City of Chico Sewer System Management Plan

Updated July 2019

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List of Abbreviations

CCTV	Closed circuit television
City	City of Chico
CIP	Capital Improvement Plan
CIWQS	California Integrated Water Quality System
CSU	California State University at Chico
FOG	Fats, Oils and Grease
FSE	Food service establishment
FTE	Full Time Equivalent
FY	Fiscal Year
GIS	Geographical Information System
GPS	Global Positioning System
GWDR	General Waste Discharge Requirements
I/I	Infiltration and inflow
LRO	Legally Responsible Official
MH	Maintenance Hole
MRP	Monitoring and Reporting Program
NPDES	National Pollution Discharge Elimination System
O&M	Operations and Maintenance
OES	Office of Emergency Services (formerly Emergency Management Agency)
OSHA	Occupational Safety and Health Administration
PW	Public Works
PWWF	Peak Wet Weather Flows
RWQCB	Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
SOP	Standard Operating Procedure
SPA	Specific Plan Area
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SSORP	Sanitary Sewer Overflow Response Plan
SWRCB	State Water Resources Control Board
WO	Work Order
WPCP	Water Pollution Control Plant

Introduction

I-1 Background

This Sewer System Management Plan (SSMP) has been prepared in compliance with requirements of the State Water Resources Control Board (SWRCB) Order No. 2006-0003 adopted May 2, 2006 to require all public wastewater collection system agencies in California with greater than one mile of sewers to be regulated under General Waste Discharge Requirements (GWDR). The SWRCB action, which applies to the City of Chico (City), also mandates the development of an SSMP and the reporting of Sanitary Sewer Overflows (SSOs) using an electronic reporting system. This Sewer System Management Plan (SSMP) is a compendium of the policies, procedures, and activities that are included in the planning, management, operation, and maintenance of the City's sanitary sewer system.

On July 21, 2009, the City Council adopted Resolution 49-09 which approved the City of Chico Sewer System Management Plan. Since then, the City has made small edits to the SSMP during two biennial audits in 2011 and 2013. This SSMP update, which contains significant updates made to the 2013 SSMP, has been prepared by RMC Water and Environment, which entered into a contract with the City for this project in June 2014. This update incorporates SWRCB Order No. WQ-2013-0058-EXEC, which amended the Monitoring and Reporting Program (MRP) of the GWDR.

The structure (section numbering and nomenclature) of this SSMP follows the GWDR. The SSMP includes eleven sections, as follows:

I. Goals
II. Organization
III. Legal Authority
IV. Operation and Maintenance Program
V. Design and Performance Provisions
VI. Overflow Emergency Response Plan
VII. Fats, Oils and Grease Control Program
VIII. System Evaluation and Capacity Assurance Plan
IX. Monitoring, Measurement, and Program Modifications
X. SSMP Audits
XI. Communication Plan

I-2 System Overview

The City's sanitary sewer system includes 388 miles of pipelines, consisting of 384 miles of gravity sewers and four miles of force mains, with 14 lift stations. The City is not responsible for maintenance of sewer service laterals.

Construction of the collection system began in 1903. The majority of facilities were installed between the 1960s and 1980s. Pipe sizes range from 4 to 36 inches in diameter with 78 percent at 12 inches or less.

I-3 Definitions

Best Management Practices (BMP)

Refers to the procedures employed in commercial kitchens to minimize the quantity of grease that is discharged to the sanitary sewer system. Examples include scraping food scraps into a garbage can and dry wiping dishes and utensils prior to washing.

Building Lateral

Refers to a sewer on private property serving a specific building or property and maintained by the owner thereof. The building lateral connects to the street lateral at the property line.

California Integrated Water Quality System (CIWQS)

Refers to the State Water Resources Control Board online electronic reporting system that is used to report SSOs, certify completion of the SSMP, and provide information on the sanitary sewer system. The electronic reporting requirement became effective on August 1, 2007 in Region 5.

Capital Improvement Program (CIP)

Refers to the document that identifies future capital improvements to the City's sanitary sewer system.

City

Refers to the City of Chico.

Closed Circuit Television (CCTV)

Refers to the process and equipment that is used to internally inspect the condition of gravity sewers.

Fats, Oils, and Grease (FOG)

Refers to fats, oils, and grease typically associated with food preparation and cooking activities that can cause blockages in the sanitary sewer system.

Food Service Establishment (FSE)

Refers to commercial or industrial facilities where food is handled/prepared/served that discharge to the sanitary sewer system.

Force Main

Refers to a pressure sewer that conveys wastewater from a lift station to a gravity sewer or other discharge point.

Full-time Equivalent (FTE)

Refers to the equivalent of 2,080 paid labor hours per year by a regular, temporary, or contract employee.

Public Works Director

Refers to the director of the City of Chico's Public Works Department or his or her designee.

General Waste Discharge Requirements (GWDR)

Refers to the State Water Resources Control Board Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, dated May 2, 2006.

Geographical Information System (GIS)

Refers to the City's system that it uses to capture, store, analyze, and manage geospatial data associated with the City's sanitary sewer system assets.

Global Positioning System (GPS)

Refers to the handheld unit that is recommended to determine the longitude and latitude of sanitary sewer overflows for use in meeting CIWQS reporting requirements.

Grease Removal Device

Refers to grease traps and grease interceptors that are installed to remove FOG from the wastewater flow at food service establishments.

Infiltration/Inflow (I/I)

Refers to water that enters the sanitary sewer system from storm water and groundwater and increases the quantity of flow. Infiltration enters through defects in the sanitary sewer system after flowing through the soil. Inflow enters the sanitary sewer without flowing through the soil. Typical points of inflow are holes in maintenance hole lids and direct connections to the sanitary sewer (e.g., storm drains, area drains, and roof leaders).

Legally Responsible Official (LRO)

Refers to an individual who has the authority to enter and certify reports and data into the online sanitary sewer overflow (SSO) database through CIWQS. A LRO is defined as either a principal executive officer or ranking elected official for an agency, or a duly authorized representative of that person. To qualify as a duly authorized representative, an individual must receive authorization in writing from another LRO and have responsibility for the overall operation of the regulated facility or activity.

Lift Station

Refers to a point in the collection system where the elevation of the wastewater is raised, using pumps, and is discharged into a nearby gravity sewer.

Maintenance Hole (MH)

Refers to an engineered structure that is intended to provide access to a sanitary sewer for maintenance and inspection.

Monitoring and Reporting Program (MRP)

Refers to SWRCB Order No. WQ-2013-0058-EXEC amending the Monitoring and Reporting Program for Statewide GWDR, effective September 9 , 2013.

Office of Emergency Services (OES)

Refers to the Governor's Office of Emergency Services (Formerly the Emergency Management Agency).

Preventative Maintenance (PM)

Refers to maintenance activities intended to prevent failures of the sanitary sewer system facilities (e.g., cleaning, CCTV, repair).

Regional Water Quality Control Board (RWQCB)

Refers to the Central Valley Regional Water Quality Control Board (Region 5).

Sanitary Sewer Overflows (SSOs)

Refers to the overflow or discharge of any quantity of partially treated or untreated wastewater from the sanitary sewer system at any point upstream from the wastewater treatment plant, including backup into buildings. SSOs typically are caused by blockages, pipe failure, pump station failure, or capacity limitation.

Sewer Main

Refers to any public sewer constructed in a street, a sewer easement, a public utility easement, or a public service easement which is less than 15 inches in diameter and designed to accommodate more than one sewer service lateral. It transports wastewater to the Water Pollution Control Plant.

Sewer Service Lateral

Refers to the pipeline connecting a property to the sewer main. It includes both the building lateral and the street lateral.

Sewer System Overflow Response Plan (SSORP)

Refers to the written document for the response to sewer system overflows.

Sanitary Sewer System

Refers to the portion of the sanitary sewer facilities that are owned and operated by the City.

Standard Operating Procedures (SOP)

Refers to written procedures that pertain to specific activities employed in the operation and maintenance of the sanitary sewer system.

State Water Resources Control Board (SWRCB)

Refers to the California Environmental Protection Agency State Water Resources Control Board and staff responsible for protecting the State's water resources.

Street Lateral

Refers to the portion of the sewer that connects the sewer main to the building lateral at the property line.

Supervisory Control and Data Acquisition (SCADA)

Refers to the system that is employed by the City to monitor the performance of its lift stations and to notify the operating staff when there is an alarm condition that requires attention.

Trunkline (Trunk Sewer)

Refers to any sewer constructed in a street, a sewer easement, a public utility easement, or a public service easement which has a diameter equal to or greater than fifteen inches.

Work Order (WO)

Refers to a document (paper or electronic) that is used to assign work and to record the results of the work.

Element 1 Goals

This SSMP element formally states the goals the City has established for the management, operation and maintenance of the sanitary sewer system. These goals provide focus for City staff in the management of the City's sanitary sewer system.

The requirements of the GWDR are:

The collection system agency must develop goals to properly manage, operate, and maintain all parts of its wastewater collection system in order to reduce and prevent SSOs, as well as to mitigate any SSOs that occur.

The goal of the City's SSMP is to provide a plan and schedule to properly manage, operate and maintain all parts of the sanitary sewer system.

Element 2 Organization

The intent of this section of the SSMP is to identify City staff who are responsible for implementing this SSMP, responding to SSO events, and meeting the SSO reporting requirements. This section also includes the designation of the Legally Responsible Official (LRO) to meet SWRCB requirements for completing and certifying spill reports.

The requirements of the GWDR are:

a. The name of the responsible or authorized representative;

b. The names and telephone numbers for management, administrative, and maintenance positions responsible for implementing specific measures in the SSMP program. Include lines of authority as shown in an organization chart or similar document with a narrative explanation; and

c. The chain of communication for reporting SSOs, from receipt of a complaint or other information, including the person responsible for reporting SSOs to the State and Regional Water Board and other agencies if applicable (e.g., County Health Officer, County Environmental Health Agency, Regional Water Board, and/or State Office of Emergency Services (OES)).

2.1 Organization Chart

The organization chart for the management, operation, and maintenance of the City's wastewater collection system is shown on **Figure 2–1.**

2.2 Authorized Representative

The City's authorized representative in all wastewater collection system matters is the Public Works Director. The Public Works Director is the Legally Responsible Official (LRO) and is authorized to submit and certify electronic and written spill reports to the California Integrated Water Quality System (CIWQS) and the Governor's Office of Emergency Services (OES, formerly the Emergency Management Agency).

