which serves only LOAPUD’s collection system, has a current hydraulic capacity of 15 mgd. SC-OR states that the East Interceptor is currently at about 66 percent of peak hydraulic capacity during peak wet weather flows. The current capacity on the East Interceptor sewer trunk line is greater than LOAPUD's peak flows projected for the year 2030, which is projected to be 14 mgd. No expansion activities are required for the East Interceptor.
<table>
<thead>
<tr>
<th>DETERMINATION 3-5: SC-OR WASTEWATER TREATMENT FACILITY CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>The SC-OR WWTF has a design hydraulic and treatment capacity of 10.6 mgd with a permitted capacity of 6.5 mgd. The WWTF experiences an average dry weather flow of 3.1mgd, a 24-hour average peak wet weather flow of 13.9 mgd, and a single wet weather peak flow event of 23 mgd, which represented 92% of the WWTF’s maximum influent pumping capacity and was 87% attributable to collection system I&amp;I.</td>
</tr>
<tr>
<td>The SC-OR WWTF has adequate dry weather capacity, but is significantly impacted during periods of peak wet weather when excessive flows must be routed to the existing storage ponds which, based upon historical storm events, represent approximately 48 hours of influent storage capacity and have been within hours of capacity during several storm events over the years, which could have resulted in significant SSOs in SC-OR’s system if the storm duration had been slightly longer. The routine use of the storage ponds to handle excessive wet weather flows is not the preferred solution to address I&amp;I and relying on their use reduces the margin of error within the entire system to an unacceptable level.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 3-6: SC-OR EAST INTERCEPTOR TRUNK LINE CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>The SC-OR East Interceptor trunk line serving only LOAPUD’s sanitary sewer system has capacity to serve LOAPUD’s peak flow of 14 mgd projected for the year 2030 and therefore requires no improvements.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 3-7: SC-OR MAIN INTERCEPTOR TRUNK LINE CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&amp;I reduction programs recently implemented by the member entities is expected to reduce I&amp;I flows into the WWTF.</td>
</tr>
</tbody>
</table>
DETERMINATION 3-8: SC-OR WEST INTERCEPTOR TRUNK LINE CAPACITY

The SC-OR West Interceptor trunk sewer line (which serves TWSD’s sanitary sewer system and a portion of the City of Oroville’s wastewater flows) is currently operating above 100% hydraulic capacity during the peak wet weather flow and has been identified by SC-OR for capacity improvements in its Capital Improvement Program.

With a reduction in I&I flowing into the West Interceptor due to TWSD’s I&I reduction program, and due to SC-OR’s recently-adopted developer agreement, which requires impact mitigation, SC-OR anticipates that the West Interceptor will operate below its design capacity. Until such time identified improvements are implemented, this facility should be considered at capacity.

WASTEWATER TREATMENT FACILITY REMAINING CAPACITY

Treatment capacity at the SC-OR WWTF can be expressed in terms of million gallons of wastewater per day or in terms of equivalent dwellings units (EDUs). It is easier to comprehend capacity based on the EDU because one EDU is equal to 260 gallons per day, which is the average daily wastewater flow from a single-family dwelling unit. For commercial users one EDU is equal to 16 fixture units.

As of October 1, 2009, SC-OR provides wastewater treatment services for 17,657 EDUs. The SC-OR WWTF in its existing configuration and under the requirements of its existing Waste Discharge Requirements has the capacity to treat a total of 20,400 EDUs, with a remaining dry weather flow treatment capacity of approximately 2,743 EDUs.

The number of EDU’s added to SC-OR each year since 1980 has varied from a high of 635 in 1980 to a low of 20 in 1999. Table 3-3 shows the number of EDU’s added to the SC-OR WWTF from Fiscal Years 1980 to 2009 and includes a running total of EDUs sold by SC-OR.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>EDUs Added</th>
<th>Total EDUs</th>
<th>Fiscal Year</th>
<th>EDUs Added</th>
<th>Total EDUs</th>
<th>Fiscal Year</th>
<th>EDUs Added</th>
<th>Total EDUs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>635</td>
<td>11,581</td>
<td>1990</td>
<td>437</td>
<td>14,229</td>
<td>2000</td>
<td>221</td>
<td>16,304</td>
</tr>
<tr>
<td>1982</td>
<td>286</td>
<td>12,118</td>
<td>1992</td>
<td>248</td>
<td>14,754</td>
<td>2002</td>
<td>246</td>
<td>16,641</td>
</tr>
<tr>
<td>1985</td>
<td>269</td>
<td>12,811</td>
<td>1995</td>
<td>187</td>
<td>15,589</td>
<td>2005</td>
<td>135</td>
<td>17,090</td>
</tr>
<tr>
<td>1986</td>
<td>128</td>
<td>12,939</td>
<td>1996</td>
<td>167</td>
<td>15,756</td>
<td>2006</td>
<td>327</td>
<td>17,417</td>
</tr>
<tr>
<td>1987</td>
<td>465</td>
<td>13,404</td>
<td>1997</td>
<td>111</td>
<td>15,867</td>
<td>2007</td>
<td>231</td>
<td>17,648</td>
</tr>
<tr>
<td>1988</td>
<td>126</td>
<td>13,530</td>
<td>1998</td>
<td>20</td>
<td>15,887</td>
<td>2008</td>
<td>52</td>
<td>17,700</td>
</tr>
<tr>
<td>1989</td>
<td>262</td>
<td>13,792</td>
<td>1999</td>
<td>196</td>
<td>16,083</td>
<td>2009</td>
<td>50</td>
<td>17,750</td>
</tr>
</tbody>
</table>

Source: SC-OR, July 2009. EDU figures are based on Regional Facility Charges paid by the SC-OR member entities

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13 SC-OR Policy # 7510
14 SC-OR Policy # 7210
The average number of EDUs added each year to the SC-OR WWTF for the Fiscal Years 1980 to 2009 was 227. At the historical growth rate of approximately 227 EDUs per year, the SC-OR WWTP has approximately 12 years of dry weather capacity before expansion would be required. However, this 12-year WWTF capacity projection could be substantially reduced if 1) new housing starts above historical growth rates occur; 2) large EDU intensive industrial uses are established in the Oroville area; or 3) there is a necessity to connect existing septic systems to a sanitary sewer.

Based upon population growth estimates supplied by the member entities, SC-OR has projected that their wastewater treatment plant will need to have treatment capacity for approximately 32,179 EDUs by 2030. Table 3-4 shows the projected number of EDUs that the SC-OR WWTF will need to provide for between 2007 and 2030.

**Table 3-4. Projected Sewer Connections – 2007-2030**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of EDUs*</th>
<th>City of Oroville Yrly Change</th>
<th>Percent Change</th>
<th>Lake Oroville Area PUD Yrly Change</th>
<th>Percent Change</th>
<th>Thermalito Irrigation Distric Yrly Change</th>
<th>Percent Change</th>
<th>Industrial Yrly Change</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>8,442</td>
<td>5,820</td>
<td>2,629</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>442</td>
<td>0.0%</td>
</tr>
<tr>
<td>2008</td>
<td>8,780</td>
<td>338</td>
<td>40.0%</td>
<td>5,920</td>
<td>100</td>
<td>1.7%</td>
<td>6,267</td>
<td>48.0%</td>
<td>1.8%</td>
</tr>
<tr>
<td>2009</td>
<td>9,130</td>
<td>350</td>
<td>4.0%</td>
<td>6,020</td>
<td>100</td>
<td>1.7%</td>
<td>2,726</td>
<td>49.1%</td>
<td>1.8%</td>
</tr>
<tr>
<td>2010</td>
<td>9,587</td>
<td>457</td>
<td>5.0%</td>
<td>6,170</td>
<td>150</td>
<td>2.5%</td>
<td>2,777</td>
<td>51.9%</td>
<td>1.9%</td>
</tr>
<tr>
<td>2011</td>
<td>10,066</td>
<td>479</td>
<td>5.0%</td>
<td>6,295</td>
<td>125</td>
<td>2.0%</td>
<td>2,829</td>
<td>52.4%</td>
<td>2.4%</td>
</tr>
<tr>
<td>2012</td>
<td>10,570</td>
<td>504</td>
<td>5.0%</td>
<td>6,695</td>
<td>400</td>
<td>6.4%</td>
<td>2,886</td>
<td>52.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>2013</td>
<td>11,099</td>
<td>529</td>
<td>5.0%</td>
<td>7,070</td>
<td>375</td>
<td>5.6%</td>
<td>2,945</td>
<td>59.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>2014</td>
<td>11,653</td>
<td>554</td>
<td>5.0%</td>
<td>7,220</td>
<td>150</td>
<td>2.1%</td>
<td>3,067</td>
<td>62.3%</td>
<td>2.1%</td>
</tr>
<tr>
<td>2015</td>
<td>12,236</td>
<td>583</td>
<td>5.0%</td>
<td>7,420</td>
<td>200</td>
<td>2.8%</td>
<td>3,077</td>
<td>70.7%</td>
<td>2.3%</td>
</tr>
<tr>
<td>2016</td>
<td>12,725</td>
<td>489</td>
<td>4.0%</td>
<td>7,595</td>
<td>150</td>
<td>2.0%</td>
<td>3,152</td>
<td>75.7%</td>
<td>2.4%</td>
</tr>
<tr>
<td>2017</td>
<td>13,325</td>
<td>510</td>
<td>4.0%</td>
<td>7,770</td>
<td>150</td>
<td>2.0%</td>
<td>3,232</td>
<td>80.0%</td>
<td>2.5%</td>
</tr>
<tr>
<td>2018</td>
<td>13,631</td>
<td>396</td>
<td>3.0%</td>
<td>7,870</td>
<td>150</td>
<td>1.9%</td>
<td>3,177</td>
<td>85.2%</td>
<td>2.6%</td>
</tr>
<tr>
<td>2019</td>
<td>14,040</td>
<td>409</td>
<td>3.0%</td>
<td>8,020</td>
<td>150</td>
<td>1.9%</td>
<td>3,405</td>
<td>88.2%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2020</td>
<td>14,321</td>
<td>281</td>
<td>2.0%</td>
<td>8,195</td>
<td>175</td>
<td>2.2%</td>
<td>3,497</td>
<td>92.3%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2021</td>
<td>14,608</td>
<td>287</td>
<td>2.0%</td>
<td>8,345</td>
<td>150</td>
<td>1.8%</td>
<td>3,593</td>
<td>96.2%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2022</td>
<td>14,900</td>
<td>292</td>
<td>2.0%</td>
<td>8,495</td>
<td>150</td>
<td>1.8%</td>
<td>3,693</td>
<td>100.0%</td>
<td>2.8%</td>
</tr>
<tr>
<td>2023</td>
<td>15,198</td>
<td>298</td>
<td>2.0%</td>
<td>8,645</td>
<td>150</td>
<td>1.8%</td>
<td>3,791</td>
<td>98.4%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2024</td>
<td>15,501</td>
<td>303</td>
<td>2.0%</td>
<td>8,795</td>
<td>150</td>
<td>1.7%</td>
<td>3,889</td>
<td>98.7%</td>
<td>2.6%</td>
</tr>
<tr>
<td>2025</td>
<td>15,811</td>
<td>310</td>
<td>2.0%</td>
<td>8,970</td>
<td>175</td>
<td>2.0%</td>
<td>3,989</td>
<td>100.0%</td>
<td>2.6%</td>
</tr>
<tr>
<td>2026</td>
<td>16,128</td>
<td>317</td>
<td>2.0%</td>
<td>9,120</td>
<td>150</td>
<td>1.7%</td>
<td>4,091</td>
<td>102.6%</td>
<td>2.6%</td>
</tr>
<tr>
<td>2027</td>
<td>16,451</td>
<td>323</td>
<td>2.0%</td>
<td>9,270</td>
<td>150</td>
<td>1.6%</td>
<td>4,194</td>
<td>103.2%</td>
<td>2.5%</td>
</tr>
<tr>
<td>2028</td>
<td>16,780</td>
<td>329</td>
<td>2.0%</td>
<td>9,420</td>
<td>150</td>
<td>1.6%</td>
<td>4,301</td>
<td>107.6%</td>
<td>2.6%</td>
</tr>
<tr>
<td>2029</td>
<td>17,115</td>
<td>335</td>
<td>2.0%</td>
<td>9,570</td>
<td>150</td>
<td>1.6%</td>
<td>4,415</td>
<td>114.2%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2030</td>
<td>17,458</td>
<td>343</td>
<td>2.0%</td>
<td>9,725</td>
<td>150</td>
<td>1.8%</td>
<td>4,534</td>
<td>119.2%</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

*Projections of EDUs provided by Kent Westover/City of Oroville on July 6, 2007 and confirmed at a workshop on July 19, 2007
*Projections of EDUs provided by Alan Brown/Lake Oroville Area PUD on July 13, 2007 and confirmed at a workshop on July 19, 2007
*Projections of EDUs provided by Mike Edwards/Thermalito Irrigation District on July 12, 2007 and confirmed at a workshop on July 19, 2007

The population growth estimates provided by the SC-OR member entities are very high, ranging from 1.7 to 6.4%, and may be speculative. The Oroville region as a whole has had a historic growth of approximately 1% per year, and the annual population growth rates as estimated by the member entities is not expected to be realized, especially given the recent downturn in the housing market and in the U.S. economy. The actual annual population growth for the Oroville region in the near term is expected to be around 1%. While population growth and the resulting housing starts are considered the primary driver for capacity analysis, there is a significant, yet difficult to evaluate factor related to the number of homes in the WWTP service area that are currently utilizing septic systems. These on-site septic systems are found on a range of parcel sizes and are largely unevaluated with respect to their expected life spans, on-site replacement areas and potential for stricter regulations promulgated by the State Water Resources Control
Board. Should a substantial change in any of these factors occur, the resulting capacity requirements could rapidly exhaust the remaining WWTP capacity and require new projections to be prepared and greater improvements planned.

**DETERMINATION 3-9: SC-OR WASTEWATER TREATMENT FACILITY REMAINING CAPACITY**

*The SC-OR WWTF in its existing configuration and under its existing Waste Discharge Requirements has the capacity to treat a total of 20,400 EDUs, and as of October 1, 2009, has a remaining dry weather flow treatment capacity of approximately 2,743 EDUs.*

**DETERMINATION 3-10: SC-OR WASTEWATER TREATMENT FACILITY REMAINING CAPACITY**

*An average of 227 EDUs have been added annually to the SC-OR WWTF over the last 30 years. At this historical growth rate, the SC-OR wastewater treatment plant has approximately 12 years of dry weather treatment capacity before expansion would be required unless 1) new housing starts above historical growth rates occur; 2) large EDU intensive industrial uses are established in the Oroville area; or 3) there is a necessity to connect existing septic systems to a sanitary sewer.*

**DETERMINATION 3-11: SC-OR WASTEWATER TREATMENT FACILITY REMAINING CAPACITY**

*WWTP capacity projections should include a scenario that evaluates the potential for substantial new connections resulting from the conversion of septic systems to sanitary sewer services. Until such an analysis is considered, current capacity projections cannot be considered definitive and planned capacity improvements may not be adequate to address all potential sewer service needs.*

**SC-OR INFRASTRUCTURE IMPROVEMENTS**

As previously noted, SC-OR is projecting that their WWTF will need to accommodate treatment capacity for 32,180 EDUs by 2030. SC-OR has projected WWTF flows in five-year increments over the next twenty years, which is found in Table 3-5.

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Dry Weather Flow (mgd)</th>
<th>Peak Wet Weather Flow (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>4.0</td>
<td>26.4</td>
</tr>
<tr>
<td>2017</td>
<td>5.1</td>
<td>30.6</td>
</tr>
<tr>
<td>2022</td>
<td>5.9</td>
<td>33.6</td>
</tr>
<tr>
<td>2027</td>
<td>6.6</td>
<td>36.5</td>
</tr>
</tbody>
</table>

*Base year is 2007

To ensure that the WWTP will have the treatment capacity for the additional EDUs and peak flows based on current growth projections, the SC-OR Master Planning and Financial Assistance Study identified the capital improvements needed to ensure that such capacity will exist. Figure 3-12 shows the capital improvements proposed by SC-OR. The proposed
improvements are estimated to cost $54 million and would be implemented in five phases, which are shown in Figure 3-13.

**Figure 3-12  SC-OR Proposed Projects – 2007-2027**

![Figure 3-12 SC-OR Proposed Projects – 2007-2027](image)

**Figure 3-13.  SC-OR Proposed CIP Phasing**

![Figure 3-13 SC-OR Proposed CIP Phasing](image)
In 2008, SC-OR increased their regional facility charge to $4,183 per EDU to begin accumulating the funds needed to construct the infrastructure capacity improvements as identified in their capital improvement plan. The increase in the regional facility charge was based upon the EDU projections made by SC-OR, which was based upon estimated growth rates supplied by each of the SC-OR member entities.

The SC-OR EDU projections, and the SC-OR regional facility charge, are predicated on the growth projections provided by the SC-OR member entities and are considered to be high. A slower growth rate will, if protracted in length, result in insufficient funding for the SC-OR infrastructure improvements that have been identified. For example, cost for capacity improvements for a lower growth scenario will be higher per EDU than for the original high growth projections, resulting in a need for a higher regional facility charge. Also, if regulations require upgrade of the plant treatment processes prior to the need for additional capacity, higher user rates would be required to fund these upgrades.

Because the current SC-OR regional facility charge is based on high population growth rates that realistically may not occur, the current SC-OR regional facility charge may not be high enough to ensure that adequate funding for the identified improvements will be in place when the improvements are needed. Should the growth rate projected by the SC-OR member entities not occur, the capacity improvements identified by SC-OR will not be adequately funded and SC-OR may have to significantly increase their regional facility charge to obtain the needed funds. To ensure that the funding needed for the identified improvements is available, SC-OR should revise the number of projected EDUs using more reasonable population growth estimates and, based upon the revised EDU projections, adopt new (increased) regional facility charges. SC-OR has estimated that based on slower population growth rates, their regional facility charge may have to be increased to approximately $6,021 to provide the necessary funding for capacity improvements. SC-OR will be considering increasing their regional facility charge in late 2009.

SC-OR, along with many other wastewater treatment facilities in California, may face new regulatory requirements in the coming years. Stricter waste discharge requirements are anticipated for SC-OR’s WWTF as state and federal agencies continue to protect against environmental degradation of natural resources. Tighter and more stringent regulation is a continuing trend that is expected to continue into the future. Future regulations may place effluent limits on certain constituents such as endocrine disruptors, antibiotics, pharmaceuticals, and personal care products. New regulations may also place limits on disinfection byproducts in wastewater treatment plant effluents, which would require disinfection processes that do not involve the use of chlorine, such as ultraviolet (UV) disinfection. Limits may also be placed on total nitrogen and phosphorus in wastewater effluent.

Another issue that drives regulations in California is water scarcity. New uses for recycled water may become viable as the State's population increases and water sources are reduced. Therefore, developing water reuse regulations that regulators, agencies, and the general public believe are acceptable is a vital component to recycling, thereby making water quality and advanced treatment more important. Control of the wastewater treatment plant discharge quality becomes more important as it can determine the water reuse applications available.

15 After adoption of this MSR, the SC-OR regional facility charge was increased to $6,638.00 per EDU.
These new requirements may require significant and costly infrastructure improvements to the SC-OR WWTP and other SC-OR facilities. As an example, the removal of ammonia from the effluent may cost $20 million or more. The cost of any SC-OR improvements due to new regulations will be borne by the existing SC-OR ratepayers. SC-OR’s current Capital Improvement Program includes infrastructure improvements that may be needed to meet anticipated wastewater treatment standards.

SC-OR is also facing the potential for significant infrastructure improvements to the WWTF due to air quality impacts. Odors from the SC-OR WWTF occur sporadically, but impacts are minimal to the public because only industrial uses are currently located near the facility. However, a super Wal-Mart store is being considered by the City of Oroville and proposed to be constructed within 700 feet of the WWTF, which could expose numerous people to odors emanating from the facility. Due to these impacts, SC-OR may be required to install expensive odor control equipment. Such an impact on the WWTF must be fully evaluated in the environment documents prepared for the Wal-Mart proposal and fully considered by the City Council to ensure that the WWTF is not unnecessarily impacted by such a use.

**DETERMINATION 3-12: SC-OR CAPITAL IMPROVEMENT PROGRAM**

| SC-OR has prepared a five-phase, $56 million (in 2009 dollars) capital improvement plan that has identified the necessary capacity improvements to the SC-OR wastewater treatment plant and other SC-OR infrastructure needed to meet future wastewater treatment demands. The identified improvements also include capacity improvements to SC-OR’s Main Interceptor and West Interceptor sewer trunk lines. |

**DETERMINATION 3-13: SC-OR EDU PROJECTIONS**

Future capacity improvements and funding for SC-OR infrastructure are based upon population growth estimates provided by each of the SC-OR member entities and indicate a need to have treatment capacity for approximately 32,179 EDUs by 2030. However, the population growth rates utilized for EDU projections are far higher (from 1.7 to 6.4%) than historical averages (1%) and are not expected to be attained in the near term. Use of the inflated population estimates may result in the SC-OR EDU projections being too high, which effects the timing of the proposed capacity improvements to SC-OR infrastructure and the amount of the SC-OR regional facility charge. To ensure that the EDU projections are accurate, and to ensure that the necessary funds are being accumulated for capacity improvements, SC-OR should prepare new EDU projections based on more realistic population growth estimates and adjust their regional facility charge accordingly.
DETERMINATION 3-14: FUTURE REGULATORY REQUIREMENTS

In the coming years, SC-OR may face new regulatory requirements, such as a reduction in ammonia in the WWTF effluent, cessation of the use of chlorine, and reduction in odors, all of which may require substantial and costly improvements to their wastewater treatment facility and are not currently evaluated in the SC-OR Master Planning and Financial Assistance Study. The costs for these improvements are anticipated to be significant and will be borne by the SC-OR ratepayers, resulting in higher monthly sewer service and regional facility charges.

Until the requirements of the new permit are issued in 2010, the future of the SC-OR WWTF and its capacity are very uncertain. Therefore, this portion of the MSR will need to be updated after the Regional Board has issued the WWTF’s next NPDES permit, when the regulatory requirements and their impact on the WWTF are clearer.

FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

The Sewerage Commission-Oroville Region is a public agency formed and existing under the laws of the State of California, and as such is a non-profit, tax-exempt district. The basic financial statements of SC-OR comply with the Uniform System of Accounts and are maintained on an accrual basis of accounting. SC-OR reports its activities as an enterprise fund, which is used to account for operations that are financed and operated in a manner similar to a private business enterprise, where the intent of SC-OR is the costs of providing sewer services to its area on a continuing basis be financed or recovered primarily through user charges, capital grants, and similar funding. Revenues and expenses are recognized on the full accrual basis of accounting. Revenues are recognized in the accounting period in which they are earned, and expenses are recognized in the period incurred, regardless of when the related cash flows take place.

SC-OR does not have any outstanding debt and invests idle cash with the Local Agency Investment Fund for the purpose of increasing investment income. SC-OR maintains reserves for emergencies, lawsuits and regulatory issues. SC-OR uses the straight-line depreciation method (useful life of 50 years) for the interceptors, treatment plant, and outfall. All other assets are depreciated using the straight-line method with a useful life of 3 to 30 years.

Revenues and expenses are distinguished between operating and nonoperating items. Operating revenues generally result from providing services in connection with SC-OR’s principal ongoing operations. The principal operating revenues of SC-OR are fees and revenue for wastewater treatment services. Operating expenses include the costs associated with the conveyance and treatment of the wastewater, administrative expenses, and depreciation on capital assets. All revenues and expenses not meeting these definitions are reported as non-operating revenues and expenses. SC-OR’s regional facility charge is classified as a non-operating revenue because these revenues can only be utilized for infrastructure improvements needed to provide additional treatment capacity for new connections.

SC-OR does not receive any portion of property taxes and its primary source of operating revenue is monthly sewer service fees and one-time regional facility charges are collected by the
member agencies and then passed to SC-OR. Another source of revenue is interest income and fees paid for treatment of septage. Current SC-OR fees are found below in Table 3-6.

Table 3-6. SC-OR Service Charges

<table>
<thead>
<tr>
<th>Type of Service Charge</th>
<th>Service Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Facility Charge (residential/commercial)</td>
<td>$4,183.00$16</td>
</tr>
<tr>
<td>Sewer Service Charge (residential/commercial)</td>
<td>$7.80/EDU/month</td>
</tr>
</tbody>
</table>

Charges for industrial uses are determined on a case-by-case basis using flow and wastewater strength (or loadings) using conventional wastewater parameters, such as biochemical oxygen demand, total suspended solids, and oils and grease. The regional facility charges are passed on to SC-OR within 45 days of building permit issuance by the member entity for each new sewer connection. SC-OR maintains a data base of the number of connections from the payments submitted by each entity to monitor the monthly service fees being submitted. It is recognized however, that SC-OR has no control of the collection of any service fees and must rely on its member agencies to accurately report, collect and transfer all service fees. Should a member agency fail to report a sewer connection or collect appropriate fees, SC-OR would have no accounting for the service provided which both skew its EDU capacity counts and deprive it of revenues. It would be beneficial to SC-OR to provide a unified point of authorization and accounting for new connections and fees paid.

Another source of revenue for SC-OR are charges for accepting and treating domestic septage, which comes from septic tanks. This is a voluntary community service provided by SC-OR which it is not obligated to provide. SC-OR processes approximately one million gallons per year of domestic septage. The current septage processing charges are $71.52 per 1,000 gallons for septage within the SC-OR service area and $83.55 per 1,000 gallons for septage within the SC-OR sphere of influence but outside the service area.17 18 The Neal Road Landfill currently accepts septage but will be closing the septage ponds located at the landfill in the next few years. This could result in an increase in septage disposal at SC-OR, which would result in both a corresponding increase in revenue as well as a decrease in its current EDU capacity. To accurately plan for this service in the future, it would be beneficial for SC-OR to account for the total number of septic systems within its service area.

SC-OR has an I&I surcharge program which is designed to recover part of the costs for treating excess peak flows and excess monthly flows from the member entities. However, any I&I surcharge levied by SC-OR can be offset by the entities if they show they have made certain repairs to their systems to reduce I&I. In FY 2008, SC-OR did not receive any revenue from I&I

16 After adoption of this MSR, the SC-OR regional facility charge was increased to $6,638.00 per EDU.
17 SC-OR Resolution 06-04, Policy Number 7400
18 SC-OR’s service area is defined as that area within the contiguous boundaries of its three member entities. SC-OR’s sphere of influence is a much larger area, extending to the Butte/Plumas county line to the east and, including TID’s sphere of influence, extending to SR 99 to the west and SR 149 to the north. SC-OR’s sphere of influence southern boundary extends east from SR 99 beginning at the southwest corner of the Thermalito Afterbay then southeast to SR 70 at Power House Hill Road then east.
surcharges despite the acknowledgement of its member agencies that I&I is considerable and that reductions are minimal based on the rate of completed repairs.

Pursuant to California Government Code, Section 6500, et seq., and Section 990, et. seq., SC-OR joined the Special District Risk Management Authority under a joint powers agreement. The Authority is comprised of various special districts within the State of California and provides its member districts general liability, automotive liability, and property damage insurance, and errors and omissions risk financing.

SC-OR is exposed to various risks of loss related to torts; theft of, damage to, and destruction of assets; errors and omissions; and natural disasters. SC-OR provides property, comprehensive and collision, and worker's compensation insurance through the Special District Risk Management Authority (SDRMA), a public entity risk pool currently operating as an intergovernmental risk sharing joint powers authority for special districts and joint powers authorities throughout California. SC-OR pays annual premiums to the Authority for liability, property, comprehensive and collision, and worker's compensation insurance.

Through SDRMA, the Commission has a total of $10,000,000 in general and auto liability, public officials' and employees' errors and omissions, and employment practices coverage ($2.5 million primary plus $2.5 million excess coverage plus $5 million additional excess coverage). The Commission's deductible is $500 ($1,000 auto) and 50% co-insurance costs expended by SDRMA in excess of $10,000 up to $50,000 for employment related claims (may be waived if certain criteria are met).

SDRMA provides the Commission $400,000 per loss in public employee dishonesty, forgery or alteration and theft, and disappearance and destruction coverage; property loss coverage of $350 million ($2,000 deductible); boiler and machinery coverage of $100 million ($1,000 deductible); comprehensive and collision coverage for selected vehicles; and $500,000 per occurrence of officials personal liability coverage ($500 deductible).

The Commission's workers' compensation and employer's liability coverages are also provided through SDRMA. The Commission has $200 million in workers' compensation and $5 million for employer's liability coverage.

SC-OR continues to carry commercial insurance for all other risks of loss, such as employee health and accident. Settled claims resulting from these risks have not exceeded commercial insurance coverage in any of the past three fiscal years.

Annual audit reports for the fiscal years ending 2007 and 2008 and financial statements for SC-OR were submitted and reviewed. These reports and statements were reviewed to determine general fiscal viability, suitability of current funding practices, and potential fiscal impacts resulting from new legislation. The Auditor’s Report for FY 2008 for SC-OR did not identify any deficiencies. It should be acknowledged that the MSR utilizes the data provided by the agency and is not intended to be an audit or other focused review of agency internal fiscal decisions.
In FY 2007, SC-OR had total net assets of $17,937,217 and in FY 2008 had total net assets of $18,205,943, which was an increase of 1.4%. Total operating revenue in FY 2007 was $1,548,043 and in FY 2008 it was $1,567,439, which was an increase of 1.2%. Total operating expenses in FY 2007 was $1,852,194 and in FY 2008 the total operating expenses was $2,053,870, which was an increase of 10.8%. Figure 3-14 is SC-OR’s Statement of Revenues, Expenses, and Changes in Net Assets for the years ended June 30, 2008 and 2007.

Figure 3-14. SC-OR Revenues, Expenses, and Changes in Net Assets, FY 2008 and 2007

<table>
<thead>
<tr>
<th>SEWERAGE COMMISSION - OROVILLE REGION</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS FOR THE YEARS ENDED JUNE 30, 2008 AND 2007</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2008</th>
<th>2007 As Restated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OPERATING REVENUES</strong></td>
<td></td>
</tr>
<tr>
<td>Domestic sewage treatment</td>
<td>$1,436,886</td>
</tr>
<tr>
<td>Industrial sewage treatment</td>
<td>36,518</td>
</tr>
<tr>
<td>Excess flow charges</td>
<td>-</td>
</tr>
<tr>
<td>Other operating revenues</td>
<td>95,055</td>
</tr>
<tr>
<td><strong>Total Operating Revenues</strong></td>
<td>1,567,439</td>
</tr>
<tr>
<td><strong>OPERATING EXPENSES</strong></td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>378,811</td>
</tr>
<tr>
<td>Sewage treatment</td>
<td>1,530,626</td>
</tr>
<tr>
<td>Sewage collection</td>
<td>144,433</td>
</tr>
<tr>
<td><strong>Total Operating Expenses</strong></td>
<td>2,053,870</td>
</tr>
<tr>
<td>Operating Income (Loss)</td>
<td>(486,431)</td>
</tr>
<tr>
<td><strong>NON-OPERATING REVENUES</strong></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>265,056</td>
</tr>
<tr>
<td>Revenues from other agencies:</td>
<td></td>
</tr>
<tr>
<td>Regional facilities charges</td>
<td>475,049</td>
</tr>
<tr>
<td>Other revenues</td>
<td>15,052</td>
</tr>
<tr>
<td><strong>Total Non-Operating Revenues</strong></td>
<td>755,157</td>
</tr>
<tr>
<td><strong>NON-OPERATING EXPENSES</strong></td>
<td></td>
</tr>
<tr>
<td>Other expenses</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Non-Operating Expenses</strong></td>
<td>-</td>
</tr>
<tr>
<td>Non-Operating Revenues (Expenses)</td>
<td>755,157</td>
</tr>
<tr>
<td><strong>CHANGE IN NET ASSETS</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>268,726</td>
</tr>
<tr>
<td><strong>NET ASSETS - BEGINNING OF YEAR</strong></td>
<td>17,937,217</td>
</tr>
<tr>
<td><strong>NET ASSETS - END OF YEAR</strong></td>
<td>$18,205,943</td>
</tr>
</tbody>
</table>
SC-OR maintains an Operation and Maintenance (O&M) reserve fund that is dedicated for the purpose of maintaining a fund balance of $300,000 for unanticipated expenses, such as lawsuits and regulatory issues. The O&M fund is not used for normal operation and maintenance activities. SC-OR also maintains a Wastewater Capital Reserve Fund (WCRF) that can only be used for like-for-like replacement of existing equipment. In FY 2007/08, the WCRF has a starting balance of $1,090,000 and an ending balance of $1,180,699.

SC-OR should continue to review and revise their monthly sewer service fee and regional facility charge to recover operational and maintenance costs and to build capital reserves.

<table>
<thead>
<tr>
<th>DETERMINATION 3-15: FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC-OR’s primary source of revenue is monthly service fees and regional facility charges, with additional revenue from septage disposal and earned interest. It would be beneficial to SC-OR to provide a unified point of authorization and accounting for new connections and fees paid rather than relying on the current pass-through system from its member agencies.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 3-16: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current monthly sewer service fees and regional facility charges, combined with income from other sources, are adequate to cover the current costs of providing services; however, SC-OR should continue to review and revise their monthly sewer service fee and regional facility charge to recover operational and maintenance costs and to build capital reserves.</td>
</tr>
</tbody>
</table>

STATUS OF, AND OPPORTUNITIES FOR, COST AVOIDANCE AND SHARED FACILITIES

SC-OR operates and maintains the wastewater treatment facility, interceptors, and outfall, and opportunities for shared facilities with the SC-OR member entities, who only collect and convey wastewater, are very limited. SC-OR staff and the SC-OR member entities have shared manpower, tools, materials, training, and expertise. SC-OR has an agreement with the Neal Road Landfill (owned and operated by Butte County) for a liquid waste/solid waste exchange. SC-OR is working with the member entities to establish a common fats, oil, and grease (FOG) policy and a common set of development standards.

There are significant opportunities for shared facilities with the other SC-OR entities, which could result in savings to the districts’ ratepayers. As an example, the SC-OR member entities could share operations and maintenance personnel, equipment for construction efforts, pipe inspection and repair, and tools. There is currently no formal program established between the member entities to foster the sharing of equipment or personnel. There is also an opportunity for the member agencies to order supplies and materials in bulk, which has the potential to result in significant cost savings.

SC-OR utilizes several cost avoidance measures in its operations. SC-OR is exposed to various risks of losses related to torts; theft of, damage to, and destruction of assets; errors and...
omissions; injuries to employees and natural disasters. The District transfers risks that may arise from these and other events through the purchase of various types of insurance through the Special District Risk Management Authority.

Given the large cost of capital improvements, a careful planning process is a crucial means of cost avoidance. SC-OR plans for future funding of necessary improvements utilizing budgetary tools such as rate structure and connection fees. Other cost avoidance measures include applying for grants and sharing training costs with the SC-OR member entities. One innovative cost avoidance measure that SC-OR took in 2002 was the installation of a 520 kilowatt photovoltaic system. SC-OR reduced their electric bill by 51% due to the use of solar power.

An analysis of the SC-OR Joint Powers Agreement is discussed in detail in Chapter 2.0 of this MSR. Determinations regarding improving cooperation and coordination between the SC-OR member entities can be found in Chapter 2.0.

**DETERMINATION 3-17: OPPORTUNITIES FOR SHARED FACILITIES**

| While SC-OR appears to utilize internal cost avoidance opportunities, facilities sharing efforts are not actively pursued. SC-OR and the SC-OR member entities should consider establishing a program to 1) share equipment, materials, personnel, expertise, and training and 2) consider purchasing supplies and materials in bulk. |

**ACCOUNTABILITY FOR COMMUNITY SERVICE NEEDS, INCLUDING GOVERNMENTAL STRUCTURE AND OPERATIONAL EFFICIENCIES**

SC-OR is governed by a six member board of commissioners who meet in regular session once monthly on the fourth Wednesday of each month at 5:00 pm at the SC-OR board room at 2880 S. 5th Avenue. Special meetings are held as needed.

SC-OR's Board of Commissioners is comprised of two representatives from each of the member entities with one of the appointees designated a voting member and the other an alternate. Each January, the member entities make their appointments to the SC-OR Board. For the City of Oroville, the Mayor and his appointee serve as SC-OR Commissioners. For LOAPUD, the Board President makes the appointments.
and designates the voting member. For TWSD, the Board President makes the appointments and designates the voting member on a staggered, rotating 2 year schedule. At the June meeting, SC-OR commissioners appoint the SC-OR Chair and Vice Chair.

SC-OR's Board members receive a $300/mo. stipend; no additional compensation is offered for special meetings or for any other reason or circumstance. SC-OR appears to comply with all applicable provisions of the Brown Act, including publishing meeting notices in the newspaper and posting agendas at each SC-OR member entities’ office and at the SC-OR office. Board packets are available at SC-OR office. On average, five to 10 members of the public attend the regularly scheduled meetings annually.

SC-OR has nine full-time employees, consisting of the following positions:

- Plant Manager
- Administrative Assistant
- Plant Supervisor
- Environmental Compliance Manager/Lead Operator IV
- Operator III (3 positions)
- Operator II
- Chemist

The SC-OR Board of Commissioners appoints the Plant Manager. The current Plant Manager has been with SC-OR for over 25 years. The ratio of managers to workers is appropriate; SC-OR is not top heavy in managers. SC-OR has various policies and procedures related to personnel, provision of services, customer relations, operations and maintenance, relationships with other agencies, and the like. All SC-OR employees, except for the Administrative Assistant and Chemist, are licensed wastewater treatment plant operators with licenses issued by the State Water Resources Control Board and renewed every 2 years.

The management structure of SC-OR is relatively simple and is well suited to the type of operations undertaken by SC-OR. No alternative structures or reorganizations of staff would result in more efficient operations, and the existing structure is considered appropriate. As the treatment capacity of SC-OR’s WWTP increases, SC-OR should add staff as needed to ensure that operational and maintenance needs are met.

SC-OR does not have a website and should create one so that information on SC-OR is readily available to the public. Documents such as public notices, meeting agendas, staff reports, operational data, fee schedule, and I&I information could be posted on the webpage.

An analysis of the SC-OR Joint Powers Agreement is discussed in detail in Chapter 2.0 of this MSR. Determinations regarding the ability of the SC-OR JPA to provide efficient and cost-effective wastewater collection and treatment services can be found in Chapter 2.0.
DETERMINATION 3-18: GOVERNMENTAL STRUCTURE

SC-OR is governed by representatives appointed from its member entities and holds meetings which are open and accessible to the public. SC-OR maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements. SC-OR’s service area is tied directly to those of its member entities and will thus be directly affected by any changes involving expansion or reorganization.

DETERMINATION 3-19: MANAGEMENT EFFICIENCIES

SC-OR operates with minimal staff, and contracts for some services such as engineering consulting and legal services. The overall management structure of SC-OR is sufficient to account for necessary services and to maintain operations in an efficient and effective manner. SC-OR is adequately staffed at this time but additional staff should be added as wastewater treatment capacity increases.

DETERMINATION 3-20: WEBPAGE

SC-OR should develop a website that can be used to provide public information, which could include the posting of SC-OR Board of Commissioners meeting notices/agendas, meeting minutes, staff reports and memorandums, fees, and I&I information.

ANY OTHER MATTER RELATED TO EFFECTIVE OR EFFICIENT SERVICE DELIVERY, AS REQUIRED BY COMMISSION POLICY

An analysis of the SC-OR Joint Powers Agreement is discussed in detail in Chapter 2.0 of this MSR. Determinations regarding the ability of the SC-OR JPA to provide efficient and cost-effective wastewater collection and treatment services can be found in Chapter 2.0.

SUMMARY OF DETERMINATIONS

DETERMINATION 3-1: SC-OR WASTEWATER TREATMENT PLANT INFRASTRUCTURE

The SC-OR wastewater treatment facility, portions of which were constructed in 1959, has undergone significant improvements since that time, including a major upgrade in 1975 when secondary, tertiary, and solids stabilization facilities were constructed. A majority of the facility's equipment was commissioned during this expansion, which translates to equipment with over 30 years of operation. While some equipment and infrastructure is in need of replacement or upgrading and additional building space is needed, overall the SC-OR WWTF has been well maintained and is in good condition.
DETERMINATION 3-2: SC-OR WASTEWATER TREATMENT PLANT INFRASTRUCTURE

The SC-OR wastewater treatment facility was not designed for the excessive amounts of wet weather flow that must be treated by the facility primarily resulting from inflow and infiltration within the SC-OR member entities’ wastewater collection systems. During these times of wet weather flow, the plant must operate all available equipment to minimize surcharging in the collection system (which could result in sanitary sewer overflows) and must resort to the use of storage ponds for the temporary storage of raw sewage for later treatment after the peak flows have subsided. While contingencies exist to address excessive wet weather flows, they are not the preferred solution to address I&I and reduce the margin of error within the system to an unacceptable level.

DETERMINATION 3-3: SANITARY SEWER OVERFLOWS

In 2005, SC-OR had one SSO on their West Interceptor trunk line, which was due to excessive I&I flows discharging into that line. SC-OR has not had any reportable sanitary sewer overflows since mandatory reporting began in 2007.

DETERMINATION 3-4: SANITARY SEWER MANAGEMENT PLAN

SC-OR has adopted its Sanitary Sewer Management Plan and should place their SSMP on their website, if one is created, for public convenience.

DETERMINATION 3-5: SC-OR WASTEWATER TREATMENT FACILITY CAPACITY

The SC-OR WWTF has a design hydraulic and treatment capacity of 10.6 mgd with a permitted capacity of 6.5 mgd. The WWTF experiences an average dry weather flow of 3.1mgd, a 24-hour average peak wet weather flow of 13.9 mgd, and a single wet weather peak flow event of 23 mgd, which represented 92% of the WWTF’s maximum influent pumping capacity and was 87% attributable to collection system I&I.

The SC-OR WWTF has adequate dry weather capacity, but is significantly impacted during periods of peak wet weather when excessive flows must be routed to the existing storage ponds which, based upon historical storm events, represent approximately 48 hours of influent storage capacity and have been within hours of capacity during several storm events over the years, which could have resulted in significant SSOs in SC-OR’s system if the storm duration had been slightly longer. The routine use of the storage ponds to handle excessive wet weather flows is not the preferred solution to address I&I and relying on their use reduces the margin of error within the entire system to an unacceptable level.
DETERMINATION 3-6: SC-OR EAST INTERCEPTOR TRUNK LINE CAPACITY

The SC-OR East Interceptor trunk line serving only LOAPUD’s sanitary sewer system has capacity to serve LOAPUD’s peak flow of 14 mgd projected for the year 2030 and therefore requires no improvements.

DETERMINATION 3-7: SC-OR MAIN INTERCEPTOR TRUNK LINE CAPACITY

Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF.

DETERMINATION 3-8: SC-OR WEST INTERCEPTOR TRUNK LINE CAPACITY

The SC-OR West Interceptor trunk sewer line (which serves TWSD’s sanitary sewer system and a portion of the City of Oroville’s wastewater flows) is currently operating above 100% hydraulic capacity during the peak wet weather flow and has been identified by SC-OR for capacity improvements in its Capital Improvement Program.

With a reduction in I&I flowing into the West Interceptor due to TWSD’s I&I reduction program, and due to SC-OR’s recently-adopted developer agreement, which requires impact mitigation, SC-OR anticipates that the West Interceptor will operate below its design capacity. Until such time identified improvements are implemented, this facility should be considered at capacity.

