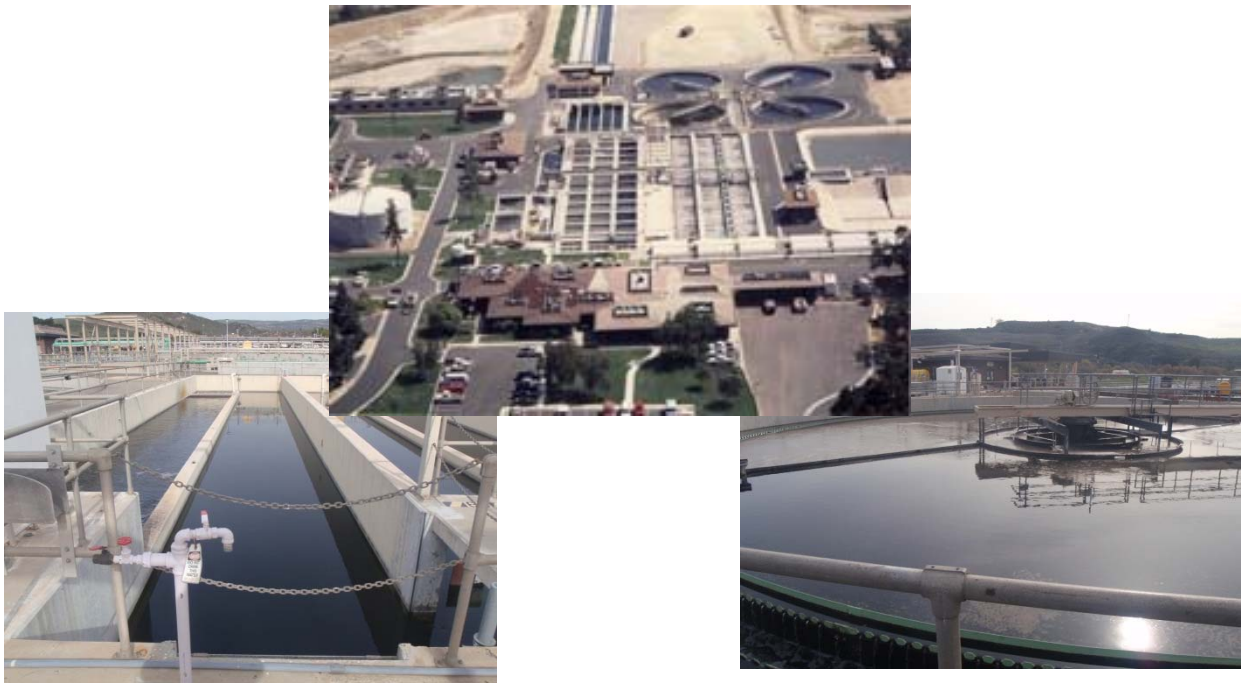
CITY OF SIMI VALLEY

Sanitation Operations

Efficiency Analysis



Final Report

August 30, 2013

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August 30, 2013

Mr. Michael H. Kang, P.E.
Principal Engineer/Sanitation
Department of Public Works
City of Simi Valley
500 West Los Angeles Avenue
Simi Valley, CA 93065

Subject: ***Project 077-001 Final Report for Sanitation Operations Efficiency Analysis***

Dear Mr. Kang:

LA Consulting, Inc. (LAC) is pleased to present the subject report which has been prepared using information collected during on-site and off-site efforts through meetings, interviews, review of City documents, and LAC's observation of field crews. City feedback from the two draft reports and two working papers, for both Operations and Engineering, was evaluated and incorporated using all of the relevant comments. Finally, we have incorporated the other local benchmark agency data into the final report.

We appreciate the opportunity to assist the City in performing this operations review and attempting to maximize resources to maintain the public assets in the City.

Sincerely,

Harry C. Lorick, P.E.
Principal

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TABLE OF CONTENTS
SIMI VALLEY
SANITATION OPERATIONS EFFICIENCY ANALYSIS

SECTION 1
EXECUTIVE SUMMARY

LA Consulting, Inc. (LAC) has reviewed the City of Simi Valley Public Works Sanitation Division, including both Engineering and Operations, based on the scope of our consulting services and found that the Sanitation Division has many good and innovative practices occurring, creating a positive environment for work and improvement. During this process, LAC prepared a report on the effective and efficient management practices and found additional opportunities for $1.3 million of net annual improvements. This report outlines and provides a plan of how the Division can improve existing operations through implementing actions using the key management principles of Planning, Organizing, Directing, and Controlling/Improving. LAC's evaluation approach was to investigate and document current operations and to identify opportunities to improve in various business process aspects (e.g. organizational structure, labor and equipment usage, technology needs, work management, effectiveness, and efficiency).

The information used by LAC is a compilation of field interviews, field and office observations, and research of agency documents. The information is supplemented by input from LAC staff experienced in operations, engineering, and management systems. Analysis of the Sanitation Division's performance was conducted to determine trends and current practices, and then compared to ideal industry and similar agencies' performances. Specific details of Sanitation Operations and Engineering Operations are described in the body of the report in three separate sections: Baseline, Findings, and Recommendations. Specific findings as compared to the ideal industry and similar agencies' practices were made, with fifty (50) identified findings for Sanitation and thirty-one (31) for Engineering. The Sanitation Division was found, in comparison with national and local benchmark agencies, to be very competitive. Sixty-seven (67) key recommendations for further improving both Sanitation and Engineering management operations are outlined.

The Department of Public Works is a dynamic organization and information in this report is presented as historical and 'point-in-time' data which may have changed since initial discovery. Baseline and findings information compilation was provided to the City and confirmed by staff throughout the evaluation process in an extensive employee involvement program with all sixty employees being interviewed, observed, and/or discussing their current work processes along with any suggestions for improvement. LAC also performed a baseline data collection of three local sanitation agencies of similar size to the City within Ventura County to supplement LAC's existing benchmark information and then used this information as support in some findings and recommendations. The City was found to have many good practices in such areas as sewer line cleaning, laboratory capabilities, asset condition assessment, the amount of water treated per employee, and optimal plant scheduling, along with experienced and licensed management leadership. Some other general areas for opportunities were found including the lack/use of

systems technology, organization structure, overtime, turnover, work integration/sharing, and business accountability processes.

The recommendations were then compiled and fully vetted with both management and employees to ensure the basis for the recommendations was correct. The recommendations are solely those of LA Consulting's conclusions based on agreed upon facts and statements. The sixty-seven recommendations are broken into four mentioned key management principles. If ALL of these recommendations are implemented, the City will generate a net amount of $1.3 million in savings AFTER systems investments are implemented.

These recommendations are a combination of best business practices, technology system improvement, sharing of resources, and some independent actions, while including a cost offset of investments for systems. The recommendations are not in a priority, but in an implementation sequence. However, there are some independent recommendations which do not require any external financial investments that could be readily done such as addressing turnover, overtime scheduling, integration of work functions, and sharing resources. The savings of all of the recommendations is a mixture of actual cost reduction recommendations and doing more work with the same amount of resources. Many of the recommendations will take 1-2 years to implement before bearing any measureable results.

A breakdown of the net savings is shown on the following page for specific categories of improvements in Figure 1-1. The implementation of these will cost $379,125, with most of the investment cost related to the establishment of specific systems that either do not exist or need to be updated. This investment will allow all of these improvements to be institutionalized, and employees will then have the business tools to focus on accountability and process improvement in the future.

Figure 1-1
Recommendation Savings

Recommendations Categories	Number	Savings
Business & systems	39	$ 327,790
Redundant systems	1	$ 47,630
Systems investments	6	$ (379,125)
Collection cleaning	2	$ 234,519
Allocations and employee assignment	2	$ 127,013
Organizational realignment	1	$ 254,025
Optimize Engineering and organize	4	$ 190,519
Realign permit processing	3	$ 47,598
Standardize reporting	1	$ 95,259
Internal charges	1	$ 25,000
Inventory control	3	$ 219,950
Optimize Laboratory	1	$ 47,630
Manage and plan leave	3	$ 92,174
	67	**$ 1,329,982**

The recommendations described above were developed by LAC in conjunction with input from the Department's engineering, maintenance, and administrative staff to ultimately improve the Sanitary Division of the Public Works Department's effort in a manner that would realize not only fiscal savings but also empowerment of the labor force. Many of the opportunities are related to system automation, linking processes, and providing system training to managers and staff to improve operations.

The recommendations were categorized to facilitate a sequence for implementation of the recommendations with assistance in coaching and guiding the completion. The resulting savings and improved working environment from implementation of the recommendations will represent critically missed opportunities of cost and improvement savings, and future improvement for the City, if not implemented and adopted. Once implemented, over a 12-24 month period, the recommendations would then result in considerable positive impact in the effectiveness of public dollars being expended, efficiency of work being performed, and a positive attitude by the involvement of all staff.

SECTION 2
BASELINE

This section outlines the existing operations for the City of Simi Valley's Sanitation Divisions which includes the collection and treatment of wastewater along with engineering technical support to implement Sanitation Division's Capital Improvement Projects as well as other development projects within the City. The management and work processes found within the Divisions are also identified. The operations group is discussed first, and then the engineering group is covered.

The following topics are discussed in this section:

General Information

- Good Practices and Innovative Ideas
- Critical Issues
- General Facts
- Previous Studies
- Systems and System Users
- Assets and Features

Sanitation Operations and Engineering

- Division Characteristics
- Performance Measures and Budgets
- Resource Data
- Activities Performed
- Organization
- Work Management Process
- Work Reporting and System Outputs

An assessment of each section's existing operations and business processes was conducted. The information was compiled from LAC's reviews/interviews, field and office observations, and research of agency documents. The information was supplemented by input from LAC staff that is experienced in both operations and management systems. Due to the dynamics of an active organization, this section is to provide a point-in-time or "snapshot" of the City's operations.

Information is presented in general terms, rather than in technical language for all of these areas and presented by the best management practices of planning, organizing, directing, and controlling.

Good Practices and Innovative Ideas – Operations

Sanitation Operations section is performing many innovative and good practices. Though only some of these are outlined, the City has many more positive efforts both underway and completed. A sampling of these is in the baseline, but includes only a few of the many ideas and actions which outline the City's innovative efforts to optimize the use of resources and various work processes.

Operations has implemented and established many innovative processes, practices, and positive actions which include:

- Retained seasoned management employees at top levels with experience at wastewater facilities of equal and larger size.
- Enhanced capability with biological nutrient removal upgrade at Water Quality Control Plant (WQCP) in 2005.
- Acknowledged for unique Collection practices and won an award as the Collection System of the Year among State agencies.
- Maintain a low frequency of sanitary sewer overflows year after year as compared to various industry and State benchmarks.
- Developed and now utilizes Supervisory Control and Data Acquisition (SCADA) software in plant operations with capabilities such as an operator console located at each station.
- Advanced process with a tipping fee credit at landfill ($250K annually).
- Established innovative plant coverage by operators with one shift daily, supplemented with short nightly check.
- Required that all plant operators obtain Class B or Class A driver's license within first 18 months.
- Acquired support work with community service workers utilized for some housekeeping operations.
- Reduced water consumption by reducing turf areas.
- Reduced power consumption in the City's highest electrical demand facility, by carefully auditing power consumption by each piece of equipment and researching means to reduce the demand.
- Worked at lowering power consumption and water utilization by reducing green areas.
- Partnered with Southern California Edison on energy reduction projects and Waste Management on recycling sludge.
- Utilized low cost management workshops and "brown-bag" training.
- Developed custom software used for compiling State reporting data.
- Worked with other wastewater groups for technology sharing such as quarterly lunches with Las Virgenes Municipal Water District.

- Produced certified lab in six fields of testing with experienced leadership.
- Developed and maintains an internal system for inventory control.

City management and leaders have related knowledge and have established many good business processes to optimize work effort at the plant and other sewer operations.

In demonstrating acknowledgment of successful operation, the City has received many industry awards. Through the California Water Environment Association (CWEA), awards have been earned by the City, various employees, and the WQCP. Some of these are listed below.

Year 2012
Gilbert Rabago – Environmental Compliance Person of the Year

Year 2011
CWEA Collection System of the Year (250-500 miles)
CWEA TRIS Collection System of the Year (250-500 miles)
CWEA TRIS Plant of the Year (Medium size)
Jim Langley – CWEA Select Society of Sanitary Sludge Shovelers

Year 2010
CWEA Plant of the Year (Medium size)
CWEA TRIS Plant of the Year (Medium size)
Ku-Chung Chen – Laboratory Person of the Year

Year 2009
CWEA TRIS Plant of the Year (Medium size)
CWEA Collection System of the Year Award (250-500 miles)
Alan Krieger – CWEA TRIS Supervisor of the Year

Year 2008
Barbara M. Langley – Crystal Crucible Award
Shirley Bautista – Laboratory Person of the Year Award

Year 2007
CWEA Plant of the Year (Medium size)
CWEA TRIS Plant of the Year (Medium size)

Critical Issues

Some general critical and/or significant issues facing the City operations are identified in the list below. Not all of these are being fully addressed by this evaluation effort, but many have a direct impact on both maintenance and operations.

- Motor Control Center rated 'dangerous' in recent 2011 engineering evaluation by Carollo Engineers, is tagged with related notification and requires replacement.
- City IT Services is preparing an RFP for an enterprise system that may impact the various systems being used by the Division.
- Computerized Maintenance Management System (Hansen) is in place, yet is not fully utilized by all groups and is not optimally configured for Sanitation Operations.
- Many critical processes for preventive maintenance, proactive routines, and inventory control are being effectively managed with diligent staff assigned, yet are performed manually to collect basic information.
- Plant Operator hiring process and employee retention has impacted operations due to an inability to readily obtain needed employees.
- Leave and overtime reporting shows significantly high values and warrants discussion.
- The number of management layers appears to warrant consideration of review in development of staffing structure.
- Resource sharing opportunities may exist across Sanitation divisions and other City departments for many areas.

General Facts

The City of Simi Valley was incorporated in 1969 as a general law city with a Council-Manager form of government. The City is located in the southeast corner of Ventura County, approximately thirty-seven miles northwest of downtown Los Angeles. The General Plan indicates a service area covering 48.7 square miles and 129,127 residents within the City sphere of influence (Figure 2-1). Population increased from approximately 114,000 in 2000 to over 125,000 in 2007, with slowed growth in recent years. Figure 2-2 shows the population from 2000 to 2011. Simi Valley is the 3rd largest City in Ventura County.

Figure 2-1
City Sphere of Influence

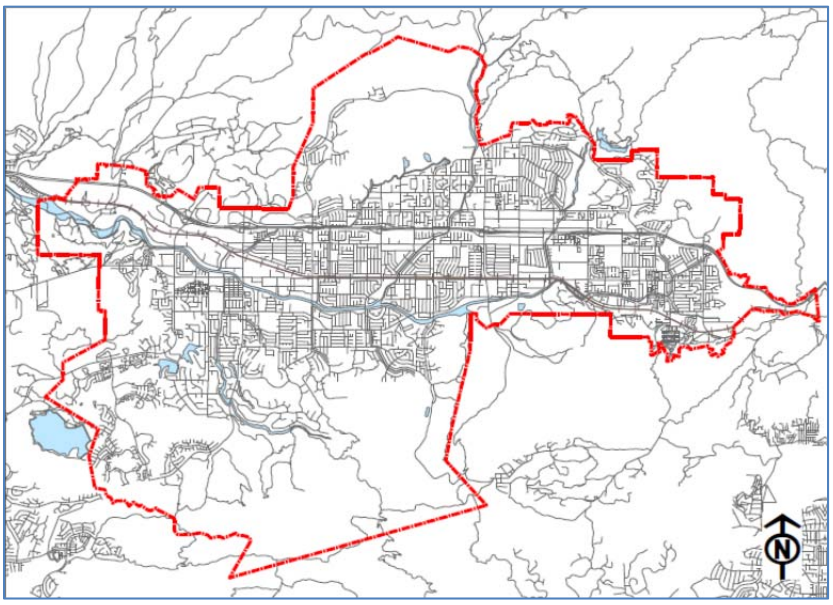
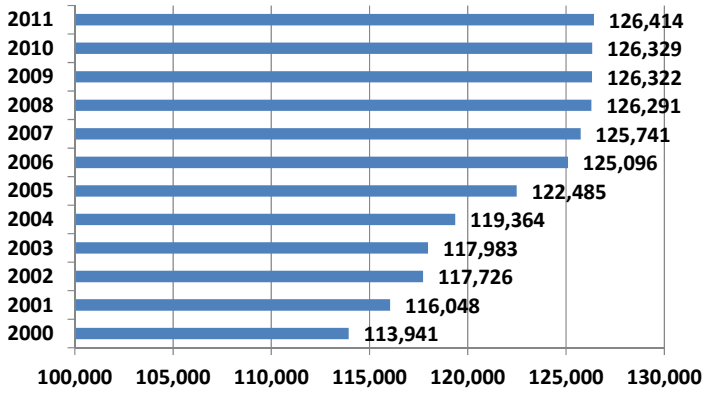


Figure 2-2
Simi Valley Population



The City is located in the valley and foothills of Ventura County with elevations varying between 700 and 1,000 feet, and the Water Quality Control Plant (WQCP) located at a lower elevation in the western part of the City allowing gravity for most of the sewer line flows.

Vision and Mission Statement

The City's Mission Statement is: "To deliver excellent service to our community by providing a safe and healthy living environment, sound fiscal management, responsive customer service, and an atmosphere that encourages community involvement and volunteerism through a local government that is accessible, efficient and accountable to its citizens."

Sanitation has utilized employee teams to develop division goals and actions along with vision and mission statements. The vision of the Division is that: "The Sanitation Services Division is recognized for its excellence in environmental protection. It provides the highest quality service that is both cost-effective and competitive in protecting the health of our citizens and the environment. Using a teamwork approach, our empowered employees continuously strive to achieve optimal standards in the performance of their work, employing the latest technology and business practices."

The Mission Statement of the Sanitation Division reads "Our mission is to protect public health and the environment today and tomorrow."

Additionally, employees participated in a process to identify a list of opportunities and threats, which resulted in the establishment of annual goals and objectives for eight (8) functional areas, which include:

- Develop career series certification and competency program
- Develop a succession plan for Division
- Develop comprehensive employee training/development program
- Update plant/collections system security plan
- Reduce budget where possible
- Optimize process control
- Update/implement EPP
- Optimize business practices (professional, courteous, image)

Previous Studies

Other studies and evaluations which have recently been performed by outside engineering and other technical consultants for the Wastewater Division are listed below.

- **Sanitation Asset Reliability Assessment and Financial Plan** – April 2011, Carollo Engineers. Provided an overview of asset management inventory and condition assessment with a comprehensive description of major asset inventory components. This report evaluated vulnerability, criticality, and risk for above ground and below ground assets and included a 10-year capital replacement plan with cost.
- **Prop 218 Engineer's Report** – April 2011, Carollo Engineers. Summarized the expected operations and maintenance costs and revenues to calculate recommended rate adjustments.
- **Sewer System Evaluation and Capacity** – August 2010, Brown & Caldwell. An operational evaluation that included capacity analysis with flow monitoring methods and procedures.

- **Draft Sewer System Management Plan** – April 2009, Brown & Caldwell. Produced a draft copy that outlined the process for management of the sewer system with a process for managing any overflows and reporting requirements and action that would be needed.

Further, a complete rate study is now currently underway by Raftelis Financial group that has already prepared initial ideas for options on rates based on their experience and infrastructure data from the Corollo Engineer's study.

Section Characteristics – Operations

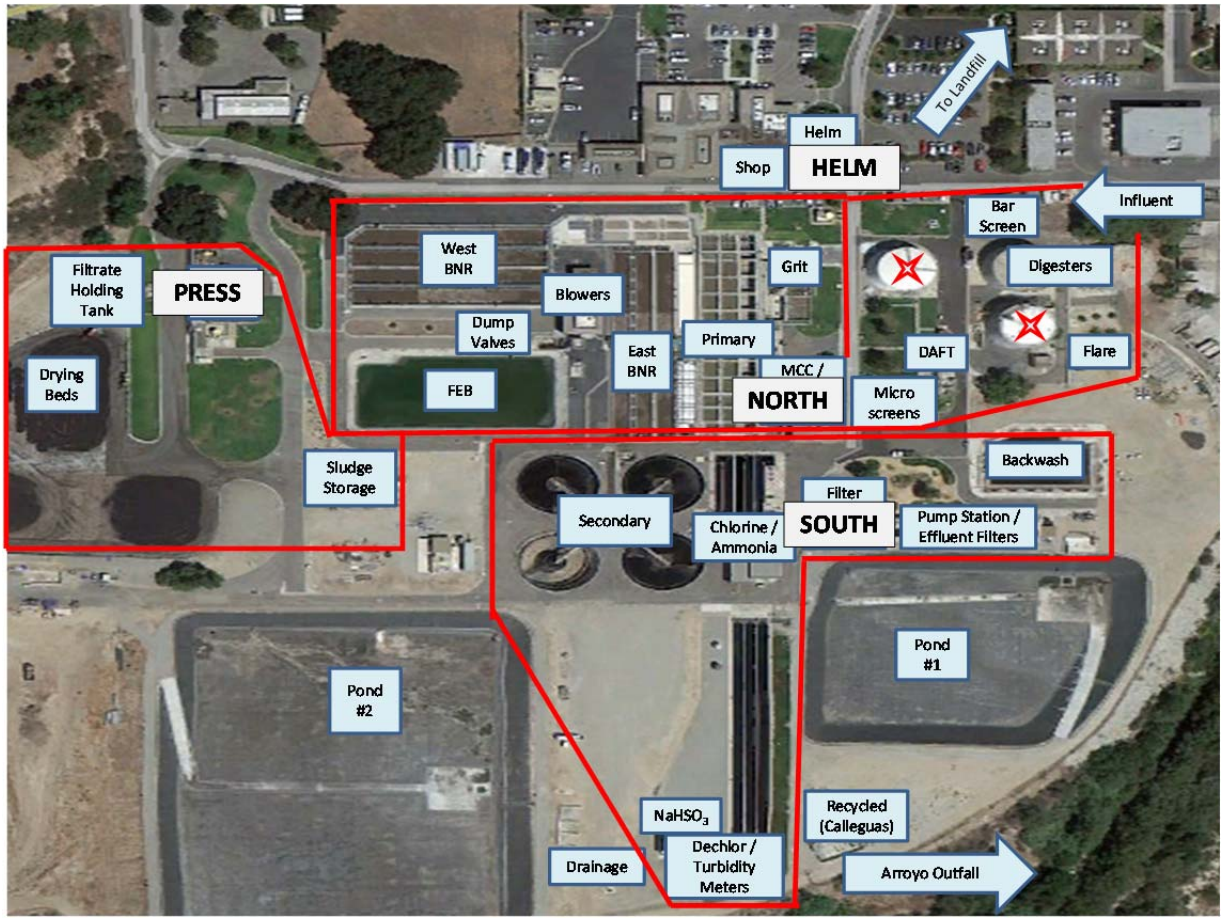
Included within Sanitation Division are Plant Operations and Plant Support Systems. Plant Operations, which includes Instrumentation and Electrical (I&E) and Lab, are performed under direction of the Plant Operations Manager. Plant Maintenance and Line Maintenance are performed under the direction of the Plant Support Systems Manager. Both Managers report to the Deputy Director of Sanitation Services. Each section within Sanitation works closely with each of the others to operate and maintain the treatment plant and related facilities. A general description of each section is provided on the following pages.

Plant Operations is responsible for operating and maintaining the WQCP for the purpose of process control for wastewater and some storm water treatment. Plant operation is performed with one shift operating from 7 AM to 4:30 PM daily, supplemented with a 9 PM to 11 PM nightly operator check. Peak flows to the plant occur normally for weekdays at approximately 10 AM and 7 PM daily. Four operators are assigned daily to designated work stations at the Helm, North, and South work zones as well as the Belt Press. Each of the four operators monitors specific processes and related equipment to ensure quality control with a minimum Grade III operator on-site at all times.

The Helm operator monitors the SCADA system throughout the plant to identify alarms and notify the operator in proximity of the issue. The Helm operator records daily readings at the digesters, blowers, and dissolved air flotation tank (DAFT), as well as collecting daily reports from the other operators for input into the SCADA system. The North Operator is responsible for recording daily readings, hauling grit, digester operation, and housekeeping. The South Operator is responsible for the generator room, chlorination, de-chlorination, tertiary filters, and monitoring recycled water pumps. The Belt Press Operator is responsible for dewatering sludge, tilling the drying beds, sampling analysis, and hauling bio-solids to the landfill.

Figure 2-3 shows the areas of responsibility and work station locations for the daily assigned operators.

Figure 2-3
WQCP Maintenance Zones



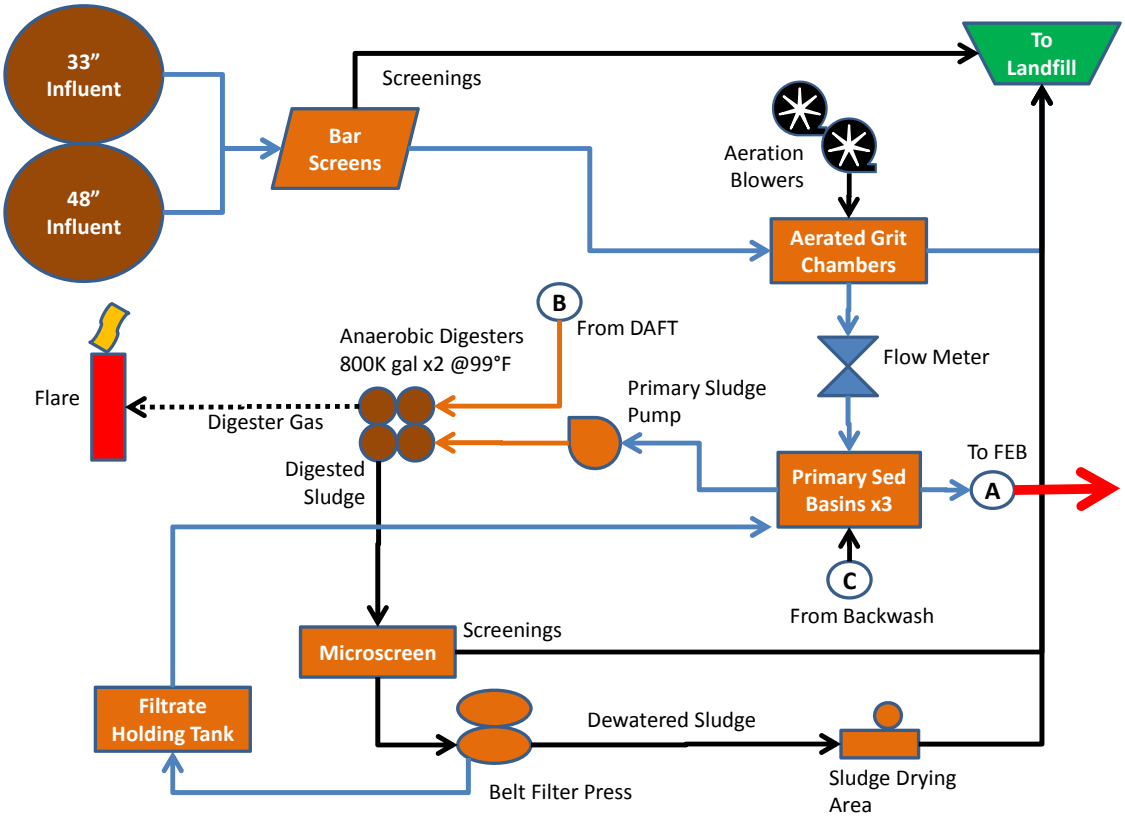
Occasionally, the City utilizes Community Service Workers (CSW) as support labor to perform general maintenance housekeeping efforts on clean-up projects throughout the treatment plant premises. Two Grade III Operators are utilized for weekend support. Also, operators prepare facilities for maintenance, such as tanks and basins with support from Plant Maintenance and CSW's.

Wastewater Treatment Process

The wastewater treatment process described below is presented in concise, non-technical language and is provided to supplement the project task of establishing a common understanding of operations at the WQCP. Flowcharts that show the general plant operation process are included in Figure 2-4 and Figure 2-5. Some specific details are not included as the goal is to evaluate entire business and systems processes, specifically in regards to maintenance and operations. Further evaluation of the plant treatment process may occur to confirm and enhance documentation and understanding.

Influent sewer water from the City enters the plant via two pipes, 48-inches and 33-inches in diameter. Bar screens remove debris greater than ¾ inch width, which is disposed into bins and hauled to the landfill by the assigned North Operator. Flow continues to aerated grit chambers where air is injected, allowing grit to settle and be removed for hauling to the landfill. From the grit chambers, flow proceeds past a flow meter into primary sedimentation basins. Two retention ponds are located in the southern area of the plant and used for in-plant run-off. Water collected in these ponds is pumped into the primary clarifiers, if needed. Primary sludge (grease) is then skimmed for removal and pumped into anaerobic digesters where waste methane gas is burned off. Sludge proceeds past micro screens where screenings are removed and hauled to landfill. Screened sludge is then de-watered via belt filter press. Filtrate from the filter press is pumped back to the primary sedimentation basins. De-watered sludge is dried and tilled before being hauled to landfill.

Figure 2-4
Treatment Plant Process (1 of 2)



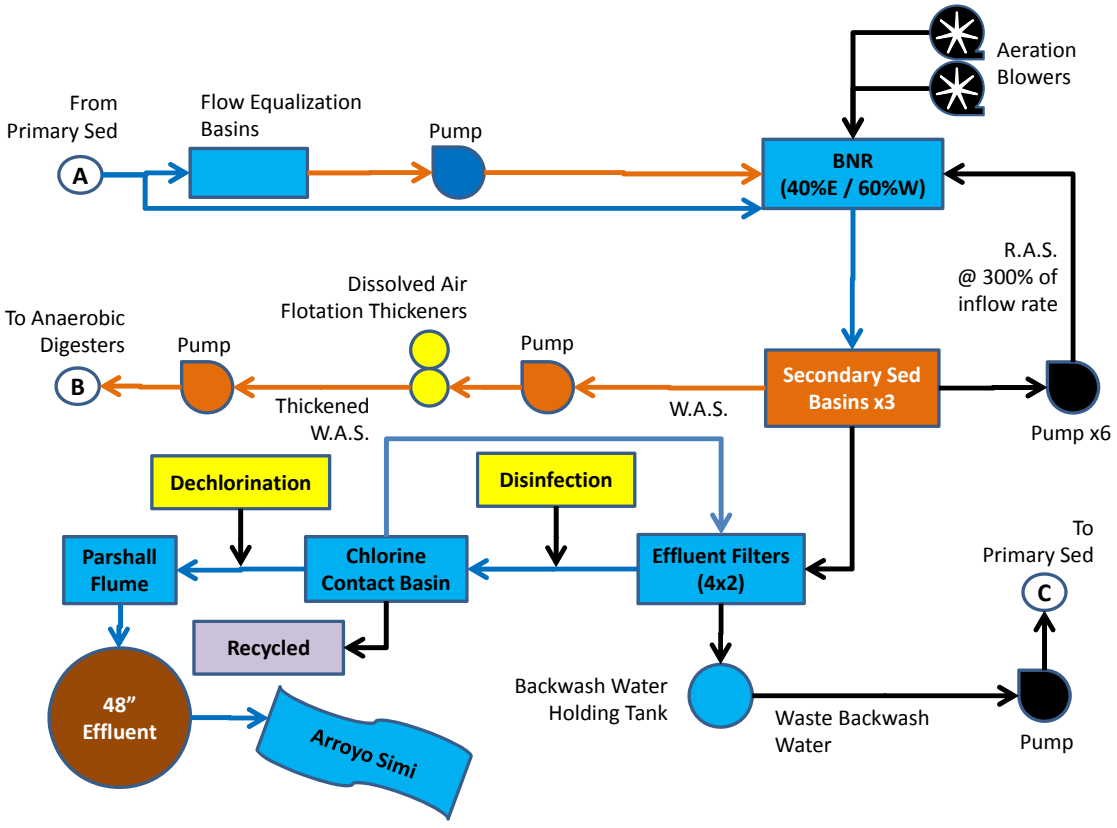
Primary effluent flows to the biological nutrient removal (BNR) chambers, or may be diverted to a flow equalization basin (FEB). The FEB is used to retain discharged water and control flow into the BNR chambers during peak times (approximately 10 AM and 7 PM during normal weekdays) with the goal of maintaining a consistent flow volume. Blowers also aerate the flow

in the BNR chambers to activate a critical treatment process, which is controlled by the daily assigned operators. Flow proceeds to secondary sedimentation basins which further process sludge and divert into two streams. Return Activated Sludge (RAS) is recycled through the BNR chambers to control the treatment process. Waste Activated Sludge (WAS) is further pumped through Dissolved Air Flotation Thickeners (DAFT) chambers, which proceeds to the anaerobic digesters identified earlier in the process.

Secondary effluent is pumped to the tertiary filters, located in the south-eastern area of the plant. Flow filters through a three-stage media and is then disinfected via chlorine injection for approximately four hours in contact chambers. Chlorine contact time varies and is monitored and controlled by Operators as part of the treatment process. Chlorinated water is used as backwash water at the tertiary filters and cycled through a backwash pond to return to the primary sedimentation basins.

After disinfection, some water may be pumped through recycled water pipes for transport to the landfill. Remaining water produced is then de-chlorinated using Sodium Bisulfite injection. A Marshall Flume is used prior to outfall for monitoring and determining flow, as final effluent exits the plant via 48-inch outfall to the Arroyo Simi. One other outfall exists for emergency purposes only and is not permitted for daily use.

Figure 2-5
Treatment Plant Process (2 of 2)



Hauling solids to the landfill occurs at five different steps in the process: bar screens, grit chambers, micro screens, belt press, and occasional filter material from the backwash pond. Four plant sampling stations are used to gather composite samples; one each at the influent, primary effluent, secondary effluent, and outfall. A Marshall flume is used to measure the total effluent discharge to the Arroyo.

Drainage in the southern area of the plant is diverted using a v-ditch and a small pumping station which pumps back to the primary clarifiers to recycle storm runoff. Minimal maintenance is required at this pump, as it is only used during storm events.

Instrumentation & Electrical

Instrumentation & Electrical (I&E) is responsible for monitoring and routine calibration of approximately 25,000 SCADA points, 36 programmable logic controller (PLC) units, and in-plant surveillance equipment. Additional effort is spent to maintain and calibrate instrumentation equipment at three lift stations outside of the plant, as well as a landfill monitoring site. This group provides support to ensure that the various SCADA and other tools are properly operating, reporting, and controlling various plant processes.

Daily calibration and basic configuration is provided by in-house staff with some contract support utilized for major installation projects and significant programming efforts. I&E daily duties also include an update of the City intranet site, manual processing of report data, and scripting development for processing SCADA readings related to lab reporting.

One I&E employee works a 2-hour shift each Sunday for calibrating 6 chlorine analyzers, 2 sodium bisulfite, and 11 dissolved oxygen probes.

Parts inventory for common instrumentation items is managed by this group with a combination of I&E and Inventory Support Tech effort.

Laboratory

Laboratory is responsible for providing support for the wastewater treatment operations through proper controls as well as ensuring quality and adherence to established mandates, laws, policies, and procedures. The laboratory performs chemical, biological, and physical tests of wastewater to determine the efficiency of the chemical and biological processes within the wastewater treatment plant and to allow for adjustments in plant operations to meet required standards. The laboratory also supports testing any spills and related Sanitary Sewer Overflows (SSOs). The laboratory also manages those tests that must be done via contract due to the City's current testing equipment accuracy not being adequate for some tests. Work is mainly for wastewater but

support for potable water and storm water (environmental compliance) groups is also provided. Lab effort includes microbiology for wastewater, potable water, and recreational water, inorganic for wastewater, and potable water and toxic chemical for wastewater.

Staffing consists of four employees and one supervisor who work on a rotating schedule to cover 365 days a year. Employees are generally interchangeable and can all do the basic testing required for operations yet there are some specialties that are needed. There are five employees on Monday and Tuesday, four on Wednesday and Thursday, two or three on Friday (9/80 rotating shifts), and one person on the weekends. Focus of work week is normally for treatment process testing, digester testing, special projects, laboratory record compilation, organization of data and specialty testing and contract coordination while weekends are used normally for required testing for the daily plant operations.