The Wastewater Treatment Manager, Public Works Manager, and Underground Field Supervisor are designated to act as the Authorized Representative in the Public Works Director's absence. The Wastewater Treatment Manager, Public Works Manager, and Underground Field Supervisor are authorized to submit and certify verbal, electronic, and written spill reports to CIWQS and the Governor's Office of Emergency Services (formerly the Emergency Management Agency).

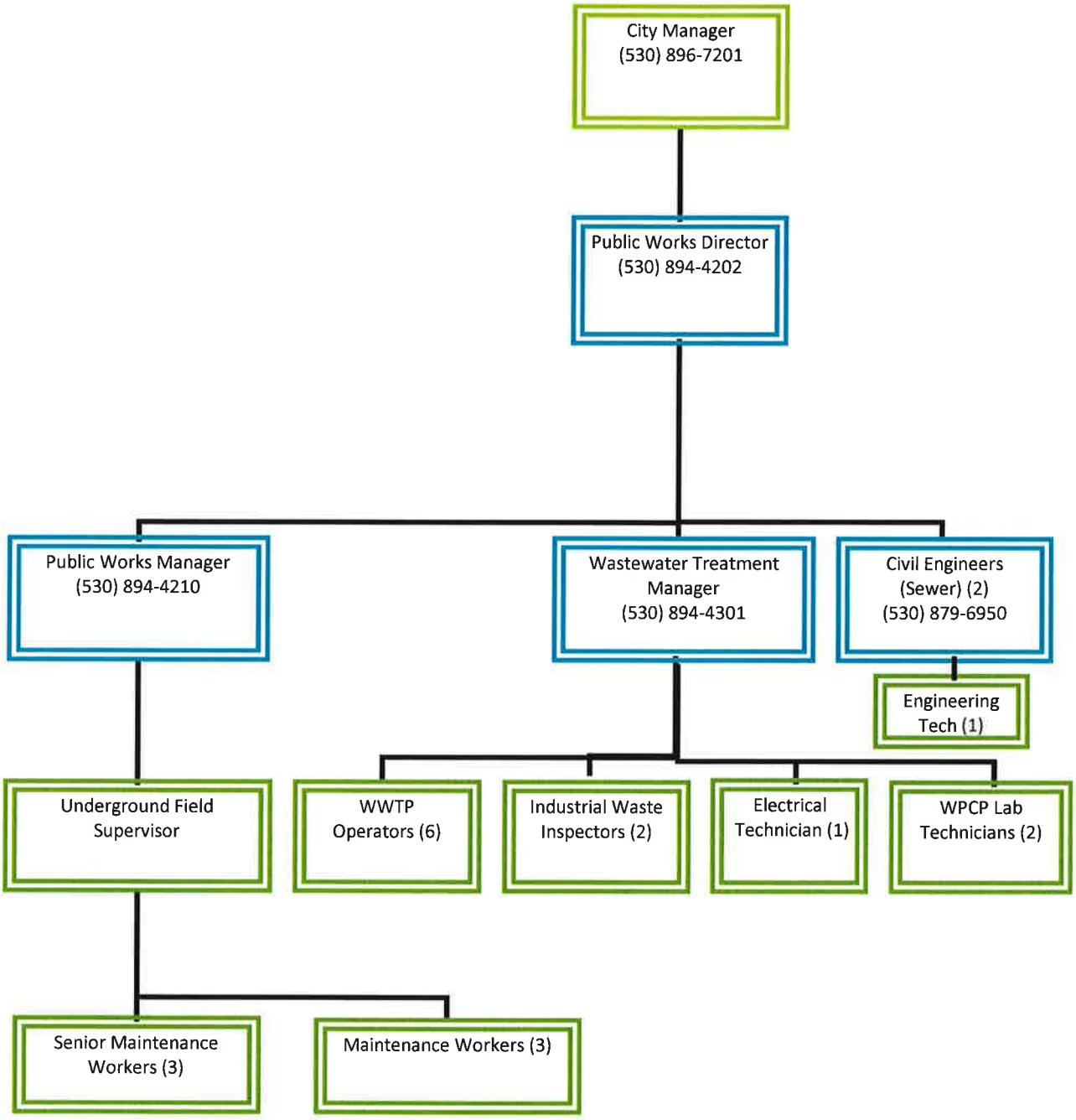
2.3 Responsibility for SSMP Implementation

The Public Works Director has overall responsibility for developing, implementing, periodically auditing, and maintaining the City's SSMP. Other City Staff responsible for developing, implementing, and maintaining specific elements of the City's SSMP, along with their job titles and contact information, are shown in **Figure 2-1: Organization Chart for the City's Wastewater Collection System**.

The Public Works Director is responsible for the operation and maintenance of the City's wastewater collection system.

The Public Works Manager is responsible for the City's response to SSO events and other wastewater collection system emergencies during business hours, and SSO events after hours, on weekends, and on holidays.

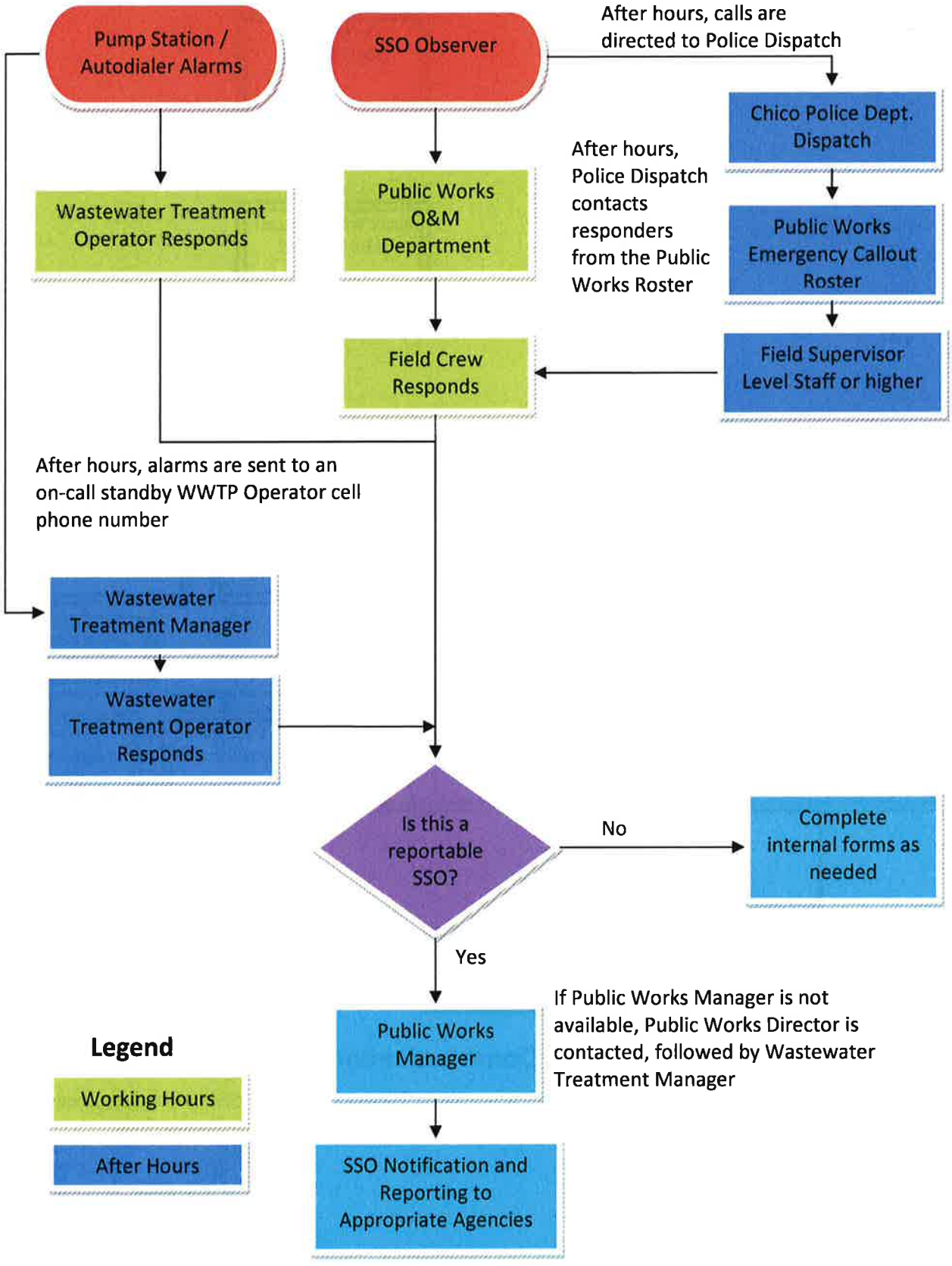
Figure 2–1: Organization Chart for Management, Operation and Maintenance of the City's Wastewater Collection System



2.4 SSO Reporting Chain of Communication

The SSO Reporting Chain of Communication is shown in **Figure 2–2**. The SSO reporting process and responsibilities are described in detail in Element 6 – Sewer System Overflow Response Plan.

Figure 2–2: SSO Reporting Chain of Communications



Element 3 Legal Authority

This element of the SSMP discusses the City's Legal Authority, including its Municipal Code and agreements with other agencies. This section fulfills the Legal Authority requirement for the SWRCB SSMP requirements.

The requirements of the GWDR are:

Demonstrate, through collection system use ordinances, service agreements, or other legally binding procedures, that the City possesses the necessary legal authority to:

a. ***Prevent illicit discharges into its wastewater collection system (examples may include infiltration and inflow (I/I), storm water, chemical dumping, unauthorized debris and cut roots, etc.);***
b. ***Require that sewers and connections be properly designed and constructed;***
c. ***Ensure access for maintenance, inspection, or repairs for portions of the lateral owned or maintained by the Public Agency;***
d. ***Limit the discharge of fats, oils, and grease and other debris that may cause blockages, and***
e. ***Enforce any violations of its sewer ordinances.***

3.1 Sanitary Code

The City has a Municipal Code which is continually updated and is available on the City's website (http://www.chico.ca.us). There are two main portions of the Municipal Code that pertain to the legal authority of the City to establish and manage a sewer system:

- Chapter 15.36 Sewer Services and Fees includes connection permits and various fees; and
- Chapter 15.40 Sewer Discharge Requirements includes discharge limitations, and violations.

