Final Report
August 29, 2014

Waterworks District No. 8 Efficiency Analysis
TABLE OF CONTENTS
Simi Valley Waterworks District No. 8
Maintenance and Operational Review

EXECUTIVE SUMMARY .......................................................................................................... 3
EXISTING OPERATIONS........................................................................................................ 11

2.1 General ........................................................................................................................................................................ 11
   2.1.1 Good Practices and Innovative Ideas ................................................................................................................. 11
   2.1.2 General Facts ......................................................................................................................................................... 11
2.1.3 City Goals and Mission Statement ......................................................................................................................... 13
2.1.4 District Goals ............................................................................................................................................................ 14
   2.1.4.1 Waterworks Engineering ................................................................................................................................. 14
   2.1.4.2 Waterworks Services ........................................................................................................................................... 14
   2.1.4.3 District Documents and Standards .................................................................................................................... 15
2.1.5 Urban Water Management Plan ............................................................................................................................. 15
2.1.6 Master Plan Study Underway ................................................................................................................................. 16

2.2 Work Planning and Budget ................................................................................................................................. 17
   2.2.1 Assets and Characteristics ......................................................................................................................................... 17
      2.2.1.1 Tapo Canyon Water Treatment Plant (TCWTP) .............................................................................................. 17
      2.2.1.2 Water Storage and Distribution System ........................................................................................................ 18
   2.2.2 Activities Performed ................................................................................................................................................ 23
      2.2.2.1 Waterworks Engineering .................................................................................................................................. 23
      2.2.2.2 Waterworks Services ....................................................................................................................................... 25
         2.2.2.2.1 Distribution ................................................................................................................................................... 25
         2.2.2.2.2 Operations .................................................................................................................................................... 26
   2.2.3 Budget ...................................................................................................................................................................... 27
      2.2.3.1 Revenues .............................................................................................................................................................. 28
         2.2.3.1.1 Water Accounts ........................................................................................................................................ 28
         2.2.3.1.2 Water Rates .............................................................................................................................................. 28
      2.2.3.2 Expenditures .......................................................................................................................................................... 28
         2.2.3.2.1 Purchased Water Rates ................................................................................................................................ 30
         2.2.3.2.2 Personnel, Supplies, & Services .................................................................................................................. 31
         2.2.3.2.3 Internal Allocations/Cost Allocation Plan .................................................................................................. 31
         2.2.3.2.4 Expenses – Transfers .................................................................................................................................... 32
   2.2.3.3 Performance Measures ......................................................................................................................................... 33
   2.2.3.4 Capital Improvement Budgets ............................................................................................................................. 34
   2.2.3.5 Construction Projects and Professional Services .............................................................................................. 37

2.3 Organization and Resources .............................................................................................................................. 38
   2.3.1 Organization ........................................................................................................................................................... 38
      2.3.1.1 Simi Valley Organizational Departments ........................................................................................................ 39
         2.3.1.1.1 Public Works Department ................................................................................................................................ 39
         2.3.1.1.2 Waterworks Services .................................................................................................................................... 40
         2.3.1.1.3 Waterworks Engineering ................................................................................................................................ 41
         2.3.1.1.4 Environmental Compliance .......................................................................................................................... 42
         2.3.1.1.4.1 Water Quality ............................................................................................................................................. 43
   2.3.2 Resources ............................................................................................................................................................... 44
2.3.2.1 Labor ................................................................................................................. 44
   2.3.2.1.1 Employees and Employee Classes .......................................................... 44
   2.3.2.1.2 Work Shifts/Standby ............................................................................ 45
   2.3.2.1.3 Historical Overtime Waterworks Services .......................................... 46
   2.3.2.1.4 Employee Certifications and Licensees ............................................... 47
2.3.2.2 Equipment ........................................................................................................ 47
   2.3.2.2.1 Fleet Replacement ............................................................................ 48
2.3.2.3 Materials and Contracts .................................................................................. 49
   2.3.2.3.1 Annual Maintenance Contracts .......................................................... 49
2.4 Directing .................................................................................................................. 50
   2.4.1 Work Identification ......................................................................................... 50
   2.4.2 Scheduling and Assignments ......................................................................... 51
   2.4.2.1 Waterworks Services ............................................................................ 51
   2.4.2.2 Waterworks Engineering ...................................................................... 51
2.4.3 Routines and Preventative Maintenance Programs ............................................. 53
2.4.4 Work Flow and Work Orders .............................................................................. 54
   2.4.4.1 Work Flow of Waterworks Services- Meters & Customer Service .......... 54
   2.4.4.2 Work Flow of Waterworks Services- Operations .................................. 55
   2.4.4.3 Work Flow of Waterworks Services - Distribution .................................. 56
   2.4.4.4 Work Orders .......................................................................................... 57
2.5 Controlling ............................................................................................................... 58
   2.5.1 Work Tracking .............................................................................................. 58
   2.5.1.1 Plans Review Log .................................................................................... 58
   2.5.1.2 Labor Hours Reported in Hansen ............................................................. 60
2.5.2 Systems for Control ........................................................................................... 61
   2.5.2.1 Systems .................................................................................................. 61
   2.5.2.2 Systems Use and Monitoring ................................................................. 63
2.5.3 Maintenance Management Process ..................................................................... 64