A considerable amount of information is collected during the testing process in a combination of manual and electronic systems (Hach Water Information Management Solution – WIMS). The necessary summary reporting to regulatory agencies is being met through a combination of the Hach WIMS system and custom reporting tools developed by the City. Effort is being made to create a system that collects all data samples and allows documentation for the chain of custody. Reporting is done to meet State and Water Board requirements with several reports mandated that are prepared by the supervisor.

The laboratory is certified in six (6) Fields of Testing categories and is tested annually for compliance. The areas include:

- Microbiology of Drinking Water
- Inorganic Chemistry of Drinking Water
- Microbiology of Wastewater
- Inorganic Chemistry of Wastewater
- Toxic Chemical Elements of Wastewater
- Microbiology of Recreational Water

Plant Maintenance

Plant Maintenance is responsible for maintenance and repair of all plant equipment at the WQCP. Work is a combination of response and routines with preventive maintenance (PM) check lists developed for daily, weekly, monthly, semi-annual, and annual routine efforts. Mechanics work jointly with Operators for many repair and housekeeping activities.

Crews work a staggered 9/80 shift with full staffing Monday through Thursday, and between four and six employees on Fridays. All Plant Maintenance employees are assigned alternating flex Fridays including the Supervisor.

This group is the primary user of the Hansen work order system and is also responsible for maintaining the material inventory and work reporting in the database. Most work requests from Operations to Plant Maintenance will generate a record in the Hansen database, while equipment failures are often unreported in the system.

Staff is attempting to develop a more complete preventative maintenance program for various equipment by integrating outdated manual records, vendor suggested guidelines, and their experience into the Hansen system.

Though staff is not completely interchangeable, they can all do most of the basic response to support operations for the plant. They often work directly with the operators in the work effort due to the complexity of valves, equipment, and other components, as well as coordinating a systematic approach with various plant processes.

Collection System Maintenance

Collection System Maintenance is responsible for maintenance of 372 miles of sewer main pipe and over 6,000 related manhole structures. Work is a combination of systematic cleaning routines of the collection system network along with response to spills and requests. Some support effort is also provided by collection crews for in plant maintenance for various lines and cleanouts, in addition to support for other divisions including waterworks and environmental compliance for storm water catch basin clean out.

Routine cleaning is performed by three crews working three day shifts and one night shift, using a combination sewer vacuum/jet rodder. Cleaning begins in the eastern end of the City with crews proceeding west during the cleaning cycle. The entire sewer network is planned and cleaned every two to three years and is restarted at the eastern end of the City upon completion of the cycle and then worked to the west, toward the treatment plant.

Closed-Circuit Television (CCTV) equipment is used by one crew to record sewer pipe condition and identify maintenance needs. Video is recorded using a van equipped with camera equipment and Cues/GraniteXP software. The main truck lines are also inspected by a contractor managed by engineering.

Additional cleaning effort occurs at seventy-one (71) high frequency “hot spots” which have a history of issues such as backups, grease buildup, or root intrusion. These locations are divided

among day and night crews with fifteen (15) locations cleaned monthly and fifty-six (56) locations cleaned quarterly.

Some after-hours effort occurs to respond to SCADA alarms at sewer lift stations. Mission123 is a web-based service which the City utilizes to monitor lift stations and provide alarm signals to notify collection crews of potential issues.

The section is managed by the Plant Support Systems Manager on flex Fridays when the Supervisor is not scheduled. Work effort and accomplishment is reported using a combination of text files, spreadsheets, and paper forms. Some manual processes and files exist and are maintained by the Collection System Supervisor. Collection crews lack access to the GIS or Hansen work orders systems and sewer collection assets are not maintained in the Hansen database.

Administration and Support

Administrative support staff includes the Secretary reporting to the Deputy Director and the Inventory Support Technician (IST) reporting to the Plant Support Systems Manager.

Secretary is responsible for administrative support for the Deputy Director and two division Managers. Support for operations includes coordinating with the IST for purchasing and material inventory control, as well as developing budget monitoring reports for manager review.

The Inventory Support Technician utilizes a combination of the Hansen database, various spreadsheets, and manual processes to monitor and control material inventory at twenty-three locations in the plant. Responsibilities include coordinating purchase requests, receiving and distributing parts, maintaining inventory levels, as well as other support efforts to maintain preventive maintenance checklists.

Policies

The City's Service and Connection Fees are available on the City website, but may be adjusted after other current rate efforts are completed to evaluate sewer service rates by the Council.

Sewer Lateral Policy indicates the sewer lateral is the responsibility of the property owner, while the City is responsible only for the sewer main line up to the lateral service connection. Reimbursement to the property owner for any damage caused by City-owned trees must be precluded with assessment by the City inspector.

Figure 2-6 shows Sanitation Service Fees posted on the City website. Figure 2-7 shows the City sewer lateral policy.

Figure 2-6
Sanitation Fees from City Website

Categories	Monthly Fee (per unit)
I. Residential	
A. Single Family Residence (Detached/ 1 Attached)	$26.08
B. Multiple Family (three or more attached units)	$19.56
C. Multiple Family (Low Discharge Type housing > 35 dwelling units)	$15.65
D. Mobile Home	$15.65
II. Commercial / Industrial / Institutional / Governmental (BOD<230ppm or SS<220ppm)	
For the first 1,100 cubic feet or any part therof	$26.08
For each 100 cubic feet or fraction thereof in excess of 1,100 cubic feet	$ 2.37
III. Low or High Strength Discharges	
A. Offices, laundromats, car washes, & retail commercial (without kitchens)	
For the first 1,100 cubic feet or any part therof	$20.86
For each 100 cubic feet or fraction thereof in excess of 1,100 cubic feet	$ 1.90
B. Restaurants, bakeries, mortuaries, and markets with garbage disposals	
For the first 500 cubic feet or any part thereof	$26.08
For each 100 cubic feet or fraction thereof in excess of 500 cubic feet	$ 5.22

Figure 2-7
City Sewer Lateral Policy

CITY OF SIMI VALLEY SEWER LATERAL POLICY – EFFECTIVE DATE: 03/03/2003

This Sewer Lateral Policy establishes various criteria and verification procedures necessary for the City to ascertain whether plumbing expenses for the sewer lateral line repairs are reimbursable to the property owner.

The main sewer line in the street is owned and maintained by the City. However, the connecting sewer lateral line running from the house/building to the main sewer line in the street is owned and maintained by the property owner. It is the responsibility of the property owner to properly maintain the sewer lateral line. Internal problems in the sewer lateral line, such as internal blockages, misalignments, or deterioration, are the property owner's responsibility.

Tree roots themselves are not generally able to penetrate a properly maintained sewer lateral line without a pre-existing entryway. Inferior materials, poor installation and/or maintenance may cause the sewer lateral line and/or seals to decay, disintegrate or otherwise deteriorate, loosen joints, develop fissures, spaces, openings, and/or other potential entryways for tree roots: such entryways may leak and discharge sewage into the ground, in violation of the City of Simi Valley Municipal Code, Section 6-6.06.

If a property owner believes that roots from a City-owned tree may have caused damage to a properly maintained and sealed sewer lateral line, and wishes to be reimbursed for the necessary repair/replacement work, the property owner must complete the following steps so that the City may investigate, verify the facts, and evaluate the circumstances:

1. If sewer lateral line repair/replacement work is to be done within the public right-of-way, the property owner or contractor/plumber must first obtain an Encroachment Permit from the Public Works Department. **Whether the sewer line lateral repair/replacement work is to be done within private property or public right-of-way, the property owner or contractor/plumber must notify the City's Sanitation Division personnel at (805) 583-6440, 24-hours prior to such work, for the City's inspection of the roots and sewer lateral line. If this step is not followed, the City's staff will be unable to confirm the cause of the problem, and the property owner will not receive reimbursement consideration.**

2. All sewer lateral line work must follow the City's guidelines for evacuation, including the City's "Procedures for Trenching or Construction Near Trees" available through the Public Works Department.

Systems and System Users

The City maintains several independent databases for maintenance and operations. The databases are maintained in a variety of different systems and applications. Further, there are additional inventories and files, which are tracked manually or in various Word documents. Excel spreadsheets and/or Access databases. A list of the major databases and spreadsheets observed by LAC and their functions is provided below.

Work Order Database (Infor/Hansen) – Hansen is the City utility asset and work order database which has been in place in the City since 2006. Used primarily by Waterworks, but configured for use by Sanitation for work order reporting, material inventory control, and some asset inventory management. Resource reporting occurs for some Plant Maintenance effort with all labor charged at $25 per hour. Preventive maintenance "zones" have been established for work assignment in specific areas of the plant. Work orders may be linked to a single asset or general location.

Supervisory Control and Data Acquisition (SCADA-Wonderware) – City SCADA system, Wonderware, is used throughout plant operations with workstations available to all assigned operators with user login and authorized security permissions. Used for monitoring most plant equipment components with automated control capabilities on most plant equipment.

Water Information Management System (HACH WIMS) – Open-structure database used mainly by Operations, Lab, and Instrumentation. Primarily used for data compilation of various system readings for transfer to State reporting database including gas readings, chemical usage, etc. the system allows for data compilation and storage for many key parameters that must be reported to regulatory State of California and federal agencies.

Purchasing and Budgeting (SAP) – The Enterprise system is used for purchasing, budgeting, and personnel data, and it is used primarily at City Hall and by Sanitation Managers and Secretary.

Closed-Circuit Television (Cues/GraniteXP) – Software utilized on camera-equipped utility vehicle used for recording sewer pipe inspection data to determine condition and maintenance need. Capability exists to integrate with industry standard data (NASSCO), yet is currently unlinked to any other City database.

Mission123 (SCADA) – Mission123 is an internet-based service which is used for redundant monitoring of three lift stations in the City. Service provides alarm notifications to City employees on call-out duty when signal is triggered at one of the remote locations by issues. Data monitoring occurs for AC power failure, pump runtimes, and start/stop times.

Other Ancillary Documents, Spreadsheets, and Databases – Numerous, unlinked files in various formats are utilized by various personnel for managing information. This includes spreadsheets, word documents, and independent databases to inventory usage and work order logs.

Engineering uses multiple tools for evaluation, preparing drawing and tracking project information, including the basic office software suite. These will be discussed in the engineering portion of this section.

Assets and Features

The City is responsible for operations, maintenance, and repair of numerous sanitation assets. A summary of compiled inventories are listed below, as well as some key asset features for which inventories have not yet been confirmed.

- Grade V Treatment Plant on 33 acre site
    - 12.5 MGD / 9.2 ADWF
    - Biological nutrient removal system
- Three sewer lift stations
    - Arroyo (2 pumps)
    - Wood Ranch (2 pumps)
    - Big Sky (2 pumps)
- In-plant lift station with three pumps
- Recycled water pumping system with two tanks
- 372 miles of sewer collection pipe
- 1,716 linear feet of force main
- 6,365 sewer access points
- 16 in-plant surveillance cameras

Sanitation maintains recycled water facilities (pump, tank) to deliver water from the WQCP to the landfill. Calleguas Municipal Water District owns the recycled lines and features which transport the recycled water to Waterworks' control who then sell the water to the landfill. Other recycled water uses are being planned and lines being constructed for landscape irrigation.

Hansen Asset Database

Asset lists and plant elements are also maintained in the Hansen database and linked to maintenance work orders. Most major components are assigned to a specific plant maintenance zone (1, 2, or 3) and building location with "Facility Type" codes to designate the type of

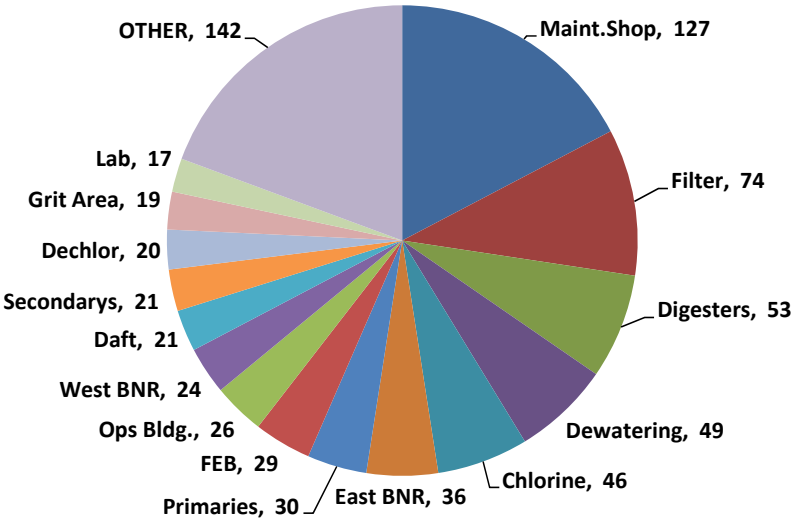
component (pump, flow meter, etc.). Over 700 equipment records exist in the Hansen database and are distributed among the three zones. Most items appear to be located at the Maintenance Shop (127 records), followed by Filter (74), Digesters (53), Dewatering (49), and Chlorine (46) areas. Equipment type code used most frequently is HTOOL (118 records) and consists of hand tools and stationary equipment, followed by 107 various pumps ('P' type), 48 structures (STR), 37 valves (V), 28 mixers (MX), 26 sump pumps (SP), 21 variable frequency drives (VFD), 20 ventilators (VENT), 20 fans (FAN), 18 control valves (CV), 18 tanks (TANK), and 17 flow meters (FM). Fifty-five other type codes are also used to designate other types of equipment such as phones, air conditioners, eye wash stations, blowers, filters, air compressors, etc. These plant assets are located with specific geographical zones with the plant.

Figure 2-8 shows the equipment record count by Zone in the Hansen database. Figure 2-9 shows the number of equipment records in Hansen by location.

Figure 2-8
Equipment Record Count by Hansen Zone

Zone	Equipment Records	
ZONE 3	268	37%
ZONE 2	247	34%
ZONE 1	197	27%
OTHER	22	3%

Figure 2-9
Equipment Record Count by Location



Hansen Work Orders

Hansen work orders for the Sanitation Division are used almost entirely by the Plant Maintenance and Instrumentation sections for scheduled maintenance and some work requests.

Equipment failures may or may not generate Hansen work orders. Line Maintenance utilizes in a most basic way for reporting scheduled lift station maintenance events. Lab section does not currently use the Hansen database.

Work orders are created for specific assets in the WQCP such as motors, blowers, and pumps. Most work orders are for scheduled routines which occur at pre-defined intervals (Weekly, Monthly, Quarterly, etc.). General activities such as “repair,” “clean,” or “replace” are also assigned to some work orders and may be generated by operator request or employee observation in the field.

The City provided a list of 288 Hansen work order records issued between July 2009 and January 2013, with 96% of these issued since January 2012. Charts below summarize the records evaluated by LAC. Work order type included 187 scheduled (65%), 26 repair (9%), and 26 (9%) other work order types. Forty-nine (49) work orders, or 17%, were missing a work order type (Figure 2-10). Figure 2-11 shows assigned work order priority with 250 work orders, or 87%, assigned Priority 2, seven Priority 1 (2%), and five Priority 3 (2%). Nine percent (9%) were missing a priority assignment.

Figure 2-10
Work Orders by Type

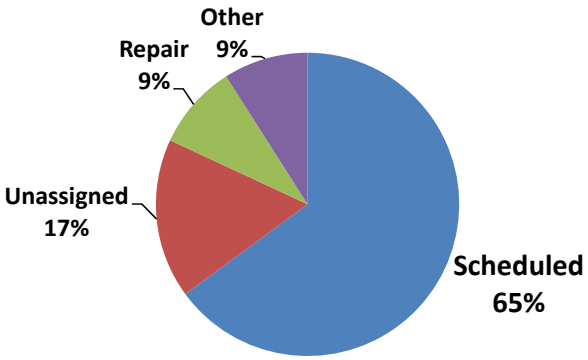


Figure 2-11
Work Orders by Priority

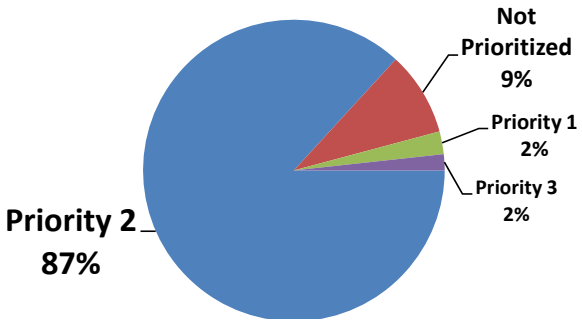


Figure 2-12 shows work order activity indicating 102 monthly preventive maintenance work orders (PM-M, 35%), 53 weekly (PM-W, 18%), 23 quarterly (PM-Q, 8%), and seven semi-annual (PM-SA, 2%). Other activity codes used include BNR (5%), Dewatering (5%), Filters (4%), and Barscreen (3%), twenty percent (20%) were assigned various other activities. Figure 2-13 summarizes the asset type assigned to each work order. Most (229, or 80%) were for Plant Equipment, followed by 36, or 12%, for Facility. Seven percent (7%) were assigned to Sewer Lift Station and 2% to other asset types.

Figure 2-12
Work Order by Activity

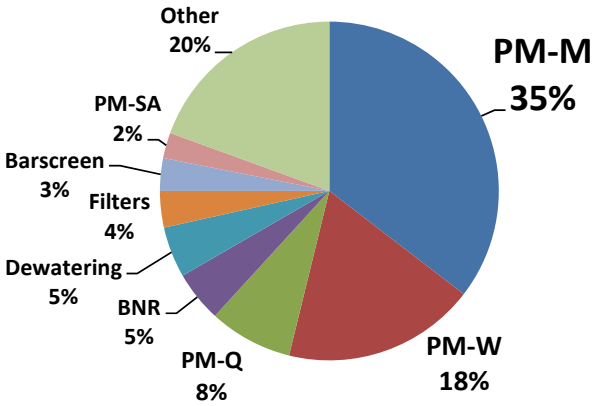
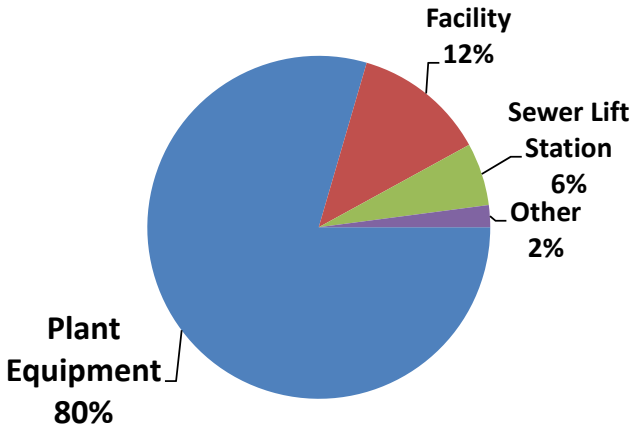


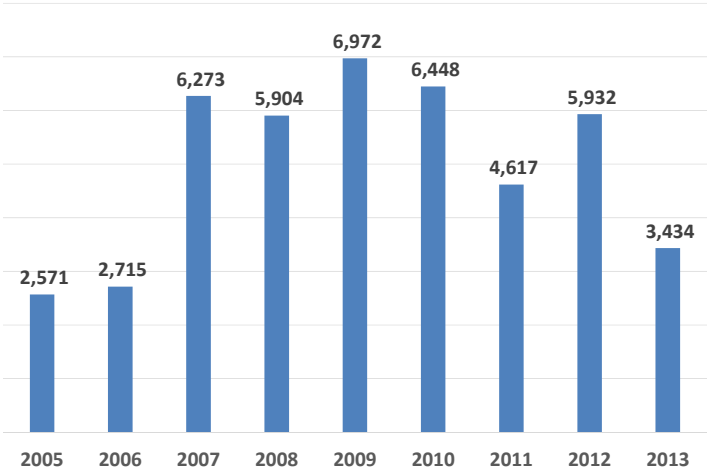
Figure 2-13
Work Order by Asset Type



Hansen Work Reporting

Hansen work reporting includes some labor hour effort, mainly for plant maintenance, and is tracked to individual employees on work orders. A summary of total annual labor hours reported for sanitation employees is shown in figure 2-14.

Figure 2-14
Sanitation Labor Reporting in Hansen



Asset Condition Assessment

Carollo's April 2011 Report outlines a process which includes a combination of office evaluation with some visual field confirmation. Consultant evaluated various asset condition factors - vulnerability, criticality, and risk with specific details by asset type for both 'above ground' and 'below ground' facilities. Report included an estimated asset value of $866 million (adjusted for inflation to 2013) with an estimated life cycle for all major asset types. Report results included a 10-year capital replacement plan of $78.6 million.

The average age of active sewer pipe segments in the City's GIS database is reported to be 34.2 years. Pipe diameter ranges between 4 and 48 inches. Eighty-two percent (82%) of pipe is 8-inch diameter with over 50% of pipes being 30 or more years old. Nearly 46% are PVC with another 45% of VCP and ACP.

Plant equipment is reported to be in relatively good condition with the exception of the Motor Control Center (MCC), which is currently rated 'dangerous' according to OSHA standards. Replacement of the MCC is being planned in the City's CIP and has been estimated at approximately $6 million.

Sanitary Sewer Overflows

The State Water Resources Control Board defines a Sanitary Sewer Overflow (SSO) as "…any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system." Overflows within the City must be reported to the State upon each occurrence and are measured in terms of the number of occurrences per 100 miles of gravity

sewer main pipe. Data from the State website was organized by region to determine overall rank relative to local agencies.

Simi Valley has established and documented an SSO response plan, which includes protocol for normal and after-hour response with redundant emergency contacts to ensure adequate response.

A summary of Simi Valley statistics from the State website are shown in Figure 2-15 below.

Figure 2-15
Reported Overflows

Report Dates	Number of SSO Locations	Miles Gravity Sewer	SSO per 100 Miles
CY2007	5	374	1.34
CY2008	5	374	1.34
CY2009	2	374	0.53
CY2010	2	374	0.53
CY2011	3	374	0.80
CY2012	2	374	0.53

Performance Measures and Budgets – Operations

Performance measures are often used to measure the progress of defined budget and operational goals. This may be measured in terms of work accomplished, such as miles of sewer pipe cleaned, or in terms of productivity, such as 300 feet of sewer pipe cleaned per labor hour. Utilizing performance measures provides measureable goals that relate directly to funding and budget programs.

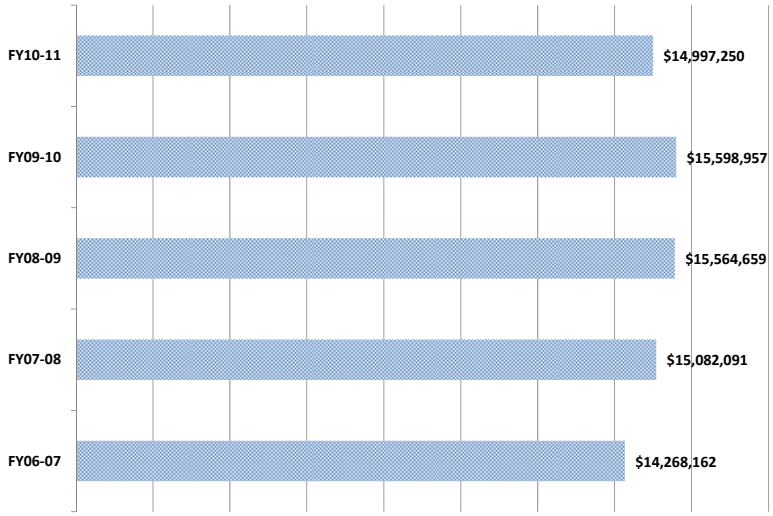
Simi Valley does not appear to directly use any performance measures for Sanitation for reporting and monitoring. Some data for line cleaning is reported after the fact in some rough summaries provided to management.

Budget documents from the last three years were reviewed by LAC to examine the sources of revenue and expenditures for each division. Budgets for Sanitation were reviewed in detail, as well as Capital Improvement Plan (CIP) Reports and Comprehensive Annual Financial Reports (CAFR) from the last five (5) years.

Operating Fund Revenues

Budgeted operating fund revenues in FY12-13 totaled $14,781,000 with more than 95% ($14.2M) expected to be obtained through Sanitation service charges. Actual fund revenues have varied from $14.3 million in FY06-07, up to $15.6 million in FY08-09, then down to $15 million in FY10-11 (Figure 2-16).

Figure 2-16
Operating Fund



Expense Budgets

Personnel expense budgets consist of regular salaries, overtime, and benefits. Budgeted totals for personnel expense totaled $6,555,800 in FY12-13. Actual personnel expense has varied from $5.3 million in FY-06-07 to almost $6 million in FY09-10, then decreasing to slightly less than $5.8 million in FY10-11.

Supplies and Materials budgets consist mainly of utilities (54%), chemicals (28%), and operating supplies (11%). Remaining 8% is allocated for items such as communications, uniforms, memberships, conferences, training, and small tools and equipment. Services budget in FY12-13 totaled $1.6 million. Actual amounts have varied with nearly $2 million in FY07-08, $1.4 million in FY08-09, $1.8 million in FY09-10, then $1.6 million in FY10-11.

Figure 2-17 shows personnel actual values since FY06-07. Figure 2-18 shows combined supplies and services actual amounts during the same period.

Figure 2-17
Personnel Expense

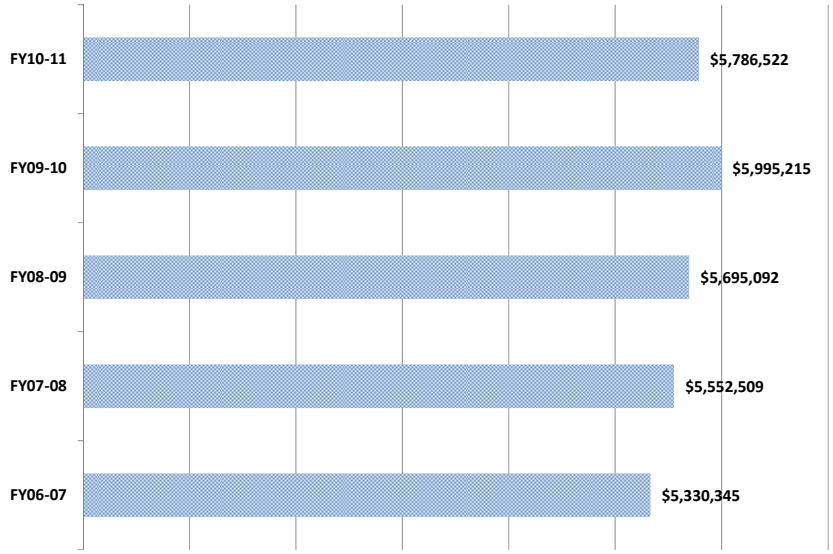
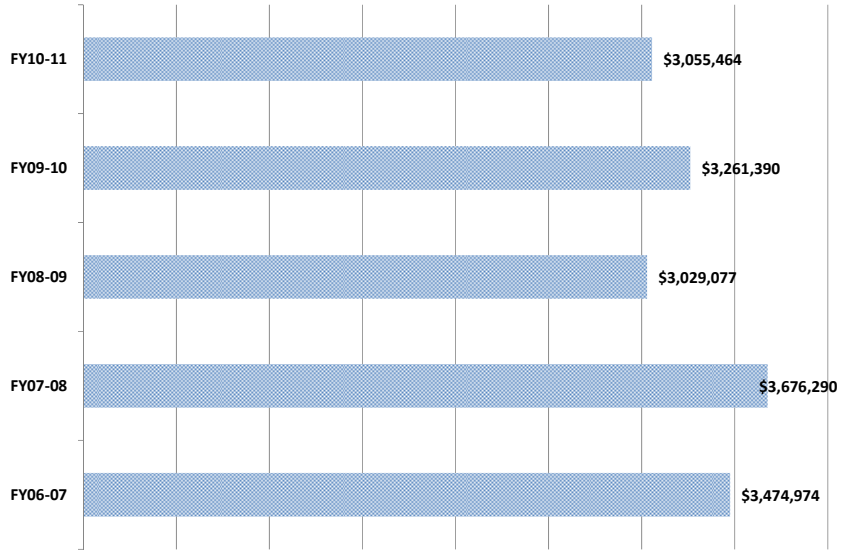


Figure 2-18
Supplies & Services



Reimbursements and Transfers

Reimbursements and transfers in FY12-13 budget totaled $6 million and are a considerable portion of the budget. This includes $2.3 million reimbursement to the General Fund, $2 million transfer to Plant Equipment Reserve, nearly $1 million transfer to Sewerline Replacement Reserve, $265,000 to Vehicle Replacement Reserve, and nearly $500,000 more allocated for transfers to Streets and Roads, Computer Equipment, GIS Capital, FIS Capital, and Retiree Benefits Fund. The Plant Equipment Reserve and Sewerline Replacement Reserve are used to fund the CIP for rehabilitation and replacement of above and below ground sanitation assets. The Vehicle Replacement Reserve is used for replacement of vehicles used by the Division.

The following Figure 2-19 is for the budget amount which is actually transferred as a percentage of total reimbursements/transfers as a portion of entire budget. Figure 2-20 shows the percentage of reimbursements and transfers for that budgeted in FY12-13.

Figure 2-19
Actual Transfers FY 2010-11

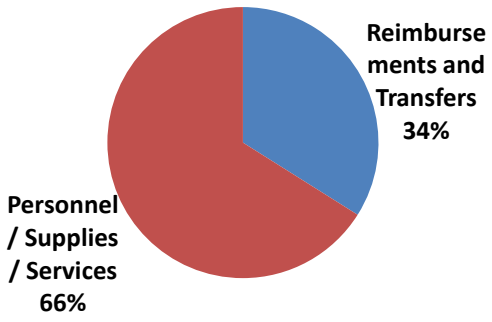
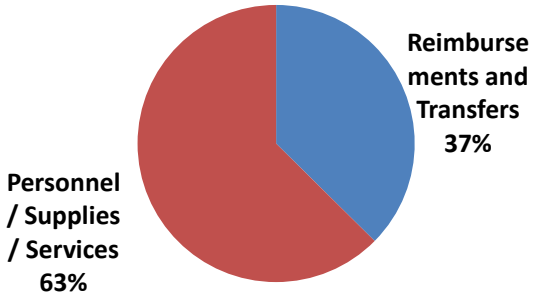


Figure 2-20
Budgeted Transfers FY 2012-13



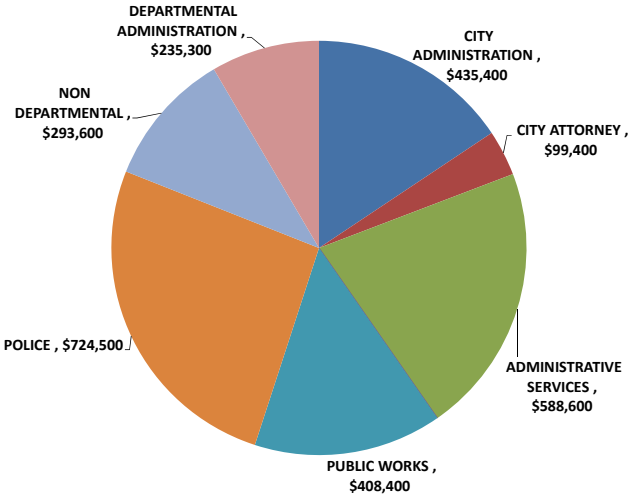
The details of the transfers by each category are shown below in figure 2-21 for the current 2012-13 budget.

Figure 2-21
Budget Transfers

TransferCode	Transfer Description	FY13Amount
44491	FIS Operations	19,600
44492	GIS Operations	28,500
44590	Other Insurance Serv	182,100
46100	Reimb to General Fnd	2,313,600
46600	Reimb to Sts & Rds	155,000
49297	Trans to Retiree Ben	105,500
49648	Trans to CE Replcmnt	67,200
49649	Trans to GIS Capital	57,000
49656	Trans to FIS Capital	26,800
49702	Trans to San Facilities Replacement	2,010,000
49702	Trans to San Sewerline Replacement	965,000
49702	Trans to San Vehicle Replacepemnt	265,800

The internal allocations to the general fund of $2.3 million in FY 2012-2013 are for services of other departments that have been provided in support of the Sanitation Division from purchasing, human resources to police. A breakdown of these seven allocations is shown in Figure 2-22. Police are the largest allocation at $ .7 million followed by Administrative Services and City Administration.

Figure 2-22
FY12-13 Budget Allocation



There are subgroups within the seven categories with 30 different allocation types used that are shown below in Figure 2-23. Some of the methods of allocation include using a number of budget documents processed, number of positions in the Division, amount of budget $ of Division, number POs created, and a % of Division property as a portion of the City total for all departments that are being allocated costs.

Figure 2-23
FY12-13 Budget Allocation Categories

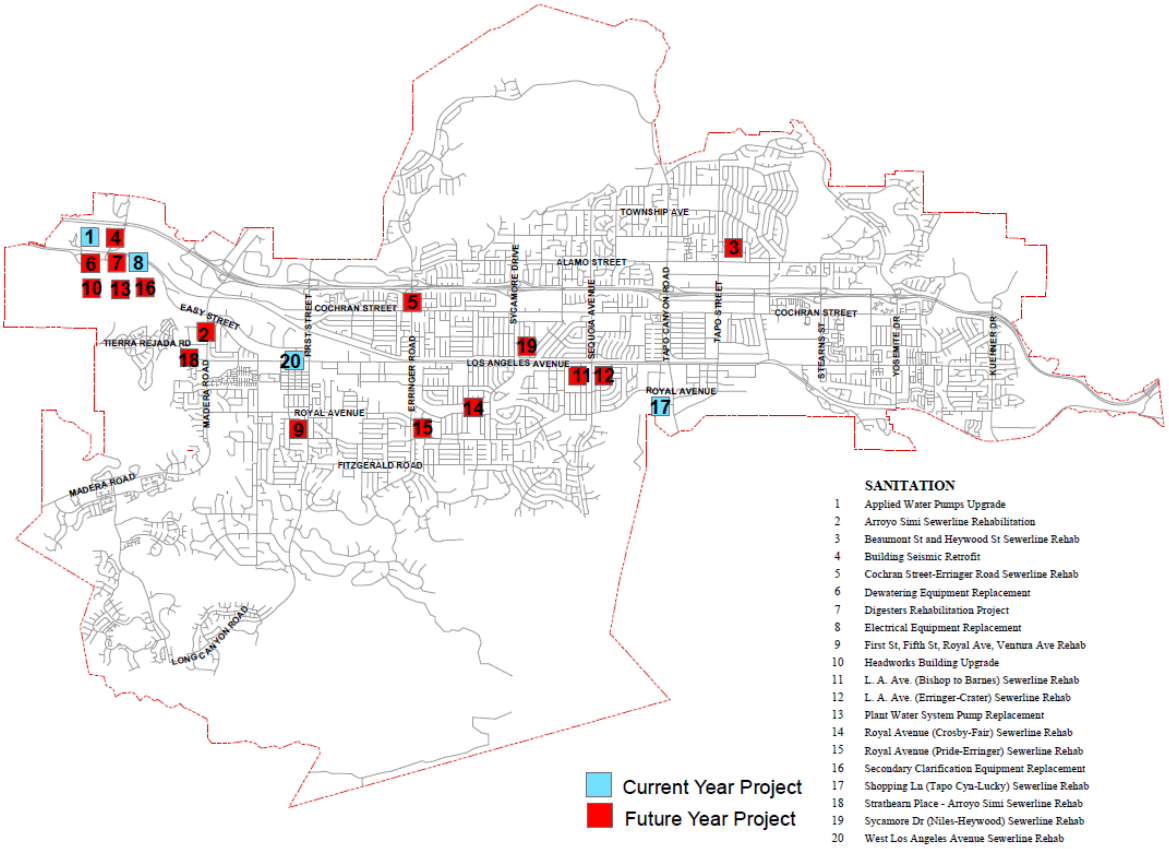
City Administration	
City Administration (City Manager & City Clerk)	City Council agenda items
City Administration (Human Resources)	Authorized regular positions
City Attorney	City Council agenda items
Department of Administrative Services	
Fiscal Services (Accounts Payable - 1 Acc't Spec 3 Acc't Techs)	Purchase orders
Fiscal Services (General Accounting - 1 Dep Dir, 1 Sr Acc't, 1 Staff Acc't)	Operating budget
Fiscal Services (Payroll - 1 Acc't Sup'vr & 3 Acc't Techs)	Authorized regular positions
Information Services (Citywide Network - 1 Dep Dir, 2 Sr ISA, 2 ISAII, 1 ISA I)	Authorized regular office positions
Information Services (Geographic Information Systems - 1 GIS Coord, 1 ISA II)	Total operating budget
Information Services (Enterprise Resource Planning Sys - 1 Sr ISA)	Authorized regular office positions
Information Services (Integrated Police Systems - 1 ISA II & 1 ISA I)	All to Police Department
Customer Services (Bus Tax, Park Cit, Filming, Spec Events) - Current Expenses)	General Fund budget
Support Services	Purchase orders
Treasury Services	Operating budget
Budget Office	Operating budget
Police Department City Facility Security	City-owned land vs Privately owned
Department of Community Services	City Council agenda items
Department of Environmental Services	City Council agenda items
Department of Public Works	City Council agenda items
Landscape Maintenance	%of Landscape Maintenance Contract
Police Department	City Council agenda items
Patrol	City-Owned vs.Other Ownership
Non-Departmental	
Utilities	Authorized regular office positions
Communications	Authorized regular office positions
Copiers	Authorized regular office positions
Maintenance of office equipment	Authorized regular office positions
Liability insurance	General fund operating budget
Trip Reduction Program **(PROGRAM DISCONTINUED FY 2009-10)**	
Postage	Authorized regular office positions
Other Non-departmental expenditures - excluding salary accruals	Total operating budget

Capital Budgets

Capital funding has been budgeted for projects in FY12-13 and includes $2.1 million for sewerline projects and assessment, $1.4 million for replacement of electrical equipment, $387,000 for upgrading applied water pumps, and $84,000 for rehabilitating manholes. Twenty-six projects are planned through FY16-17 with an estimated total value of $40 million.