3.1.1 Prevention of Illicit Discharges

The following portions of the Municipal Code allow the City to prevent illicit discharges to the sewer system:

- No person shall connect to the sewer system without a connection permit (§15.36.240);
- It is unlawful for any user to "introduce or cause to be introduced into the city's sanitary sewer system any pollutant or wastewater which causes pass through or interference" (§15.40.020); and
- It is unlawful to discharge to the sewer system "any rainwater, stormwater, groundwater, street drainage, subsurface drainage, yard drainage…" (§15.40.021(19)).

3.1.2 Proper Design and Construction of Sewers and Connections

The following sections of the Municipal Code permit the City to require the proper design and construction of sewers and connections:

- Owners who connect to the sewer system must install laterals that are "in accordance with the design criteria and improvement standards for sewer laterals as well as any applicable plumbing standards now or hereafter adopted by or pursuant to this code" (§15.36.230); and

- "Sewer main extensions shall be installed in accordance with the design criteria and improvement standards for sanitary sewer mains now or hereafter adopted by or pursuant to this code…" (§15.36.200A).

3.1.3 Access and Responsibility for Laterals

The following sections of the Municipal Code define the access and responsibility for laterals in the City:

- "The owner of premises connecting to the sewer system shall be required to install sewer laterals between the waste disposal system on the premises being connected to the sewer system and the sewer main adjacent to the lot or parcel on which such premises are located." (§15.36.230); and
- "The owner of premises connected to the sewer system shall be responsible for maintaining the sewer lateral between the waste disposal system and the sewer main adjacent to the lot or parcel at the owner's sole cost and expense" (§15.36.235).

3.1.4 Limit Discharges of Fats, Oils and Grease, and Debris

The following sections of the Municipal Code permit the City to limit discharges of fats, oils, and grease, and debris to the sewer system:

- It is unlawful for any user to "introduce or cause to be introduced into the city's sanitary sewer system any pollutant or wastewater which causes pass through or interference" (§15.40.020);
- It is unlawful to discharge any solid or viscous substances which may cause obstruction to the flow such as garbage with particles greater than one-half inch in any dimension, ashes, cinders, sand, stone or marble dust, glass, etc..... (§15.40.021(3)); and
- At the Public Works Director's discretion, an interceptor shall be installed in a user's building sewer for proper handling of wastewater containing grease or oil (§15.40.030(1)).

3.1.5 Enforcement Measures

Chapter 15.36, Article IX, of the Municipal Code permits the City to enforce the requirements set forth in the Code including:

- Violations of the Municipal Code are punishable as infractions (§15.36.270);
- The City may disconnect users for violating the provisions, including non-payment (§15.36.280);
- Violations, not including failure or refusal to pay fees, is a public nuisance such that the City may take action against an owner to abate such a nuisance (§15.36.290); and
- The City may take legal action against users to collect delinquent fees (§15.36.300).

3.2 Agreements with Satellite Collection Systems

There are sections of the Municipal Code that permit the City to make agreements with satellite collection systems as follows:

- The City has the ability to make agreements with other agencies owning sewerage collection systems within the unincorporated territory of the County of Butte (§15.36.030); and
- The City has the ability to make agreements with certain public agencies seeking to connect premises within the sewer service area owned and/or used by them to the sewer system (§15.36.032).

The City has two satellite collection systems: California State University, Chico (CSU Chico) and Canyon Oaks Homeowners Association. The City accepts wastewater from both collection systems but is not responsible for maintenance or emergency response for issues originating in the pipelines. Contact information for both of these systems is available in **Appendix A – Satellite Collection Systems Contact Information.**

Element 4 Operation and Maintenance Program

This element of the SSMP discusses the City's Operations and Maintenance (O&M) Program, including collection system maps, preventive maintenance, rehabilitation and replacement plan, O&M equipment, and employee training. This section fulfills the Operations and Maintenance Program requirement for the SWRCB SSMP requirements.

The requirements of the GWDR are:

a. The City must maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments, maintenance holes, pumping facilities, pressure pipes, valves, and applicable storm water conveyance facilities;

b. The City must describe routine preventive operation and maintenance activities by staff and contractors; including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance program should have a system to document scheduled and conducted activities, such as work orders;

c. The City must develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of maintenance holes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan;

d. The City must provide equipment and replacement part inventories, including identification of critical replacement parts; and

e. The City must provide training on a regular basis for staff in sanitary sewer system operations, maintenance, and require contractors to be appropriately trained.

4.1 Collection System Map

Field crews carry paper block maps that are generated from the City's Geographic Information System (GIS) database. The City has a GIS department that manages the database of information. Any errors or corrections that are noted by field crews or others are transmitted back to the GIS department for incorporation. Major new developments are added to the GIS database and then to the paper block maps after the development has been inspected and signed off on by the Engineering Division.

The City's GIS information includes:

- Maintenance holes (with asset ID number);
- Gravity sewers (with asset ID number);
- Force mains;
- Lift stations; and
- Storm drains.

4.2 Preventive Maintenance

4.2.1 Preventive Maintenance Activities

Gravity Sewers

There is one supervisor overseeing three two-person crews in the underground services division. The three crews are divided between sewer cleaning (two crews) and sewer inspection (one crew).

The City cleans all 6-, 8-, 10-, and 12-inch main and trunk line sewers on a rotating zone basis, with eight zones in total. The entire cleaning cycle is completed at least once every three years. Gravity sewer lines larger than 12-inches in diameter are inspected and cleaned on an as needed basis. The cleaning crews utilize vacuum jet rodder trucks for cleaning.

The City has an ongoing chemical root control program to help control roots in the sewer system. Chemical root control is applied by zone on a 3-5-year cycle through the entire City. The City utilizes outside contractor services for the application of root control chemicals. Root control application maps that are part of the contractor's submittals are kept as the record of chemical root control activities.

The City is not responsible for installation, maintenance or repairs to the sewer service laterals (See Element 3 – Legal Authority).

Maintenance Holes

The City periodically inspects maintenance holes. During inspection, the sewer cleaning crews note the condition of the maintenance hole cover, frame, riser, cone, barrel, shelf and channel. The amount of infiltration and inflow, and channel flow are noted as well. The sewer cleaning crews then provide a grade for each maintenance hole on a scale of 1 to 3, 1 being the most critical. Documentation of maintenance hole inspections is kept in hardcopy in the Maintenance Service Center Building 400.

Force Mains

The City does not clean or inspect sewer force mains on a cyclic basis. The City is evaluating adding a force main inspection project to their Capital Improvement Plan to establish baseline conditions of existing force mains.

Lift stations

The City performs annual preventative maintenance on all 14 lift stations. Lift station maintenance is performed by the Wastewater Treatment Plant Operators. Each lift station has a checklist of preventive maintenance tasks to be performed during the annual maintenance. Hard copy reports of lift station maintenance are kept at the City's Water Pollution Control Plant.

Non-Routine Maintenance

The City tracks non-routine maintenance activities (e.g., non-emergency service calls) in a Microsoft Access database.

4.2.2 Preventive Maintenance Scheduling and Tracking

Documentation of sewer cleaning activities is kept in hardcopy in the Maintenance Service Center Building 400 and in hardcopy in the Underground Field Supervisor's office. See **Appendix B – Sanitary Sewer Cleaning/Tracking** for examples of this documentation.

The City schedules and tracks preventive maintenance in a Mobile MMS Software. Sewer pipe and pump station operational checks and repairs are recorded as paper-based work orders.

4.3 Rehabilitation and Replacement Plan

4.3.1 Repair and Replacement Program

The City includes an Annual Sanitary Sewer Repair project in the Capital Improvement Program, in addition to larger improvement projects. Lines with issues identified during regular operation and maintenance of the system (e.g., cleaning, condition assessment, etc.) are added to the Annual Sewer Repair project based on priority as determined by the field crews and in coordination with other engineering department projects.

4.3.2 Condition Assessment

The City performs closed-circuit television (CCTV) inspection of the condition of about 10 percent (30 miles) of the 6-, 8-, 10-, and 12-inch sewer lines each year using the City's camera van. The Underground Services Inspection Crew is responsible for performing sewer line inspections. Data collected during CCTV inspection is recorded in a software system.

If an issue with a sewer line is identified during inspection, a still photo of the defect is taken. The defect is graded on a scale of 1 to 3, with 1 being most critical. Defects are added to the Annual Sanitary Sewer Repair project based on priority of the defect grade and coordination with other projects (e.g., street paving). Defect grades and still photos are stored electronically in the inspection camera van and backed up on the Underground Field Supervisor's computer.

4.3.3 Capital Improvement Program

The City maintains a 10-year Capital Improvement Program (CIP) that is managed by the Capital Project Services Department. The most recent CIP covers Fiscal Year 2018/19 through Fiscal Year 2028/29. The City has several funds for sewer-related projects, including:

- Sewer Trunk Line Capacity (Fund 320)
- Sewer Main Installation (Fund 322)
- Water Pollution Control Plant Capacity (Fund 321)

Annually, the City sets the CIP projects to be implemented in the following fiscal year based on the information in the 10-year CIP.

4.4 Equipment

The City maintains equipment for regular operations and maintenance of the sewer system and for emergency response. The City's Capital Improvement Program includes allocations for annual equipment and fleet replacement. **Appendix C – Equipment Inventory** includes an inventory of equipment maintained by the Underground Services Department.

4.5 Training

The City performs SSMP review training for the Underground Collection System Crew and the Water Pollution Control Plant Operators on an annual basis. SSMP review training includes review of the Overflow Response Procedures. Staff also participate in biweekly safety training, and they have the option to attend the external training events held by the California Water and Environment Association (CWEA). The City also requires that its collection system staff obtain CWEA certification and maintain their certification by continuing education contact hours. Records of employee training are kept at the Water Pollution Control Plant.

Furthermore, the City typically requires contractors performing construction activities on the collection system to have certain appropriate and relevant safety programs, as well as follow City safety protocols.