DETERMINATION 3-9: SC-OR WASTEWATER TREATMENT FACILITY REMAINING CAPACITY

The SC-OR WWTF in its existing configuration and under its existing Waste Discharge Requirements has the capacity to treat a total of 20,400 EDUs, and as of October 1, 2009, has a remaining dry weather flow treatment capacity of approximately 2,743 EDUs.
<table>
<thead>
<tr>
<th>DETERMINATION 3-10: SC-OR WASTEWATER TREATMENT FACILITY REMAINING CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>An average of 227 EDUs have been added annually to the SC-OR WWTF over the last 30 years. At this historical growth rate, the SC-OR wastewater treatment plant has approximately 12 years of dry weather treatment capacity before expansion would be required unless 1) new housing starts above historical growth rates occur; 2) large EDU intensive industrial uses are established in the Oroville area; or 3) there is a necessity to connect existing septic systems to a sanitary sewer.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 3-11: SC-OR WASTEWATER TREATMENT FACILITY REMAINING CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWTP capacity projections should include a scenario that evaluates the potential for substantial new connections resulting from the conversion of septic systems to sanitary sewer services. Until such an analysis is considered, current capacity projections cannot be considered definitive and planned capacity improvements may not be adequate to address all potential sewer service needs.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 3-12: SC-OR CAPITAL IMPROVEMENT PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC-OR has prepared a five-phase, $56 million (in 2009 dollars) capital improvement plan that has identified the necessary capacity improvements to the SC-OR wastewater treatment plant and other SC-OR infrastructure needed to meet future wastewater treatment demands. The identified improvements also include capacity improvements to SC-OR’s Main Interceptor and West Interceptor sewer trunk lines.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 3-13: SC-OR EDU PROJECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future capacity improvements and funding for SC-OR infrastructure are based upon population growth estimates provided by each of the SC-OR member entities and indicate a need to have treatment capacity for approximately 32,179 EDUs by 2030. However, the population growth rates utilized for EDU projections are far higher (from 1.7 to 6.4%) than historical averages (1%) and are not expected to be attained in the near term. Use of the inflated population estimates may result in the SC-OR EDU projections being too high, which effects the timing of the proposed capacity improvements to SC-OR infrastructure and the amount of the SC-OR regional facility charge. To ensure that the EDU projections are accurate, and to ensure that the necessary funds are being accumulated for capacity improvements, SC-OR should prepare new EDU projections based on more realistic population growth estimates and adjust their regional facility charge accordingly.</td>
</tr>
</tbody>
</table>
DETERMINATION 3-14: FUTURE REGULATORY REQUIREMENTS

In the coming years, SC-OR may face new regulatory requirements, such as a reduction in ammonia in the WWTF effluent, cessation of the use of chlorine, and reduction in odors, all of which may require substantial and costly improvements to their wastewater treatment facility and are not currently evaluated in the SC-OR Master Planning and Financial Assistance Study. The costs for these improvements are anticipated to be significant and will be borne by the SC-OR ratepayers, resulting in higher monthly sewer service and regional facility charges.

Until the requirements of the new permit are issued in 2010, the future of the SC-OR WWTF and its capacity are very uncertain. Therefore, this portion of the MSR will need to be updated after the Regional Board has issued the WWTF’s next NPDES permit, when the regulatory requirements and their impact on the WWTF are clearer.

DETERMINATION 3-15: FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES

SC-OR’s primary source of revenue is monthly service fees and regional facility charges, with additional revenue from septage disposal and earned interest. It would be beneficial to SC-OR to provide a unified point of authorization and accounting for new connections and fees paid rather than relying on the current pass-through system from its member agencies.

DETERMINATION 3-16: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

Current monthly sewer service fees and regional facility charges, combined with income from other sources, are adequate to cover the current costs of providing services; however, SC-OR should continue to review and revise their monthly sewer service fee and regional facility charge to recover operational and maintenance costs and to build capital reserves.

DETERMINATION 3-17: OPPORTUNITIES FOR SHARED FACILITIES

While SC-OR appears to utilize internal cost avoidance opportunities, facilities sharing efforts are not actively pursued. SC-OR and the SC-OR member entities should consider establishing a program to 1) share equipment, materials, personnel, expertise, and training and 2) consider purchasing supplies and materials in bulk.

DETERMINATION 3-18: GOVERNMENTAL STRUCTURE

SC-OR is governed by representatives appointed from its member entities and holds meetings which are open and accessible to the public. SC-OR maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements. SC-OR’s service area is tied directly to those of its member entities and will thus be directly affected by any changes involving expansion or reorganization.
<table>
<thead>
<tr>
<th>DETERMINATION 3-19: MANAGEMENT EFFICIENCIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC-OR operates with minimal staff, and contracts for some services such as engineering consulting and legal services. The overall management structure of SC-OR is sufficient to account for necessary services and to maintain operations in an efficient and effective manner. SC-OR is adequately staffed at this time but additional staff should be added as wastewater treatment capacity increases.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 3-20: WEBPAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC-OR should develop a website that can be used to provide public information, which could include the posting of SC-OR Board of Commissioners meeting notices/agendas, meeting minutes, staff reports and memorandums, fees, and I&amp;I information.</td>
</tr>
</tbody>
</table>
4.0 – CITY OF OROVILLE

AGENCY OVERVIEW

The City of Oroville (City) provides sanitary sewer collection and conveyance services for the incorporated areas of the City of Oroville (see Figure 4-1). The City collects wastewater from its residents and conveys it to Sewerage Commission-Oroville Region (SC-OR) facilities for treatment and disposal. The City’s sewer system is considered to be a “satellite collection system” to SC-OR.

The City provides service to approximately 14,639 people. Currently, the City has approximately 4,300 sewer connections, which totals 7,889 equivalent dwelling units (EDUs) worth of wastewater volume based on dry weather flows. Customers include single and multiple family residences, a variety of commercial and industrial uses, and public facilities including schools and recreational facilities.

<table>
<thead>
<tr>
<th>City Size:</th>
<th>8,046 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009 Estimated Population Served:</td>
<td>14,639</td>
</tr>
<tr>
<td>Office Location:</td>
<td>1735 Montgomery Street, Oroville, CA</td>
</tr>
<tr>
<td>Services:</td>
<td>Full municipal service provider, including wastewater collection and conveyance</td>
</tr>
<tr>
<td>Employees:</td>
<td>107 full time (all City employees, not just those related to wastewater collection)</td>
</tr>
<tr>
<td>Date of Formation:</td>
<td>January 3, 1906</td>
</tr>
<tr>
<td>Enabling Legislation:</td>
<td>Charter City</td>
</tr>
</tbody>
</table>

PRESENT AND PLANNED CAPACITY OF PUBLIC FACILITIES AND ADEQUACY OF PUBLIC SERVICES, INCLUDING INFRASTRUCTURE NEEDS OR DEFICIENCIES

GENERAL

The City of Oroville was incorporated on January 3, 1906. The City is a Charter City, and therefore operates in accordance with its own charter. Although Oroville is not governed according to State statutes, as general law cities are, Oroville’s City Charter states that “General laws of the state applicable to municipal corporations now or hereafter enacted, and which are not in conflict with the provisions of this Charter, or with ordinances hereafter enacted, shall be applicable the City of Oroville.”

The City of Oroville owns and operates a sanitary sewer collection and conveyance system that serves primarily the incorporated area of the City of Oroville. The City has approximately 4,300 sewer connections, representing 7,889 equivalent dwelling units, and serves approximately 14,639 people. The City provides sewer service to parcels within the City limits and to a few parcels outside of the City limits under sewer service agreements. Portions of the City are within the boundaries of the Thermalito Water and Sewer District (TWSD) and the Lake Oroville Area Public Utility District (LOAPUD), and wastewater from those City areas is collected and conveyed by TWSD and LOAPUD to SC-OR facilities. Additionally, wastewater collected by the City from the Oroville Municipal Airport and in the north part of the City east of the Feather River is conveyed by TWSD sewer mains to SC-OR facilities.
The City’s administrative offices are located at 1735 Montgomery Street in the City of Oroville. The City has a corporation yard at 1275 Mitchell Street in Oroville.

SANITARY SEWER SYSTEM INFRASTRUCTURE

The City’s collection system consists of approximately 66 miles of pipe, which range in size from 4 to 36 inches, with approximately 1,350 manholes and seven pump stations. Figure 4-2 shows the location of the City’s sewer system facilities. As shown in Table 4-1 the City’s collection system was built gradually over time, with portions of the system more than 100 years old.

<table>
<thead>
<tr>
<th>Date of Construction</th>
<th>Percentage of System</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-present</td>
<td>5%</td>
</tr>
<tr>
<td>1980-1999</td>
<td>15%</td>
</tr>
<tr>
<td>1960-1979</td>
<td>30%</td>
</tr>
<tr>
<td>1940-1959</td>
<td>25%</td>
</tr>
<tr>
<td>1920-1939</td>
<td>15%</td>
</tr>
<tr>
<td>1900-1919</td>
<td>10%</td>
</tr>
<tr>
<td>Before 1900</td>
<td>0%</td>
</tr>
</tbody>
</table>

The pipelines in City’s collection system consist of several different materials. Most of the older pipe in the system is vitrified clay pipe, while the newer pipe is constructed almost exclusively with PVC. Other materials in the collection system include steel, ductile iron, asbestos-cement, and concrete.

The City’s sewer system is predominately a gravity flow system, although the City’s system includes seven pump stations and 2.2 miles of force mains to move wastewater. Gravity collection systems are designed to use as few pumps as possible by taking advantage, to the extent possible, of the natural lay of the land. Table 4-2 provides data on the City’s sewer system.

<table>
<thead>
<tr>
<th>City of Oroville Sewer System Data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of forced mains</td>
<td>2.2 miles</td>
</tr>
<tr>
<td>Length of gravity sewers</td>
<td>66.3 miles</td>
</tr>
<tr>
<td>Number of manholes</td>
<td>1,350</td>
</tr>
<tr>
<td>Number of pump stations</td>
<td>7</td>
</tr>
<tr>
<td>Number of service laterals (Estimated)</td>
<td>4,300</td>
</tr>
<tr>
<td>Length of service laterals</td>
<td>50 miles</td>
</tr>
<tr>
<td>Number of Equivalent Dwelling Units</td>
<td>7,889</td>
</tr>
</tbody>
</table>
City of Oroville Collection System Facilities Map
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The City has three major trunk sewer lines that are tributary to the SC-OR interceptors or the SC-OR WWTF:

- Downtown Trunk Sewer, which conveys wastewater from the downtown area and the northern portion of the City.
- Oroville Dam Boulevard Trunk Sewer, which conveys wastewater from the eastern portions of the City.
- 5th Avenue Interceptor, which begins where the Downtown and Oroville Dam Boulevard trunk sewers end and connects to SC-OR’s Main Interceptor at Cal-Oak Road.

The City currently operates and maintains seven wastewater pump stations. These pump stations are located on the fringes of the City’s collection system and are therefore relatively small.

Wastewater collected by the City of Oroville discharges into SC-OR's Main Interceptor sewer trunk line located on South 5th Avenue, just north of the SC-OR wastewater treatment facility (WWTF). The Main Interceptor also conveys wastewater from TWSD and LOAPUD collection systems. Wastewater conveyed by SC-OR’s Main Interceptor flows into SC-OR’s WWTF for treatment and disposal.

Approximately 4,300 private sewer laterals are connected to the City’s sewer system. Sewer laterals are the small diameter sewer lines that extend from the customer’s dwelling or business to the City’s sewer lines, which are normally located in the adjacent street. The City of Oroville does not maintain the sewer laterals, which are the responsibility of the landowner. Sewer laterals are not typically maintained until a blockage occurs, which is usually caused by roots intruding into the lateral.

The portion of the City’s sewer system over 100 years old is generally in fair to poor condition except for those lines that have been rehabilitated. The portion of the system that is over 55 years old is generally adequate with some problems. The remainder of the system is generally in good condition.

The City inspects anywhere from 0.5 to 4.0 miles (0.6 to 5.5%) of their sewer system per year. According to the City, the rate of inspection is expected to increase significantly as a result of the purchase of a new closed-circuit television van in the 2009. The City cleans about 3.5 miles of problem sewer pipes on either a bi-monthly or a monthly basis. The number of lines to be cleaned in the future is expected to increase as increases in sewer rates will allow the City to hire additional maintenance staff. In 2008, the City ordered a new trailer-mounted sanitary sewer flexible rodder system (right), which will give the City enhanced sewer system cleaning capabilities.
Delivery of the new flex-rodder to the City is expected by the end of September 2009.

Since 1996, the City has completed three major sewer pipe rehabilitation projects:

- 1996 – Reline 2.5 miles of sanitary sewer pipe ($386,250; $154,500/mile)
- 1999 – Reline 1.2 miles of sanitary sewer pipe ($190,000; $158,000/mile)
- 2003 – Reline 1.9 miles of sanitary sewer pipe ($530,00; $279,000/mile)

According to the City, there are no plans to expand their sewer system significantly at this time. The recent slowdown in the market for new housing has resulted in a decrease for new residential development, which historically has driven the need for sewer system expansion or capacity increases. Improvements required due to lack of capacity are typically driven by larger developments and the developers may be required to increase capacity downstream to accommodate the increase in wastewater flows. If extension or modification of the City’s sanitary sewer facilities is required to provide service to new development, the landowner is assigned wastewater collection conditions of approval for the project that outline the terms and conditions of extensions and/or modifications to the City’s sewer system to be made at the landowner’s expense.

DETERMINATION 4-1: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

| The City’s sanitary sewer system has been built gradually over time, with some small portions of the system being more than 100 years old and in need of repair or replacement. |

DETERMINATION 4-2: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

| In recent years, using old camera technology, the City has televised 0.5 to 4.0 miles (0.6 to 5.5%) of their sewer system per year, which is not sufficient to assess the overall physical condition of the system, find blockages, identify I&I, and comprehensively rehabilitate the system. |
| The City is credited with purchasing a new closed-circuit television unit, which will increase their inspection rate and will compliment a recently ordered trailer-mounted sanitary sewer flexible rodder system, which will offer enhanced sewer system cleaning capabilities. |

SANITARY SEWER SYSTEM DEFICIENCIES

According to the City, portions of their sewer system are hydraulically undersized for wet weather flows and some pipes have physically deteriorated to a point where wastewater conveyance is impaired by on-going root intrusion. Figure 4-3 shows the types of existing sewer system deficiencies that have been identified by the City.1

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1 Oroville City Council Staff Report re Annual Sanitary Sewer Service Rate Increases, dated August 4, 2009

Adopted November 5, 2009 Municipal Service Review Page 4-10 Wastewater Service Providers – Oroville Region
According to the City, revenue limitations related to insufficient rate increases have resulted in the deferring of comprehensive sewer system rehabilitation over the last 20 years. Defective pipes, pipe joints and laterals are causing advanced root intrusion, which puts the City at risk for SSO’s. Delaying rehabilitation of the City’s sewer system will increase I&I, root intrusion, and the frequency and severity of SSO’s along with the associated costs of damages. Additionally, increased SSO frequency and/or severity of SSOs could result in penalties being levied by the Regional Water Quality Control Board. The lack of sufficient funding for City sewer system operations has resulted in the following deficiencies:

- Sewer system cannot be cleaned as often as required
- Smoke testing cannot be conducted as often as required
- Cannot keep up with root treatment
- No resources to conduct I&I source investigations
- Limited funding for annual pipe rehabilitation
- Obsolete equipment for maintenance crews

At the April 7 and August 4, 2009, Oroville City Council meetings, City Public Works staff gave presentations on the current state of City’s sewer system. Staff reported that due to the City’s existing sewer fund budget deficiencies, the City’s sewer system could not be cleaned as often as required, as well as undergoing smoke testing and root treatment. According to city staff, the City has no resources to conduct I&I source investigations and has limited funding available for annual pipe rehabilitation. At the August 4 meeting, staff recommended that the Council adopt...
an increase in the monthly sewer service rate for the 2009/2010 fiscal year. In addition, staff presented to the Council the need to increase the monthly sewer rates annually for an additional seven consecutive years (FY 2010/2011 through 2016/2017) so that sufficient funding can be raised to rehabilitate the City sewer system. The fee increases are discussed further in Section 4.2.7 of this Chapter.

<table>
<thead>
<tr>
<th>DETERMINATION 4-3: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Historically, the City’s sewer system has not been efficiently maintained, which has resulted in increased system deterioration and unacceptable levels of I&amp;I that has increased over time. In order to correct this historical maintenance deficit, the City recently initiated a program to address the deferred maintenance. Until such time rehabilitation is substantially implemented, impacts of new development on the SCOR WWTF should be curtailed.</strong></td>
</tr>
</tbody>
</table>

**CITY OF OROVILLE SEWAGE DISPOSAL MASTER PLAN UPDATE**

The City of Oroville is in the process of preparing a Sewage Disposal Master Plan Update, which is currently in draft form but is expected to be adopted by the City Council in the fourth quarter of 2009. The Sewage Disposal Master Plan Update will do the following:

- Evaluate the capacity of the existing sanitary sewer collection system using dry and wet weather flows.
- Evaluate the City's sanitary sewer operation and maintenance activities.
- Develop a capital improvement program that provides the City with a reliable plan to mitigate existing system deficiencies and expand the wastewater collection system in an orderly manner to service future customers.
- Determine the revenue and rates necessary to finance the capital improvement program.
- Include preparation of a Sewer System Management Plan (SSMP) conforming to the requirements of the State Water Resources Control Board (SWRCB).

With the Sewage Disposal Master Plan Update the City will be able to identify the areas of their sewer system that require a capital improvement program (CIP) and identify CIP funding. With the SSMP, the City will also be able to plan the elements of a long-term I&I reduction and system rehabilitation program. Subject to approval of the needed revenue increases to fund this work, the City plans on initiating significant I&I reduction and system rehabilitation effort, including the possible development of a private lateral program designed to address the lack of maintenance associated with private laterals.
The capital improvement program found in the Draft Sewage Disposal Master Plan Update has identified thirty-four sewer system projects that have a total estimated cost of $34.7 to $37.4 million. These projects, which are listed in Figure 4-4, were identified based on two factors: (1) existing wet weather capacity deficiencies for a 10-year design storm, and (2) existence of conveyance capacity to accommodate future growth to buildout. The result of the prioritization was to group the thirty-four projects into three CIP elements. The three project elements are as follows:

- **Element 1 Projects -** Improvements to the existing collection system with existing wet weather capacity deficiencies (7 projects). The costs associated with Element 1 projects are the responsibility of existing users, to be covered by monthly sewer rates.
- **Element 2 Projects -** Improvements to the existing collection system to accommodate future growth (7 projects). The costs associated with Element 2 projects are to be shared between existing and future users, since new users will benefit from the augmented capacity, while existing users benefit from the renewed improvement lifespan.
- **Element 3 Projects -** Improvements that expand the existing collection system to service future growth areas (20 projects). Element 3 projects will be development driven and will be initially funded and constructed by the owners of the development projects. Impact/connection fees will be collected from individual homeowners desiring to connect to the collections system. These impact/connection fees can then be used to reimburse the developer for a portion of the cost of construction.

Projects were further categorized to determine their implementation schedule. Project phasing was determined based on (1) improvement need and (2) projected city growth. Element 1 projects, which are those that have existing deficiencies, are scheduled for completion by Year 2013. The remaining projects would be constructed in the following years, with implementation based on the project’s location in high, medium, or low growth areas. Projects in the CIP include pipeline conveyance improvements for existing deficiencies that would replace approximately 37,500 feet of pipeline ranging in size from 8 inches to 24 inches. To accommodate future growth, ten new pump stations and approximately 25,389 feet of new 4-inch to 18-inch forcemain and 65,595 feet of 6-inch to 30-inch gravity pipeline would be needed as backbone facilities to accommodate future growth.
Figure 4-4. City of Oroville DRAFT Sewer System Capital Improvement Projects

Table 7.2 Project List and Cost Summary
Sewage Disposal Master Plan
City of Oroville

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Project Name</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>Oroville Dam Boulevard Relief Sewer</td>
<td>$3,260,000</td>
</tr>
<tr>
<td>1B</td>
<td>Stanford Avenue Sewer</td>
<td>$357,000</td>
</tr>
<tr>
<td>1C</td>
<td>Grace Baptist Church</td>
<td>$45,000</td>
</tr>
<tr>
<td>1D</td>
<td>Montgomery Street Sewer</td>
<td>$645,000</td>
</tr>
<tr>
<td>1E</td>
<td>Table Mountain Boulevard Sewer I</td>
<td>$56,000</td>
</tr>
<tr>
<td>1F</td>
<td>Table Mountain Boulevard Sewer II</td>
<td>$839,000</td>
</tr>
<tr>
<td>1H</td>
<td>Ruddy Creek Pump Station Upgrade I</td>
<td>$581,000</td>
</tr>
<tr>
<td>2B</td>
<td>TID East Interceptor</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>2C</td>
<td>Grand Avenue Sewer</td>
<td>$192,000</td>
</tr>
<tr>
<td>2D</td>
<td>Downtown Sewer</td>
<td>$2,078,000</td>
</tr>
<tr>
<td>2E</td>
<td>Table Mountain Boulevard Sewer III</td>
<td>$178,000</td>
</tr>
<tr>
<td>2G</td>
<td>5th Avenue Sewer</td>
<td>$1,517,000</td>
</tr>
<tr>
<td>2H</td>
<td>Airport Lift Station Upgrade</td>
<td>$238,000</td>
</tr>
<tr>
<td>2I</td>
<td>Feather River Blvd Sewer</td>
<td>$228,000</td>
</tr>
<tr>
<td>3A</td>
<td>New Georgia Pacific Lift Station</td>
<td>$2,569,000</td>
</tr>
<tr>
<td>3B</td>
<td>Oroville Industrial Park Sewer</td>
<td>$873,000</td>
</tr>
<tr>
<td>3C</td>
<td>Messina Pump Station and Pipeline Expansion</td>
<td>$3,692,000</td>
</tr>
<tr>
<td>3D</td>
<td>Rood-Oro Pump Station and Pacific Heights Road Improvements</td>
<td>$954,000</td>
</tr>
<tr>
<td>3E</td>
<td>Olive Highway Expansion I</td>
<td>$2,722,000</td>
</tr>
<tr>
<td>3F</td>
<td>Ward Pump Station and Pipeline Expansion</td>
<td>$693,000</td>
</tr>
<tr>
<td>3G</td>
<td>Olive Highway Expansion II</td>
<td>$568,000</td>
</tr>
<tr>
<td>3H</td>
<td>Skyline Pump Station and Pipeline Expansion</td>
<td>$264,000</td>
</tr>
<tr>
<td>3I</td>
<td>Canyon Pump Station and Pipeline Expansion</td>
<td>$312,000</td>
</tr>
<tr>
<td>3J</td>
<td>Olive Highway Expansion III</td>
<td>$240,000</td>
</tr>
<tr>
<td>3K</td>
<td>Heritage Oaks Pump Station and Pipeline Expansion</td>
<td>$951,000</td>
</tr>
<tr>
<td>3L</td>
<td>Oroville Quinoy Highway Expansion</td>
<td>$1,063,000</td>
</tr>
<tr>
<td>3M</td>
<td>Dry Creek Pump Station and Pipeline Expansion</td>
<td>$837,000</td>
</tr>
<tr>
<td>3N</td>
<td>Zephyr Way Expansion</td>
<td>$935,000</td>
</tr>
<tr>
<td>3O</td>
<td>Orange Avenue Sewer</td>
<td>$1,107,000</td>
</tr>
<tr>
<td>3P</td>
<td>Lakeland Pump Station and Pipeline Expansion</td>
<td>$1,110,000</td>
</tr>
<tr>
<td>3Q</td>
<td>Larkin Road Bypass Sewer</td>
<td>$326,000</td>
</tr>
<tr>
<td>3R</td>
<td>West Oroville Dam Boulevard Expansion</td>
<td>$774,000</td>
</tr>
<tr>
<td>3S</td>
<td>Ruddy Creek Pump Station Upgrade II</td>
<td>$3,484,000</td>
</tr>
<tr>
<td>3T</td>
<td>Martin Ranch Pump Station And Force Main</td>
<td>$894,000</td>
</tr>
</tbody>
</table>

Total 3rd $41,716,000

<table>
<thead>
<tr>
<th>Alternative</th>
<th></th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A-Alt</td>
<td>Mitchell Avenue Sewer</td>
<td>$1,484,000</td>
</tr>
<tr>
<td>2A-Alt</td>
<td>Mitchell Avenue Sewer II</td>
<td>$2,590,000</td>
</tr>
<tr>
<td>3B-Alt</td>
<td>East Georgia Pacific LS and Pipeline</td>
<td>$2,743,000</td>
</tr>
</tbody>
</table>

Alternate Total $4,926,000

Note:
1. Project 1A Alt together with Project 2A Alt may be selected in lieu of this project.
2. Projects 1G (Riverview PS Upgrade) and 2F (Olive Glen PS Upgrade) have been removed from the CIP due to sufficient capacity upon review.
DETERMINATION 4-4: CITY OF OROVILLE SEWAGE DISPOSAL MASTER PLAN UPDATE

The City’s Draft Sewage Disposal Master Plan Update describes sanitary sewer system design storm hydraulic deficiencies, contains a capital improvement program for improvements, and determines the revenue and rates necessary to finance identified improvements. The Plan identifies thirty-four projects needed to 1) increase the capacity of those sewer pipes that are capacity deficient for the 10-year design storm event, and 2) accommodate future growth.

The City should adopt the Draft Sewage Disposal Master Plan Update and all necessary funding needs as soon as possible so that improvements identified in the Plan can begin to be implemented.

SANITARY SEWER OVERFLOWS

The City has experienced nine sanitary sewer overflows (SSOs) in the last three years. A sanitary sewer overflow is any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system. A sanitary sewer system is any system of pipes, pump stations, sewer lines, or other conveyances, which is owned or operated by a public entity, used to collect and convey wastewater to a treatment facility. SSOs do not include overflows from privately-owned service laterals when these overflows are caused by blockages or other problems within the privately-owned lateral. These overflows are known as private lateral sewage discharges. SSOs do include overflows from privately-owned laterals when the cause is a problem within the publicly-owned sanitary sewer system.

The State Water Resources Control Board (SWRCB) maintains an online database, the California Integrated Water Quality System (CIWQS), where permit violations and SSOs are reported. Mandatory SSO reporting for SC-OR and the SC-OR member entities began on May 2, 2007. The CIWQS webpage confirms that the City has had nine reported sanitary sewer overflows since SSO reporting began. Details of the SSOs are as follows:

Table 4-3. City of Oroville Reported Sanitary Sewer Overflows

<table>
<thead>
<tr>
<th>Incident Date</th>
<th>SSO Event ID</th>
<th>SSO Type</th>
<th>SSO Estimated Volume (gal)</th>
<th>SSO Estimated Volume Recovered</th>
<th>SSO Destination</th>
<th>Cause of SSO</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-24-07</td>
<td>710392</td>
<td>1</td>
<td>100</td>
<td>0</td>
<td>Unnamed waterway</td>
<td>Blockage/Roots</td>
</tr>
<tr>
<td>2-4-08</td>
<td>712827</td>
<td>2</td>
<td>50</td>
<td>0</td>
<td>Street/Curb &amp; Gutter</td>
<td>Blockage/Roots</td>
</tr>
<tr>
<td>3-26-08</td>
<td>715658</td>
<td>2</td>
<td>200</td>
<td>200</td>
<td>Residence</td>
<td>Blockage/Roots</td>
</tr>
<tr>
<td>4-2-08</td>
<td>716118</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>Residence</td>
<td>Blockage/Roots</td>
</tr>
<tr>
<td>5-18-08</td>
<td>717647</td>
<td>2</td>
<td>200</td>
<td>0</td>
<td>Yard/Land</td>
<td>Vandalism</td>
</tr>
<tr>
<td>7-30-08</td>
<td>725111</td>
<td>2</td>
<td>20</td>
<td>20</td>
<td>Street/Curb &amp; Gutter</td>
<td>Blockage/Grease</td>
</tr>
</tbody>
</table>

2 http://www.waterboards.ca.gov/water_issues/programs/ciwqs/chc_sso.shtml
3 SSO Category 1 – All discharges of sewage resulting from a failure in an Enrollee’s sanitary sewer system that: A. Equal or exceed 1,000 gallons; or B. Result in a discharge to a drainage channel and/or surface water; or C. Discharge to a storm drainpipe that was not fully captured and returned to the sanitary sewer system. SSO Category 2 – All discharges of sewage resulting from a failure in an Enrollee’s sanitary sewer system not meeting the definition of Category 1.
In addition to the above reported SSOs, the City has had numerous damage claims made against them due to sewer blockages/backups in the City’s sewer system. Since 2004, 17 claims for damages, which totaled $234,100, were made against, and paid by, the City.

Sanitary Sewer Management Plan (SSMP)

The State Regional Water Quality Control Board requires that all wastewater treatment and conveyance agencies prepare and adopt a Sanitary Sewer Management Plan (SSMP). A SSMP is a comprehensive plan which includes provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Additionally, a SSMP must contain a spill response plan that establishes standard procedures for immediate response to a SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.

The SSMP documents an agency’s program to properly operate and maintain its sanitary sewer system. Each SSMP should address the following elements:

1) Goals
2) Organization
3) Legal Authority
4) Operation and Maintenance Program
6) Overflow Emergency Response Plan
7) Fats, Oils, and Grease (FOG) Control Program
8) System Evaluation and Capacity Assurance Plan
9) Monitoring, Measurement, and Program Modifications
10) SSMP Program Audits
11) Communication Program.

Agencies are required to certify that the final SSMP and its constituent subparts are in compliance with the Sanitary Sewer Order (Water Quality Order No. 2006-0003) within the required time frames. Agencies are also required to obtain their governing board’s approval of the SSMP Development Plan and Schedule, and final SSMP at a public hearing prior to certification of the SSMP as complete and in compliance.

The City’s SSMP will include an evaluation of the City’s sewer collection system and identify sections of sewer pipe that need repair, rehabilitation, or replacement.

Based upon the population of the City of Oroville, the City was required to adopt all of the SSMP elements by August 2, 2009. The City was not able to meet the August 2, 2009 deadline for final adoption of the SSMP, however, all of the eleven SSMP elements have been completed and are under final review by staff. The City expects final adoption of their SSMP by the end of October 2009, prior to adoption of the City’s Sewage Disposal Master Plan Update. The City’s...
SSMP adoption status has been reported to and accepted by the State Water Resources Control Board.

**DETERMINATION 4-5: SANITARY SEWER OVERFLOWS**

The City has had nine reportable sanitary sewer overflows in the last three years and has paid 17 claims for damages since 2004 due to sewer blockages/backups in the City’s sewer system totaling $234,100. This number of SSOs, claims, and paid damages are an indication that the City has not been able to adequately maintain their sewer system and the system is in need of an expanded inspection and cleaning program. The City has made system maintenance and rehabilitation a priority as evidenced by the passage of a 13% monthly sewer service rate increase in August 2009.

**DETERMINATION 4-6: SANITARY SEWER MANAGEMENT PLAN**

The City has not met the deadline for adoption of its Sanitary Sewer Management Plan, but expects adoption of all the SSMP elements by the fourth quarter of 2009. The City should expedite the adoption of their SSMP and place the SSMP on their webpage for public convenience.

**SEWER COLLECTION AND CONVEYANCE CAPACITIES**

The City collects an average of 694 mg (million gallons) of wastewater annually, with an ADWF (Average Dry Weather Flow) flow of approximately 1.9 mgd (million gallons per day) as reported by SC-OR. The City has a peak wet weather flow (PWWF) range of 6.6 to 10.0 mgd. The primary reason for the significant difference between the ADWF and the PWWF is inflow and infiltration (I&I) into the City’s sewer system. The City reports that the wet weather peak factor for their system ranged from 3.5 to 5.0, which varies depending on the strength of winter storms. For 2008, SC-OR reported that the City highest wet weather peaking factor was 5.5. Table 4-4 below provides information on the City’s sewer system capacities.

<table>
<thead>
<tr>
<th>Table 4-4. 2008 City of Oroville Sewer System Flows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Dry Weather Flow</td>
</tr>
<tr>
<td>Peak Wet Weather Flow Range</td>
</tr>
<tr>
<td>Wet Weather Peaking Factor</td>
</tr>
</tbody>
</table>

The City’s sewer system generally has adequate capacity to handle existing dry weather wastewater flows, although blockages in the pipes from grease buildups and root intrusion have resulted in numerous sanitary sewer overflows and claims for damages.

In 1973, the Thermalito Water and Sewer District (TWSD) and the City of Oroville entered into a Joint Use Facilities Agreement to allow the City to discharge wastewater collected from northeast areas within the City into TWSD facilities for ultimate conveyance to SC-OR facilities.
for treatment and disposal. The Joint Use Facilities agreement allocates 0.74 mgd of capacity on the East Trunk Line and 0.2 mgd of capacity on the Airport Collector Trunk Line to the City of Oroville. The City collects sewage east of 5th & Grand Avenues and north of the Feather River and discharges it to TWSD’s East Trunk Line at the 5th & Grand Avenues metering station, while wastewater from the City’s airport complex is discharged into the TWSD’s Airport Collector trunk line. Figure 4-5 shows the location of TWSD’s East Trunk Line.

**Figure 4-5. TWSD East Trunk Line**

The East Trunk Line has an average dry weather flow of 0.36 mgd, and has adequate capacity during the dry seasons of the year. TWSD prepared a planning level hydraulic study of the East Trunk Line, which shows that the line is at hydraulic capacity during peak wet weather flows. The study showed that the East Trunk Line has an estimated hydraulic capacity of 1.57 mgd but has a peak wet weather flow of 1.93 mgd, which equates to 123% capacity of the line. However,

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4 Contract between Thermalito Irrigation District and City of Oroville for Payment of $80,000 to Thermalito Irrigation District Upon Certain Conditions. (December 17, 1973).

5 Draft TID Sanitary Sewer System Conveyance Study
the City’s Draft Sewage Disposal Master Plan Update shows that this line has a peak wet weather flow of 1.41 mgd based on computer modeling of a 10-year design storm, which equates to 90% capacity. The City and TWSD are currently evaluating this capacity issue and both agencies agree that the East Interceptor is impacted. Until such time as a resolution of this issue is reached and capacity increased, both agencies should limit new connections that would flow into the East Interceptor.

The Capital Improvement Program contained in the City’s Draft Sewage Disposal Master Plan shows that capacity improvements are proposed to TWSD’s East Trunk Line, which involves replacing 703 feet of 10-inch pipe with 15-inch pipe and replacing 2,796 feet of 12-inch pipe with 15-inch pipe. However, the City’s proposed improvements are not consistent with TWSD’s design criteria of not allowing any pipe surcharging during wet weather events or their intention to replace and upsize the entire East Trunk Line. The Draft Sewage Disposal Master Plan Update states that the improvements to the TWSD East Trunk are needed to accommodate future growth. It should be noted that the District owns and operates the East Trunk Line and the City cannot unilaterally initiate such improvements or cite their intentions to make such improvements as justification for adding capacity to the line. Improvements would need to be identified by both the City and District in their master plans in order to be considered as justification for future capacity planning.

SC-OR’s Main Interceptor sewer trunk line, which conveys wastewater from all of the SC-OR member entity’s sanitary sewer systems, is very close to reaching its peak hydraulic capacity during wet weather flow. Since the Main Interceptor is owned and operated by SC-OR, the capacity issue on this line is analyzed in the SC-OR section of this MSR (Chapter 3.0) and a determination to address this issue has been recommended. Since the lack of capacity on the Main Interceptor impacts the City of Oroville’s sewer system, the determination regarding capacity on the Main Interceptor is also included in this chapter.

A portion of the wastewater collected from City properties is discharged to SC-OR’s West Interceptor sewer trunk line. According to SC-OR, the West Interceptor already exceeds its hydraulic capacity during peak wet weather flows, which could result in sanitary sewer overflows. Since the West Interceptor is owned and operated by SC-OR, the capacity issue on this line is analyzed in the SC-OR section of this MSR (Chapter 3.0) and a determination to address this issue has been recommended. Since the lack of capacity on the West Interceptor impacts the City of Oroville, the same determination is included in this chapter.

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6 City of Oroville Draft Sewage Disposal Master Plan, October 2008
7 SC-OR Master Planning and Financial Assistance Study, February 2009
8 SC-OR Master Planning and Financial Assistance Study, February 2009
DETERMINATION 4-7: SANITARY SEWER SYSTEM FLOWS

The City of Oroville has an average dry weather flow of 1.9 mgd for which the City’s collection system has adequate capacity to handle, although blockages in the pipes from grease buildups and root intrusion has resulted in numerous sanitary sewer overflows. The City’s sewer system is aging and has not been inspected, cleaned, and repaired consistently over the years. The City has recently developed a comprehensive approach to rate increases, increased staffing and other measures that should help rehabilitate the collection system and reduce I&I and SSO’s in future years.

DETERMINATION 4-8: TWSD EAST TRUNK LINE CAPACITY

The Thermalito Water and Sewer District (TWSD) reports that their East Trunk Line is currently at 123% capacity during peak wet weather flow. The City of Oroville and TWSD both agree that this sewer line is capacity limited. Both of these agencies should limit the number of new connections that would flow through the East Trunk Line until the wet weather flow capacity issue is resolved.

DETERMINATION 4-9: SC-OR MAIN INTERCEPTOR SEWER TRUNK LINE CAPACITY

Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF.

DETERMINATION 4-10: SC-OR WEST INTERCEPTOR SEWER TRUNK LINE CAPACITY

The SC-OR West Interceptor trunk sewer line (which serves TWSD’s sanitary sewer system and a portion of the City of Oroville’s wastewater flows) is currently operating above 100% hydraulic capacity during the peak wet weather flow and has been identified by SC-OR for capacity improvements in its Capital Improvement Program.

With a reduction in I&I flowing into the West Interceptor due to TWSD’s I&I reduction program, and due to SC-OR’s recently-adopted developer agreement, which requires impact mitigation, SC-OR anticipates that the West Interceptor will operate below its design capacity. Until such time identified improvements are implemented, this facility should be considered at capacity.
INFLOW AND INFILTRATION (I&I)

During wet weather conditions a large amount of I&I enters the City’s sewer system, which, when combined with the wet weather flows from TWSD’s and LOAPUD’s sewer systems, has a significant impact on the SC-OR wastewater treatment facility (WWTF) as the WWTF must treat and dispose of the excess flows. The City’s average dry weather flow is 1.9 mgd, but the City’s wet weather flow ranges from 6.6–10.0 mgd, varying depending on the strength of winter storms. SC-OR states that the City’s highest wet weather peaking factor in 2008 was 5.5, indicating that large and excessive amounts of stormwater runoff and/or groundwater are entering the City’s collection system during occasional peak storm events. A wet weather peaking factor of 4.0 to 5.0 is considered to be acceptable for a sanitary sewer system provided it does not exceed the hydraulic capacity of the facility, which could result in a SSO, for which the City has reported since 2007.

A comprehensive I&I study was prepared by SC-OR for the benefit of the City and LOAPUD in 1982. This study identified a number of areas within the City with relatively high I&I ranging from 10,000 to 19,000 gallons per day per inch diameter per mile of sewer (GPD/IDM). The study further estimated that approximately 93% of I&I entered in approximately 59% of the sewer system.

The City rehabilitated some of the lines that were identified as having high I&I flows. Since 1996, the City has completed three major sewer pipe rehabilitation projects that resulted in the relining of 5.6 miles of sanitary sewer pipe at a cost of $1.1 million. According to the City there was no noticeable reduction in I&I as a result of these projects.

As part of the City’s Draft Sewage Disposal Master Plan Update, wet weather flow monitoring was conducted for three months (February to April 2007). The 2007 flow monitoring study showed, on average, about 3 million gallons of maximum daily I&I was conveyed to the SC-OR WWTF during each of two storm events. Peaking factors for flows monitored within the eleven City-designated wastewater basins ranged from 2.5 to 7.1 and the overall system average peaking factors were 3.6 to 4.9.

The City has estimated the amount of I&I that is entering their sewer system by storm type, which is shown in Table 4-4. The gallons of I&I per pipe mile includes I&I originating from the sewer private laterals connected to the City’s sewer system. According to the City, the actual number of gallons of I&I directly entering City pipes may be 40-50% less than is shown in Table 4-5.

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9 Draft City of Oroville Sewage Disposal Master Plan, October 2008
10 Rainfall intensities that occurred during the flow monitoring period equated to an approximate 2-year reoccurrence interval storm event.
The City of Oroville prepared a chart that shows the approximate costs associated with removing I&I from their sewer system, which is provided in Table 4-6. The City estimates that it costs approximately $4.40 to remove one gallon of I&I. As the amount of I&I is reduced the peaking factor is also reduced. However, as the peaking factor is reduced a larger amount of I&I must be removed to have the same reduction in peaking factor. As an example, to lower the peaking factor from 7.0 to 6.0 requires the removal of 300,000 gallons of I&I, but to lower the peaking factor from 4.5 to 4.0 requires removing 600,000 gallons of I&I. At some point it may not be economically feasible to continue to find and remove I&I due to the higher costs associated with further reductions in I&I from a sewer system.

Table 4-6. I&I and Peaking Factor Reduction Costs

<table>
<thead>
<tr>
<th>Peaking Factor From</th>
<th>Peaking Factor To</th>
<th>Gallons I&amp;I Removed</th>
<th>I&amp;I Removal Cost</th>
<th>Cumulative Cost</th>
<th>Cost per Gallon I&amp;I Removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5</td>
<td>7.0</td>
<td>300,000</td>
<td>$1.32 Mil</td>
<td>$1.32 Mil</td>
<td>$4.40</td>
</tr>
<tr>
<td>7.0</td>
<td>6.5</td>
<td>300,000</td>
<td>$1.32</td>
<td>$2.64</td>
<td>$4.40</td>
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<tr>
<td>6.5</td>
<td>6.0</td>
<td>400,000</td>
<td>$1.76</td>
<td>$4.40</td>
<td>$4.40</td>
</tr>
<tr>
<td>6.0</td>
<td>5.5</td>
<td>400,000</td>
<td>$1.76</td>
<td>$6.16</td>
<td>$4.40</td>
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<tr>
<td>5.5</td>
<td>5.0</td>
<td>400,000</td>
<td>$1.76</td>
<td>$7.92</td>
<td>$4.40</td>
</tr>
<tr>
<td>5.0</td>
<td>4.5</td>
<td>600,000</td>
<td>$2.64</td>
<td>$10.56</td>
<td>$4.40</td>
</tr>
<tr>
<td>4.5</td>
<td>4.0</td>
<td>600,000</td>
<td>$2.64</td>
<td>$13.20</td>
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</tr>
<tr>
<td>4.0</td>
<td>3.5</td>
<td>800,000</td>
<td>$3.52</td>
<td>$16.72</td>
<td>$4.40</td>
</tr>
<tr>
<td>3.5</td>
<td>3.0</td>
<td>1,000,000</td>
<td>$4.40</td>
<td>$21.12</td>
<td>$4.40</td>
</tr>
</tbody>
</table>

As previously noted, the City of Oroville has stated that they are aware that their sewer system had not been adequately inspected and maintained and is in need of extensive repairs to prevent I&I and sanitary sewer overflows. According to city staff, the City has limited resources to conduct the needed I&I source investigations and has limited funding available for annual pipe rehabilitation. Staff stated that the City’s existing system deficiencies total approximately $14 million including undersized pipes for design storm, deficient pipes, manholes and private laterals.

In order to provide funding for the sewer system improvement projects identified in Oroville’s Draft Sewage Disposal Master Plan, the City of Oroville will need to either significantly increase their sewer service rates or use other general fund resources. The City has historically had low sewage service rates and a survey conducted by the City shows that the City’s rates are

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11 April 7, 2009, and August 4, 2009, City of Oroville City Council Meeting PowerPoint Presentations by Public Works staff

Adopted November 5, 2009
Wastewater Service Providers – Oroville Region
approximately 46% lower than the statewide average. The low sewer service rates have resulted in the City not collecting sufficient funds needed to adequately inspect, clean, and repair their sewer system.

At the August 4, 2009, Oroville City Council meeting, staff recommended that the Council adopt an increase in the monthly sewer service rates for the 2009/2010 fiscal year. In addition, staff presented to Council the need to increase the monthly sewer rates annually for an additional seven consecutive years (FY 2010/2011 through 2016/2017) so that sufficient funding can be obtained to rehabilitate the City sewer system, which would, over time, result in a reduction in I&I flows into the City’s sewer system. The proposed rates are shown in Table 4-7. At the August 4 meeting, the City Council approved an increase in the sewer service fee, which raised the fee from $8.66 a month to $9.79 per month (a 13% increase). By Fiscal Year 2016-17 the monthly sewer service fee is proposed to be $34.68, which is a 322% increase above the recently-approved fee. With the increases in the sewer service rates, the City expects to collect slightly over $2.5 million annually by Fiscal Year 2016-17 with which to manage the entire operations and maintenance of the system. Of the $2.5 million in total revenue estimated for Fiscal Year 2016-2017, approximately $1.0 million would be used for continued annual root treatment, I&I investigations ($300,000) and I&I reduction through pipe lining ($700,000).