Projects are funded through transfers to Facilities Replacement and Sewerline Replacement as well as new sewer service connection fees generated from expansion projects. Figure 2-24 shows the location of current and future planned projects.

Figure 2-24
Sanitation Capital Project Locations



Resource Data – Operations

An overall labor rate of $25 is utilized for all employee effort on Sanitation work orders in the Hansen database. Salary range values for labor classification were obtained from City budget documents and are listed on the following page along with the number of budgeted positions for

FY12-13. Standard FEMA rates are utilized for equipment costs when a charge rate must be determined for reimbursement purposes.

Thorough material inventory listing exists in a combination of the Hansen database and spreadsheets. Material expenditures are recorded on work orders and updated in the inventory control system with actual cost based on the purchase orders and credit card receipts.

Salary ranges for budgeted positions in Sanitation are shown in Figure 2-25 below along with the number of budgeted positions in FY12-13.

Figure 2-25
Salary Ranges and Budgeted Positions FY 2012-13

Job Title	LoAnnual	HiAnnual	FY12-13
Account Clerk I	$ 32,739.20	$ 41,745.60	1.00
Assistant Engineer	$ 65,296.66	$ 83,743.40	1.00
Assistant Public Works Director	$ 112,606.26	$ 145,245.88	1.00
Associate Engineer	$ 71,449.30	$ 91,741.78	1.00
Collection System Supervisor	$ 59,488.00	$ 76,192.48	1.00
Collection System Technician I	$ 38,480.00	$ 49,067.20	7.00
Collection System Technician II	$ 42,328.00	$ 53,976.00	1.00
Collection System Technician Trainee	$ 34,985.60	$ 44,616.00	-
Deputy Director/Environmental Compliance	$ 93,064.66	$ 119,842.32	1.00
Deputy Director/Sanitation Services	$ 93,057.12	$ 119,833.48	1.00
Environmental Compliance Inspector	$ 50,980.80	$ 65,020.80	2.00
Environmental Compliance Program Coordinator	$ 67,832.18	$ 87,040.20	1.00
Industrial Painter	$ 45,676.80	$ 58,323.20	1.00
Instrumentation Technician	$ 55,203.20	$ 70,449.60	2.00
Inventory Support Technician	$ 33,342.40	$ 42,577.60	1.00
Laboratory Chemist	$ 67,476.76	$ 86,577.40	1.00
Laboratory Supervisor	$ 74,171.76	$ 95,280.64	1.00
Laboratory Technician	$ 49,254.40	$ 62,878.40	2.00
Maintenance Worker II	$ 36,025.60	$ 45,988.80	1.00
Management Analyst	$ 62,589.80	$ 80,224.56	1.00
Plant Electrician	$ 50,294.40	$ 64,147.20	1.00
Plant Maintenance Program Technician	$ 52,811.20	$ 67,350.40	1.00
Plant Maintenance Supervisor	$ 64,162.54	$ 82,269.72	1.00
Plant Maintenance Technician I	$ 41,496.00	$ 52,936.00	1.00
Plant Maintenance Technician II	$ 45,676.80	$ 58,281.60	3.00
Plant Maintenance Technician III	$ 50,294.40	$ 64,147.20	2.00
Plant Operations Manager	$ 75,789.48	$ 97,384.30	1.00
Plant Operations Supervisor	$ 64,162.54	$ 82,269.72	1.00
Plant Operator I	$ 41,891.20	$ 53,497.60	-
Plant Operator II	$ 46,051.20	$ 58,780.80	1.00
Plant Operator III	$ 50,668.80	$ 64,667.20	9.00
Plant Operator Trainee	$ 34,195.20	$ 43,721.60	1.00
Plant Support Systems Manager	$ 75,789.48	$ 97,384.30	1.00
Principal Engineer	$ 93,567.24	$ 120,495.70	1.00
Secretary	$ 36,025.60	$ 45,947.20	3.00
Senior Engineer	$ 81,626.22	$ 104,971.62	2.00
Senior Engineering Technician	$ 54,787.20	$ 69,929.60	1.00
Senior Instrumentation Technician	$ 60,715.20	$ 77,480.00	1.00
Senior Laboratory Technician	$ 53,976.00	$ 68,952.00	1.00

Figure 2-26 shows the constant budgeted staffing levels in Sanitation during the past three years of 60 employees.

Figure 2-26
Staffing Level History

Employee Count (budgeted including vacancies)	FY10-11	FY11-12	FY12-13
Administration	9	9	9
Environmental Compliance	5	5	5
Plant Operations	37	37	37
Sewer Line Maintenance	9	9	9
	60	60	60

Vehicles / Equipment

The equipment assigned to Sanitation includes three pump trailers, one CCTV-equipped van, five compact pickup trucks, four half-ton pickups, five ¾-ton pickups, one 1-ton pickup, one flatbed crane, one auger truck, three sewer jetter/vacuum combination trucks, one easement rodding machine, one skip loader, three front loaders, two dump trucks, two arrow board trailers, three electric utility trailers, five utility carts, two forklifts, and one compressor.

Not all equipment information could be confirmed, as some current vehicle odometer and hour meter values are unknown. Annual fuel and maintenance costs per vehicle were not readily obtainable.

The City does not calculate equipment rates and utilizes federal FEMA rates when needed for job cost determination.

Service charges for sewer cleaning efforts are posted on the City website and shown below in Figure 2-27.

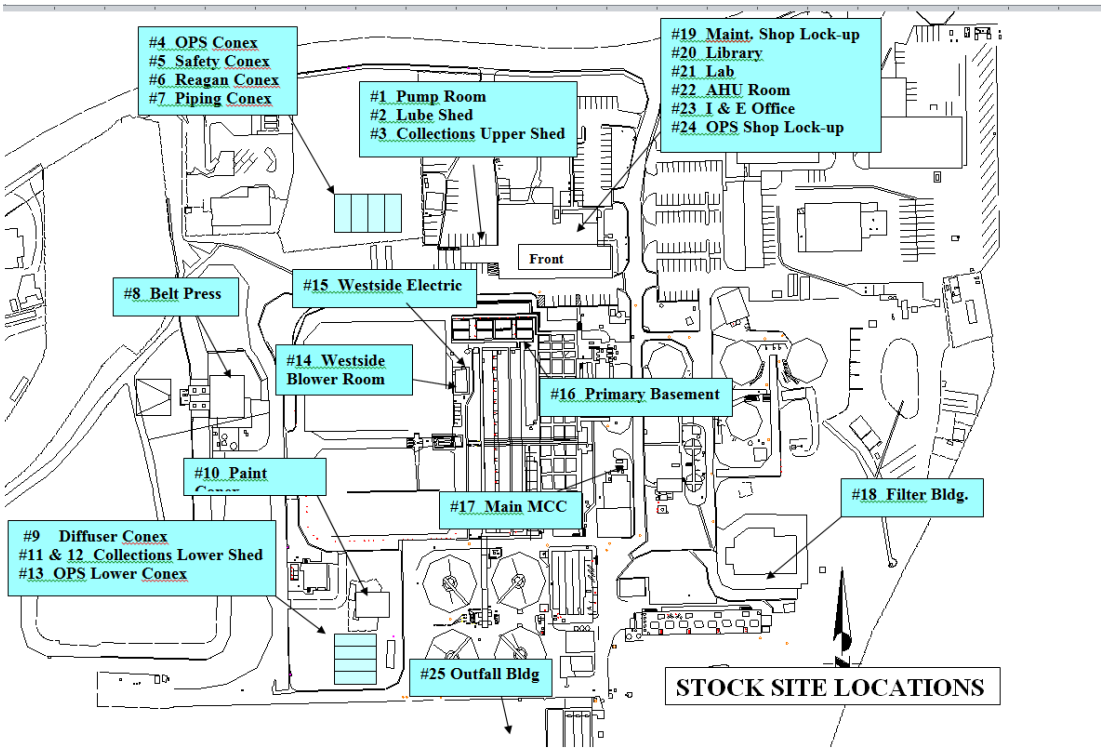
Figure 2-27
Sanitation Service Charges for Equipment Related Activities

Sewer Line Clearing - Combination Vacuum Truck	561.00
Sewer Line Clearing - Jet Rodder	440.00
Sewer Lateral Location - CCTV - After Hours	276.00

Material Inventory

The material inventory is distributed among twenty-five (25) identified locations within the WQCP which are shown below in figure 2-28. Most areas are secure and have been organized, with labeled storage areas and bins, with each item identified and recorded in a material inventory. Inventory is confirmed annually with an inspection resulting in redundant counting by two groups for affirmation and resolution by the inventory control clerk. Inventory value at each location is not equal with a few storing the majority. In fact, one location (Basement #16) contains 30% of all documented inventory.

Figure 2-28
Material Inventory Storage Locations



Inventory for Sanitation Division is maintained in the Hansen database and is unlinked to the purchasing and budget system, SAP. Annual summaries are produced pulling data from multiple sources by inventory control technicians. Lab manages their own inventory in a manual process using spreadsheets and forms.

Some bulk quantities of lower unit cost materials are charged to work orders completely upon first use such as wire, screws, etc. and not subsequently charged against future jobs when used. Generally, items with unit cost greater than five dollars are charged to each job, while a unit cost less than five dollars will be fully charged out to the first work order it is applied. Some loss of materials has occurred in the past due to environmental exposure and a centralized storage warehouse has been proposed in prior years, but has not been approved and is not planned.

Inventory levels are monitored and maintained using Hansen and Crystal Reports, with each item in each location marked with a specific identification code. Considerable manual support effort is required to maintain inventory including recording on inventory reduction forms which are unlinked to the inventory or purchasing databases. Inventory value averages $438,000 over last three years with some slight reduction since 2010.

Activities Performed – Operations

Documented Procedures

Many documented procedures and guidelines do exist for routine plant operator functions, equipment and vehicle operations, and risk management plans for hazardous materials. This includes checklists for daily, weekly, monthly, quarterly, semi-annual, and annual routine efforts.

Plant Operations:

- Standard Operating Procedure (SOP) for most operator functions which includes activity description, resource requirements, and work methods
- Risk Management Plan (RMP) exists for hazardous materials
- Log sheets with a check list for reporting readings and measurements from daily rounds

Plant Maintenance:

- Equipment maintenance checklists (daily, weekly, monthly, quarterly, semi-annual, and annual)
- Equipment list for each maintenance "zone" in treatment plant

Instrumentation:

- Daily/Weekly/Monthly Rover Duties
- Instrumentation programming with step-by-step illustrations

Line Maintenance:

- SOP for operation of line maintenance combination vacuum vehicles
- SOP for CCTV camera van operation
- Spill prevention and counter measure procedure

Laboratory:

- Laboratory testing processes are outlined meeting mandated procedures
- Standard processes for recording and documenting chain of control are mandated and tightly controlled

Routine Work / Preventive Maintenance

Routines exist for many operations and maintenance activities and some facility maintenance activities. Those identified by LAC and confirmed by the City are listed below.

Plant Operations:

- Routine Plant rounds for daily operators - physical checks, readings, SCADA confirmation and some tasks (North, South, Helm, and Press). Designated areas were identified previously and shown on slide 16.
- Primary clarifiers emptied and cleaned annually. Chain maintenance every five years.
- Drain and clean effluent basins quarterly.
- Spreading and tilling drying beds – approximately 2 hours daily.
- Rotate DAFT utilization annually.
- Clean micro screen drum rollers daily – swap utilization once per week.
- Annual contract in place to overhaul 1.5Mw emergency generator. City employees operate once per month for preventive maintenance.

Plant Maintenance:

- Plant Maintenance "zones" developed in Hansen: Area 1 in the East, Area 2 in Central/South area, and Area 3 in the West. These general areas are shown on the following page and vary from the Plant Operation areas mentioned above. Hansen preventive maintenance (PM) work orders are generated weekly and based on calendar rather than actual run-times, although some run-times are monitored by operators.
- Routine Plant rounds for daily operators - physical checks, readings, SCADA confirmation and some tasks (North, South, Helm, and Press). Routines are being developed by converting old, general card system to Hansen by Plant Maintenance. Some PM task lists are current and complete, with others lacking routine review, resulting in inaccurate or incomplete work methods for existing routines.

Line Maintenance:

- Systematic cleaning of sewer collection pipe network, with crews moving from East to West through City. Approximately two to three year cycle to clean entire network.
- Seventy-one (71) "hot spot" locations which are cleaned on a monthly or quarterly basis. Paper maps are utilized with manhole and pipe segment IDs which relate to engineering sewer atlas.
- Wastewater lines from filter press cleaned every six months, or as needed, for struvite removal.

Instrumentation:

- Monthly PM at three off-site lift stations
- Calibrate gas analyzers monthly (~four hours to complete all seven)
- Rebuild four Chlorine analyzers annually

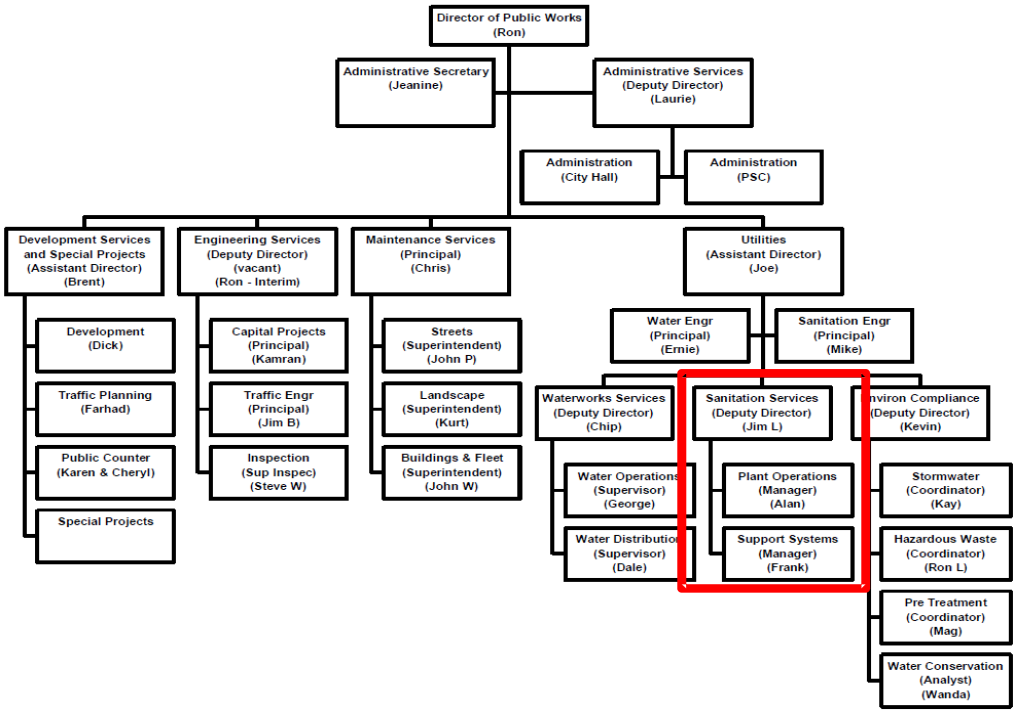
Laboratory:

- Annual State reporting for Discharge Monitoring report (DMR) for Bio solids to State for USEPA
- NDPES report by month, quarterly, semi and annual
- Water municipal report testing weekly
- Monthly water sampling report to DHS

Organization – Operations

Public Works is led by a Director with six direct reports, including the Assistant Public Works Director (APWD). The APWD oversees all of Utilities which includes the Waterworks District No. 8, Environmental Compliance and Sanitation Divisions. This is depicted in Figure 2-29 below.

Figure 2-29
Public Works Organization



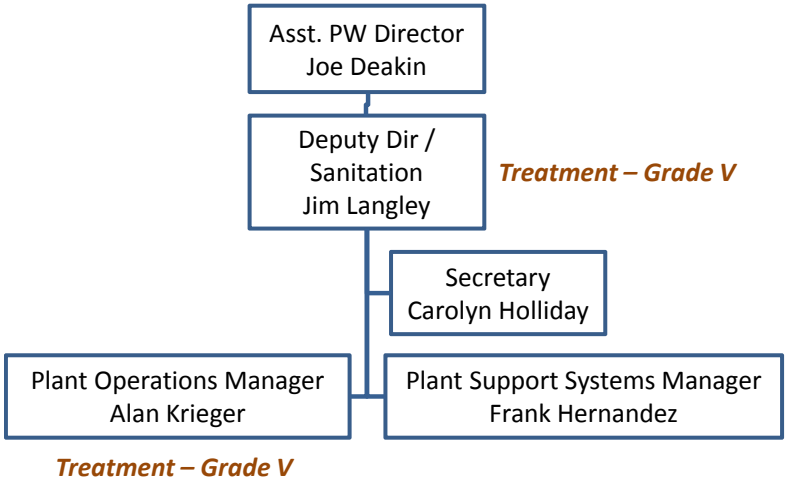
The focus of this effort is on the Sanitation Operations and Sanitation Engineering groups within the Utilities Division of the Public Works Department which are depicted in red boxes in figure 2-29.

Sanitation Services Organization Description

The Deputy Director of Sanitation Operations reports to the Assistant Public Works Director. The Secretary, Plant Operations Manager, and Plant Support Systems Manager report directly to

the Deputy Director. Both the Deputy Director and the Plant Operations Manager have obtained a Grade V Treatment Certification. Sanitation organization and management layers are depicted in Figure 2-30.

Figure 2-30
Sanitation Services Organization

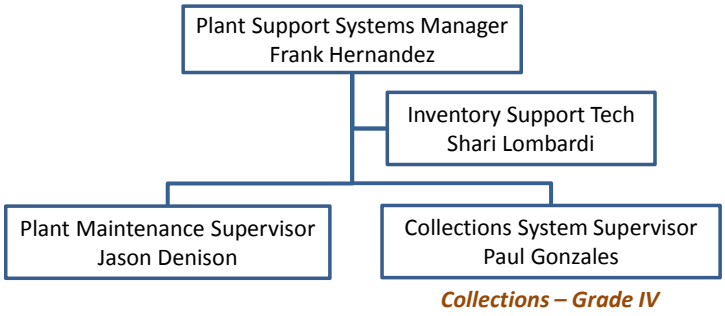


A total of forty-six (46) employees are budgeted in Sanitation Services, including the Deputy Director, Secretary, two Managers, Supervisors, and crews. This does not include other positions for Engineering and Environmental Compliance, which are also funded by Sanitation, but not a part of this project evaluation.

Plant Support Systems Organization

The Plant Support Systems Manager has three direct reports which include the Plant Maintenance Supervisor, Collections System Supervisor, and the Inventory Support Technician (Figure 2-31). The Collections System Supervisor has obtained a Grade IV Collections certification.

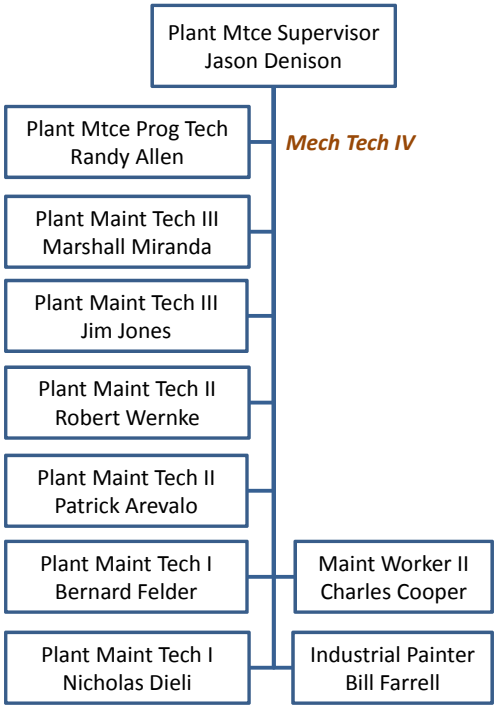
Figure 2-31
Plant Support Systems Organization



Plant Maintenance Organization

The Plant Maintenance Supervisor oversees 9 employees, which includes a Plant Maintenance Program Technician, two Plant Maintenance Tech III, two Plant Maintenance Tech II, two Plant Maintenance Tech I, one Maintenance Worker II, and one Industrial Painter positions (Figure 2-32).

Figure 2-32
Plant Maintenance Organization

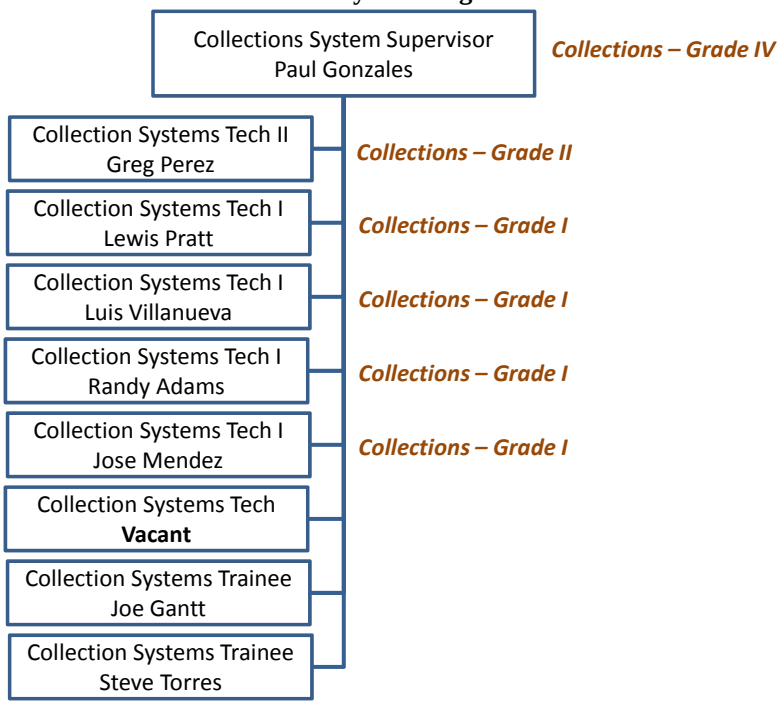


The Plant Maintenance Program Tech has obtained a Mechanical Tech IV certification. The Plant Electrician is temporarily assigned to this section, although funded by the Instrumentation section.

Collections System Organization

The Collections System Supervisor oversees eight employees, including one Collection Systems Tech II, four Collection Systems Tech I, two Collection Systems Techs, and one vacancy (Figure 2-33).

Figure 2-33
Collection System Organization

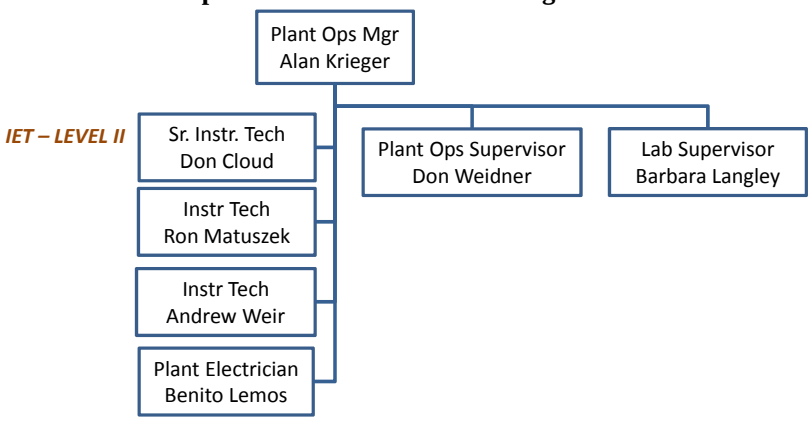


All collection system employees report directly to the Collections System Supervisor. Certifications have been obtained by one Tech II and four Tech I employees. Supervisor has obtained a Collections Grade IV certification.

Instrumentation and Electrical Organization

The Instrumentation section is assigned to the Plant Operations Manager, yet works primarily under direction of the Plant Operation Supervisor. The Plant Operations Manager also oversees the Plant Operations and Laboratory sections (Figure 2-34). The Plant Electrician is budgeted to this group yet is temporarily assigned to the Plant Maintenance Supervisor. Instrumentation consists of two Instrumentation Technicians and one Senior Instrumentation Tech.

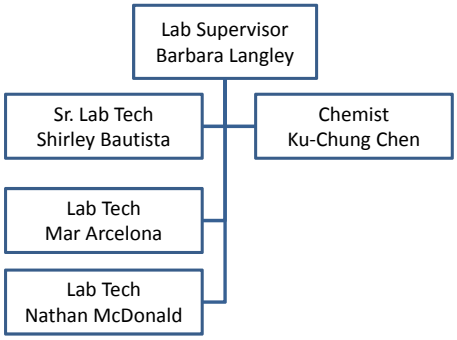
Figure 2-34
Plant Operations/Instrumentation Organization



Laboratory Organization

Laboratory staff includes one Laboratory Supervisor with four direct reports: one Senior Laboratory Tech, two Laboratory Techs, and one Chemist, depicted in Figure 2-35. The Senior Laboratory Technician provides some direction to the Laboratory Techs while the Chemist can direct the group in the Laboratory Supervisor's absence. The required coverage of 365-days per year working a 9/80 does result in the Laboratory being managed by the Chemist 10% of the time during the week. The weekend staff works independently with a supervisor.

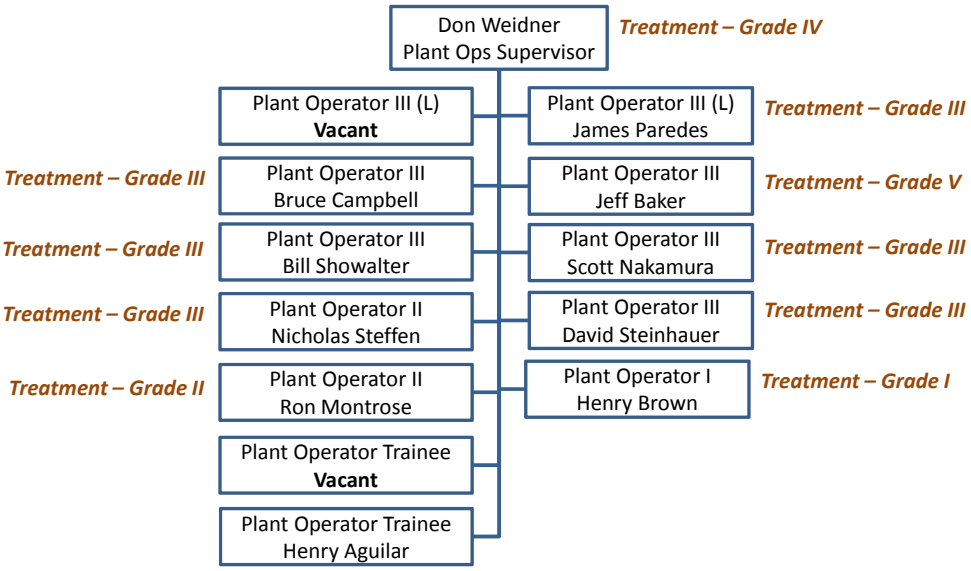
Figure 2-35
Laboratory Organization



Plant Operations Organization

The Plant Operations Supervisor oversees twelve employees, which includes two Plant Operator Grade III Lead workers, five Plant Operator Grade III, two Plant Operator Grade II, two Plant Operator Grade I, and one Plant Operator Trainee (Figure 2-36). The two Lead Operators are given the daily responsibility of coordinating efforts of the other nine operators. Operator certifications have been obtained for one Grade V, one Grade IV, six Grade III, one Grade II, and one Grade I.

Figure 2-36
Plant Operations Organization



Employee Certifications

Employee certifications exist for twenty-three (23) employees among Wastewater Collections, Instrumentation and Electrical, Mechanical Technology, and Wastewater Treatment. A summary of employee certifications is shown in Figure 2-37.

Figure 2-37
Employee Certification Count

Certification	Employee Count
WW Collections – Grade I	4
WW Collections – Grade II	1
WW Collections – Grade IV	1
I&E Tech – Grade II	1
WW Lab Technician – Grade I	1
WW Lab Technician – Grade II	2
Mechanical Technician – Grade IV	1
WW Treatment – Grade I	1
WW Treatment – Grade II	1
WW Treatment – Grade III	6
WW Treatment – Grade IV	1
WW Treatment – Grade V	3

The City has employees with various certifications, which exceed mandated requirements and provide ability for flexibility in work assignment and scheduling.

Hiring Process and Turnover

The City has had an issue with turnover for some employee categories with an average between 10-15% annually during the past 5 years in Plant Operations & Maintenance. Line Maintenance turnover in contrast was only 6% over 5 years.

The relatively high turnover for the Plant Operator position has been compounded by a lengthy hiring process which, because of various steps, has resulted in the loss of capable candidates who appear to be hired by other organizations during the City's applicant review process. Treatment Operators are in generally short supply and often have multiple offers.

In several documented occasions, the City hiring process taking 5-7 months has resulted in the apparent loss of candidates who took other jobs during the City's steps to make an offer. One example reviewed recently took nearly 8 months to replace a position and lost a candidate during the process. Further, this issue was noted in several interviews and confirmed in a documented timeline of attempting to hire candidates (Figure 2-38).

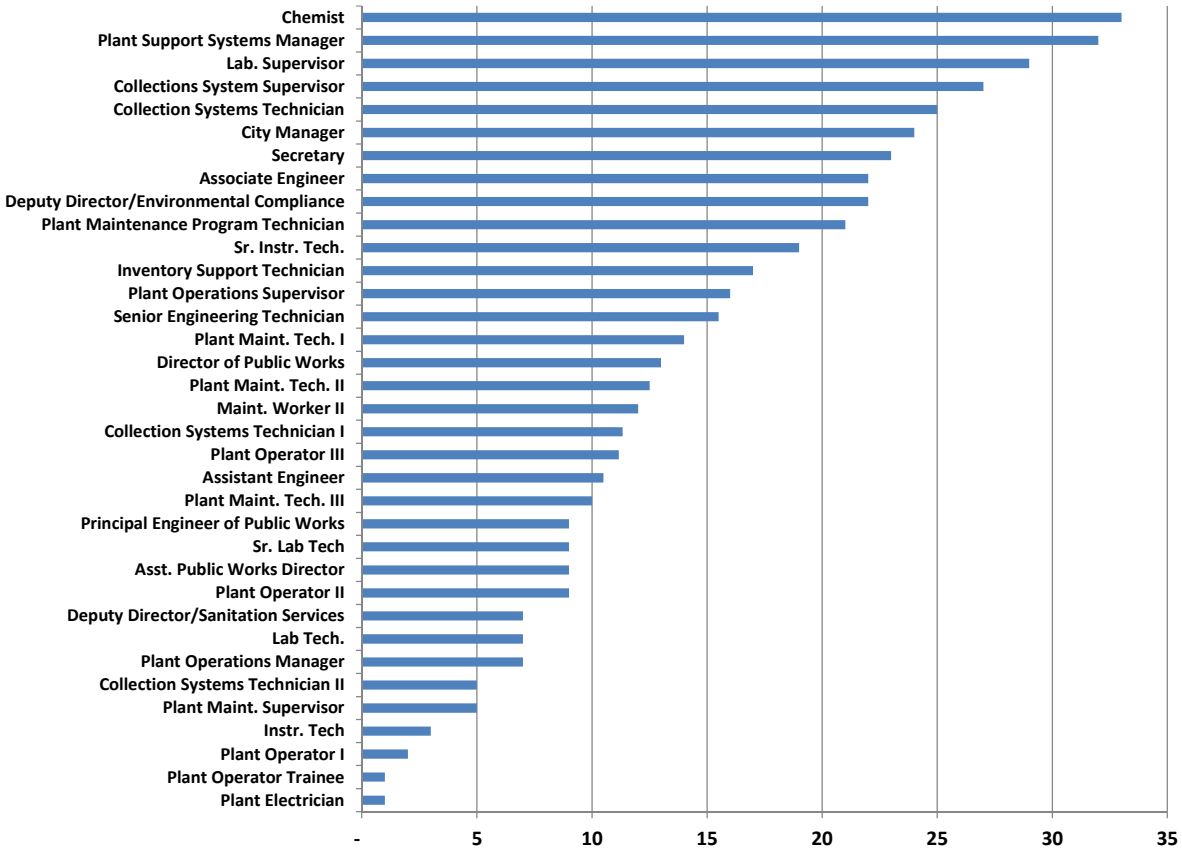
Figure 2-38
Example Timeline of Hiring Process

Resignation	5/31/2012
Authorize to recruit	7/31/2012
Screen	10/18/2012
Interview	11/21/2012
Offer	12/3/2012
Request authorization	1/22/2013

Length of Service

Employee overall length of service varies by category as shown below. The average length of service with the City is slightly less than 12 years with variance in groups from 17+ years in laboratory to six in instrumentation (Figure 2-39).

Figure 2-39
Average Length of Service by Classification



Work Shifts / Standby / Leave

All Sanitation operations employees work a 9/80 shift with flex day coverage on Mondays or Fridays for most groups. Supervisors' flex day is Monday with Plant Managers assuming responsibility for daily operations when needed.

Plant Operation employees scheduled for standby duties are paid an additional $18 daily rate plus regular pay for the first two (2) hours of call-out. Call out exceeding two hours is paid at the "Premium OT" rate of 1.5 times regular pay. Full staffing (10 employees) occurs on Thursday and Friday with minimal staffing (4) on weekends. Monday is normally staffed by five employees with six on Tuesday and Wednesday. Two operators also return each night for checks from 9pm to 11pm, sometimes occurring on scheduled days off. Operator-in-training employees and Operator Lead workers are not utilized on weekends with Grade III Operators on duty Saturday and Sunday.

Instrumentation rotates two employees to perform various 'Rover' duties including routine calibration and cleaning of various plant instrumentation components.

Plant Maintenance is staffed with ten (10) employees Monday through Thursday with either four (4) or six (6) on Fridays depending on flex schedules.

Laboratory has four employees, which rotate with 365-day coverage. Flex day is covered for Supervisor by the combination of Plant Operations Manager and Chemist. Only one Lab employee is staffed during Saturday and Sunday.

Work Management Process – Operations

Plant Operations work consists mostly of daily plant operator routines at each of the four assigned stations (Helm, North, South, and Press). This includes manually checking various equipment and recording readings on a combination of paper forms. These readings are compiled by the Helm Operator and input into the Hach WIMS database. Helm Operator also monitors the plant-wide SCADA system for alarm signals. If an alarm is triggered, the Helm Operator will radio the Plant Operations Supervisor and the assigned area operator (North, South, and Press) who will investigate and attempt to resolve immediately or identify assistance to solve the issue. When additional maintenance support is needed, a half-sheet "WQCP Maintenance Request" work order request form is submitted to the appropriate division.