Contractors are also required to have an active permit for all confined spaces (Class A - Immediately Dangerous to Life/Health (IDLH)).

Additional information related to training for sanitary sewer overflow response is provided in the **Appendix D – Sanitary Sewer Overflow Response Plan**.

Element 5 Design and Performance Provisions

This element of the SSMP provides a summary of the City's design and performance provisions for new and existing sewer facilities.

The requirements of the GWDR are:

a. The City must have design and construction standards and specifications for the installation of new sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sewer systems.

The City must have procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects.

5.1 City Manual of Standards, Details and Specifications

The City has design criteria and improvement standards for sewer systems that are included in the Municipal Code Title 18R. The current version of the Municipal Code is available on the City's website (http://www.chico.ca.us).

5.2 Design and Construction Standards for Sewer Systems

5.2.1 Design and Construction Standards for New Sewer Systems

Design Standards for New Sewer Systems

Sewer system design criteria are included in Chapter 18R.08.060 of the Municipal Code. The City design criteria include standards for:

- Sewer mains
  - Design flow
  - Pipe Materials
  - Velocity
  - Depth to pipe
- Sewer laterals
  - Minimum size
  - Slope
  - Depth to pipe
- Maintenance holes
  - Locations
  - Spacing
  - Grade
- Flushing holes
  - Locations
  - Distance from Maintenance holes

Construction Improvement Standards for New Sewer Systems

Sewer system improvement standards are included in Chapter 18R.12 of the Municipal Code. The City improvement standards include criteria and/or plans for:

- Sewer lines (Mains and Laterals)
  - Materials
  - Handling and Storage
  - Excavation
  - Joints
  - Maintenance hole connections
  - Backfill
  - Trench types
- Maintenance holes
  - Materials
  - Precast Concrete Requirements
  - Covers and Frames
- Flushing holes
  - Manufacturers
  - Location
  - Alignment
  - Covers and Frames

5.2.2 Design and Construction Standards for Lift Stations and Other Appurtenances

Standard details and specifications for lift stations and other appurtenances are not included in the City's Municipal Code. Historically, design standards and construction specifications for lift stations and other appurtenances have been developed on a case-by-case basis for each specific project. Section 18R.08.060.G specifically states that pumping plants are considered by the Community Development Director on an individual basis. The Engineering Division of the Public Works Department has developed a "Sanitary Sewer Lift Pump Station – City Guidelines and Specifications" document that is provided to all development proposals that may require construction of a lift station. Specifications for other appurtenances are also developed as needed on a project-specific basis for any new appurtenances implemented in the City.

5.2.3 Design and Construction Standards for Rehabilitation and Repair of Existing Sewer Systems

Rehabilitation and repair of existing sewer lines are not included in the City's Municipal Code. Historically, design standards and construction specifications for rehabilitation and repair of existing sewer systems have been developed on a case-by-case basis for each specific project. Specifications for rehabilitation and repair of existing sewer systems will be developed as needed on a project-specific basis for any new rehabilitation or repair project implemented in the City.

5.3 Inspection and Testing of New and Rehabilitated Facilities

Standards for testing and inspection new and rehabilitated sewers and force mains are detailed in Section 18R.12.010 of the Municipal Code. The City requires leakage tests using air pressure testing to be completed on all construction. Water testing may be used in lieu of air pressure testing if air pressure

testing equipment is not available. The City also requires deflection tests to be completed for specific pipe material types (e.g., polyvinyl chloride pipe installations).

Element 6 Sanitary Sewer Overflow Response Plan

This section of the SSMP provides a summary of the City's Sanitary Sewer Overflow Response Plan (SSORP). This section fulfills the Overflow Emergency Response Plan requirement of the SWRCB SSMP requirements.

The requirements of the GWDR are:

The City shall develop and implement an overflow emergency response plan that identifies measures to protect public health and the environment. At a minimum, this plan must include the following:

- ***a. Proper notification procedures so that the primary responders and regulatory agencies are informed of all SSOs in a timely manner;***
- ***b. A program to ensure appropriate response to all overflows;***
- ***c. Procedures to ensure prompt notification to appropriate regulatory agencies and other potentially affected entities (e.g., health agencies, regional water boards, water suppliers, etc.) of all SSOs that potentially affect public health or reach the waters of the State in accordance with the Monitoring and Reporting Program (MRP). All SSOs shall be reported in accordance with this MRP, the California Water Code, other State Law, and other applicable Regional Water Board WDR or National Pollution Discharge Elimination System (NPDES) permit requirements. The SSMP should identify the officials who will receive immediate notification;***
- ***d. Procedures to ensure that appropriate staff and contractor personnel are aware of and follow the Emergency Response Plan and are appropriately trained;***
- ***e. Procedures to address emergency operations, such as traffic and crowd control and other necessary response activities; and***
- ***f. A program to ensure that all reasonable steps are taken to contain untreated wastewater and prevent discharge of untreated wastewater to waters of the United States and minimize or correct any adverse impact on the environment resulting from the SSOs, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the discharge.***

The City's SSORP is included in **Appendix D – Sanitary Sewer Overflow Response Plan**. The SSORP includes information on:

- SSO detection from various mechanisms such as the public, SCADA alarms, City staff;
- SSO response procedures including safety, initial response steps, and spill containment measures;
- Recovery and cleanup after an SSO event;
- Public notification of an SSO, as necessary;
- Water quality testing requirements after an SSO, as necessary;
- Investigation and documentation of SSO event causes and response;
- SSO reporting to City staff and to external agencies;
- Equipment necessary for overflow emergencies; and
- Training activities to prepare for overflow events.

Element 7 Fats, Oils and Grease Control Program

This section of the SSMP discusses the City's Fats, Oils, and Grease (FOG) control measures, including identification of problem areas, focused cleaning, and source control. This section fulfills the FOG Control Program requirement for the SWRCB SSMP requirements.

The requirements of the GWDR are:

The City shall evaluate its service area to determine whether a FOG control program is needed. If the City determines that a FOG program is not needed, the City must provide justification for why it is not needed. If FOG is found to be a problem, the City must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The FOG source control program shall include the following as appropriate:

- ***a. An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;***
- ***b. A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;***
- ***c. The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;***
- ***d. Requirements to install grease removal devices (such as traps or interceptors) design standards for the grease removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;***
- ***e. Authority to inspect grease producing facilities, enforcement authorities, and whether the City has sufficient staff to inspect and enforce the FOG ordinance;***
- ***f. An identification of sewer system sections subject to FOG blockages and establish a cleaning maintenance schedule for each section; and***
- ***g. Development and implementation of source control measures, for all sources of FOG discharged to the sewer system, for each sewer system section identified in (f) above.***

7.1 FOG Source Control Program

Based on historical FOG issues in the sewer system, the City has determined a FOG Control Program focused on Industrial and Commercial dischargers provides the most benefit in reducing FOG discharges to the sewer system. The City's program is supported by the City's two Industrial Waste Inspectors and the Wastewater Treatment Manager.

7.2 Public Education Outreach Program

The City's program focuses on Industrial, Commercial, and Food Service Establishments (FSE) dischargers. An ongoing public education outreach program has been developed and annually provides pertinent information regarding sewer system issues and proper operation to sewer system users.

7.3 Disposal of FOG

Local grease haulers can dispose of grease at a variety of regional locations in the area including rendering facilities (e.g., North State Rendering, Sacramento Rendering) and wastewater treatment plants (e.g., Napa Sanitation District). The City recommends that all facilities utilizing grease haulers to haul grease from their interceptors use a grease hauler registered with the State of California Department of Food and Agriculture (Inedible Kitchen Grease Transporter Registration).

7.4 Legal Authority to Prohibit Discharges

The City has the legal authority to prohibit discharges of FOG to the sewer system. See Element 3 – Legal Authority for additional discussion of the City's legal authority relating to FOG discharges.

7.5 Requirements to Install Grease Removal Devices

As discussed in Element 3 – Legal Authority, the City has the right to require non-residential facilities to install a grease interceptor at the discretion of the Public Works Director.

The City is currently evaluating implementing a revised grease interceptor ordinance that would require all food service establishments to install a grease interceptor with certain exceptions granted by the public works director depending on site or facility limitations. There are approximately 400 food service establishments in the City's service area. Controlling grease discharges from all food service establishments should have a significant impact on the City's ability to reduce FOG in the sewer system.

7.6 Authority to Inspect and Regulate Grease Producing Facilities

The City has the legal authority to limit discharges of FOG from all users and to inspect and regulate non-residential grease producing facilities. See Element 3- Legal Authority for additional discussion of the City's legal authority to inspect and regulate grease producing facilities.

7.7 Identification of Grease Problem Areas and Sewer Cleaning

There are no 'hotspot' cleaning lines that require more frequent cleaning than the cycle described in Element 4 – Operations and Maintenance Program due to the City's frequent cleaning of all 6-, 8-, 10, and 12-inch sewer lines.

Element 8 System Evaluation and Capacity Assurance Plan

This section of the SSMP discusses the City's plan for maintaining adequate hydraulic capacity in the sewer system, including flow monitoring, hydraulic analysis, infiltration and inflow analysis, and capital improvements. This section fulfills the System Evaluation and Capacity Assurance Plan requirement for the SWRCB SSMP requirements.

The requirements of the GWDR are:

The City must evaluate those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation must provide estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events. Where design criteria do not exist or are deficient, the City must establish appropriate design criteria.

The City must establish a short- and long-term capital improvement plan (CIP) to address identified hydraulic deficiencies including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP shall include an implementation schedule and shall identify sources of funding. The City shall develop a schedule of completion dates for all portions of the CIP. This schedule shall be reviewed and updated at least every two years.

The City recently updated its Sanitary Sewer Master Plan in June 2013 (2013 Master Plan). The 2013 Master Plan serves as an update to the City's previous 2003 Sanitary Sewer Master Plan, as well as its 1985 Sanitary Sewer Master Plan. The purpose of the 2013 Master Plan is to identify capacity deficiencies in the sanitary sewer system, develop feasible alternatives to correct these deficiencies, and to plan the infrastructure that will serve future development projected by the Chico 2030 General Plan.