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Annual Household Increase</th>
<th>Percent Increase</th>
<th>Monthly From</th>
<th>Monthly To</th>
<th>Annual Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>09 – 10</td>
<td>$13.56</td>
<td>13</td>
<td>$8.66</td>
<td>$9.79</td>
<td>$971,000</td>
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<tr>
<td>10 – 11</td>
<td>$15.24</td>
<td>13</td>
<td>$9.79</td>
<td>$11.06</td>
<td>$1,101,000</td>
</tr>
<tr>
<td>11 – 12</td>
<td>$18.60</td>
<td>14</td>
<td>$11.06</td>
<td>$12.61</td>
<td>$1,206,000</td>
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<tr>
<td>12 – 13</td>
<td>$22.68</td>
<td>15</td>
<td>$12.61</td>
<td>$14.50</td>
<td>$1,462,000</td>
</tr>
<tr>
<td>13 – 14</td>
<td>$27.84</td>
<td>16</td>
<td>$14.50</td>
<td>$16.82</td>
<td>$1,709,000</td>
</tr>
<tr>
<td>14 – 15</td>
<td>$34.32</td>
<td>17</td>
<td>$16.82</td>
<td>$19.68</td>
<td>$1,998,000</td>
</tr>
<tr>
<td>15 - 16</td>
<td>$30.60</td>
<td>13</td>
<td>$19.68</td>
<td>$22.23</td>
<td>$2,256,000</td>
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<td>16 - 17</td>
<td>$34.68</td>
<td>13</td>
<td>$22.23</td>
<td>$25.12</td>
<td>$2,551,000</td>
</tr>
</tbody>
</table>

City staff proposes that the increased sewer charges revenue be used to fund the needed sewer system rehabilitation projects over the next fifteen years. Existing sewer lines that are hydraulically deficient and sensitive to SSOs during a severe storm event are a high priority and are proposed to be upsized within the next three years. City staff also proposes that the $5.8 million needed for these projects be financed through a loan from the Clean Water State Revolving Fund Program (SRF) managed by the State Water Resources Control Board. The increased sewer rates will provide adequate revenue for debt service on an SRF loan. City staff prepared a breakdown of how the increased sewer revenue are projected to be utilized for FY 2013-14, which is found in Table 4-8.

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12 April 7, 2009, and August 4, 2009, City of Oroville City Council Meeting PowerPoint Presentations by Public Works staff
### Table 4-8. Budget Uses FY 2013-14 (at $16.82/EDU)

<table>
<thead>
<tr>
<th>Expenditures</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Allocation to General Fund</td>
<td>$323,000</td>
</tr>
<tr>
<td>Administration/Engineering</td>
<td>$160,000</td>
</tr>
<tr>
<td>Routine Maintenance and Response</td>
<td>$137,000</td>
</tr>
<tr>
<td>Contract Maintenance (Root Treatment)</td>
<td>$112,000</td>
</tr>
<tr>
<td>I&amp;I Investigation and Reduction</td>
<td>$137,000</td>
</tr>
<tr>
<td>Overhead, Supplies &amp; Heavy Equipment</td>
<td>$229,000</td>
</tr>
<tr>
<td>Private Lateral Program ($1.50/Month/Parcel)</td>
<td>$76,000</td>
</tr>
<tr>
<td>Debt Financing ($3.89/Month/EDU)</td>
<td>$365,000</td>
</tr>
<tr>
<td>Annual Budget – Deferred Maintenance</td>
<td>$300,000</td>
</tr>
</tbody>
</table>

The increased rates will also allow for the hiring of two additional field staff to implement new I&I investigation and condition assessment programs. Condition assessment involves the televising and internal inspection of the entire collection system (pipes and manholes). The I&I investigation program will involve the collection of wet weather flow monitoring data within the individual basins of the collection system to quantify where the highest rates of I&I are entering the system. This program would be critical to developing pipe lining projects that could successfully reduce I&I, restore pipe integrity, and reduce the system's future maintenance demand. The balance of the existing deficiencies for non-hydraulically limited pipes and manholes will be addressed through the expenditure of about $300,000 to $500,000 per year over the next fifteen years to line or replace pipes and rehabilitate manholes. The annual project list would be developed through the results of the condition assessment and I&I monitoring programs. With the increased rates, the City projects that 1/3 of their sewer system would be smoke tested, cleaned, and undergo root eradication treatment each year. This would be a significant increase from the City’s existing inspection and cleaning activities, which results in only 0.5 to 4.0 miles (0.6 to 5.5%) of their sewer system being inspected and cleaned each year.

### Sewer Service Laterals

Service laterals are often the largest source of I&I to a system. Taps, joints, and locations of structural damage are common points where I&I may be introduced into a sewer system. According to the City, I&I studies show that as much as 50% of all collection system I&I can originate from privately owned laterals. The primary cause of private lateral sewer blockages is root intrusion. On-going root growth widens the openings in the pipe wall, additionally increasing I&I into the collection system. Roots that break away from the inside of a private lateral may become blocked in the City sewer main causing an SSO that the City is responsible for addressing.

Currently, maintenance of a lateral connected to the City’s sewer system is the responsibility of the landowner. While the City does not have a formal lateral testing program as of yet, the City can detect inflow into private laterals during smoke testing of the City’s lines. The City can also spot a bad connection where a lateral connects to a City line during CCTV inspections. The City
does notify the landowner of any problems detected on the lateral, which the landowner is required to correct. These actions are similar to what both LOAPUD and TWSD are currently implementing.

To help reduce and prevent I&I, sewage service agencies throughout California have implemented sewer lateral testing and repair programs. The purpose of a lateral testing and repair program is to ensure that sewer service laterals are tested, maintained, and repaired or replaced if necessary to help reduce I&I entering a public sanitary sewer system. The Lake Oroville Area Public Utility District (LOAPUD) recently adopted a sewer lateral testing and repair program, which requires testing and repair and replacement if necessary of private sewer laterals and appurtenances. LOAPUD requires testing of a sewer lateral in the following instances:

- Connection of a new structure to the District’s sewer system.
- Remodeling of a house, building or property served by the District.
- Change of use of a house, building or property served, for example, from residential to commercial, or from office and professional to restaurant, or from garage to apartment.
- Upon repair or replacement of all or part of the building or lateral sewer lines.
- Prior to the close of escrow upon the sale of a house, building or property served by the District, or by private transfer of a house, building or property served, unless the house, building or property served has been tested within the previous seven (7) years as evidenced by certificate of passing inspection.
- Where inflow or infiltration is suspected, or if a defect in the lateral sewer is suspected based upon observation by the District.
- Upon determination by the District General Manager that the cleaning and testing is required for the protection of the public health, safety or welfare.

On August 4, 2009, City of Oroville staff gave a presentation to the City Council on lateral testing and repair programs and recommended that the City adopt such program in the near future. City staff estimated that adoption of the program would result in repairs and/or replacement of approximately 25% of the private sewer laterals connected the City’s sewer system over a 15 year period. Staff’s recommendation also included increasing the City’s monthly sewer service rate by $1.50 per lateral to fund a private lateral financial assistance program to help landowners in repairing or replacing their laterals. With the $1.50 monthly charge, approximately $80,000 would be generated each year that would fund about 40 lateral repair or replacement projects each year with corresponding decreases in I&I flows.

<table>
<thead>
<tr>
<th>DETERMINATION 4-11: SANITARY SEWER SYSTEM I&amp;I FLOWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The City of Oroville has an average dry weather flow of 1.91 mgd, peak wet weather flows that on occasion can exceed of 10 mgd, and a peaking factor range of 3.5 – 5.5, which indicate that the City has excessive inflow and infiltration entering their sewer system which requires the development of a long term and comprehensive I&amp;I reduction strategy.</td>
</tr>
</tbody>
</table>
DETERMINATION 4-12: INSPECTION AND MAINTENANCE FOR I&I

The City of Oroville has not been able inspect and clean their sewer system at the necessary frequencies to effectively reduce I&I and SSOs.

DETERMINATION 4-13: SANITARY SEWER SYSTEM INSPECTION AND MAINTENANCE FOR I&I

City staff has recently acknowledged existing deficiencies in the City’s sewer system and is aware that the inspection, cleaning, and maintenance programs are under resourced, and that hydraulically deficient pipes, defective pipes, pipe joints, and private laterals, and extensive root intrusion can lead to excessive I&I and SSOs.

DETERMINATION 4-14: RATE INCREASES FOR SANITARY SEWER SYSTEM INSPECTION, CLEANING, AND MAINTENANCE FOR I&I AND SSO REDUCTION AND PREVENTION

The City of Oroville City Council should fully implement the city staff recommendation to continually increase annual sewer service rates over the next eight years to fund increased inspections, cleaning, maintenance, and repair of the City’s sewer system infrastructure in order to reduce I&I and SSO’s and reduce peak flows into the WWTF.

DETERMINATION 4-15: SEWER LATERAL TESTING PROGRAM

The City of Oroville should adopt a comprehensive sewer lateral testing and repair program, similar to the program recently adopted by LOAPUD, which will help reduce I&I in private sewer laterals and should consider assistance and outreach programs to landowners to encourage greater participation in this program.

FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES

City Budget Overview

The City reviews its existing financial plan to ensure consistency with current economic conditions on a yearly basis, prior to the July 1st adoption of the annual budget. The City’s annual review, or audit, contains an independent auditors report, financial statements, government wide financial statements and fund financial statements, notes to the basic financial statements and supplemental information. The audit also includes a statement of net assets that indicates whether the financial position of the city is improving or deteriorating.

The City’s 2008-2009 fiscal year budget is balanced with a reserve and a surplus. Budgeted General Fund expenses and transfer-outs for 2008-2009 total $12,649,732, while General Fund revenues and transfer-ins total $12,673,530. The City’s major expenditures are personnel costs, services/supplies, capital costs and debt service. The City of Oroville receives funds for the provision of public utilities and services through impact fees, taxes, and connection and usage fees, which apply to all land that is annexed into the City.

Development Conditions and Impact Fees

The City of Oroville establishes development conditions for projects at time of approval to address impacts of the project on various services. Conditions require that landowners contribute to costs of facilities and services and that the City agrees to provide as required. The landowner’s contribution to these facilities and services is assessed by the City through Development Impact Mitigation Fees (Development Fees), which ensure that new development pays its fair share of capital improvement costs for public facilities and utilities needed to support additional growth. Development Fees are collected on a per acre basis, using Residential Acre Equivalents (RAE).

The City collects development fees for parks, wastewater, stormwater drainage, traffic, general government, sewer, and school development fees for all new residential, commercial, office, and industrial development to fund required system-wide improvements. The City’s master fee schedule is subject to periodic revisions and updates. The City adopted the current development impact fees, which are derived from the Development Impact Fee Calculation and Nexus Report for the City of Oroville, California, January 2003 on December 2, 2003. The most recent fee increase was adopted on June 5, 2007. Funds from the City’s 2007-08 budget were allocated to perform an analysis on fees and update to the City’s service fees in addition to its cost allocation plan.

Tax Assessment

Previous to the passing of Proposition 13 in 1978, property taxes were the main source of local government revenue and were subject to adjustment based on local government needs. Proposition 13 reduced property taxes by approximately 50-percent and gave the State of California the power to allocate funds gained from taxes. In 1988, Proposition 98 mandated that a minimum funding level for schools be maintained by the State of California, which led to the Educational Revenue Augmentation Fund (ERAF) property tax shift. ERAF transferred revenues from city, county and special districts to schools.

Despite the shifting of tax revenues away from municipal governments due to Proposition 13 and ERAF, taxes comprise a significant portion of Oroville’s revenue. Taxes are expected to contribute 47 percent of the City’s General Fund in the 2008-2009 fiscal year. Taxes collected by Oroville include:14

- Property Tax (5 percent of General Fund)
- Sales Tax (21 percent of General Fund)
- Utility Users Tax (14 percent of General Fund)
- Transient Occupancy Taxes (3 percent of General Fund)
- Franchise Taxes (4 percent of General Fund)

Sewer System Budget

The City maintains a Sewer Fund and a Sewer Connection Fund to account for related financial activities. The Sewer Fund accounts for the activities of the City’s sewage collection system and for fees collected on behalf of SC-OR. The Sewer Connection Fund accounts for revenues collected for sewer connection fees and expenditures for sewer system improvements. Table 4-9 shows the changes in fund balances for these two funds for Fiscal Year 2008-2009.

Table 4-9. Summary of Change in Fund Balances, FY 2008-2009 Annual Budget

<table>
<thead>
<tr>
<th>Fund</th>
<th>Fund #</th>
<th>Beginning Fund Balance</th>
<th>Revenues &amp; Sources Adopted</th>
<th>Expenses &amp; Uses Adopted</th>
<th>Ending Fund Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewer Collections &amp; Maintenance</td>
<td>101</td>
<td>$1,956,048</td>
<td>$1,627,836</td>
<td>$2,117,302</td>
<td>$1,466,582</td>
</tr>
<tr>
<td>Sewer Connection Fund</td>
<td>104</td>
<td>$676,045</td>
<td>$78,618</td>
<td>0</td>
<td>$754,663</td>
</tr>
</tbody>
</table>

In FY 2008-09, the majority of the total revenues obtained by the Sewer Collections and Maintenance Fund and the Sewer Connection Fund were from service charges. Sewer Collections and Maintenance Fund expenditures include health and sanitation and capital outlay; there are no Sewer Connection Fund expenditures. In the Sewer Connection Fund account, revenues exceed expenditures, but in the Sewer Collections & Maintenance Fund account, expenses and uses exceeded revenues; should this become a chronic issue, the rate structure should be re-evaluated and cost avoidance measures should be implemented.

As shown in Table 4-10, the City’s FY 2008-09 budget for their sewer system shows annual revenues of $882,000 and total expenditures of $774,000. The annual revenue was based upon a monthly sewer service rate of $8.66 per equivalent dwelling unit (EDU), which have recently been increased to $9.79 a month with future annual increases recommended by city staff.

Table 4-10. City of Oroville FY 2008-09 Sewer System Budget

<table>
<thead>
<tr>
<th>Expenditures</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditures</td>
<td></td>
</tr>
<tr>
<td>Cost Allocation to General Fund</td>
<td>$277,000</td>
</tr>
<tr>
<td>Administration</td>
<td>$140,000</td>
</tr>
<tr>
<td>Routine Maintenance and Response</td>
<td>$162,000</td>
</tr>
<tr>
<td>Contract Maintenance (Root Treatment)</td>
<td>$75,000</td>
</tr>
<tr>
<td>I&amp;I Investigation and Reduction</td>
<td>$30,000</td>
</tr>
<tr>
<td>Overhead, Supplies &amp; Heavy Equipment</td>
<td>$90,000</td>
</tr>
<tr>
<td>Total Expenditures</td>
<td>$774,000</td>
</tr>
<tr>
<td>Annual Budget Avail for CIP Work</td>
<td>$108,000</td>
</tr>
</tbody>
</table>

As can be seen in Figure 4-10, only $108,000 is available for the sewer system capital improvement projects, which is inadequate for a sewer system the size of the City of Oroville’s system. Additionally, it appears that a large amount ($277,000) of sewer system expenditures...
consists of cost allocation to the City’s general fund, which should be utilized for sewer system improvements.

Connection and Usage Fees

In addition to impact fees and property taxes, Oroville receives funds from the on-going provision of wastewater service through connection and usage fees. The rate structure for wastewater services for FY 2009-10 is shown in Table 4-11.

<table>
<thead>
<tr>
<th>Type of Service Charge</th>
<th>Service Charge*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Charge – residential/commercial/industrial</td>
<td>$9.79/EDU/month</td>
</tr>
<tr>
<td>Service Charge – mobile home park</td>
<td>$8.06/EDU/month</td>
</tr>
<tr>
<td>Connection Fee – residential and commercial</td>
<td>$696.00/EDU</td>
</tr>
<tr>
<td>Connection Fee – industrial</td>
<td>$2,856.50/EDU</td>
</tr>
<tr>
<td>Lateral Building Permit</td>
<td>$24.90 per line</td>
</tr>
<tr>
<td>City Tap Fee</td>
<td>$331.32 per tap</td>
</tr>
<tr>
<td>Sewer Collection Facilities Impact – single family dwelling</td>
<td>$427.25 per unit</td>
</tr>
<tr>
<td>Sewer Collection Facilities Impact – multi-family dwelling</td>
<td>$380.20 per unit</td>
</tr>
<tr>
<td>Sewer Collection Facilities Impact – commercial/industrial</td>
<td>$404.21/EDU</td>
</tr>
</tbody>
</table>

* Charges are for parcels within City limits. Charges are higher for parcels outside City limits.

As discussed in Section 4.2.7 of this chapter, the City’s monthly sewer service rate was recently increased from $8.66 to $9.79 per month (a 13% increase). City staff recommended to the Oroville City Council that the sewer service rate be increased annually by 14 to 18% over the next eight years so that sufficient funding can be obtained to fund increased sewer system inspections, cleaning, and maintenance and fund sewer system infrastructure improvements. By Fiscal Year 2016-17 the monthly sewer service fee is proposed to be $34.68, which is a 322% increase above the recently-approved fee. The City is currently reviewing their sewer connection fees.

It is the City’s goal to ensure that all user fees, impact fees, processing fees and connection fees are evaluated on a regular basis to ensure that they are sufficient to offset the cost of providing services and to ensure that no undue burden is placed on the City’s residents. In addition to the annual fee review conducted as a part of the annual budget process, department directors are required to monitor all fees under their area of responsibility and bring any significant developments to the finance department and the City Administrator during monthly department meetings.

Where appropriate, the City Council has authorized automatic fee increases based on the Consumer Price Index (CPI). The City regularly hires outside consultants to conduct nexus studies and prepare fee calculation reports to analyze the cost of providing service. All proposed fee increases are presented to the City Council for their adoption. In many cases the City Council has decided to adopt only a portion of the proposed fee, usually due to concerns that the total cost of development fees will deter developers from proposing projects in Oroville.
However, with the exception of parks fees, the current City Council has consistently voted to increase fees and adopt cost recovery options to improve service levels. In general, the City Council is phasing in development impact fees and raising them over time rather than implementing a large fee at one time. The City’s goal is to provide all services as efficiently as possible without placing a strain on the City’s General Fund.

DETERMINATION 4-16: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

The City of Oroville receives funds for the provision of public utilities and services through impact fees, taxes, and connection and usage fees. The City should continue to explore opportunities for creating benefit assessment districts or other similar funding mechanisms to secure long-term funding for the maintenance and operation of its sanitary sewer system.

DETERMINATION 4-17: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

The City’s current sewer service charges are not sufficient to cover the cost of adequately inspecting, cleaning, and repairing the City’s sanitary sewer system. The City recently increased the sewer service rates by 13% and is proposing annual increases to the sewer service rates over the next eight years, resulting in an increase by 332% from the current rates. The City should continue to raise the sewer service rate annually to ensure that adequate funds are collected for enhanced inspection, cleaning, maintenance, and repair of the City’s sewer system.

STATUS OF, AND OPPORTUNITIES FOR, COST AVOIDANCE AND SHARED FACILITIES

The City of Oroville is a part of the Sewerage Commission-Orovil Region (SC-OR) Joint Powers Authority, along with the Thermalito Water and Sewer District and the Lake Oroville Area Public Utility District. Each of these agencies provides wastewater collection and conveyance systems only within their agency boundaries. The City of Oroville currently does not share ownership or operation of its sewer system-related facilities with any other public entity.

The City utilizes several cost avoidance measures in its operations. The City is exposed to various risks of losses related to torts; theft of, damage to, and destruction of assets; errors and omissions; injuries to employees and natural disasters. The City transfers risks that may arise from these and other events through the purchase of insurance with the Northern California Cities Joint Powers Authority, a public entity risk pool for liability and worker’s compensation purposes.

Given the large cost of capital improvements, a careful planning process is a crucial means of cost avoidance. The City has spent the last two years planning for increased revenue to begin the long process of addressing 14.0 million in deficiencies over the next 15 years. Other cost avoidance measures include applying for grants, sharing safety training costs with the South Feather Water and Power Agency, and utilizing a small crew for smaller projects.
There are significant opportunities for shared facilities with the other SC-OR member entities, which could result in savings to the entities’ ratepayers. As an example, the SC-OR member entities could share operations and maintenance personnel equipment for construction efforts, pipe inspection/repair, and tools. There is currently no formal program established between the member entities to foster the sharing of equipment or personnel. There is also an opportunity for the member agencies to order supplies and materials in bulk, which has the potential to result in significant cost savings.

**DETERMINATION 4-18: OPPORTUNITIES FOR COST AVOIDANCE AND SHARED FACILITIES**

*While the City appears to utilize internal cost avoidance opportunities, facilities sharing efforts are not actively pursued. The City and the other SC-OR member entities should consider establishing a program to 1) share equipment, materials, personnel, expertise, and training and 2) consider purchasing supplies and materials in bulk.*

**ACCOUNTABILITY FOR COMMUNITY SERVICE NEEDS, INCLUDING GOVERNMENTAL STRUCTURE AND OPERATIONAL EFFICIENCIES**

The City of Oroville has seven elected officials, including the Mayor, Vice Mayor, and five council members, who are elected at large and serve staggered four-year terms. The City Council is responsible for setting policy and general administrative procedures for the City, and establishes and regulate rates, fees, service and capacity charges. The City Council meets in regular session twice monthly on the first and third Tuesday of each month at 7:00 p.m. at the Council Chambers located at 1735 Montgomery Street, Oroville. Special meetings are held as needed.

City Council members are compensated $5 per Council meeting and $30 per Redevelopment Agency meeting. Council members may not be compensated more than $10 per month for council meetings or $270 per month for council and Redevelopment Agency meetings combined, with the exception of the Mayor. The Mayor may be compensated up to $320 per month.

The City appears to comply with all applicable provisions of the Brown Act, including noticing meetings, which are posted at least 72 hours in advance at the City office and on the City’s website (http://www.cityoforoville.org). In addition, residents are notified as required by law for public hearings. The City Council meetings are usually well attended by the public.

The City Council appoints the City Administrator, who is responsible for implementing the policy of the City Council and for managing daily operations of the City. The City Administrator supervises all of the City department heads. The City Council appoints the Director of Community Development and Public Works upon the recommendation of the City Administrator.

The Director of Community Development and Public Works exercises direct supervision over public works, planning and building departmental staff, as shown in Figure 4-6. The Department of Community Development and Public Works is comprised of four divisions: Administration,
Engineering, Building, and Planning. Key staff positions within this department include a Counter Technician to streamline the issuance of Planning, Building and Engineering permits; and a Project Manager/Senior Civil Engineer to manage design and construction contracts. The Director of Community Development and Public Works position is currently vacant.

Figure 4-6. City of Oroville Community Development and Public Works Organizational Chart

The City has five positions that perform sewer system-related duties on a full-time or part-time basis:

- Engineering Division Manager (technical oversight-sewer operations) - part time
- Associate Civil Engineer (technical oversight-sewer operations) - part time
- Sewer Maintenance Personnel (2.4) – full time
- Electrician (part time)
- GIS Technician (part time)

The number of personnel performing sewer maintenance duties appears to be very low for a sewer system as large as the City’s. Based upon 66.3 miles of pipe in the City’s sewer system, the City has a ratio of sewer system maintenance personnel to sewer system size of one worker.
to every 27.6 miles of sewer length. For comparison, LOAPUD, which has 78.5 miles of sewer system pipes and five full-time sewer maintenance personnel, has a ratio of sewer maintenance personnel to sewer system length of 15.7. TWSD has 35.5 miles of pipe and 2.5 full-time equivalent sewer system maintenance personnel, which is a ratio of one sewer maintenance personnel to every 14.2 miles of sewer system pipe. As can be seen in Table 4-12, the City of Oroville’s ratio of sewer maintenance personnel to sewer system size is higher than LOAPUD’s and TWSD’s, which is an indicator that the City may not have a sufficient number of sewer system maintenance personnel.

Like all local jurisdictions the city has been subject to the same funding cuts and financing constraints that have taken place over the years. This particular year has seen significant economic hardships resulting from State budget actions that have resulted in substantial revenue reductions to the City. The City works proactively to acquire additional funding streams, such as grant funding and special program funding to offset the cost of staffing.

The City maintains a website (http://www.cityoforoville.org) that contains a large amount of information on the City. Meeting agendas, meeting minutes, fee schedules, fiscal reports, and links to other public agencies are placed on the City’s website. The City’s website also contains a page about the City’s sewer system, which includes links to the City’s sanitary sewer master maps and as-built drawings of the sewer lines. The City should consider placing staff reports, staff memorandums, environmental review documents, and the City’s Sanitary Sewer Management Plan and the Sewage Disposal Master Plan, when adopted, on their website to ensure that the public has easy access to these documents. The City should also consider placing information on I&I on their website.

The City anticipates expanding its sphere of influence (SOI) boundaries to accommodate future development. The City recently adopted its 2030 General Plan, which shows changes to its existing LAFCo-approved SOI. It is expected that the City will submit a SOI update request to LAFCo to modify its SOI to conform to the SOI map found in the 2030 General Plan. Failure of the City to have its SOI updated may result in sphere amendments and annexation applications being denied or deemed incomplete due to lack of a current SOI.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Miles of Sewer Pipe</th>
<th>Number of Sewer Maintenance Personnel</th>
<th>Ratio of Maintenance Personnel to Sewer Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Oroville</td>
<td>66.3</td>
<td>2.4</td>
<td>1:27.6</td>
</tr>
<tr>
<td>LOAPUD</td>
<td>78.5</td>
<td>5.4</td>
<td>1:15.7</td>
</tr>
<tr>
<td>TWSD</td>
<td>35.5</td>
<td>2.5</td>
<td>1:14.2</td>
</tr>
</tbody>
</table>

DETERMINATION 4-19: GOVERNMENTAL STRUCTURE

The City is governed by a seven-member City Council elected at large and by voters within the City. The City holds regular meetings twice monthly, which are open and accessible to the public. The City maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements.
DETERMINATION 4-20: MANAGEMENT EFFICIENCIES

The City of Oroville’s sewer system is operated under adequate management efficiency.

DETERMINATION 4-21: MANAGEMENT EFFICIENCIES

The number of City of Oroville sewer system maintenance personnel is very low and appears to be insufficient to properly inspect, clean, and repair the City’s sewer system. The City should consider creating and filling new sewer system maintenance personnel positions to ensure that their sewer system is properly inspected, cleaned, and maintained.

DETERMINATION 4-22: WEBSITE

The City maintains a website that contains a large amount of public information, which should be augmented by including staff reports, staff memorandums, environmental review documents, and the City’s Sanitary Sewer Management Plan and Sewage Disposal Master Plan, when adopted. The City should also consider adding information on I&I to their website.

ANY OTHER MATTER RELATED TO EFFECTIVE OR EFFICIENT SERVICE DELIVERY, AS REQUIRED BY COMMISSION POLICY

An analysis of the SC-OR Joint Powers Agreement, of which the City is a member, is discussed in detail in Chapter 2.0 of this MSR.

SUMMARY OF DETERMINATIONS

DETERMINATION 4-1: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

The City’s sanitary sewer system has been built gradually over time, with some small portions of the system being more than 100 years old and in need of repair or replacement.
DETERMINATION 4-2: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

In recent years, using old camera technology, the City has televised 0.5 to 4.0 miles (0.6 to 5.5%) of their sewer system per year, which is not sufficient to assess the overall physical condition of the system, find blockages, identify I&I, and comprehensively rehabilitate the system.

The City is credited with purchasing a new closed-circuit television unit, which will increase their inspection rate and will compliment a recently ordered trailer-mounted sanitary sewer flexible rodder system, which will offer enhanced sewer system cleaning capabilities.

DETERMINATION 4-3: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

Historically, the City’s sewer system has not been efficiently maintained, which has resulted in increased system deterioration and unacceptable levels of I&I that has increased over time. In order to correct this historical maintenance deficit, the City recently initiated a program to address the deferred maintenance. Until such time rehabilitation is substantially implemented, impacts of new development on the SCOR WWTF should be curtailed.

DETERMINATION 4-4: CITY OF OROVILLE SEWAGE DISPOSAL MASTER PLAN UPDATE

The City’s Draft Sewage Disposal Master Plan Update describes sanitary sewer system design storm hydraulic deficiencies, contains a capital improvement program for improvements, and determines the revenue and rates necessary to finance identified improvements. The Plan identifies thirty-four projects needed to 1) increase the capacity of those sewer pipes that are capacity deficient for the 10-year design storm event, and 2) accommodate future growth.

The City should adopt the Draft Sewage Disposal Master Plan Update and all necessary funding needs as soon as possible so that improvements identified in the Plan can begin to be implemented.

DETERMINATION 4-5: SANITARY SEWER OVERFLOWS

The City has had nine reportable sanitary sewer overflows in the last three years and has paid 17 claims for damages since 2004 due to sewer blockages/backups in the City’s sewer system totaling $234,100. This number of SSOs, claims, and paid damages are an indication that the City has not been able to adequately maintain their sewer system and the system is in need of an expanded inspection and cleaning program. The City has made system maintenance and rehabilitation a priority as evidenced by the passage of a 13% monthly sewer service rate increase in August 2009.
### DETERMINATION 4-6: SANITARY SEWER MANAGEMENT PLAN

The City has not met the deadline for adoption of its Sanitary Sewer Management Plan, but expects adoption of all the SSMP elements by the fourth quarter of 2009. The City should expedite the adoption of their SSMP and place the SSMP on their webpage for public convenience.

### DETERMINATION 4-7: SANITARY SEWER SYSTEM FLOWS

The City of Oroville has an average dry weather flow of 1.9 mgd for which the City’s collection system has adequate capacity to handle, although blockages in the pipes from grease buildups and root intrusion has resulted in numerous sanitary sewer overflows. The City’s sewer system is aging and has not been inspected, cleaned, and repaired consistently over the years. The City has recently developed a comprehensive approach to rate increases, increased staffing and other measures that should help rehabilitate the collection system and reduce I&I and SSO’s in future years.

### DETERMINATION 4-8: TWSD EAST TRUNK LINE CAPACITY

The Thermalito Water and Sewer District (TWSD) reports that their East Trunk Line is currently at 123% capacity during peak wet weather flow. The City of Oroville and TWSD both agree that this sewer line is capacity limited. Both of these agencies should limit the number of new connections that would flow through the East Trunk Line until the wet weather flow capacity issue is resolved.

### DETERMINATION 4-9: SC-OR MAIN INTERCEPTOR SEWER TRUNK LINE CAPACITY

Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF.
### DETERMINATION 4-10: SC-OR WEST INTERCEPTOR SEWER TRUNK LINE CAPACITY

The SC-OR West Interceptor trunk sewer line (which serves TWSD’s sanitary sewer system and a portion of the City of Oroville’s wastewater flows) is currently operating above 100% hydraulic capacity during the peak wet weather flow and has been identified by SC-OR for capacity improvements in its Capital Improvement Program.

With a reduction in I&I flowing into the West Interceptor due to TWSD’s I&I reduction program, and due to SC-OR’s recently-adopted developer agreement, which requires impact mitigation, SC-OR anticipates that the West Interceptor will operate below its design capacity. Until such time identified improvements are implemented, this facility should be considered at capacity.

### DETERMINATION 4-11: SANITARY SEWER SYSTEM I&I FLOWS

The City of Oroville has an average dry weather flow of 1.91 mgd, peak wet weather flows that on occasion can exceed of 10 mgd, and a peaking factor range of 3.5 – 5.5, which indicate that the City has excessive inflow and infiltration entering their sewer system which requires the development of a long term and comprehensive I&I reduction strategy.

### DETERMINATION 4-12: INSPECTION AND MAINTENANCE FOR I&I

The City of Oroville has not been able inspect and clean their sewer system at the necessary frequencies to effectively reduce I&I and SSOs.

### DETERMINATION 4-13: SANITARY SEWER SYSTEM INSPECTION AND MAINTENANCE FOR I&I

City staff has recently acknowledged existing deficiencies in the City’s sewer system and is aware that the inspection, cleaning, and maintenance programs are under resourced, and that hydraulically deficient pipes, defective pipes, pipe joints, and private laterals, and extensive root intrusion can lead to excessive I&I and SSOs.

### DETERMINATION 4-14: RATE INCREASES FOR SANITARY SEWER SYSTEM INSPECTION, CLEANING, AND MAINTENANCE FOR I&I AND SSO REDUCTION AND PREVENTION

The City of Oroville City Council should fully implement the city staff recommendation to continually increase annual sewer service rates over the next eight years to fund increased inspections, cleaning, maintenance, and repair of the City’s sewer system infrastructure in order to reduce I&I and SSO’s and reduce peak flows into the WWTF.
**DETERMINATION 4-15: SEWER LATERAL TESTING PROGRAM**

The City of Oroville should adopt a comprehensive sewer lateral testing and repair program, similar to the program recently adopted by LOAPUD, which will help reduce I&I in private sewer laterals and should consider assistance and outreach programs to landowners to encourage greater participation in this program.

**DETERMINATION 4-16: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES**

The City of Oroville receives funds for the provision of public utilities and services through impact fees, taxes, and connection and usage fees. The City should continue to explore opportunities for creating benefit assessment districts or other similar funding mechanisms to secure long-term funding for the maintenance and operation of its sanitary sewer system.

**DETERMINATION 4-17: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES**

The City’s current sewer service charges are not sufficient to cover the cost of adequately inspecting, cleaning, and repairing the City’s sanitary sewer system. The City recently increased the sewer service rates by 13% and is proposing annual increases to the sewer service rates over the next eight years, resulting in an increase by 332% from the current rates. The City should continue to raise the sewer service rate annually to ensure that adequate funds are collected for enhanced inspection, cleaning, maintenance, and repair of the City’s sewer system.

**DETERMINATION 4-18: OPPORTUNITIES FOR COST AVOIDANCE AND SHARED FACILITIES**

While the City appears to utilize internal cost avoidance opportunities, facilities sharing efforts are not actively pursued. The City and the other SC-OR member entities should consider establishing a program to 1) share equipment, materials, personnel, expertise, and training and 2) consider purchasing supplies and materials in bulk.

**DETERMINATION 4-19: GOVERNMENTAL STRUCTURE**

The City is governed by a seven-member City Council elected at large and by voters within the City. The City holds regular meetings twice monthly, which are open and accessible to the public. The City maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements.

**DETERMINATION 4-20: MANAGEMENT EFFICIENCIES**

The City of Oroville’s sewer system is operated under adequate management efficiency.
DETERMINATION 4-21: MANAGEMENT EFFICIENCIES

The number of City of Oroville sewer system maintenance personnel is very low and appears to be insufficient to properly inspect, clean, and repair the City’s sewer system. The City should consider creating and filling new sewer system maintenance personnel positions to ensure that their sewer system is properly inspected, cleaned, and maintained.

DETERMINATION 4-22: WEBSITE

The City maintains a website that contains a large amount of public information, which should be augmented by including staff reports, staff memorandums, environmental review documents, and the City’s Sanitary Sewer Management Plan and Sewage Disposal Master Plan, when adopted. The City should also consider adding information on I&I to their website.
5.0 – LAKE OROVILLE AREA PUBLIC UTILITY DISTRICT

AGENCY OVERVIEW

The Lake Oroville Area Public Utility District (LOAPUD/district) provides sanitary sewer collection and conveyance services for the unincorporated areas east and south of the City of Oroville (see Figure 5-1) as well as a small area within the incorporated City of Oroville. LOAPUD collects wastewater from its customers and conveys it to Sewerage Commission-Oroville Region (SC-OR) facilities for treatment and disposal. The District’s sewer system is considered to be a “satellite collection system” to SC-OR.

The District currently provides service to approximately 12,000 people, which represents approximately 5,939 equivalent dwelling units (EDUs). Customers include single and multiple family residences, a variety of commercial uses, and public facilities including schools and recreational facilities associated with nearby Lake Oroville.

The District was formed in 1938 and was originally called the North Burbank Public Utility District. Until 1977, this district owned and operated a wastewater treatment plant on South 5th Avenue that provided treatment and disposal services in addition to collection services. With the creation of the Sewerage Commission-Oroville Region Joint Powers Authority in 1971, the district ceased providing wastewater treatment services. In 1988, the district name was changed to Lake Oroville Area Public Utility District to better describe the entire service area.

<table>
<thead>
<tr>
<th>District Size:</th>
<th>8,423 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009 Estimated Population Served:</td>
<td>12,000</td>
</tr>
<tr>
<td>Office Location:</td>
<td>1960 Elgin Street, Oroville, CA 95966</td>
</tr>
<tr>
<td>Services:</td>
<td>Wastewater collection and conveyance</td>
</tr>
<tr>
<td>Employees:</td>
<td>9 full-time</td>
</tr>
<tr>
<td>Date of Formation:</td>
<td>June 7, 1938</td>
</tr>
<tr>
<td>Enabling Legislation:</td>
<td>Public Utilities Code</td>
</tr>
</tbody>
</table>

PRESENT AND PLANNED CAPACITY OF PUBLIC FACILITIES AND ADEQUACY OF PUBLIC SERVICES, INCLUDING INFRASTRUCTURE NEEDS OR DEFICIENCIES

GENERAL

The Lake Oroville Area Public Utility District owns and operates a sanitary sewer collection and conveyance system that primarily serves the unincorporated areas in east and south Oroville. The District has 4,419 sewer connections and serves approximately 12,000 people. Most of this population resides in unincorporated areas of Butte County east and south of the City of Oroville, with a small portion of the population residing within the southern boundary of the City of Oroville. LOAPUD’s service boundary encompasses approximately 8,423 acres while the District’s Sphere of Influence (SOI) encompasses approximately 10,503 acres. A large portion
Figure 5-1
LOAPUD District Boundaries and Sphere of Influence Map
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of the District’s current SOI in the eastern foothills overlaps significantly with the City of Oroville’s SOI.

LOAPUD’s administrative office, system monitoring and control office, and maintenance shop are located at 1960 Elgin Street in the unincorporated area of Oroville. The District has an equipment storage and gas pumping facility at 1945 Elgin Street.

LOAPUD provides sewer service to parcels within the District’s service area. For proposed developments less than 20 EDU's, LOAPUD will provide a Sewer Availability letter. For projects of 20 EDU's and over a Capacity Study and Pre-Annexation Agreement must be paid for by the developer and prepared by SC-OR. Upon completion of the study, the District will issue a Sewer Availability letter to the developer addressing treatment plant expansion costs to obtain a Developer Agreement with SC-OR.

If extension or modification of the District’s sanitary sewer facilities is required to provide service to new development, the landowner is required to enter into a Development Agreement with LOAPUD that outlines the terms and conditions of extensions and/or modifications to the collection system.

SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM INFRASTRUCTURE

LOAPUD’s sanitary sewer collection system was originally built in the 1930’s, but only approximately 2% of the system is of that age. In the 1970’s the construction of the State Line main trunk interceptor was completed, which allowed LOAPUD’s system to expand significantly. Approximately 90% of the current system has been constructed since the 1960’s. Table 5-1 below provides a breakdown of the age of LOAPUD’s sewer system.

<table>
<thead>
<tr>
<th>Date of Construction</th>
<th>Percentage of System</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-present</td>
<td>10%</td>
</tr>
<tr>
<td>1980-1999</td>
<td>25%</td>
</tr>
<tr>
<td>1960-1979</td>
<td>58%</td>
</tr>
<tr>
<td>1940-1959</td>
<td>5%</td>
</tr>
<tr>
<td>1920-1939</td>
<td>2%</td>
</tr>
<tr>
<td>Before 1919</td>
<td>0%</td>
</tr>
</tbody>
</table>

LOAPUD’s sewer system is predominately a gravity flow system, although the District’s system includes 4.5 miles of forced mains and nine pump stations to move wastewater. Gravity collection systems are designed to use as few pumps as possible. Figure 5-2 shows the District’s facilities. Table 5-2 provides data on LOAPUD’s sewer system.
Table 5-2. LOAPUD Sewer System Data

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of forced mains</td>
<td>4.5 miles</td>
</tr>
<tr>
<td>Length of gravity sewers</td>
<td>74 miles</td>
</tr>
<tr>
<td>Number of manholes</td>
<td>1,547</td>
</tr>
<tr>
<td>Number of pump stations</td>
<td>9</td>
</tr>
<tr>
<td>Number of service laterals</td>
<td>4,412</td>
</tr>
<tr>
<td>Length of service laterals</td>
<td>70 miles</td>
</tr>
<tr>
<td>Number of Equivalent Dwelling Units</td>
<td>5,911</td>
</tr>
</tbody>
</table>

There are approximately 4,419 private service laterals connected to LOAPUD’s sewer system representing 70 miles of pipe, roughly equivalent to the 78.5 miles of District mains and collectors. The service laterals are the small diameter sewer lines that extend from the customer’s dwelling or business to LOAPUD’s sewer mains, which are normally located in the adjacent street. Currently, maintenance of a sewer lateral is the responsibility of the landowner. However, LOAPUD recently adopted, but not yet implemented, a sewer lateral testing and replacement program that under specified circumstances (sale of property, new connections, structural remodels, changes of use of structure or District Manager determination that an inspection is necessary to address a public health or safety concern) would allow the District to assume maintenance of inspected and tested lower laterals (that portion of the lateral extending from the sewer main to the property line). Maintenance of upper laterals (that portion of the lateral extending from the property line to a structure) would continue to be the responsibility of the landowner.

The pipelines in LOAPUD’s collection system consist of several different materials. Most of the older pipe in the system is vitrified clay pipe, while the newer pipe is constructed almost exclusively with PVC. Other materials in the collection system include steel, ductile iron, asbestos-cement, and concrete. The condition of the collection system is generally good and any identified lines that require service are being maintained by the District.

Wastewater collected by LOAPUD is conveyed to LOAPUD's 30-inch-diameter interceptor sewer, which discharges into SC-OR's East Interceptor sewer trunk line approximately 1,550 feet east of South 5th Avenue, just northeast of the SC-OR wastewater treatment facility (WWTF). Figure 5-3 shows the location of SC-OR’s East and Main Interceptor sewer trunk lines. The East Interceptor, which serves only LOAPUD, is a 24-inch-diameter reinforced concrete pipe. Wastewater conveyed by SC-OR’s East Interceptor discharges into SC-OR’s Main Interceptor on South 5th Avenue, which then flows into SC-OR’s WWTF.
DETERMINATION 5-1: SEWER LATERAL PROGRAM

The sewer lateral inspection program is a fundamental component of the District’s overall efforts to increase system efficiency and reduce I&I levels. It is recognized that the inspection program may not yield significant results for many years considering the number of laterals and the criteria for conducting the inspections.

DETERMINATION 5-2: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

The District’s sanitary sewer system, most of which has been constructed in the last 35 years, is generally in good condition. LOAPUD’s collection system currently has no significant capacity issues. However, large development project may be required to upgrade the existing collection system downstream if additional capacity is required.

Sanitary Sewer Overflows

LOAPUD reports that they have had three sanitary sewer overflows (SSOs) in the last five years: one in 2005, one in 2006 (which resulted in a claim against the District), and one in 2008. A sanitary sewer overflow is any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system. A sanitary sewer system is any system of pipes, pump stations, sewer lines, or other conveyances, which is owned or operated by a public entity, used to collect and convey wastewater to a treatment facility. SSOs do not
include overflows from privately-owned service laterals when these overflows are caused by blockages or other problems within the privately-owned lateral. These overflows are known as private lateral sewage discharges (PLSDs). SSOs do include overflows from privately-owned laterals when the cause is a problem within the publicly-owned sanitary sewer system.

The State Water Resources Control Board (SWRCB) maintains an online database, the California Integrated Water Quality System (CIWQS), where permit violations and SSOs are reported. Mandatory SSO reporting for SC-OR and the SC-OR member entities began on May 2, 2007. A check of the CIWQS webpage\(^1\) confirms that LOAPUD has had one reported sanitary sewer overflow since mandatory SSO reporting began. Details of the 2008 SSO are as follows:

CIWQS SSO Event ID: 712754
SSO Type: Category 2

On February 10, 2008, a SSO occurred from a manhole, with a total spill volume of approximately 735 gallons, all of which was recovered. The spill did not flow into any waterway. The SSO was caused by operator error.

**Sanitary Sewer Management Plan (SSMP)**

The State Regional Water Quality Control Board requires that all wastewater treatment and conveyance agencies prepare and adopt a Sanitary Sewer Management Plan (SSMP). A SSMP is a comprehensive plan which includes provisions to provide proper and efficient management, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Additionally, a SSMP must contain a spill response plan that establishes standard procedures for immediate response to a SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.

The SSMP documents an agency’s program to properly operate and maintain its sanitary sewer system. Each SSMP should address the following elements:

1) Goals,
2) Organization,
3) Legal Authority,
4) Operation and Maintenance Program,
5) Design and Performance Provisions,
6) Overflow Emergency Response Plan,
7) Fats, Oils, and Grease (FOG) Control Program,
8) System Evaluation and Capacity Assurance Plan,

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\(^1\) http://www.waterboards.ca.gov/water_issues/programs/ciwqs/chc_sso.shtml
\(^2\) SSO Category 2 – All discharges of sewage resulting from a failure in an Enrollee’s sanitary sewer system not meeting the definition of Category 1. A Category 1 SSO is defined as follows: All discharges of sewage resulting from a failure in an Enrollee’s sanitary sewer system that: A. Equal or exceed 1000 gallons; or B. Result in a discharge to a drainage channel and/or surface water; or C. Discharge to a storm drainpipe that was not fully captured and returned to the sanitary sewer system.
9) Monitoring, Measurement, and Program Modifications,
10) SSMP Program Audits, and
11) Communication Program.