Plant Maintenance work is generated from requests by Plant Operations as well as routine preventive maintenance of plant equipment. New work identified by Plant Maintenance employees is communicated to the Plant Maintenance Supervisor and the Plant Maintenance Program Tech. Plant Maintenance Program Tech documents the request on the "Ops Maintenance Request Log" which is recorded with an asset ID number. Asset ID numbers are retrieved from manual binders and transferred to the request log, then a "WQCP Maintenance Request" form is filled out by the Plant Maintenance Program Tech and given to the Support Systems Manager.

Requests are sent to the Support Systems Manager for priority and assignment. After initial approval of priority 2 and 3 work orders, the Manager may pass information directly to the Plant Maintenance Program Tech to generate the associated Hansen work order record.
For priority 1 or more urgent work orders, the Plant Maintenance Supervisor is notified immediately to investigate and resolve the request, if possible. If additional resources are needed, a Hansen work order is generated by the Plant Maintenance Program Tech or Industrial Painter and attached to the "WQCP Maintenance Request" half-sheet form.

"WQCP Maintenance Request" forms received by the Plant Maintenance Program Tech are attached to an associated Hansen work order form printout and submitted to the appropriate section Supervisor. Work is assigned and completed by crews who then complete the work order form by recording labor, equipment, and material resources used. Plant Maintenance Program Tech receives completed work order form from crews and updates Hansen work order record. Completed Hansen work orders are closed out by the Plant Maintenance Program Tech.

Work requests for Instrumentation and Electrical (I&E) are sent to the Plant Operations Manager for priority and assignment. After initial approval by the Manager, I&E employee determines if parts are available and initiates a purchase request, if needed. Purchase requests PDF forms from I&E are attached to the "WQCP Maintenance Request" form and sent to the Inventory Support Tech for procurement and update of Hansen inventory database.

I&E employees also document work orders in a separate log with a new work order number that may be different than the Hansen work order number. Pink carbon copies of the work order are filed by I&E staff, with another copy sent to the Plant Operations Manager. Manager approves the purchase request and provides a budget fund code to be charged for the purchase. I&E records the transaction on an "Inventory Reduction Form" in the I&E office with a copy provided to the Inventory Support Tech to update inventory in the Hansen database. Inventory Support Tech then creates the purchase requisition to be submitted to City Hall for approval.

After parts are received, the packing slip is signed and saved by the Senior Instrumentation Tech. Line Maintenance work consists mostly of routine hydraulic jetting and closed-circuit television (CCTV) of sewer main lines. Work requests for collections are sent to the Support Systems Manager for priority and initial approval.

The Collections Supervisor creates a work order in Microsoft Word and prints for assignment to field crews. Sewer Lift Stations are monitored via internet by contract service (Mission123) with alarm signals sent to pagers given to standby collections crew. All crews (scheduled and call-out) record work on yellow work order forms kept in trucks at the job site. Completed forms include location, labor hours, equipment used, and total footage cleaned. At the end of each shift, crews return to the plant and transfer work data from yellow forms by typing into Excel spreadsheets. Completed spreadsheets are emailed to the Supervisor who then closes out the work order.

The Lab work process varies but involves daily required wastewater plant testing documentation, some weekly water samples, and other wastewater plant processes, such as required digester testing. All testing is done following strict processes with chain of custody documented in manual processes and data stored in the Hach WIMS.

Purchasing and Contracts

Purchase request process may be generated by review of potential vendor's capabilities, employee email request, fax, phone call, or credit card receipts. Operations employees interface directly with chemical vendors for supplying the treatment process. The Secretary is the primary interface with service vendors and the Inventory Support Tech works mainly with product vendors. A vendor list exists for blanket purchase orders that allows for various item purchases when needed.

A purchase request PDF form is generated by operations staff and provided to the Secretary or Inventory Support Tech to enter the initial purchase requisition into SAP. The Inventory Support Tech also logs the inventory transaction into the Hansen database. Next, the designated plant manager (Operations or System Support) approves the request in SAP, followed by the Deputy Director. If the request is greater than $4,999, the Management Analyst at City Hall must approve prior to Sanitation. If less than $5,000, Management Analyst in Sanitation can approve directly and generate the purchase order which is then faxed to the vendor.

Inventory Support Tech receives parts and updates the Hansen database. Section supervisor is notified that parts are available and a copy of the packing slip is sent to the Secretary. After product or services have been acquired, the Secretary updates SAP and files a copy of the packing slip with the Invoice.

Blanket purchase orders and single unique purchase orders are utilized for a variety of products and services. This includes chemicals for wastewater treatment, contract lab support for effluent analysis, capital SCADA design and construction, and some welding. Collections utilize some contract support for chemical root foaming of sewer main lines and some CCTV effort.

Scheduling and Assignments

Hansen work orders may be used for assigning work to crews and utilize a three-level priority system. Level 1 priority indicates an emergency to be completed as soon as possible. Level 2 priority indicates work to be scheduled at earliest possible time. Level 3 priority indicates potential backlog, or low priority.

Plant Operations meet each morning to review assignments. Operator schedules are prepared two weeks in advance. Plant Operator assignments rotate into weekends with alternating coverage every two weeks. Plant Operations is fully staffed on Thursdays and Fridays.

Instrumentation currently utilizes two employees with rotating duties every two weeks. Employees alternate performing 'Rover' duties. Log sheets for 'Rover Duty Log' and 'Monthly

Rover Duties' are utilized, which provide detailed checklists for preventive routines. Rover may also complete Priority 1 work orders if finished with other duties.

Plant Maintenance plans some projects on a weekly basis with most assignments occurring during a daily assignment meeting with the Plant Maintenance Supervisor.

Collections developed short-term plans for sewer line cleaning with most assignments made in the morning at a brief (15-minute) assignment meeting with the Collection System Supervisor.

Work Reporting and System Outputs – Operations

Multiple work logs exist with varying forms used by each section. Plant Operations report daily readings to document completion of daily routines. Daily log books are also used at each of the four assigned operator stations (Helm, North, South, and Press) for manual recording of daily activity and to document any issues or concerns that occur during shift.

Hansen work order reporting includes some labor, equipment, and material resource utilization and is often linked to a specific asset in the database. Plant Maintenance is the main user group in Sanitation with some use by Instrumentation. Plant Operations and Line Maintenance crews rarely record work efforts in the Hansen database. Laboratory, management, and administrative staff do not report work in the Hansen database. All labor reporting utilizes a $25 standard rate in the Hansen database. Equipment rates are based on standard FEMA rates and unrelated to actual equipment costs incurred by the City.

Collection System Maintenance uses a combination of manual and electronic files to record daily linear footage cleaned by each crew, CCTV effort and observations, and "hot spot" maintenance. Summary status reports are compiled each month by the Supervisor and provided to management. These reports also include a description of any issues that may impact line maintenance operations. SSO activity is entered and reported to the State Water Resources Control Board web site.

Lab uses a combination of spreadsheets and manual logs for reporting work with resulting data placed in the Hach WIMS system that generates the required supporting outputs to State and other agencies. Three annual reports to State and monthly reports for NPDES permit compliance are generated by Lab employees with technical support provided by the Instrumentation Tech. Other routine lab reports are generated for Department of Health Services (DHS) and the Environmental Protection Agency (EPA).

Budget fund status reports are generated by the Secretary each month and provided to management. These include balances for blanket purchase orders and remaining balances for

other fund budgets. Ad hoc analysis may also occur based on work completed for various groups.

Labor Reporting

Full-time equivalents (FTE's) indicate the number of positions required to accomplish the identified work. Provided a 40-hour work week for fifty-two (52) weeks per year, each employee is employed and paid approximately 2,080 hours annually. Assuming ten (10) holidays at eight (8) hours each for a total of eighty (80) holiday hours, and an average of thirty (30) days combined leave per employee at eight (8) hours for a total of two hundred forty (240) hours combined leave, approximately 1,760 hours per employee is available for maintenance work. This is an average number used to determine the number of FTE's required.

- 8-hour days, 40-hour weeks, 52 weeks per year = 2,080 available hours per employee each budget year
- 10 holidays = 80 hours
- 30 days combined leave = 240 hours
- Available hours – holidays – combined leave = 2,080 – 80 – 240 = 1,760 productive hours available
- 1,760 hours = One full-time equivalent available for maintenance

Although work shifts in Sanitation are 9/80, the value is still an appropriate estimate. Labor reporting data obtained from the City indicates nine (9) employees reporting in Line Maintenance and thirty-three (33) employees reporting in Plant Operations, which includes Operations and Maintenance. This is equivalent to 18,720 (9 * 2,080) total annual hours in Line Maintenance and 68,640 (33 * 2,080) total annual hours in Plant Operations.

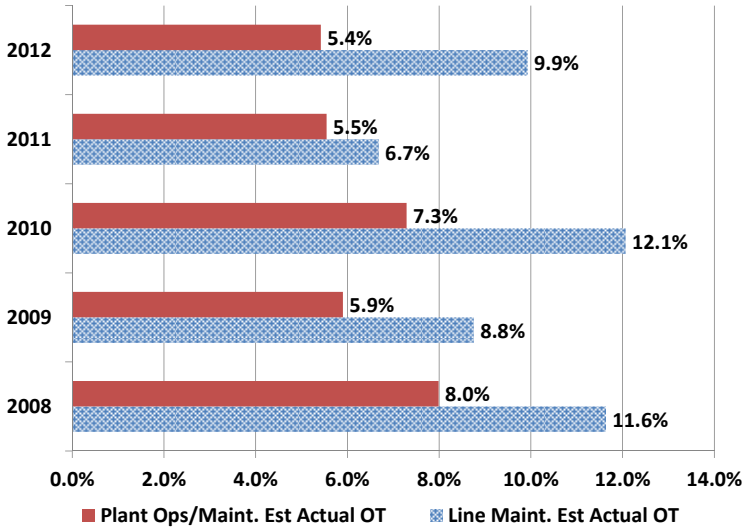
Timekeeping System Reporting

Labor reporting data obtained from the City included summary hours by division for overtime and leave. During CY2012, Line Maintenance employees reported 1,859 hours of overtime, or approximately 9.9% of total annual hours. Plant Ops/Maintenance staff reported a combined 3,721 overtime hours, or 5.4% of total annual hours. During the same period, Line Maintenance reported 3,815 hours of leave, or 20.4% of total annual hours. Plant Ops/Maintenance reported 10,610 hour of leave, or 15.5% of total annual hours. Annual percentages for both sections are depicted below in Figure 2-41 and Figure 2-42 and are based on estimate of 2,080 available annual hours per employee.

Overtime Reporting

The percentage of total hours worked for overtime for plant operations and maintenance has varied from 8% in FY 2008 to 5.4% in FY 2012; for line maintenance it was higher, at 11.6% in FY 2008, and 9.9% in 2012. This is shown in Figure 2-40 below.

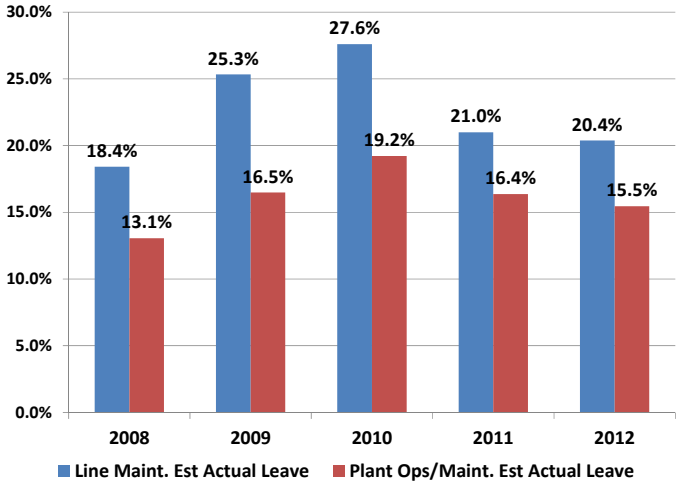
Figure 2-40
Overtime Reporting as Percentage of Annual Labor



Leave Reporting

The amount of leave for plant operations and maintenance has varied from 13.1% in FY 2008 to 15.5% in FY 2012; for line maintenance it was higher, at 18.4% in FY 2008 and 20.4% in 2012. This is shown in Figure 2-41.

Figure 2-41
Leave Reporting as Percentage of Annual Labor



Hours charged to Annual Leave in CY2012 totaled 1,507 in Line Maintenance and 6,137 in Ops/Plant Maintenance.

Rest and Recovery

A portion of the leave are hours charged to Rest and Recovery time, which totaled 1,093 in Line Maintenance during the calendar year (CY) of 2012 and 239 combined hours for Ops/Plant Maintenance. The amount of Rest and Recovery for plant operations and maintenance has varied from .2% in FY 2008 to .3% in FY 2012; for line maintenance, it was much higher, at 8.2% in FY 2008 and 5.8% in 2012. This is shown in Figure 2-42.

Figure 2-42
Rest & Recovery as Percentage of Annual Labor

Good Practices and Innovative Ideas – Engineering

Engineering, like Operations, has implemented and established many innovative processes and practices along with the skills sets that are available which include:

- Completion of a complete asset review identified future need which has been used to create a CIP with specific projects and needs projected for 10 years.
- The asset condition study has documented condition of assets and projects for rehabilitation and replacement needs that are documented.
- Compilation of team with wide and diverse background, and considerable City experience.
- Staff has a generalist prospective background in managing projects.
- Engineering staff uses both CADD and GIS.

- Engineering provides support for others outside of the division such as parks, potable water, and streets.

Section Characteristics – Engineering

Sanitation Engineering provides several types of services for Sanitation, including technical engineering support, project management, and support to implement Sanitation Division Capital Improvement Projects. The group also provides technical support to the City by preparing and/or managing the preparation of construction drawings, bid specifications, cost estimates, and construction support. They review development projects for service, maintenance, and location of sewer services. Further, they manage consultant contracts. Their effort includes collection, compilation, and maintenance of the asset related records.

Finally, the group also supports permit review of those attempting to obtain services from the City for potable water and sanitation connection.

Documentation /Sanitation Standards

The Sanitation Engineering section has different documentation for standards and related process documentation. First, the City has developed standards for both internal work and that of developers for Sanitation Services. The plans consist of several components, including a guideline of design criteria for sizing lines and related devices to material specifications, along with specific standard drawings and details that must be included in all plans in which the City will be responsible. The manual also has some specific guidance in design and construction with standards for materials, methods, and traffic control.

The permit process for water and sewer is another duty that Engineering is responsible for which requires some documentation. A collection of memos, notes, computer screen shots, and past methodology for assigning infrastructure costs have been compiled by Engineering to help guide in the permit processes and assignment of the fees for related infrastructure costs impacted by the development. The historical affirmation of the past property owner's payment for their infrastructure responsibilities is somewhat complex and requires some research to assure lack of redundant payment by new property owners for cost that has been covered.

The procedure for establishing a new project is defined and is outlined in Figure 2-43.

Figure 2-43
New Project Procedure

New Project Procedure:

1.) See Purchasing Practice and Procedures Manual for the **type of bid process** required based on the expected cost of the project. For example a project expected to be over $100K, will require a formal bidding procedure and City Council approval to solicit bids. A complete bid package is required for formal bids.

2.) After the official bid opening, Support Services will provide all bids for staff to copy and review. Keep the originals in the project file and return the copies to Support Services.

3.) Review all submitted bids to verify responsive bids. Flag bids that are incomplete or non responsive.

4.) Verify bid totals of each bid using unit prices. Make corrections if need.

5.) Contact apparent low bidder and indicate that staff intends to contact their listed references and begin the process to request an award of contract.

6.) Prepare contract using the latest boilerplate contract from: W:/CITY-WIDE BOILER PLANT/Contract Construction.doc.

7.) **Send contract** to Admin. Secretary (Wendi) for final formatting and mailing to contractor.

8.) **Prepare staff report** to request the award of contract to the lowest responsive bidder. If the lowest bid is higher than the budget for the project, a supplementary budget request is also need with the staff report to award contract. Staff reports should be ready for Director's review on Tuesday, 13 days before the Council meeting.

9.) Once the **contract is signed** and returned by contractor, make a copy and give the original to the Admin. Secretary to attach to the award staff report (10 calendar days to return contract per the specification).

10.) After the City signs the contract, Prepare and send **Notice of Award letter** to contractor. Include City insurance forms from the specification documents. The City Clerk office will send the signed contract to the contractor

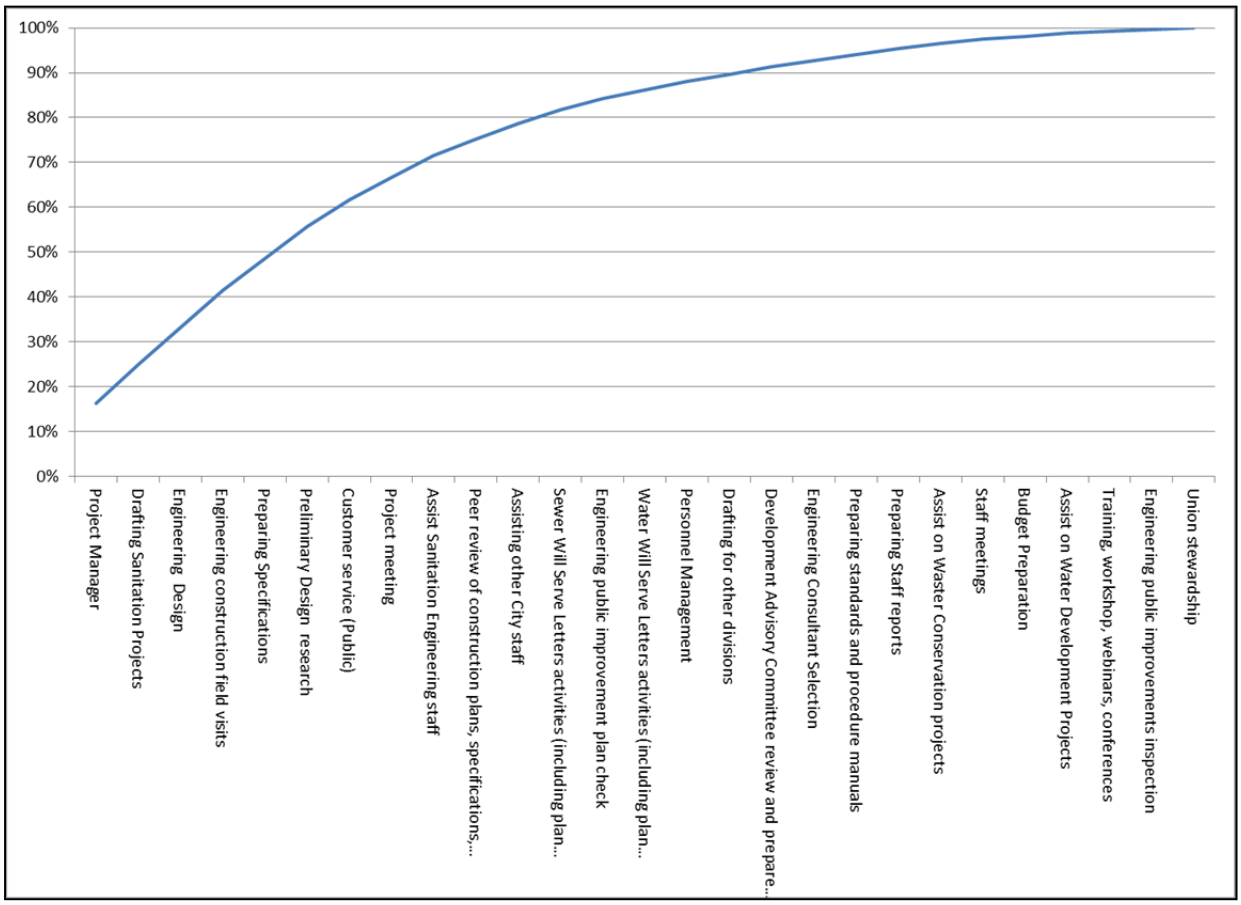
11.) Scan the signed contract and send to Admin. Sr. Management Analyst via email and request a **Purchase Order** for the project's progress payments.

12.) Schedule **pre-construction meeting** once all the bonds and insurance documents are

Activities Performed – Engineering

Estimates of employee task effort were determined by using data from employees' surveys. The group performs many different activities with 11 main activities accounting for 80% of the effort for the group. This can be seen in figure 2-44, showing an accumulated effort with the first activity accounting for 18%, and the first two accounting for 25%.

Figure 2-44
Engineering Activities Accumulated work



A listing of the top 11 activities is shown in figure 2-45 with project manager being the most common.

Figure 2-45
Engineering Major Activities

Project Manager
Drafting Sanitation Projects
Engineering Design
Engineering construction field visits
Preparing Specifications
Preliminary Design research
Customer service (Public)
Project meeting
Assist Sanitation Engineering staff
Peer review of construction plans, sp
Assisting other City staff

Permitting is a key effort for two of the engineering employees. There is a process that must be undertaken, providing water and sanitation service to a customer; it is called "Will Serve Process." The effort has several steps that must be performed and is somewhat outlined in the permits manual. The steps include:

- Confirmation in Waterworks District 8 Boundary
- Review of site plan and tenant improvement
- Confirmation of main sewer for connection
- Review of adequate water pressure
- Ensure no moratorium in parcel
- Receive water purveyor statement of meter size
- Obtain proof of payment to Calleguas
- Obtain proof of connection fee

In addition, various reviews including sewer study, engineering plan check and DAC reviews have occurred by engineering. Listings of a summary of these are shown in Figure 2-46 with amount and hour expended.

Figure 2-46
Plan Check Review

SEWER STUDY REVIEWS (Last 2 YRS)		
Description	Apr. # of Reviews before final	Approximate number of hours
Los Canyons Residential Development	4	16
Proposed Hotel on Cochran Street	2	6
Residential / Church Tract North of Mall	2	6
Hummingbird Nest Expansion CUP 739	3	8
In-House Flow Monitoring events (Knolls area) *	1	4
In-House Flow Monitoring events (Justin Ave) *	1	4
Total	13	44
** Note that the in-house monitoring is conducted by City staff in areas of the sewer system that has capacity concerns. The flowmaster software is used to evaluate the conditions of the existing sewer.*		
ENGINEERING PLAN CHECK (Last 2 YRS)	33	NA
DAC REVIEWS (Last 2 YRS)	64	NA

The permit support also involves providing counter service. The Engineering group has assigned a Senior Engineering Technician that provides coverage twice a week for 3 hours. Last year the counter support resulted in 88 plan checks, processed over a 22 month time period. This is about four per month, or just less than one plan check per week.

Performance Measures and Budgets – Engineering

The engineering group is part of the overall sanitation budget, which includes both operations and environmental compliance. It is estimated that $1.43 million is used in the current budget to fund ten (10) Engineering staff and supplies. This amount does not include capital projects. As noted in the table below, only six positions (shaded) are directly involved in current engineering project management, production, or permits. The others (Assistant Director and secretaries) are administrative and professional support with one of the Senior Engineer positions now working in capital projects and not supporting Sanitation.

Assistant Public Works Director – DEAKIN, JOSEPH
Principal Engineer – KANG, MICHAEL
Senior Engineer – VILLARAMA, MARLON
Senior Engineer (Underfill) – MURO, ERNEST
Associate Engineer – BENJAMIN, STEVE
Assistant Engineer – CLARK, JERRY
Management Analyst – MILITELLO, TODD
Sr. Engineering Technician – CHARETTE, RONALD
Sr. Engineering Technician – MEJIA, RAMONA (1/2 San; 1/2 Water)
Secretary – VACANT
Secretary – HYDE, JILL

Funding Sources

Capital projects are funded using a combination of the Sewerline Replacement Reserve, Sanitation Replacement Reserve, and Connection Fee Fund. The breakdown by project is shown in figure 2-47.

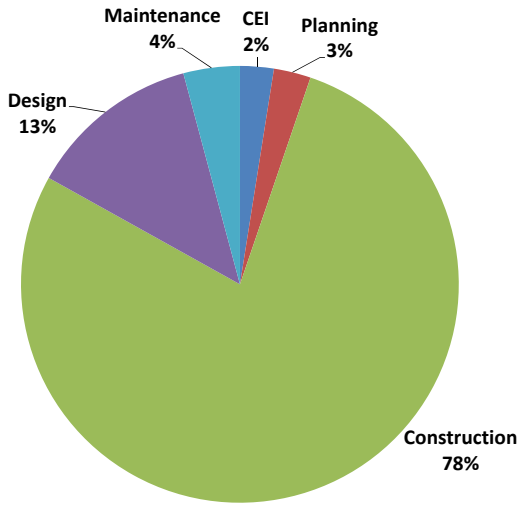
Figure 2-47
Engineering Funding Sources

	Prior Yr Funds	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	5-year CIP Total
Sewerline Replacement Reserve							
10" to 12" Sewerline Rehabilitation	$0	$0	$0	$970,000	$0	$0	$970,000
10" to 27" Sewerline Rehabilitation	$0	$0	$0	$150,000	$150,000	$0	$300,000
24" to 36" Sewerline Rehabilitation	$0	$0	$30,000	$950,000	$950,000	$0	$1,930,000
Arroyo Simi Sewerline Rehabilitation	$0	$50,000	$2,200,000	$2,200,000	$0	$0	$4,450,000
Beaumont St and Heywood St Sewerline Rehab	$0	$0	$0	$25,000	$330,000	$0	$355,000
Cochran Street-Erringer Road Sewerline Rehab	$0	$0	$50,000	$936,000	$936,000	$0	$1,922,000
First St, Fifth St, Royal Ave, Ventura Ave Rehab	$0	$0	$0	$0	$50,000	$2,480,000	$2,530,000
L. A. Ave. (Bishop to Barnes) Sewerline Rehab.	$0	$0	$0	$0	$2,750,000	$0	$2,750,000
LA Ave. (Erringer-Crater) Sewerline Rehab.	$0	$0	$0	$0	$250,000	$2,100,000	$2,350,000
Manhole Rehabilitation	$0	$84,000	$0	$0	$0	$0	$84,000
Royal Avenue (Crosby-Fair) Sewerline Rehab.	$0	$0	$50,000	$1,780,000	$0	$0	$1,830,000
Royal Avenue (Pride to Erringer) Sewerline Repl.	$0	$0	$0	$0	$200,000	$2,790,000	$2,990,000
Shopping Lane (Tapo Cyn-Lucky) Sewerline	$490,000	$1,000,000	$0	$0	$0	$0	$1,490,000
Strathearn Place - Arroyo Simi Sewerline Rehab	$0	$0	$0	$0	$50,000	$2,480,000	$2,530,000
Sycamore Dr (Niles to Heywood) Sewerline Rehab	$0	$0	$0	$0	$600,000	$0	$600,000
West Los Angeles Avenue Sewerline Rehab	$350,000	$1,000,000	$0	$0	$0	$0	$1,350,000
Sanitation Replacement Reserve							
Annual Sewerline Assessment	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$600,000
Chlorine, Filtrate, WAS Pump Replacement	$0	$168,000	$0	$0	$0	$0	$168,000
Building Seismic Retrofit	$0	$0	$379,000	$0	$0	$0	$379,000
Dewatering Equipment Replacement	$0	$0	$0	$50,000	$500,000	$1,000,000	$1,550,000
Electrical Equipment Replacement	$936,000	$1,400,000	$1,475,000	$1,475,000	$0	$0	$5,286,000
Financial Plan Update	$0	$0	$0	$0	$125,000	$0	$125,000
Headworks Building Upgrade	$0	$0	$0	$0	$200,000	$800,000	$1,000,000
Plant Water System Pump Replacement	$0	$0	$0	$0	$410,000	$0	$410,000
Secondary Clarification Equipment Replacement	$0	$0	$0	$0	$50,000	$1,000,000	$1,050,000
Connection Fee Fund							
Digesters Rehabilitation Project	$0	$0	$0	$0	$50,000	$558,000	$608,000
Annual Totals:		3,802,000	4,284,000	8,636,000	7,701,000	13,308,000	39,607,000

Capital Expenditures

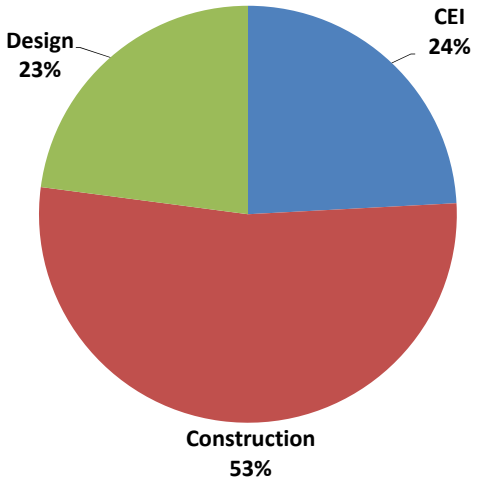
The cost of capital improvement projects (CIP) that have been managed by Sanitation Engineering over the past five years have totaled $13.4 million or an average of $2-3 million annually. The projects that Engineering manages are divided into five categories of work – planning, design, maintenance, inspection, and construction. Figure 2-48 shows that the amount expended for construction is 78% of the total for this time period.

Figure 2-48
FY12-13 Engineering Expenditures



Project Management is a major work effort performed by Sanitation Engineering. The largest project over the last five years has been the Arroyo Simi project at a cost of $1.4 million. Of the three components of the project: design, construction, and inspection, construction costs comprised more than 53% of the total expenditure, as shown in Figure 2-49.

Figure 2-49
Project Management Work Load Distribution



Capital Planning

The City's CIP is listed by project. An example is shown in Figure 2-20. The CIP has details by project with the description, type, time frame, anticipated expenditures, and source of funding. The City, using the Carollo study, has programmed a ten-year CIP plan that costs $113 million.

If it occurs, this ten-year CIP plan will increase the annual capital work effort from less than $2 million in FY 2013 to $11 million in FY 2016.

Figure 2-50
Five-Year Capital Planning Worksheet

CITY OF SIMI VALLEY
FIVE-YEAR CAPITAL IMPROVEMENT PROGRAM
FISCAL YEARS 2013-14 TO 2017-18

Project Title:	10" to 12" Sewerline Rehabilitation	**Operating Costs:**	
Fund:	Sanitation Replacement Reserve	**First Year:**	$0
Lead Department:	Public Works	**Subsequent Years:**	$0
		Source of Funds:	N/A

Project Description: Rehabilitate 2,500 feet of 10 to 12-inch asbestos cement pipe sewer trunk line on Galena Avenue, Sorrel Street, Vera Court, Dalhart Avenue, and Tapo Canyon Road, one segment near Avenida Simi and another segment near Cochran Street. The primary rehabilitation mode will be cured-in-place slip liner, although some open trenching may be required to correct sags. Design is scheduled for completion in August 2015 and construction is expected to be completed in May-2016.

EXPENDITURE PLAN:	Prior Yr Funds	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	Total
Consultant Services	$0	$0	$0	$0	$0	$0	$0
Construction	0	0	0	870,000	0	0	870,000
Construction Services	0	0	0	100,000	0	0	100,000
Total	$0	$0	$0	$970,000	$0	$0	$970,000
SOURCES OF FUNDING:							
Sewerline Repl. Reserve	0	0	0	970,000	0	0	970,000
Total	$0	$0	$0	$970,000	$0	$0	$970,000

The capital improvement plan (CIP) prioritizes by project for the next five years (Figure 2-50) and associated funding. The electrical equipment replacement at the treatment plant is the highest priority. A listing in Figure 2-51 shows those priority projects for the next five years.

Figure 2-51
Capital Priority List

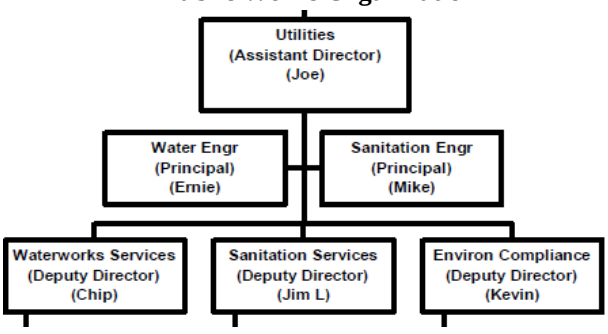
		Prior Yr Funds	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	5-year CIP Total
1	Electrical Equipment Replacement	1,400,000	1,475,000	1,475,000	0	0	0	2,950,000
2	Annual Sewerline Assessment	100,000	100,000	100,000	100,000	100,000	100,000	500,000
3	Arroyo Simi Sewerline Rehabilitation	0	50,000	2,200,000	0	0	0	2,250,000
4	Royal Avenue (Crosby-Fair) Sewerline Rehab.	0	50,000	1,780,000	0	0	0	1,830,000
5	Building Seismic Retrofit	0	0	390,000	0	0	0	390,000
6	24" to 36" Sewerline Rehabilitation	0	0	30,000	950,000	0	0	980,000
7	Cochran Street-Erringer Road Sewerline Rehab	0	0	50,000	940,000	0	0	990,000
8	Sycamore Dr (Niles to Heywood) Sewerline Rehab	0	0	0	600,000	0	0	600,000
9	10" to 12" Sewerline Rehabilitation	0	0	0	970,000	0	0	970,000
10	L. A. Ave. (Bishop to Barnes) Sewerline Rehab.	0	0	0	2,750,000	0	0	2,750,000
11	LA Ave. (Erringer-Crater) Sewerline Rehab.	0	0	0	250,000	2,100,000	2,100,000	4,450,000
12	Plant Water System Pump Replacement	0	0	0	410,000	0	0	410,000
13	Royal Avenue (Pride to Erringer) Sewerline Repl.	0	0	0	200,000	2,790,000	0	2,990,000
14	10" to 27" Sewerline Rehabilitation	0	0	0	150,000	1,000,000	0	1,150,000
15	Secondary Clarification Equipment Replacement	0	0	0	50,000	1,000,000	400,000	1,450,000
16	Dewatering Equipment Replacement	0	0	0	50,000	500,000	1,000,000	1,550,000
17	Financial Plan Update	0	0	0	125,000	0	0	125,000
18	Strathearn Place - Arroyo Simi Sewerline Rehab	0	0	0	50,000	2,480,000	0	2,530,000
19	First St, Fifth St, Royal Ave, Ventura Ave Rehab	0	0	0	0	50,000	2,480,000	2,530,000
20	Beaumont St and Heywood St Sewerline Rehab	0	0	0	25,000	330,000	0	355,000
21	BNR Membrane Replacement	0	0	0	0	400,000	0	400,000
22	Headworks Building Upgrade	0	0	0	0	0	200,000	200,000
23	Easy Street and Arroyo Simi Sewer Rehabilitation	0	0	0	0	0	620,000	620,000
24	10" to 20" Sewerline Rehabilitation	0	0	0	0	0	2,050,000	2,050,000
25	Justin Avenue Sewer Rehabilitation	0	0	0	0	0	450,000	450,000
26	Rosalie St and Tracy Ave Sewer Rehabilitation	0	0	0	0	0	650,000	650,000
27	Royal Avenue, Stow Sewerline Rehabilitation	0	0	0	0	0	550,000	550,000
28	Arroyo Lift Station Rehabilitation	0	0	0	0	0	90,000	90,000
29	BNR West Mixer Replacement	0	0	0	0	0	200,000	200,000
30	Chlorine, Filtrate, WAS Pump Replacement	0	0	0	0	0	170,000	170,000
	Annual Totals:	1,500,000	1,675,000	6,025,000	7,620,000	10,750,000	11,060,000	$37,130,000

The City awarded $5.9 million of projects during FY11-12 with most (70%) for rehabilitation and construction.

Organization – Engineering

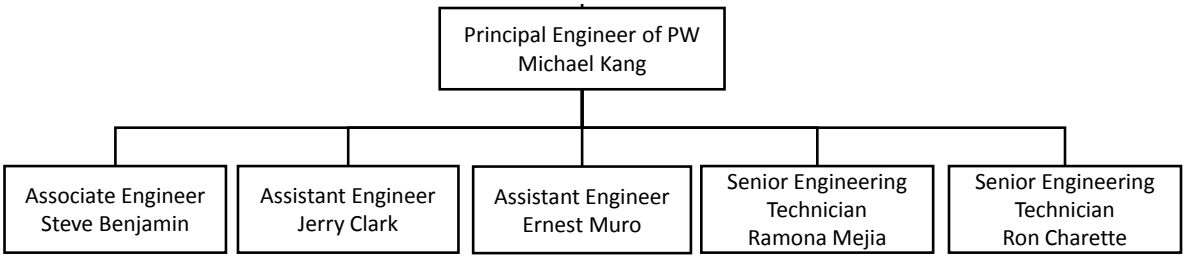
The group reports to the Assistant Director of Public Works who oversees Engineering and four other functions. The principal Sanitation Engineer leads the group and reports to the Assistant Director of Public Works. The general organization is shown in figure 2-52.