The requirements for a System Evaluation and Capacity Assurance Plan, as defined by the GWDR, are addressed in the City's 2013 Master Plan. This section summarizes the key points of the 2013 Master Plan as it pertains to the GWDR. More detailed information can be found in the final 2013 Master Plan document, available at the Public Works Department (411 Main Street, Chico, CA).

The City's 2013 Master Plan consists of several key components, including flow monitoring, the development and calibration of a collection system hydraulic model, development of planning criteria, capacity evaluation and proposed improvements, and a capital improvement plan.

8.1 Flow Monitoring

As part of the 2013 Master Plan, the City installed 17 temporary flow meters throughout the collection system at locations selected by Carollo Engineers, Inc. and the City. The flow monitoring data collected from the temporary flow monitoring program formed the basis for the hydraulic model calibration as part of the 2013 Master Plan.

The purpose of the temporary flow monitoring program was to assist in the development of design flow criteria, and to correlate actual collection system flows to the hydraulic model predicted flows. The flow monitoring data was also used to calibrate the collection system hydraulic model for dry weather and wet weather flow, and to help to identify areas of the system with the highest rates of infiltration/inflow (I/I). A mixture of Teledyne Isco 2150, Hach Sigma 910, and Marsh-McBirney Flo-Dar flow meters were used for the temporary flow monitoring effort.

In addition to the temporary flow monitoring performed as part of the 2013 Master Plan, the City has a network of nine flow meter sites installed in the system. Flow meters may be installed at other sites in the system when needed, and record flow depth and velocity at 15-minute intervals. The City can access data from the flow meters through software provided by the flow meter manufacturer.

8.2 Hydraulic Model

A sewer collection system model is a simplified representation of the real sewer system. Sewer system models are used to assess the conveyance capacity for a collection system. In addition, sewer system models can perform "what if" scenarios to assess the impacts of future developments and land use changes. As part of the 2013 Master Plan, the City's hydraulic model was assembled using the InfoSWMM hydraulic modeling software application, by Innovyze (formerly MWH Soft).

The City's hydraulic model is a "skeletonized" model, which includes collection system pipelines that are 10-inches and larger, as well as some critical pipelines 8 inches in diameter and smaller. The modeled sewer system consists of approximately 93.5 miles of sanitary sewer pipelines ranging in diameter from 4 inches to 66 inches, and seven sanitary sewer lift stations.

The City's collection system hydraulic model was constructed using a multi-step process utilizing data from a variety of sources. The model was calibrated to both dry weather and wet weather flow conditions based on the flow monitoring data collected as part of the temporary flow monitoring program. Following calibration, the model was used to evaluate the collection system's ability to convey peak flows simulated during a 10-year, 24-hour design storm.

8.3 Planning/Design Criteria

The design of collection system facilities is based on the standards and planning criteria defined in the City's municipal code. In addition to the standards identified in the municipal code, the 2013 Master Plan established additional criteria to be used in the evaluation of the existing collection system and sizing future trunk sewers.

8.3.1 City Standards

The City standards (Title 18R of the Municipal Code; also see Element 5) contains sanitary sewer design criteria for different types of zoning (Municipal Code Chapter 18R.08 Table 5) and peak flow factors for average daily flows (Municipal Code Chapter 18R.08 Table 6).

8.3.2 2013 Master Plan Criteria

The 2013 Master Plan established several criteria to evaluate the City's sewer system performance. The planning criteria address the collection system capacity, gravity sewer pipe slopes, and maximum allowable depth of flow within a sewer.

The primary criterion used to identify capacity deficient sewers or to size new sewer improvements is the maximum flow depth to pipe diameter ratio (d/D). The d/D value is defined as the depth of flow (d) in a pipe during peak (design) flow conditions divided by the pipe's diameter (D). The following criteria were used in the 2013 Master Plan:

2013 Master Plan Maximum Flow Depth Criteria	
Maximum Flow Depth for Existing Sewers	
Peak Wet Weather Flow:	Surcharge to halfway between manhole rim and pipe crown, or Surcharge to 5 ft below manhole rim
Maximum d/D for New Sewers	
Pipe Diameter (inches)	Maximum d/D Ratio (during Peak Flows)
Less than 12	0.50
12 to 18	0.67
Larger than 18	0.75

In addition, the 2013 Master Plan used the following key planning criteria to evaluate the capacity of the sanitary sewer collection system:

- Using minimum velocity of 2 feet per second in gravity sewers;
- Evaluating the capacity of the collection system to convey a 10-year, 24-hour design storm event;
- Accounting for I/I from new development areas at a rate of 750 gallons per acre per day.

8.4 System Capacity Evaluation

The capacity of City's sanitary sewer collection system was evaluated using the City's collection system hydraulic model and the established planning criteria. The evaluation included a gravity collection system evaluation and a lift station evaluation, and considers both current and projected peak wet weather flow conditions.

The capacity analysis identified areas in the sewer system where flow restrictions occur or where pipe capacity is insufficient to convey design flows. Sewers that lack sufficient capacity to convey design flows create bottlenecks in the collection system that can potentially cause sanitary sewer overflows (SSOs).

For the existing sewer collection system, the peak wet weather flow (PWWF) was routed through the hydraulic model. In accordance with the established flow depth criteria for existing sewers, manholes where the hydraulic grade line (HGL) encroached within a distance halfway between the manhole rim and the pipe crown, or five feet of the manhole rim, were identified.

Note that the pipelines with an HGL that encroached within five feet of the manhole rim are not necessarily capacity deficient. In many cases, a surcharged condition within a given pipeline segment is

due to backwater effects created by a downstream bottleneck. For this reason, the hydraulic model was analyzed to identify the pipeline segments that are the cause of the surcharged conditions.

In general, the City's collection system has sufficient capacity to convey current PWWFs without exceeding the established flow depth criterion. However, there are a few areas where capacity restrictions lead to flow depths that exceed allowable levels. Following the completion of the existing system analysis, improvement projects and alternatives were identified in order to mitigate existing system pipeline capacity deficiencies.

The build out system analysis was performed in a manner similar to the existing system analysis. The purpose of the build out system evaluation is to verify that the existing system improvements were appropriately sized to convey build out PWWFs, and to identify the locations of sewers that are adequately sized to convey existing PWWFs, but cannot convey build out PWWFs. Additionally, new trunk sewers were added to the hydraulic model and sized to service major growth areas beyond the current City sewer service area.

At build out, the City's wastewater flows are expected to double. As such, there are some areas of the existing collection system that cannot convey the build out PWWF without flows backing up above allowable levels. The 2013 Master Plan contains a list of improvements recommended to mitigate capacity deficiencies in the collection system and improvements to accommodate future growth. The City plans to implement collection system improvements based on the prioritized improvement projects identified in the 2013 Master Plan.

8.5 Proposed Collection System Improvements/CIP

The basis of the City's Capacity Assurance Plan are the proposed collection system improvements documented in the 2013 Master Plan. Detailed information regarding each improvement project can be found in the 2013 Master Plan document.

The Master Plan identified a collection of projects to address existing hydraulic conditions (short term) and build-out conditions (long term). These projects are summarized in **Table 8-1.**

Over time, the City will continue to evaluate each project recommended in the 2013 Master Plan with updated information on growth and infill, flow data, and field observations. Based on this ongoing evaluation, the City will revise its Capital Improvement Plan. The most current schedule for implementation of the capacity-related capital improvement projects is included in **Appendix E-Capacity Assurance Plan Implementation Schedule.** The implementation schedule will be updated every two years.

Table 8-1: Capacity-related Capital Improvement Plan Projects

Project #	Title	Reason Added	New Pipe or Repair/ Rehabilitation	Project Phasing
1	Chico River Road Trunk Sewer	Existing conditions	Replace/New	2013-2015
2	Oak/7th Street Sewer	Existing conditions	Replace	2013-2015
3	7th Street Sewer	Existing conditions	Replace	2013-2015
4	Eaton Road Trunk Sewer	Buildout conditions	New	2106-2020
5	Cohasset Road Sewer	Buildout conditions	Replace	2016-2020
6	21st St/Franklin Street Sewer	Existing conditions	Replace	2016-2020
7	11th Oakdale 12th St.Sewer	Existing conditions	Replace	2016-2020
8	11th Avenue Sewer	Buildout conditions	New	2021-2025
9	Silverbell Road Sewer	Buildout conditions	New	2021-2025
10	Humboldt Road Sewer	Buildout conditions	Replace	2026-2030
11	California Park Lake Sewer	Buildout conditions	Replace	2026-2030
12	23rd Street Sewer	Buildout conditions	Replace	2026-2030
13	Northwest Trunk Sewer	Buildout conditions	New	2016-2020
14	Bell Muir Trunk Sewer	Buildout conditions	New	2021-2025
15	Esplanade Sewer	Buildout conditions	New	2026-2030
16	North Chico Trunk Sewer	Buildout conditions	New	2026-2030
17	Southeast Trunk Sewer	Buildout conditions	New	2021-2025
18	Honey Run Trunk Sewer	Buildout conditions	New	2026-2030
19	Doe Mill Trunk Sewer	Buildout conditions	New	2021-2025

Element 9 Monitoring, Measurement, and Program Modifications

This section of the SSMP discusses the City's plan for measuring wastewater collection system performance, the baseline performance, and plans for changing SSMP activities based on future performance analyses. This section fulfills the Monitoring, Measurement and Program Modifications requirement for the SWRCB SSMP requirements.

The requirements of the GWDR are:

a. Maintain relevant information that can be used to establish and prioritize appropriate SSMP activities;

b. Monitor the implementation and, where appropriate, measure the effectiveness of each element of the SSMP;

c. Assess the success of the preventative maintenance program;

d. Update program elements, as appropriate, based on monitoring or performance evaluations; and

e. Identify and illustrate SSO trends, including: frequency, location, and volume.

9.1 Monitoring Information

The City will maintain information that can be used in SSMP performance monitoring in various formats including:

- GIS databases;
- Overflow Field Response Forms; and
- Hardcopy Documentation of Sewer Cleaning Activities (See Appendix B – Sanitary Sewer Cleaning/Tracking for an example);
- Sanitary Sewer Cleaning Tracking Spreadsheet;
- Service Request System;
- CIWQS database.