Agencies are required to certify that the final SSMP and its constituent subparts are in compliance with the Sanitary Sewer Order (Water Quality Order No. 2006-0003) within the required time frames. Agencies are also required to obtain their governing board’s approval of the SSMP Development Plan and Schedule, and final SSMP at a public hearing prior to certification of the SSMP as complete and in compliance. LOAPUD has adopted all the SSMP elements in advance of their May 2, 2010 deadline.

**DETERMINATION 5-3: SANITARY SEWER OVERFLOWS**

LOAPUD has had one minor sanitary sewer system overflow since mandatory reporting of SSOs began in 2007 resulting from operator error. This low number of SSOs is an indication that LOAPUD’s sewer system is being adequately operated and maintained.

**DETERMINATION 5-4: SANITARY SEWER MANAGEMENT PLAN**

LOAPUD has adopted all elements of its Sanitary Sewer Management Plan as required by the State Water Quality Control Board. The District should place their SSMP on their webpage for public convenience.

**SANITARY SEWER COLLECTION AND CONVEYANCE CAPACITIES**

The District collects an average of 384 mg (million gallons) of wastewater annually, with an ADDW (Average Daily Dry Weather) flow of approximately 0.81 mgd (million gallons per day) as reported by SC-OR. Table 5-3 below provides information on LOAPUD system capacities.

<table>
<thead>
<tr>
<th>Table 5-3. LOAPUD Sewer System Flows - 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average Dry Weather Flow</strong></td>
</tr>
<tr>
<td><strong>Average Wet Weather Flow</strong></td>
</tr>
<tr>
<td><strong>Peak Wet Weather Flow</strong></td>
</tr>
<tr>
<td><strong>Wet Weather Peaking Factor</strong></td>
</tr>
</tbody>
</table>

LOAPUD’s collection system has adequate capacity to handle existing and future wastewater flows, which is anticipated to be approximately 14 mgd by 2030. The District accepts new main line extensions and upgrades existing lines as needed, usually as a result of new development.

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3 ADWF is the flow for an average day during the dry weather months of May through October, and represents the baseline of sewage flow for the service area. The ADWF includes sewage discharges plus the average amount of groundwater infiltration (base GWI) which occurs throughout the dry season.

4 AWWF is the average daily flow during the wet weather season.

5 PWWF is the highest measured flow that occurs during wet weather season.

6 WWPF is the ratio of peak wet weather flow to average dry weather flow (PF = PWWF/ADWF)
According to SC-OR, their East Interceptor sewer trunk line, which serves only LOAPUD’s collection system, has a current capacity of 15 mgd with surcharged flow and 4 feet of freeboard. SC-OR states that the East Interceptor is currently at about 66 percent of peak hydraulic capacity. The current capacity on the East Interceptor sewer trunk line is greater than LOAPUD’s peak flows projected for the year 2030, which is projected to be 14 mgd. No expansion activities are required for the East Interceptor.7

SC-OR’s Main Interceptor sewer trunk line conveys wastewater from all of the SC-OR member entities’ sanitary sewer systems. Data provided by SC-OR shows that the Main Interceptor may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF, which is currently 25 mgd. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF. Since the Main Interceptor is owned and operated by SC-OR, the capacity issue on this line is analyzed in detail in the SC-OR section of this MSR (Chapter 3.0) and a determination to address this issue is found in that chapter. Since the potential lack of future capacity on the Main Interceptor impacts LOAPUD, the determination regarding capacity on the Main Interceptor is included in this section as well.

<table>
<thead>
<tr>
<th><strong>DETERMINATION 5-5: SANITARY SEWER SYSTEM CAPACITIES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on a system-wide average dry weather flow of 0.81 mgd, LOAPUD’s sewer system has adequate capacity to handle existing and future wastewater flows. The District adds new lines and upgrades existing lines as needed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DETERMINATION 5-6: SC-OR EAST INTERCEPTOR SEWER TRUNK LINE CAPACITY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The SC-OR East Interceptor trunk sewer line, which serves only LOAPUD’s sanitary sewer system, has a current capacity of 15 mgd which is greater than LOAPUD’s peak flow of 14 mgd projected for the year 2030.</td>
</tr>
</tbody>
</table>

7 SC-OR Master Planning and Financial Assistance Study, February 2009
DETERMINATION 5-7: SC-OR MAIN INTERCEPTOR SEWER TRUNK LINE CAPACITY

Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF.

SANITARY SEWER IMPROVEMENTS

According to LOAPUD, there are no current plans for expansion of District infrastructure other than developer driven main line extensions on a case-by-case basis. The District has completed Phase I of the State Line Sewer Replacement Project, which replaced and up-sized the State Line Interceptor from the tie-in at the SC-OR East Interceptor, easterly across the U.P.R.R. and Lincoln Blvd. to Myers Street. The District has secured funding for the State Line Sewer Replacement Project 2009 Phase II and has awarded the construction contract for that project. The Phase II improvements will continue easterly from the end of the Phase 1 work at Myers Street, and replaces and up-sizes approximately 500 feet of the interceptor. Phase III of the State Line Sewer Replacement Project will replace all the remaining deficiencies in the State Line Interceptor as addressed in LOAPUD’s Sewer System Master Plan. The estimate for the Phase III work is $3.6 Million and the project is on the priority list for Federal Stimulus Funding. This year the District plans to start the first phase of the Villa Verona STEP (Septic Tank Effluent Pump) System Replacement Project, upgrading that system to a conventional gravity system.

INFLOW AND INFILTRATION (I&I)

During wet weather conditions a large amount of I&I enters LOAPUD’s sewer system. This flow, combined with wet weather flows from the other two member entities’ collection systems, has a significant impact on the SC-OR WWTF which must treat and dispose of the excess flows regardless of the source. LOAPUD’s average dry weather flow is 0.81 mgd, but the District’s average wet weather flow is 4.8 mgd, with a wet weather peaking factor of 9.0, indicating that large and excessive amounts of stormwater runoff and/or groundwater are entering the District’s sewer system.

LOAPUD has taken steps to reduce I&I in their system and has implemented an I&I reduction program that focuses on locating and repairing the defective areas. The District inspects and cleans approximately 15 miles (21 percent) of their sewer system each year which does not include private lateral connections. LOAPUD repairs approximately 5,000 lineal feet of their sewer system each year. According to the District, they have spent over $5.5 million over the last ten years on repairs to their sewer system. The District’s 2008-09 budget includes $200,000
in expenditures for sewer system improvements. Table 5-4 below provides information on LOAPUD’s I&I expenditures for the period 2004-2009.

<p>| SCHEDULE OF &quot;I I&quot; COSTS FOR THE PERIOD 2004-2009 |
|---------------------------------|---------|---------|-----------|---------|</p>
<table>
<thead>
<tr>
<th>WAGES &amp; MATERIALS</th>
<th>EQUIPMENT</th>
<th>REHAB</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004/05</td>
<td>15,615.05</td>
<td>12,208.20</td>
<td>27,823.25</td>
</tr>
<tr>
<td>2005/06</td>
<td>24,801.56</td>
<td>14,702.20</td>
<td>75,000.00</td>
</tr>
<tr>
<td>LINCOLN CROSSING</td>
<td></td>
<td>75,000.00</td>
<td>75,000.00</td>
</tr>
<tr>
<td>2006/07</td>
<td>28,413.76</td>
<td>23,496.00</td>
<td>51,909.76</td>
</tr>
<tr>
<td>2007/08</td>
<td>11,134.15</td>
<td>1,506.40</td>
<td>12,640.55</td>
</tr>
<tr>
<td>OAKVALE COURT</td>
<td></td>
<td>79,020.00</td>
<td>254,620.00</td>
</tr>
<tr>
<td>2008/09 YTD</td>
<td>20,269.48</td>
<td>1,994.80</td>
<td>22,264.28</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100,234.00</td>
<td>132,927.60</td>
<td>250,600.00</td>
</tr>
</tbody>
</table>

Sewer Service Laterals

As mentioned earlier in this section, the District adopted a sewer lateral testing program in May 2009 that, depending on the circumstances, requires testing and maintenance, and repair and replacement if necessary, to private sewer laterals and appurtenances. The District Board directed that the implementation of the testing and repair program be temporarily postponed to obtain input on the program from realtors and contractors.

The purpose of LOAPUD’s lateral testing and repair program is to ensure that sewer service laterals are tested, maintained, and repaired or replaced if necessary to reduce I&I entering the District’s sewer system and help maintain compliance of the Waste Discharge Permit (WDR) issued to the District by the State Water Quality Control Board and the WDR issued to SC-OR. Testing of a sewer lateral will be required in the following instances:

- Connection of a new structure to the District’s sewer system.
- Remodeling of a house, building or property served by the District.
- Change of use of a house, building or property served, for example, from residential to commercial, or from office and professional to restaurant, or from garage to apartment.
- Upon repair or replacement of all or part of the building or lateral sewer lines.
- Prior to the close of escrow upon the sale of a house, building or property served by the District, or by private transfer of a house, building or property served, unless the house,
building or property served has been tested within the previous seven (7) years as evidenced by certificate of passing inspection.

- Where inflow or infiltration is suspected, or if a defect in the lateral sewer is suspected based upon observation by the District.
- Upon determination by the District General Manager that the cleaning and testing is required for the protection of the public health, safety or welfare.

Presently the maintenance of both the lower lateral (that portion of the sewer lateral from the property line to LOAPUD’s sewer line) and the upper lateral (that portion of a sewer lateral from the property line to a structure) are the responsibility of the property owner. With adoption of this program, the District will assume the maintenance of all newly constructed lower laterals. As existing laterals are tested and certified, the District will issue a Certificate of Passing Inspection and assume maintenance of the lower lateral.

<table>
<thead>
<tr>
<th>DETERMINATION 5-8: INFLOW AND INFILTRATION FLOWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>During 2008, LOAPUD had an average dry weather flow of 0.81 mgd, but an average wet weather flow of 4.8 mgd, with a wet weather peaking factor of 9.0, all of which indicate that LOAPUD has excessive inflow and infiltration entering their sewage collection system.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 5-9: SANITARY SEWER SYSTEM INSPECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAPUD utilizes smoke testing, CCTV equipment, flow meters, and manhole inspections to help identify the locations of I&amp;I which have resulted in numerous repairs to their collection system. LOAPUD should continue to use this approach to solving I&amp;I in their collection system.</td>
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<th>DETERMINATION 5-10: SANITARY SEWER SYSTEM INSPECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAPUD currently cleans and inspects approximately 15 miles (21 percent) of their sewer system each year and should consider enhancing this program each year in a greater effort to reduce I&amp;I and prevent sanitary sewer overflows.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 5-11: SEWER LATERAL TESTING PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAPUD recently adopted a comprehensive sewer lateral testing program that will help reduce I&amp;I entering private sewer laterals and should consider assistance and outreach programs to landowners to encourage greater participation in this program.</td>
</tr>
</tbody>
</table>

FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES

The Lake Oroville Area Public Utility District is a public agency formed and existing under the laws of the State of California, and as such is a non-profit, tax-exempt district. The District accounts for its operations and activities as a utility enterprise fund. The enterprise fund is
operated in a manner similar to private business enterprises where the intent of the governing body is that costs (expenses, including depreciation) of providing goods or services on a continuing basis be financed or recovered primarily through user service charges.

The District distinguishes *operating* revenues and expenses from *non-operating* items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with a proprietary fund's principal ongoing operations. Principal operating revenues of the District are charges to customers for sales and services including operating charges collected through special assessments on certain property tax rolls. Operating expenses for the District include salaries and benefits, supplies and other services, and insurance premiums.

Revenues and expenses are recognized on the accrual basis. Revenues are recognized in the accounting period in which they are earned and expenses are recognized in the period incurred, regardless of when the related cash flows actually take place. When both restricted and unrestricted resources are available for use, it is the District's policy to use restricted resources first, then unrestricted resources as needed.

LOAPUD has three primary sources of operating revenue:

- Service fees
- Property taxes
- Earned interest

Current LOAPUD fees are found in Table 5-5. Connection fees and capacity charges for industrial uses are determined on a case by case basis. In addition to these service charges, LOAPUD also collects line extension fees and inspection fees.

<table>
<thead>
<tr>
<th>Type of Service Charge</th>
<th>Service Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Charge (Primary System)</td>
<td>$8.40/EDU/month</td>
</tr>
<tr>
<td>RDA Debt Service (Primary System)</td>
<td>$4.90/EDU/month</td>
</tr>
<tr>
<td>Pumping Charge (Primary System)</td>
<td>$4.30/EDU/month</td>
</tr>
<tr>
<td>KRE Pumping Charge (Primary System)</td>
<td>$1.35/EDU/month</td>
</tr>
<tr>
<td>STEP Service Charge</td>
<td>$13.20/EDU/month</td>
</tr>
<tr>
<td>Residential/Commercial Connection Fee</td>
<td>$765.00/EDU</td>
</tr>
<tr>
<td>Residential/Commercial Capacity Charge</td>
<td>$2,030.00/EDU</td>
</tr>
<tr>
<td>Annexation Fee</td>
<td>$765.00/acre</td>
</tr>
</tbody>
</table>

Annual audit reports for FYs ending 2007 and 2008 and financial statements for the District were reviewed to determine fiscal viability, suitability of current funding practices, and potential fiscal impacts resulting from new legislation.

---

8 LOAPUD 2009-10 Fee Schedule, effective July 1, 2009, Resolution 4-09 adopted June 9, 2009
In accordance with Government Code Section 53901, every local agency shall file a copy of its annual budget with the County Auditor of the County in which it conducts its principal operations unless exempted by the County Auditor 60 days after the beginning of its fiscal year. The District submits its budget resolution to the County annually in July and its financial statement in November.

The Auditor’s Report for FY 2008 for the District noted five material weaknesses in financial reporting or operations. A material weakness is a condition in which one or more of the internal control components does not ensure accuracy in financial statements or provide adequate internal oversight. The material weaknesses identified in the Auditor’s Report include: the hiring of an accountant or CPA to compile full disclosure financial statements; purchasing fixed asset software or designing a spreadsheet to maintain the District’s fixed assets and to compute depreciation and estimate useful lives for the District’s fixed assets; reconciliation of the accounts receivable subsidiary ledger and the customer project/annexation deposits accounts; and credit card expenses.

During the year ended June 30, 2008, the District's net assets decreased $156,000 (1%), from $11,298,000 to $11,142,000. The District's operating revenues increased $5,633 (1%) while operating expenses increased $192,170 (15%). Equity invested in capital assets, net of related debt, increased $1,300,000 from $7.6 million to $8.9 million. Restricted net assets increased $122,000. Table 5-6 below summarizes LOAPUD’s net assets for the 2007 and 2008 fiscal years.

Table 5-6.  LOAPUD Net Assets – FY 2007 & 2008

<table>
<thead>
<tr>
<th>Lake Oroville Area Public Utility District’s Net Assets</th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current and other assets</td>
<td>$653</td>
<td>2,380</td>
</tr>
<tr>
<td>Restricted and non-current assets</td>
<td>1,757</td>
<td>1,635</td>
</tr>
<tr>
<td>Capital assets</td>
<td>13,727</td>
<td>12,510</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td>16,137</td>
<td>16,525</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>4,792</td>
<td>4,847</td>
</tr>
<tr>
<td>Other Liabilities</td>
<td>202</td>
<td>380</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td>4,994</td>
<td>5,227</td>
</tr>
<tr>
<td>Net Assets:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invest in capital assets, net of debt</td>
<td>8,948</td>
<td>7,624</td>
</tr>
<tr>
<td>Restricted</td>
<td>1,715</td>
<td>1,593</td>
</tr>
<tr>
<td>Unrestricted</td>
<td>479</td>
<td>2,081</td>
</tr>
<tr>
<td><strong>Total Net Assets</strong></td>
<td>$11,142</td>
<td>$11,296</td>
</tr>
</tbody>
</table>

9 Auditor’s Report, prepared by David Hammon & Co, October 1, 2008
During the fiscal year 2008, 82% of the District's operating revenue came from sewer service charges, up from 79% during the fiscal year 2007. The District's operating expenses increased 14%, from $1,420,000 to $1,513,455, primarily due to a larger customer base and inflationary costs. The District's non-operating revenues, net of non-operating expenses, decreased 10%.

The District incurred a $797,338 operating loss during fiscal year 2008, and a $610,801 loss in year 2007. These operating losses are offset by the funds received from non-operational revenues. Table 5-7 provides a breakdown of LOAPUD’s changes in equity for the 2007 and 2008 fiscal years.

Table 5-7. LOAPUD Changes in Equity – FY 2007 & 2008

<table>
<thead>
<tr>
<th>Lake Oroville Area Public Utility District’s Changes in Equity</th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charges for services</td>
<td>$914</td>
<td>$901</td>
</tr>
<tr>
<td>Taxes</td>
<td>311</td>
<td>279</td>
</tr>
<tr>
<td>Interest</td>
<td>133</td>
<td>240</td>
</tr>
<tr>
<td><strong>Total Revenues</strong></td>
<td>1358</td>
<td>1420</td>
</tr>
<tr>
<td><strong>Expenses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration and general</td>
<td>538</td>
<td>572</td>
</tr>
<tr>
<td>Sewage collection and services</td>
<td>423</td>
<td>377</td>
</tr>
<tr>
<td>Depreciation</td>
<td>552</td>
<td>372</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td>1,513</td>
<td>1,321</td>
</tr>
<tr>
<td>Increase (Decrease) in net assets before contributions</td>
<td>&lt;155&gt;</td>
<td>99</td>
</tr>
<tr>
<td>Change In Net Assets</td>
<td>$&lt;310&gt;</td>
<td>$99</td>
</tr>
</tbody>
</table>

Overall, LOAPUD is financially stable and is capable of providing sewer collection and conveyance services to District customers. LOAPUD should continue to review and revise their sewer service and connection charges to recover operational and maintenance costs, build capital reserves and implement the lateral replacement program. As the implementation of the new SSMP/SSO requirements proceed, it is likely that all of the SC-OR member entities will require rate increases to cover increased SSMP-related operating expenses (systematic sewer collection system cleaning, inspection, and repair). The revenue received by LOAPUD from property tax is being reduced (and may likely be phased out) in future years because of the increased requirements for special district financial contributions to reduce the State’s debt. In anticipation of this, LOAPUD should consider increasing its service fees and connection charges in order to reduce its reliance on property taxes.
### DETERMINATION 5-12: FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES

LOAPUD’s primary source of revenue is service fees (82%) with additional revenue from connection charges, property taxes, and earned interest.

### DETERMINATION 5-13: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

Current sewer service and connection charges, combined with income from other sources, are adequate to cover the costs of providing services; however, the District should continue to review and revise their sewer service and connection charges to recover operational and maintenance costs, build a capital reserve and reduce its reliance on revenue from property taxes.

As the implementation of the new SSMP/SSO requirements proceed, it is likely that all of the SC-OR member entities will require rate increases to cover increased SSMP-related operating expenses (systematic sewer collection system cleaning, inspection, repair, and reporting costs).

The District submits its annual budget to the County Auditor in compliance with California Government Code Section 53901.

### STATUS OF, AND OPPORTUNITIES FOR, COST AVOIDANCE AND SHARED FACILITIES

LOAPUD is a part of the Sewerage Commission-Oroville Region (SC-OR) Joint Powers Authority, along with the City of Oroville and the Thermalito Water & Sewer District, each of which provides only wastewater collection and conveyance systems. LOAPUD currently does not share facilities or maintenance resources with any other public entity.

The District utilizes several cost avoidance measures in its operations. The District is exposed to various risks of losses related to torts; theft of, damage to, and destruction of assets; errors and omissions; injuries to employees and natural disasters. The District transfers risks that may arise from these and other events through the purchase of liability insurance. The District recently installed supervisory control and data acquisition (SCADA) systems in their larger pump stations, which has resulted in reduced systems monitoring activities by District staff. Additionally, the District is exploring the installation of alternate energy sources, such as solar energy, to help reduce their electrical utility bills.

Given the large cost of capital improvements, a careful planning process is a crucial means of cost avoidance. The District plans for future funding of necessary improvements utilizing budgetary tools such as rate structure, connection fees, and property tax revenues. Other cost avoidance measures include applying for grants, sharing safety training costs with the South Feather Water and Power Agency, the City of Oroville, and the Thermalito Water and Sewer District, and utilizing a small crew for smaller projects.

The District does not have plans to share personnel for regular operations and maintenance activities. Sharing or jointly purchasing specialized equipment should be evaluated for possible
cost savings. The District staff and equipment is always available to serve for mutual aid assistance in the event of an emergency.

There are significant opportunities for shared facilities with the other SC-OR entities, which could result in savings to the districts’ ratepayers. As an example, the SC-OR member entities could share operations and maintenance personnel, equipment for construction efforts, pipe inspection and repair, and tools. There is currently no formal program established between the member entities to foster the sharing of equipment or personnel. There is also an opportunity for the member agencies to order supplies and materials in bulk, which has the potential to result in significant cost savings.

**DETERMINATION 5-14: OPPORTUNITIES FOR COST AVOIDANCE AND SHARED FACILITIES**

| While the District appears to utilize internal cost avoidance opportunities, facilities sharing efforts are not actively pursued. LOAPUD and the other SC-OR member entities should consider establishing a program to 1) share equipment, materials, personnel, expertise, and training and 2) consider purchasing supplies and materials in bulk. |

**ACCOUNTABILITY FOR COMMUNITY SERVICE NEEDS, INCLUDING GOVERNMENTAL STRUCTURE AND OPERATIONAL EFFICIENCIES**

The Lake Oroville Area Public Utility District operates under the oversight and guidance of a Board of Directors that includes five voting members. The Directors are elected at large and serve staggered four-year terms. The Board of Directors is responsible for setting policy and general administrative procedures for the District, and establishes and regulate rates, fees, service and capacity charges. The policies and procedures set by the Board are administered by the District General Manager. The LOAPUD Board of Directors meet in regular session once monthly on the second Tuesday of each month at 2:00 p.m. at the District Office located at 1960 Elgin Street, Oroville. Special meetings are held as needed.

LOAPUD's Board members receive a $400/month stipend. LOAPUD appears to comply with all applicable provisions of the Brown Act, including noticing meetings, which are posted at least 72 hours in advance at the District office and on the District’s website (http://www.loapud.com).

LOAPUD has nine full-time employees as shown on LOAPUD’s organizational chart (Figure 5-4). The only activities performed by outside contractors are engineering, surveying, auditing, and legal services.

The LOAPUD Board of Directors appoints the General Manager. The ratio of managers to workers is appropriate; LOAPUD is not top heavy in managers. LOAPUD has various policies and procedures related to personnel, provision of services, customer relations, operations and maintenance, relationships with other agencies, and the like.
The management structure of LOAPUD is relatively simple and is well suited to the type of operations undertaken by the District. No alternative structures or reorganizations of staff would result in more efficient operations, and the existing structure is considered appropriate. As the LOAPUD collection system increases in size and connection, LOAPUD should add professional and technical staff as needed to ensure that operational and maintenance needs are met.

LOAPUD maintains a website that contains information on the District. Meeting agendas, meeting minutes, LOAPUD’s and SC-OR’s fee schedules, and links to other public agencies are placed on the District’s website. Additionally, District customers can make payments using the District’s website. LOAPUD should consider placing staff reports, staff memorandums, environmental review documents, and their Sanitary Sewer Management Plan on their website to ensure that the public has easy access to these documents. The District should also consider placing information on I&I and the District’s lateral repair and replacement program on their website.

LOAPUD anticipates expanding its boundaries to accommodate new development as it occurs and is currently working towards submitting a sphere of influence (SOI) update request to LAFCo. According to the District, expansion of the SOI will generally be to the south and east of the existing SOI as these areas are identified by the County General Plan Update 2030 for growth. The District should submit their SOI update request to LAFCo as soon as possible to ensure that their sphere is current. Failure of the District to have their SOI updated may result in sphere amendments and annexation applications being denied or deemed incomplete due to lack of a current SOI.
**DETERMINATION 5-15: GOVERNMENTAL STRUCTURE**

| LOAPUD is governed by a five-member Board of Directors elected at large by voters within the District. LOAPUD holds meetings which are open and accessible to the public. LOAPUD maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements. |

---

**DETERMINATION 5-16: MANAGEMENT EFFICIENCIES**

| The Lake Oroville Area Public Utility District operates with minimal staff, and contracts for some services such as engineering consulting. The overall management structure of LOAPUD is sufficient to account for necessary services and to maintain operations in an efficient and effective manner. LOAPUD is adequately staffed at this time. |

---

**DETERMINATION 5-17: WEBSITE**

| LOAPUD maintains a website that contains useful public information. The District should consider providing additional information on their website by including staff reports and memorandums, environmental review documents, the District’s adopted Sanitary Sewer Management Program, and financial information, such as the District’s approved and draft budgets and financial statements. LOAPUD should also consider placing information on I&I and the District’s sewer lateral testing program on their website. |

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**DETERMINATION 5-18: SPHERE OF INFLUENCE UPDATE**

| The District should submit their SOI update request to LAFCo as soon as possible to ensure that their SOI is current. Failure of the District to have their SOI updated may result in sphere amendments and annexation applications being rejected or deemed incomplete due to lack of a current SOI. |

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**ANY OTHER MATTER RELATED TO EFFECTIVE OR EFFICIENT SERVICE DELIVERY, AS REQUIRED BY COMMISSION POLICY**

An analysis of the SC-OR Joint Powers Agreement, of which LOAPUD is a member, is discussed in detail in Chapter 2.0 of this MSR.

**SUMMARY OF DETERMINATIONS**

**DETERMINATION 5-1: SEWER LATERAL PROGRAM**

| The sewer lateral inspection program is a fundamental component of the District’s overall efforts to increase system efficiency and reduce I&I levels. It is recognized that the inspection program may not yield significant results for many years considering the number of laterals and the criteria for conducting the inspections. |
### DETERMINATION 5-2: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

The District’s sanitary sewer system, most of which has been constructed in the last 35 years, is generally in good condition. LOAPUD’s collection system currently has no significant capacity issues. However, large development projects may be required to upgrade the existing collection system downstream if additional capacity is required.

### DETERMINATION 5-3: SANITARY SEWER OVERFLOWS

LOAPUD has had one minor sanitary sewer system overflow since mandatory reporting of SSOs began in 2007 resulting from operator error. This low number of SSOs is an indication that LOAPUD’s sewer system is being adequately operated and maintained.

### DETERMINATION 5-4: SANITARY SEWER MANAGEMENT PLAN

LOAPUD has adopted all elements of its Sanitary Sewer Management Plan as required by the State Water Quality Control Board. The District should place their SSMP on their webpage for public convenience.

### DETERMINATION 5-5: SANITARY SEWER SYSTEM CAPACITIES

Based on a system-wide average dry weather flow of 0.81 mgd, LOAPUD’s sewer system has adequate capacity to handle existing and future wastewater flows. The District adds new lines and upgrades existing lines as needed.

### DETERMINATION 5-6: SC-OR EAST INTERCEPTOR SEWER TRUNK LINE CAPACITY

The SC-OR East Interceptor trunk sewer line, which serves only LOAPUD’s sanitary sewer system, has a current capacity of 15 mgd which is greater than LOAPUD's peak flow of 14 mgd projected for the year 2030.

### DETERMINATION 5-7: SC-OR MAIN INTERCEPTOR SEWER TRUNK LINE CAPACITY

Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF.
DETERMINATION 5-8: INFLOW AND INFILTRATION FLOWS

During 2008, LOAPUD had an average dry weather flow of 0.81 mgd, but an average wet weather flow of 4.8 mgd, with a wet weather peaking factor of 9.0, all of which indicate that LOAPUD has excessive inflow and infiltration entering their sewage collection system.

DETERMINATION 5-9: SANITARY SEWER SYSTEM INSPECTION

LOAPUD utilizes smoke testing, CCTV equipment, flow meters, and manhole inspections to help identify the locations of I&I which have resulted in numerous repairs to their collection system. LOAPUD should continue to use this approach to solving I&I in their collection system.

DETERMINATION 5-10: SANITARY SEWER SYSTEM INSPECTION

LOAPUD currently cleans and inspects approximately 15 miles (21 percent) of their sewer system each year and should consider enhancing this program each year in a greater effort to reduce I&I and prevent sanitary sewer overflows.

DETERMINATION 5-11: SEWER LATERAL TESTING PROGRAM

LOAPUD recently adopted a comprehensive sewer lateral testing program that will help reduce I&I entering private sewer laterals and should consider assistance and outreach programs to landowners to encourage greater participation in this program.

DETERMINATION 5-12: FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES

LOAPUD’s primary source of revenue is service fees (82%) with additional revenue from connection charges, property taxes, and earned interest.

DETERMINATION 5-13: FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

Current sewer service and connection charges, combined with income from other sources, are adequate to cover the costs of providing services; however, the District should continue to review and revise their sewer service and connection charges to recover operational and maintenance costs, build a capital reserve and reduce its reliance on revenue from property taxes.

As the implementation of the new SSMP/SSO requirements proceed, it is likely that all of the SC-OR member entities will require rate increases to cover increased SSMP-related operating expenses (systematic sewer collection system cleaning, inspection, repair, and reporting costs).

The District submits its annual budget to the County Auditor in compliance with California Government Code Section 53901.
### DETERMINATION 5-14: OPPORTUNITIES FOR COST AVOIDANCE AND SHARED FACILITIES

| While the District appears to utilize internal cost avoidance opportunities, facilities sharing efforts are not actively pursued. LOAPUD and the other SC-OR member entities should consider establishing a program to 1) share equipment, materials, personnel, expertise, and training and 2) consider purchasing supplies and materials in bulk. |

### DETERMINATION 5-15: GOVERNMENTAL STRUCTURE

| LOAPUD is governed by a five-member Board of Directors elected at large by voters within the District. LOAPUD holds meetings which are open and accessible to the public. LOAPUD maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements. |

### DETERMINATION 5-16: MANAGEMENT EFFICIENCIES

| The Lake Oroville Area Public Utility District operates with minimal staff, and contracts for some services such as engineering consulting. The overall management structure of LOAPUD is sufficient to account for necessary services and to maintain operations in an efficient and effective manner. LOAPUD is adequately staffed at this time. |

### DETERMINATION 5-17: WEBSITE

| LOAPUD maintains a website that contains useful public information. The District should consider providing additional information on their website by including staff reports and memorandums, environmental review documents, the District’s adopted Sanitary Sewer Management Program, and financial information, such as the District’s approved and draft budgets and financial statements. LOAPUD should also consider placing information on I&I and the District’s sewer lateral testing program on their website. |

### DETERMINATION 5-18: SPHERE OF INFLUENCE UPDATE

| The District should submit their SOI update request to LAFCo as soon as possible to ensure that their SOI is current. Failure of the District to have their SOI updated may result in sphere amendments and annexation applications being rejected or deemed incomplete due to lack of a current SOI. |
6.0 – THERMALITO WATER AND SEWER DISTRICT

AGENCY OVERVIEW

Thermalito Water and Sewer District (the “District”) was formed in 1922 to provide irrigation and domestic water to the Thermalito area and was originally named Thermalito Irrigation District. Sanitary sewer collection and conveyance services were added to the District in 1972. In 2008, the District’s name was changed to the Thermalito Water and Sewer District.

The District provides sanitary sewer collection and conveyance services for unincorporated and incorporated properties in the Thermalito area generally northwest of the City of Oroville (see Figure 6.1). It also provides domestic water services for the parcels within its boundaries. The District collects wastewater from its customers and conveys it to Sewerage Commission-Oroville Region (SC-OR) facilities for treatment and disposal. The District’s sewer system is considered to be a “satellite collection system” to SC-OR.

SC-OR is a Joint Powers Agency comprised of the District, the City of Oroville, and Lake Oroville Area Public Utilities District (LOAPUD). It provides wastewater treatment and disposal for its member entities.

The District provides service to approximately 9,140 people. Customers include single and multiple family residences, a variety of commercial and industrial uses, and public facilities including schools and recreational facilities. According to the District, service was provided to 2,675 equivalent dwelling units (EDUs) as of February 2009. Only twenty lots within District boundaries utilize individual, on-site septic systems for sewage disposal.

Land uses within the District are primarily very low and low density residential. The few commercial and industrial uses in the District are found primarily along major roads in the District, such as Oro-Dam Boulevard West (SR 162) and Grand Avenue. Approximately 8,934 acres of the District, mainly located north of the Thermalito Forebay, consists of agricultural grazing lands. The District’s service boundary encompasses approximately 14,858 acres while its Sphere of Influence (SOI) encompasses approximately 44,077 acres. There is significant overlap of the District’s SOI with the City of Oroville’s SOI.

<table>
<thead>
<tr>
<th>District Size:</th>
<th>14,858 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009 Estimated Population Served:</td>
<td>9,140</td>
</tr>
<tr>
<td>Office Location:</td>
<td>410 Grand Avenue, Oroville, CA 95965</td>
</tr>
<tr>
<td>Services:</td>
<td>Wastewater collection/conveyance and domestic water</td>
</tr>
<tr>
<td>Employees:</td>
<td>11 full time</td>
</tr>
<tr>
<td>Date of Formation:</td>
<td>1922</td>
</tr>
<tr>
<td>Enabling Legislation:</td>
<td>California Water Code, Division 11, §20500 et seq.</td>
</tr>
</tbody>
</table>
Figure 6-1   TWSD Boundary and Sphere of Influence Map
PRESENT AND PLANNED CAPACITY OF PUBLIC FACILITIES AND ADEQUACY OF PUBLIC SERVICES,
INCLUDING INFRASTRUCTURE NEEDS OR DEFICIENCIES

General

Thermalito Water and Sewer District owns and operates a sanitary sewer conveyance system that serves both unincorporated and incorporated properties areas in the Thermalito area of Oroville. The District’s administrative offices and maintenance complex, which was constructed in 1968, is located at 410 Grand Avenue in Thermalito. The District has 2,108 sewer connections, serving 2,675 EDUs and approximately 9,140 people. Portions of the District are located within the incorporated area of the City of Oroville and the District provides sanitary sewer collection and conveyance services for those parcels. The District does not provide sewer collection service for the Oroville Municipal Airport, which is owned by and within the City of Oroville. However, it does provide sewer trunk line service for wastewater from the Oroville Municipal Airport under a contract with the City of Oroville. Additionally, the District provides sewer trunk line service in its East Trunk Line for wastewater collected from parcels within the City of Oroville east of 5th & Grand Avenues and north of the Feather River. Almost the entire portion of the City of Oroville north of the Feather River is within the District’s service boundaries. However, the District only provides domestic water service in that area.

The District provides sewer service to parcels within its service area. For proposed developments within the District, the District will provide a conditional sewer service availability letter to landowners stating that the District will provide sewer service to a parcel when the landowner has complied with the District’s terms and conditions and subject to District determination that adequate capacity exists in its conveyance system and SC-OR’s determination that there is adequate capacity at the wastewater treatment facility. As required by SC-OR and the District, landowners developing their properties for twenty or more lots must also enter a development agreement which, among other things, requires them to obtain a sewer capacity analysis from SC-OR. Since access to available capacity is allocated on a “first come, first served” basis, the District places a time limit on the sewer service availability letter, which typically is one year from issuance.

If extension or modification of the District’s sanitary sewer facilities is required to provide service, the landowner is required to enter into a pre-annexation and development agreement with the District that outlines the terms and conditions of extensions and/or modifications to the sewer system.

SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM INFRASTRUCTURE

The District’s sanitary sewer collection system was originally built in the 1970’s, and approximately 75 percent of the District’s system is that old. Table 6-1 below provides a breakdown of the age of the District’s sewer system.
The District’s sanitary sewer collection system is predominately a gravity flow system, although the system includes 0.8 miles of force main and one pump station. Gravity collection systems are designed to use as few pumps as possible by taking advantage, to the extent possible, of the natural lay of the land. Table 6-2 provides data on the District’s collection system.

### Table 6-2  TWSD Sewer System Data

<table>
<thead>
<tr>
<th>Description</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of forced mains</td>
<td>0.834 miles</td>
</tr>
<tr>
<td>Length of gravity sewers</td>
<td>35.5 miles</td>
</tr>
<tr>
<td>Number of manholes</td>
<td>572</td>
</tr>
<tr>
<td>Number of pump stations</td>
<td>1</td>
</tr>
<tr>
<td>Number of service laterals</td>
<td>2,108</td>
</tr>
<tr>
<td>Length of service laterals</td>
<td>16 miles</td>
</tr>
<tr>
<td>Number of Equivalent Dwelling Units</td>
<td>2,675</td>
</tr>
</tbody>
</table>

Figure 6-2 shows the location of the District’s sewer lines.

The District and the City of Oroville in 1973 entered a contract allowing the City to discharge wastewater collected from areas within the City into the District’s East Trunk Line, up to a maximum design flow of 0.74 million gallons per day (MGD), and the Airport Collector, up to a maximum design flow of 0.20 MGD. All of the wastewater collected by the District is discharged to the SC-OR West Interceptor, located on Oro-Dam Boulevard. The West Interceptor conveys wastewater to SC-OR's Main Interceptor at South 5th Avenue and Cal Oak Road, from which it is then conveyed to the SC-OR’s waste water treatment facility (WWTF) for treatment and disposal.

There are approximately 2,108 private, non-District maintained service laterals connected to the District’s sewer system. The service laterals are the small diameter sewer lines that extend from a customer’s dwelling or business to the District’s sewer lines, which are normally located in the adjacent street.

The pipelines in the District’s collection system consist primarily of asbestos cement pipe, which has a life expectancy of up to 100 years. The newer pipe in the District’s system is constructed almost exclusively with PVC. The condition of the District’s collection system is generally good and any identified lines that require service are being maintained by the District.

### Table 6-1  TWSD Sewer System Age

<table>
<thead>
<tr>
<th>Date of Construction</th>
<th>Percentage of System</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-present</td>
<td>15%</td>
</tr>
<tr>
<td>1980-1999</td>
<td>10%</td>
</tr>
<tr>
<td>1960-1979</td>
<td>75%</td>
</tr>
</tbody>
</table>
Figure 6-2
TWSD Facilities Map
DETERMINATION 6-1: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

The District’s sanitary sewer system, most of which has been constructed in the last 35 years, is generally in good condition.

Sanitary Sewer Overflows

In the last three years, the District has experienced three sanitary sewer overflows (SSOs). Two occurred in 2007 and one in 2008. None resulted in a claim. A SSO is any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system. A sanitary sewer system is any system of pipes, pump stations, sewer lines, or other conveyances, which is owned or operated by a public entity, used to collect and convey wastewater to a treatment facility. SSOs do not include overflows from privately-owned service laterals when these overflows are caused by blockages or other problems within the privately-owned lateral. These overflows are known as private lateral sewage discharges (PLSDs). SSOs do include overflows from privately-owned laterals when the cause is a problem within the publicly-owned sanitary sewer system.

The State Water Resources Control Board (SWRCB) maintains an online database, the California Integrated Water Quality System (CIWQS), where permit violations and SSOs are reported.1 Mandatory SSO reporting for SC-OR and the SC-OR member entities began on May 2, 2007. A check of the CIWQS webpage confirms that the District has had only three reported SSO’s mentioned above. Details of the three SSOs are as follows:

1. CIWQS SSO Event ID: 710732
   SSO Type: Category 2
   On December 10, 2007, a SSO occurred from an open clean out, with a total spill volume of approximately 400 gallons, of which approximately 250 gallons were recovered. The spill did not flow into any waterway. The SSO was caused by a grease/soap blockage in a dead-end sewer line.

2. CIWQS SSO Event ID: 709811
   SSO Type: Category 1
   On December 18, 2007, a manhole SSO occurred, which flowed at approximately 25 gallons per minute (gpm) for a total spill volume of approximately 3,750 gallons, none of which was recovered. The spill flowed into Ruddy Creek. The SSO was caused by a blockage due to root intrusion.

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1 http://www.waterboards.ca.gov/water_issues/programs/ciwqs/chc_sso.shtml
2 SSO Category 2 – All discharges of sewage resulting from a failure in an Enrollee’s sanitary sewer system not meeting the definition of Category 1.
3 SSO Category 1 – All discharges of sewage resulting from a failure in an Enrollee’s sanitary sewer system that: A. Equal or exceed 1000 gallons; or B. Result in a discharge to a drainage channel and/or surface water; or C. Discharge to a storm drainpipe that was not fully captured and returned to the sanitary sewer system.
3. CIWQS SSO Event ID: 728794
   SSO Type: Category 1
   On November 2, 2008, a SSO occurred from a pick hole in a manhole lid, which flowed at approximately 25 gpm for a total spill volume of approximately 500 gallons, none of which was recovered. The spill flowed into Ruddy Creek. The SSO was caused by a fats, oil, grease (FOG) coating around the pipe that reduced the diameter of the pipe to allow a debris plug.

The District has implemented an aggressive inspection and cleaning program for their sewer system to reduce or eliminate the likelihood of future SSOs.

Sanitary Sewer Management Plan (SSMP)

The State Regional Water Quality Control Board requires that all wastewater treatment and conveyance agencies prepare and adopt a Sanitary Sewer Management Plan (SSMP). A SSMP is a comprehensive plan which includes provisions to provide proper and efficient management, funding, operation, and maintenance of sanitary sewer systems, while taking into consideration risk management and cost benefit analysis. Additionally, a SSMP must contain a spill response plan that establishes standard procedures for immediate response to a SSO in a manner designed to minimize water quality impacts and potential nuisance conditions.

The SSMP documents an agency’s program to properly operate and maintain its sanitary sewer system. Each SSMP should address the following elements:

1) Goals,
2) Organization,
3) Legal Authority,
4) Operation and Maintenance Program,
5) Design and Performance Provisions,
6) Overflow Emergency Response Plan,
7) Fats, Oils, and Grease (FOG) Control Program,
8) System Evaluation and Capacity Assurance Plan,
9) Monitoring, Measurement, and Program Modifications,
10) SSMP Program Audits, and
11) Communication Program.

Agencies are required to certify that the final SSMP and its constituent subparts are in compliance with the Sanitary Sewer Order (Water Quality Order No. 2006-0003) within the required time frames. Agencies are also required to obtain their governing board’s approval of the SSMP Development Plan and Schedule, and final SSMP at a public hearing prior to certification of the SSMP as complete and in compliance. The District is required to adopt all of the SSMP elements by May 2, 2010. To date, it has adopted five elements of its SSMP, with adoption of two other elements expected by November 2009 and the four remaining SSMP elements expected before the 2010 deadline.
**DETERMINATION 6-2: SANITARY SEWER OVERFLOWS**

The District has had three sanitary sewer system overflows since reporting of SSOs began in 2007, all of which were caused by grease buildup or root intrusion. The District has implemented an aggressive inspection and cleaning program for its sewer system, which should help prevent future SSOs.

**DETERMINATION 6-3: SANITARY SEWER MANAGEMENT PLAN**

The District has adopted some elements of its Sanitary Sewer Management Plan, with final adoption of all elements expected prior to its May 2010 deadline. The District should consider placing its SSMP, when adopted, on its webpage for public convenience.

**SANITARY SEWER COLLECTION AND CONVEYANCE CAPACITIES**

The District collects an average of 182.5 million gallons of wastewater per year, with an average daily dry weather (ADDW) flow of approximately 0.5 mgd as reported by SC-OR. Its average wet weather flow (AWWF) is approximately 2.4 mgd, with a wet weather peaking factor of 5.5. Table 6-3 below provides information on the District’s sewer system capacities.

| Table 6-3 2008 TWSD Sewer System Flows* |
|-----------------|-----------------|
| Average Dry Weather Flow* | 0.5 mgd |
| Wet Weather Flow | 2.8 mgd |
| Wet Weather Peaking Factor | 4.8 |

*Includes City of Oroville wastewater conveyed by District

With the exception of its East Trunk Line (discussed below), the District’s collection system has adequate capacity to handle existing and future wastewater flows. The District adds new lines and upgrades existing lines as needed, usually as a result of new development or identified deficiencies. Large developments may be required to substantially upgrade the existing collection system downstream if additional capacity is required.