Figure 2-52
Public Works Organization



The engineering group consists of five reports with one associate professional engineer, two assistant engineers, and two senior engineering technicians as shown in the organization chart in figure 2-53.

Figure 2-53
Engineering Organization



Staff work experience varies within the group. All employees have considerable overall infrastructure engineering, permitting, and project management background. However, there is a minimal amount of applied work in managing of sanitation engineering, construction and design projects. Figure 2-54 outlines, by position, the number of years each individual has been employed with the City, time in Sanitation, and their general background. As shown, the years with the City are extensive yet background in sanitation is much less.

Figure 2-54
Staff Experience

Position	Years with City	Years in Position	Educational Background
Principal Engineer, PE	10	6	Mechanical Engineering
Associate Engineer, EIT	22	6	Mech Eng. Tech training
Assistant Engineer	14	<1	Landscape Architecture
Assistant Engineer	9	<1	Kinesiology
Sr. Eng. Technician	25	3	Physics; Environmental Science
Sr. Eng. Technician	8	3	Technical Drafting; Various Software

Background of Engineering Employees

The Principal Engineer manages the group and coordinates with customers as well as being the key contact with other engineers. He is a mechanical engineer (BSME) with public and private experience as well as a licensed civil engineer. He is the key technical and design person in the

group and manages both internal projects and consultants. Most of his work is that of being a project manager for outsourced work. Though he is the group manager, he utilizes only 10% to employee guidance, direction and support.

A seasoned Senior Engineer, who is a licensed civil engineer with 35 years of experience worked two years with Sanitation and is now assigned with the Capital Projects group in Public Works. Although he no longer provides services to Sanitation Engineering, the position remains listed as part of Engineering and is paid with Sanitation funds.

The Associate Engineer recently obtained his PE (May 2013). He has 23 years of experience with 5½ years in Sanitation mainly in permit processing. Customer service has been a key part of his work experience, and he is very familiar with the history of past permitted projects as well past rate structures. He now performs plan checks and helps determine necessary fees that require historical knowledge

There are two Assistant Engineers. One has a background of over 30 years as a Building Official with building and safety background and about a ½ year with the Sanitation group. He is now under-filling a Senior Engineer position. The other Assistant Engineer is a registered landscape architect with 35 years of experience in landscape architecture and, yet like the other assistant, has been in Sanitation group only ½ years. The current main function of these two employees is administering and managing projects.

There are two Senior Engineering Technicians. One has 25 years overall background and 3 years with Sanitation Engineering. That technician has a Masters Degree in Environmental Science, provides support for both GIS and CADD drafting, and assists in accounting and data compilation along with permit counter and customer service assistance. The other technician's main role is drafting and some GIS for monitoring sewer line video and condition files for contract effort.

Leave for the group has increased from 800 hours in FY 2008 to 1,400 hours in 2012 with a minimal amount reported for overtime being utilized and some compensatory time (20 hours/year).

Work Management Process – Engineering

Scheduling

All six employees' work a 9/80 work week that is staggered to allow five-day coverage. Five of the employees work 7a-5p with the other working 7a-4:30p. Two employees flex schedule with

an off-day on Monday before payday, three employees flex schedule with an off-day on payday Friday, and one employee flexes on the non-payday Friday.

Bidding of Work

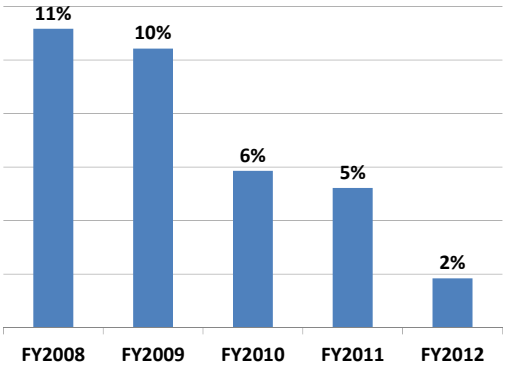
The group manages the preparation of bids and the accompanying engineer's estimates. Work is bid for the selected projects that show a range of 15.7% from the average amount and 17% from the engineer's estimate. Projects with large contracts had a tighter range for Sanitation for both values. Figure 2-55 below shows those values which both have high variability as seen by standard deviation estimates of 14.5% and 15%.

Figure 2-55
Plan Review Log

Date	Project	Bidders	Average	Range of deviation	Engineers est.	% deviation from Average
5/2/2011	11-03	2	$86,371	3.0%	$ 100,000	14%
7/18/2011	11-08	2	$1,088,506	0.5%	$ 1,300,000	16%
9/12/2011	11-07	2	$1,160,973	3.4%	$ 1,200,000	3%
9/12/2011	11-19	3	$531,874	11.9%	$ 560,000	5%
12/29/2011	11-28	4	$120,022	36.9%	$ 100,000	20%
1/9/2012	11-33	12	$178,928	36.3%	$ 185,000	3%
3/5/2012	12-03	3	$90,238	12.8%	$ 60,000	50%
4/9/2012	11-18	2	$1,265,395	0.6%	$ 1,500,000	16%
6/4/2012	12-09	5	$103,188	27.4%	$ 150,000	31%
1/28/2013	12-31	11	$338,684	24.7%	$ 366,000	7%
			Average	15.7%	Average	17%
			Standard Deviation	14.5%	Standard Deviation	15%

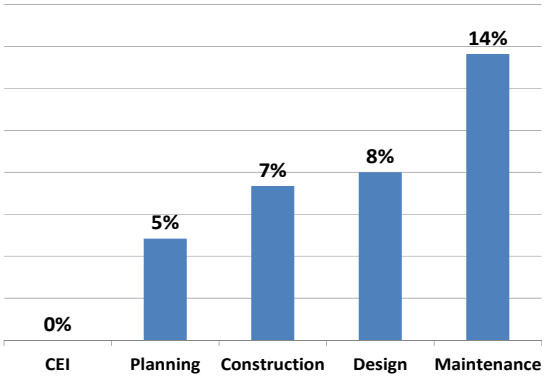
The project change order amounts have progressively decreased from 11% to 2% of the construction cost during the last five year as shown in figure 2-56.

Figure 2-56
Change Order Percentage



The breakdown by project type shows that change orders are higher for maintenance or small projects but lower for larger projects. This can be seen in figure 2-57.

Figure 2-57
Change Orders by Project Type



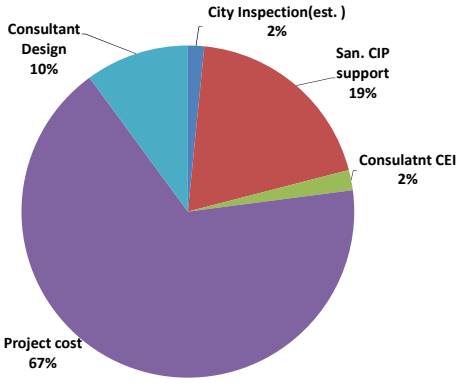
Work Reporting and System Outputs – Engineering

The engineering recording for time worked is nonexistent, and they lack any accounting of time and effort for any project, activity or cost account code. The only details are those kept of leave categories in the payroll system. There is however an effort by the Sanitation Engineering group to track and account for both consultants and contractors effort and dollars.

Project Cost

The project effort was determined by using a combination of data sources as it is not directly tracked by the City. Knowing percentage of time on projects and assuming a 90% overhead, the amount of total cost values were determined for both external consultants and contractors and internal engineers and inspectors. Then, using project costs over a five year period, various work portions were determined as a percentage of the total cost. This was broken down as follows: external design of 10%, external inspection of 2%, Internal Sanitation Engineering CIP support of 19%, and external inspection of 2% with the remainder being project cost of 69%. This can be seen in Figure 2-58.

Figure 2-58
Project Cost Component

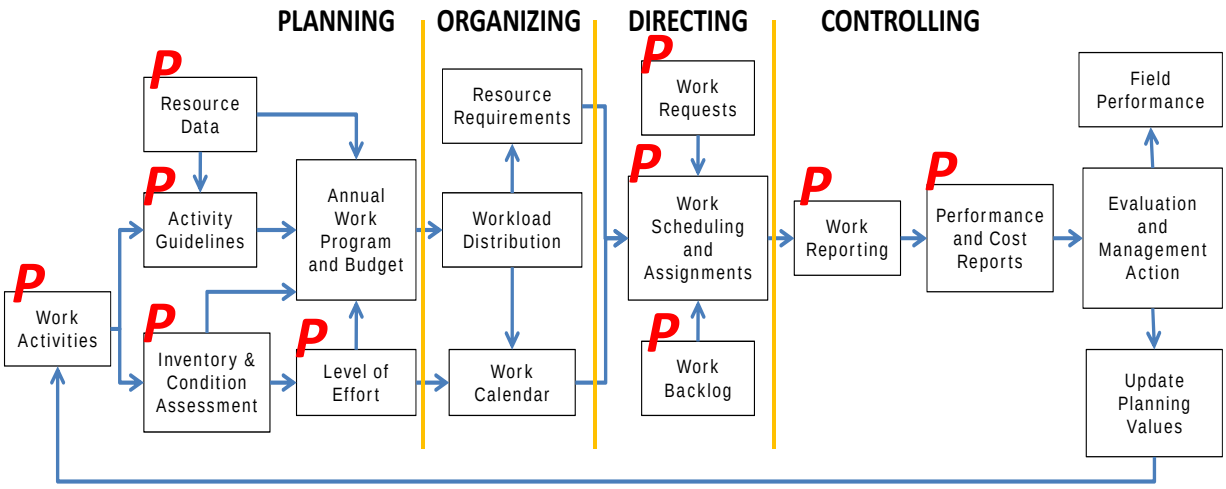


Overall Management Process

The City is performing some functions of the ideal maintenance management process (Figure 2-59). Basic activity list exists in Hansen with some employee time reported to activity on work orders. Asset lists exist in various formats for key assets such as wastewater pipes, manholes, as well as most plant electrical and mechanical equipment. Thorough condition assessments have been performed in recent years. Standard operating procedures have been developed for many plant operator functions, collection equipment operation, and some instrumentation tasks. Resource data exists, but is outdated or does not reflect actual costs. Service levels have been established for some routine activities, yet an annual work program and budget is lacking.

Some short-term scheduling occurs and is somewhat integrated with a work request and backlog system, yet a systematic approach to scheduling incoming, ongoing, and backlogged work is lacking. Some labor, equipment, and material reporting occurs on work orders with only a small portion of operations effort reported. Activity reporting lacks unit accomplishment and full cost to allow management report evaluation of performance and costs. Some budget and inventory reports are generated routinely with other ad-hoc report created based on inquiry by management and supervisory staff.

Figure 2-59
Ideal Maintenance Management Process


PLANNING
ORGANIZING
DIRECTING
CONTROLLING
P
Resource Data
P
Activity Guidelines
P
Work Activities
P
Inventory & Condition Assessment
Annual Work Program and Budget
P
Level of Effort
Resource Requirements
Workload Distribution
Work Calendar
P
Work Requests
P
Work Scheduling and Assignments
P
Work Backlog
P
Work Reporting
P
Performance and Cost Reports
Field Performance
Evaluation and Management Action
Update Planning Values

SECTION 3
FINDINGS

INTRODUCTION

This section provides support information and analysis on opportunities to improve the existing operation. This section also includes research and analysis identifying findings that will provide a basis for specific and significant recommendations. These findings follow the fundamental management functions of planning, organizing, directing and controlling/improving.

The evaluation of efficiency involved two areas. First was the identification of opportunities to manage work in a more efficient manner. Second was the determination of the processes that would establish methods for continual improvement to meet the infrastructure maintenance needs within the City of Simi Valley.

The eighty (80) findings are also subdivided into Operations and Engineering. There are forty nine (49) findings for Operations and thirty-one (31) for Engineering.

OPERATIONS

The following findings are based on observations, interviews, data collection, comparisons, prior knowledge and evaluation. The forty nine (49) findings are classified into five categories – general/systems, planning, organizing, directing, and controlling. The findings are *not* presented in order of importance but sequence; however, many of the findings are related and should be reviewed in total and not independently. It should be noted that much of the support information used to determine the findings is derived from the baseline information previously submitted, and was "point-in-time" data that was compiled from the City and interviews with staff. The baseline data is not repeated in the section, just referenced, for the sake of brevity.

Performance-based work plans are included in the Appendix of the report, which estimate the current annual work load for each section within the existing organization.

General – Operations

1. **Demonstrated desire by employees and management to improve and be more effective. Recent recipient of State award for Collections System of the Year as well as many employees active in industry and professional groups.**

Sanitation employees have demonstrated an earnest desire to work well and improve, as demonstrated by the consistent, effective programs for sewer collection line cleaning, plant treatment process, and effluent water quality. Some good practices and innovative ideas include:

- Routine cleaning of sewer lines, which has resulted in low occurrence of sanitary sewer overflows
- Management workshops with other agencies
- One shift for plant operations, supplemented with nightly call-back
- SCADA workstations accessible throughout plant for all operators
- Lab certified in six EPA Fields of Testing
- Utilize employee teams to address various challenges including cost reduction

The City was also recently recognized by the State to receive the award for Collections System of the Year among systems containing between 250 and 500 miles of sewer main pipe. Further, several employees actively participate and held (hold) various offices in various industry organizations such as California Water Environment Association (CWEA).

The leadership in sanitation is known in the industry and are seasoned and experienced professionals that have managed facilities in even larger operations in both LA County and the City of Thousand Oaks.

2. **Teams work well together with necessary coordination occurring between various crews to schedule and complete work.**

Plant operators, mechanics, the electrician, instrumentation technicians, collection crews, and lab employees were observed and documentation reviewed that demonstrate teams are working together. They have developed methods for sharing resources and managing work efforts which require various sections support. Coordination efforts include scheduling of support from line maintenance for cleaning plant facilities as well as sampling and testing by Lab employees for the sanitation operations.

3. **Opportunities may exist to enhance resource sharing for equipment and employees with streets, storm water and water.**

Public Works divisions such as Waterworks, Streets, Fleet, Pretreatment, and Stormwater are also located at the WQCP and adjacent facility. Opportunity may exist for resource sharing of labor and equipment, as well as shared administrative duties for material inventory management, storage, lab testing, and contract management. Many efforts were observed during the review that could potentially allow for the optimization of both labor and equipment resources including sharing of lab capabilities, use of warehouse functions, and heavy equipment.

In the local agencies surveyed, both Cities of Ventura and Thousand Oaks all shared their laboratory with other functions. In Las Virgenes Water District, engineering and SCADA support are integrated with water and sanitation operations functions. In both the Cities of Ventura and Thousand Oaks engineers who perform design and construction management are integrated together with other capital projects, while Thousand Oaks does have one onsite engineer for assistance to operations at the plant.

4. **City's vision and mission statement call for efficiency and effectiveness yet tools to monitor accomplishment are lacking or not fully implemented.**

The City's vision and mission statement indicate explicit desires for excellent service delivery and efficiency, which can be measured various ways. Key performance measures such as unit time and unit cost can be used by managers for identifying operation areas needing attention. Business practices and related database capabilities are lacking, which would allow Sanitation management to compile and evaluate these basic metrics for informed management decision making. Key industry benchmarks such as cost per million gallons or cost per linear foot are not easily obtainable from existing databases and require significant manual compilation.

5. **Division direction appears to adhere to the City's overall mission. A mission and vision statement has been developed for Sanitation and employee teams were utilized to develop goals and objectives in eight areas yet those lack integration with the overall budget and performance measures.**

Sanitation's separate vision and mission statements appear to align with the City's overall vision and mission statement, which focuses on quality service, cost-effectiveness, and good business practices, which are explicitly mentioned in the Sanitation statement.

Sanitation employees collaborated as a team to identify eight functional areas for improvement. Specific goals were outlined and documented, yet systems were not established to link Sanitation goals to overall City goals, which could allow for compliance monitoring and performance reporting. For example, Sanitation Division goals in the FY12-13 budget identify projects to be completed. Division goals focus on employee development, security, cost reduction, and process optimization without quantifiable measures for accomplishment.

6. **Three different entities are involved in the transfer of plant recycled water to be used in the landfill.**

Sanitation's two pumps and two hydro-pneumatic tanks for recycled water are located at the southeastern area of the WQCP and maintained by operations. Calleguas Municipal Water District Recycled water lines are then used by Sanitation and recycled water pumped to the

landfill north of WQCP for Waterworks District No. 8 ownership. Waterworks then sell the water to the landfill. Further, installation of additional recycled water distribution lines are currently underway with more expansion projects being planned that could affect the future workload.

7. **The laboratory is certified in six EPA Fields of Testing, while all but one in the County area have less certifications. Some laboratory equipment is outdated and cannot achieve the level of desired accuracy as required for some tests.**

Using the ELAP/NELAP accredited laboratory list from the California Department of Public Health website, 114 labs were identified who operate throughout the Ventura County areas which have been ELAP or NELAP certified in one or more of the 28 Fields of Testing (FOT). Seventeen of the 114 labs are designated as "City" laboratories and seventeen other labs are designated as "Public Wastewater System" in the EPA database. The City has earned certification in six (6) FOT categories, shown below in Figure 3-1. A "city" laboratory is designated by the type assignment on the ELAP/NELAP Accredited Laboratory List as of June 19, 2012. Only the City of San Buenaventura Laboratory's number of FOT certifications exceed Simi Valley among public agencies in Ventura County.

Figure 3-1
ELAP/NELAP Lab Certification List – Ventura County Region

Facility Type	Fields Of Testing	ELAP	NELAP
	Ventura County Area		
City			
	City of San Buenaventura Laboratory	11	
	City of Oxnard	6	
Commercial			
	Fruit Growers Laboratory, a.k.a. FGL Environmental, Inc.	13	17
	Pat-Chem Laboratories	16	
	Capco Analytical Services	14	
	Aquatic Bioassay & Consulting Laboratories, Inc.	4	
	Aquatic Testing Laboratories	2	
	Columbia Analytical Services, Inc.		1
County			
	Ventura County Waterworks Districts	3	
	Ventura County Health Department Laboratory	3	
Industrial			
	GenOn Energy - Ormond Beach Generating Station	1	
	GenOn Energy - Mandalay Generating Station	1	
Public Wastewater System			
	City of Simi Valley Water Quality Control Laboratory	6	
	Hill Canyon Wastewater Treatment Plant Laboratory	5	
	Camarillo Sanitary District	3	
	Camrosa Water Reclamation Facility Laboratory	2	
	Casitas Municipal Water District	1	
Public Water System			
	Camrosa Water District Laboratory	2	
	Lake Bard Water Filtration Plant Laboratory	1	
Utility			
	Ojai Valley Sanitation District	2	

8. **The Hansen system is used for both routine and response effort with little management information readily available.**

The work order system is mainly used to track some response based work for intra-departmental support and accomplishment of some preventive maintenance routines. This data collected provides minimal information to assist management with planning, or effectively and efficiently managing and controlling resources. Additionally, retrieval of data within Hansen is cumbersome and can take significant resources to compile because of the lack of reporting capabilities.

The system information is used typically to research "after the fact" actions that occurred. The lack of system configuration and training appears to account for the lack of system utility. The information is minimally employed for management functional application. The information in the system lacks linkage with other systems and is minimal in the capturing of figures and statistics to be applied for controlling work and tracking accomplishment.

9. **Several systems are in place with Hansen used mainly by Plant Maintenance in a most basic way without fully utilizing many existing capabilities.**

The City has a series of systems being used by employees for many management processes and record keeping along with various MS Excel spreadsheets and manual files. There are many independent databases that are found to be used throughout Sanitation that are both electronic and manual.

The major system for tracking work is the Hansen computerized maintenance management system (CMMS), which has been in place since 2006 and is used primarily for Plant Maintenance work orders and some other basic functions for asset management and inventory control. Many capabilities exist in Hansen including the ability to capture 100% of resources used, asset maintenance history, automated preventive maintenance routines, spatial data linkage, total cost summary, unit cost calculation, and productivity measurements yet have not been completely populated or configured for a more effective utilization. Waterworks uses the database for managing their linear asset systems (i.e. water treatment is not under their jurisdiction) with work tracking is being performed in a limited capacity by Plant Maintenance in the Sanitation group.

Further, other independent systems that include a combination of database systems, spreadsheets, Word documents and manual forms are used. A series of manual forms are used by operations and maintenance staff to track several tasks, processes and functions. For example, work order logs, inventory tracking, and sewer line cleaning reports are often used for recording redundant information, which has already been reported in another document or system.

The City of Ventura currently captures 100% of all operation's time for sanitation employees for all functions, while Thousand Oaks has a system for the line functions in addition to maintenance. Both Ventura and Thousand Oaks use GIS for the linear asset maintenance.

10. **City IT is preparing an RFP for a complete enterprise system that could impact operations systems.**

City management has indicated that a new enterprise system is planned for the near future and is scheduled to be competitively bid. The City leadership has indicated acceptance of a valid alternative of a department-specific work and asset system with the option of integration into the enterprise system. Installation of enterprise-wide systems often requires significant time and resource commitments over a multiyear period during the planning stages for successful implementation. Asset and work management systems typically contain much finer detail than is required for the enterprise database and summary data is often extracted, and then imported, to maintain data integrity and quality control.

11. **SCADA system provides some tools to monitor and control, yet much of the reporting requires a manual effort to compile. SCADA has been recently enhanced, yet some capabilities still do not exist.**

Wonderware is the SCADA software system used throughout the WQCP. Workstations are located in designated operator areas and used for monitoring all areas of the plant. Some controls exist for mechanical and electrical components. Most components and assets are monitored with SCADA, with some readings and measurements only being recorded manually then keyed into other systems. A series of spreadsheet macros have been developed by the Instrumentation employees and are used for compiling and preparing data for the various regulatory reporting. These include custom-developed computer code which requires specific and technical employee knowledge to maintain and update.

Planning – Operations

12. Minimal cost accounting is being performed and an overhead rate is lacking for maintenance operations. Equipment cost utilizes standard rates which are unrelated to the actual City cost.

Minimal cost accounting occurs in the system with the Hansen database only being used in a limited way to store just minimal cost information. Further, work order costs are only very rough estimates and are not adequately related to the actual work being done. A standard labor rate of $25 is used for all employees without any overhead being applied. Equipment rates are outdated and based on industry standards rather than actual City cost to operate the vehicles. Reporting actual resource costs would provide useful information for planning work and estimating project costs for rehabilitation and maintenance.

Finally, only 10-20% of all Sanitation employees' time is actually entered into the system while some other agencies account for more of their employees' time such as Ventura, which accounts for 100% of operations employees' time in both water and sewer.

13. Budgets have decreased slightly since 2009 in both constant and adjusted dollars with personnel expenses rising slightly and no loss of service.

In the last five years, the actual expenditures declined by 2.5% with no indication of loss of service or capabilities from review of work accomplishment, interviews and reports. Taking into account inflation and adjusted cost reduction to current present value, the change is approximately 10%.

This amount of cost reduction implies that work has become more cost effective from the base year of 2009. It appears that several actions by management to better plan, schedule, and organize work along with reduction in unnecessary overtime, appears to have been effective with work being accomplished with 10% less retained resources.

14. A considerably large portion of the Sanitation Operation's budget is allocated to reimbursements and transfers, which has increased in the actual amount by 100% from FY2010-11 to FY 2011-12.

Sanitation Operation's FY12-13 budget amounts for personnel, supplies, and services total $9,753,800. Reimbursements and transfers totaled $6,020,900 for the same period, which equates to 38% of total budgeted funds, excluding capital outlay. During the past three years, the average allocation accounts for 39% of operations' budget. Actual expenditure/transfer amounts

have increased from less than $5 million in 2010-2011 to over $9 million in 2011-2012 as a result of planned capital needs.

The transfers include three for asset-related replacement – plant replacement reserve for $1.01 million, replacement reserve sewer line for $5.96 million and vehicle replacement for $297,600. These values are over a 100% increase from FY2010-11 to FY2011-12. The vehicle allocation increased by 50% during this period without any provided justification in the vehicle replacement plan.

Further, Sanitation has 38% of general fund allocation at $2.7 million an 8% increase from FY 2010-2011 to FY 2011-2012. Sanitation has a considerable amount of allocation and reimbursements that are a large part of their budget.

15. **Public Works Director has responsibility of all infrastructure assets and engineering in the City with eight direct reports, which is at the high end in span of control.**

Public Works Director has eight direct reports or span of control for many different functions within the department. A good industry benchmark for positions at this level is 4 to 8 with the City being on the higher end of the range.

This higher span of control implies that the reports are more accountable and responsible for their operations with limited time available for the Director to coordinate and guide. Though this is cost effective and does lower overhead, it also reduces some management control.

16. **Detailed routine processes are being put in place yet many existing tools are general and have not been updated and may be not relevant. Documented routines have been established for Plant Operators, Instrumentation, Plant Maintenance, and Line Maintenance crews, yet are not loaded into an automated system.**

The City has many historical work routines that were used in the past to proactively schedule maintenance and operations. Many of these are now outdated and are not relevant to the assets that currently exist in the plant. A limited process is underway to update the routines but appears to be a very lengthy effort that has been unable to keep up with the current operational needs.

Routine preventive maintenance procedures have been established for plant maintenance using a combination of the Hansen database and external spreadsheets which includes detailed check lists for all major plant equipment with schedules established. Plant maintenance is attempting to blend response work with PM and is attempting to establish tools for this to occur.

17. Work methods and standard operating procedures (SOP) exist for many key operator functions, vehicle operation, and some instrumentation programming, yet are lacking integration with CMMS and made readily retrievable.

The City has developed standard operating procedures (SOP's) for many plant processes and equipment operation, which include detailed work methods, resource requirements, and illustrated instructions for many major functions. Although SOP's have been developed, they lack integration with the CMMS and some are difficult to retrieve and update by employees. Some SOP documents can be viewed from the SCADA systems help function. Some equipment-related documentation is outdated and is no longer useful for maintenance. Expected outcomes, such as productivity and quality of work, were also lacking.

Some agencies have a good business process of developing specific activity guidelines with methods, procedures, resource allocation, quality control measures, and productivity estimates. The City SOPs had some of these processes in place yet are inconsistent among their groups and most SOPs lack any productivity values or daily production values.

18. City has responsibilities for critical wastewater assets and treatment process. Though assets appear to be managed well, they lack integration into a complete automated asset, work, and operation systems.

Wastewater treatment plant has both operational and maintenance functions that are both well-managed and recorded using various processes including a collage of forms, spreadsheets, and databases that have minimal linkages. The automated systems exist yet are not fully being utilized in a systematic way to manage the plant's assets and work processes.

Tools such as proactive work orders, automated scheduling, productivity monitoring and activity costing are lacking or unavailable to assist in providing the key information for managers to continuous monitor, take action, monitor and improve operations regards higher needs to physically monitor, direct and guide efforts.

19. Sewer line cleaning appears operationally adequate and lines appear to be in good condition.

The City has experienced between two and five SSO's annually since 2007, ranking in the top percentile among regional and State agencies. City's sewer lines have a low occurrence of overflows and are below both State and regional benchmarks. AWWA benchmark values for CY2012 indicate an average of 17.4 SSO occurrences per 100 miles of gravity sewer among state agencies with an average of 6.0 in the Region 4 area where Simi Valley is located. Simi

Valley benchmark values have been below 1.0 and the City has ranked in the regional top ten for several years in a row.

The division utilizes time-based cleaning cycles for most of the line maintenance effort. Some segments are cleaned more frequently in the central business district, yet most lines are on a two to three year cycle and are systematically cleaned regardless of condition.

20. Many asset inventories exist and are stored in various databases yet are not in the CMMS or integrated into GIS.

Redundant infrastructure asset inventories are in multiple locations and data file types with varying degrees of accuracy and responsibilities. GIS for sewer pipe segments and manholes exists, and is a result of consultant condition assessment effort with attributes maintained by engineering employees.

There is a static map book created and produced with line segments that is used by the field crews for identifying and recording locations in their cleaning efforts. GIS is minimally utilized by operations and not available to key employees, while most utility agencies use this as a prime tool for monitoring work, especially for linear assets used in the cleaning effort for collections. Many agencies (Ventura, Thousand Oaks, others) utilize GIS within the CMMS database for lifecycle costing, preventive maintenance scheduling, and CIP planning. The City has yet to integrate their CMMS with the GIS database.

21. Detailed routine processes are in place by geographical areas within the plant for confirmation, data collection, and condition assessment.

Plant Maintenance section has divided up the plant into three areas in the Hansen database for tracking work to specific areas. This is done as a complete inventory is lacking and allows some continuity for planning work, data collection, and condition assessment. It is used only for general location identification and planning of work efforts of maintenance employees in the plant. Some agencies use a more up-to-date inventory and apply proactive routines using their CMMS to focus employees to specific assets rather than this more general process.

22. A complete and detailed condition assessment has occurred of both above and below ground assets, which exceeds most agencies effort in LAC benchmark database. Considerable point in time asset replacement and CIP planning tools are in place using vulnerability, criticality and risk assessments.

Study completed for the City by Carollo appears very robust and uses a combination of sampling, asset lifecycles, historical experiences, and consultant background to develop a

condition assessment of both above-ground (plant) and below-ground assets. The study provided condition in several parameters including criticality, vulnerability, and risk utilizing those to project both needs and priority.

The results were outlined in a priority order and then planned in a timeframe for the work to be done. The capital replacement needs both above and below ground were quantified at $79 million with a 10-year prioritized program for each year between $5-10 million annually in 2010 dollars to begin a life cycle approach to City infrastructure needs.

Condition assessment by Carollo found some assets are in a condition that requires immediate action to plan for replacement, enhancement, or rebuilding of the asset. For example, the Motor Control Center condition is such that requires action and planning for immediate replacement. Other assets identified were placed within the 10-year improvement program by priority.

23. Some underground assets such as sewer pipes are approaching estimated life with many pipes needing replacement.

The condition assessment identified that over 50% of the underground pipes were over 30 years old with a large portion of those in the 40 to 50 year range. This number creates a considerable amount of replacement that should be planned in the immediate future. The pipes in the City's inventory are estimated to have a life expectancy between 40 and 70 years depending on the pipe type and conditions constructed.

This could result in a large amount of the City's underground assets needing rehabilitation and replacement in the next 20 years, and especially pipes with lower life cycles as identified by the Carollo study.

24. Sanitation lacks establishment of key performance measures for effectiveness and efficiency. Good business practice suggests utilizing and relating measures to the work budget.

Vision and mission statements for both the City and the Division have been established yet do not identify and link any related measures to those performance measures in the budget. Further, goals that are identified in the budget are more related to effectiveness and response needs and resources to achieve them were not established just assumed to exist.

Annual goals for work accomplishment, productivity, and unit cost are often used as performance measures in a budget and are recognized as a key tool to monitor actual work efforts. Examples include cost per linear foot to clean sewer pipes or total footage of video collection by CCTV. For these to work, however, some linkage must occur to the available

resources to determine their adequacy. Such tools are suggested in GASB and other industry best management practices.

25. Asset values vary between $168M (City) estimated after a depreciation process and $866M (Carollo Engr.) for replacement.

Assets have different ways of measuring their value. First is the actual replacement value which is the amount of resources to physically install a new asset with the same functionality of the existing operation. Carollo estimated that if all assets were replaced at the current value, the City would need $866 million. The second measurement is the accounting measurement of the remaining value of the asset that is currently operating in place. It takes into account that the initial asset constructed has depreciated or lost value to this point in time. This value was estimated by the City at $168 million. The two asset values are only approximately the same at the time of newly installed assets after the replacement value normally rises, while the depreciated value decreases. The difference between the two is significant yet similar to other agencies.

The replacement value is the value normally used in process for determining the lifecycle costing and financial impact in capital improvement planning, while the depreciated value is one used for the accounting books and documentation of value of the City's assets.

26. Using asset replacement values as a basis, between $10-15 million average annual CIP is needed to maintain asset values with a current capital program of ~$10M annually planned.

The replacement value provided by Carollo, along with their life estimates for each asset type in their report, was used to estimate the amount of replacement annually anticipated. For example, pipe life for a concrete structure is 70 years; therefore you could expect an average of $1/70^{th}$ of the value of concrete pipes to be replaced annually. This was done for various asset types and a range of values between $10 million and $15 million was estimated for the average annual needs.

The specific amount for any year depends on the life cycle of each asset and would normally vary as assets were installed in different time periods and have different life cycles. The current City's capital improvement program is planned at $10 million over the next several years. This amount is approximately the amount estimated to be needed for the average annual rehabilitation and replacement cycle.

Organizing – Operations

27. Certifications exist within wastewater treatment and collections which meet or exceed industry requirements.

The City has employees with necessary certifications meeting state regulations for their Grade V plant. Most City operators are certified at different levels. The distribution of those include one having Wastewater Treatment Grade I, one having Grade II, six having Grade III, one having Grade IV, and three having Grade V. State regulations require one Grade V Operator assigned for a Grade V plant such as the WQCP with a Grade III or higher operating the plant at all times.

Though not currently required, the collection crews have all the suggested industry certifications. The breakdown for collection crews having certifications includes four Wastewater Collections Grade I and one Grade II with a Grade IV managing the group.

28. Employee turnover rate appears high for some groups, especially the plant operators, while other groups are more stable. A lengthy hiring process appears to occur that has resulted in a loss of potential employees.

The City has experienced a high turnover for some groups. The operations and maintenance organizational unit, over the last five years, have had a turnover rate in the range of 10-15%. Other groups, such as Collections, have not experienced such a turnover rate with their average of 6% being similar to what is expected for this type of work.

The operators require specific training and certifications, which further compounds the hiring of replacement operators and has been part of the lengthy hiring time frame. Compounding this are the federal and state mandates of the specific certifications that are increasing to meet plant operating permits. Also, the positions appear to be in high demand with many agencies attempting to draw from the same pool of candidates.

The City has lost several candidates during recruitment process due to the lengthy hiring process. Examples were documented for several cases where seven to eight months occurred from the position opening until obtaining the new hire. This lengthy process was documented to have lost potential candidates who were retained by others during the effort. The loss of those candidates requires the City to restart the costly hiring procedure.

29. Length of service of employees is within range of LAC average of 12 to 14 years.

There is a wide range of employee service with the City within Sanitation Operations. The average length of service by position determined for Sanitation Operations staff is 12.8 years. This is similar to LAC's benchmark database range of 12 to 14 years for most agencies.

Service ranged from one year for the Electrician and Plant Operator Trainee to 33 years for the Chemist. The average length of service is within the normal range. While the majority of Sanitation employees are relatively new to the City, 20 of the 45 positions held by Plant Operations, Plant Maintenance, Line Maintenance, and Lab had over 10 years of service.

30. Layers between PW Director and Supervisors appear high and exceeds LAC experience for an agency this size. Most spans of control are within range yet some on the low end of the range in some areas.

The amount of management layers affects overhead and efficiency with higher values increasing both cost and communication needs. The number of management layers between the Public Works Director and the working supervisors appears high with four layers being in place and another 2 or 3 to the lowest level working employee. The Deputy Director of Sanitation has two Managers who each have three direct reports. These reports all have specific functions with few overlapping responsibilities, which require some coordination. Other agencies in the area do not have such a layer between the Deputy Director and the supervisors. There are eight layers from the City Manager to the lowest level employee while the three benchmark agencies in Appendix B ranged from 5-7 layers from City Manager/Executive Director to the lowest level employee.

The lack of some technology system tools exist that have resulted in requiring additional management direction for City of Simi Valley. Further, the recent improvements (process, routines, overtime, etc.) can be traced to actions taken by the existing senior managers (Deputy Director and his two managers) who are currently necessary to manage operations. The current management levels may have been warranted as various management business processes have been implemented and put into place that were lacking only five years ago. Further, key operations staff is having a high turnover requiring more training and guidance from those Managers.

Span of control is an indicator of how many employees report directly to one Supervisor. LAC reviewed the span of control for Sanitation and some appear to be less than the best practices range for operations of between 4-10 employees. Most spans of control are within good industry practice range, yet some are on the low end of the range. Examples of the low range are Deputy Director (1:3), Plant Support Systems Manager (1:3) and Plant Operations Supervisor (1:2 yet

group functions as 1:4-5 with Lead Operators coordinating daily efforts). Helm Operator manages work effort of the other three assigned operators (North, South, and Belt Press).