9.2 Performance Measures

The indicators that the City will use to measure the performance of its wastewater collection system and the effectiveness of its SSMP are:

- Total number of SSOs (normalized as number of SSOs per 100 miles of wastewater collection system pipe length per year);
- Number of SSOs for each cause (roots, grease, debris, pipe failure, capacity, pump station failures, and other);
- Portion of sewage recovered compared to total volume spilled; and
- Volume of spilled sewage discharged to surface water.

9.3 Past Performance

The City's past performance for the total number of SSOs and SSO rate is summarized in **Table 9-1**, **Figure 9–1**, and **Figure 9–2**. The City's past data for the number of SSOs by cause is summarized in **Table 9-2**. The City's past data for the total volume spilled and total volume recovered is summarized in **Table 9-3.** See CIWQS data online for more information on date and location of SSOs.

Table 9-1: Total Number of SSOs from FY 2015/16 - FY 2018/19

Fiscal Year	SSOs from City Facilities	SSO Rate, # SSOs per 100 miles of sewers (gravity and force mains)	# of Category Spills*		
			Cat. 1	Cat. 2	Cat. 3
2015/2016	1	0.43	1		--
2016/2017	1	0.86	1		1
2017/2018	--	--	--	--	--
2018/2019	1	0.43	1		--

*The definitions of Category 1, 2, and 3 SSOs were changed with the adoption of SWRCB Order No. WQ-2013-0058-EXEC, effective September 9, 2013.

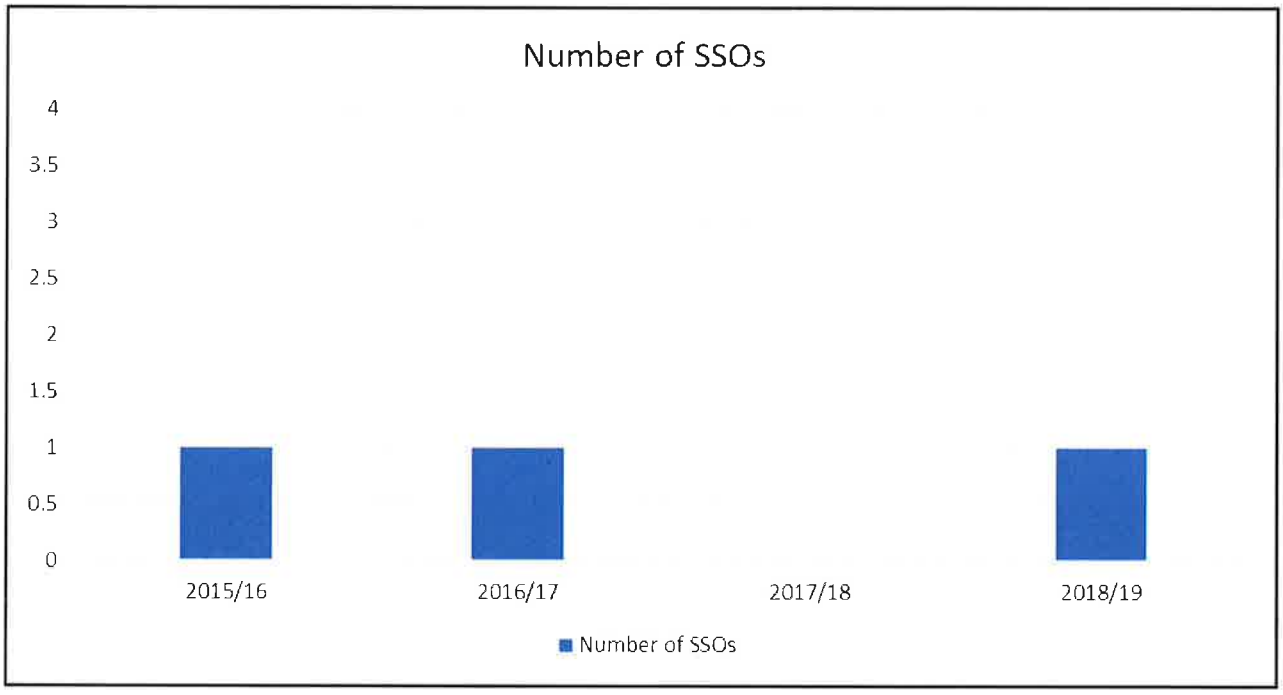


Figure 9–1: Trend of SSOs per Year from FY 2015/16 - FY 2018/19

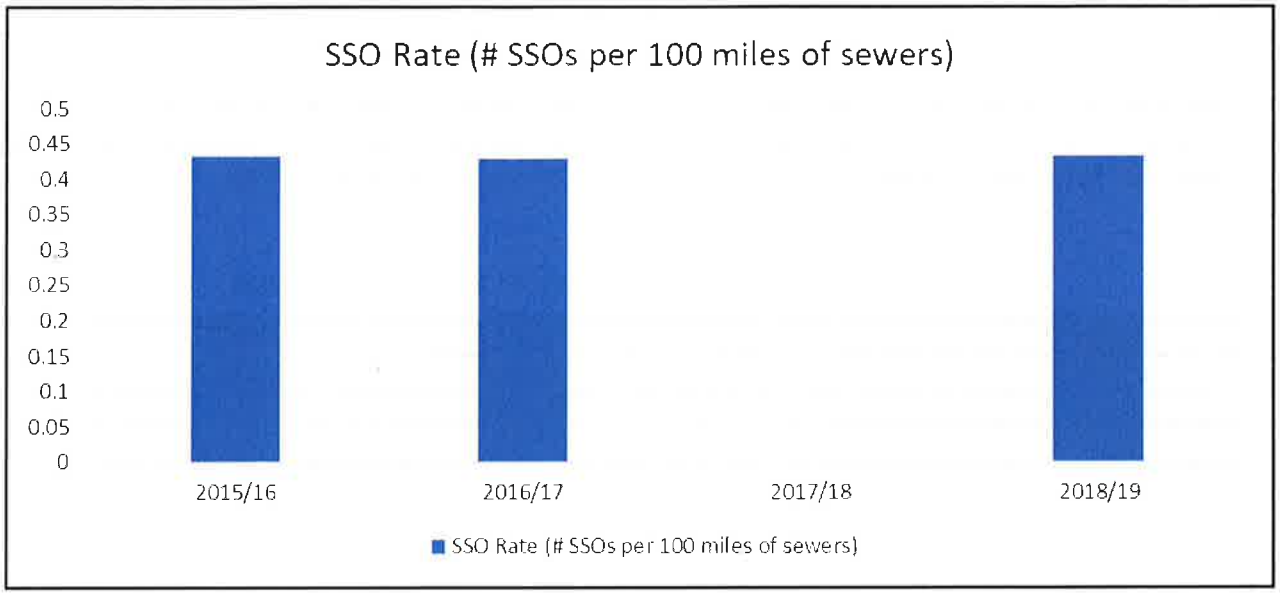


Figure 9–2: Trend of SSO Rate from FY 2015/16 – FY 2018/19

Table 9-2: Number of SSOs by Cause from FY 2015/16 - FY 2018/19

Cause	SSOs from City facilities
Roots	1
Grease	0
Debris	1
Pipe Failure	0
Capacity	0
Pump Station	1
Other	0

Table 9-3: Volume Spilled and Recovered from FY 2015/16 – FY 2018/19

Fiscal Year	Total Volume Spilled (gallons)	Total Volume Recovered (gallons)	Volume of SSO Reached Surface Water (gallons)	% Recovered
2015/2016	4,000	3,000	5	75%
2016/2017	14,000	0	14,000	0%
2017/2018	--	--	--	--
2018/2019	500	0	400	0%

9.4 Performance Monitoring and Program Changes

The City will evaluate the performance of its wastewater collection system annually using the performance monitoring information and measures identified in Sections 9.1 and 9.2. The City will update the data and analysis in Section 9.3 at the time of the evaluation.

The City will prioritize its actions and initiate changes to this SSMP and the related programs based on the results of the evaluation and consistent with the requirements and timing of SSMP Audits and Updates (See Element 10 SSMP Audits).

Element 10 SSMP Audits

The requirements of the GWDR are:

The City shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every two years and a report must be prepared and kept on file. This audit shall focus on evaluating the effectiveness of the SSMP and the City's compliance with the SSMP requirements, including identification of any deficiencies in the SSMP and steps to correct them.

10.1 SSMP Audits

The City will audit its SSMP at least every two years. The audit will determine whether the SSMP:

- Meets the current requirements of the GWDR;
- Reflects the City's current practices and procedures; and
- Is being followed by the City.

Audits are conducted every two years and cover the previous two calendar year periods. The first audit was completed on July 21, 2011 and the most recent audit was completed on July 17, 2013. The audits involve a team of City staff from Public Works O&M and Sewer Engineering.

The scope of the audit covers each of the sections of the SSMP. The Audit Checklist, based on the current requirements of the GWDR, is used to conduct the audit and is included in **Appendix G – Audit Checklist**. The results of the audit, including the identification of any deficiencies and the steps taken or planned to correct them, are included in an Audit Report.

The Audit Report will be completed and filed within 90 days of the audit. Copies of the Audit Reports will be maintained by the City for five years.

10.2 SSMP Updates

The City will update its SSMP at least every five years and include any significant program changes. The City may determine the need to update the SSMP more frequently based on the results of the biennial audits and the performance of its sanitary sewer system using information from the Monitoring and Measurement Program (See Element 9). If it is determined that an update is warranted, the process to complete the update will be identified.

Consistent with the SSMP re-certification requirements, City Staff will seek approval from the City Council for any significant changes to the SSMP. The authority for approval of minor changes (e.g., employee names, contact information, limited procedural changes) is delegated to the Public Works Manager or the Wastewater Treatment Manager.

In accordance with the requirements of the MRP, the City must maintain a record of all changes made to the SSMP since its last certification, indicating when an element or subsection(s) was changed and/or updated and who authorized the change or update. These records must be attached to the SSMP. A SSMP Change Log is included in **Appendix H**.