All of the wastewater collected by the District is conveyed to SC-OR’s West Interceptor sewer trunk line on Oro Dam Boulevard West (SR 162). Regardless of the capacity or condition of the District’s facilities, the West Interceptor currently exceeds its hydraulic capacity during peak wet weather flows, which could result in SSO’s. Since the West Interceptor is owned and operated

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4 ADWF is the flow for an average day during the dry weather months of May through October, and represents the baseline of sewage flow for the service area. The ADWF includes sewage discharges plus the average amount of groundwater infiltration (base GWI) which occurs throughout the dry season.
5 WWF is the highest flow recorded during a 24 hour period during 2008
6 The ratio of average dry weather flow to average wet weather flow
7 SC-OR Master Planning and Financial Assistance Study, February 2009
by SC-OR, the capacity issue on this line is analyzed in the SC-OR section of this MSR (Chapter 3.0) and a determination to address this issue has been recommended. Since the lack of capacity in the West Interceptor impacts the District the same determination is included in this chapter.

SC-OR’s Main Interceptor sewer trunk line, which conveys wastewater from all of the SC-OR member entity’s sanitary sewer systems, is very close to reaching its hydraulic capacity during peak wet weather flow due to limited pumping capacity at the WWTF. Since the Main Interceptor is owned and operated by SC-OR, the capacity issue on this line is analyzed in the SC-OR section of this MSR (Chapter 3.0) and a determination to address this issue has been recommended. Since the lack of capacity on the Main Interceptor impacts the District’s sewer system, the determination regarding capacity on the Main Interceptor is also included in this chapter.

In 1973, the District and the City of Oroville entered into a contract allowing the City to discharge wastewater collected from northeast areas within the City into District facilities for ultimate conveyance to SC-OR facilities for treatment and disposal. The City of Oroville paid the District $80,000 for the design and construction of these facilities, which includes the District’s East Trunk Line and Airport Collector Trunk Line. However, the City of Oroville does not compensate the District for the daily volume of wastewater conveyed through the two trunk lines. The contract allocates 0.74 mgd of design flow capacity in the East Trunk Line and 0.2 mgd of design flow capacity in the Airport Collector Trunk Line to the City of Oroville. The City collects sewage east of 5th & Grand Avenues and north of the Feather River and discharges it to the District’s East Trunk Line at the 5th & Grand Avenues metering station. Wastewater from the City’s airport complex is discharged into the District’s Airport Collector trunk line.

There are currently no capacity issues on the Airport Collector trunk line. The District’s East Trunk Line has an average dry weather flow of 0.36 mgd and has adequate capacity during the dry seasons of the year. However, the District prepared a planning level hydraulic study of the East Trunk Line, which shows that the line is at hydraulic capacity during peak wet weather flows. The study showed that the East Trunk Line has an estimated hydraulic capacity of 1.57 mgd but has a peak wet weather flow of 1.93 mgd, which equates to 123% capacity of the line. However, the City of Oroville’s Draft Sewage Disposal Master Plan Update shows that this line has a peak wet weather flow of 1.41 mgd based on computer modeling of a 10-year design storm, which equates to 90% capacity. The City and TWSD are currently evaluating this capacity issue and both agencies agree that the East Interceptor is impacted. Until such time as a resolution of this issue is reached and capacity increased, both agencies should limit new connections that would flow into the East Interceptor.

The Capital Improvement Program contained in the City’s Draft Sewage Disposal Master Plan shows that capacity improvements are proposed to the District’s East Trunk Line, which involves replacing 703 feet of 10-inch pipe with 15-inch pipe and replacing 2,796 feet of 12-inch pipe.

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8 SC-OR Master Planning and Financial Assistance Study, February 2009
9 Contract between Thermalito Irrigation District and City of Oroville for Payment of $80,000 to Thermalito Irrigation District Upon Certain Conditions. (December 17, 1973).
10 Draft TID Sanitary Sewer System Conveyance Study
11 City of Oroville Draft Sewage Disposal Master Plan, October 2008
with 15-inch pipe. However, the City’s proposed improvements are not consistent with District’s design criteria of not allowing any pipe surcharging during wet weather events or their intention to replace and upsize the entire East Trunk Line. The Draft Sewage Disposal Master Plan Update states that the improvements to the TWSD East Trunk are needed to accommodate future growth. It should be noted that the District owns and operates the East Trunk Line and the City cannot unilaterally initiate such improvements or cite their intentions to make such improvements as justification for adding capacity to the line. Improvements would need to be identified by both the City and District in their master plans in order to be considered as justification for future capacity planning.

**DETERMINATION 6-4: SANITARY SEWER SYSTEM CAPACITY**

The District has an average dry weather flow of 0.5 mgd. With the exception of their East Trunk Line, the District’s collection system has adequate capacity to handle existing and future wastewater flows. The District adds new lines and upgrades existing lines as needed. Large developments may be required to upgrade the existing collection system downstream if additional capacity is required.

**DETERMINATION 6-5: TWSD EAST TRUNK LINE CAPACITY**

The Thermalito Water and Sewer District (TWSD) reports that their East Trunk Line is currently at 123% capacity during peak wet weather flow. The City of Oroville and TWSD both agree that this sewer line is capacity limited. Both of these agencies should limit the number of new connections that would flow through the East Trunk Line until the wet weather flow capacity issue is resolved.

**DETERMINATION 6-6: SC-OR WEST INTERCEPTOR SEWER TRUNK LINE CAPACITY**

The SC-OR West Interceptor trunk sewer line (which serves TWSD’s sanitary sewer system and a portion of the City of Oroville’s wastewater flows) is currently operating above 100% hydraulic capacity during the peak wet weather flow and has been identified by SC-OR for capacity improvements in its Capital Improvement Program.

With a reduction in I&I flowing into the West Interceptor due to TWSD’s I&I reduction program, and due to SC-OR’s recently-adopted developer agreement, which requires impact mitigation, SC-OR anticipates that the West Interceptor will operate below its design capacity. Until such time identified improvements are implemented, this facility should be considered at capacity.
DETERMINATION 6-7: SC-OR MAIN INTERCEPTOR SEWER TRUNK LINE CAPACITY

Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF.

SANITARY SEWER IMPROVEMENTS

According to the District, there are no current plans for expansion of District infrastructure other than developer driven main line extensions on a case-by-case basis. In 2007, the District prepared a seven-year capital improvement program (CIP), which includes an annual expenditure of $110,000 to $170,000 for sewer system rehabilitation and engineering. The CIP also calls for the purchase of equipment to service the District’s sewer system, such as a vacuum truck/jet rodder cleaning apparatus for $250,000. Figure 6-3 shows the District’s current 7-year CIP. The District is working with its engineering consultants (Kennedy-Jenks Consultants and NorthStar Engineering) on a more comprehensive CIP, which the District anticipates adopting sometime next year.

As previously mentioned, the CIP contained in the City of Oroville’s Draft Sewage Disposal Master Plan proposes improvements to the District’s East Trunk Line in order to accommodate future growth. It should be noted that the District owns and operates the East Trunk Line and the City cannot unilaterally initiate such improvements or cite its intentions to make such improvements as justification for adding capacity to the line. Improvements would need to be agreed upon by the City and District or identified by both of them in their master plans in order to be considered as justification for future capacity planning.
INFLOW AND INFILTRATION (I&I)

During wet weather conditions a significant amount of I&I enters the District’s collection system, which, when combined with the wet weather flows from LOAPUD and City of Oroville sewer systems, has a significant impact on the SC-OR WWTF, which must treat and dispose of the excess flows regardless of the source. The District’s average dry weather flow is 0.5 mgd, but the District’s average wet weather flow is 2.4 mgd, indicating that large amounts of stormwater runoff and/or groundwater are entering the District’s collection system. The District believes that it has a medium to high I&I problem. According to the District, its peaking factor is generally in the range of 3 to 5 times the average dry weather flow but is as high as 10 times the ADWF for certain geographical areas of their district, such as the Airport Industrial Park.

The District is taking a very aggressive approach to I&I in its system and has implemented an I&I reduction program that focuses on locating and repairing the offending areas. Since 2001 the District has expended approximately $1 million on I&I reduction. In FY 05/06, the budget for rehabilitation of the sewer system was $60,000. Since then, the District’s budget has increased to $110,000 per year on sewer system rehabilitation.

To help locate I&I intrusion, the District smoke tests its entire collection system on an annual basis (this also identifies some private lateral issues), as well as field inspect manholes for I&I
intrusion. It has purchased more efficient cleaning nozzles for its jet rodding cleaning equipment (a device that uses high-velocity jets of water to dislodge materials from sewer pipe walls). The District believes that it will have its entire sewer system cleaned by the end of 2009.

The District has completed inspecting approximately 65% of its sewer system with closed-circuit television (CCTV) equipment and hopes to have its entire collection system inspected by the end of 2009. Smoke inspections include both the District’s collection system and privately-owned sewer laterals. After the entire collection system is inspected the District will place inspections on a maintenance schedule. The District also inspects all new construction with its CCTV equipment. After completion of CCTV inspections, the District will be evaluating and prioritizing sewer lines for replacement. The District has updated its improvement standards and new construction must meet a high standard of inspections and testing before the District will accept the new facilities.

The District has not had to replace very much of its collection system given that 75 percent of the system was installed in the 1970's and the pipes are in generally good condition. However, since the District has had an aggressive approach on CCTV, it has found several problems in its sewer system. The District evaluates the problems and takes appropriate measures to make the repairs. For example, the District slip-lined 1,000 feet of 8-inch pipe in 2008 that had 48 cracks in it. The District has identified approximately 29 cracks in various pipe sections for immediate repair. The District recently purchased equipment for trenchless spot repair and has been repairing those cracks and recently has found a section of 6-inch pipe that will be scheduled for pipe line replacement in the near future.

Sewer Service Laterals

There are approximately 2,108 private, non-District maintained service laterals connected to the District’s collection system. The service laterals are the small diameter sewer lines that extend from a customer’s dwelling or business to the District’s sewer lines, which are normally located in the adjacent street. The District does not maintain the sewer laterals, which are the responsibility of the landowner, nor does it have a specific lateral inspection program at this time. The District recognizes the value of adopting such a formal program and is reviewing the lateral inspection program recently adopted by LOAPUD. The District does routinely smoke test its entire collection system, including laterals, which identifies open or damaged clean-outs which are then immediately maintained by District staff. The District also inspects laterals for new construction and remodels as well any laterals identified as a problem during routine camera inspections of the District’s sewer mains. As it is generally recognized that private laterals can be the cause of 50% or more of I&I volumes, a lateral inspection program is a prudent step towards reducing I&I. The District should adopt a lateral inspection program similar to the programs adopted by the Lake Oroville Area Public Utility District.

<table>
<thead>
<tr>
<th>DETERMINATION 6-8: WET WEATHER FLOW CAPACITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>The District has an average dry weather flow of 0.5 mgd, but an average wet weather flow of 2.4 mgd, which is an average wet weather peaking factor of 4.8, all of which indicate that the District has a significant amount of inflow and infiltration entering their sewer system.</td>
</tr>
</tbody>
</table>

Adopted November 5, 2009 Municipal Service Review
Page 6-14 Wastewater Service Providers – Oroville Region
DETERMINATION 6-9: INFLOW AND INFILTRATION

The District has taken an aggressive approach to identifying and fixing I&I problems in its collection system utilizing smoke testing, CCTV equipment, flow meters, and manhole inspections. The District should continue to use this aggressive approach to reducing I&I in its collection system.

DETERMINATION 6-10: SANITARY SEWER SYSTEM INSPECTION AND CLEANING

The District has completed inspecting approximately 65% of its sewer system with CCTV equipment and expects 100% inspection and cleaning of the system by the end of 2009.

DETERMINATION 6-11: SEWER LATERAL INSPECTION PROGRAM

The District should adopt a specific lateral inspection program as a fundamental component of its overall efforts to increase system efficiency and reduce I&I levels.

FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES

Thermalito Water and Sewer District is a public agency formed and existing under the laws of the State of California, and as such is a non-profit, tax-exempt district. The basic financial statements of the District comply with the Uniform System of Accounts and are maintained on an accrual basis of accounting. The District is an enterprise district, meaning that its operations are financed and operated in a manner similar to a private business enterprise with its costs of providing water and sewer services to its area recovered primarily through user charges (water and sewer sales or services). It also seeks capital grants and other similar funding. Revenues and expenses are recognized on an accrual basis of accounting. Revenues are recognized in the accounting period in which they are earned, and expenses are recognized in the period incurred, regardless of when the related cash flows take place.

Operating revenues and expenses consist of those revenues and expenses that result from the ongoing principal operations of the District. Operating revenues consist primarily of charges for services. Non-operating revenues and expenses consist of those revenues and expenses that are related to financing and investing activities and result from nonexchange transactions or ancillary activities.

The District is in possession of both restricted and unrestricted cash. Restricted cash is held in reserve and is spent exclusively for the intended purpose. In the event that the designated restricted cash is insufficient to complete the intended purpose, unrestricted cash is utilized.

The District does not receive any portion of property taxes and its primary source of operating revenue is monthly water service fees and services and sewer service fees and connection charges. Another source of revenue is interest income. Current District fees are found below in Table 6-4.12 In addition to these service charges, the District also collects line extension fees and inspection fees.

12 LOAPUD 2009-10 Fee Schedule, effective July 1, 2009, Resolution 4-09 adopted June 9, 2009
Previously, District service and connection charges were based on a philosophy of having the lowest rates in the County. This philosophy resulted in shortages in funds for operation and maintenance activities and capital reserves. Beginning in 2004, the District initiated a series of rate increases aimed at bringing the sewer charges closer to actual expenses and to rebuild capital reserves.

Annual audit reports for the fiscal years ending 2007 and 2008 and financial statements for the District were submitted and reviewed to determine general fiscal viability, suitability of current funding practices, and potential fiscal impacts resulting from new legislation. It should be acknowledged that the MSR utilizes the data provided by the agency and is not intended to be an audit or other focused review of agency internal fiscal decisions.

In accordance with Government Code Section 53901, every local agency must file a copy of its annual budget 60 days after the beginning of its fiscal year with the County Auditor of the County in which it conducts its principal operations unless exempted by the County Auditor. The District submits its budget resolution to the County annually in July and its financial statement in November.

The Auditor’s Report for FY 2008 for the District noted one significant control deficiency in internal control over financial reporting. A control deficiency exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent or detect misstatements on a timely basis. A significant deficiency is a control deficiency, or combination of control deficiencies, that adversely affects the District's ability to initiate, authorize, record, process, or report financial data reliably in accordance with generally accepted accounting principles such that there is more than a remote likelihood that a misstatement of the District's financial statements that is more than inconsequential will not be prevented or detected by the District’s internal controls.

The significant deficiency identified in the Auditor’s Report stated that the District does not have an employee who is experienced in generally accepted accounting principles to the degree required to make a determination a misstatement has occurred, nor has an outside accountant been engaged by the District to provide the additional expertise. The audit recommended that the District hire an accountant familiar with generally accepted accounting principles or retain the services of an independent certified public accounting firm to compile full disclosure financial statements. The District responded that the cost-benefit of hiring an individual familiar

<table>
<thead>
<tr>
<th>Table 6-4</th>
<th>TWSD Service Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Service Charge</td>
<td>Service Rate</td>
</tr>
<tr>
<td>Operation &amp; Maintenance</td>
<td>$11.50/EDU/month</td>
</tr>
<tr>
<td>Bonds Collection - System Construction</td>
<td>$5.00/EDU/month</td>
</tr>
<tr>
<td>Sewer Connection Fees – Zone A</td>
<td>$7,898.00</td>
</tr>
<tr>
<td>Sewer Connection Fees – Zone B</td>
<td>$8,022.00</td>
</tr>
</tbody>
</table>

13 Auditor’s Report, prepared by Davis Hammon & Co, November 6, 2008

Adopted November 5, 2009

Municipal Service Review

Wastewater Service Providers – Oroville Region
In FY 2007, the District had total net assets of $7,863,420 and in FY 2008 had total net assets of $8,025,409, which was an increase of 2%. Total operating revenue in FY 2007 was $2,663,997 and in FY 2008 the total operating revenue was $2,678,952, which was an increase of 1.7%. In FY 2007, revenue from sewer use sales and services was $693,710, while in FY 2008 it was $680,120, which was a decrease of 1.8%. Figure 6-4 summarizes the District’s net assets for the 2007 and 2008 fiscal years. Figure 6-5 provides a breakdown of the District’s changes in equity for the 2007 and 2008 fiscal years.

The District is financially stable and is capable of providing sewer collection and conveyance services to District customers. It should continue to review and revise its sewer service and connection charges to recover operational and maintenance costs and to build capital reserves. As the implementation of the new SSMP/SSO requirements proceed, it is likely that all of the SC-OR member entities will require rate increases to cover increased SSMP-related operating expenses (systematic sewer collection system cleaning, inspection, repair).
### Figure 6-4 TWSD Net Assets – FY 2007 & 2008

#### THERMALITO IRRIGATION DISTRICT
#### Statement of Net Assets
#### June 30, 2008 and 2007

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>2008</th>
<th>2007</th>
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<tbody>
<tr>
<td>Cash and cash equivalents</td>
<td>$2,699,219</td>
<td>$2,698,566</td>
</tr>
<tr>
<td>Restricted cash and cash equivalents</td>
<td>575,009</td>
<td>2,975,074</td>
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<tr>
<td>Receivables:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts</td>
<td>107,664</td>
<td>115,132</td>
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<tr>
<td>Interest</td>
<td>24,013</td>
<td>46,996</td>
</tr>
<tr>
<td>Inventory</td>
<td>93,709</td>
<td>107,938</td>
</tr>
<tr>
<td>Prepaid items</td>
<td>14,193</td>
<td>25,014</td>
</tr>
<tr>
<td>Loan fees, net of accumulated amortization</td>
<td>23,606</td>
<td></td>
</tr>
<tr>
<td>Capital assets, net of accumulated depreciation</td>
<td>6,668,586</td>
<td>6,869,795</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>13,405,999</td>
<td>12,838,505</td>
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<table>
<thead>
<tr>
<th>LIABILITIES</th>
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<tbody>
<tr>
<td>Accounts payable</td>
<td>94,487</td>
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<td>Accounts payable - SC-OR</td>
<td>80,804</td>
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</tr>
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<td>Salaries and wages payable</td>
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<tr>
<td>Interest payable</td>
<td>56,493</td>
<td>47,302</td>
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<tr>
<td>Customer deposits</td>
<td>5,000</td>
<td>11,462</td>
</tr>
<tr>
<td>Other payables</td>
<td>11,318</td>
<td>16,500</td>
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<td>Current portion of long-term debt</td>
<td>256,399</td>
<td>208,584</td>
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<tr>
<td>Long-term accrued liabilities</td>
<td>133,095</td>
<td>134,948</td>
</tr>
<tr>
<td>Long-term debt</td>
<td>4,749,158</td>
<td>3,976,228</td>
</tr>
<tr>
<td><strong>Total liabilities</strong></td>
<td>5,380,590</td>
<td>4,975,085</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NET ASSETS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Invested in capital assets, net of related debt</td>
<td>4,702,029</td>
<td>5,311,029</td>
</tr>
<tr>
<td>Restricted for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt service</td>
<td>329,057</td>
<td>438,138</td>
</tr>
<tr>
<td>Capacity fees</td>
<td>245,952</td>
<td>180,296</td>
</tr>
<tr>
<td>Unrestricted</td>
<td>2,748,371</td>
<td>1,933,955</td>
</tr>
<tr>
<td><strong>Total net assets</strong></td>
<td>$8,025,409</td>
<td>$7,863,420</td>
</tr>
</tbody>
</table>

### Figure 6-5 TWSD Statement of Revenues, Expenses, and Changes in Net Assets – FY 2007 & 2008

#### THERMALITO IRRIGATION DISTRICT
#### Statement of Revenues, Expenses, and Changes in Net Assets
#### For the Years Ended June 30, 2008 and 2007

<table>
<thead>
<tr>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Revenues:</strong></td>
<td></td>
</tr>
<tr>
<td>Water sales</td>
<td>$1,685,695</td>
</tr>
<tr>
<td>Water services</td>
<td>295,423</td>
</tr>
<tr>
<td>Sewer use sales and services</td>
<td>680,120</td>
</tr>
<tr>
<td>Other income</td>
<td>17,714</td>
</tr>
<tr>
<td><strong>Total operating revenues</strong></td>
<td>$2,679,952</td>
</tr>
</tbody>
</table>

| **Operating Expenses:**           |            |
| Wilenor water supply              | 32,049     | 19,289    |
| Water treatment                   | 416,974    | 398,728   |
| Transmission and distribution     | 422,892    | 440,225   |
| Meter reading                     | 44,783     | 50,066    |
| Administration and general        | 807,477    | 756,945   |
| Depreciation                      | 476,056    | 317,282   |
| Sewerage collection               | 119,111    | 72,071    |
| SC-OR charges                     | 222,006    | 220,031   |
| **Total Operating Expenses**      | $2,541,347 | $2,276,979|
| Operating income (loss)           | 137,005    | 367,400   |

| **Nonoperating Revenues (Expenses):** |            |
| Interest income                   | 158,200    | 143,677   |
| Capacity charges                  | 50,416     | 75,492    |
| Gains (losses) on sales and dispositions of fixed assets | (3,333) | (2,245) |
| Other nonoperating revenue (expense) | (184,232) | (39,149) |
| **Total Nonoperating Income (Loss)** | 24,384   | 154,231   |
| Income before capital contributions | 161,989   | 541,031   |
| Capital contributions             |            | 602,451   |
| Change in net assets              | 161,989    | 1,144,082 |
| **Net assets - beginning of year** | 7,863,420  | 6,719,336 |
| **Net assets - end of year**      | $8,025,409 | $7,863,420 |
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STATUS OF, AND OPPORTUNITIES FOR, COST AVOIDANCE AND SHARED FACILITIES

The District is a part of the Sewerage Commission-Oroville Region (SC-OR) Joint Powers Authority, along with the City of Oroville and the Lake Oroville Area Public Utility District. Each of these agencies provides wastewater collection and conveyance systems only within their service areas. The District currently does not share ownership or operation of its facilities with any other public entity. It does by agreement provide sewer trunk line service for wastewater generated by parcels within portions of the City of Oroville.

The District utilizes several cost avoidance measures in its operations. The District is exposed to various risks of losses related to torts, theft of, damage to, or destruction of assets, errors and omissions, injuries to employees, and natural disasters. The District transfers risks that may arise from these and other events through the purchase of various types of insurance through the Association of California Water Agencies or the Special Districts Risk Management Authority. Over the past three years, no loss settlements have exceeded insurance coverage amounts.

Given the large cost of capital improvements, a careful planning process is a crucial means of cost avoidance. The District plans for future funding of necessary improvements utilizing budgetary tools such as rate structure and connection fees.

There are significant opportunities for shared facilities with the other SC-OR entities, which could result in savings to the District’s ratepayers. As an example, the SC-OR member entities could share operations and maintenance personnel, equipment for construction efforts, pipe inspection and tools. There is currently no formal program established between the member entities to foster the sharing of equipment or personnel. There is also an opportunity for the member agencies to order supplies and materials in bulk, which has the potential to result in significant cost savings.

DETERMINATION 6-14: OPPORTUNITIES FOR SHARED FACILITIES

| While the District appears to utilize appropriate internal cost avoidance opportunities, facilities sharing opportunities are not actively pursued. The District and the other SC-OR member entities should consider 1) establishing a program to share equipment, materials, personnel, expertise, and training, and 2) purchasing supplies and materials in bulk. |

ACCOUNTABILITY FOR COMMUNITY SERVICE NEEDS, INCLUDING GOVERNMENTAL STRUCTURE AND OPERATIONAL EFFICIENCIES

The Thermalito Water and Sewer District operates under the oversight and guidance of a Board of Directors that includes five voting members. The Directors are elected by divisions and serve staggered four-year terms. The Board of Directors is responsible for setting policy and general administrative procedures for the District, and establishes and regulate rates, fees, service and capacity charges. The policies and procedures set by the Board are administered by the District General Manager. The Board of Directors meets in regular session once monthly on the third
Tuesday of each month at 2:00 pm at the District Office located at 410 Grand Avenue, Oroville. Special meetings are held as needed.

District Board members receive a $300/mo. stipend. If a special board meeting is held in the same month, they will also receive $300.00 for that meeting, but the stipend cannot exceed $600.00 per month. The District appears to comply with all applicable provisions of the Brown Act, including noticing meetings, which are posted at least 72 hours in advance at the District office. Members of the public generally attend the meetings only when issues affecting them are being considered.

The District has eleven full-time employees as shown on its organizational chart (Figure 6-6). With the exception of the Chief Plant Operator, all employees work 50% of their time in the sewer department and 50% of their time in the water department. The Chief Plant Operator works 100% of his or her time in the water department. The only activities performed by outside contractors are engineering, auditing, water testing, and legal services.

The District’s Board of Directors appoints the General Manager. The ratio of managers to workers is appropriate: The District is not top heavy in managers. The District has various policies and procedures related to personnel, provision of services, customer relations, operations and maintenance, relationships with other agencies, and the like.

The management structure of the District is relatively simple and is well suited to the type of operations undertaken by it. No alternative structures or reorganizations of staff would result in more efficient operations, and the existing structure is considered appropriate. As its collection system increases in size and connection, the District should add staff as needed to ensure that operational and maintenance needs are met.

**Figure 6-6** TWSD Organizational Chart
The District and its engineering consultants have spoken with LAFCo staff regarding a sphere of influence (SOI) update for the District. The District anticipates expanding its boundaries to accommodate new development to the south and southwest of the existing SOI. The District should submit its SOI update request to LAFCo as soon as possible to ensure that its sphere is current. Failure of the District to have its SOI updated may result in sphere amendments and annexation application being rejected or deemed incomplete due to lack of a current SOI.

The District does not have a website at this time but does appear to have reserved a domain name and address (www.twsd.info). It should consider creating a website as soon as possible so that information on the District is readily available to the public. Items that the District should place on its website should include meeting notices and agendas, staff reports, meeting minutes, environmental review documents operational data, fee schedules, District financial documents, the District’s Sanitary System Management Plan, and I&I information.

**DETERMINATION 6-15: GOVERNMENTAL STRUCTURE**

| The District is governed by a five-member Board of Directors elected by divisions by voters within the divisions. It holds meetings which are open and accessible to the public. It maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements. |

**DETERMINATION 6-16: MANAGEMENT EFFICIENCIES**

| The Thermalito Water and Sewer District operates with minimal staff, and contracts for some services such as engineering consulting. The overall management structure of the District is sufficient to account for necessary services and to maintain operations in an efficient and effective manner. It is adequately staffed at this time but should consider adding staff as the District’s system expands. |

**DETERMINATION 6-17: WEBSITE**

| The District should place a priority on developing a website so that information on the District is readily available to the public. |

**DETERMINATION 6-18: SPHERE OF INFLUENCE UPDATE**

| To ensure that it has a current sphere of influence (SOI), the District should submit its SOI update request to LAFCo as soon as possible to ensure that its sphere is current. Failure of the District to have its SOI updated may result in sphere amendments and annexation applications being rejected or deemed incomplete due to lack of a current SOI. |
ANY OTHER MATTER RELATED TO EFFECTIVE OR EFFICIENT SERVICE DELIVERY, AS REQUIRED BY COMMISSION POLICY

An analysis of the SC-OR Joint Powers Agreement, of which the District is a member, is discussed in detail in Chapter 2.0 of this MSR.

SUMMARY OF DETERMINATIONS

DETERMINATION 6-1: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

The District’s sanitary sewer system, most of which has been constructed in the last 35 years, is generally in good condition.

DETERMINATION 6-2: SANITARY SEWER OVERFLOWS

The District has had three sanitary sewer system overflows since reporting of SSOs began in 2007, all of which were caused by grease buildup or root intrusion. The District has implemented an aggressive inspection and cleaning program for its sewer system, which should help prevent future SSOs.

DETERMINATION 6-3: SANITARY SEWER MANAGEMENT PLAN

The District has adopted some elements of its Sanitary Sewer Management Plan, with final adoption of all elements expected prior to its May 2010 deadline.

The District should consider placing its SSMP, when adopted, on its webpage for public convenience.

DETERMINATION 6-4: SANITARY SEWER SYSTEM CAPACITY

The District has an average dry weather flow of 0.5 mgd. With the exception of their East Trunk Line, the District’s collection system has adequate capacity to handle existing and future wastewater flows. The District adds new lines and upgrades existing lines as needed. Large developments may be required to upgrade the existing collection system downstream if additional capacity is required.

DETERMINATION 6-5: TWSD EAST TRUNK LINE CAPACITY

The Thermalito Water and Sewer District (TWSD) reports that their East Trunk Line is currently at 123% capacity during peak wet weather flow. The City of Oroville and TWSD both agree that this sewer line is capacity limited. Both of these agencies should limit the number of new connections that would flow through the East Trunk Line until the wet weather flow capacity issue is resolved.
**DETERMINATION 6-6: SC-OR WEST INTERCEPTOR SEWER TRUNK LINE CAPACITY**

The SC-OR West Interceptor trunk sewer line (which serves TWSD’s sanitary sewer system and a portion of the City of Oroville’s wastewater flows) is currently operating above 100% hydraulic capacity during the peak wet weather flow and has been identified by SC-OR for capacity improvements in its Capital Improvement Program.

With a reduction in I&I flowing into the West Interceptor due to TWSD’s I&I reduction program, and due to SC-OR’s recently-adopted developer agreement, which requires impact mitigation, SC-OR anticipates that the West Interceptor will operate below its design capacity. Until such time identified improvements are implemented, this facility should be considered at capacity.

**DETERMINATION 6-7: SC-OR MAIN INTERCEPTOR SEWER TRUNK LINE CAPACITY**

Data provided by SC-OR shows that the Main Interceptor trunk sewer line may experience surcharge conditions during peak weather flows due to limitations on the influent pumping capacity at the WWTF. Due to this limited influent pumping capacity, the Main Interceptor has reached 92% of capacity during storm events. To address this concern, SC-OR is proposing to both increase the capacity of the Main Interceptor and increase the WWTF influent pumping capacity to 30 mgd, which will reduce the chance of surcharging and SSOs on the Main Interceptor. Additionally, SC-OR anticipates that I&I reduction programs recently implemented by the member entities is expected to reduce I&I flows into the WWTF.

**DETERMINATION 6-8: WET WEATHER FLOW CAPACITIES**

The District has an average dry weather flow of 0.5 mgd, but an average wet weather flow of 2.4 mgd, which is an average wet weather peaking factor of 4.8, all of which indicate that the District has a significant amount of inflow and infiltration entering their sewer system.

**DETERMINATION 6-9: INFLOW AND INFILTRATION**

The District has taken an aggressive approach to indentifying and fixing I&I problems in its collection system utilizing smoke testing, CCTV equipment, flow meters, and manhole inspections. The District should continue to use this aggressive approach to reducing I&I in its collection system.

**DETERMINATION 6-10: SANITARY SEWER SYSTEM INSPECTION AND CLEANING**

The District has completed inspecting approximately 65% of its sewer system with CCTV equipment and expects 100% inspection and cleaning of the system by the end of 2009.
### DETERMINATION 6-11: SEWER LATERAL INSPECTION PROGRAM

The District should adopt a specific lateral inspection program as a fundamental component of its overall efforts to increase system efficiency and reduce I&I levels.

### DETERMINATION 6-12: FINANCIAL ABILITY OF AGENCY TO PROVIDE SERVICES

The District’s primary source of revenue is service fees and connection charges. The District also receives some grants and interest income on investments.

### DETERMINATION 6-13: SEWER SERVICE CHARGES

Previously, the District sewer service fees and sewer connection charges were very low and were not sufficient to cover the costs of providing sewer service and building capital reserves. Over the last five years, the District has gradually, but significantly, raised its sewer service and connection charges. It should continue to review and revise its sewer service and connection charges to recover operational and maintenance costs and to build a capital reserve.

As the implementation of the new SSMP/SSO requirements proceed, it is likely that all of the SC-OR member entities will require rate increases to cover increased SSMP-related operating expenses (systematic sewer collection system cleaning, inspection, repair, and reporting costs).

The District submits its annual budget to the County Auditor in compliance with California Government Code Section 53901.

### DETERMINATION 6-14: OPPORTUNITIES FOR SHARED FACILITIES

While the District appears to utilize appropriate internal cost avoidance opportunities, facilities sharing opportunities are not actively pursued. The District and the other SC-OR member entities should consider 1) establishing a program to share equipment, materials, personnel, expertise, and training, and 2) purchasing supplies and materials in bulk.

### DETERMINATION 6-15: GOVERNMENTAL STRUCTURE

The District is governed by a five-member Board of Directors elected by divisions by voters within the divisions. It holds meetings which are open and accessible to the public. It maintains accountability and compliance in its governance, and public meetings appear to be held in compliance with Brown Act requirements.
<table>
<thead>
<tr>
<th>DETERMINATION 6-16: MANAGEMENT EFFICIENCIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Thermalito Water and Sewer District operates with minimal staff, and contracts for some services such as engineering consulting. The overall management structure of the District is sufficient to account for necessary services and to maintain operations in an efficient and effective manner. It is adequately staffed at this time but should consider adding staff as the District’s system expands.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 6-17: WEBSITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The District should place a priority on developing a website so that information on the District is readily available to the public.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DETERMINATION 6-18: SPHERE OF INFLUENCE UPDATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that it has a current sphere of influence (SOI), the District should submit its SOI update request to LAFCo as soon as possible to ensure that its sphere is current. Failure of the District to have its SOI updated may result in sphere amendments and annexation applications being rejected or deemed incomplete due to lack of a current SOI.</td>
</tr>
</tbody>
</table>
7.0 - COMMENTS RECEIVED AND RESPONSES TO COMMENTS

The Public Review Draft MSR was circulated for public review for a period of 21 days beginning on September 10, 2009, and closing on October 1, 2009. During this time, the document was distributed to service providers within and related to the Sewerage Commission-Oroville Region, the LAFCo Commissioners and their alternates, and made available to the general public at the LAFCo office in Oroville and the Butte County Library Oroville Branch. The Public Review Draft MSR was also placed on Butte LAFCo’s webpage.

Comments Received on the Public Review Draft MSR

Four comment letters on the Public Review Draft MSR were submitted to Butte LAFCo. The list of all commentors on the Public Review Draft MSR is provided below:

Letter #1: Richard Walls, Senior Civil Engineer, City of Oroville. September 21, 2009

Responses to Comments on the Public Review Draft MSR

This section provides summary responses to comments submitted to Butte LAFCo regarding the Public Review Draft MSR. The responses follow the comment letters, which are reproduced in this Final MSR.
Comments from Rick Walls, Senior Civil Engineer, City of Oroville. September 21, 2009

...an increase in the monthly sewer service rate for the 2009/2010 fiscal year. In addition, staff presented to the Council the need to increase the monthly sewer rates annually for an additional seven consecutive years (FY 2010/2011 through 2016/2017) so that sufficient funding can be raised to rehabilitate the City sewer system. The fee increases are discussed further in Section 4.2.7 of this Chapter.

**DETERMINATION 4-3: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM**

Historically, the City’s sewer system has not been efficiently maintained, which has resulted in increased system deterioration and unacceptable levels of I&I that has increased over time. In order to correct this historical maintenance deficit, the City recently initiated a program to address the deferred maintenance. Until such time rehabilitation is substantially implemented, impacts of new development on the SCOR-WTP should be curtailed.

**CITY OF OROVILLE SEWAGE DISPOSAL MASTER PLAN UPDATE**

The City of Oroville is in the process of preparing a Sewage Disposal Master Plan Update, which is currently in draft form but is expected to be adopted by the City Council in the fourth quarter of 2009. The Sewage Disposal Master Plan Update will do the following:

- Evaluate the capacity of the existing sanitary sewer collection system using dry and wet weather flows.
- Evaluate the City's sanitary sewer operation and maintenance activities.
- Develop a capital improvement program that provides the City with a reliable plan to mitigate existing system deficiencies and expand the wastewater collection system in an orderly manner to service future customers.
- Determine the revenue and rates necessary to finance the capital improvement program.
- Include preparation of a Sewer System Management Plan (SSMP) conforming to the requirements of the State Water Resources Control Board (SWRCB).

With the Sewage Disposal Master Plan Update the City will be able to identify the areas of their sewer system that require a capital improvement program (CIP) and identify CIP funding. With the SSMP, the City will also be able to plan the elements of a long-term I&I reduction and system rehabilitation program. Subject to approval of the needed revenue increases to fund this work, the City plans on initiating significant I&I reduction and system rehabilitation effort, including the possible development of a private lateral program designed to address the lack of maintenance associated with private laterals.
As can be seen in Figure 4-10, only $108,000 is available for the sewer system capital improvement projects, which is inadequate for a sewer system the size of the City of Oroville's system. Additionally, it appears that a large amount ($277,000) of sewer system expenditures consists of cost allocation to the City's general fund, which should be utilized for sewer system improvements.

**Connection and Usage Fees**

In addition to impact fees and property taxes, Oroville receives funds from the on-going provision of wastewater service through connection and usage fees. The rate structure for wastewater services for FY 2009-10 is shown in Table 4-11.

<table>
<thead>
<tr>
<th>Type of Service Charge</th>
<th>Service Charge*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Charge – residential/commercial/industrial</td>
<td>$8.66/EDU/month**</td>
</tr>
<tr>
<td>Service Charge – mobile home park</td>
<td>$7.13/EDU/month***</td>
</tr>
<tr>
<td>Connection Fee – residential and commercial</td>
<td>$696.00/EDU</td>
</tr>
<tr>
<td>Connection Fee – industrial</td>
<td>$2,856.50/EDU</td>
</tr>
<tr>
<td>Lateral Building Permit</td>
<td>$24.90 per line</td>
</tr>
<tr>
<td>City Tap Fee</td>
<td>$331.32 per tap</td>
</tr>
<tr>
<td>Sewer Collection Facilities Impact – single family dwelling</td>
<td>$427.25 per unit</td>
</tr>
<tr>
<td>Sewer Collection Facilities Impact – multi-family dwelling</td>
<td>$380.40 per unit</td>
</tr>
<tr>
<td>Sewer Collection Facilities Impact – commercial/industrial</td>
<td>$404.21/EDU</td>
</tr>
</tbody>
</table>

* Charges are for services within City limits. Charges are higher for services outside City limits.
** This charge was increased to $8.66 on 4-1-09, becoming effective on 7-1-09.
*** This charge was increased to $7.13 on 4-1-09, becoming effective on 7-1-09.

As discussed in Section 4.2.7 of this chapter, the City's monthly sewer service rate was recently increased from $8.66 to $9.79 per month (a 13% increase). City staff recommended to the Oroville City Council that the sewer service rate be increased annually by 14 to 18% over the next eight years so that sufficient funding can be obtained to fund increased sewer system inspections, cleaning, and maintenance and fund sewer system infrastructure improvements. By Fiscal Year 2016-17 the monthly sewer service fee is proposed to be $34.68, which is a 322% increase above the recently-approved fee. The City is currently reviewing their sewer connection fees.

It is the City's goal to ensure that all user fees, impact fees, processing fees and connection fees are evaluated on a regular basis to ensure that they are sufficient to offset the cost of providing services and to ensure that no undue burden is placed on the City's residents. In addition to the annual fee review conducted as a part of the annual budget process, department directors are required to monitor all fees under their area of responsibility and bring any significant developments to the finance department and the City Administrator during monthly department meetings.
PUBLIC REVIEW DRAFT

City of Oroville

- Electrician (part time)
- GIS Technician (part time)

The number of personnel performing sewer maintenance duties appears to be very low for a sewer system as large as the City’s. Based upon 66.3 miles of pipe in the City’s sewer system, the City has a ratio of sewer system maintenance personnel to sewer system size of one worker to every 27.6 miles of sewer length. For comparison, LOAPUD, which has 78.5 miles of sewer system pipes and four full-time sewer maintenance personnel, has a ratio of sewer maintenance personnel to sewer system length of 19.6. TWSD has 35.5 miles of pipe and 2.5 full-time equivalent sewer system maintenance personnel, which is a ratio of one sewer maintenance personnel to every 14.2 miles of sewer system pipe. As can be seen in Table 4-12, the City of Oroville’s ratio of sewer maintenance personnel to sewer system size is higher than LOAPUD’s and TWSD’s, which is an indicator that the City may not have a sufficient number of sewer system maintenance personnel.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Miles of Sewer Pipe</th>
<th>Number of Sewer Maintenance Personnel</th>
<th>Ratio of Maintenance Personnel to Sewer System Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Oroville</td>
<td>66.3</td>
<td>2.4</td>
<td>1:27.6</td>
</tr>
<tr>
<td>LOAPUD</td>
<td>78.5</td>
<td>4.0</td>
<td>1:19.6</td>
</tr>
<tr>
<td>TWSD</td>
<td>35.5</td>
<td>2.5</td>
<td>1:14.2</td>
</tr>
</tbody>
</table>

Like all local jurisdictions the city has been subject to the same funding cuts and financing constraints that have taken place over the years. This particular year has seen significant economic hardships resulting from State budget actions that have resulted in substantial revenue reductions to the City. The City works proactively to acquire additional funding streams, such as grant funding and special program funding to offset the cost of staffing.

The City maintains a website (http://www.cityoforoville.org) that contains a large amount of information on the City. Meeting agendas, meeting minutes, fee schedules, fiscal reports, and links to other public agencies are placed on the City’s website. The City’s website also contains a page about the City’s sewer system, which includes links to the City’s sanitary sewer master maps and as-built drawings of the sewer lines. The City should consider placing staff reports, staff memorandum, environmental review documents, and the City’s Sanitary Sewer Management Plan and the Sewage Disposal Master Plan, when adopted, on their website to ensure that the public has easy access to these documents. The City should also consider placing information on I&I on their website.

The City anticipates expanding its sphere of influence (SOI) boundaries to accommodate future development. The City recently adopted its 2030 General Plan, which shows changes to its existing LAFCo-approved SOI. It is expected that the City will submit a SOI update request to LAFCo to modify its SOI to conform to the SOI map found in the 2030 General Plan. Failure of the City to have its SOI updated may result in sphere amendments and annexation applications, being denied or deemed incomplete due to lack of a current SOI.
DETERMINATION 4-2: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

In recent years, using old camera technology, the City has televised 0.5 to 4.0 miles (0.6 to 3.5%) of their sewer system per year, which is not sufficient to assess the overall physical condition of the system, find blockages, identify I&I, and comprehensively rehabilitate the system.

The City is credited with purchasing a new closed-circuit television unit, which will increase their inspection rate and will compliment a recently ordered trailer-mounted sanitary sewer flexible rodder system, which will offer enhanced sewer system cleaning capabilities.

DETERMINATION 4-3: SANITARY SEWER COLLECTION AND CONVEYANCE SYSTEM

Historically, the City’s sewer system has not been efficiently maintained, which has resulted in increased system deterioration and unacceptable levels of I&I that has increased over time. In order to correct this historical maintenance deficit, the City recently initiated a program to address the deferred maintenance. Until such time rehabilitation is substantially implemented, impacts of new development on the SCOR WWTP should be curtailed. Comment # 6

DETERMINATION 4-4: CITY OF OROVILLE SEWAGE DISPOSAL MASTER PLAN UPDATE

The City’s Draft Sewage Disposal Master Plan Update describes sanitary sewer system design storm hydraulic deficiencies, contains a capital improvement program for improvements, and determines the revenue and rates necessary to finance identified improvements. The Plan identifies thirty-four projects needed to 1) increase the capacity of those sewer pipes that are capacity deficient for the 10-year design storm event, and 2) accommodate future growth.

The City should adopt the Draft Sewage Disposal Master Plan Update and all necessary funding needs as soon as possible so that improvements identified in the Plan can begin to be implemented.

DETERMINATION 4-5: SANITARY SEWER OVERFLOWS

The City has had nine reportable sanitary sewer overflows in the last three years and has paid 17 claims for damages since 2004 due to sewer blockages/backups in the City’s sewer system totaling $234,100. This number of SSOs, claims, and paid damages are an indication that the City has not been able to adequately maintain their sewer system and the system is in need of an expanded inspection and cleaning program. The City has made system maintenance and rehabilitation a priority as evidenced by the passage of a 13% monthly sewer service rate increase in August 2009.
Response to Comments from Rick Walls

Comment No. 1

Comment noted. The issue of whether LOAPUD and TWSD have sewer master plans is not relevant to the discussion of the City’s sewer master plan.

Comments No. 2 and 3

Comment noted. The commenter requests that the last line of Determination 4-3 be eliminated, noting that LOAPUD and TWSD also have similar I&I problems but the same determination had not been made for these agencies. The commenter also notes that new development does not create worse conditions or increased peak flow to the SC-OR wastewater treatment facility.