Deputy Director has three direct reports including the two managers and the Secretary. Plant Support Systems Manager span of control is 1:3 with the Plant Maintenance Supervisor, Collections System Supervisor, and Inventory Support Technician reporting to him. The Plant Operations Manager has two direct reports, Lab Supervisor and Plant Operations Supervisor.

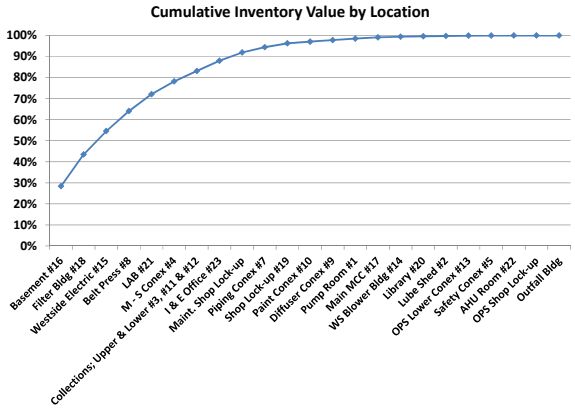
31. Instrumentation provides many roles including support for SCADA, maintenance of reporting/collection devices plus other various support tasks. Routines are established, outlined and used for confirmation of systems adequacy and function.

Staff in the Instrumentation group provides many services for Sanitation throughout the WWTP. SCADA operations are supported by a contractor, yet the daily operation and maintenance of SCADA and the related reporting is performed by City instrumentation employees. Instrumentation has established a series of routines for assurance of plant operations for various electrical and instrumentation functions as well as the operation of the SCADA system. This group also has other responsibilities such as compiling data for state reporting, maintaining surveillance equipment, technology specifications, and the calibration of various equipment.

32. Excessive material inventory control locations exist that require considerable monitoring and control yet they appear to be well-organized.

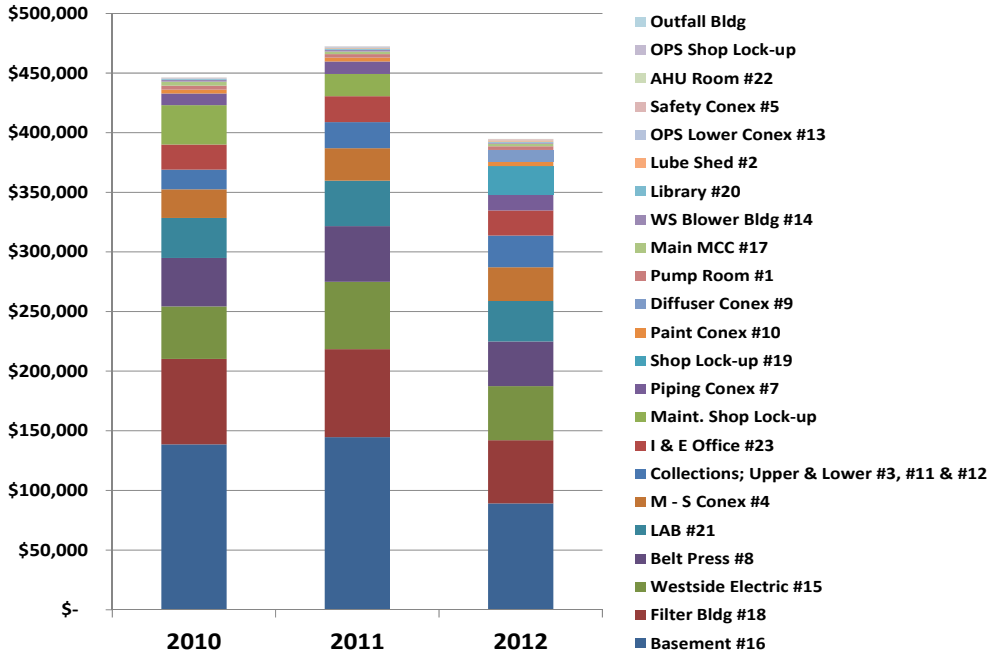
Twenty-five storage locations exist throughout the plant. The materials are concentrated in three locations that include Basement #16, Filter Bldg. #18, and Westside Electric #15, which have over half of all dollar inventory value as shown in the following Figure 3-2. Some of the locations are unprotected from the environment, and it has been reported (though unconfirmed) to indicate that inventory has been compromised as a result of water damage.

Figure 3-2
Accumulated Inventory



A manual system is in place to monitor the inventory with an Inventory Support Technician monitoring receipt of inventory and documenting the location and inventory item number on each item and storing in a simple log and spreadsheet. The inventory for the last three years by location is shown in Figure 3-3. The value of the inventory in FY 2012 was slightly under $400,000.

Figure 3-3
Inventory Value for FY2010-2012



A lack of complete accountability controls exist for inventory as the manual controls exist for amount received yet are difficult to control material usage under this manual system. A central warehouse has been proposed several times in the past by employees, yet was not accepted and one is not planned.

Directing / Scheduling - Operations

33. Plant Operations functions adequately on one daily work shift with an evening two-hour return back versus other agencies multiple shifts.

The Plant operates with one full 9-hour shift seven days per week, and a short, two-hour evening checkup shift. Many agencies in the Southern California region utilize multiple shifts to perform the same effort as the City's one shift. However, the local benchmark agencies of Las Virgenes Water District and the City of Thousand Oaks also have one shift with the City of Ventura having three.

There are no documented high levels of operational problems that have been reported at the plant as a result of this single shift schedule. However, the lack of available operators due to departures and other related scheduling issues has created the need for overtime coverage for these late evening checkups.

34. **Operations have procedures in place to assure adequate processes are occurring without any indications of any quality or effectiveness issues. Considerable manual checks and reading confirmations are taking place that may be collected via automated methods.**

Operations group has established routine, daily inspections throughout the plant in four areas that are done multiple times per day. This result system affirming the proper operation of the plant as well as assure the accuracy of the SCADA reporting, and to collect data not extracted by the SCADA system.

Further, the operations employees are involved in many housekeeping and cleaning tasks such as BNR tank cleaning, clarifier maintenance, and support for system modifications for maintenance to perform their work. Operations employees often work in tandem with maintenance staff.

35. **Several efforts occur during the various plant processes that result in the waste materials being transported to landfill with different employees involved in the effort.**

The process of removing solid matter from the waste stream requires five different operations before material is transported to the landfill. This includes: 1.) Screenings from the headworks; 2.) Debris from grit chambers; 3.) Fine debris from micro screens; 4.) Dried sludge; 5.) Occasional debris removal from the backwash pond when filter media breaks up and is no longer usable.

The assigned North Operator handles headworks and grit chamber debris hauling as well as micro screen debris. The Filter Press Operator handles dried sludge hauling and the South Operator is responsible for the occasional backwash debris from the filter media.

36. **Laboratory staff is interchangeable for basic day to day testing requirements and rotate to provide 365-day coverage.**

All laboratory employees participate in daily support and all are scheduled throughout the year to cover the basic routine tasks of monitoring the quality and processing of wastewater within the treatment plant. This required support to monitor the plant and collect required measurements are

done by either the Chemist, Senior Lab Tech, and Lab Technicians, which all can and do perform the exact same tasks, but at various times.

The employees rotate working on weekends and holidays since 365-day coverage is required for monitoring and testing. This flexibility allows for staffing to cover all of the required operations while minimizing overtime needs.

37. All staff work a 9/80 shift with minimal staffing on weekends. One daily 2-hour shift for after-hours support.

All employees work a 9/80 schedule where they are off one Friday during a two week period. The schedules are staggered to ensure work week coverage, with Friday staffing being the lowest coverage.

The Laboratory employees utilize a revolving schedule that has them changing their work week every two weeks for seven day coverage, which is similar to the local benchmark agencies in Appendix B while in Las Virgenes Water District, they use only overtime for 10 hours for weekend support.

The operations employees also have rotations so they share the weekend coverage and the evening two-hour shift. The weekends are manned by both the Lab and Operations employees, including two operators and one Lab person. Every day, there is a two-hour after-hours support effort by the operators.

Maintenance and Collections employees are not systematically scheduled for weekend work but are called in for various types of response. Recently, Collection employees have been scheduled for overtime work during their flex Friday to minimize unnecessary overtime (i.e. rest & recovery).

38. Work is scheduled based on routines and coordinated by all groups daily. Scheduling tools and processes vary among groups.

Staff work activities are mainly scheduled and assigned on a daily basis. Several employees perform some general assignment of staff responsibilities in advance, such as operator and plant, but all mainly use a morning meeting for assigning and allocating resources.

These daily assignments include some work that is proactively scheduled on multi-day efforts in combination with routines, daily assignments, and projects. Each group manages their assignments differently yet, other than the basic operator coverage and the basic lab coverage, most work is assigned daily in a 15-30 minute morning meeting.

Some agencies utilize system tools to schedule one, two, or three weeks in advance and modify those schedules daily to make adjustments assignments based on staff availability and needs.

39. Leave time reported by City is higher than LAC's benchmarks for some groups.

The leave hours tracked by the City in 2012 included 3,815 hours from nine (9) Line Maintenance employees, or an average of 424 hours per employee. Plant Operations and Plant Maintenance employees reported a combined 10,611 leave hours from thirty-three (33) employees, or approximately 322 hours per employee.

With approximately 2,080 regular annual hours per full-time employee, these values equate to 20.4% of regular hours in Line Maintenance and 15.5% of regular hours in Plant Operations and Plant Maintenance. The expected range in LAC database is 14%-16% that amount nearly all agencies report that they utilize. An estimated value of 2,080 annual hours was used since complete, actual reporting data was unavailable.

A significant portion of reported leave consists of "Rest-Recovery" time with 1,093 hours charged to Line Maintenance and 239.5 hours to Plant Operations/Maintenance during 2012. This is time that employees are paid to rest after long working hours equates to nearly one FTE of time.

40. City overtime amount exceeds LAC average agency benchmarks of 4% for several groups.

The total overtime hours tracked by the City in 2012 included 1,859 hours from nine (9) Line Maintenance employees, or an average of 206 hours per employee. Plant Operations and Plant Maintenance employees reported a combined 3,721 overtime hours from thirty-three (33) employees, or approximately 112 hours per employee.

With approximately 2,080 regular annual hours per full-time employee, this equates to 9.9% of regular hours in Line Maintenance (206/2,080) and 5.4% of regular hours in Plant Operations and Plant Maintenance (112/2,080). This exceeds the expected benchmark range in LAC's database and LAC's agency average of 4%. An estimated value of 2,080 annual hours was used since complete and actual reporting data was unavailable.

Controlling / Improving – Operations

41. Activity reporting is occurring in only some groups utilizing the Hansen database, yet it is incomplete and lacks adequate data and configuration to determine productivity and/or cost.

The City work hour tracking covers only a portion of about 10-20% of all employees in Sanitation. Plant Maintenance is the only group using the Hansen database on a consistent basis for work reporting. Some effort by line maintenance or plant operators may also be intermittently reported. Work reporting lacks complete resource and cost expenditures as well as tracking of units accomplished, thus preventing calculation of total actual cost or unit cost.

A good business practice is to account for all of the time and track by activity. Without such reporting basis data needed for improvement and accountability strategies of costing, efficiency, unit cost and productivity cannot occur. This is done in the City of Ventura with complete reporting and accounting for all time and work with the ability to produce an activity based costing and productivity by activity. The City of Thousand Oaks has similar capabilities in line operations and plant maintenance.

42. SCADA system provides some tools to monitor and control, yet much of the reporting requires manual effort to compile. Operator workstations are located throughout the treatment plant and are available to staff assigned daily.

A plant-wide SCADA system is in place for monitoring all major components of the plant treatment process. Many assets are able to be controlled, monitored and observed remotely via workstations which are available to all assigned operators.

SCADA is capable of collecting and compiling real-time statistics, which can be summarized and automatically compiled for regulatory reporting, yet the City utilizes a series of manual procedures and programming scripts to manipulate and quality control the data. These functions require specific technical skills and manual efforts to complete. Increased tools are available to trend data, and more fully monitor the plant operations.

43. Collections has established routine cleaning cycles with good results yet utilize very basic, time consuming manual reporting tools and lack abilities to use either CMMS or GIS which are often key tools in any collections program. CCTV program exists and data collected but lacks integration and is minimally utilized.

Sewer pipes in the City have consistently experienced a low occurrence of overflows which indicates clear to light debris conditions and an adequate cleaning cycle is in place. Reporting of

resources used and work accomplished occurs in several forms and is re-keyed for monthly summary reports. This increases opportunity for data errors and is a redundant effort.

Closed-circuit television (CCTV) is used to record video of sewer pipe segments for purpose of documenting condition and cleaning results, yet this feature is not integrated with the CMMS (Hansen) or the City's GIS, which is a common practice in this industry. Both the Cities of Thousand Oaks and Ventura use GIS systems with their CMMS for their planning and scheduling of collection work.

Further, CCTV data collected by contractor for pipes larger than 8" is being reported in data matching industry reporting standards for certified National Association of Sewer Service Companies (NASSCO) while internal crews do not report data in this format. Further all CCTV data is not stored in a single location and is difficult to analyze and utilize. CCTV is a tool for both rehabilitation planning and maintenance, yet processes to fully use the data have yet to be established.

44. Laboratory work is performed for other groups, yet all work effort and budget is charged actually to Sanitation.

Laboratory is funded exclusively from the Sanitation budget, yet they perform similar types of testing for several departments within the City including Waterworks and Environmental compliance/Stormwater. All lab expenditures are charged to Sanitation as there lacks any procedure with related cost accounting tools to allocate cost to the work efforts being performed for other groups. Other public agencies with laboratories in Ventura County (i.e. Las Virgenees Water District and City of Ventura) have similar situations where they do allocate the cost to the function receiving the support as well as charge private laboratories who utilize their services. The current main users of laboratory support are in Sanitation yet others use the support on a weekly basis as well for special projects.

45. Considerable recording is done for work being completed using various tools from automated system to manual methods and spreadsheet, which requires considerable effort to compile. Work reporting is inconsistent and sometimes performed in multiple, redundant files without abilities to cost or determine performance. Many manual methods are used.

All groups report work and asset data utilizing various methods and tools. Further, the type, amount, accuracy and details all vary and are often in formats that are not readily compatible. This results in a lack of both management and other accounting data for leadership and line staff to use for making decisions.

Multiple work logs exist with varying forms used by each section. Some work orders are tracked in the Hansen database which includes date of work performed, asset, general activity, as well as some labor hours and resource costs. Only some routine work is being tracked in any system. Plant operators use daily log books for recording work effort and job details.

The tools and processes that are now in place are manual processes that lack linkage to performance expectations. These processes do not allow the managers and supervisors to use the data to help manage and control resources in the most effective and efficient manner.

Hence, basic benchmarks, productivity and efficiency measures such as total labor effort by activity, cost of maintenance for an asset, unit cost and work accomplishment are most difficult to determine without major efforts.

46. Basic information such as cost of work is unable to be captured along with productivity. Complete costing with overhead, equipment and materials cost are lacking.

An accurate unit costing cannot be determined due to the lack of consistent reporting of units produced and all resources used as well as some key rates of equipment and overhead.

As a result, management is not able to utilize quantitative information to help make management decisions in regards to efficiencies and effectiveness of work being performed. This includes the consideration and analysis of efficiency related factors such as unit cost, hour per unit, average daily production, and planned versus actual work for all crews are excluded from routine evaluations.

For proper evaluation, costs charged to maintenance work must include labor, equipment and materials as well as overhead. Resource rates in Hansen are not updated regularly and the true avoidable cost is not accounted for with a calculated overhead rate. The Reason Foundation describes avoidable costs as: “those in-house costs that will not be incurred if a target service, or portion thereof, is contracted out.”

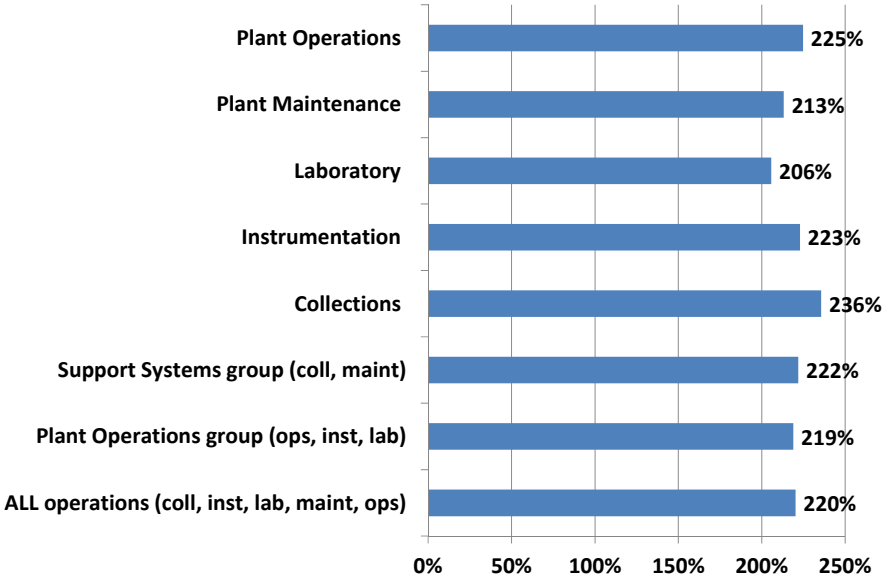
This concept is documented in a Reason Foundation report (March 1993). In concept, the “avoidable cost” method of calculating overhead seeks to only allocate those general and administrative costs that directly impact the Department’s operating costs. For example, if a fully allocated overhead rate is applied, then the salary of the City Clerk must be included in the operating cost of the Department. However, if maintenance staff is eliminated through outsourcing, the Clerk’s salary would certainly not be reduced due to a perceived lowered-level of responsibility. Therefore, by not including overhead costs such as the Clerk’s salary, a fairer comparison of costs (between contractors and internal staff) can be conducted. Focus should be

on overhead costs that will be avoided by the City if maintenance staff is eliminated; these include, for example, uniforms and other departmental administrative costs.

Using the 2012-13 budget and current salaries, LAC calculated an avoidable overhead multiplier rate of 220% for all operations groups. This is a composite of estimated rates for each group, which includes 225% in Plant Operations, 213% in Plant Maintenance, 206% in the Lab, 223% in Instrumentation, and 236% in Collections. This would mean $10 per hour employees would be costed at $22.50 per hour for Plant Operations.

Figure 3-4 shows the estimated rates for all groups, as well as a 219% rate for the Plant Operations group which includes Plant Operations, Instrumentation, and the Lab. The Systems Support group rate was estimated at 222% which consists of Plant Maintenance and Collections.

Figure 3-4
Estimated Avoidable Overhead Multiplier (FY2012-2013)



47. Inventory turnover appears low for materials used from City inventory as compared to industry benchmarks yet is actually understated because of the amount of direct use.

Inventory turnover is a measure of the number of times inventory is used in a year. Inventory turnover equals the cost of goods purchased divided by the average inventory. Higher inventory turnover reduces holding costs as lower amounts of rent, utilities, insurance, storage and other costs of maintaining a stock of goods is required.

A good benchmark practice is 3-6 times while the City is more than 1.3 which equates to about 16-17 months on the shelf before usage. Further, the number may be even higher (such as 50% to

60%), as the records of material purchased includes some materials that are used directly by Operations (pipe, chemicals, etc.) without even going into the inventory, yet are included in the calculation of 1.3 turns.

48. Inventory tracking, though effective for receipt of materials, is cumbersome and lacks ability to control for usage and access. Considerable manual processes and time is taken to monitor material inventory.

The City lacks an automated system to control material inventory and in lieu monitors through several means. Material items received into inventory are tracked upon purchase and receipt and placed into a manual inventory system. They are charged to an appropriate budget fund code when used. Some materials items are actually fully charged out upon first use, even if only a small amount was used on the job. Further, material used is accounted for in two ways if reported. First, if used in a group that utilizes Hansen, they charge to a work order for effort being done. The second way is an inventory release form that shows who received it. These two forms are done mainly on an honor system without complete controls. Some inventory items are secured and controlled while others are not.

Inventory storage in some of the twenty-five (25) locations are not adequately secured to prevent loss, with controls lacking to assure monitoring use and charging to appropriate jobs when materials are expended.

Considerable effort is attempted to control material inventory. It is managed primarily by the Inventory Support Technician with some functions monitored by the Instrumentation group and departmental Secretary. Purchases and receipts are recorded in SAP by either the Inventory Support Technician or the Secretary with some redundant entry occurring in Hansen and Inventory Reduction Form spreadsheets.

Further, an annual confirmation of inventory is done and then is reconciled to actual physical inventory with adjustments made as necessary to assure a corresponding match. This is done with two independent groups confirming the values.

49. Work flows are managed by diligent staff but are very cumbersome, lack automation and control. Some desired management functions are being partially performed and those that exist are not linked or integrated and there is a lack of uniformity and accountability tools in place.

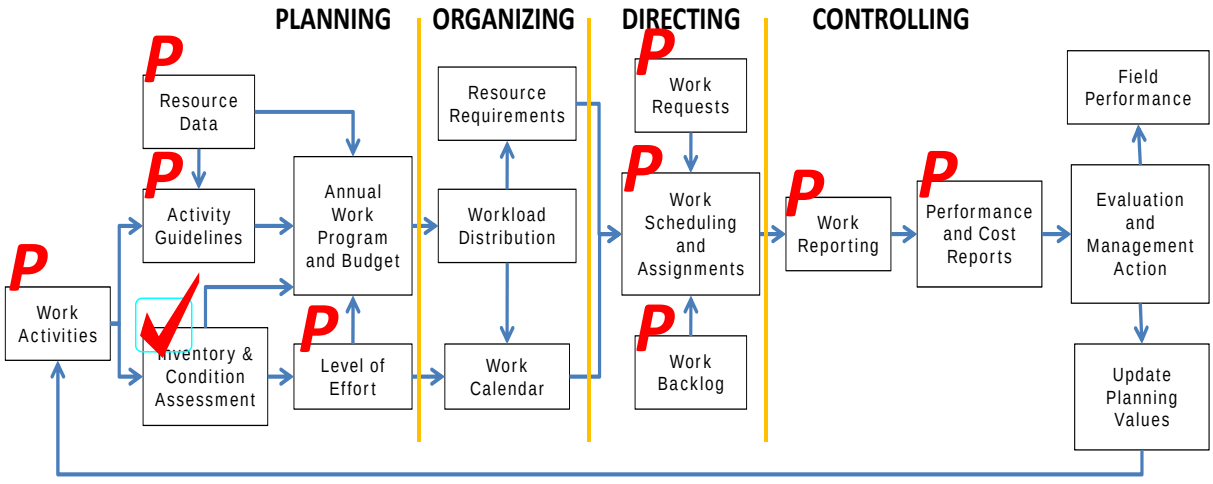
The City has processes in place to manage work. These procedures include work identification, work assignment, and work reporting yet involves redundant steps for most functions. Among the examples are inventory control using numerous spreadsheets and disconnected system, as

well as work reporting of accomplishment in sewer line cleaning is reported by crews on spreadsheets, then re-keyed and summarized on monthly word document reports. Tools which enable automation and better quality control of data exist, yet have not been fully configured for use in daily operations.

A complete overall review of Sanitation Operations was performed following the ideal maintenance management process that is outlined in the APWA administrative manual (2008). General work activities exist in Hansen, but are mostly undefined. Some resource data is available for labor, equipment, materials, and contracts yet is outdated and does not represent actual cost. Asset inventory data exists for some features with extensive condition assessment recently performed and documented. Effort levels and an annual work program have not been established. Resource requirements and the annual work calendar are not determined. Work requests are sometimes generated for inter-departmental support and routine work with separate lists of work backlog maintained by some employees. Some short-term scheduling and assignment of work occurs, yet most job assignments occur daily. Some response work is reported in the database with related labor hours and material costs. Monitoring of field crews and work performance evaluation is minimal. A continuous improvement process has not yet been established.

Figure 3-5 depicts Simi Valley's maintenance management process. Check marks indicate compliance while 'P' marks indicate partial compliance with many processes in place yet many are not linked.

Figure 3-5
Simi Valley Maintenance Management Process



ENGINEERING

The thirty-one (31) findings for the engineering group are divided into four categories – general, planning, organizing, and directing/controlling.

General – Engineering

1. **Many long-range planning tools have been established. Future improvement needs have been identified via major infrastructure studies.**

The Division has produced several documents that outline specific short and long term capital asset needs. The main one is the Carollo's April 2011 Report which outlines capital needs both under and above ground assets with some visual field confirmation of asset condition by the consultant. The study considered a combination of vulnerability, criticality and risk in the evaluation and produced a ten year plan of explicit needs that were prioritized and valued at $78 million.

Sanitation needs have been outlined with cost as well as grouped into projects that have been identified by a combination of consultant and City employees. These projects have been defined and put in a time sequence by year and a cost determined. This planning is a result of these recent infrastructure studies and related field observations.

2. **Engineering staff perform a combination of PM, engineering and customer service/permit tasks.**

Engineering staff time is divided into many several functions including management of various projects, performing some engineering of plans, preparation of specifications, as well as managing and performing customer service for existing and future water and sewer customers.

Considerable amount of their work is for project management, permit and customer services and administration and record keeping.

3. **Engineering specific automated tools are minimal (Office, and some CAD) with PM functions being managed by using a combination of Excel, Word, and manual files.**

The employees do have access to both AutoCAD and ESRI GIS systems, which are industry leaders. They also have other tools such as Microsoft Office Suite, Microsoft Project, and Visio, along with an SAP based accounting system. However, the main tools used to manage projects are basic.

The management tools of choice are Microsoft Word and Excel, used with data compiled independently by each employee. The employee's time and project deliverables are not planned nor tracked in any one system.

4. **CAD is used mainly as a drawing tool by the two technicians without using the more powerful design features.**

AutoCAD is a powerful tool for both drafting on construction drawing and preparing these plans for construction and rehabilitation projects. The tool also has many design features such as 3D design, profile layout and quantity takeoff.

It is mainly being used by City Sanitation employees as a basic drafting tool for their projects. City Sanitation employees have limited background in both time and project complexity and several of City Sanitation Engineers have little background and understanding in utilizing this tool.

Planning – Engineering

5. **Permit process is minimally documented and often requires historical confirmation of prior fee assessments.**

The Engineering group manages permitting related to providing customers service for water and sewer service access. The steps to process these permits are done mainly through historical knowledge of key employees with some documents outlining needs that are loosely organized.

The determination of infrastructure's current fees requires historical revision of prior fees paid for the property prior to the new tenant of service, to assure that there is not a duplicate payment for an asset improvement. Some of the infrastructure being paid for has lost considerable amount of its useful life since the first fee allocation.

6. **Sanitation Engineering standards have been documented and exist to guide work. Documentation of bid processes exists and is adhered to.**

Sanitation Engineering has prepared design standards to establish uniform policies and procedures for engineering, design, and construction of sanitary sewerage facilities subject to approval by the City, as well as some material criteria. These standards are well organized and include specifics for sanitation related work that is used both by internal technicians, inspectors and engineers and external by contractors, developers and engineers.

The engineering group also has outlined a general check list for bid processes, and it is followed and documented by staff and provides guidance.

7. **Engineering is part of a larger Sanitation budget and is difficult to evaluate and account for cost.**

The Sanitation budget includes engineering, operations and environmental compliance with engineering being only a small part of the organization.

Hence, it is most difficult to determine the amount budgeted and related resources for the Engineering group to perform their work. The budgeted resources can only be estimated with a lot of external computations. The best business practice of establishment of accountability of making comparisons of actual expenditures against the budget cannot occur. Thus, it is most difficult to ascertain the Engineering group's compliance with resources assigned.

8. **Many funded positions do not directly work on the Sanitation Engineering projects.**

The Sanitation Engineering group funds ten positions with six working directly on Sanitation projects. Three of these positions do not work directly on sanitation projects and are working either management or administrative overhead.

One funded position exists, but work performed is for the Department of Public Works capital projects section.

9. **Sanitation budget has many transfers to both general fund categories and Sanitation capital funding. CIP is funded from some transfers, which amounted to $2.9 million in FY2012-2013.**

The budget includes a combination of transfers for capital projects, equipment, and general fund. These transfers exceed over $6 million in the 2012-13 budgets of which $2.97 million of that is for capital and rehabilitation fund for both above and below ground infrastructure assets. The transfers are used to fund project cost of consultant and vendors for planning, engineering, consultation, inspection, materials, and construction. The annual projects vary in amount year to year and transfers are used to pay for the Sanitation CIP.

Another $2.3 million is allocated for inter-departmental support of Sanitation operations and engineering.

10. **General fund transfers are allocated in seven categories using multiple methods. Some allocations do not appear to directly relate or match with the actual use of the resources such as IT, GIS, Police and Fiscal.**

The $2.3 million allocation for general fund is subdivided into seven categories with those further divided into 30 groupings. These groupings are currently allocated by various means for these categories including budget documents processed, number of positions, budget dollars, purchase orders created, and percent of property. The ratio of these items to the City total is then used as a factor to allocate support funds to departments.

Most allocations appear to logically depict a mechanism for cost allocation such as number of employees for personnel to purchase orders for procurement. However, allocations for some do not appear to be a proper allocation of benefits of the service provided such as square footage of buildings for police and operating budget for GIS.

11. **Though projects are budgeted for external cost, no estimates are made nor tracked for the internal effort. A good business practice is to account and track effort to produce a product.**

Cost for employees to plan, design, inspect and manage the various projects is unaccounted for in the accounting, timesheet and other systems. The amount expended to obtain success is unknown for any one project.

A good proactive approach is to account for all effort and all cost for a project that is being completed. Further, by knowing effort and monitoring cost, actions can then be adjusted to optimize needs and improve processes. The City holds accountable contractors and consultants to fee amounts, yet lacks similar tools for employee project effort.

12. **Optimal capital work planning reported by Carollo study can reduce long term capital cost by up to $2 million annually. Needs are estimated at $7-8 million annually, while the estimated replacement is $10 million annually.**

The amount of money funded in the last 5 years has been $2-4 million annually, while the Carollo study has identified needs of $7-8 million annually. If the assets are left to be replaced at the end of their life, a cost of $10 million annually is estimated.

Thus, with the current proactive program, cost per year is a $2 million lower annual cost than just replacement at the end of the asset’s useful life.

13. Motor Control Center Project is a major effort at $6 million with considerable engineering support.

One multiyear project is the rehabilitation and replacement of the motor control center at the wastewater treatment plant at over $6 million. This multiyear project has started and will take several years to complete.

14. The Arroyo Simi project, over the last three years, has been the largest project at $1.4 million.

The cost of this project's external service including planning, design, construction, inspection and monitoring has resulted in a $1.4 million cost. Consultants and contractors were managed at each stage of the process by the City PM yet did not account for internal cost.

15. Assistant Director oversees five functions including two engineering groups. The Sanitation Engineering group has two PE's with a span of control of 1:5.

The Assistant Director of Public Works manages five functions with two operational groups, two engineering and one environmental. The operations group manages completely different assets with different criteria and mandates. The environmental group manages pretreatment, storm water, hazardous wastes, other functions. The two engineering groups appear to perform similar functions of managing and performing planning, design and construction for water and sanitation assets. Some sanitation functions are supported by water and some water functions by sanitation.

The Sanitation Engineering group has five reports to a principal engineer, which is within the range of industry span of control. There are two PEs in the group with two other assigned engineering staff and two technicians.

16. Sanitation Engineering group has low overtime and low leave amount at 9-11% of all paid hours.

The amount of overtime and leave for the engineering group are low. However, some employees have been reassigned to the engineering section in recent years, and that could have skewed the numbers.

Overtime has not been needed as workload does not appear to warrant the extra hours.

17. **Sanitation Engineering, though experienced in infrastructure work, has a low amount of sanitation background. Only one formally trained and experienced in Sanitation Engineering and design.**

The amount of experience in sanitation engineering and construction is minimal with the exception of the principal who is a professional sanitation engineer. Other staff have a low experience level in sanitation with two having less than a year and the other three having minimal sanitation experience much of it in permit processing.

18. **Sanitation Engineering employees have estimated that 70% of time is CIP related. Most work is PM related and/or guiding others to plan, design, and build**

Based on interviews, discussion and two different employee surveys, the majority of engineering time is CIP support related. Two independent employee surveys concluded that nearly 70% of employees work time is in CIP related work.

In review of employee surveys of the engineering function and related interviews, the main work task is project management. The employees mainly manage projects and related consultants, inspector, and construction to get the job done.

19. **Main focus of Principal Engineer is on engineering and project management with minimal effort performed for direction and training of employees.**

The principal is assigned the duty of the manager of all engineering employees. However, he is also the most experienced designer and sanitation technical person, so most of his effort is on PM and engineering with little time to manage and direct.

20. **Associate Engineer's focus is permit and customer service with considerable effort in plan review and other customer service.**

A seasoned technical staff with a PE has managed the permit effort for serving water and sewer to City customers which accounts for greater than 50% of his time. He has considerable permit and development background, yet he is relatively new to the sanitation design and engineering process. He also is involved in plan review and related sanitation studies for development.

21. **"Will Serves" require considerable research, mainly of past fee allocation charges.**

The engineering team, through the permit process, must guide citizens through a process to provide service, called "will serve." This requires engineering to evaluate the property for prior infrastructure fees to see if the current planned land use must pay fees for infrastructure support.

22. Two of the engineers are seasoned employees (yet lack Sanitation Engineering background) that were transferred into the engineering function as part of the FY2012-13 General Fund Budget Reductions Strategy and are now managing projects.

One of the assistant engineers is a seasoned building official with some PM background with minimal sanitation engineering experience. A recent assigned employee to sanitation has over 30 years' experience in technical, but only in an unrelated field. He has been in sanitation for less than a year. He has experience in managing projects and contracts as a building official.

The other is a seasoned landscape architect with some PM background with minimal sanitation engineering background. A licensed landscape architect has been recently assigned to sanitation and has over 35 years of experience in a technical, yet it is in an unrelated field. He has been in sanitation for less than a year. He has experience in managing projects and contracts in Landscape and facilities efforts.

Two staff were reassigned to engineer positions for the first time in their career though both have over 30 years of experience. They are now managing sanitation projects and interfacing with clients.

23. Both senior engineering technicians have some background working with engineering functions and CAD drafting but a minimal sanitation engineering background.

Sanitation has two Senior Engineering Technicians. One of those employees has a myriad of experience including 25 years in traffic and other fields but little in sanitation engineering. The current employee has an advanced degree (Environmental Science) in an unrelated field. The work being currently done in this position includes permit processing, counter services and some drafting.

The other senior technician is assigned the majority of the groups drafting and some effort in GIS. He received some training of basic CAD drafting yet lacks any training on sanitation or civil design, while he is the main person with that responsibility.

24. Technician support at the counter averages six hours for each permit processed.

Currently, a senior technical position is assigned six hours a week counter duty with little other assignments while there. The amount of permits needing assistance averaged less than one per week, resulting in an average of more than six hours a permit.

Directing / Improving – Engineering

25. Work shift is 9/80 without workload issues on short-staffed days.

Engineering staff all work a 9/80 work shift schedule with only 50% of staff on site on any Friday. The staff appears fully capable of managing the work load and related processes with reduced labor resources on Fridays as a result of the staggered 9/80 work schedules.

26. Some scheduling and coordination occurs for internal work but is ad hoc and unplanned. Engineering lacks any direct coordination with Operations who is their main client.

The engineering work is planned and scheduled with staff meeting intermittently as deemed necessary by the principal. Various tools are used by each employee to manage projects. Informal project meetings now occur with Operations.

There are plans for systematic routine meetings, which have not been implemented. The Waterworks engineering groups has a system status update and communication with the Waterworks operations group; both groups think it is effective.

27. Work management processes are outlined for the various steps, yet often PM tools are not being applied.

Many unlinked efforts are used to manage projects from manual files, check lists, spread sheets and, occasionally, Microsoft project. However, basic tools and linkages from the various processes are done on a very loose basis.

Minimal cost, schedule, and quality processes exist and are not linked. Preplanning, schedule adherence, and cost accounting are not being done and tools do not exist to assist them to manage the projects.

28. Work tracking to projects and tasks are non-existent and cost related to projects are lacking. No cost or project tracking for accountability exists, which is contrary to key PM principles.