Element 11 Communication Plan

The requirements of the GWDR are:

1. ***The City shall communicate on a regular basis with the public on the development, implementation, and performance of its SSMP.***
2. ***The communication system shall provide the public the opportunity to provide input to the City as the program is developed and implemented.***
3. ***The City shall create a plan of communication with systems that are tributary and/or satellite to the City's sanitary sewer system.***

The City maintains a section on the City's website (http://www.chico.ca.us) where SSMP information can be accessed by the public. Additionally, the City informs the public on issues that improve or enhance the performance of the wastewater collection system as an annual utility bill insert. The City's website also provides information for contacting Sewer Engineering staff; the public is welcome to provide feedback about collection system services by phone and/or email.

The City Engineering Division clarifies current design criteria and informs the public and local Engineering and Developer community of new design criteria by Design Bulletins posted via the City's website (http://www.chico.ca.us) and direct emails, and through a Development Engineering Quarterly Newsletter.

The City has regular communication with its two satellite collection systems: CSU Chico and Canyon Oaks Homeowners Association. Meetings are held periodically on various topics of interest and communication takes place when issues arise.

Appendix A - Satellite Collection System Contact Information

Satellite Collection Systems Contact Information

Agency/Association	Contact	Contact Number
California State University, Chico (CSUC)	Holly Swan, Industrial Hygienist and Environmental Program Coordinator	898-5126
Canyon Oaks Homeowners Association	Hignell and Hignell	419-6032

**All phone numbers are in the 530-area code unless noted.

Appendix B - Sanitary Sewer Cleaning/Tracking

Sanitary Sewer Cleaning tracking for OBB
Fiscal Year 2013/2014
188 linear miles or 997,768 linear feet of 6", 8", 10" and 12" VCP, CLAY, PVC and Concrete sewer pipes

July 2, 2014

1,022,584

193.6712

	2013						2014							
	July	August	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June		Total
Crew 1 (Libby) 10064	63,227	69,266	54,223	45,710	45,372	6,895	65,559	60,357	73,988	79,789	50,251	41,592		656229
Crew 2 (Lott) 9883	30,495	37,430	37,745	81,517	8,805		44,349	14,825	17,421	17,558	83,482	69,340		442967
Total for month	93,722	106,696	91,968	127,227	54,177	6,895	109,908	75,182	91,409	97,347	133,733	110,932		
Cumulative total in linear feet	93,722	200,418	292,386	419,613	473,790	480,685	590,593	665,775	757,184	854,531	988,264	1,099,196	208.18	1099196
Percent complete	9%	20%	29%	41%	46%	47%	58%	65%	74%	84%	97%	107%		107%
Number of Sanitary sewer overflows	0	0	0	0	0	1	0	0	0	0	1	0		2
Number of Sanitary Sewer damage claims	0	0	0	0	0	0	0	0	0	0		0		0
Number of Sanitary sewer damage claims> $5000	0	0	0	0	0	0	0	0	0	0		0		0
Number of Sanitary sewer overflows per 100 ml of sewers	0	0	0	0	0	0.4329	0	0	0	0	0.4329	0		0.865801

Note crews working leaf collection Nov/Dec
Note crews working leaf collection Nov/Dec and one SMW on WC
Note Dec, Jan, Feb, March, April, cleaning by various crew members due to one SMW on wc
Note May totals for 9833 include cleaning from McCurry/Henderson (73,999 and Minter/Henderson 9 483)
Note June totals for 9883 include 515 cleaning from Minter/Henderson) and 68825 from McCurry/Minter-Henderson)

1236 Hazel May 14- Fortress btween Airpark and Lockheed

*

Inspection 9685

Sanitary Sewer	21390	17396	19225	12421	0	7951	36733	35640	36765	27138	0	8065		0	
Storm drain	0	0				1400	94	1701						222,724	ss 42.18
														3,195	sd 0.61
Champion														0	

6" lines	**261002**
8" lines	**574998**
10" lines	**102552**
12" lines	**84032**

*source engineering 7/31/13

Sanitary Sewer Cleaning and SSO tracking
Fiscal Year 2012/2013
188 linear miles or 997,768 linear feet of 6", 8", 10" and 12" VCP, CLAY, PVC, and Concrete sewer pipes

July 3 2013

997,768 188.9712

	2012						2013							
	July	August	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June		Total
Crew 1 (Libby) 10064	28064	65182	43987	69263	5787	2050	34168	23926	42728	55837	58271	34665		463928
Crew 2 (Lott) 9883	67210	46420	46940	58205	40925	7525	46790	46557	42162	53166	45950	52761		554611
Total for month	95274	111602	90927	127468	46712	9575	80958	70483	84890	109003	104221	87426		
Cumulative total in li. Feet	95274	206876	297803	425271	471983	481558	562516	632999	717889	826892	931113	1018539	192.91	1018539
Percent complete	10%	21%	30%	43%	47%	48%	56%	63%	72%	83%	93%	102%		102%
Number of Sanitary sewer overflows	0	0	0	1	0	0	0	0	0	0		0		1
Number of Sanitary Sewer damage claims	0	0	0	0	0	0	0	0	0	0		0		0
Number of Sanitary sewer damage claims> $5000	0	0	0	0	0	0	0	0	0	0		0		0
Number of Sanitary sewer overflows per 100 mi of sewers	0	0	0	0.440529	0	0	0	0	0	0	0	0		0.440529

Note: crews assisted w/ Leaf in Nov/Dec and part of Jan

red denotes miles of sewer line

July sso is a Kohls private lateral spill...****
4 May 2nd/Main PRIVATE lateral spill.******

Inspection (Reiff)

Sanitary Sewer	42058	43202	35748	42470	28378	1855	37034	19408	14290	19829	20338	11513		**0**	
Storm drain	0	0	222	1251										**316,123**	ss	59.87
														1,473	sd	0.28
Champion														**0**		

6" lines	**257834**
8" lines	**553878**
10" lines	**102024**
12" lines	**84032**

*source engineering 7/31/12

Sanitary Sewer Cleaning tracking for OBB
Fiscal Year 2011/12
156' linear miles or 826710 linear feet of 6", 8" and 10" VCP, CLAY and Concrete sewer pipes

July 9, 2012

851628

	2011						2012								
	July	August	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June		Total	
Crew 1 (Reiff) 9883	125725	76565	60625	127510	23975					38954	37426	44567		535347	April 2012 Crew of Libby/Escotto began
Crew 2 (Lott) 10064	39440	50445	40100	61020	0		28900	88200	101120	82954	67345	45240		604764	working leaf pick up in Nov, Dec and Early Jan
Total for month	165165	127010	100725	188530	23975	0	28900	88200	101120	121908	104771	89807			
Cumulative total in li. Feet	165165	292175	392900	581430	605405	605405	634305	722505	823625	945533	1050304	1140111	215.93	1140111	
Percent complete	19%	34%	46%	68%	71%	71%	74%	85%	97%	111%	123%	134%		134%	
Number of Sanitary sewer overflows	0	0	0	0	0	1	0	0	0	0		1		2	
Number of Sanitary Sewer damage claims	0	0	0	0	1	0	0	0	0	0		0		1	*
Number of Sanitary sewer damage claims> $5000	0	0	0	0	1	0	0	0	0	0		0		1	
Number of Sanitary sewer overflows per 100 mi of sewers	0	0	0	0	0	0.440529	0	0	0	0	0	0.440529		0.881057	

Inspection

														0	
Sanitary Sewer	5391	12315	19600	14624	10728	12767	31976	31481	39366	32864	35877	36027		**283,016**	ss 53.60
Storm drain	2671	4287												**6,958**	sd 1.32
														0	

Champion

*541 W. 5th Street #5- 11/2/2011 claims toilet bubbled?
2581 California Park Lane 6/25/12

Appendix C - Equipment Inventory

CITY OF CHICO
EQUIPMENT LIST

VEHICLE VIN #	LICENSE #	VEH ID #	DEPT #	VEH #	YEAR	EQUIPMENT DESCRIPTION	LIFE EXP
1GBJC34KXLE222016	E340808		670	4959	1991	CHEVY 1-TON RODDER-CHAMPION	20
7027SN1021940	SE433276		670	6027	1994	6-INCH PORTABLE PUMP -WEDCO	20
S/N 7AM04709	N/A		670	8555	1999	CATERPILLAR FORKLIFT	20
1FTNF20LX2EA37184	1082536		670	9196	2002	FORD 3/4 TON PICKUP	10
F01414	N/A		670	9276	2001	REAR'S FLAIL MOWER	10
0628005	N/A	WPCP	670	9290	1999	DETROIT 1500 KW GENERATOR (WPCP-1)	GENSET
P100193369	N/A		670	9393	2002	LANDA PORTABLE PRESSURE WASHER	10
1FVABTBV93DK34857	1133526		670	9420	2003	FREIGHTLINER/SLUDGE DUMP	15
5ASAK27422F027876	E035342		630	9567	2002	GEM UTILITY ELECTRIC	10
1GDJG31U531174935	1156878		670	9685	2003	GMC SAVANA TV VAN	15
1GCCS196048167132	1156836		670	9851	2004	CHEVY COLORADO EXT CAB (MARC SULIK)	10
1GCCS196X48164822	1156839		670	9855	2004	CHEVY COLORADO EXT CAB (INSPECTORS)	10
1GCCS196048167907	1156835		670	9856	2004	CHEVY COLORADO EXT CAB (JASON)	10
1FVACYCS64HN27625	1182435		670	9883	2004	VAC-CON SEWER TRUCK	10
4HXSU08145C085392	1194973		670	10037	2005	CARSON UTILITY TRLR	15
ALP251476	N/A		670	10049	2005	CASE IH TRACTOR/LOADER	15
5524912	N/A		670	10458	2005	MULTIQUIP MODEL GA-6HEA GEN	15
5ASAK27475F038232	1194947		670	10051	2005	GEM ELECTRIC CART	10
2FZAATDC66AU28582	1201573		670	10064	2005	VAC-CON SEWER TRUCK	10
5ASAK27416F039989	1234262		670	10089	2006	GEM ELECTRIC CART	10
4XARF68A96D034498			670	10094	2006	POLARIS 6X6 MINI JET	10
850-068Q-40447	1249444		670	10100	2007	TRAILER MOUNTED ELECTRIC GENERATOR	25
1FDWF36Y67EB06050	1249383		670	10107	2007	FORD F350 4X2 SUPERCAB UTIL/RACK	10
21788389			670	10161	2007	CUMMINS GENERATOR (NW LIFT OFF EATON)	25
52810			670	10162	2007	GUARDIAN GENERATOR (COHASSET SALV A.)	25
CAT00C44AN4E00549			670	10164	2007	CATERPILLAR GENERATOR (W.LASSEN/CUSSICK)	25
CAT00C44LN4E00827			670	10165	2007	CATERPILLAR GENERATOR (CREEKSIDE/END EATON)	25
1FDAF5GY8AEB38445	1341999		670	10199	2010	FORD F-550 SERVICE TRUCK	15
100053811100450			670	10354	2011	LANDA PRESSURE WASHER PGHW535324E	15
00C66HN6D00683			670	10370	2010	CATERPILLAR D175-2 GENERATOR	20
6041851 CO-GEN			670	10371	2010	GE JENBACHER GENERATOR JMC208GS-B/N.L	25
3512CASBG00528			670	10372	2010	CATERPILLAR GENERATOR 3512C GD	25
2801330			670	10373	2012	CUSHMAN TITAN UTILITY CART	10
1FDRF3E62EEA86180	1440915		670	10405	2014	FORD F-350 W/ CRANE	12