The I&I problems facing LOAPUD and TWSD are not as significant as the I&I problems facing the City of Oroville. These two agencies have relatively newer sewer pipes, have less sanitary sewer overflow percentages, have performed more inspection of their collection systems, and undertaken more I&I reduction measures than the City has, which is why there is not a similar determination for these two agencies. The request to delete the last line of Determination 4-3 is not warranted as new development will contribute additional base flow to the SC-OR WWTP during periods of wet weather flows, which could result in SSO’s either within the conveyance systems or at the wastewater treatment facility. The Commission did not direct any changes be made to Determination 4-3.

Comment No. 4

Comment noted. The MSR has been revised to reflect the correct City of Oroville monthly sewer service fee for mobile homes.

Comment No. 5

Comment noted. The referenced sentence is advisory in nature and is intended to provide notice to the City that failure to have their sphere of influence updated may result in future sphere amendment and annexation applications being rejected or denied due to lack of a current sphere of influence.

Comment No. 6

See the response to Comments No. 2 and 3 above.
Comments from Alan Brown, General Manager, LOAPUD. September 22, 2009.

From: Alan Brown [mailto:abrown@loapud.com]
Sent: Tue 9/22/2009 1:34 PM
To: Lucas, Steve
Cc: 'Keith Knibb'
Subject: Draft MSR Comments

Steve,

I have just a few comments on the Draft MSR, but first let me complement you two on writing a very comprehensive/technical document with a good understanding of the issues. Now we know who the experts are in this field.

Comment # 1 Page 1-9..replacement of a private sewer lateral at the time of a home sale, remodel or if a defect is found in the lateral. (Consider adding this to the sentence.)

Comment # 2 Page 2-3...The number of pump stations should be 9.

Comment # 3 Page 2-17..Should Ridgeway be "The Ridge"?

Comment # 4 Page 3-35, Determination 3-2, first line...Consider replacing "to handle" with "for".

Comment # 5a General..Some of the Determinations have very long sentences. Consider breaking them into shorter sentences for better readability. Also, although the District has adopted a lateral testing program, it has not been implemented.

Comment # 5b

Alan
Response to Comments from Alan Brown

Comment 1

The suggested change to Determination 2-21 provides additional information about LOAPUD’s private sewer lateral inspection/repair program and has been incorporated into the Final MSR.

Comment 2

The suggested change has been incorporated into the Final MSR.

Comment 3

Information obtained from the Butte County Planning Division indicates that the correct name of the project is “Ridgeway Development” (Project No. TSM 00-02) and no changes to the MSR are required.

Comment 4

The suggested change has been incorporated into the Final MSR.

Comment 5a

Comment noted.

Comment 5b

On Page 5-11 of the MSR it is already noted that LOAPUD has adopted, but not yet implemented, a private sewer lateral testing program. To ensure consistency throughout the MSR, Pages 2-42, 2-44, and 5-4 of the Final MSR have been modified to reflect this.

From: Keith Knibb [mailto:keith@sauerseng.com]
Sent: Wednesday, September 23, 2009 10:02 AM
To: ‘Alan Brown”, Lucas, Steve
Subject: RE: Draft MSR Comments

Alan/Steve,

I had a couple of additional comments on the Draft MSR. First, let me say I agree with Alan in complementing the Steves on the preparation of this document; it really does a good job of conveying an understanding of the myriad of issues and concerns with wastewater service in this area.

Section 2.3 – You may want to consider the addition of sewer service to the community of Palermo in your future EDU projections. Although not a “Proposed Development Project” per se, it probably has as good a chance as many of the projects listed in Table 2-7, and if does go, it would account for a lot of connections over a short period of time. Current Palermo estimate is ±850 EDUs.

Comment #1
Page 2-26 – The WWPF is defined as the ratio of ADWF and AWWF, however the actual WWPF given for LOAPUD is the ratio of ADWF and Peak WWF. This definition is given again in the footnotes to Table 5-3.

Comment #2
Page 4-29 and Table 4-12 – Discussion of ratio of maintenance personnel to sewer system sizes indicates LOAPUD has 4 sewer maintenance personnel. I believe LOAPUD regularly has a staff of 5, including the Field Operations Supervisor (Alan, please confirm), which would bring the ratio to 1:15.7.

Comment #3
A quick typo – Determination 2-2, …to the lack of a comprehensive mission…

Comment #4
Thanks for the opportunity to comment.

Keith Knibb
Sauers Engineering, Inc.
Response to Comments from Keith Knibb

Comment 1

A paragraph regarding the potential for future sewer connections in the Palermo area has been added to Page 2-17 of the Final MSR.

Comment 2

The MSR has been revised to reflect the correct definition of the wet weather peaking factor.

Comment 3

LOAPUD confirmed that they have five sewer maintenance personnel, which includes the Field Operations Supervisor. Changes have been made to Chapter 4 to reflect the correct number of sewer maintenance personnel.

Comment 4

The noted error has been corrected.
Comments from Jayme Boucher, General Manager, TWSD. September 23, 2009.

September 22, 2009

VIA FIRST CLASS MAIL

Stephen Betts, Deputy Executive Officer
Butte Local Agency Formation Commission
1453 Downer Street, Suite C
Oroville, CA 95965

Re: Draft MSR for Wastewater Service Providers – Oroville Region

Dear Mr. Betts:

On behalf of Thermalito Water & Sewer District, I wish to compliment your staff and you for the effort you went to in preparing the thorough and well written Draft Municipal Service Review for Wastewater Service Providers – Oroville Region. Its discussion of current conditions and its determinations as to how to improve future conditions make the Draft MSR a valuable tool for the City of Oroville, Lake Oroville Area Public Utility District and us to better plan and provide for the wastewater service needs of the Greater Oroville Area for years to come.

I offer the following comments for your consideration in hope that they may be addressed in the Draft MSR:

1. Determination 2-10 recognizes that land use jurisdiction within the SC-OR service area is under the jurisdiction of either the City of Oroville or the County of Butte. However, it does not address the fact that certain lands within the SC-OR service area fall under the jurisdiction of both the City and the County for purposes of their general plans. This is currently the case with respect to lands within the District which are treated differently under the draft general plan for the City than they are under the draft general plan for the County, with the City allowing greater densities and the County lesser.

The Draft MSR recognizes in Determination 2-10 that the member entities of SC-OR have not collaborated to a high level in the past. It would appear appropriate that the Draft MSR also recognize that the City and the County have not collaborated to a high level at least with respect to their current draft general plans. It should encourage...
greater collaboration at least with respect to general planning and zoning for lands within the SC-OR service area falling under the planning purview of each of them. In this manner, LOAPUD and the District could better identify and plan for their future wastewater service needs.

2. Determination 3-13 identifies the five phase, $56 million (in 2009 dollars) capital improvement plan, prepared by SC-OR to increase its wastewater treatment facilities’ capacity to meet future wastewater treatment demands. While the District accepts this plan, it wonders whether SC-OR’s capacity needs could more efficiently be met through construction of one or more satellite treatment facilities. For example, if development at urban densities is to occur west of the Oroville Municipal Airport, could a wastewater treatment facility constructed in that area more efficiently treat wastewater generated from such development than an expansion of the existing wastewater treatment plant?

3. Throughout the Determinations of the Draft MSR efficiencies of scale between the member entities that can be achieved through greater cooperation and collaboration are addressed. For example, Determination 4-18 discusses cost efficiencies that could be realized from shared equipment, materials, personnel, expertise and training and from purchasing supplies and materials in bulk. The Draft MSR should include uniform design standards and criteria among the areas in which economies of scale can be achieved. For example, the policy of the District is to design its sewer collection lines to accommodate stipulated capacities without surcharge, that is, without allowing flows to backup into manholes. The District is informed that the City’s design criteria allow for surcharge. These conflicting design criteria result in operational problems where joint facilities such as the District’s East Trunk line are involved. The District therefore feels that uniform design standards and criteria should be included among those matters for which greater collaboration is recommended.

We look forward to participating in the hearing on October 1, 2009 to review the Draft MSR. We hope that you feel that the foregoing comments should be addressed in the Draft MSR. Should you have any questions or comments concerning them, please do not hesitate to call.

Sincerely,

[Signature]

Jayme Boucher
General Manager
Response to Comments from Jayme Boucher

Comment No. 1

Comment noted. LAFCo agrees that the County zoning and City of Oroville zoning within the City’s Sphere of Influence should be the same or similar but this issue is not within LAFCo’s purview.

Comment No. 2

Comment noted. The issue of if a satellite wastewater treatment facility should be built is beyond the scope of this MSR.

Comment No. 3

Comment noted. The inclusion of uniform design standards and criteria in the MSR is beyond the scope of this MSR. This issue is extremely important and has been discussed at the SC-OC Technical Advisory Committee level on several occasions. It is anticipated that the increased cooperation and coordination between the SC-OR member entities will ultimately result in the adoption of uniform design standards and criteria.
<table>
<thead>
<tr>
<th>TERM</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAF</td>
<td>Average Annual Flow. The amount of wastewater generated annually.</td>
</tr>
<tr>
<td>ADWF</td>
<td>Average Dry Weather Flow – ADWF consists of average daily sewage flows and groundwater infiltration (GWI). ADWF is the average flow that occurs on a daily basis with no evident reaction to rainfall.</td>
</tr>
<tr>
<td>AWWF</td>
<td>Average Wet Weather Flow – AWWF are wastewater flows that occur during periods when the groundwater table is high and the highest precipitation occur. The wet weather flow period is normally from October to May.</td>
</tr>
<tr>
<td>Base flow</td>
<td>Wastewater flow (including a reasonable amount of inflow and infiltration) originating from residential, commercial and industrial sources.</td>
</tr>
<tr>
<td>Board of Directors</td>
<td>The legislative body or governing board of a district.</td>
</tr>
<tr>
<td>CIP</td>
<td>Capital Improvement Program. A plan for expenditures taking into consideration the fundamental strategic goals for a utility system, including growth, expansion, renewal and replacement, regulatory compliance, and stakeholder service needs.</td>
</tr>
<tr>
<td>City</td>
<td>Any charter or general law city, including any city the name of which includes the word &quot;town.&quot;</td>
</tr>
<tr>
<td>Collection System</td>
<td>The first element of a wastewater collection system used to collect and carry wastewater from one or more building sewer laterals to a main sewer.</td>
</tr>
<tr>
<td>Collectors</td>
<td>Small sewer pipes measuring twelve inches or less in diameter.</td>
</tr>
<tr>
<td>Consolidation</td>
<td>The uniting or joining of two or more cities located in the same county into a single new successor city or two or more districts into a single new successor district. In the case of consolidation of special districts, all of those districts shall have been formed pursuant to the same principal act.</td>
</tr>
<tr>
<td>TERM</td>
<td>DEFINITION</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cost Avoidance</td>
<td>Actions to eliminate unnecessary costs derived from, but not limited to, duplication of service efforts, higher than necessary administration/operation cost ratios, use of outdated or deteriorating infrastructure and equipment, underutilized equipment or buildings or facilities, overlapping/inefficient service boundaries, inefficient purchasing or budgeting practices, and lack of economies of scale.</td>
</tr>
<tr>
<td>CIPP</td>
<td>Cured-in-place pipe A liner that provides a seamless corrosion resistant, jointless &quot;pipe-within-a-pipe.&quot; CIPP is installed through the existing manholes and does not require extensive digging.</td>
</tr>
<tr>
<td>Design Storm</td>
<td>A rainstorm used in the design of wastewater systems. A particular storm may be selected as a design storm because adequate data exist to allow a calibration of a computer model being used to simulate the behavior of the sewer system during that storm.</td>
</tr>
<tr>
<td>Digestion</td>
<td>Process by which organisms break down sludge, creating as by-products methane gas, carbon dioxide, solid organic material and water. (Aerobic digestion takes place in the presence of oxygen and anaerobic digestion takes place with the absence of oxygen.)</td>
</tr>
<tr>
<td>Disinfection</td>
<td>Final step in the wastewater treatment process, when chlorine or sodium hypochlorite is added to the treated wastewater to kill disease. Ultraviolet light is another means of disinfection.</td>
</tr>
<tr>
<td>District or Special District</td>
<td>An agency of the state, formed pursuant to general law or special act, for the local performance of governmental or proprietary functions within limited boundaries. &quot;District&quot; or &quot;special district&quot; includes a county service area.</td>
</tr>
<tr>
<td>Dry Weather Flow</td>
<td>Flow in a sanitary sewer during periods of dry weather in which the sanitary sewer is under minimum influence of inflow and infiltration.</td>
</tr>
<tr>
<td>Diurnal Flow</td>
<td>Fluctuation of wastewater flows over a 24 hour period.</td>
</tr>
<tr>
<td>Effluent</td>
<td>Treated, or partially treated, municipal wastewater flowing from a lagoon, tank, treatment process, or treatment plant.</td>
</tr>
<tr>
<td>EDU</td>
<td>Equivalent Dwelling Unit. SC-OR Policy # 7510 states that one EDU is equal to 260 gallons per day. For commercial users, SC-OR Policy # 7210 says that 16 fixture units equals one EDU. EDUs must be in whole numbers, fractional EDUs are not allowed.</td>
</tr>
<tr>
<td>Enabling Legislation</td>
<td>Legal statute authorizing the creation of the agency or district considered.</td>
</tr>
<tr>
<td>TERM</td>
<td>DEFINITION</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Enterprise Fund</td>
<td>Services for which a city charges customers a fee. Cities can use enterprise funds to account for its sewer, electric, and non-major (water and solid waste funds. Enterprise funds are the same as its business-type activities, but provide more detail and additional information.</td>
</tr>
<tr>
<td>Equalization Storage</td>
<td>The storage of peaking flows to prevent overflows from the collection and conveyance systems. The stored wastewater is discharged back to the system during low flow periods. The storage can be online or offline.</td>
</tr>
<tr>
<td>Excessive Infiltration/Inflow</td>
<td>The quantities of infiltration/inflow that are less costly to remove by sewer system rehabilitation than to transport and treat at the receiving facility, when both capital costs of increased sewerage facilities capacity and resulting operating costs are included.</td>
</tr>
<tr>
<td>Feasible</td>
<td>Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, legal, social and technological factors.</td>
</tr>
<tr>
<td>Force Main</td>
<td>A pipeline that carries wastewater from a pump station to other pipes further along in a sewer system. The word &quot;force&quot; refers to the fact that the pipeline is under pressure, rather than relying on gravity to move wastewater.</td>
</tr>
<tr>
<td>Formation</td>
<td>The formation, incorporation, organization, or creation of a district.</td>
</tr>
<tr>
<td>Freeboard</td>
<td>The vertical distance between the computed water surface elevation for the design flow and the minimum top of bank elevation for a given cross section.</td>
</tr>
<tr>
<td>Function</td>
<td>Any power granted by law to a local agency or a county to provide designated governmental or proprietary services or facilities for the use, benefit, or protection of all persons or property.</td>
</tr>
<tr>
<td>Functional Revenues</td>
<td>Revenues generated from direct services or associated with specific services, such as a grant or statute, and expenditures.</td>
</tr>
<tr>
<td>FY</td>
<td>Fiscal year</td>
</tr>
<tr>
<td>General Law City</td>
<td>A general law city operates within the parameters and guidelines of California municipal law. The advantage of a general law city is that general state laws have been subjected to judicial scrutiny and tested over the years, so there is relatively little confusion about their application.</td>
</tr>
<tr>
<td>General Revenues</td>
<td>Revenues not associated with specific services or retained in an enterprise fund.</td>
</tr>
<tr>
<td>gpd</td>
<td>Gallons per day</td>
</tr>
<tr>
<td>TERM</td>
<td>DEFINITION</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Headworks</td>
<td>Area of treatment plant where influent begins treatment.</td>
</tr>
<tr>
<td>I&amp;I</td>
<td>Infiltration and Inflow. The wastewater component caused by an infall-dependent infiltration/inflow (RDI/I) and groundwater infiltration (GWI).</td>
</tr>
<tr>
<td>Independent Special District</td>
<td>Any special district having a legislative body all of whose members are elected by registered voters or landowners within the district, or whose members are appointed to fixed terms, and excludes any special district having a legislative body consisting, in whole or in part, of ex officio members who are officers of a county or another local agency or who are appointees of those officers other than those who are appointed to fixed terms. &quot;Independent special district&quot; does not include any district excluded from the definition of district contained in §56036.</td>
</tr>
<tr>
<td>Infrastructure Needs and Deficiencies</td>
<td>The term “infrastructure” is defined as public services and facilities, such as water supply systems, other utility systems, and roads (General Plan Guidelines). Any area needing or planned for service must have the infrastructure necessary to support the provision of those services. The term “infrastructure needs and deficiencies” refers to the status of existing and planned infrastructure and its relationship to the quality and levels of service that can or need to be provided.</td>
</tr>
<tr>
<td>Infiltration</td>
<td>Groundwater that infiltrates pipeline and manhole defects located below the ground surface. Groundwater infiltration is separate and distinguished from inflow resulting from storm events. Infiltration is a steady 24-hour flow that usually varies during the year in relation to the groundwater levels above the sewers. Infiltration rates are normally estimated from wastewater flows measured in the sewers during the early morning hours when water use is at a minimum and the flow is essentially infiltration.</td>
</tr>
<tr>
<td>Inflow</td>
<td>Water other than wastewater that enters a wastewater system and building sewer from sources such as roof leaders, cellar drains, yard drains, area drains, foundation drains, drains from springs and swampy areas, manhole covers, cross connections between storm drains and sanitary sewers, catch basins, cooling towers, stormwaters, surface runoff, street wash waters, or drainage. (Inflow does not include infiltration.)</td>
</tr>
<tr>
<td>Influent</td>
<td>Untreated wastewater – the wastewater that flows into a treatment plant.</td>
</tr>
<tr>
<td>Interceptors</td>
<td>Large diameter sewer pipes designed to convey wastewater from a collector sewer system to the treatment plant.</td>
</tr>
<tr>
<td>TERM</td>
<td>DEFINITION</td>
</tr>
<tr>
<td>-------------------------------</td>
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</tr>
<tr>
<td>Interested Agency</td>
<td>Each local agency, which provides facilities or services in the affected territory that a subject agency would provide.</td>
</tr>
<tr>
<td>LAFCo</td>
<td>Local Agency Formation Commission</td>
</tr>
<tr>
<td>Lateral</td>
<td>A lateral is defined as a sewer “branch line” that reaches from the main sewer line to individual properties/buildings. It can be further divided into upper and lower laterals. Upper laterals are the section of the branch line that connects to the building and extends to the property line. Lower laterals are the remaining section of the branch line, which runs from the property line to the sewer main.</td>
</tr>
<tr>
<td>Lift Station</td>
<td>(a.k.a. “pump station”) A pumping facility that conveys wastewater flow, from an area that would not naturally drain to the wastewater treatment plant, into the gravity sewer system for delivery and treatment.</td>
</tr>
<tr>
<td>Local Accountability and Governance</td>
<td>The term “local accountability and governance” refers to public agency decision making, operational and management styles that include an accessible staff, elected or appointed decision-making body and decision making process, advertisement of, and public participation in, elections, publicly disclosed budgets, programs, and plans, solicited public participation in the consideration of work and infrastructure plans; and regularly evaluated or measured outcomes of plans, programs or operations and disclosure of results to the public.</td>
</tr>
<tr>
<td>Local Agency</td>
<td>A city, county, or special district or other public entity, which provides public services.</td>
</tr>
<tr>
<td>LOAPUD</td>
<td>Lake Oroville Area Public Utility District</td>
</tr>
<tr>
<td>Main Line</td>
<td>Collector sewers located in the street, or for backyards, in the utility easement. Typically six to twelve inches in diameter, but can refer to larger diameter pipes as well.</td>
</tr>
<tr>
<td>Management Efficiency</td>
<td>The term “management efficiency” refers to the organized provision of the highest quality public services with the lowest necessary expenditure of public funds. An efficiently managed entity (1) promotes and demonstrates implementation of continuous improvement plans and strategies for budgeting, managing costs, training and utilizing personnel, and customer service and involvement, (2) has the ability to provide service over the short and long term, (3) has the resources (fiscal, manpower, equipment, adopted service or work plans) to provide adequate service, (4) meets or exceeds environmental and industry service standards, as feasible considering local conditions or circumstances, (5) and maintains adequate contingency reserves.</td>
</tr>
<tr>
<td>TERM</td>
<td>DEFINITION</td>
</tr>
<tr>
<td>-------------------------</td>
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</tr>
<tr>
<td>Merger</td>
<td>The extinguishment, termination, and cessation of the existence of a district of limited powers by the merger of that district with a city as a result of proceedings taken pursuant to this division.</td>
</tr>
<tr>
<td>mg</td>
<td>Million gallons—measurement of water and wastewater volume.</td>
</tr>
<tr>
<td>mgd</td>
<td>Million gallons per day. A unit of flow commonly used for wastewater discharges. One mgd is equivalent to 1.547 cubic feet per second over a 24 hour period.</td>
</tr>
<tr>
<td>Municipal Services</td>
<td>The full range of services that a public agency provides, or is authorized to provide, except general county government functions such as courts, special services and tax collection. As understood under the CKH Act, this includes all services provided by special districts under California law.</td>
</tr>
<tr>
<td>Non-Enterprise Activity</td>
<td>A non-enterprise activity, such as fire protection, is an activity that has an accounting system organized on a governmental fund basis.</td>
</tr>
<tr>
<td>Outfall</td>
<td>The exit point, usually a pipe or pipes where flow is discharged from the wastewater system into receiving water and which is engineered to ensure dispersion and dilution of the effluent in the receiving waters.</td>
</tr>
<tr>
<td>Out-of-Agency Contract</td>
<td>A contract to provide services outside of an agency’s boundaries.</td>
</tr>
<tr>
<td>Overlapping Territory</td>
<td>Territory which is included within the boundaries of two or more districts or within one or more districts and a city or cities.</td>
</tr>
<tr>
<td>Peak Flow</td>
<td>The maximum flow that occurs over a specific length of time (e.g., daily, hourly, instantaneous).</td>
</tr>
<tr>
<td>Peaking Factor</td>
<td>The peaking factor is the ratio of a maximum flow to the average flow, such as maximum hourly flow or maximum daily flow to the average daily flow. The wet weather peaking factor can be determined by dividing the PDWF by the ADWF.</td>
</tr>
<tr>
<td>Primary Treatment</td>
<td>The first stage of wastewater treatment involving removal of floating debris and solids by screening and/or settling.</td>
</tr>
<tr>
<td>Principal Act</td>
<td>In the case of a district, the law under which the district was formed and, in the case of a city, the general laws or a charter, as the case may be.</td>
</tr>
<tr>
<td>Public Agency</td>
<td>The state or any state agency, board, or commission, any city, county, city and county, special district, or other political subdivision, or any agency, board, or commission of the city, county, city and county, special district, or other political subdivision.</td>
</tr>
<tr>
<td>TERM</td>
<td>DEFINITION</td>
</tr>
<tr>
<td>------------------------------------------------</td>
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</tr>
<tr>
<td>Publicly Owned Treatment Works (POTW)</td>
<td>A treatment system, as defined by the Clean Water Act (Section 212) that is owned by a state or municipality, including special districts. This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW treatment plant.</td>
</tr>
<tr>
<td>PWWF</td>
<td>Peak Wet Weather Flow – PWWF consists of the average dry weather flow plus inflow and infiltration and is the highest measured hourly flow that occurs during wet weather. Peak Wet Weather Flow (PWWF) = Average Dry Weather Flow (ADWF) x Peak Factor</td>
</tr>
<tr>
<td>Rainfall-Dependent Infiltration/Inflow (RDI/I)</td>
<td>RDI/I consists of rainfall that enters the collection system through direct connections (roof leaders, manholes, etc.) and causes an almost immediate increase in wastewater flow.</td>
</tr>
<tr>
<td>Regional</td>
<td>Pertaining to activities or economies at a scale greater than that of a single jurisdiction, and affecting a broad geographic area.</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>The upgrading of older sewer systems to present-day standards.</td>
</tr>
<tr>
<td>RFC</td>
<td>Regional Facility Charge.</td>
</tr>
<tr>
<td>Rodder</td>
<td>A powered mechanical device that utilizes steel rods to clean sewer pipes. The rodder is effective in cleaning roots and grease as well as cleaning or opening stoppages in a line.</td>
</tr>
<tr>
<td>RWQCB</td>
<td>Regional Water Quality Control Board</td>
</tr>
<tr>
<td>Sanitary Sewer Overflow (SSO)</td>
<td>A sanitary sewer overflow is any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system. A sanitary sewer system is any system of pipes, pump stations, sewer lines, or other conveyances, which is owned or operated by a public entity, used to collect and convey wastewater to a treatment facility. SSOs do not include overflows from privately-owned service laterals when these overflows are caused by blockages or other problems within the privately-owned lateral. SSOs do include overflows from privately-owned laterals when the cause is a problem within the publicly-owned sanitary sewer system.</td>
</tr>
<tr>
<td>Sanitary Sewer System</td>
<td>A wastewater collection system designed to carry sanitary sewage, consisting solely of domestic, commercial, and industrial wastewater, and to which storm water, surface water and groundwater are not intentionally admitted.</td>
</tr>
<tr>
<td>TERM</td>
<td>DEFINITION</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Satellite Collection System</td>
<td>Satellite collection systems are owned by a municipality, agency, or utility that does not own a wastewater treatment facility. These collection systems discharge into another municipality's wastewater collection or treatment system for treatment and disposal.</td>
</tr>
<tr>
<td>SC-OR</td>
<td>Sewerage Commission-Oroville Region</td>
</tr>
<tr>
<td>Secondary Treatment</td>
<td>A type of wastewater treatment used to convert dissolved and suspended pollutants into a form that can be removed, producing a relatively highly treated effluent. Secondary treatment normally utilizes biological treatment processes (activated sludge, trickling filters, etc.) followed by settling tanks. Secondary treatment for municipal wastewater is the minimum level of treatment required by the Clean Water Act.</td>
</tr>
<tr>
<td>Service</td>
<td>A class established within, and as a part of, a single function, as provided by regulations adopted by the commission pursuant to CKH Chapter 5 (commencing with §56821) of Part 3.</td>
</tr>
<tr>
<td>Service Fee</td>
<td>A fee, usually paid monthly, by landowners and businesses for receiving sanitary sewer services. The service fee reimburses the jurisdiction or agency for the operation and maintenance costs associated with providing sewer services.</td>
</tr>
<tr>
<td>Service Review</td>
<td>A study and evaluation of municipal service(s) by specific area, sub-region or region culminating in written determinations regarding nine specific evaluation categories.</td>
</tr>
<tr>
<td>Sewage</td>
<td>A combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments.</td>
</tr>
<tr>
<td>Smoke Testing</td>
<td>Procedure used to locate defects and unauthorized connections to the sanitary sewer system. Smoke is forced into the sewer, and then observed to see where it exits the sewer system. If a house is properly plumbed smoke will escape at the roof vent.</td>
</tr>
<tr>
<td>Sphere of influence (SOI)</td>
<td>A plan for the probable physical boundaries and service area of a local agency, as determined by the LAFCo.</td>
</tr>
<tr>
<td>Stakeholder</td>
<td>Refers to LAFCOs, members of the public, affected and interested agencies, and other entities interested in, and affected by, service(s) being reviewed.</td>
</tr>
<tr>
<td>Storm Event</td>
<td>The probability of the occurrence of a given precipitation event. A 5-year storm event has a 20% (1 in 5) statistical probability of occurring during any given 12-month period. A 100-year storm event has a 1% (1 in 100) statistical probability of occurring during any given 12-month period.</td>
</tr>
<tr>
<td>TERM</td>
<td>DEFINITION</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Subject agency</td>
<td>Each district or city for which a change of organization is proposed or provided in a reorganization or plan of reorganization.</td>
</tr>
<tr>
<td>Surcharged Flow</td>
<td>Surcharging occurs when the amount of flow trying to get through a pipe exceeds the maximum capacity of the pipe thus building up pressure in the pipe. When pressure builds up it seeks to relieve itself through any means possible, potentially resulting in a sanitary sewer overflow.</td>
</tr>
<tr>
<td>Trunk Lines</td>
<td>Sewer pipes generally measuring more than 12 inches in diameter and having a capacity of 1 to 10 million gallons per day that connect smaller sewer pipes, or collectors, to the largest transport pipes, or interceptors.</td>
</tr>
<tr>
<td>TWSD</td>
<td>Thermalito Water and Sewer District</td>
</tr>
<tr>
<td>Wastewater</td>
<td>A combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments.</td>
</tr>
<tr>
<td>Wet Weather Flow</td>
<td>Wastewater flows that occur during periods when the groundwater table is high and the highest precipitation occur. The wet weather flow period is normally from October to May.</td>
</tr>
<tr>
<td>WWTF</td>
<td>Wastewater treatment facility. A facility containing a series of tanks, screens, filters, and other processes by which pollutants are removed from water.</td>
</tr>
</tbody>
</table>
9.0 BIBLIOGRAPHY

Websites and Communications

Butte County Association of Governments - http://www.bcag.org

California Regional Water Quality Control Board, Sanitary Sewer Overflow (SSO) Reduction Program (http://www.swrcb.ca.gov/water_issues/programs/sso/index.shtml)

City of Oroville – http://www.cityoforoville.org/

King County, Washington, Regional Infiltration and Inflow Control Program - http://www.kingcounty.gov/environment/wastewater/II.aspx

Lake Oroville Area Public Utility District - http://www.loapud.com/


Metropolitan St. Louis Sewer District - http://www.stlmsd.com/MSD

Request for Information (RFI) Responses


U.S. Environmental Protection Agency, Wastewater Management - http://www.epa.gov/owm/

Water Environment Federation - http://www.wef.org/Home

Documents


Bibliography


City of Lacey, WA, 2005 Wastewater Comprehensive Plan Update ([http://www.ci.lacey.wa.us/pw/pw_main_page.html](http://www.ci.lacey.wa.us/pw/pw_main_page.html))


Water Environment Federation. *Following the Flow – An Inside Look at Wastewater Treatment*. 2009. (http://www.wef.org/AboutWater/ForThePublic/WastewaterTreatment/)
APPENDIX A

SC-OR JOINT POWERS AGREEMENT
AMENDED & RESTATED
JOINT EXERCISE OF POWERS
AGREEMENT AMONG THE CITY OF OROVILLE,
THE LAKE OROVILLE AREA PUBLIC UTILITY DISTRICT
AND THE THERMALITO IRRIGATION DISTRICT

THIS AGREEMENT made and entered into this 24th day of April 2002 by and between the
CITY OF OROVILLE, ("OROVILLE"), a chartered city; the LAKE OROVILLE AREA PUBLIC
UTILITY DISTRICT ("LOAPUD"), a public utility district; and the THERMALITO IRRIGATION
DISTRICT ("THERMALITO"), an irrigation district; each of said parties organized and existing under
and by virtue of the laws of the State of California.

RECATALS

This Agreement is made with reference to the following facts. OROVILLE, LOAPUD and
THERMALITO each have the authority and power to acquire, construct, operate and maintain sewage
collection, transportation, treatment, and disposal facilities for servicing of their respective areas. The said
parties heretofore entered into an Agreement, dated June 18, 1971, providing for the joint exercise of their
said powers in achieving a regional solution to their respective sewerage disposal needs. The said
Agreement has been amended from time to time to change the name of the Joint Powers Agency, and to
restructure its governing board and staff. State and Federal grants have been accepted by the Joint Powers
Agency, and the regional sewerage project has been completed and placed into continuous operation. The
parties now desire to set forth their agreement for long-term sewerage facilities operations in this amended
and restated Joint Exercise of Powers Agreement.

NOW THEREFORE, it is agreed among the parties hereto as follows:

1. AMENDMENT OF AGREEMENT: This Agreement amends and restates the
Joint Powers Agreements among the parties, dated June 18, 1971, as amended from time to time, however,
nothing contained herein, or in the said prior agreements, is intended to change the identity of the
contracting parties or their service areas, or the status of the Joint Powers Agency under State law or under
any State or Federal Grant Contracts.

2. DEFINITIONS: Unless the context otherwise requires, the meaning of terms
used in this Agreement shall be as follows:

a) "Agency" shall mean agency created by the Joint Powers Agreement, now
known as the Sewerage Commission - Oroville Region.

b) "Alternate" member or commissioner shall mean the commissioner duly
authorized to represent an entity and to vote on behalf of that entity in the absence of the
"voting" commissioner.

c) "Board" shall mean the governing body of the agency, Sewerage
Commission - Oroville Region.
d) “Commission” shall mean the Sewerage Commission - Oroville Region.

e) “Commissioner” shall mean duly designated member of the Board.

f) “Entity” or “Entities” shall mean LOAPUD, Oroville, or Thermalito, or a combination thereof.

g) “Governing Body” shall mean the Oroville City Council, or the Board of Directors of LOAPUD, or Thermalito, or the Board of the Sewerage Commission - Oroville Region, as applicable.

h) “Project” or “Regional Project” shall mean the planning, designing, engineering, construction, operation, maintenance, repair, and replacement of the SC-OR facilities, and all administrative and technical services and activities in connection therewith.

i) “Revenues” shall mean those sums received by reason of sewer user charges, infiltration charges, regional facility charges, industrial pretreatment fees and charges together with interest on invested funds and administrative charges, costs, fees, and assessments as established by the Commission from time to time.

j) “SC-OR Facilities” shall mean the physical properties acquired, constructed, operated, maintained, repaired, and replaced by the Sewerage Commission - Oroville Region in accordance with Paragraph 7 of this Agreement.

k) “Service Area(s)” shall mean the geographic areas within which sewerage producing units are eligible for connection to the regional system served by the SC-OR facilities, and shall also mean, where appropriate, the individual geographic Sphere of Influence area served, or to be served, by the respective member entities, all as set forth in Exhibit A, attached hereto.

3. **TERM:** This Amended Agreement shall become effective as of the date hereof and shall continue in full force and effect until rescinded or terminated, by unanimous agreement, of the entities or for a period of 20 years, whichever is earlier, or unless extended by written agreement of all parties.

4. **POWERS OF COMMISSION:** The SEWERAGE COMMISSION - OROVILLE REGION shall have the power to acquire, construct, operate, maintain, repair, and replace Regional Sewerage Facilities, more particularly described in Paragraph 7 of this Agreement. The agency is hereby empowered and authorized, in its own name to make and enter into contracts; to employ agents and employees; to acquire, construct, manage, maintain and operate any building, works or improvements; to acquire by eminent domain or otherwise, and to hold or dispose of any property; to sue and be sued in its own name; to incur debts, liabilities and obligations; to issue various forms of bonds and financial instruments to the extent, and on the terms, provided by law. The Agency shall have the power to apply for, accept, receive and disburse grants, loans and other aids from any agency of the United States of America or of the State of California. In accordance with Government Code Section 6509, the foregoing powers shall be subject to the restrictions upon the manner of exercising such powers, pertaining to
Thermalito Irrigation District. Pursuant to Government Code section 6508.1, the debts, liabilities and or obligations of the Agency shall solely be its own and shall not be the individual debts, liabilities or obligations of the entities: Oroville, LOAPUD or Thermalito

5. **GOVERNING BODY:** The business of the agency shall be conducted by a Board of six commissioners. Two such commissioners shall be designated from time to time in writing by the governing body of each member entity, from among its own members. The commissioners so chosen shall be designated as either "voting" or "alternate" and shall continue to so serve until their successors are named.

   a) **Meetings:** The commissioners shall meet regularly, at least once a month at a time and place to be set by resolution, and from time to time at the call of any commissioner, upon 24 hours prior notice personally or by mail to all other commissioners. No such notice need be given to any commissioner who is present at the meeting for which notice is required or who consents in writing to the meeting being held. The compensation and reimbursable expenses of the commissioners shall be set from time to time by Resolution of the Board.

   b) **Quorum:** A quorum for the conduct of Commission business shall consist of three commissioners, voting or alternate, provided that there must be at least one such commissioner present from each member entity in order to constitute a quorum.

   c) **Voting:** All commissioners, "voting" or "alternate", shall be entitled to be heard on all matters of business coming before the Board. Each member entity shall be entitled to one vote on matters subject to voting, the said vote to be cast by the designated "voting" commissioner of such entity, or in his absence, by the designated "alternate" commissioner. Except as otherwise provided herein, the concurring vote of two commissioners, so voting, shall be required for any action of the Commission.

   d) **Chairman; Vice-Chairman:** The commissioners shall select, from among their members, a Chairman, who shall be the presiding officer at all Board meetings; and a Vice-Chairman, who shall so serve in the absence of the Chairman. The term of office of the Chairman and Vice-Chairman shall be one year. Elections shall be held in June of each year.

6. **FINANCIAL PROVISIONS:**

   a) **General Financial Provisions:**

      1) **Fiscal Year:** The Agency's fiscal year shall be from July 1 to the following June 30.

      2) **Depository; Fiscal Control:** Pursuant to Government Code Section 6505.6, the Commission shall appoint one of its officers or employees to serve as Treasurer and/or Fiscal Officer of the Commission. Said offices may be held by separate officers or employees, or combined and held by one officer or employee. A unanimous vote shall be required for such appointments. The person or persons
so appointed shall perform all of the functions required by Government Code Sections 6505, 6505.5 and 6505.6. Annually, such officers or employees shall contract with a certified public accountant to make an audit of the accounts and records of the Commission. Said contract shall be subject to the prior approval of the commissioners.

3) **Property; Bonds:** The Board shall from time to time designate the officers and persons, in addition to those specified in paragraph 6 (a) 2 above, who shall have charge of, handle or have access to any property of the Agency. Each such officer and person shall file a bond in an amount designated by the commissioners.

4) **Budget; Financial Reports:** Upon the execution of this Agreement and thereafter at least 30 days prior to commencement of each fiscal year, the Commission shall adopt a budget for the forthcoming fiscal year. The Commission shall render monthly to each entity, a detailed, itemized, written financial report showing expenditures, and the proper apportionment to each entity of the receipt and expenses during the previous month and the remaining balance on hand.

5) **Contribution and Payments:** Contributions from the treasuries of the member entities shall be made to the Sewerage Commission - Oroville Region for the purposes, and on the terms set forth in this Agreement, and in Amendments hereto.

b) **Ownership of Facilities:** It is understood and agreed that all SC-OR facilities, as defined in Paragraph 7 shall be owned, and title held, by the Sewerage Commission - Oroville Region, without specific or individual allocation of ownership interests or capacities to the respective member entities. Each entity shall be entitled to add connections and originate additional flows within its own service area on the terms and conditions contemplated by this Agreement, without limitation, except insofar as the SC-OR facilities may reach the limits of their capacities.

c) **Payment of Costs and Expenses:** The Commission shall pay all capital costs of the SC-OR facilities, including the acquisition costs of land and facilities, construction costs, engineering and technical services, legal and administrative services, and bond service. The Commission shall also pay all operational, maintenance, repair and replacement expenses of the SC-OR facilities, and all deposits required for the Capital Restricted Funds Accounts and depreciation reserves as established by Resolution.

d) **Grant and Bond Revenues; Cash Flows:** It is understood and agreed that the Commission may make application for, collect and disburse, all funds which the Commission is eligible to receive by reason of State and Federal grants, loan and aid programs relating to the services provided by the Sewerage Commission - Oroville Region for the direct benefit of the area serviced by SC-OR. A unanimous vote by the Board will be required for any action requiring the Sewerage Commission-Oroville Region to incur debt for any such program.
e) **Operational Revenues and Expenditures:** It is understood and agreed that the revenues of the project shall be derived from the following primary sources:

1. **Sewer User Charges:** Each member entity shall pay to the Commission, quarterly, a sewer user charge, which shall be based upon the number of dwelling units, or dwelling unit equivalents, connected to the regional system and the SC-OR facilities within the respective service areas. The details of such charges shall be established from time to time by Resolution, unanimously adopted, by the Board. Nothing contained herein shall limit the right of any member entity to levy a tax or assessment, or to charge and collect a local sewer service charge, standby charge or surcharge for the use or availability of services within its respective service area.

2. **Added Infiltration Charge:** The resolution or resolutions, of the Commission, establishing the monthly sewer user charges, shall also establish a formula for determining the extent of excess flows or infiltration, originating in the respective service areas of the member entities, and shall establish a reasonable charge to be paid by such entities for the processing of such excess flows or infiltration.

3. **Regional Facility Charge:** In addition to the sewer user charges and infiltration charges set forth above, each member entity shall pay to the Commission a regional facility charge, based on any increase in the use of the regional facility by such entity during the preceding quarter. The Board shall establish by resolution, unanimously adopted, during the September Commission meeting of each year, a rational formula for determining the amount and collection of the Regional Facility Charge, having due regard for existing units in each service area, and costs and benefits attributable to increased use units. The procedures established in the Agency Resolution 2-83, as implemented by Board Policy 7240 shall be the foundation upon which said rational formula is to be based. The work product shall be expressed in a form similar to Table 7 expressing the uncommitted capacity of the sewerage facilities and the projected needs to the time of needed expansion.

Nothing contained herein shall affect the right of a member entity to establish and collect connection charges or any other fees or charges for new connections to its retained local sewerage system within its respective service area.

4. **Administrative Charges:** As per the Agency resolutions and in accordance with requirements of the Agency’s Industrial Pretreatment Program administrative charges, fees, assessments and penalties (fines) shall be established by the Commission from time to time. The due process provisions of the Industrial Pretreatment Program shall be completed prior to charging assessments and or penalties. The Commission shall enact all fees and charges by a unanimous vote.
(5) _Uniform Rates; Financing Plan:_ It is understood and agreed that the rates established from time to time by resolution, unanimously adopted, by the Board for sewer user charges, infiltration charges and regional facility charges, shall be uniform within each category of sewerage producing units in the regional service area. It is the intention of the parties that the financial provisions of this Paragraph (6) shall be administered so as to conform to the concepts expressed in the “Financing Plan, Sewerage Commission - Oroville Region”, prepared by Bartle Wells Associates, dated October, 1973 utilizing updated and current values throughout.

7. **REGIONAL PROJECT:** Oroville, Thermalito, and LOAPUD hereby agree that the Sewerage Commission - Oroville Region shall design, construct, operate, maintain, repair, and replace the regional facilities consisting of, but not limited to:

   a) A single central treatment plant utilizing conventional activated sludge process with filtration, situated at South 5th Avenue site, Oroville, California.

   b) An outfall and diffuser discharging a high quality effluent to the Feather River.

   c) LOAPUD Interceptor.

   d) SC-OR West Interceptor with lift stations.

   e) Land, easements, and facilities necessary or appurtenant to the above.

   f) Such other wastewater treatment and disposal facilities that must be added to the existing facilities from time to time, to assure continuing compliance with the Waste Discharge Requirements set for the Sewerage Commission - Oroville Region by the State and or Federal Governments.

In order to assure completion and perpetuation of the Regional Project, each of the member entities shall be obligated to carry out the terms and conditions of this Agreement and Resolutions adopted pursuant hereto, and any controversies that may arise, among the entities shall be subject to arbitration as hereinafter set forth.

8. **ARBITRATION:** All controversies between the entities, arising out of an action or decision of the Board shall be settled by arbitration in accordance with the provisions of this paragraph. Within ten (10) days after the action or decision has been taken, the aggrieved entity shall give written notice to the Board and the other entities that it desires arbitration, stating the controversy to be arbitrated. Within ten (10) days thereafter, the aggrieved entity and the Board shall each select one arbitrator, and within ten (10) additional days after their selection, the two arbitrators shall select a third arbitrator. The hearing shall be conducted within fifteen (15) days after the nomination of the third arbitrator and shall be restricted to matters relative to that stated in the notice requesting arbitration. Each entity shall be given an opportunity to be heard and to present evidence. Within ten (10) days after the conclusion of the hearing or hearings, the arbitrators shall state their findings of fact, conclusions of law and decision in writing, and shall sign the same and deliver one signed copy thereof to each entity. Such award shall be final and
binding upon the Board, and upon each entity. A majority shall govern if the arbitrators’ determination is not unanimous. The aggrieved entity, and the Board, shall each pay the expenses of their respective arbitrators. The costs and expenses of the third arbitrator, and the administrative costs of arbitration shall be shared equally between the aggrieved entity and the Board.

9. **INSURANCE:** The Agency shall obtain and keep in effect liability insurance, property insurance and workers compensation insurance. The limits and terms of coverage shall be reviewed and adjusted annually during the development of the annual Budget as provided in section (4) contained herein.

10. **HOLD HARMLESS:** Pursuant to Government Code section 895.4, each member entity shall fully indemnify and hold harmless, the Agency, as well as the other member entities to this Agreement from any and all liability, claim or cost, including attorneys fees, relating to the indemnifying member entity’s act, negligence or omission.