Cost and accountability is being done for those consultants and contractors, yet the internal cost to manage capital projects is not being accounted. There is no system now being used by engineering for tracking time expended by project, task or activity.

The amount of internal cost and effort cannot be readily determined for any project, and difference in effort to plan, design, manage, and direct projects is not known

29. Change orders vary by project type with small maintenance projects having higher amounts.

The amount of change orders had a variance by project type and project, all being less than 8% of the contract except for the maintenance efforts which were higher at 15% or more of the contract cost. The maintenance projects were smaller and had proportionally more change orders.

30. Project effort by Engineering is 19% of all cost and is $29 for every $100 expended for projects. Most sanitation project expenditures are for rehabilitation of sewer lines.

In review of the total cost for sanitation engineering, considering both internal and external cost, engineering in CIP support is about 19% of all cost incurred. Consultant support and city inspection accounts for 13% and the projects account for 67%. Engineering effort is $29 for every $100 spent on a project.

The amount of money expended in sanitation CIP is mainly for rehabilitation (78%). The City staff cost is about $700 thousand annually for CIP support for annual projects of $2-3 million.

31. Actual selected bids range from 16% for the average bid and 16% from the engineer's estimate. The variance of bids is high for lower value projects.

The bid costs had a variance of 16% from the average bid and were wide-ranging by size with the small projects having a larger variance.

This situation is similar to the change orders where the smaller maintenance projects have more variation, while the larger projects had lower percent amounts.

SECTION 4
RECOMMENDATIONS
CITY OF SIMI VALLEY SANITATION OPERATIONS AND ENGINEERING

This section outlines sixty-seven (67) recommendations for improving existing operations.

General

1. **Establish employee teams to review the various improvement opportunities and annual plans. Utilize the teams on an annual basis to assist in work methods, quality control, annual plans and equipment needs.**

Both Sanitation Operations and Engineering employees have shown an earnest desire to implement good business practices for continuous improvement. To allow the improvement process to be effective, employee involvement can be a key component in the future implementation of improvement opportunities.

Employee support and "buy-in" can be further enhanced by establishing capable employee teams that will work to provide ideas and information during the implementation of recommendations that have been outlined in this report including the development of work methods, annual work plans and equipment needs. Supervisors and senior workers should be consulted on work methods and activity guidelines to ensure valuable input is obtained from those closest to the work.

The involvement of employee teams is crucial to a successful implementation and development of methods for continuous improvement. The teams would be used on an annual basis to update work methods and guidelines as well as reviewing the annual work plans. They should be established by function (engineering, collections, operations, instrumentation, and lab) to assist in development and implementation of specific needs.

2. **City should evaluate opportunities to share resources among and across divisions and departments including maintenance, operations, engineering, equipment, laboratory, and instrumentation. The current status quo of independent engineering and laboratory testing operations should be economically confirmed or actions taken to combine. Some agencies have successfully integrated these functions in an efficient manner.**

Procedures for resource sharing should be developed by utilizing the performance plans and short-term schedule for organizing and assigning work. This should be done to eliminate redundant processes and optimize resource utilization. Information derived from the annual

performance plans and routine activities can be used for grouping work geographically or by crew to minimize travel, setup, and clean up time at the job site.

Further, common functions such as engineering, laboratory testing, and warehouse should be evaluated to optimize resource sharing among various groups within Public Works. Other agencies such as Las Virgenes, Thousand Oaks and Ventura all share certain functions within their organizations. An analysis should be done for those common functions and if they are not economically shown to be viable being separated they should be combined.

This capability would allow for more effective use of employees and increase their overall skills and value to the City as well as assure citizens that these high value employees are being effectively used.

3. **Develop specific goals and objectives for Sanitation which includes quantifiable performance measures and links to vision and mission statement with input from employee teams. This would include efficiency and workload measures to address some identified opportunities.**

The City should develop and define specific, quantifiable performance measures within Sanitation Operations. These performance measures should link directly to a measurable performance indicator (e.g. linear feet of pipe cleaned, number of change orders, etc.) to allow for periodic progress evaluations.

These measures should be directly integrated within the CMMS for operations and project management for engineering. Recording the work accomplishment, these systems should directly facilitate automated status reports that can be standardized and utilized by all groups. This would allow for the measure to be readily computed as well as monitored on a continuous basis. This increases transparency and accountability to better manage performance and to take short-term action to meet the planned goals.

This would provide a key element of establishing accountability while ensuring Operations has benchmark data to compare to other agencies and industry norms. The City of Ventura has developed a complete performance plan and is attempting to link it to other performance measures though a balanced score card approach.

4. **Eliminate redundant systems and utilize one system to manage effort. Integrate existing systems into a computerized maintenance management system (CMMS) to automate work order tracking. Use the system for billing and to track all work.**

The City utilizes many unrelated, outdated manual files to manage maintenance effort including paper forms, word documents, spreadsheets, and databases. The various outputs of these systems are limited and manual compilation of the data must often occur to create relevant management data. In addition, there are many other standalone files, used by the City to manage maintenance, that have been developed with information that is often redundant to the City's accounting and work order systems. The information stored by these systems should be replaced or integrated with a new system.

Operations and maintenance work data should be stored in an integrated Computerized Maintenance Management System (CMMS) database. The system should have capabilities to generate work plans for each section and major asset group, based on the amount of assets maintained and a determined level of service that meets the needs of the City and the community. Information such as unit cost and productivity, accomplishment, comparing actual performance to the established plan and resources used should be compiled by activity. The current data input can be reduced and specific management reports could be generated without gathering any more information, thus streamlining the tracking and reporting process.

The CMMS should be integrated to current technologies such as GIS, GPS, and web capabilities. This will allow for full integration of maintenance information and can be utilized for planning purposes that can track and account for work in both a tabular and spatial (mapped) format.

5. **Review the capability of Hansen to provide the functions needed for complete plant operations and related collections and maintenance tasks and either fully utilize or obtain another system.**

The current capabilities of Hansen should be reviewed for application for treatment plant operations support. The Hansen system already appears to function well for some functions within Water Operations and for other agencies' use for linear assets. Some agencies, such as the City of Thousand Oaks, have two systems – one for plant and another for the collections systems.

This need of the plant functionality should be fully investigated and a decision made to use either one system that can be used by Plant Operations and another for Collections or one that can effectively do both functions.

6. **Establish a project management system and populate with asset study data as well as place information in a spatial database.**

Engineering staff uses a combination of manual and electronic tools for managing projects, which varies by project manager. A complete system that is used and shared by all managers should be established and institutionalized. This would allow for common communications and a transparent process where Engineering and those in Administration, Management, and Operations know project status.

7. **Develop training and encourage all engineering employees to increase both engineering and sanitation knowledge. Utilize internal resources to support.**

The Sanitation Engineering staff has a mixed background in sanitation engineering and overall engineering, with several having city and municipal background but less than a year in sanitation and/or engineering.

All staff assigned to Sanitation Engineering should have a basic engineering background in plant and collections as well as the ability to read and interpret construction drawings. Operations and engineering should establish an internal program to train engineering staff on a continuous basis with a minimum of six internal training sessions per year on basic principles of plans and specifications preparation, pipe system design and construction, plant operations, CADD, and mechanical systems. Further, self-study guidance in these areas should be provided.

Planning

8. **Determine and maintain a replacement value of all assets within the CMMS system. Populate all existing asset inventories within the CMMS and/or GIS. Establish procedures to maintain current values and attributes.**

The City, through a contract evaluation in 2010 by Carollo Engineers, has collected data on the various infrastructure assets with attributes such as type, condition, and life. Further, asset values have been estimated in that study. The data has been stored in a spreadsheet and has been used for capital planning of projects.

This available data can be used for short-term planning and provide support for decisions on repair, replacement, or enhancement of both above and below ground assets. These assets and related attributes should be placed in the City's CMMS and be used as input in developing replacement and rehabilitation actions.

The data from the Carollo study should be transferred into the CMMS and processes established to update the changes to asset's attributes that occur from refurbishment, repairs, and replacement, as well as addition of new assets and removal of older ones.

9. **Upgrade SCADA to eliminate manual recording of remaining key wastewater parameters and allow more elaborate trending and projections.**

The SCADA system is operational, yet many routine inspections and monitoring processes with many controls exist for mechanical and electrical components. However, not all components and assets are monitored with SCADA, resulting in some data recorded manually and keyed into other systems. The daily routine inspections are done in four areas of the plant with physical checks, readings, and some SCADA confirmation (North, South, Helm, Press) several times a day. Many parameters have manual recording that is affirmed with SCADA data yet many parameters are only recorded by these inspection logs.

These manual processes should also be recorded into the SCADA system and use the manual inspection as affirmation. This would ensure all key parameters were included within the system and available for Operations' monitoring and analysis.

10. **Define activities with accomplishment units for all work done in Sanitation to allow for unit cost and productivity determination and monitor utilizing employee teams.**

Operations and Engineering should establish employee teams within their respective groups. These teams should include supervisory staff and maintenance employees who are familiar with operations. A series of meetings should occur within each group to determine the activity list for their respective section (i.e. plant, collections, maintenance, and engineering). Establish an asset or feature inventory item that is the primary workload driver and identify a meaningful unit of measure for each activity.

The City should focus on the "critical" activities that were identified using Pareto's law, which allows effectively and efficiently managing 80% of the work effort by focusing on a limited amount of activities, thereby improving the accuracy of work tracking for all groups.

For each activity a measurement unit should be identified, such as linear footage cleaned for the line cleaning effort, and that measurement unit value should then be linked to both budget and performance.

11. Establish work guidelines and SOP's for all major activities including anticipated production rates utilizing the employee teams.

Complete guidelines do not exist for major activities. Guidelines can assist Maintenance and Operations staff, as well as management, to understand the tasks that are to be performed and to provide guidance and expectations. Documented performance guidelines should be reviewed annually and enhanced, if needed, for each activity. Employee teams consisting of management and crews should be included in the process to provide input and confirmation of information. Some standard operation procedures have been compiled, yet planned resources have yet to be assigned and anticipated production not estimated.

The guidelines for each activity should include:

- Activity definition
- Criteria to use for work identification
- Mix of resources required
- Method to conduct work
- Expected daily productivity
- Work quality expectation

This information would serve as a baseline and resource for all of the work planning, as well as providing the additional benefit of common terminology, a device for training; and most importantly, a tool for continuous improvement. The establishment of an annual update process of new methods, technology, and processes will be considered as part of the guideline improvement process for each year. The guidelines would also serve as a basis for comparison to determine how various decisions are affecting efficiency and allow for staff input in the work process.

The guidelines should be made available to all maintenance staff and annually describe how they will be used and the intent of their use in work planning.

12. Fully document permit process and educate others on utilization.

Sanitation assists the department by processing permits for residents and businesses to obtain water and sanitation service from the City. There are a series of steps which must be followed, including historical reviews of past property owner's required financial support for related utility infrastructure. These permit procedures are now stored in a binder with a collage of information including various memos, forms, and past actions that are not linked. The process of permit approval to provide service (i.e. "will serves") is mainly managed by two staff members within the Sanitation group whom have a good understanding of the process.

The City should completely document the permit process after a re-engineered work flow analysis is completed. This document should be outlined in a systematic, transparent, and easy to understand format. Further, Sanitation's professional engineers should provide general training to all employees within the group to ensure transferability, work distribution, and ease of work assignment.

13. Establish a cleaning cycle that optimizes the use of employees and is based on maintenance need and sewer pipe condition in addition to frequency.

The City has been most successful in establishing a time based system for routine line cleaning using a combination of maps and list of lines. The cleaning is on a two-year cycle along with a more frequent hot spot list.

However, the success is not taking into account the existing technology owned by the City but not used by collection crews, which may allow for a more effective cleaning of lines. This could be based on using a combination of historical data that is linked to a geographical information system that is already owned by the City. Many agencies and sewer districts use this special technology linked to CMMS to plan, schedule, and assign resources for cleaning of lines.

14. Integrate all routines within the CMMS and utilize proactively for planning, scheduling, and controlling work.

The sanitation operations groups have many routines for maintenance of various pumps and mechanical and electrical devices within the plant complex. The City uses a series of lists, routine cards, and spreadsheets to schedule routine work practices. Further, the plant maintenance supervisor has been attempting to establish these proactive routine schedules for different types within the Hansen system.

These routines should be vetted and then placed within the CMMS and used directly to schedule work. A systematic utilization of a maintenance program for the upkeep of the assets within the plant should be institutionalized. Employees should be trained and apply this capability in their assignment of work.

15. **Develop two overhead rates that reflect the City's actual cost. Develop an avoidable overhead cost and use as the default value in the CMMS. A second overhead rate should be used for external billing and reimbursement. Further, develop an annual process to update the overhead rate, integrate the rates into the CMMS, and use for job costing.**

Sanitation Operations should establish an avoidable rate for internal cost comparison and outsourcing determination that is based upon avoidable cost. Applying this rate allows analysis, benchmarking, and other comparative studies in relation to maintenance costs and outsourcing evaluation. These rates should be reviewed and updated on an annual basis.

A second rate should be determined for the full overhead allocation to take into account the costs related to all aspects of the operation that includes various fees, administrative salaries, insurance, professional services, and rents/leases. This rate should be applied to work conducted for other agencies to recoup the full costs.

Also, Simi Valley should develop a third rate based on two fringe benefit rates; one for regular time and another for overtime and apply them to the hourly labor cost for all FEMA related work.

16. **Identify actual equipment rates for each equipment class that includes all cost – repair, maintenance, fuel and fluids, replacement, and use. "Out of yard" hours for each piece should be tracked in the CMMS.**

Equipment rate determination methods should be developed and documented for consistency using all costs such as repair, maintenance, fuel and lubrication, and replacement. This is significant when determining the total cost of performing a particular activity (resource costs of labor, equipment, and materials). The true cost of the operation could be distorted by using standard industry rates that are not representative.

The City should adopt the methods outlined in APWA's *Shop Rate Guide* (Crandell, Dale E.; American Public Works Association, 1998). Utilizing this method is useful in many ways:

- **Communication with customers** – being able to break down the equipment rate allows users to understand what the rate includes.
- **Comparison with others** – having rate components available can facilitate an "apples-to-apples" comparison with other agencies and service providers.
- **Financial management** – allows an agency to periodically track rental revenues by component and match these against actual expenditures.

Further, the rates should be based on the amount of hours that the vehicle or equipment leaves the yard and is staged and committed for a particular activity and is unavailable for other employees to use (out of yard hours). This measurement would be in addition to the operating hours of the equipment or the running time of the hour meter or mile meter. The CMMS should be utilized to track the "out of yard" hours for each piece of equipment.

Further, the Federal Emergency Management Agency (FEMA) has specific rental rates established for various equipment classes. When the City requests reimbursement for national declared disaster areas, such as floods or fires, a specific process must be followed including the use of a specific equipment rates scheme. Special FEMA codes should be developed for equipment in order to apply these rates for FEMA reimbursable events. These codes will provide the ability to track equipment at specified rates, track operational hours for rolling and non-rolling stock, and associated equipment operators.

17. **Establish the capability of developing a performance based budget and integrate with CMMS data. This would include performance measures directly linked to financial, labor and equipment resources. Plan for each organizational unit based on the level of service, inventory and productivity and link to a quality standard by activity. Utilize the performance plan to determine labor and equipment resource needs. Utilize initial LAC estimate as basis for initial performance plan.**

Currently, the City does not have a process of determining resource needs and future estimates of workload. Establish a process to allow each section to produce a performance plan and budget that is based on an annual work program and for the work performance that is anticipated. A performance plan and budget allows planned dollars to be directly linked to the quantity and quality of work budgeted. The CMMS should include a dedicated work planning function for this purpose.

This work program should be established for each organizational unit by activity and include inventory, level of service, productivity, and required resources. Also, each outcome (equipment PM's, linear feet CCTV) should be linked to a quality standard. For example, develop a goal that includes the number of manholes repaired and establish a budget based upon actual maintenance performance.

The performance budget would not only establish accountability for maintenance, but it is a good business practice because it ensures that work is planned based on a desired measured outcome which is included in the standard tool set and capability of the CMMS.

Seasonal variations may occur for some activities, which are a function of weather or community schedules. The performance plan should be adjusted to account for these seasonal variations in

workload, and resources planned accordingly. An opportunity may exist for utilization of temporary or contract support during peak workloads.

This effort will also produce a work calendar, which quantifies the amount of work units planned each month. Major activities with frequent, routine work can be broken down into manageable amounts for both scheduling and coordination purposes.

18. Separate engineering into a sub-budget category. Plan and report work data with direct relationship to budget codes.

The current Operations budget includes all sanitation efforts such as operations, engineering, and environmental compliance. The Engineering group is estimated to be only a small portion of the budget (10-15%). The lack of a budget breakdown with the direct links to work being performed makes it difficult to determine adequacy of the resources budgeted to perform work related to CIP, permitting, and support. If Sanitation Engineering was subdivided from the Sanitation budget with the dollar resources and performance measures, it would be easier to evaluate the adequacy in use of engineering resources.

19. Fully utilize all funded resources with actual assigned sanitation work.

Ten funded positions are indicated in the budget to be supporting Sanitation Engineering, yet only six employees directly work on the Sanitation Engineering projects. For example, one 100% supported engineer had provided some support of sanitation projects in the past, but has not participated on any sanitation work for nearly a year.

All employees budgeted should be used to assist Sanitation work – whether engineering, administrative support, or management. Engineers being supported by the sanitation budget should assist in sanitation related work or be funded from other function areas within the City.

20. Establish allocations that more fully match the actual utilization of service provided.

The City allocates specific amounts of sanitation financial resources for various City support including finance, personnel, police, administration, IT, etc. There are seven categories with thirty different allocations that attempt to transfer costs to pay for City services that are internally provided to the Sanitation group. The allocations are based on various measurements, such as expenditures, number of employees, and purchase orders. For example, for police, the largest transfer is based on the square footage of buildings.

Some of the allocation methodology being used does not appear to match the actual benefit provided for sanitation such as IT, fiscal, and police. These allocations should be revisited to

determine a methodology that more adequately allocates and provides a clearer nexus between such transfers and benefits derived by the sanitation group for such support.

21. Utilize the allocated GIS support to develop increased skills in engineering.

Sanitation provides internal support for GIS via an annual administrative allocation in the budget. This allocation amounts to 1/3 of an FTE for the staffing of a GIS technician. The Sanitation operations and engineering groups now make minimal use of GIS in their day-to-day work operations. In many Cities and utility districts, such support and application of GIS is more directly applied for these functions.

Sanitation should be provided the support via training and guidance that they are paying for in their allocations to develop direct applications for the collection system to plan, organize, schedule and monitor work.

22. Establish project budgets and goals for each project including internal cost.

The engineering group places projects annually in the CIP and estimates the external cost to support it such as design, planning, inspection, and construction. The amount of internal cost by the City was estimated to be $29 for every project dollar. There are no current tools and methods to plan cost for internal work.

The cost for internal support is a considerable portion of project cost, yet the City is not accounting for it. All work needed for completion of any projects should be planned and budgeted, whether internal or external. A system to make such estimates should be developed with tools established to monitor adherence.

23. Capitalize engineering expenditures in budget.

Many efforts in planning by engineering are for projects that occur in the future such as design of a pipeline which will not be built for many years in advance. In many utilities, the concept of capitalized costs is used for matching the timing of the benefit and cost.

Capitalized costs are incurred when planning and designing various fixed assets. Capitalized costs are not expensed in the period they were incurred, but recognized over a period of time via depreciation or amortization. The City should capitalize those expenditures for future projects to demonstrate the actual effort expended matching the benefit of the functional asset.

24. Populate and maintain the condition assessment data within the CMMS/GIS database and use for planning and prioritization of needs for maintenance, rehabilitation, and capital projects.

The City has, through a contract with Corollo Engineers, compiled asset and condition data for both above and below ground infrastructure. The information provided deliverables including both reports and various electronic data. This information has explicit, detailed data by asset type on inventory, age and condition.

The data should be clarified, imported and then stored into the City's CMMS system and linked to the GIS. It should then be maintained by the City and kept current to prevent the waste of City effort via Corollo Engineers and ensure it is not just a point in time study that is lost. Further, it should be used as a future basis in planning the capital improvement projects as well as rehabilitation and maintenance efforts.

25. Develop long-term budgets for both proactive and end of lifecycle replacement. Advise City Council of resulting $10 million versus a $7-8 million annual cost using proactive project planning.

The data collected by Corollo in the 2009 asset study was confirmed and has two different values for future asset needs. One is based strictly on replacement of the asset when it has reached its projected life. An example of this would be a concrete pipe that has a seventy year life with the future cost including replacement of the concrete pipe with like material at the end of its useful life. Using the values from the Corollo study, this type of value for all assets would amount to approximately $10 million annually.

Another value was computed based on the optimal action to extend the life cycle cost of all assets. For example, a pipe could be rehabilitated before it had to be replaced using lower cost rehabilitation techniques. Corollo amount was estimated at about $7-8 million annually.

Plans should be developed for the Council for both the replacement and optimal life extension and outlined to show the results of each strategy.

26. Establish performance measures and goals for each Project Manager with ranges as a percentage of the construction cost that is anticipated for all support efforts (planning, design and CEI).

The Sanitation Engineering group is part of the overall Sanitation budget and there are no performance measures directly assigned and established for engineering accountability. There

are, however, industry standards that are used for engineering support that are a function of the project cost.

Several performance measures should be established and then monitored against actual work effort of the engineering group. Among those should be effectiveness measures including the amount of project construction cost as percentage of dollar amount of change orders and the percentage adherence of the bid to the engineer's estimate. Other efficiency measures should include amount of project management, amount of design, and amount of inspection cost as percentages of the construction cost.

27. Project recycled assets in CMMS database for use in annual plans and capital projections.

Both, Sanitation and Waterworks are responsible for maintaining various elements of the recycled water assets in the City. There are considerable plans in the City CIP to add more lines and facilities to provide treated wastewater for use in irrigation. These assets are adding to the inventory of assets to be maintained as well as creating needs that are similar to those of potable water as they are distributing the recycled water to various users.

These assets result in work and create the need for more resources for support maintenance and rehabilitation by the Sanitation group due to increased pumping demands for more customers. This asset type should be added into the CMMS database and be used for planning work as well as justification and allocation of resources.

Organizing

28. Transition organization in future to have Supervisors directly report to the Sanitation Deputy Director.

The Sanitation Operations group is led by a Deputy Director with two operations managers reporting to him. Those managers each have 2 or 3 supervisors who each manage various functions. These two managers, with the Deputy Director, have been key employees to recent successes of this group in planning and performing work and are currently needed, as many systems tools are still lacking and some supervisors need direct guidance to perform basic management functions.

These two managers' positions should be transitioned from the organization in future years after the identified systems and related business processes are in place. This management layer, with proper management systems and an upgrade of supervisor's skills, is not warranted in the future.

Other agencies in the local benchmarks in Appendix B have fewer layers yet have similar responsibilities for sanitation services to their customers.

29. Consider combining Engineering resources under one group and share skill sets.

Sanitation Engineering is being performed by a group of staff with varying background and led by an engineer with seasoned sanitation engineering experience. The main function performed by these employees was noted as being project management. Sanitation Engineering is one of two engineering groups to report to the Assistant Director of Public Works. The other group for Waterworks engineering is similar to Sanitation Engineering employees in that they are mainly generalists, not water specialists. Further, workload for both engineering groups has peak lows and highs that are hard to accommodate with availability of seasoned utility engineers being limited.

The two groups should be combined into one group and all resources integrated together. This would provide resources to meet various project needs, allow for cross training and growth, and allow the group to use key specialist engineers more optimally for water and sewer projects and meet the need by utilizing project management skills. This would be similar to all three benchmarks agencies in Appendix B who share their engineering resources between water and sanitation groups.

30. More fully develop formal project management skills through training and mentoring of others within the department. Develop employees with project management focus.

The key function being provided by Sanitation Engineering is project management. This includes effort for planning, design, inspection, rehabilitation and construction projects using both public and private resources. Further, the skill set of these Engineering employees is diverse with sanitation, landscape, buildings and operations backgrounds.

These employees should be trained on various project management and administration techniques and be mentored by those experienced employees in the Department. Employee's main focus should be project management as this is the highest need and could only increase with future CIP projects that are planned.

31. Transfer the permit support role to a technician and integrate effort with water. Utilize Associate Engineer more fully as either project manager or in design functions. Increase skill set with combination of training and mentoring.

Sanitation Engineering's Associate Engineer expends over 50% of his time for permit processing because of his lengthy experience and background in the historical infrastructure charges and knowledge of location of manual records. This function is more of a technical level of effort and involves both water and wastewater related issues.

This function should be transferred to technicians with Sanitation and/or Waterworks and effort shared with Waterworks. This would allow the Associate Engineer to focus on engineering related planning, design and construction project issues and delegate permit work to technicians.

This transfer of responsibilities, along with training and guidance in both project management and engineering, will allow the City to more fully use this professional engineer's capabilities. Other, more seasoned, design engineers should be assigned to help mentor him through this development process.

32. Consider simplification of both policy and Will Serve process and then automate calculations and fully document.

The current process for Will Serves requires considerable historical research into past charges for property seeking the water and sewer service from the city. This effort also requires considerable judgment in how rates should be applied for properties that have been subdivided, combined and/or had land use changes.

The City should simplify this effort and automate this computation with elimination and/or simplification of past infrastructure charges. Some other cities use current fees without historical research and resolution of past fees.

33. Consider requiring and/or encouraging all non-licensed sanitation engineers to obtain basic certifications in collections and/or treatment.

Currently, two of the engineers within Sanitation have minimal background in sanitation for the collection system and treatment at the City's wastewater treatment plant. Their background, though extensive, is in unrelated fields and thus requires considerable support for their success.

The engineers within Sanitation that are not a licensed civil engineer or degreed from an engineering program should obtain other additional background and understanding related to the areas in which they are assigned. Obtaining basic certifications in wastewater treatment and

collections from state or WEF would help assure and provide some technical understanding of the areas they are assigned and should be required.

34. Establish minimum criteria skills for engineering support with some related sanitation or utility experience along with project management skills. Require all new employees to have a complete plant tour with operations staff and all employees to have an annual review and update.

The City has recently assigned staff to Sanitation Engineering who are skilled at managing people and work yet lack having a working or educational background in sanitation or civil engineering work they are assigned. Work contracted for support requires that private engineers have adequate training, skills and/or education to do work for the City; the same should be required for the City Sanitation Engineers.

The City should establish minimums for combination of skills, experience and education when selecting and/or assigning positions within Sanitation Engineering.

Further, all new engineering employees should participate in a complete tour of the treatment plant and learn the basic processes of Sanitation's primary responsibilities of assuring proper mandates along with both efficient and effective operation of the plant. All engineering employees should have basic skills and understanding to outline all of the processes within the plant. An annual review and tour of the plant should be required for all engineering staff.

35. Utilize technician for permit support on as-needed call basis with physical response made from the new engineering office.

The City currently assigns a technician to the development review section twice a week for three hours. The number of permits processed by the technician averages less than one a week, or over six hours on average for each permit.

This process should be adjusted for a response only basis with the technician responding only as needed rather than being assigned onsite for a specific time. The plan for assignment of Sanitation Engineering to the new office at City Hall should help in this process, allowing a response rather than assigned time for support.

36. Provide training to increase CADD and GIS skills. Develop CADD abilities for both drafting and design and work collaboratively with other engineering technicians in the City to enhance skills.

The Sanitation Engineering support requires usage of both CADD and GIS in support of design and planning efforts. The technician staffs in the division have some skills in that area yet lack detail skills in the full and complete design of construction drawings.

Skill sets in Waterworks are higher than those in Sanitation for both CADD and GIS. The relocation of the Sanitation Engineering to City Hall should allow for cooperation with Waterworks and other engineering support staff. This collaboration, along with increased training, is needed to allow for complete capabilities to prepare construction drawings in CADD as well as to utilize the GIS for analysis of the collection system. Training and mentoring program should be established to develop Sanitation technicians with specific goals and timeframes.

37. Integrate position descriptions and requirements with industry certifications and encourage staff to obtain additional certifications.

The position descriptions for Sanitation Engineering and Operations have basic requirements but lack specifics related to work for collection and treatment that they are in charge of completing. The requirements should include specific background of work related experience as well as desires for industry certifications in treatment and collections.

The job descriptions should be adjusted to include specifics of work related needs for support for Sanitation Engineering and Operations and related infrastructure. Further, incentives should be provided for obtaining certification grades at levels that may exceed their current job requirements, but would increase mobility and flexibility of the department managers in assigning work as well as allowing for the employee growth.

38. Outline criticality of staffing operations section and request priority attention by City Human Resources to expeditiously hire and retain capable employees.

The plant operators have a high turnover rate that requires continual training and a higher level of management and supervision. Further, the process of hiring these operators has recently taken large timeframes of months that has resulted in the loss of candidates and extensive processing costs.

The City should establish as a high priority for hiring these plant operator employees and retaining them. An expeditious process should be established for obtaining and retaining these

employees. The current situation is creating the need for larger management staff and a situation of backup employees beneath position categories are working to cover the plant operator being out. Finally, a large amount of overtime is needed for coverage. Also, this results in frustration by management to provide this most basic service as well as time expended in hiring and training.

39. Utilize enhanced SCADA capabilities to confirm proper manual recording and allow redundancy of key processes for technology with operator rounds.

Procedures are in place to conduct routine inspections and monitoring of the plant by the operators. There are considerable manual checks and reading confirmations that are taking place. Some of these routine readings or confirmations are only manual recording while other manual readings are done as confirmation of the data collected from the SCADA system.

Increase automation of SCADA to collect more data and make the manual recording only for confirmation, thus providing a higher quality of work data. It would also allow for reduction of data recording into other manual systems and databases for mandated information, as SCADA could provide it directly.

40. Dedicate initial resources to establish and document complete preventive maintenance program and load into CMMS then maintain on systematic basis.

The maintenance employees assigned to the treatment plant are attempting to establish routine processes within the existing Hansen systems for proactive preventative maintenance work. This process has been ongoing for several years with the supervisors indicating that they have many years to go before completion. In the interim they are using a combination of Hansen routines and a prior outdated card system that was developed several years ago. The card system has not been updated for the current plant equipment and processes and provides only some general guidance for work to be done.

The City should seek assistance and update these maintenance routines and automate them within the CMMS system, whether Hansen or another CMMS system is used. The City should train employees to fully use and integrate within their day-to-day processes. The lack of a complete system results in a considerable amount of judgment on priorities and the required work which impacts both work efficiency and effectiveness of the plant operations.

41. Standardize reporting procedures and minimize the number of databases being used for data compilation.

The plant instrumentation employees have many roles with the wastewater treatment processes including SCADA, maintenance of reporting/collection devices plus other various support tasks. Further, they have established various routines for confirmation of SCADA and other systems to ensure they are properly functioning by using a combination of reporting tools.

The staff performing this work uses a collage of system spreadsheets, manual files, and lists and other databases. All of these should be combined into one process and stored into the CMMS and staff trained on their usage.

42. Integrate collections into an automated and up-to-date process utilizing GIS, CMMS, and CCTV together to optimize cleaning and minimize recording and data compilation.

Simi Valley should collect and update the inventory data for major assets such as equipment, sewer lines, manholes, and lift stations. Plan, design and implement a process to transfer all asset information from the various existing sources into one GIS application to assist crews and to eliminate redundant record keeping systems. Consider retaining expert GIS consultant support to develop this database.

GIS/GPS technology should be integrated to the CMMS database and track the work effort including planned work and work orders to each asset allowing for the maintenance effort and associated cost history to be recorded and stored. This would produce capabilities to produce multiple reports to assist with planning work, prioritize replacement needs and use as a CIP tool. This tracking would also satisfy various accounting practices related to asset management.

Currently, asset infrastructure information is limited and resides in multiple locations including various databases, spreadsheets and document files. In addition, some information appears not to be updated on a regular basis. The City should, at a minimum, store all infrastructure assets that match the CMMS work needs, as defined by the performance plan in recommendation 25.

Further, the City should assign the responsibilities for the update of the inventory and the asset condition data used and shared with prospective users.

A systematic process for maintenance and upkeep of all infrastructure assets data is lacking or does not now exist. In some instances, multiple systems are used for updating data and roles and responsibilities of data users are not defined or are often unknown. Each asset class should have documented responsibility assigned for its upkeep and maintenance. Once responsibilities for

data have been assigned, the data should be linked to data from the CMMS which stores actual maintenance data and the process for sharing data with other users including access to the data and edit and viewing rights should be determined.

43. Establish methodology to properly account for work done by Sanitation staff and consider internally charging other groups for services provided.

The laboratory located at the treatment plant complex performs work mainly for wastewater but also provides support for potable water and storm water (environmental compliance). The work done for others is not accounted nor is there a system to charge for the service of supporting other groups. Other agencies (i.e. Las Virgenes Water District and City of Ventura) have this same situation and they allocate their cost to other departments and divisions who use sanitation laboratory services.

The City should establish a system for the laboratory to charge for its service to others and provide account of work done and what was accomplished for the charges incurred.

44. Establish and obtain a complete LIMS reporting system and replace the various forms, spreadsheets, and databases currently being used in an ineffective manner.

The laboratory work requires extensive documentation and is mandated by regulatory agencies, needed to ensure proper quality control, and it is a good business practice. The Laboratory via a combination of manual databases, spreadsheets, and forms appears to properly track the necessary information. The effort however requires considerable time by senior employees to fully account for all of the necessary requirements and processes.

The lab is certified in six EPA Fields of Testing which require specific reporting requirements that must be administered and with a considerable amount of time being required of the Laboratory Supervisor along with other staff.

The City should obtain a laboratory information management system (LIMS) and populate and utilize it to meet necessary operational and recording requirements as well as provide the proper documentation. The system established should include training and should integrate with other reporting systems.

45. Evaluate and reduce inventory based on actual needs and reduce the amount of stock similar to industry benchmark.

The City's Sanitation material inventory value has averaged $438,000 over the last three years with the amount of annual inventory turns between 1 and 1.3, equating to a shelf life of 12-16

months. This value appears high for materials used from inventory. The turn value is actually understated and is higher because of the amount of direct material purchases that go directly to the job without going into the inventory system. This amount of turns is high against the various industry and LAC benchmarks indicating long shelf lives and potential for existence of unnecessary items.

All inventory items should be reviewed for necessity and any items with a shelf life of over 6 months should be evaluated not only for the necessity of the item but the availability for local sources providing in lieu of having in the inventory. An amount of 50% or less of the existing inventory appears appropriate.

46. Control and consolidate inventories to a small number of locations and establish proper accountability and security functions.

The Sanitation group has 23 inventory locations of material that are stored throughout the plant complex. These are monitored in various manual and spreadsheets by an inventory control technician. The receipt of materials is affirmed by the inventory control technician and moved from the inventory to the location by those who ordered the materials. The release of material is documented in Hansen for some on work orders and most on an inventory control form.

Some locations are secured but many are not and access control does not exist. Further, some materials are open to the elements and are not protected.

The inventories are concentrated with six of the 23 locations accounting for most of the inventory value. The various inventories should be consolidated and number of locations minimized to 4 or less. Proper access to material inventories should be controlled for all materials and proper accounting for their usage against the work done.

47. Consider centralizing and reducing inventories to a controlled location that is shared with other departments.

The Sanitation inventory is only one of many inventories in the Public Works Complex. The control of the inventory is difficult by Sanitation under the current physical layout and number of users of materials as well as a lack of automated inventory control.

The City should conduct a complete review of the inventories in waterworks, facilities, streets and others in the Public Works Complex and determine if a current location exists that could be used for a warehouse function. Other options may be considered using benefit and cost of consolidation.

48. Automate all inventory tracking and link to a specific work order and minimize the use of inventory reduction forms.

The methodology used for accounting of material usage is minimal and is inconsistent among groups with Sanitation. Some use work orders mainly for maintenance and have material tracked to specific jobs. The majority of the employees for material inventory release use an inventory control form that just depicts which employee obtained the material.

All material should be tracked to the actual work being done and affected asset. The CMMS should be used to account for all materials that are used. This would provide accountability and ensure the appropriate allocations of cost to work and asset as well as establish more effective accountability of those who obtain materials.

49. Transition the Laboratory organization staffing to match work being done. Consider both consistent routines and special needs. Attempt to provide support for other divisions within Public Works.