Other Equipment Inventory (Non-vehicle)

ITEM	SIZE	QUANTITY	SYSTEM CO
IMPELLERS	various	various	PUMP STATI
STARTERS	various	various	PUMP STATI
PORTABLE PUMP	3 INCH	1	EMERGENCY
PORTABLE PUMP	4 INCH	1	EMERGENCY
PORTABLE PUMP	6 INCH	1	EMERGENCY
SUBMERSIBLE PUMP	SMALL	4	EMERGENCY
GATE VALVES	various	various	
TRACTOR WHEEL CAMERA		1	INSPECTION

Water Quality Testing Equipment

SSO Sample Collection Kit Inventory

Cooler
Ice Pack
Safety gloves
Safety glasses
Sampling pole
Sterile sample bottles
Pen
Velocity probe
WPCP laboratory chain of custody form
Laboratory requisition form

Appendix D - Sanitary Sewer Overflow Response Plan

See separate Sanitary Sewer Overflow Response Plan, Appendix D, on file at the City of Chico Public Works Department

Appendix E - Capacity Assurance Plan Implementation Schedule

Schedule of Implementation of Capacity Assurance Projects

CIP Project #	Project Title	Scheduled to Begin in:	Funding Source
Example	*Main Street Trunk Rehab*	*FY 2009/10*	*Fund 320*
17009	24" River Road Trunk Line	FY 2010/11	Fund 320 / 850
16016	West 11th Street Trunk Sewer	FY 2011/12	Fund 320
50058	Olive Street Trunk Sewer	FY 2013/14	Fund 850

Appendix F - Audit Checklist

City of Chico
Biennial Sewer System Management Plan Audit Report

Date: _____

Audit Team:

- *<Name, Position>*
- *<Name, Position>*

The purpose of the Sewer System Management Plan (SSMP) Audit is to evaluate the effectiveness of the City of Chico's SSMP and to identify whether updates are needed. This document was designed to meet the requirements of State Water Resources Control Board Order No. 2006-0003-DWQ as revised by Order No. WQ 2013-0058-EXEC. Documentation of SSMP audits are kept on file at the City of Chico Public Works Department, and an indication is made in the California Integrated Water Quality System (CIWQS) database that the audit was completed.

Directions: *Please indicate **YES** or **NO** for each question. To answer the following questions, refer to the text of the SSMP Element, any referenced material in the text, all corresponding attachments, and any data collected to assist in assessing SSMP effectiveness. For any **NO** responses describe the updates or changes needed and the timeline to completion in the section below the question or in "Description of Scheduled Updates/Changes to the SSMP" on the last page of this form.*

ELEMENT 1. GOALS

1.	Are the goals stated in the SSMP still appropriate and accurate?	**YES / NO**

ELEMENT 2. ORGANIZATION

2.	Is the SSMP up-to-date with organization and staffing contact information?	**YES / NO**

ELEMENT 3. LEGAL AUTHORITY

3.	Does the SSMP reference up-to-date information about legal authority?	**YES / NO**
4.	Does the City have sufficient legal authority to control sewer use and maintenance?	**YES / NO**

ELEMENT 4. OPERATIONS AND MAINTENANCE PROGRAM

4.a Map of the Sanitary Sewer System

5. Does the SSMP reference up-to-date information about maps? **YES / NO**

6. Are collection system maps complete, up-to-date, and sufficiently detailed? **YES / NO**

4.b Preventative Maintenance Program

7. Does the SSMP contain up-to-date information about preventive operations and maintenance activities? **YES / NO**

8. Are the City's preventive maintenance activities sufficient and effective in reducing and preventing SSOs and blockages? **YES / NO**

4.c Rehabilitation and Replacement Plan

9. Does the SSMP contain up-to-date information about the rehabilitation and replacement program? **YES / NO**

10. Does the SSMP contain up-to-date information about Closed Circuit Television (CCTV) inspections? **YES / NO**

11. Are scheduled inspections and the condition assessment system effective in identifying, prioritizing, and addressing deficiencies? **YES / NO**

12. Does the Capital Improvement Plan (CIP) address prioritized projects for collection system assets? **YES / NO**

4.d Training

13. Does the SSMP contain up-to-date information about existing training programs? **YES / NO**

14. Do supervisors believe their staff are sufficiently trained? **YES / NO**

15. Are staff satisfied with the training opportunities and support offered to them? **YES / NO**

4.e Equipment and Replacement Part Inventories

16. Does the SSMP reference up-to-date information about equipment and replacement part inventories? **YES / NO**

ELEMENT 5. DESIGN AND PERFORMANCE PROVISIONS

17. Does the SSMP contain up-to-date information about design and construction standards? **YES / NO**

ELEMENT 6. SSO & BACKUP RESPONSE PLAN

18. Does the SSMP contain an up-to-date version of SSO Response Plan? **YES / NO**

19. Is the Response Plan effective in handling SSOs? (if **YES**, indicate specific information under the "Evaluation of the Effectiveness of the SSMP" section below) **YES / NO**

ELEMENT 7. FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM

20. Does the SSMP reference or contain up-to-date information about the City's FOG control program? **YES / NO**
21. Is the current FOG program effective in documenting and controlling FOG sources? **YES / NO**
22. Are all public outreach materials for the FOG program current? **YES / NO**

ELEMENT 8. SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

23. Does the SSMP reference or contain up-to-date information about the City's capacity assessment activities and documentation? **YES / NO**
24. Is the City sufficiently addressing hydraulic deficiencies? **YES / NO**

ELEMENT 9. MONITORING, MEASUREMENT, AND PROGRAM MODIFICATIONS

25. Does the SSMP reference up-to-date information about the City's data collection and organization (e.g. use of CMMS, performance indicators, etc.)? **YES / NO**
26. Is the City's data collection and organization sufficient to evaluate the effectiveness of the SSMP? **YES / NO**

ELEMENT 10. SSMP PROGRAM AUDITS

27. Will this SSMP Audit be completed by every two years starting in 2014? **YES / NO**

ELEMENT 11. COMMUNICATION PROGRAM

28. Is the City's website up-to-date, including information related to providing an opportunity for public input on the SSMP? **YES / NO**

Evaluation of the Effectiveness of the SSMP

<Include information here regarding your evaluation of the effectiveness of the SSMP. Order No. 2006-0003-DWQ as revised by Order No. WQ 2013-0058-EXEC requires this evaluation. Use the information as indicated in SSMP Element 9 or any other performance measures such as meeting the goal of cleaning a certain percentage of the collection system per year, or number of SSOs, or funds spent on rehabilitation/replacement, etc.>

Description of Scheduled Updates/Changes to the SSMP

<For each question answered NO, describe the content of any necessary updates/changes and the timeline for completion.>

James Carr, Wastewater Treatment Manager _____ Date _____

Skyler Lipsky, Public Works Manager _____ Date _____

Appendix G - SSMP Change Log

City of Chico
Sewer System Management Plan

SSMP Change Log

Section E.3 of the Monitoring and Reporting Program for the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (SWRCB Order No. WQ 2013-0058-EXEC) requires the City to maintain a record of changes to the SSMP for a minimum of five years, and the record of changes must be available for review by the State Water Resources Control Board during onsite inspection or through information request. The following is an excerpt of the new requirement:

> *Records documenting all changes to the SSMP since its last certification indicating when a subsection(s) of the SSMP was changed and/or updated and who authorized the change or update. These records shall be attached to the SSMP.*

The City's SSMP was last certified on July 21, 2009. The following table summarizes the changes to the SSMP since its last certification.

SSMP Element	Description of Change or Update	Authorized by	Date
1 - Goals	No changes	James Carr Skyler Lipski	7/31/19
2 - Organization	Updated Organization chart to include contact information Removed Appendix A – City Staff Contact Information, and refer City Staff to the organization chart in Figure 2-1	James Carr Skyler Lipski	7/31/19
3 - Legal Authority	Updated and renamed Appendix A-1 to Appendix A- Satellite Collection System Contact Information Updated City Municipal Code citations	James Carr Skyler Lipski	7/31/19
4 - Operation and Maintenance Program	Updated Appendix C- Equipment Inventory List Updated software system terms used **in operations** Updated Capital Improvement Program (CIP) information *Updated collection systems maps* *Updated information regarding the rehabilitation and replacement program*	James Carr Skyler Lipski	7/31/19
5 – Design and Performance Provisions	No changes	James Carr Skyler Lipski	7/31/19
6 – Sanitary Sewer Overflow Response Plan (SSORP)	Updated SSORP appendices as needed	James Carr Skyler Lipski	7/31/19

SSMP Element	Description of Change or Update	Authorized by	Date
7 – FOG Control Program	No changes	James Carr Skyler Lipski	7/31/19
8 – System Evaluation and Capacity Assurance Plan	No changes Pending review by City Engineer	James Carr Skyler Lipski	7/31/19
9 – Monitoring, Measurement, and Program Modifications	Removed Appendix F – SSO Date, and refer City Staff to CIWQS data online for up to date information on date and location of SSOs	James Carr Skyler Lipski	7/31/19
10 – SSMP Audits	No changes	James Carr Skyler Lipski	7/31/19
11- Communication Plan	No Changes	James Carr Skyler Lipski	7/31/19