11. **AMENDMENT OF AGREEMENT:** This Agreement may be amended by an agreement approved by all of the entities. Approval of the Board shall not be required for amendment of this Agreement.

12. **SEVERABILITY:** Should any part, term or provision of this Agreement be decided by the courts to be illegal or in conflict with any law of the State of California, or otherwise rendered unenforceable or ineffectual, the validity of the remaining portions or provisions shall not be affected thereby.

13. **NOTICES:** Any notice authorized or required to be given by this Agreement shall be in writing and shall be deemed to have been given when mailed, postage prepaid, or delivered during working hours, to the following addresses or such changed addresses as to which notice is similarly given:

   **Oroville:**
   1735 Montgomery Street
   Oroville, California 95965

   **LOAPUD:**
   1960 Elgin Street
   Oroville, California 95966

   **Thermalito:**
   410 Grand Avenue
   Oroville, California 95965
IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

CITY OF OROVILLE

By: Gordon Andoe, Mayor

LAKE OROVILLE AREA PUBLIC UTILITY DISTRICT

By: Robert U. Simpson, President

THERMALITO IRRIGATION DISTRICT

By: Stanley Huston, President
April 18, 2002

Mr. Ray Sousa
General Manager
SC-OR
PO Box 1350
Oroville, CA 95965-1350

Dear Ray,

The Thermalito Irrigation District Board of Directors, at its regular meeting of April 16, 2002, adopted and executed the revised Sewage Commission-Oroville Region Joint Powers Agreement.

Please provide a completed document with City of Oroville and LOAPUD representatives signatures. I will obtain the necessary TID signatures and return the instrument to you promptly.

Best regards,

David E. Bird
General Manager

DEB:je

Established 1922
March 22, 2002

Sewerage Commission Oroville Region
Ray Sousa, Manager
P.O. Box 1350
Oroville, CA 95965

RE: FINAL DRAFT JOINT POWER AGREEMENT

Dear Ray:

The City Council, at its adjourned regular meeting of March 19, 2002, voted unanimously to approve the Final Draft Joint Powers Agreement between the Lake Oroville Area Public Utility District and Thermalito Irrigation District.

Upon the approval of the other agencies, please let me know when the final version of the agreement is ready for the Mayor's signature.

Sincerely,

Sharon Atteberry
Deputy City Clerk

MAR 27 2002
RECEIVED
March 20, 2002

Raymond H. Sousa
SC-OR
PO Box 1350
Oroville CA 95965

RE: Amended Joint Powers Agreement

Dear Ray,

The Lake Oroville Area Public Utility District Board of Directors at their regularly scheduled meeting March 12, 2002 approved by a three to two vote the Amended Joint Powers Agreement as presented from SC-OR. Should you have any questions or comments please call.

Sincerely,

LAKE OROVILLE AREA PUBLIC UTILITY DISTRICT

Carol A. Hill, General Manager
RESOLUTION NO. 4-01

RESOLUTION OF THE BOARD OF DIRECTORS OF
LAKE OROVILLE AREA PUBLIC UTILITY DISTRICT
STATING INTENT TO EXTEND THE JOINT POWERS AGREEMENT
GOVERNING THE SEWERAGE COMMISSION-OROVILLE REGION

WHEREAS, the Lake Oroville Area Public Utility District is a member entity of the Sewerage Commission – Oroville Region, pursuant to the Amended Joint Exercise of Powers Agreement executed on October 31, 1973, as amended from time to time ("JPA"); and

WHEREAS, the term of the JPA will expire on October 31, 2003, unless extended by written agreement of the parties; and

WHEREAS, it is in the best interest of the Lake Oroville Area Public Utility District to remain a member of the Sewerage Commission – Oroville Region, and to perpetuate its services to the community;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Lake Oroville Area Public Utility District that said district intends to remain a member of the Sewerage Commission – Oroville Region, and to execute a written agreement with the City of Oroville and Thermalito Irrigation District extending the JPA on terms consistent with the existing agreement except as otherwise may be unanimously agreed.

PASSED AND ADOPTED at a Special Meeting this 26th day of March, 2001 at Oroville, California, after being moved by Director Simpson and seconded by Director Fraser, by the following vote:

AYES: Director's Ball, Dennis, Fraser, Kiely, and Simpson

NOES: None

ABSENT: None

ABSTAINED: None

LAKE OROVILLE AREA PUBLIC UTILITY DISTRICT

By /s/ T. C. Dennis
T. C. Dennis, President

ATTEST:

/s/ Carol A. Hill, Secretary
RESOLUTION 01-02

THERMALITO IRRIGATION DISTRICT
BOARD OF DIRECTORS

"Confirming Intent to Continue to Participate in SC-OR"

WHEREAS, on October 31, 1973 Thermalito Irrigation District entered an amended joint exercise of powers agreement ("SC-OR JPA") with the City of Oroville and Lake Oroville Public Utilities District, then known as the North Burbank Public Utility District, for the joint provision of sewage collection, transportation, treatment and disposal facilities and services for their respective jurisdictions; and

WHEREAS, the SC-OR JPA expressly provides that it shall continue in full force and effect, unless terminated earlier by the unanimous agreement by the parties thereto, "for a period of thirty years...unless extended by written agreement of all parties."; and

WHEREAS, in recognition that the term of the SC-OR JPA shall expire on March 29, 2003 unless extended by written agreement of the parties thereto;

NOW, THEREFORE BE IT RESOLVED, that it is the intent of Thermalito Irrigation District to extend, and to negotiate with the other parties thereto the extension of, the SC-OR JPA generally on the terms and conditions therein set forth except as otherwise may unanimously be agreed.

Adopted on March 20, 2001 at the regular meeting of the Board of Directors of Thermalito Irrigation District by the following vote:

AYES: HUSTON, HARTSHORN, REYNOLDS & MATLOCK

NAYS: NONE

ABSTENTIONS: NONE

ABSENT: TOLMAN

ROBERT HARTSHORN, President
Thermalito Irrigation District
Board of Directors

ATTEST:

DAVID E. BIRD, Secretary
April 2, 2001

Ray Sousa, Manager
Sewerage Commission Oroville Region
2880 South Fifth Avenue
Oroville, CA 95965

Dear Mr. Sousa:

Enclosed, please a copy of Resolution No. 5677, as approved by the City Council at the March 20, 2001 City Council meeting. The Council approved the resolution in support of its intent to continue membership in the Joint Powers Agency known as the Sewerage Commission - Oroville Region.

Please contact me at 538-2405 should you have any questions.

Sincerely,

[Signature]
Sharon L. Atteberry
Deputy City Clerk
CITY OF OROVILLE
RESOLUTION NO. 5677

A RESOLUTION OF INTENT TO CONTINUE MEMBERSHIP IN THE JOINT POWERS AGENCY KNOWN AS THE SEWAGE COMMISSION-OROVILLE REGION

WHEREAS, the City of Oroville, in accordance with an amended joint powers agreement dated October 31, 1973, has been a member of the Sewage Commission-Oroville Region (SC-OR) which operates a regional sewage treatment facility;

WHEREAS, such joint powers agreement expires on October 31, 2003; and

WHEREAS, the City of Oroville desires to continue as a member of SC-OR;

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Oroville as follows:

SECTION 1. The City Council does hereby state its intent to continue its membership in the joint powers agency known as the Sewage Commission-Oroville Region.

SECTION 2. The City Administrator and the City Attorney are directed to meet with the other members of the Sewage Commission-Oroville Region concerning the drafting of a joint powers agreement for the regional sewage treatment facility.

PASSED AND ADOPTED by the City Council of the City of Oroville at an adjourned regular meeting on March 20, 2001 by the following vote:

AYES: Council Members Alt, Jernigan, Pillus, Spada, Vice Mayor Hatley, Mayor Andoe

NOES: None

ABSENT: Council Member Koslin

ABSTAIN: None

ATTEST: Mayor Gordon Andoe

APPROVED AS TO FORM:

Dwight L. Moore, City Attorney

Sharon L. Atteberry
Deputy City Clerk
The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. The Sewerage Commission-Oroville Region (hereafter Discharger) submitted a Report of Waste Discharge, dated 18 November 2003, and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) for the Discharger’s Wastewater Treatment Plant (No. CA0079235).

2. The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides sewage service to the City of Oroville, Thermalito Irrigation District, Lake Oroville Area Public Utility District, State of California Parks and Recreation Department, and State of California Department of Water Resources (DWR) as a regional treatment plant. The Discharger's responsibility for the collection system ends at the termination of its east and west interceptors, which consist of approximately 3.25 miles of pipe line and 2 pump stations (Rudy Creek and Feather River). An average dry weather flow of 3.2 million gallons per day (mgd) of treated domestic and industrial wastewater is discharged to the Feather River (Discharge 001), a water of the United States, in Section 33, T19N, R3E, MDB&M at latitude 39° 27' 11" and longitude 121° 38' 13". The treatment plant is in Section 19, T19N, R4E, MDB&M, on property owned by the Discharger (Assessor's Parcel No. 035 390 013), as shown on Attachments A and B, which are a part of this Order.

3. The treatment system consists of screening for removal of large solids, grit removal, primary clarification, activated sludge treatment with secondary clarification, filtration, chlorination, and dechlorination. Sludge is aerobically treated, dried on site, and then disposed at a sanitary landfill. The Report of Waste Discharge and information from the Discharger’s monitoring reports describes the discharge as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Average Dry Weather Flow</td>
<td>6.5 mgd</td>
</tr>
<tr>
<td>Average Dry Weather Flow</td>
<td>3.2 mgd</td>
</tr>
<tr>
<td>Maximum Daily Wet Weather Flow</td>
<td>8.9 mgd</td>
</tr>
<tr>
<td>Average Temperature</td>
<td>76°F Summer; 65°F Winter</td>
</tr>
</tbody>
</table>
4. The U.S. Environmental Protection Agency (USEPA) and the Regional Board have classified this discharge as a major discharge.

5. The Regional Board adopted a Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. This includes plans and policies adopted by the State Water Resources Control Board (SWRCB) and incorporated by reference, such as Resolution No. 68-16, “Statement of Policy with Respect to Maintaining High Quality of Waters in California” (Resolution No. 68-16). The Basin Plans, as amended, designate beneficial uses, establish water quality objectives, and contain implementation plans and policies for waters of the Basins. Pursuant to the California Water Code (CWC) Section 13263(a), waste discharge requirements must implement the Basin Plans.

6. The USEPA adopted the National Toxics Rule (NTR) on 22 December 1992, which was amended on 4 May 1995, and 9 November 1999, and the California Toxics Rule (CTR) on 18 May 2000, which was amended on 13 February 2001. These rules contain water quality criteria applicable to this discharge. The State Water Resources Control Board (SWRCB) adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (known as the State Implementation Policy or SIP) on 2 March 2000, which contains guidance on implementation of the NTR and the CTR.

7. The beneficial uses of the Feather River downstream of the discharge as identified in Table II-1 of the Basin Plan are municipal and domestic, industrial and agricultural supply; water contact and non-contact recreation; esthetic enjoyment; navigation; groundwater recharge, fresh water replenishment; and preservation and enhancement of fish, wildlife, and other aquatic resources.

8. The beneficial uses of the underlying ground water are municipal, domestic, industrial and agricultural supply.

9. Federal regulations contained in 40 CFR 122.4 (d) require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numerical water quality standard. The NTR and CTR contain water quality standards applicable to this discharge. The Discharger was issued a letter under the authority of California Water Code Section 13267 on 28 February 2001, requesting effluent and receiving water monitoring meeting the requirements of the State Implementation Policy (SIP). Analytical results were submitted for volatile

<table>
<thead>
<tr>
<th>Constituent</th>
<th>mg/L</th>
<th>lbs/day&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.1</td>
<td>83</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>1.2</td>
<td>32</td>
</tr>
</tbody>
</table>

<sup>a</sup> 5-day, 20°C biochemical oxygen demand.

<sup>b</sup> Based on an ADWF of 3.2 mgd.
substances, semi-volatile substances, pesticides, metals, asbestos, 2,3,7,8-TCDD dioxin, and sixteen other dioxin congeners. The methodology described in Section 1.3 of the State Implementation Policy (SIP) was used to evaluate the Discharger’s monitoring data and determine reasonable potential. Copper, zinc, and tetrachloroethene were detected in the effluent at concentrations that may cause or contribute to an in-stream excursion above a narrative or numerical water quality standard or objective.

10. In determining whether a discharge has the reasonable potential to contribute to an in-stream excursion above a narrative or numerical water quality standard, the dilution of the effluent in receiving water may be considered where areas of dilution are defined. The available dilution may also be used to calculate protective effluent limitations by applying water quality criteria at the edge of the defined mixing zone. In situations where receiving water flows are substantially greater than effluent flows and there is available assimilative capacity, dilution may be considered in establishing effluent limitations.

11. The Discharger’s consultant conducted a mixing zone study using the CORMIX GI version 4.1 Hydrodynamic Mixing Zone Model to mathematically model effluent discharges from the wastewater treatment plant to the Feather River. The mixing zone modeling results indicated the discharge meets the definition of a completely mixed discharge as contained in the SIP. On the basis of the mixing zone study the Discharger requested a dilution credit of 92 for acute criteria and 121 for chronic criteria.

12. Resolution No. 68-16 requires the Regional Board to maintain high quality waters of the state unless it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board’s policies. The dilution credits requested by the Discharger would result in effluent limits that are extremely high in comparison with measured levels in the Discharger’s effluent. Using these dilution credits would grant 100 percent of the assimilative capacity of the river to this discharge, eliminating the ability to allow existing or potential downstream discharges without water quality objectives being exceeded. The Regional Board, therefore, is granting a portion of the requested dilution credit in an effort to maintain the quality of the Feather River at the current levels and reserve a portion of the river’s assimilative capacity for other discharges. A dilution credit of 20 for acute and human health criteria and 26 for chronic criteria will result in effluent limits that more reasonably represent current levels in the Discharger’s effluent and thus are used to develop effluent limits for copper, zinc and tetrachloroethene in this order.

13. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have a reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Board finds that the discharge has a reasonable potential to cause or
contribute to an in-stream excursion above a water quality standard for the following constituents:

a. **Copper:**

As reported by the Discharger, copper was detected in the effluent at a maximum concentration of 15 ug/L. The initial sampling was not conducted using “clean” techniques, however a subsequent sample was taken with appropriate technique and had a result of 6.8 ug/L. The USEPA CTR aquatic life chronic criterion for copper is 4.3 ug/L (for a minimum receiving water hardness of 40 mg/L and applying the USEPA translator of 0.960). The maximum observed upstream receiving water copper concentration was 0.72 ug/L.

The detected concentration of copper exceeds the CTR criterion. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream exceedance of the CTR criterion. An effluent limitation for copper is included in this Order based on the CTR acute toxicity criterion and is established as 57 ug/L as a monthly average and the daily maximum of 110 ug/L, calculated using the 20:1 dilution credit as shown in the Information Sheet, a part of this Order.

b. **Zinc:**

As reported by the Discharger, zinc was detected in the effluent at a maximum concentration of 60 ug/L. The USEPA CTR aquatic life chronic and acute criteria for zinc is 55.1 ug/L (for a minimum receiving water hardness of 40 mg/L and applying the USEPA translators of 0.986 for chronic and 0.978 for acute). The maximum observed upstream receiving water zinc concentration was 30 ug/L.

The detected concentration of zinc exceeds the CTR criteria. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream exceedance of the CTR criteria. An effluent limitation for zinc is included in this Order based on the CTR acute toxicity criterion and is established as 280 ug/L as a monthly average and the daily maximum of 560 ug/L, calculated using the 20:1 dilution credit as shown in the Information Sheet, a part of this Order.

c. **Tetrachloroethene:**

As reported by the Discharger, tetrachloroethene was detected in the effluent at a maximum concentration of 1.0 ug/L. The USEPA CTR human health criterion for tetrachloroethene is 0.8 ug/L (for waters that are sources of drinking water and which aquatic organisms may be consumed). The maximum observed upstream receiving water tetrachloroethene concentration was 0.32 ug/L.
The detected concentration of tetrachloroethene exceeds the CTR criterion. Therefore, the discharge has a reasonable potential to cause or contribute to an exceedance of the CTR criterion. An effluent limitation for tetrachloroethene is included in this Order based on the CTR human health criterion and is established as 14 ug/L as a monthly average and the daily maximum of 28 ug/L, calculated using the 20:1 dilution credit as shown in the Information Sheet, a part of this Order.

d. **Total Chlorine Residual:**

Chlorine is commonly used as a disinfection agent in the treatment of wastewater. Proper disinfection ensures destruction of pathogens prior to discharge to the surface waters. The Discharger uses chlorine for disinfection of the wastewater at the treatment plant. Because chlorine poses a threat to human health and is especially harmful to organisms living in water, a dechlorination process is necessary for the removal of chlorine. For dechlorination, the Discharger uses sulfur dioxide, which combines with chlorine, to render it relatively unreactive and thus removes it from the waste stream. Inadequate dechlorination may result in the discharge of chlorine to the receiving stream and cause toxicity to aquatic life. The Basin Plan prohibits the discharge of toxic substances in toxic concentrations.

The USEPA has developed Ambient Water Quality Criteria for the protection of freshwater aquatic life. The recommended maximum one-hour average and four-day average concentrations for chlorine are 0.02 mg/L and 0.01 mg/L, respectively. Effluent Limitations for chlorine are included in this Order and are based on the Basin Plan narrative toxicity objective.

e. **Total Suspended Solids (TSS) and Biochemical Oxygen Demand (BOD):**

Federal regulations, 40 CFR, part 133, provide technology based effluent limitation for BOD and TSS. Pursuant to the regulations at 40 CFR Sections 133.102(a), and (b), the BOD and TSS 30 day average discharge limit for secondary treatment systems shall not exceed 30 mg/L, the 7 day average shall not exceed 45 mg/L, and the 30 day BOD percent removal shall not be less than 85 percent. The previous permit called for monthly average effluent limits for BOD and TSS of 20 mg/L, weekly average limits of 25 mg/L, daily maximum limit of 40 mg/L, and a monthly average removal rate of 85 percent. These limits remain the same in this permit.

f. **Total Coliform Organisms:**

This Order requires a monthly median total coliform limit of 23 MPN/100 ml and a daily maximum limit of 500 MPN/100 ml for effluent discharged to the Feather River. This level is thought to be adequately protective of beneficial uses and is consistent with the previous permit.
g. **pH:**

The Basin Plan provides that the pH of surface waters shall not be depressed below 6.5 nor raised above 8.5 nor shall the discharge alter pH of the receiving water more than 0.5 units. Federal regulations at 40 CFR 133.102(c) describes the minimum level of effluent quality to be attained by secondary treatment facilities for pH to be within 6.0 and 9.0 units. This Order requires the pH of the effluent to be maintained within the limits of 6.0 and 9.0 pH units.

14. Section 13263.6(a), California Water Code, requires that “the regional board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRKA) indicate as discharged into the POTW, for which the state board or the regional board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective”. The Regional Board has adopted numeric water quality objectives in the Basin Plan for the following constituents: arsenic, copper, silver, zinc, and cyanide. The most recent toxic chemical release data did not indicate that any of these constituents are discharged into the POTW at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective. Data for arsenic, silver and cyanide indicate that there is not a reasonable potential to cause or contribute to an excursion above any numeric water quality objectives referred to in Water Code Section 13263.6(a). This Order contains effluent limitations for copper and zinc.

15. California Water Code Section 13267 states, in part, "(a) A Regional Board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region" and "(b) (1) In conducting an investigation… the Regional Board may require that any person who… discharges… waste…that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Board requires." California Water Code Section 13383 states in part, "a regional board may establish monitoring, inspection, entry, reporting, and record keeping requirements . . . for any person who discharges pollutants . . . to navigable waters." The attached Monitoring and Reporting Program is pursuant to California Water Code Sections 13267 and 13383.

16. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and SWRCB Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on water quality will be insignificant.

17. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations),
304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

18. Federal regulations for storm water discharges were promulgated by USEPA on 16 November 1990 (40 CFR Parts 122, 123, and 124) which require specific categories of industrial facilities, which discharge storm water, to obtain NPDES permits and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate industrial storm water pollution.

19. The SWRCB adopted Order No. 97-03-DWQ (General Permit No. CAS000001), on 17 April 1997, specifying waste discharge requirements for discharge of storm water associated with industrial activities, excluding construction activities, and requiring submittal of a Notice of Intent (NOI) by industries to be covered under the permit. All stormwater drainage at the site is internal, and therefore no stormwater notice of intent is required for the Discharger.

20. The Discharger developed a pretreatment program in conformance with 40 CFR Part 403, which was approved on 8 December 2000.

21. The Discharger’s sanitary sewer system collects wastewater using sewers, pipes, pumps, and/or other conveyance systems and directs this raw sewage to the wastewater treatment plant. A “sanitary sewer overflow” is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Temporary storage and conveyance facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage/conveyance facilities.

22. Sanitary sewer overflows consist of varying mixtures of domestic sewage, industrial wastewater, and commercial wastewater. This mixture depends on the pattern of land use in the sewage collection system tributary to the overflow. The chief causes of sanitary sewer overflows include grease blockages, root blockages, debris blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, storm or groundwater inflow/infiltration, lack of capacity, and contractor caused blockages.

23. Sanitary sewer overflows often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen demanding organic compounds, oil and grease, and other pollutants. Sanitary sewer overflows can cause temporary exceedances of applicable water quality objectives, pose a threat to public health, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters in the area.

24. The Discharger is expected to take all necessary steps to adequately maintain and operate its sanitary sewer collection system. This Order requires the Discharger to prepare and implement a Sanitary Sewer System Operation, Maintenance, Overflow Prevention, and Response Plan.
25. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21100, et seq.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code.

26. The Regional Board has considered the information in the attached Fact Sheet in developing the Findings of this Order. The Fact Sheet, Monitoring and Reporting Program No. R5-2005-0010, and Attachments A and B are a part of this Order.


28. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

29. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

30. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon the date of hearing, provided USEPA has no objections.

IT IS HEREBY ORDERED that Order No. 99-065 is rescinded and the Sewerage Commission-Oroville Region, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. **Discharge Prohibitions**

1. Discharge of treated wastewater at a location or in a manner different from that described in Finding Nos. 2 and 3 is prohibited.

2. Discharge of storm water is prohibited without first obtaining coverage under the general Permit for Discharges of Storm Water Associated with Industrial Activities.

3. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13. See attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)."

4. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.
B. Effluent Limitations

1. Effluent shall not exceed the following limits at Discharge 001:

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Units</th>
<th>Monthly Average</th>
<th>Weekly Average</th>
<th>Monthly Median</th>
<th>4-day Average</th>
<th>Daily Maximum</th>
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<tr>
<td>BOD(^a) mg/L</td>
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<td>25</td>
<td>--</td>
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<tr>
<td>lbs/day(^b)</td>
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<td>--</td>
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<tr>
<td>Total Suspended Solids mg/L</td>
<td>20</td>
<td>25</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>40</td>
</tr>
<tr>
<td>lbs/day(^b)</td>
<td>1,100</td>
<td>1,400</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2,200</td>
</tr>
<tr>
<td>Chlorine Residual mg/L</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.01</td>
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<td>0.02(^c)</td>
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<tr>
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<td>--</td>
<td>--</td>
<td>110</td>
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<tr>
<td>lbs/day(^b)</td>
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</tr>
<tr>
<td>Total Recoverable Zinc ug/L</td>
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<td>--</td>
<td>--</td>
<td>--</td>
<td>560</td>
<td>--</td>
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<td>lbs/day(^b)</td>
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<td>--</td>
<td>--</td>
<td>--</td>
<td>30</td>
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<tr>
<td>Tetrachloroethene ug/L</td>
<td>14</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>28</td>
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</tr>
<tr>
<td>lbs/day(^b)</td>
<td>0.76</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1.5</td>
<td>--</td>
</tr>
<tr>
<td>Total Coliform Organisms MPN/100 mL</td>
<td>--</td>
<td>--</td>
<td>23</td>
<td>--</td>
<td>500</td>
<td>--</td>
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</tbody>
</table>

\(^a\) 5-day, 20°C Biochemical Oxygen Demand (BOD).
\(^b\) Based upon a design treatment capacity of 6.5 mgd.
\(^c\) 1-hour average

2. The arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples collected over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).

3. The discharge shall not have a pH less than 6.0 nor greater than 9.0.

4. The average dry weather (July through September) discharge flow shall not exceed 6.5 mgd.

5. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

- Minimum for any one bioassay - - - - - - - - - - - - - - - - - - -70%
- Median for any three or more consecutive bioassays - - - - - -90%
C. **Sludge Disposal**

1. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.

2. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least 90 days in advance of the change.

3. Use and disposal of sewage sludge shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR 503. If the State Water Resources Control Board and the Regional Water Quality Control Boards are given the authority to implement regulations contained in 40 CFR 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR 503 whether or not they have been incorporated into this Order.

4. The Discharger shall submit a sludge disposal plan describing the annual volume of sludge generated by the plant and specifying the disposal practices in accordance with the attached Monitoring and Reporting Program.

D. **Receiving Water Limitations**

Receiving water limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit.

The discharge shall not cause the following in the Feather River:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/L during the period of 1 June through 31 August nor below 8.0 mg/L during the period of 1 September through 31 May.

2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.

3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.

4. Chlorine to be detected in the receiving water in concentrations equal to or greater than 0.01 mg/L.

5. Aesthetically undesirable discoloration.
6. Fungi, slimes, or other objectionable growths.

7. The turbidity to increase as follows:
   a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
   b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
   c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
   d. More than 10 percent where natural turbidity is greater than 100 NTUs.

8. The normal ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 units.

9. Deposition of material that causes nuisance or adversely affects beneficial uses.

10. The normal ambient temperature to be increased more than 5°F, or to higher than 56°F when such an increase will be detrimental to the fishery, whichever is more restrictive.

11. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

12. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

13. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

14. Violations of any applicable water quality standard for receiving waters adopted by the Regional Board or the SWRCB pursuant to the CWA and regulations adopted thereunder.

15. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

16. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of total samples to exceed 400 MPN/100 ml.
17. Electrical Conductivity (at 25 °C) to exceed 150 umhos/cm (90 percentile) in well mixed waters.

18. Upon adoption of any applicable water quality standard for receiving waters by the Regional Board or the SWRCB pursuant to the CWA and regulations adopted thereunder, this permit may be reopened and receiving water limitations added.

E. **Groundwater Limitations**

1. The discharge, in combination with other sources, shall not cause groundwater underlying the wastewater disposal areas to contain waste constituents statistically greater than background water quality, except for coliform bacteria. For coliform bacteria, increases shall not cause the most probable number of total coliform organisms to exceed 2.2 MPN/100 ml over any seven-day period.

F. **Pretreatment Program Requirements**

The Discharger shall:

1. Comply with all pretreatment requirements contained in 40 CFR Part 403 and shall be subject to enforcement actions, penalties, fines, and other remedies by USEPA or other appropriate parties, as provided in the CWA, as amended. The Discharger shall implement and enforce its approved Pretreatment Program. The USEPA may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the CWA.

2. Enforce the requirements promulgated under Section 307(b), (c), and (d), and Section 402(b) of the CWA. The Discharger shall cause industrial users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements, or in the case of a new industrial user, upon commencement of the discharge.

3. Perform the pretreatment functions required in 40 CFR Part 403, including, but not limited to:
   a. Implementing the necessary legal authorities as provided in 40 CFR 403.8(f)(l);
   b. Enforcing the pretreatment requirements under 40 CFR 403.5 and 403.6;
   c. Implementing the programmatic functions as provided in 40 CFR 403.8(f)(2);
   d. Providing the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3); and
e. Publishing a list of significant violators as required by 40 CFR 403.8(f)(2)(vii), where "significant violations" and "significant noncompliance" are as defined by USEPA in Pretreatment Compliance Monitoring and Enforcement Guidance, pp. 3-48 through 3-52.

G. Provisions

1. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, ground water, cooling waters, and condensates that are essentially free of pollutants.

2. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

3. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986.

4. **Within one year of the adoption date of this order** the Discharger shall submit to the Regional Board a Sewer System Operation, Maintenance, Overflow Prevention, and Overflow Response Plan (SS Plan) that describes the actions designed to prevent or minimize the potential for sanitary sewer overflows. The Discharger shall amend the SS Plan as necessary. The Discharger shall ensure that the up-to-date SS Plan is readily available to maintenance personnel at all times and that personnel are familiar with the plan.

At a minimum, the Operation and Maintenance portion of the SS Plan shall contain or describe the following:

a. Plans of the sewer system, identifying sewer mains, manholes, cleanouts, any air relief valves, and any other specific critical equipment or infrastructure;

b. A listing of equipment and elements to be inspected, a description of inspection procedures and inspection frequency, and sample inspection forms;

c. A schedule for routine inspection and testing of manholes, sewer system piping, valves, and other key system components, and rehabilitation procedures to be followed in the case that such rehabilitation is necessary;

5. At a minimum, the Overflow Prevention and Response portion of the SS Plan shall contain or describe the following:
a. Response procedures for sanitary sewer overflows. Procedures shall minimize the volume of sewage that may enter surface waters, and minimize the adverse effects of sewer overflows on water quality and public health. Procedures shall also ensure that all overflows are properly identified, responded to and reported; and

b. A plan to notify the Butte County Environmental Health Department and a public notification plan, in which any posting of areas contaminated with sewage is performed at the direction of the Butte County Environmental Health Department. All parties with a reasonable potential for exposure to an overflow event shall be notified. Any spill in excess of 1,000 (one thousand) gallons to a surface water must also be immediately reported to the State of California Office of Emergency Services. Failure to report such a spill in accordance with the above laws and regulations is a misdemeanor punishable by fine and imprisonment.

6. The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the SWRCB, this Order may be reopened and a limitation based on that objective included.

7. The Discharger shall use the best practicable cost-effective control technique currently available to limit mineralization to no more than a reasonable increment.

8. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)," dated February 2004, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provisions."

9. The Discharger shall comply with Monitoring and Reporting Program No. R5-2005-0010, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.

When requested, the Discharger shall complete and submit Discharge Monitoring Reports to USEPA. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.

10. This Order expires on 1 January 2010 and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such
date in application for renewal of waste discharge requirements if it wishes to continue the discharge.

11. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of, or clearance from, the SWRCB (Division of Water Rights).

12. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the address and telephone number of the persons responsible for contact with the Regional Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 27 January 2005.

THOMAS R. PINKOS, Executive Officer
This Monitoring and Reporting Program is issued pursuant to California Water Code Sections 13383 and 13267. The Discharger shall not implement any changes to this Monitoring and Reporting Program unless and until the Regional Board or Executive Officer issues a revised Monitoring and Reporting Program.

**INFLUENT MONITORING**

Samples shall be collected at approximately the same time as effluent samples and should be representative of the influent. Influent monitoring shall include at least the following:

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Unit</th>
<th>Type of Sample</th>
<th>Sampling Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Daily</td>
</tr>
<tr>
<td>20°C BOD₅</td>
<td>mg/L, lbs/d</td>
<td>24-hour Composite</td>
<td>Weekly</td>
</tr>
<tr>
<td>Suspended Solids</td>
<td>mg/L, lbs/d</td>
<td>24-hour Composite</td>
<td>Weekly</td>
</tr>
<tr>
<td>Temperature</td>
<td>°F</td>
<td>Grab</td>
<td>Weekly</td>
</tr>
</tbody>
</table>

A 24-hour composite influent sample shall be collected annually and analyzed for total cadmium, chromium, copper, lead, nickel, silver, and zinc. The influent sample shall be collected at the same time an effluent sample is obtained for analysis of priority pollutants.

**EFFLUENT MONITORING**

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall. Effluent samples should be representative of the volume and quality of the discharge. Samples collected from the outlet structure of ponds will be considered adequately composited. Time of collection of samples shall be recorded. Effluent monitoring shall include at least the following:
<table>
<thead>
<tr>
<th>Constituent</th>
<th>Unit</th>
<th>Type of Sample</th>
<th>Sampling Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Daily</td>
</tr>
<tr>
<td>Chlorine Residual</td>
<td>mg/L</td>
<td>Continuous</td>
<td>Continuous</td>
</tr>
<tr>
<td>Sulfur Dioxide Residual</td>
<td>mg/L</td>
<td>Continuous</td>
<td>See note b</td>
</tr>
<tr>
<td>pH</td>
<td>pH units</td>
<td>Grab</td>
<td>Daily</td>
</tr>
<tr>
<td>20°C BOD₃</td>
<td>mg/L, lbs/day</td>
<td>24-hour Composite</td>
<td>Weekly</td>
</tr>
<tr>
<td>Suspended Solids</td>
<td>mg/L, lbs/day</td>
<td>24-hour Composite</td>
<td>Weekly</td>
</tr>
<tr>
<td>Total Coliform Organisms</td>
<td>MPN/100 ml</td>
<td>Grab</td>
<td>Weekly</td>
</tr>
<tr>
<td>Temperature</td>
<td>°F</td>
<td>Grab</td>
<td>Weekly</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg/L</td>
<td>Grab</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Total Copper</td>
<td>ug/L</td>
<td>Grab</td>
<td>Monthly</td>
</tr>
<tr>
<td>Total Lead</td>
<td>ug/L</td>
<td>Grab</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Total Silver</td>
<td>ug/L</td>
<td>Grab</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Total Zinc</td>
<td>ug/L</td>
<td>Grab</td>
<td>Monthly</td>
</tr>
<tr>
<td>Tetrachloroethene</td>
<td>ug/L</td>
<td>Grab</td>
<td>Monthly</td>
</tr>
<tr>
<td>Electrical Conductivity @ 25°C</td>
<td>umhos/cm</td>
<td>Grab</td>
<td>Monthly</td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td>mg/L</td>
<td>Grab</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Priority Pollutants</td>
<td>ug/L</td>
<td>Grab</td>
<td>Annually</td>
</tr>
<tr>
<td>Acute Toxicity</td>
<td>% Survival</td>
<td>Grab</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

*a* Report peak 1-hour average for each day and peak 4-day average for the month.

*b* Report sulfur dioxide concentration only during periods when chlorine chart indicates positive chlorine residual that is not the result of maintenance or calibration of the chlorine analyzer.

*c* Concurrent with biotoxicity monitoring.

*d* Report as both total and un-ionized ammonia.

*e* This testing can be ceased following the reporting of the first four quarterly sample results after adoption of the permit, provided all samples are below the CTR Criteria.

*f* Samples shall be analyzed for the toxic priority pollutants identified by the California Toxics Rule at 40 CFR 131.38. Effluent samples shall be collected simultaneously with receiving water samples to be analyzed for the CTR pollutants. Monitoring shall be conducted in accordance with procedures described under section “Priority Pollutant Monitoring” below.

*g* Rainbow trout shall be used as the test species.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.
RECEIVING WATER MONITORING

All receiving water samples shall be grab samples taken from the Feather River. Receiving water monitoring shall include at least the following:

<table>
<thead>
<tr>
<th>Station</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-1</td>
<td>500 feet upstream from the point of discharge</td>
</tr>
<tr>
<td>R-2</td>
<td>One quarter mile downstream from the point of discharge</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Unit</th>
<th>Station</th>
<th>Sampling Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>pH units</td>
<td>R-1, R-2</td>
<td>Monthly</td>
</tr>
<tr>
<td>Turbidity</td>
<td>NTU</td>
<td>R-1, R-2</td>
<td>Monthly</td>
</tr>
<tr>
<td>Dissolved Oxygen</td>
<td>mg/L</td>
<td>R-1, R-2</td>
<td>Monthly</td>
</tr>
<tr>
<td>Temperature</td>
<td>°F (or °C)</td>
<td>R-1, R-2</td>
<td>Monthly</td>
</tr>
<tr>
<td>Total Dissolved Solidsa</td>
<td>mg/L</td>
<td>R-1, R-2</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Electrical Conductivity @ 25°Ca</td>
<td>umhos/cm</td>
<td>R-1, R-2</td>
<td>Monthly</td>
</tr>
<tr>
<td>Total Coppera, b</td>
<td>ug/L</td>
<td>R-1, R-2</td>
<td>Monthly</td>
</tr>
<tr>
<td>Total Zinca, b</td>
<td>ug/L</td>
<td>R-1, R-2</td>
<td>Monthly</td>
</tr>
<tr>
<td>Priority Pollutantsb</td>
<td>ug/L</td>
<td>R-1</td>
<td>Annually</td>
</tr>
</tbody>
</table>

* a Samples shall be taken at the same time effluent samples are taken for these constituents
* b Samples shall be analyzed for the toxic priority pollutants identified by the California Toxics Rule at 40 CFR 131.38. Effluent samples shall be collected simultaneously with receiving water samples to be analyzed for the CTR pollutants. Monitoring shall be conducted in accordance with procedures described “Priority Pollutant Monitoring” below. Receiving water hardness and pH shall be determined at R-1 at the same time.

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-1 and R-2. Attention shall be given to the presence or absence of:

a. Floating or suspended matter
e. Visible films, sheens or coatings
b. Discoloration
f. Fungi, slimes, or objectionable growths
c. Bottom deposits
g. Potential nuisance conditions
d. Aquatic life

Notes on receiving water conditions shall be summarized in the monitoring report.
THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity screening shall be conducted annually to determine whether the effluent is contributing toxicity to the Feather River. The screening shall be conducted as specified in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA 600/4-91-002, or latest edition. Chronic toxicity samples shall be collected at the discharge of the plant prior to its entering the Feather River. Twenty-four-hour composite samples shall be representative of the volume and quality of the discharge. Time of collection samples shall be recorded. The screening test shall be performed on effluent samples diluted 26:1 using Feather River water obtained upstream of the discharge point. Chronic toxicity screening shall include the following:

Species: Pimephales promelas, Ceriodaphnia dubia, and Selenastrum capricornutum

Frequency: Once per year.

If the results of the chronic toxicity screening indicate the waste stream may cause in-stream toxicity, the Discharger will be required to implement an effluent toxicity monitoring program in accordance with the procedures outlined in the document referenced in the above paragraph and Technical Support Document for Water Quality-Based Toxics Control, EPA 505/2-90-001. Appropriate deadlines for this program will be established if and when it is determined that a toxicity monitoring program is required.

SLUDGE MONITORING

A composite sample of sludge shall be collected annually in accordance with USEPA's Publicly Owned Treatment Works (POTW) Sludge Sampling and Analysis Guidance Document, August 1989 (or most recent edition), and tested for priority pollutants.

Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

Annually by 30 January, the Discharger shall submit characterization of sludge quality, including sludge percent solids and quantitative results of chemical analysis for the priority pollutants listed in 40 CFR 122 Appendix D, Tables II and III (excluding total phenols). All sludge samples shall be a composite of a minimum of twelve (12) discrete samples taken at equal time intervals over 24 hours. Suggested methods for analysis of sludge are provided in USEPA publications titled Test Methods for Evaluating Solid Waste: Physical/Chemical Methods and Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. Recommended analytical holding times for sludge samples should reflect those specified in
40 CFR 136.6.3(e). Other guidance is available in USEPA’s *POTW Sludge Sampling and Analysis Guidance Document, August 1989*.

**PRIORITY POLLUTANT MONITORING**

The State Implementation Policy (SIP) requires periodic testing for the toxic priority pollutants established by the CTR at 40 CFR 131.38. Prior to expiration of this Order, the Discharger shall conduct one sampling event and analysis for the CTR pollutants in receiving water and effluent. The Discharger is not required to perform asbestos monitoring. Receiving water samples shall be collected simultaneously and analyzed for the CTR pollutants plus pH and hardness. All analyses shall be performed at a laboratory certified by the California Department of Health Services. The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each of the analytes. Laboratory methods and limits shall be as described in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (2000), unless a variance has been approved by the Executive Officer. If, after a review of the monitoring results, it is determined that the discharge causes, has the reasonable potential to cause, or contributes to in-stream excursions above water quality objectives, this Order will be reopened and limitations based on those objectives will be included. Additionally, if pollutants are detected, but insufficient information exists to establish an effluent limit or determine if an effluent limit is necessary, then additional monitoring will be required to provide sufficient information.

All organic analyses shall be by Gas Chromatography/Mass Spectrometry (GCMS), Method 8260B for volatiles and Method 8270C for semi-volatiles. Pesticides shall be analyzed by Method 8081A. Dioxins shall be analyzed by Method 1613/8290. If organic analyses are run by Gas Chromatography (GC) methods, any detectable concentrations are to be confirmed by GCMS. Inorganics shall be analyzed by the following Methods.

Analysis for the dioxin congeners shall be performed as described in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* using High Resolution Mass Spectrometry.

Metals shall be analyzed by the USEPA methods listed below. Alternative analytical procedures may be used with approval by the Regional Board if the alternative method has the same or better detection level than the method listed.
MONITORING AND REPORTING PROGRAM NO. R5-2005-0010
SEWERAGE COMMISSION-OROVILLE REGION
WASTEWATER TREATMENT PLANT
BUTTE COUNTY

<table>
<thead>
<tr>
<th>Method Description</th>
<th>USEPA Method</th>
<th>Constituents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inductively Coupled Plasma/Mass Spectrometry (ICP/MS)</td>
<td>1638</td>
<td>Antimony, Beryllium, Cadmium, Copper, Lead, Nickel, Selenium, Silver, Thallium, Total Chromium, Zinc</td>
</tr>
<tr>
<td>Cold Vapor Atomic Absorption (CVAA)</td>
<td>1631</td>
<td>Mercury</td>
</tr>
<tr>
<td>Gaseous Hydride Atomic Absorption (HYDRIDE)</td>
<td>206.3</td>
<td>Arsenic</td>
</tr>
<tr>
<td>Flame Atomic Absorption (FAA)</td>
<td>218.4</td>
<td>Chromium VI</td>
</tr>
<tr>
<td>Colorimetric</td>
<td>335./ 2 or 3</td>
<td>Cyanide</td>
</tr>
</tbody>
</table>

The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each constituent. The MDL should be as close as practicable to the USEPA MDL determined by the procedure found in 40 CFR Part 136. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

- Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory.
- Sample results less than the reported ML, but greater than or equal to the laboratory’s MDL, shall be reported as “Detected but Not Quantified,” or DNQ. The estimated chemical concentration of the sample shall also be reported.
- For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words “Estimated Concentration.” Numerical estimates of data quality may be by percent accuracy (+ or – a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
- Sample results that are less than the laboratory’s MDL shall be reported as “Not Detected” or ND.

PRETREATMENT PROGRAM MONITORING

The Discharger shall submit an annual report to the Regional Board, with copies to the USEPA Regional Administrator and the SWRCB, describing the Discharger's pretreatment activities over the previous 12 months. In the event that the Discharger is not in compliance with any conditions or requirements of this Order, the Discharger shall include the reasons for the noncompliance and state how and when the Discharger shall comply with such conditions and requirements. This annual report shall be submitted by 28 February and shall contain, but not
be limited to, items G.1 through 10 of Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES) dated 1 March 1991.

In addition to the information required in the annual report, the Discharger shall report quarterly the information contained in G.4. (a through g) of Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES) dated 1 March 1991. The reports shall also describe progress towards compliance with audit or pretreatment compliance inspection requirements. Reports shall be submitted within 30 days of the end of each quarter; however, information required in the fourth quarterly report may be included as part of the annual report. If none of the aforementioned conditions exist, at a minimum, a letter certifying that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted.

In addition to the Regional Board, signed copies of the reports shall be submitted to the Regional Administrator and the SWRCB at the following addresses:

Mr. Keith Silva
U.S. Environmental Protection Agency
Region IX, Attn: W-5-2
75 Hawthorne Street
San Francisco, CA  94105

Pretreatment Program Manager
Regulatory Section
Division of Water Quality
State Water Resources Control Board
P.O. Box 944213
Sacramento, CA  94244-2130

REPORTING

Monitoring results shall be submitted to the Regional Board by the **first day of the second month** following sample collection. Quarterly and annual monitoring results shall be submitted by the **first day of the second month** following each calendar quarter and year, respectively. California Toxics Rule/SIP monitoring shall be submitted as soon as individual results are available, with all results submitted by the date stated above.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Suspended Solids, should be determined and recorded.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.
By 30 January of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names, certificate grades, and general responsibilities of all persons employed at the WWTF (Standard Provision A.5).

b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

c. A statement certifying when the flow meter and other monitoring instruments and devices used for demonstration of compliance with this order were last calibrated, including identification of who performed the calibration (Standard Provision C.6).

d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

The Discharger may also be requested to submit an annual report to the Regional Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered by:__________________________________  
THOMAS R. PINKOS, Executive Officer  
27 January 2005  
(Date)
INFORMATION SHEET

ORDER NO. R5-2005-0010
NPDES NO. CA0079235
SEWERAGE COMMISSION-OROVILLE REGION
WASTEWATER TREATMENT PLANT
BUTTE COUNTY

GENERAL INFORMATION

The Sewerage Commission-Oroville Region operates a wastewater treatment plant in Section 25, T19N, R4E, MDB&M. The treatment plant presently treats an average dry weather flow of 3.2 mgd. Treated effluent is discharged to the Feather River in Section 19, T19N, R4E, MDB&M (Discharge 001).