The Laboratory provides coverage on a 365-day per year basis with some required daily testing along with process control function support and availability for the treatment plant. The amount of work varies by the week, and workload needs are different day to day. Though the workload may be lower from one day to the next, coverage must be maintained for plant support.

It appears, with appropriate database tools and some scheduling, more testing work could be done for other groups within the City. Currently, other groups use outside contract services for work that appears to be within the capability of the City's Laboratory resources.

The City should require all departments desiring to have external testing to first confirm that it cannot be done with the existing resources within the City's laboratory. It appears that required coverage by Laboratory technicians exists yet they have available capacity to perform more work, if properly planned and scheduled. If this additional support is provided, this would save the City from paying for unnecessary outside expenditures. Also, knowledgeable laboratory employees with a vested interest would be managing the testing process.

50. Establish a formalized biweekly (or weekly) coordination meeting both within the engineering group and together with operations. Review common issues as well as provide project status and update.

The Engineering group conducts coordination efforts now on an ad hoc and project-by-project basis. Internally, the planning of work occurs on various timeframes and schedules as well as

often on a project, or issue-by-issue, basis. The coordination of projects with Operations is also done inconsistently and is normally when an issue occurs or project is beginning.

A formalized time with a pre-established agenda should occur where the Engineering employees meet biweekly to review projects and plan the workload for the next two week time frame. Further, another meeting with a pre-established agenda should occur to outline the project issues, plan projects and discuss/share issues, as well as get input from both sides (Engineering and Operations) on ways to enhance both the work being done and employees performing the work. This synchronization would allow a coordinated effort between the two groups that must work together for efficient work and allow an effective operation of both the collections system and the treatment plant.

51. Operations should provide an office for Engineering with an engineer working onsite one to two days per week.

The need for Operations and Engineering to work and share ideas is imperative. Engineering's main customer is Operations and Operations' main technical support is Engineering. The City's plan is for Engineering to move from the Public Work Complex to City Hall this year. Currently, Engineering is located in a different building in the Public Works Complex than Operations Management.

To ensure direct interaction and to assure sharing of ideas, Operations should provide an office within Operations for Engineering to staff 1-2 days a week with a licensed civil engineer. This would help ensure a relationship and allow engineering leadership to be better integrated, along with projects being planned and coordinated with operations and their leadership. This concept of having Engineering embedded within Operations now successfully occurs within Waterworks and is most effective for both parties.

Directing / Scheduling

52. Fully develop a two-week schedule procedure and hold Supervisors accountable. Integrate with all systems and distribute schedule to staff. Relate schedules to annual work plans and routine processes. Educate on use and standardize work scheduling throughout Division. All projects and non-operations routines should be fully scheduled based on productivity and SOP's.

The development of a systematic two-week scheduling process should occur with staff education to utilize and enhance the current daily work assignment process. This process of scheduling needs to include all work by activity to be accomplished in a specific time period based on a developed annual work plan and outstanding service requests. A systematic involvement of the

Managers and Supervisors should occur to assist with the coordination of equipment, labor and material needs, methodology and any special circumstances. This meeting would involve the Managers and Supervisors to discuss the adherence to and future efforts of these schedules. Various points related to this process include:

- allow for maximum use and sharing of limited resources
- minimize work insertions and "fire-fighting"
- communicate among all employees with regard to the work plan and available resources
- provide for employee involvement and feedback in planning work
- reduce resource conflicts

The schedule should be prepared and released for all City maintenance employees to be aware of the planned work. Further, the Supervisors should be required to discuss their new schedules, comparing it with the prior two-week time frame to determine the adherence to the previous schedule.

The Supervisors should be held accountable for the schedule completion. Several tools such as a PM program, routines, performance plans, cross training and an adequately configured CMMS must be put into place prior for a scheduling system to be fully effective.

Work assignments should be directed by Supervisors for their respective sections with support provided by Lead Operators and senior crew members. Schedules should be derived primarily from the annual work plan and work calendar, which is broken down into manageable 'projects' on a two-week basis. Supervisors should use the two-week schedules for guiding daily assignments, with adjustments made for defined emergencies or urgent requests only.

Supervisors should focus on adherence to the two-week schedule with field support by informed operators, mechanics, technicians, etc. This will assist in completion of the annual plan and established performance measures. Such a two week scheduling process is now being done in other similar agencies such as the City of Ventura and Mesa Water District.

53. Establish a complete engineering tracking system for project and task and account for all time on a project whether performing, supporting and/or managing.

The Engineering group currently accounts for all of the external cost of projects work in various spreadsheets and databases as well as it is reported in the accounting system. However, for their own internal effort, which accounts for 19% of all cost on a project, there is no tracking of time and/or effort.

Engineering should establish a mechanism for 100% tracking of time and to each project. This will provide input into the evaluation of how a project is being completed and give data to assist and improve ways to manage projects. Just as the City holds their contractors and engineers accountable, it should utilize the same concept on City project employees.

54. Account for one hundred percent (100%) of employee time in the system. All work done for City and others should be adequately reported in the same system. All non-divisional work costs should be recovered, or at least identified with cost determined.

Report 100% of labor hours in one system for all groups. Simi Valley currently does limited work tracking using a combination of work reporting processes. The work being reported varies for each section as outlined in Section 2, Baseline, with incomplete and inconsistent work information being documented. All resources used (labor, equipment, materials, contractors) should be tracked for each activity performed.

The data on accomplishment (number of manholes repaired, equipment PM's, LF of pipe cleaned) would be included in work reporting. All work activities would then be stored in the new CMMS. Furthermore, locations such as zone or process would be systematically reported and stored by activity. This will assist with future reporting and compilation of data. Reports will be able to be run by one location, one activity, or an entire section to determine where work effort is being expended.

55. All groups should standardize tracking of labor, equipment, and materials by activity and link to a specific asset or location, and should properly report equipment mileage in fueling system.

Key data should be collected to allow for performance measurement of cost, productivity, unit cost and accomplishment. All resources used should be tracked for each activity performed. Work should be tracked in a standardized method that is done consistently by all sections, including preparatory and travel time to the job site. When possible, work should also be tracked to specific assets and/or locations to allow lifecycle costing of infrastructure assets and maintenance history reporting. The data on accomplishment would be included in work reporting.

All work data collected would then be stored in the new CMMS and used for process improvement and continuous monitoring. The new CMMS database should allow management to compile comprehensive summaries of accomplished work and productivity metrics (unit cost, units per hour) in a consistent format for work management purposes. Further, the system should involve management staff in using the information to improve operations.

Proper reporting of equipment meters is the most basic element of managing fleet. These values must be reported accurately or it will be nearly impossible to manage fleet effectively and efficiently. Mileage and vehicle usage information is critical to fundamental processes such as determination of equipment usage rates, identification of equipment purchasing needs, and establishment of routine preventive maintenance cycles.

Equipment mileage reported by crews should be linked to specific vehicles and users in the fueling system. Mileage readings should be monitored and confirmed to actual vehicles. Data reporting errors should be corrected on a monthly basis to ensure accurate data is maintained. This will enhance accountability for equipment operation and fuel consumption.

56. Establish benchmark for leave reporting (rest & recovery) and overtime and develop tools to monitor monthly and annually.

The amount of time of line cleaning crews in relation to work time for leave (20.4%) and overtime (9.9%) is considerably higher than LAC's benchmarks. The leave value appears to be related to the considerable amount of time (5.8%) used for "rest and recovery." This amounts to 2-3 FTEs or equivalent full time employees that results in employee pay while not working. These values have been reducing over the last several years, but are still substantial. Key management employees were unaware of magnitude of either overtime or leave values.

These values of percentage of time employees charged to overtime, and amount of "rest and recovery", should be established as benchmarks that are monitored and reported monthly to the Director of Public Works and the Assistant Director of Public Works.

57. Confirm need to perform cleaning of sewers in the off-peak evening hours with senior City management. Attempt to minimize the number of locations where night work is required.

The major impact of high overtime and high amount of "rest and recovery" is related to the desire of cleaning sewer lines in off-peak hours. The undocumented policy has been established that many major streets in the commercial areas are only cleaned in the evenings.

The City should clarify this policy and determine if the policy should be continued. If policy is continues, City should identify specifically which streets to have night work performed. This night time cleaning creates an addition of approximately $234,000 in cost annually.

58. Annually plan the cleaning of the required evening locations to minimize use of overtime and rest & recovery. Attempt to utilize the 9/80 shifts to assist in this scheduling.

The night efforts have two impacts: they increase overtime and create the need for rest and recovery. By proper, proactive scheduling of these cleanings on the off Friday of the 9/80 schedule, rest and recovery would be eliminated.

Late evening and night cleaning, if required, should proactively be scheduled to minimize the days that would create the "rest and recovery" needs. This could reduce the payment of time for nonproductive efforts and not put employees in a situation of needing this support.

Controlling / Improving

59. All should utilize the same system for work tracking and planning with a monthly report in a similar format. Establish a monthly meeting to review data from the CMMS and project management with management responsible for creating accountability.

The current method for tracking work performance information varies among each of the operations sections. The ability to process and utilize unit cost and productivity measurement data is currently underutilized and a formal process has not been established.

All work should be tracked directly in the selected CMMS, without the need for additional databases and work reporting tools. The CMMS should have the capability to allow management to compile comprehensive summaries of accomplished work (i.e. unit costs, work accomplished and dollars expended) and to disseminate this information to all managers and supervisors for work management purposes. Further, the system should involve management personnel in using the information to improve the operations. For this to occur, three criteria must take place: 1) training in the use of the new CMMS, 2) a realistic performance plan established and 3) processes set up to systematically review the information. Similar processes are now occurring in various agencies such as Mesa Water and City of Ventura.

Additional support and coaching should be provided to managers and supervisors that use information to manage. Those who are utilizing this information to continually improve the organization should be rewarded and those that choose not to use the information should be given guidance and direction to apply in their daily operation.

60. All supervisors and managers should be trained to understand and be fully capable of using the CMMS and linked GIS.

The current Hansen system exists with only a couple of lower level staff utilizing some of the capabilities. There are no management reports produced for improvement and performance enhancement. Key supervisors and managers lack basic understanding of the system. Only a few capabilities are being used. GIS utilization is minimal with no know linkage to Hansen.

The next CMMS or Hansen if it is retained should involve complete training of utilization for managing operations and process monitoring.

61. Streamline and automate work process and reduce the number of steps in the purchasing process.

The current purchasing effort within Sanitation Operations is very complex and has multiple employees involved with a large number of steps. This process and effort with Sanitation adds to the current lengthy process with the City's other processes and makes this a time consuming work effort to obtain materials, supplies, and services.

This process should be completely flowcharted, documented and reviewed with key management staff to determine a more streamlined and effective work process, then incorporated with the CMMS. It should then be finalized and documented with employees trained in utilizing this process.

62. Simplify and eliminate redundancies using an integrated CMMS with inventory control linked to GIS and other asset databases.

The current method of using a group of systems and processes including Hansen, spreadsheets, manual files and other databases is extremely onerous with 58 steps in place and multiple redundant processes on recording, planning and scheduling. Further, there is minimal use of GIS even for the linear assets of the collection system.

Obtain facilitated assistance and flowchart the work process automation with the CMMS and GIS. Eliminate the redundancy and unnecessary manual files and spreadsheets. After outlining workflows and obtaining management acceptance of the process, work with employee teams to integrate the desired business processes within the CMMS and GIS. Use these developed work flows and related steps with the automated systems for work planning, scheduling, recording and improving as well as inventory control.

63. Develop a complete, yet simplified, project management system and institutionalize.

The Sanitation Engineering group uses a series of methods to monitor their project's status. They attempt to plan the external resources for projects, yet lack any planning of the effort they provide for the project success. Most projects are monitored without any controls to help guide resources to meet the desired goals and due dates.

A complete project management approach should be established to plan all work efforts by project with access to deliverables for all parties in Sanitation. They should estimate resources needed to accomplish the work and balance the resources with those available to ensure an achievable plan. A simple system should be established that all engineering employees understand which also allows client access for monitoring the projects status.

64. Establish change order performance measures such as percentage of initial contract and percentage attainment of Engineer's estimate. Use as key benchmarks and report monthly by project to the Director of Public Works.

Performance measures are lacking for Sanitation Engineering outside of the general CIP plans depicting overall project schedules. Good industry benchmarks exist for monitoring the various programs of engineering projects.

Develop key performance indicators and use to monitor each project's progress. These could be percentage of initial project contract for project management or design, as well as percentage attainment of the engineer's estimate. These measures should be applied on all specific projects and compiled as a summary. They should be reported monthly and provided annually in a summarized fashion to key Public Works management employees.

65. Budget internal cost by project and hold project managers accountable for their accomplishment. Use industry standards for planning estimates along with engineering judgment.

The Sanitation Engineering group currently does budget all external cost for planning, design and construction using various manual tools and engineering judgment, contracts and past experience. However, they do not budget their own employees effort to projects.

All projects should be planned with amount of time and dollars anticipated by Sanitation Engineering employees. They should use their internal judgment estimate along with industry benchmarks to project all cost and hours. These should be the major benchmark to obtain adherence to achievement of the budgeted goal for project design or project management.

66. Establish a continuous improvement process with a quarterly update. Provide an annual State of Operations report to the Director of Public Works that compares planned activities work days, accomplishment, total costs, and unit costs versus actual efforts for all groups. Provide State of Operations report annually to City Manager.

A systematic method for evaluating effectiveness in the operation is not currently available. The new CMMS will have frequency of service, desired quality and quantity of work and unit cost for all activities that can be extracted on a very routine basis by any specific time frame and/or location. By coaching the employees in the use of the system, a comparison can be made which would allow activities that have the potential for contracting to be identified, while continually evaluating in-house efficiency.

The City should review all alternatives for providing cost-effective, quality service, and select the options that best meet these criteria. The established activity based approach in the new system could provide the City with the mechanism to maximize the best use of the public's dollars. Information on performance measures, unit cost, accomplishment and productivity compared to the established plan should be provided.

A monthly meeting should occur where all employees provide summary information on costing, productivity and accomplishment. Actions planned as a result of this information should be outlined. Results of various activities should be posted for all employees to observe. A short State of Operations report for each organizational unit should be prepared and provided to the Public Works Director on an annual basis. The State of Operations should also be provided to the City Manager and City Council.

67. Establish a systematic procedure to assess future contracting candidates following documented City maintenance and operations strategic objectives.

Simi Valley should use employee teams to establish a process to outline the steps in the analysis to determine candidate's efforts to be considered for contracts. One component required to accomplish this effort is development of the performance plan and activity cost in recommendation 17. The purpose is to create a competitive environment and encourage continuous improvement.

An overall unit cost by activity would incorporate actual labor, equipment, and material cost including an applied avoidable overhead rate, which would allow the City to compare the true cost of conducting a particular operation to the cost of other agencies and for other goal setting purposes.

This generalized procedure would enable the City to evaluate all activities annually and determine whether any activities appear to warrant consideration for outsourcing. The City could then take action to improve that activity, or function, or consider it as a candidate to outsource in a competitive effort. This process would be overseen by the designated system administrator for operations.

APPENDIX A
Estimated Annual Work Activity Summary

Activity-based performance plans have been developed by LAC for all groups in Sanitation Operations and Engineering.

Plant Operations

Activity	Program	Inventory	LOE	Work Qty	ADP	Crew Size	Labor Days
1211	**Plant Operations**						2,577
10	***WASTEWATER OPERATIONS***						*1,558*
1001	OPERATE HELM	365 DAYS	7.000	2,555 HOURS	9.0	1.0	284
1002	OPERATE WW PLANT NORTH	365 DAYS	7.000	2,555 HOURS	9.0	1.0	284
1003	OPERATE WW PLANT SOUTH	365 DAYS	7.000	2,555 HOURS	9.0	1.0	284
1004	OPERATE FILTER PRESS	365 DAYS	7.000	2,555 HOURS	9.0	1.0	284
1005	HAUL SCREENINGS	52 WEEKS	49.000	2,548 TONS	49.0	1.0	52
1006	HAUL SLUDGE	52 WEEKS	64.000	3,328 TONS	64.0	1.0	52
1007	PLANT SAMPLING/ANALYSIS	4 SITES	365.000	1,460 EACH	9.0	1.0	162
1008	OUTSIDE HAULER SUPPORT	52 WEEKS	3.000	156 HOURS	9.0	1.0	17
1009	PLANT OPS NIGHT ROUNDS	52 WEEKS	10.000	520 HOURS	9.0	1.0	58
1059	TILLING DRYING BEDS	52 WEEKS	14.000	728 HOURS	9.0	1.0	81
15	***WASTEWATER MAINTENANCE***						*240*
1511	MAINTAIN GRIT CHAMBERS	12 MONTHS	12.000	144 HOURS	27.0	3.0	16
1512	MAINTAIN PRIMARY CLARIFIERS	9 AVG MGD	18.000	166 HOURS	27.0	3.0	18
1513	MAINTAIN FEB	13 MAX MGD	12.000	150 HOURS	27.0	3.0	17
1520	MAINTAIN BNR SYSTEM	12 MONTHS	29.000	348 HOURS	27.0	3.0	39
1521	MAINTAIN SECONDARY CLARIFIERS	9 AVG MGD	18.000	166 HOURS	27.0	3.0	18
1522	MAINTAIN DAFT	12 MONTHS	18.000	216 HOURS	27.0	3.0	24
1530	MAINTAIN EFFLUENT FILTERS	52 WEEKS	7.000	364 HOURS	9.0	1.0	40
1531	MAINTAIN CHLORINE CONTACT BASINS	12 MONTHS	36.000	432 HOURS	36.0	4.0	48
1570	MAINTAIN RETENTION PONDS	2 LOCATIONS	86.000	172 HOURS	36.0	4.0	19
20	***WASTEWATER MECH/ELEC***						*87*
2006	WW REPAIR-UNSPECIFIED ASSET	12 MONTHS	8.250	99 EACH	2.0	1.8	87
90	***GENERAL MAINTENANCE***						*32*
9001	CAPITAL PROJECTS	12 MONTHS	16.000	192 HOURS	9.0	1.0	21
9009	INSPECTION	12 MONTHS	8.250	99 HOURS	9.0	1.0	11
95	***SYSTEM ADMIN***						*661*
9501	GENERAL ADMINISTRATION	12 MONTHS	26.000	312 HOURS	9.0	1.0	35
9502	FIELD SUPERVISION	11 EMPLOYEES	40.000	440 HOURS	9.0	1.0	49
9503	MANAGEMENT	22 EMPLOYEES	68.182	1,500 HOURS	9.0	1.0	167
9505	LEAVE TIME (NON WORK TIME)	12 EMPLOYEES	204.000	2,448 HOURS	9.0	1.0	272
9509	MEETINGS	12 EMPLOYEES	80.000	960 HOURS	9.0	1.0	107
9510	TRAINING/CONFERENCES	12 EMPLOYEES	24.000	288 HOURS	9.0	1.0	32
9519	STANDBY	12 EMPLOYEES	0.000	0 HOURS	9.0	0.0	0

Instrumentation

Activity	Program	Inventory	LOE	Work Qty	ADP	Crew Size	Labor Days
1212	**Instrumentation**						438
10	***WASTEWATER OPERATIONS***						*31*
1007	PLANT SAMPLING/ANALYSIS	4 SITES	313.000	1,252 EACH	40.0	1.0	31
70	***SCADA/TECHNOLOGY***						*323*
7001	INSTALL INSTRUMENTS & CONTROLS	52 WEEKS	5.000	260 HOURS	9.0	1.0	29
7003	MNT/RPR INSTRUMENTS & CONTROLS	52 WEEKS	15.000	780 HOURS	9.0	1.0	87
7010	PM SCADA SYSTEM/EQUIPMENT	3 LOCATIONS	12.000	36 EACH	3.0	1.0	12
7013	RMV/RPL SCADA SYSTEM/EQUIPMENT	12 MONTHS	2.000	24 EACH	1.0	1.0	24
7015	SCADA SYSTEM PROGRAMMING	12 MONTHS	18.000	216 HOURS	9.0	1.0	24
7020	MAINTAIN REPORTING SYSTEMS	12 MONTHS	20.000	240 HOURS	9.0	1.0	27
7021	MAINTAIN SERVER/CLIENT PC	12 MONTHS	4.000	48 HOURS	9.0	1.0	5
7030	INSTRUMENTATION ROVER	52 WEEKS	20.000	1,040 HOURS	9.0	1.0	116
80	***LABORATORY***						*5*
8099	LAB SUPPORT	12 MONTHS	4.000	48 HOURS	9.0	1.0	5
90	***GENERAL MAINTENANCE***						*7*
9001	CAPITAL PROJECTS	12 MONTHS	5.000	60 HOURS	9.0	1.0	7
95	***SYSTEM ADMIN***						*71*
9501	GENERAL ADMINISTRATION	12 MONTHS	25.000	300 HOURS	9.0	0.0	0
9505	LEAVE TIME (NON WORK TIME)	2 EMPLOYEES	204.000	408 HOURS	9.0	1.0	45
9509	MEETINGS	2 EMPLOYEES	80.000	160 HOURS	9.0	1.0	18
9510	TRAINING/CONFERENCES	2 EMPLOYEES	24.000	48 HOURS	9.0	1.0	5
9525	REGIONAL BOARD/STATE REPORTING	12 MONTHS	2.000	24 HOURS	9.0	1.0	3

Laboratory

Activity	Program	Inventory	LOE	Work Qty	ADP	Crew Size	Labor Days
1213	**Laboratory**						1,095
80	***LABORATORY***						*880*
8001	LAB SAMPLING	12 MONTHS	41.583	499 EACH	10.0	1.0	50
8002	LAB CHEMISTRY	52 WEEKS	26.923	1,400 HOURS	9.0	1.0	156
8003	LAB ANALYSIS	12 MONTHS	250.000	3,000 HOURS	9.0	1.0	333
8005	MEDIA/REAGENT PREP	12 MONTHS	16.000	192 HOURS	9.0	1.0	21
8008	LAB SUPERVISION	4 EMPLOYEES	260.000	1,040 HOURS	9.0	1.0	116
8050	LAB EQUIP MAINTENANCE	12 MONTHS	80.000	960 HOURS	9.0	1.0	107
8055	MAINTAIN LAB FACILITIES	12 MONTHS	56.667	680 HOURS	9.0	1.0	76
8090	LABORATORY CERTIFICATION	1 YEAR	200.000	200 HOURS	9.0	1.0	22
95	***SYSTEM ADMIN***						*215*
9501	GENERAL ADMINISTRATION	12 MONTHS	24.917	299 HOURS	9.0	1.0	33
9505	LEAVE TIME (NON WORK TIME)	5 EMPLOYEES	204.000	1,020 HOURS	9.0	1.0	113
9509	MEETINGS	5 EMPLOYEES	80.000	400 HOURS	9.0	1.0	44
9510	TRAINING/CONFERENCES	5 EMPLOYEES	24.000	120 HOURS	9.0	1.0	13
9525	REGIONAL BOARD/STATE REPORTING	12 MONTHS	8.250	99 HOURS	9.0	1.0	11

Plant Maintenance

Activity	Program	Inventory	LOE	Work Qty	ADP	Crew Size	Labor Days
1221	**Plant Maintenance**						2,115
10	***WASTEWATER OPERATIONS***						***7***
1031	WET WELL CLEANING	3 LOCATIONS	1.000	3 EACH	1.0	1.0	3
1032	REPAIR LIFT STATION	3 LOCATIONS	2.667	8 EACH	2.0	1.0	4
15	***WASTEWATER MAINTENANCE***						***1***
1580	INSP/MAINT RECLAIMED SYSTEM	2 MILES-RECLAIMED	4.500	9 HOURS	9.0	1.0	1
20	***WASTEWATER MECH/ELEC***						***894***
2005	WW PM-UNSPECIFIED ASSET	12 MONTHS	36.000	432 EACH	1.0	1.0	432
2006	WW REPAIR-UNSPECIFIED ASSET	12 MONTHS	1.000	12 EACH	1.0	2.0	24
2010	INSTALL MECHANICAL	12 MONTHS	1.000	12 EACH	0.5	2.0	48
2011	RPR/RPL PUMPS	85 PUMPS	0.282	24 EACH	0.5	2.0	96
2012	RPR/RPL MOTORS	99 MOTORS	2.000	198 EACH	3.0	2.0	132
2021	RPR/RPL ELECTRICAL	12 MONTHS	5.917	71 EACH	1.0	2.0	142
2029	MAINTAIN POWER DISTRIBUTION SYSTEM	12 MONTHS	14.667	176 HOURS	18.0	2.0	20
40	***WASTEWATER COLLECTIONS***						***26***
4050	INSPECT/PM PUMP STATION	3 LOCATIONS	52.000	156 EACH	6.0	1.0	26
90	***GENERAL MAINTENANCE***						***527***
9001	CAPITAL PROJECTS	12 MONTHS	5.000	60 HOURS	9.0	1.0	7
9002	WELDING & FABRICATION	12 MONTHS	148.000	1,776 HOURS	9.0	1.0	197
9003	CORROSION CONTROL	12 MONTHS	62.500	750 HOURS	9.0	1.0	83
9009	INSPECTION	12 MONTHS	50.000	600 HOURS	9.0	1.0	67
9015	YARD MAINTENANCE	52 WEEKS	30.000	1,560 HOURS	9.0	1.0	173
9021	TOOLS & SMALL EQUIP MAINTENANCE	12 MONTHS	2.000	24 HOURS	9.0	0.0	0
95	***SYSTEM ADMIN***						***660***
9501	GENERAL ADMINISTRATION	12 MONTHS	16.000	192 HOURS	9.0	1.0	21
9502	FIELD SUPERVISION	9 EMPLOYEES	111.111	1,000 HOURS	9.0	1.0	111
9505	LEAVE TIME (NON WORK TIME)	10 EMPLOYEES	204.000	2,040 HOURS	9.0	1.0	227
9509	MEETINGS	10 EMPLOYEES	80.000	800 HOURS	9.0	1.0	89
9510	TRAINING/CONFERENCES	10 EMPLOYEES	24.000	240 HOURS	9.0	1.0	27
9519	STANDBY	10 EMPLOYEES	0.000	0 HOURS	9.0	0.0	0
9550	DATABASE MGMT	52 WEEKS	32.000	1,664 HOURS	9.0	1.0	185

Collection System

Activity	Program	Inventory	LOE	Work Qty	ADP	Crew Size	Labor Days
1222	**Collection System**						2,087
10	***WASTEWATER OPERATIONS***						*48*
1010	STRUVITE CLEANING	1 YEAR	108.000	108 HOURS	27.0	3.0	12
1031	WET WELL CLEANING	3 LOCATIONS	12.000	36 EACH	2.0	2.0	36
15	***WASTEWATER MAINTENANCE***						*28*
1510	MAINTAIN HEADWORKS/BAR SCREEN	52 WEEKS	16.000	832 TONS	59.0	2.0	28
30	***WASTEWATER PIPES***						*1,296*
3001	CCTV	1,964,545 LF-SEWER	0.200	392,909 LF	1,999.0	2.0	393
3003	EASEMENT RODDING	19,999 LF-	3.500	69,997 LF	2,999.0	2.0	47
3005	JETTING-AREA CLEANING	1,964,545 LF-SEWER	0.330	648,300 LF	4,000.0	3.0	486
3007	JETTING-HOT SPOT CLEANING	1,964,545 LF-SEWER	0.070	137,518 LF	3,000.0	3.0	137
3009	JETTING-NIGHT CLEANING	1,964,545 LF-SEWER	0.125	245,568 LF	4,000.0	3.0	184
3015	ROOT CLEANING	1,964,545 LF-SEWER	0.003	5,000 LF		0.0	0
3019	SEWER LINE REPAIR	372 MILES-SEWER	0.024	9 EACH	1.0	5.0	45
3020	FORCE MAIN CONDITION ASSESSMENT	1,716 LF-FORCE	1.000	1,716 LF	1,000.0	2.0	3
35	***MANHOLES***						*169*
3501	SSO RESPONSE/CLEAN UP	372 MILES-SEWER	0.013	5 EACH	2.0	7.0	18
3510	MANHOLE CONDITION ASSESSMENT	6,365 MANHOLES	0.200	1,273 EACH	20.0	2.0	127
3515	MANHOLE REPAIR	6,365 MANHOLES	0.001	6 EACH	2.0	3.0	9
3520	RAISE MANHOLES	6,365 MANHOLES	0.003	20 EACH	4.0	3.0	15
3525	ROACH ABATEMENT	6,365 MANHOLES	0.004	24 EACH	0.0	0.0	0
40	***WASTEWATER COLLECTIONS***						*87*
4010	INTERCEPTOR CLEANOUT	99 LOCATIONS	0.121	12 EACH	4.0	2.0	6
4031	SYSTEM RESPONSE	6,365 MANHOLES	0.013	84 EACH	2.0	1.0	42
4050	INSPECT/PM PUMP STATION	3 LOCATIONS	104.000	312 EACH	8.0	1.0	39
90	***GENERAL MAINTENANCE***						*93*
9001	CAPITAL PROJECTS	12 MONTHS	5.000	60 HOURS	9.0	1.0	7
9004	STORM DRAIN SUPPORT	999 LOCATIONS	0.024	24 EACH	6.0	2.0	8
9005	RESPOND TO CITIZENS	126,679 CITIZENS	0.002	199 HOURS	9.0	1.0	22
9009	INSPECTION	12 MONTHS	16.583	199 HOURS	9.0	1.0	22
9010	CONTRACT MANAGEMENT	12 MONTHS	24.917	299 HOURS	9.0	1.0	33
9013	USA LOCATES	372 MILES-SEWER	0.089	33 EACH	25.0	1.0	1
9021	TOOLS & SMALL EQUIP MAINTENANCE	12 MONTHS	2.000	24 HOURS	9.0	0.0	0
95	***SYSTEM ADMIN***						*366*
9501	GENERAL ADMINISTRATION	12 MONTHS	16.583	199 HOURS	9.0	1.0	22
9502	FIELD SUPERVISION	8 EMPLOYEES	40.000	320 HOURS	9.0	1.0	36
9505	LEAVE TIME (NON WORK TIME)	9 EMPLOYEES	204.000	1,836 HOURS	9.0	1.0	204
9509	MEETINGS	9 EMPLOYEES	80.000	720 HOURS	9.0	1.0	80
9510	TRAINING/CONFERENCES	9 EMPLOYEES	24.000	216 HOURS	9.0	1.0	24
9519	STANDBY	9 EMPLOYEES	0.000	0 HOURS	9.0	1.0	0

Sanitation Engineering

Activity	Program	Inventory	LOE	Work Qty	ADP	Crew Size	Labor Days
123	**Sanitation Engineering**						**1,856**
60	***ENG-CIP FUNCTIONS***						***970***
6001	ENGINEERING DESIGN	12 MONTHS	87.000	1,044 HOURS	9.0	1.0	116
6002	ENGINEERING CONSULTANT SELECTION	12 MONTHS	13.950	167 HOURS	9.0	1.0	19
6003	PROJECT MANAGEMENT OF CIP PROJECTS	12 MONTHS	167.025	2,004 HOURS	9.0	1.0	223
6004	PREPARE SPECIFICATIONS	12 MONTHS	73.050	877 HOURS	9.0	1.0	97
6005	PEER REVIEW OF PLANS/SPECS/ESTIMATES	12 MONTHS	38.250	459 HOURS	9.0	1.0	51
6006	DRAFTING SANITATION CIP PROJECTS	12 MONTHS	90.450	1,085 HOURS	9.0	1.0	121
6007	PREPARING STAFF REPORTS	12 MONTHS	13.950	167 HOURS	9.0	1.0	19
6008	PROJECT MEETING	12 MONTHS	52.200	626 HOURS	9.0	1.0	70
6009	PRELIMINARY DESIGN RESEARCH	12 MONTHS	60.900	731 HOURS	9.0	1.0	81
6010	ASSIST SANITATION ENGINEERING STAFF	12 MONTHS	43.500	522 HOURS	9.0	1.0	58
6011	ENGINEERING CONSTRUCTION FIELD VISIT	12 MONTHS	87.000	1,044 HOURS	9.0	1.0	116
61	***ENG-CUSTOMER SERVICE***						***290***
6101	DEVELOPMENT ADVISORY COMMITTEE	12 MONTHS	17.400	209 HOURS	9.0	1.0	23
6102	SEWER WILL SERVE LETTERS	12 MONTHS	31.350	376 HOURS	9.0	1.0	42
6103	WATER WILL SERVE LETTERS	12 MONTHS	20.850	250 HOURS	9.0	1.0	28
6104	PREPARING STANDARDS AND PROCEDURE MANUALS	12 MONTHS	12.150	146 HOURS	9.0	1.0	16
6105	CUSTOMER SERVICE (PUBLIC INQUIRY, PERMIT REVIEW)	12 MONTHS	74.850	898 HOURS	9.0	1.0	100
6106	REVIEW ENGINEERING PLANS FOR PUBLIC IMPROVEMENT	12 MONTHS	26.100	313 HOURS	9.0	1.0	35
6107	ENGINEERING PRIVATE DEVELPOMENT CONSTRUCTION FIELD VISITS	12 MONTHS	3.450	41 HOURS	9.0	1.0	5
6108	ASSIST ON WATER DEVELOPMENT PROJECTS	12 MONTHS	6.975	84 HOURS	9.0	1.0	9
6109	INSPECTION OF DEVELOPMENT PROJECTS	12 MONTHS	3.450	41 HOURS	9.0	1.0	5
6110	ASSIST ON WATER CONSERVATION PROJECTS	12 MONTHS	20.850	250 HOURS	9.0	1.0	28
62	***ENG-OVERHEAD***						***132***
6201	UNION STEWARDSHIP	12 MONTHS	8.700	104 HOURS	9.0	1.0	12
6202	ASSIST OTHER CITY STAFF	12 MONTHS	40.050	481 HOURS	9.0	1.0	53
6203	TRAINING, WORKSHOP, WEBINARS, CONFERENCES	12 MONTHS	5.250	63 HOURS	9.0	1.0	7
6204	STAFF MEETINGS	12 MONTHS	10.425	125 HOURS	9.0	1.0	14
6205	BUDGET PREPARATION	12 MONTHS	6.975	84 HOURS	9.0	1.0	9
6206	PERSONNEL MANAGEMENT	12 MONTHS	19.125	230 HOURS	9.0	1.0	26
6207	DRAFTING FOR OTHER DIVISIONS	12 MONTHS	8.700	104 HOURS	9.0	1.0	12
65	***ENG-ADMIN/MGMT***						***464***
6501	ENG-MGMT ANALYST	12 MONTHS	174.000	2,088 HOURS	9.0	1.0	232
6502	ENG-SECRETARY	12 MONTHS	174.000	2,088 HOURS	9.0	1.0	232

APPENDIX B
Local Agency Benchmarks

Three local agencies were compared on several basic parameters against the City of Simi Valley using surveys, research, and on-site interviews in data collection. This included agencies similar in size to the City with treatment volumes ranging from 8.0 (Las Virgenes Water District) to 9.5 (City of Thousand Oaks) in millions of gallons of wastewater treated daily in the same geographical area. In fact, these benchmark agencies are only a short travel distance (less than 45 minutes) from the City including Las Virgenes Water District, City of Thousand Oaks, and City of Ventura. This data collected was used throughout the report in the findings for opportunities as well as facts used for various recommendations.

A summary of these benchmark values are shown in Figure B-1 below.

Figure B-1
Simi Valley Local Benchmark Summary

Agency	Simi Valley	Las Virgenes	Thousand Oaks	Ventura City
MGD Design	12.5	12 /16	14	14
ADWF	9.5	8	9.5	9.3
ops staff	13	9	12	12
mtce staff	10	8.5	6	8.5
lab staff	5	6	4	7
coll staff	8	0	11.25	7
sewer miles	372	55.7	500	290
access points	6365	-	6500	5900
2012 sso count	2	1	0	6
san rev (M)	14.8	16.6	19.3	17.1
san ops exp (M)	15.4	11	14.7	20.4
cip (M)	4	13	8.3	4.8
Ops shift	1 w/2-hr night support	1	1	3
Shifts/Sched	9 @80	9 @80	4@10	5@8
MMS	Hansen	Microwest AMMS	MaintStar/Maintenance Connection	Lucity
Data Collected	10%	5-10%	10-15%	100%
Layers from CM	8	5	6	5