Liquid treatment processes at the plant include raw sewage screening for removal of large solids, grit removal, primary clarification, activated sludge treatment with secondary clarification, filtration, and chlorination/dechlorination. Sludge is treated using aerobic digestion for primary and secondary sludge and lagoon dewatering of secondary sludge. Dried sludge is taken to a Class III landfill for disposal.

TYPE AND QUANTITY OF WASTE DISCHARGED

The discharger treats an average dry weather flow of approximately 3.2 mgd of municipal wastewater. The waste is treated by biological treatment. The report of waste discharge and reports submitted by the Discharger describe the discharge as follows:

- Design Average Dry Weather Flow: 6.5 mgd
- Average Daily Dry Weather Flow: 3.2 mgd
- Peak Day Wet Weather Flow: 8.9 mgd
- Average Temperature: 76°F Summer; 65°F Winter

<table>
<thead>
<tr>
<th>Constituent</th>
<th>mg/L</th>
<th>lbs/day^b</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD_5^a</td>
<td>3.1</td>
<td>83</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>1.2</td>
<td>32</td>
</tr>
</tbody>
</table>

^a5-day, 20°C biochemical oxygen demand
^bBased on a current average dry weather flow of 3.2 mgd

REASONABLE POTENTIAL ANALYSIS

Federal regulations contained at 40 CFR 122.4 (d) require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. USEPA adopted the National Toxics Rule (NTR) on 22 December 1992, which was amended on 4 May 1995, and 9 November 1999, and the California Toxics Rule (CTR) on 18 May 2000. The NTR and CTR contain water quality standards applicable to this discharge. The State Water
Resources Control Board (SWRCB) adopted the *Policy for Implementation of Toxics Standards for Inland Surface waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP), which contains guidance on implementation for the NTR and CTR.

The Discharger completed sampling required by the SIP and has submitted the results of this sampling. A determination was made that there is reasonable potential to cause or contribute to an in-stream excursion above the water quality standards for copper, zinc, and tetrachloroethene. Development of effluent limits for these constituents are presented below. There were a small number of effluent sample results that were discarded as not being representative of the effluent or receiving water. These were as follows: silver detected at 2.2 ug/L in the effluent and at 1 ug/L in the receiving water, all other effluent sample results were below CTR criteria and receiving water sample results were non detect or below reporting limits; lead was detected in initial effluent samples, but it was determined that clean sampling techniques were not employed, subsequent sample results were below CTR criteria; bis(2-Ethylhexyl)phthalate detected, but not quantified at 7 ug/L, all other sample results were non-detect; Lindane detected at 0.02 ug/L, all other samples at non-detect; Chlordane detected, but not quantified at 0.009 ug/L, all other samples were non-detect; Dieldrin at 0.01 ug/L, all other samples were non-detect; and Heptachlor Epoxide detected, but not quantified at 0.048, all other samples were at non-detect. This order includes quarterly monitoring for silver and lead in the first year of the permit cycle to determine if there is a reasonable potential to cause or contribute to an in-stream excursion above the water quality standard.

**BASIS FOR PERMIT CONDITIONS**

**Metals Translators**

Water quality criteria and objectives for metals in the CTR and Basin Plan are presented as dissolved concentrations. Lacking site-specific data, the USEPA recommends conversion factors (translators) to translate dissolved concentrations to total concentrations. The conversion factor for copper in freshwater is 0.960 for both the acute and the chronic criteria. The conversion factors for zinc in freshwater are 0.978 for the acute and 0.986 for the chronic criteria.

**Mixing Zone Study and Dilution Credit**

The Discharger’s consultant conducted a mixing zone study using the CORMIX GI version 4.1 Hydrodynamic Mixing Zone Model to mathematically model effluent discharges from the wastewater treatment plant to the Feather River. The mixing zone modeling results indicated the discharge meets the definition of a completely mixed discharge as contained in the SIP. On the basis of the mixing zone study the Discharger requested a dilution credit of 92 for acute criteria and 121 for chronic criteria.

SWRCB Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*, requires the Regional Board to maintain high quality waters of the state...
unless it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board’s policies. The dilution credits requested by the Discharger would result in effluent limits that are extremely high in comparison with measured levels in the Discharger’s effluent. Using these dilution credits would grant 100 percent of the assimilative capacity of the river to this discharge, eliminating the ability to allow existing or potential downstream discharges without water quality objectives being exceeded. The Regional Board, therefore, is granting a portion of the requested dilution credit in an effort to maintain the quality of the Feather River at the current levels and reserve a portion of the river’s assimilative capacity for other discharges. A dilution credit of 20:1 for acute and human health criteria and 26:1 for chronic criteria will result in effluent limits that more reasonably represent current levels in the Discharger’s effluent and thus are used to develop effluent limits for copper, zinc and tetrachloroethene in this order.

**Effluent Limitations**

**Total Suspended Solids (TSS) and Biochemical Oxygen Demand (BOD) Limits:**

Federal regulations, 40 CFR, part 133, provide technology-based effluent limitation for BOD and TSS. Pursuant to the regulations at 40 CFR Sections 133.102(a), and (b), the BOD and TSS 30 day average discharge limit for secondary treatment systems shall not exceed 30 mg/L, the 7 day average shall not exceed 45 mg/L, and the 30 day BOD percent removal shall not be less than 85 percent.

The previous permit called for monthly average effluent limits for BOD and TSS of 20 mg/L, weekly average limits of 25 mg/L, daily maximum limit of 40 mg/L, and a monthly average removal rate of 85 percent. These limits remain the same in this permit. The discharger has had success meeting these limits.

**Chlorine Residual:**

The Basin Plan prohibits the discharge of toxic materials in toxic concentrations. Chlorine is used for disinfection of the effluent waste stream. Chlorine can cause toxicity to aquatic organisms when discharged to surface waters. USEPA recommends, in their *Ambient Water Quality Criteria for the Protection of Fresh Water Aquatic Life*, that chlorine concentrations not exceed 0.02 mg/L as a 1-hour average and 0.01 mg/L as a 4-day average. The use of chlorine as a disinfectant in the wastewater treatment process presents a reasonable potential that it could be discharged in toxic concentrations. An effluent limitation for chlorine has been included in the Order to protect the receiving stream aquatic life beneficial uses. The effluent limitation has been established at the USEPA recommended ambient water quality criteria for chlorine. The one-hour average limitation, rather than an instantaneous or daily maximum, will be applied for compliance determinations. A one-hour average limitation allows for continuous monitoring anomalies while protecting aquatic organisms against toxicity.
The Discharger has installed additional monitoring and control systems to help prevent violations of the effluent chlorine limit. These systems include the following: monitoring of the sulfur dioxide concentration in the final effluent after dechlorination; a system of maintenance that keeps the chlorine analyzer calibrated and increases the reliability of that instrument; and a control system that will automatically shut down the effluent pumps that is activated if the detected level of sulfur dioxide falls below 0.1 mg/L or a measured chlorine residual exceeds 0.02 mg/L. The additional monitoring of sulfur dioxide will provide confirmation that no chlorine is being discharged during periods of calibration, maintenance, repair or malfunction of the chlorine residual analyzer.

**Total Coliform Organisms:**

This Order requires a monthly median total coliform limit of 23 MPN/100 mL and a daily maximum limit of 500 MPN/100 mL for effluent discharged to the Feather River. This level is thought to be adequately protective of beneficial uses and is consistent with the previous permit.

**pH:**

The Basin Plan provides that the pH of surface waters shall not be depressed below 6.5 nor raised above 8.5 nor shall the discharge alter pH of the receiving water more than 0.5 units. Federal regulations at 40 CFR 133.102(c) describes the minimum level of effluent quality to be attained by secondary treatment facilities for pH to be within 6.0 and 9.0 units. This Order requires the pH of the effluent to be maintained within the limits of 6.0 and 9.0 pH units.

**Flow Limits:**

The monthly average daily dry weather flow limit of 6.5 mgd is based on the design capacity of the treatment facility.

**Copper:**

Based on analytical results of effluent samples collected by the Discharger and the procedures presented in the SIP, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for copper; therefore, effluent limitations for copper are included in the Order. Effluent results submitted by the Discharger are summarized in Table IS-1.
### Table IS-1 – Total Copper Concentrations (ug/L)

<table>
<thead>
<tr>
<th>Date</th>
<th>WPCP Effluent</th>
<th>Feather River</th>
<th>River Hardness</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/11/01</td>
<td>0.7 DNQ</td>
<td>1.3&lt;sup&gt;b&lt;/sup&gt;</td>
<td>43</td>
</tr>
<tr>
<td>12/10/01</td>
<td>12</td>
<td>2.8&lt;sup&gt;b&lt;/sup&gt;</td>
<td>52</td>
</tr>
<tr>
<td>1/23/02</td>
<td>15</td>
<td>10&lt;sup&gt;b&lt;/sup&gt;</td>
<td>44</td>
</tr>
<tr>
<td>3/11/02</td>
<td>6.3</td>
<td>19&lt;sup&gt;b&lt;/sup&gt;</td>
<td>45</td>
</tr>
<tr>
<td>7/16/02</td>
<td>7.2</td>
<td>0.8 DNQ&lt;sup&gt;b&lt;/sup&gt;</td>
<td>40</td>
</tr>
<tr>
<td>1/28/03</td>
<td>9</td>
<td>2.8&lt;sup&gt;b&lt;/sup&gt;</td>
<td>41</td>
</tr>
<tr>
<td>12/8/03</td>
<td>6.8</td>
<td>ND, MDL = 0.5</td>
<td>--</td>
</tr>
<tr>
<td>3/8/04</td>
<td>--</td>
<td>0.72</td>
<td>--</td>
</tr>
</tbody>
</table>

- Average: 8.1, 0.61, 44
- Minimum: 0.7, 0.5, 40
- Maximum: 15, 0.72, 52
- Coefficient of Variation<sup>a</sup>: 0.6, --, --

<sup>a</sup>Default CV in SIP for number of samples less than 10 is 0.6

<sup>b</sup>Sampling and analysis not performed with “clean” techniques. Values suspect.

As noted, the initial samples were taken and analyzed without using clean sampling techniques. The Discharger was asked to conduct additional sampling using techniques to achieve low level results. The results of this sampling are shown in Table IS-1.

Copper toxicity is hardness dependent. For a hardness of 40 mg/L, the CTR criteria for copper are presented in Table IS-2.

### Table IS-2 – Receiving Water Criteria/Objectives for Copper

<table>
<thead>
<tr>
<th>Basis</th>
<th>Dissolved (ug/L)</th>
<th>Total Recoverable (ug/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTR&lt;sub&gt;CCC&lt;/sub&gt;</td>
<td>4.09</td>
<td>4.26</td>
</tr>
<tr>
<td>CTR&lt;sub&gt;CMC&lt;/sub&gt;</td>
<td>5.67</td>
<td>5.91</td>
</tr>
</tbody>
</table>

Criteria are for river hardness = 40 mg/L

The CTR Criteria for copper were not exceeded in the Feather River samples analyzed over the period from July 2001 to March 2004 (as indicated by subsequent discharger sampling). Following are the steps, as presented in section 1.4.B of the SIP, to calculate the effluent limits for copper for Discharge 001:
Step 1: Applicable water quality criteria (C)

CTR criteria are a function of receiving water hardness and are given by the following equation for criterion continuous concentration (CCC) and criterion maximum concentration (CMC):

\[
\text{CCC (chronic)} = e^{(0.8545 \times \ln(\text{hardness}) - 1.702)} \times 0.960 \text{ as dissolved fraction}
\]

\[
\text{CMC (acute)} = e^{(0.9422 \times \ln(\text{hardness}) - 1.7)} \times 0.960 \text{ as dissolved fraction}
\]

The minimum hardness of 40 mg/L gives the following dissolved criteria:

\[
\text{CCC} = 4.09 \text{ ug/L}
\]

\[
\text{CMC} = 5.67 \text{ ug/L}
\]

Applying the translator of 0.960 for chronic and acute:

\[
\text{CCC} = 4.26 \text{ ug/L}
\]

\[
\text{CMC} = 5.9 \text{ ug/L}
\]

Step 2: Calculate the ECA

\[
\text{ECA} = \text{Effluent Concentration Allowance} = C + D \times (C - B)
\]

Where D = dilution credit and B = background

\[
D_{\text{CCC}} = 26, D_{\text{CMC}} = 20
\]

\[
\text{ECA}_{\text{CCC}} = 4.26 + 26 \times (4.26 - 0.5) = 102 \text{ ug/L}
\]

\[
\text{ECA}_{\text{CMC}} = 5.9 + 20 \times (5.9 - 0.5) = 114 \text{ ug/L}
\]

Step 3: Determine long-term average (LTA)

\[
C_V = 0.6; \text{ ECA multiplier}_{\text{chronic}} = 0.527
\]

\[
\text{ECA multiplier}_{\text{acute}} = 0.321
\]

\[
\text{LTA}_{\text{CCC}} = 102 \times 0.527 = 53.8 \text{ ug/L}
\]

\[
\text{LTA}_{\text{CMC}} = 114 \times 0.321 = 36.6 \text{ ug/L}
\]
Step 4: Select lowest LTA

\[ \text{LTA}_{\text{CMC}} = 36.6 \text{ ug/L} \]

Step 5: Calculate water quality based effluent limits

\[ C_V = 0.6; \text{ AMEL multiplier}_{95} = 1.55 \text{ (n=4 for less than 4 samples per month)} \]

\[ \text{MDEL multiplier}_{99} = 3.11 \]

Average Monthly Effluent Limit = 36.6 * 1.55 = 57 ug/L

Maximum Daily Effluent Limit = 36.6 * 3.11 = 110 ug/L

Zinc:

Based on analytical results of effluent samples collected by the Discharger and the procedures presented in the SIP, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for zinc; therefore, effluent limitations for zinc are included in the Order. Effluent results submitted by the Discharger are summarized in Table IS-3.

<table>
<thead>
<tr>
<th>Date</th>
<th>WWTP Effluent</th>
<th>Feather River</th>
<th>River Hardness</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/11/01</td>
<td>52</td>
<td>14</td>
<td>43</td>
</tr>
<tr>
<td>12/10/01</td>
<td>28</td>
<td>24</td>
<td>52</td>
</tr>
<tr>
<td>1/23/02</td>
<td>60</td>
<td>30</td>
<td>44</td>
</tr>
<tr>
<td>3/11/02</td>
<td>50</td>
<td>20</td>
<td>45</td>
</tr>
<tr>
<td>7/16/02</td>
<td>40</td>
<td>1.0 DNQ</td>
<td>40</td>
</tr>
<tr>
<td>1/28/03</td>
<td>60</td>
<td>30</td>
<td>41</td>
</tr>
<tr>
<td>Average</td>
<td>48</td>
<td>19.8</td>
<td>44</td>
</tr>
<tr>
<td>Minimum</td>
<td>28</td>
<td>1.0</td>
<td>40</td>
</tr>
<tr>
<td>Maximum</td>
<td>60</td>
<td>30</td>
<td>52</td>
</tr>
<tr>
<td>Coefficient of Variation(^a)</td>
<td>0.6</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

\(^a\)Default \(C_V\) in SIP for number of samples less than 10 is 0.6
Zinc toxicity is hardness dependent. For a hardness of 40 mg/L (from DWR data), the CTR for zinc are presented in Table IS-4.

Table IS-4 – Receiving Water Criteria/Objectives for Zinc

<table>
<thead>
<tr>
<th>Basis</th>
<th>Dissolved (ug/L)</th>
<th>Total Recoverable (ug/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTR CCC</td>
<td>54.4</td>
<td>55.1</td>
</tr>
<tr>
<td>CTR CMC</td>
<td>53.9</td>
<td>55.1</td>
</tr>
</tbody>
</table>

Criteria are for river hardness = 40 mg/L

The CTR Criteria and Basin Plan objective for zinc were not exceeded in the Feather River samples analyzed over the period from July 2001 to October 2002. Following are the steps, as presented in section 1.4.B of the SIP, to calculate the effluent limits for zinc at Discharge 001:

Step 1: Applicable water quality criteria (C)

CTR criteria are a function of receiving water hardness and are given by the following equation for criterion continuous concentration (CCC) and criterion maximum concentration (CMC):

\[
CCC \text{ (chronic)} = e^{(0.8473 \times \ln(\text{hardness}) + 0.884)} \times (0.986) \text{ as dissolved fraction}
\]

\[
CMC \text{ (acute)} = e^{(0.8473 \times \ln(\text{hardness}) + 0.884)} \times (0.978) \text{ as dissolved fraction}
\]

Using the minimum hardness of 40 mg/L gives the following dissolved criteria:

CCC = 54.4 ug/L

CMC = 53.9 ug/L

Applying the translator of 0.986 for chronic and 0.978 for acute:

CCC = 55.1 ug/L

CMC = 55.1 ug/L
Step 2: Calculate the ECA

\[
ECA = \text{Effluent Concentration Allowance} = C + D \times (C-B)
\]

Where \( D \) = dilution credit and \( B \) = background

\[
D_{\text{CCC}} = 26, \quad D_{\text{CMC}} = 20
\]

\[
ECA_{\text{CCC}} = 55.1 + 26 \times (55.1-30) = 708 \text{ ug/L}
\]

\[
ECA_{\text{CMC}} = 55.1 + 20 \times (55.1-30) = 557 \text{ ug/L}
\]

Step 3: Determine long-term average (LTA)

\[
CV = 0.6; \quad \text{ECA multiplier}_{\text{chronic99}} = 0.527
\]

\[
\text{ECA multiplier}_{\text{acute99}} = 0.321
\]

\[
LTA_{\text{CCC}} = 708 \times 0.527 = 373 \text{ ug/L}
\]

\[
LTA_{\text{CMC}} = 557 \times 0.321 = 179 \text{ ug/L}
\]

Step 4: Select lowest LTA

\[
LTA_{\text{CMC}} = 179 \text{ ug/L}
\]

Step 5: Calculate water quality based effluent limits

\[
CV = 0.6; \quad \text{AMEL multiplier}_{95} = 1.55 \quad (n=4 \text{ for less than 4 samples per month})
\]

\[
\text{AMEL multiplier}_{99} = 3.11
\]

Average Monthly Effluent Limit = \( 179 \times 1.55 = 280 \text{ ug/L} \)

Maximum Daily Effluent Limit = \( 179 \times 3.11 = 560 \text{ ug/L} \)

**Tetrachloroethene:**

Based on analytical results of effluent samples collected by the Discharger and the procedures presented in the SIP, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR human health criterion for tetrachloroethene; therefore, effluent limitations for tetrachloroethene are included in the Order. Effluent results submitted by the Discharger are summarized in Table IS-5. The CTR human health criterion for tetrachloroethene is 0.8 ug/L.
Table IS-5 – Tetrachloroethene Concentrations (ug/L)

<table>
<thead>
<tr>
<th>Date</th>
<th>WPCP Effluent</th>
<th>Feather River</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/23/01</td>
<td>1</td>
<td>ND, MDL = 0.08</td>
</tr>
<tr>
<td>10/30/01</td>
<td>0.81</td>
<td>ND, MDL = 0.08</td>
</tr>
<tr>
<td>1/28/02</td>
<td>ND, MDL = 0.11</td>
<td>4.6&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>4/8/02</td>
<td>ND, MDL = 0.11</td>
<td>0.32 DNQ</td>
</tr>
<tr>
<td>7/30/02</td>
<td>ND, MDL = 0.11</td>
<td>ND, MDL = 0.11</td>
</tr>
<tr>
<td>10/28/02</td>
<td>0.47</td>
<td>ND, MDL = 0.11</td>
</tr>
</tbody>
</table>

Average <0.44 0.14
Minimum 0.11 <0.11
Maximum 1.0 0.32
Coefficient of Variation<sup>a</sup> 0.6 --

<sup>a</sup>Default CV in SIP for number of samples less than 10 is 0.6
<sup>b</sup>Disregarded as not representative of effluent, average of other sample results = 0.14

The CTR criterion for tetrachloroethene was not exceeded in the Feather River samples analyzed over the period from July 2001 to January 2003. Dilution credits will be allowed as presented in the SIP. Following are the steps, as presented in section 1.4.B of the SIP, to calculate the effluent limits for tetrachloroethene at Discharge 001:

Step 1: Applicable water quality criteria (C)

CTR human health criteria for consumption of water and organisms:

C = 0.8 ug/L

Step 2: Calculate the ECA

ECA = Effluent Concentration Allowance = C + D * (C-B)

Where D = dilution credit and B = background

D = 20

ECA = 0.8 + 20 * (0.8 – 0.14) = 14 ug/L

Step 3: N/A

Step 4: N/A
Step 5: Calculate water quality based effluent limits

AMEL = ECA = 14

Average Monthly Effluent Limit = 14 ug/L

CV = 0.6; MDEL\textsubscript{99}/AMEL\textsubscript{95} multiplier = 2.01 (n=4 for less than 4 samples per month)

Maximum Daily Effluent Limit = 14 * 2.01 = 28 ug/L

Toxicity Limits:
The Basin Plan requires that all waters be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This Order contains an acute toxicity effluent limit which states, “Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay --------------------70%
Median for any three or more consecutive bioassays --------90%”

The monitoring and reporting program requires analysis for pH and temperature to be performed concurrent to each monthly acute toxicity bioassay. This Order also contains annual monitoring for chronic toxicity.

SLUDGE DISPOSAL

This Order contains provisions requiring the Discharger to comply with current federal and state laws and regulations for disposal of sewage sludge. The Discharger is required to report any proposed change in sludge use or disposal practice 90 days in advance of change.

RECEIVING WATER LIMITATIONS

The receiving water limitations contained in this Order are based on water quality objectives contained in the Basin Plan for the Feather River.

PROCEDURES ON REACHING FINAL DECISION ON DRAFT PERMIT

The tentative waste discharge requirements have been sent to the Discharger and interested parties for review (at least 30 days) prior to formal presentation to the Regional Board. Any contested items on the permit will be heard and considered for change prior to formal adoption at the Board Meeting. For further information or questions regarding the NPDES permit, contact Nolan Randall at the Regional Water Quality Control Board in Redding at (530) 224-4801.

27 January 2005
SEWERAGE COMMISSION-OROVILLE REGION
WASTEWATER TREATMENT PLANT
BUTTE COUNTY

SECTION 19, T19N, R4E (WWTP), &
SECTION 33, T19N, R3E (OUTFALL) MDB&M
USGS 7.5' OROVILLE AND PALERMO QUADS

Scale 1” = 2000’
APPENDIX C

SC-OR CAPACITY AND PRE-ANNEXATION AGREEMENTS
RESOLUTION 08-09
SEWERAGE COMMISSION - OROVILLE REGION

RESOLUTION DECLARING CAPACITY LIMITATIONS AND ESTABLISHING DEVELOPER AGREEMENTS

WHEREAS, the Sewerage Commission-Oroville Region, hereinafter referred to as ("SC-OR") is a Joint Powers Entity formed and existing under that certain agreement titled AMENDED & RESTATED JOINT EXERCISE OF POWERS AGREEMENT AMONG THE CITY OF OROVILLE, THE LAKE OROVILLE AREA PUBLIC UTILITY DISTRICT, AND THE THERMALITO IRRIGATION DISTRICT (hereafter "THE AGREEMENT"), dated April 24,2002, approved by its three (3) member entities: (1) City of Oroville, (2) Lake Oroville Area Public Utility District, and (3) Thermalito Water and Sewer District; and,

WHEREAS, SC-OR owns, operates and maintains a 6.5 million gallon per day wastewater treatment plant pursuant to a National Pollutant Discharge Elimination System (NPDES) Permit #CA0079235 issued by the State of California Water Quality Control Board (SWQCB); and,

WHEREAS, each member entity owns, operates, and maintains a collection system for the delivery of sewage to the SC-OR wastewater treatment facility; and,

WHEREAS, each of the member entities has completed a survey of vacant lands within their current service boundaries, and have estimated the demand for wastewater collection and treatment by applying the densities as authorized by current zoning; and,

WHEREAS, SC-OR and the member entities have determined that, based on current acreage within their boundaries multiplied by authorized density per acre, the potential demand for wastewater treatment from development, measured in Equivalent Dwelling Units (EDU's) within the current service area boundaries of the three member entities (11,500 EDU's) exceeds the remaining available treatment capacity of SC-OR (2,800 EDU's); and,

WHEREAS, SC-OR has conducted and adopted the SC-OR Master Planning and Financial Assistance Study to estimate available treatment plant capacity, and has determined that its existing capacity is not adequate to serve the development potential of lands heretofore annexed into the current jurisdictional boundaries of the SC-OR member entities. In addition, SC-OR has also experienced wastewater flows generated within the SC-OR member entities during storm events which have approached the total influent pumping capacity of 25 million gallons per day (mgd) available at SC-OR’s wastewater treatment facility. Therefore, SC-OR has determined that its remaining capacity must be preserved for such in-fill development within the current jurisdictional boundaries of the member entities and that the member entities and SC-OR must place conditions applicable to lands seeking to annex into the member entities to insure that its existing remaining capacity is preserved for development within the member entities; and,

WHEREAS, in accordance with Paragraph 1 (b) of THE AGREEMENT member entities are entitled to add connections and to originate flows within their respective service areas without limitation subject to SC-OR’s determination that its facilities may reach the limits of their capacity; and,
BE IT FURTHER RESOLVED that SC-OR, through its staff and consultants, is authorized hereunder to appear as necessary, in writing and in person, before such agencies and jurisdictions, including but not limited to Butte Local Agency Formation Commission, to advise of the status and limitations of SC-OR's capacity and to insure that all future annexations are undertaken consistently with the terms and condition of this Resolution.

BE IT FURTHER RESOLVED THAT SC-OR's member entities shall obtain the prior written agreement from SC-OR that treatment capacity exists prior to committing such capacity to any development seeking annexation into the member entities' jurisdictional boundary, or to any development within said jurisdictional boundary of twenty or more EDU's.

BE IT FURTHER RESOLVED that this resolution shall be effective on the date of its adoption and shall remain in effect until further action of SC-OR.

PASSED AND ADOPTED this 22nd day of July 2009 at a regular meeting of the Sewerage Commission-Oroville Region, duly noticed and conducted in the SC-OR offices, by the following vote:

AYES: Commissioners Dennis, Huston, Jernigan

NOES: None

ABSTAINED: None

Steven D. Jernigan, Chairman

ATTEST:

Raymond H. Sousa, Clerk
CAPACITY AGREEMENT
BETWEEN ________________ AND SEWERAGE COMMISSION -
OROVILLE REGION AND
______________ DEVELOPMENT COMPANY

This Capacity Agreement is made and entered into this _______ day of
____________, 200__, by and between the Sewerage Commission–Oroville Region ("SC-OR"), the
______________ ("Collector") and ________________, a ________________ company ("Developer").

RECITALS

A. Developer is the owner of that certain parcel(s) of land, described in Exhibit A, attached hereto, which lands are within the political boundaries of Collector (the "Project Lands").

B. Collector is formed and exists under the provisions of ___________ Code of the State of California, and operates a sewer collection system for the receipt and transmission of wastewater generated within its service area to the regional wastewater treatment facility ("WWTF").

C. SC-OR is a Joint Powers Authority ("JPA") formed under the provisions of 6500 et seq of the Government Code of the State of California, which has as its primary purpose the ownership and operation of the WWTF, including associated Interceptor Lines and an outfall line (collectively the "Regional Facilities") serving the members of the JPA, which members are ___________ the ____________, and the ____________. The members of SC-OR shall hereafter be referred to collectively as "the SC-OR Members."

D. Developer wishes to undertake the development of the Project Lands, and for that reason desires to receive sewer collection service from Collector, and wastewater treatment service from the Regional Facilities.

E. SC-OR has conducted and adopted a study of available capacity and has determined, in Resolution No. 08-09, that its available capacity is substantially less than adequate to serve the full development of lands currently within the political boundaries of the SC-OR Members. In addition, SC-OR has also experienced wastewater flows generated within the SC-OR Members' service areas during storm events which have exceeded the capacity of a component of the Regional Facilities, and which flows have also approached the influent pumping capacity at the WWTF.

F. Collector requires extension and expansion of its collection system as needed in order to provide collection service for development of the Project Lands.

G. To provide for the orderly planning and construction of collection system capacity, landowners within Collector's boundaries seeking to develop are required to conduct, or provide funding to Collector to conduct, a site-specific study of the requirements for expansion/extension of Collector's system needed to serve proposed development. Due to the fact that the capacity
at the Regional Facilities is not adequate to serve development of all lands currently within the boundaries of the SC-OR Members, service by the Regional Facilities to developments of twenty (20) or more residential units, or to commercial/industrial users with equivalent wastewater flows, requires the completion of a site specific study to assess the impact of development on SC-OR's capacity and to determine whether any necessary expansion or other modification or improvement of capacity in SC-OR's Regional Facilities is required as a result of the development's impact. These studies, whether undertaken collectively or independently, shall hereafter be collectively referred to as "the Capacity Impact Study."

H. Developer wishes to enter into this agreement in order to secure completion of the Capacity Impact Study to assess the impact of the development of the Project Lands on the facilities of Collector and SC-OR, and to evaluate whether and to what degree adequate collection and Regional Facility capacity exists or must be constructed or financed to serve the Project Lands. If the Capacity Impact Study concludes that capacity must be expanded or installed to serve the Project lands, then, if Developer decides to proceed with development of the Project Lands, Developer will be required to negotiate agreement with SC-OR and Collector ("the Mitigation Agreement") that will describe what Developer will be required to do to receive sewer service for the Project Lands.

AGREEMENT

SEWER CAPACITY IMPACT STUDY:

SC-OR and Developer agree that SC-OR is unable to commit capacity to serve the Project Lands until completion of the Capacity Impact Study and until the construction, or financing, of all required expansion specified therein, and payment of all required fees. Such determination requires first the completion of the Capacity Impact Study in order to evaluate the Developer's Project, its location, and the likely impact on the capacity of the Regional Facilities. Prior to commencement of such study, SC-OR and Collector shall provide Developer an estimate of cost of the study for Developer's approval. If approved, said costs shall be deposited by Developer with Collector. Developer understands that no estimate of the availability of SC-OR's capacity can be provided until the study is complete, and the results thereof accepted by SC-OR in consultation with Developer. For service to industrial customers, the required Capacity Impact Study and its cost will be dependent on estimated loadings, and the cost and scope of the study will be determined on a case-by-case basis, depending on the user's wastewater characteristics, including flows. The Capacity Impact Study for the Regional Facilities shall be performed under SC-OR's supervision by SC-OR's consulting engineer. The study will analyze and confirm whether, and under what conditions, capacity can be made available to the Project Lands by SC-OR.
MITIGATION AGREEMENT:

(A) Following completion and acceptance of the Capacity Impact Study, if Developer decides to proceed with development of the Project Lands, and to secure wastewater collection and treatment service from SC-OR and Collector, they shall meet and negotiate the Mitigation Agreement, describing generally the required improvements, their timing, as well as their financing and construction, and all other requirements of SC-OR and Collector that Developer must complete prior to the receipt of service to the Project Lands. Without limiting the generality of the foregoing, the Mitigation Agreement will address the following requirements:

1. **Regional Facilities Construction/Financing** The Mitigation Agreement will specify facilities that must be completed/financed by Developer prior to service. If the most financially and technically feasible expansion of the Regional Facilities requires the construction of more capacity than is required for the Project Lands, funding may be required from other developers. If no other developers are prepared to fund their respective shares of such capacity, and Developer wishes to proceed with its project, Developer may finance all such required expansion and fee credits and refunds to reimburse Developer for the costs of such excess capacity will be authorized in the Mitigation Agreement.

2. **SC-OR Capacity Fees.** The Mitigation Agreement will set forth the Regional Facility Charge ("RFC") Developer will pay to SC-OR as a capacity fee to fund Developer’s fair share of any capacity previously constructed, or to be constructed, in the Regional Facilities benefitting Developer’s project and the time such payments must be made. The RFC shall be subject to fee credits if available to Developer.

3. **Sewer Collection System.** The Mitigation Agreement will include the components of Collector’s system that Developer must construct/finance as a condition of collector system service. Collector may require oversizing of certain components of its collection system consistent with the orderly expansion and planning of Collector’s system. As with the Regional Facilities under subpart (1) above, if Developer installs or finances such excess capacity, the Mitigation Agreement will include Developer’s entitlement to reimbursement from fee credits and refunds as described below.

4. **Collector Capacity Fees.** The Mitigation Agreement shall set forth the capacity fee Developer shall pay to Collector prior to receipt of service, and the time of payment. Collector’s capacity fees shall be subject to fee credits if available to Developer.

5. **Financing of Improvements.** The Mitigation Agreement shall address the formation of any required special district financing mechanisms, including without limitation assessment districts, community facility districts, and improvement districts acceptable to Developer, SC-OR, and Collector.

6. **Fees and Charges:** The Mitigation Agreement shall include provisions for payment of routine fees and charges of Collector and SC-OR for services provided.
(B) Fee Credits and Reimbursement. Developer may be entitled to a credit against the SC-OR RFC and/or the Collector sewer system capacity fees, up to the amount of Developer’s expense, approved by SC-OR and Collector respectively, to construct any Regional Facilities and any collection system capacity that benefits other developers. Terms and conditions of fee credits and reimbursement will be subject to separate fee credit and reimbursement agreements to be negotiated between SC-OR and Developer, and Collector and Developer. Without limiting the generality of the foregoing, other development, using facilities funded by Developer shall be charged a fair share of the cost of such excess capacity, and such funds shall be set aside and refunded to Developer, and/or the costs of Developer shall be reimbursed with a credit to capacity fees payable by Developer on Developer’s connections.

**AVAILABILITY OF SERVICE:**

Following completion of the Capacity Impact Study, and provided Developer enters into a Mitigation Agreement(s) with SC-OR and Collector, Collector and SC-OR will issue "Sewer Service Availability" letters for service from the Regional Facilities and in the sewer collection system, to the Developer. Service from Collector and SC-OR will be subject to compliance with the terms of the Mitigation Agreement. Service Availability Letters shall be effective for no more than 12 months, and are subject to renewal, provided Developer is in compliance with the terms of the Mitigation Agreement. Service Availability Letters do not guarantee Developer when that capacity in the WWTF will be available, but capacity therein will be provided as and when the required capacity is completed. Upon payment of required fees and issuance of a building permit, such capacity in the Regional Facilities will be provided to Developer.

Executed in Butte County, California this ______ day of _________ 200__.

DEVELOPER

SC-OR

COLLECTOR
PRE-ANNEXATION AGREEMENT
BETWEEN ___________________ AND SEWERAGE COMMISSION–
OROVILLE REGION AND
___________________________ DEVELOPMENT COMPANY

This Pre-Annexation Agreement is made and entered into this ___ day of ________, 200__, by and between the Sewerage Commission–Oroville Region (SC-OR*), the
____________________________ (“Collector”) and ____________________, a ______________
company (“Developer”).

RECITALS

A. Developer is the owner of that certain parcel(s) of land, described in Exhibit A, attached hereto, referred to hereafter as the “Project Lands.”

B. Collector is a ______________ formed and existing under the provisions of
___________________________ Code of the State of California, and operates a sewer collection system for
the receipt and transmission of wastewater generated within its service area to the regional
wastewater treatment facility.

C. SC-OR is a Joint Powers Authority ("JPA") formed under the provisions of 6500 et seq. of the Government Code of the State of California, which has as its primary purpose the
ownership and operation of a wastewater treatment facility ("WWTF"), including an associated
outfall line and interceptor lines (collectively referred to as the "Regional Facilities") serving the
members of the JPA, which members are Lake Oroville Area Public Utility District, the City of
Oroville, and the Thermalito Water and Sewer District. The members of SC-OR shall hereafter
be referred to collectively as “the SC-OR Members.”

D. Developer wishes to undertake the development of the Project Lands, and for that
reason desires to annex the Project Lands into the political boundaries of Collector in order to
receive sewer collection service from Collector and wastewater treatment service from the
Regional Facilities. Said annexation must be approved by Butte LAFCO, and Butte LAFCO is
required to confirm that sewer collection and treatment will be available to the Project Lands.

E. SC-OR has conducted and approved a study of the available capacity in the
Regional Facilities, and has determined in Resolution No. 08-09 that its available capacity is
substantially less than adequate to serve full development of lands currently within the political
boundaries of the SC-OR Members. In addition, SC-OR has also experienced wastewater flows
generated within the SC-OR Members’ service area during storm events which have exceeded
the capacity of one component of the Regional Facilities, and which flows have also approached
SC-OR’s influent pumping capacity.

F. Collector has a sewage collection system that requires extension and expansion as
needed to serve new development, such as the Project Lands.
G. SC-OR and Collector have advised the Butte Local Agency Formation Commission ("LAFCO") that annexation of lands into the service areas of the SC-OR Members should not proceed because the foregoing described capacity limitations constitute "service concerns" under Government Code 56857(d)(2). In order to mitigate said service concerns, applicants for annexation are required to perform a project specific study and, should applicants decide to complete said annexation and to develop their properties, to mitigate for all impacts of their proposed projects on the capacity of SC-OR's Regional Facilities and the SC-OR Members' systems prior to receiving service. Depending on the pace of development within the existing service areas of the SC-OR Members, it may be feasible to permit use of available SC-OR capacity to serve Developer, provided that planning and financing is in place to expand that capacity as needed to serve new lands while preserving capacity to serve development of lands already within the existing boundaries.

H. To determine whether adequate wastewater collection and treatment capacity exists or can be constructed to serve Developer's Project, a study, to be funded by Developer, must be performed of the impacts of development of the Project Lands on that capacity and of the requirements for expansion/extension of Collector's system and the preservation of, and any necessary expansion of, capacity in the Regional Facilities as required to serve Developer's Project. These studies, whether undertaken collectively or independently, shall hereafter be collectively referred to as "the Capacity Impact Study."

I. Developer wishes to enter into this Agreement in order to secure the study to allow SC-OR and Collector to advise LAFCO regarding the availability of capacity; to evaluate the sewer service requirements imposed by Developer's Project; and, to determine what collection and treatment capacity is available or must be constructed or financed to serve the Project Lands. Prior to receiving a letter confirming availability of service, Developer will enter into an agreement to fund or otherwise secure the installation of the collection system/Regional Facilities which the Capacity Impact Study demonstrates are necessary prior to receiving service from Collector and SC-OR.

J. Upon completion of the Capacity Impact Study and its acceptance by SC-OR and Collector, and following the negotiation and execution of an agreement (the "Mitigation Agreement") between Developer, SC-OR and Collector under which Developer will complete the measures set forth therein required to mitigate Developer's impact on available capacity, SC-OR and Collector will advise LAFCO that they will have available adequate capacity to serve the Project Lands and they have no service concerns regarding the annexation of the Project Lands into Collector's boundaries.
AGREEMENT

CAPACITY IMPACT STUDY:

SC-OR and Developer agree that SC-OR is unable to commit capacity to serve the Project Lands until completion of the Capacity Impact Study and until the construction, or financing, of all required expansion specified therein, and payment of all required fees. Such determination requires first the completion of the Capacity Impact Study in order to evaluate the Developer’s Project, its location, and the likely impact on the capacity of the Regional Facilities. Prior to commencement of such study, SC-OR and Collector shall provide Developer an estimate of cost of the study for Developer’s approval. If approved, said costs shall be deposited by Developer with Collector. Developer understands that no estimate of the availability of SC-OR’s capacity can be provided until the study is complete, and the results thereof accepted by SC-OR in consultation with Developer. For service to industrial customers, the required Capacity Impact Study and its cost will be dependent on estimated loadings, and the cost and scope of the study will be determined on a case-by-case basis, depending on the user’s wastewater characteristics, including flows. The Capacity Impact Study for the Regional Facilities shall be performed under SC-OR’s supervision by SC-OR’s consulting engineer. The study will analyze and confirm whether, and under what conditions, capacity can be made available to the Project Lands by SC-OR. Based on the results of that study, and provided Developer enters into the Mitigation Agreement as described below, Collector and SC-OR will withdraw from Butte LAFCO their service concerns to the proposed annexation.

MITIGATION AGREEMENT:

(A.) Following completion and acceptance of the Capacity Impact Study, if Developer decides to proceed with the annexation and to secure wastewater collection and treatment service from SC-OR and Collector, Developer, SC-OR and Collector shall meet and negotiate the Mitigation Agreement describing the required improvements and their financing and construction, and all other requirements of SC-OR and Collector that Developer must complete prior to the receipt of service to the Project Lands. Without limiting the generality of the foregoing, the Mitigation Agreement will address the following requirements:

1) Regional Facilities Construction/Financing The Mitigation Agreement will specify facilities that must be completed/financed by Developer prior to service. If the most financially and technically feasible expansion of the Regional Facilities requires the construction of more capacity than is required for the Project Lands, funding may be required from other developers to finance said expansion. If other developers are prepared to fund their respective shares of such capacity, and Developer wishes to proceed with said financing, Developer may finance all such required expansion and fee credits and refunds to reimburse Developer for the costs of such excess capacity will be authorized in the Mitigation Agreement.

2) SC-OR Capacity Fees. The Mitigation Agreement will set forth the Regional Facility Charge (“RFC”) Developer will pay to SC-OR as a capacity fee to fund Developer’s fair share of any capacity previously constructed, or to be constructed, in the Regional Facilities to serve Developer’s project and the time such payments must be made. The RFC shall be subject to fee credits if available to Developer.
(3) **Sewer Collection System.** The Mitigation Agreement will include the components of Collector's system that Developer must construct/finance as a condition of collector system service. Collector may require oversizing of certain components of its collection system consistent with the orderly expansion and planning of Collector's system. As with the Regional Facilities under subpart (1) above, if Developer installs or finances such excess capacity, the Mitigation Agreement will include Developer's entitlement to reimbursement from fee credits and refunds as described below.

(4) **Collector Capacity Fees.** The Mitigation Agreement shall set forth the capacity fee Developer shall pay to Collector prior to receipt of service, and the time of payment. Collector's capacity fees shall be subject to fee credits if available to Developer.

(5) **Financing of Improvements.** The Mitigation Agreement shall address the formation of any required special district financing mechanisms, including without limitation assessment districts, community facility districts, and improvement districts acceptable to Developer, SC-OR, and Collector.

(6) **Fees and Charges.** The Mitigation Agreement shall describe the fees, charges, rules and regulations that are applicable to Collector and SC-OR service.

(B.) **Fee Credits and Reimbursement.** Developer may be entitled to a credit against the SC-OR RFC and/or the Collector sewer system capacity fees, up to the amount of Developer's expense, approved by SC-OR and Collector respectively, to construct any Regional Facilities and any collection system capacity that benefits other developers. Terms and conditions of fee credits and reimbursement will be subject to separate fee credit and reimbursement agreements to be negotiated between SC-OR and Developer, and Collector and Developer. Without limiting the generality of the foregoing, other development, using facilities funded by Developer shall be charged a fair share of the cost of such excess capacity, and such funds shall be set aside and refunded to Developer, and/or the costs of Developer shall be reimbursed with a credit to capacity fees payable by Developer on Developer's connections.
AVAILABILITY OF SERVICE:

Following completion of the Capacity Impact Study, and provided Developer enters into a Mitigation Agreement(s) with SC-OR and Collector, Collector and SC-OR will issue "Sewer Service Availability" letters for service from the Regional Facilities and in the sewer collection system, to the Developer. Service from Collector and SC-OR will be subject to compliance with the terms of the Mitigation Agreement. Service Availability Letters shall be effective for no more than 12 months, and are subject to renewal, provided Developer is in compliance with the terms of the Mitigation Agreement. Service Availability Letters do not guarantee Developer when that capacity in the WWTF will be available, but capacity therein will be provided as and when the required capacity is completed. Upon payment of required fees and issuance of a building permit, such capacity in the Regional Facilities will be provided to Developer.

Executed in Butte County, California this ______ day of _________ 200__.

DEVELOPER:

__________________________________________, a
__________________________________________ corporation

Date: ____________________________

By: ______________________________________

Name: _________________________________

Title: _________________________________

COLLECTOR:

________________________________________

a governmental agency

Date: ____________________________

By: ______________________________________

Name: _________________________________

Title: _________________________________

SC-OR:

SEWERAGE COMMISSION-OROVILLE REGION

Date: ____________________________

By: ______________________________________

Name: Raymond H. Sousa
Title: Manager