FINDINGS ......................................................................................................................... 65
3.1 General ..................................................................................................................... 65
3.2 Planning .................................................................................................................... 72
3.3 Organizing ................................................................................................................ 88
3.4 Directing .................................................................................................................. 96
3.5 Controlling and Improving ..................................................................................... 98

RECOMMENDATIONS .................................................................................................... 103
4.1 General .................................................................................................................... 103
4.2 Planning ................................................................................................................... 107
4.3 Organizing ............................................................................................................... 114
4.4 Directing/Scheduling ............................................................................................. 123
4.5 Controlling/Improvement ....................................................................................... 126

REFERENCES ................................................................................................................. 133
LA Consulting, Inc. (LAC) has reviewed the City of Simi Valley Waterworks District No. 8, based upon the scope of our consulting services and found that Waterworks has many good and innovative practices occurring. Further, the organization is under capable and experienced leadership. This combination of leadership and good business practices has created a positive environment for work and process improvement in the future. During this process, LAC prepared a report on the effective and efficient management practices and found additional opportunities. The specifics of the cost and benefits are outlined in a future implementation plan.

This report outlines and provides a plan of how Waterworks can improve existing operations through implementing specific 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 report is a compilation of information collected during on-site and off-site efforts, through meetings, interviews, and the review of Waterworks’ documents. The information is supplemented by input from LAC staff experienced in operations, engineering, management systems, and business process improvement. An analysis of Waterworks’ operational processes and maintenance was conducted to determine trends and current practices compared to ideal industry and similar agencies’ performance. The specific details are described in the body of the report in three separate sections: Baseline, Findings, and Recommendations.

Waterworks is a dynamic organization and has historically been a leader in use of systems and technology. Information in this draft report is presented as historical and ‘point-in-time’ data which may have changed since original discovery. Baseline and findings information was provided to Waterworks and confirmed by staff throughout the evaluation process. Most changes in policy, organization, and process that occur after the initial discovery are not consequently revisited as part of this effort due to significant impact on schedule and cost.

Simi Valley Waterworks was found to have staff dedicated to making the most of their resources. It was also found that Ventura County Waterworks District No. 8 is a special district and is governed by the City Council yet retains the County name. In addition, the organization has many functions with a high ratio of employee categories to positions. Waterworks also has a large number of employees with certifications and licenses. The organization was found to have three organizational groups. In each group, there was a lack of formalized accountability systems established. Further, several automated systems and redundant manual databases were found that lacked linkage. The monitoring of the existing systems were being managed by diligent staff but were found to be cumbersome and lacking linkage between systems, current systems, and controls.
The evaluation concluded sixty-five (65) findings, including fourteen (14) in the General category, twenty-three (23) in Planning, fourteen (14) in Organizing, five (5) in Directing, and nine (9) for Controlling and Improving.

As a result of the evaluation, fifty-four (54) key recommendations were developed. The recommendations are not always in a “one-to-one” relationship with the findings and are often “many-to-one” or one finding may actually support several recommendations. Also, the recommendations are related in many cases so that complete benefit may not occur without the prior recommendations being implemented.

The recommendations are divided into categories, with seven (7) in the General category, fourteen (14) in Planning, seventeen (17) in Organizing, seven (7) in Directing/Scheduling, and nine (9) in Controlling/Improving.

The seven (7) General recommendations are overarching and should be applied to the overall organization. These recommendations address the decentralization of decision making with the history of significant freedom for individuals to develop their own direction and goals found in most departments. In addition, a minimal number of establishment accountability systems were found within the groups. There were numerous redundant databases and spreadsheets found that resulted in recommendations being documented.

Examples of recommendations in this category are establish employee teams to review various improvement opportunities and annual plans; obtain APWA’s accreditation (APWA, 2011); link all specific goals and objectives to the mission and vision statements; eliminate redundant ancillary systems, and; utilize one system for computerized maintenance management system (CMMS) approach and develop a project management system.

The purpose of this category of recommendations is to improve Waterworks overall, making key recommendations that would not only provide positive change and improvement to individual groups, but the entire organization.

The fourteen (14) Planning recommendations are concentrated on the improvement in efficiency and effectiveness of the planning processes. Some examples of recommendations in this category are: update and confirm various infrastructure assets and publish the inventory; establish levels of service with effort for each asset; develop 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; review nexus of allocation of charges for services to Waterworks. This would allow for proper allocation of overhead and unit costing.

The purpose of the recommendations presented in this category is to improve specific annual work planning processes.

The seventeen (17) Organizing recommendations are concentrated on the improvement of the organizational structures of Waterworks and its organizational groups. These recommendations focus on aligning the organization with Waterworks' direction. Some examples of recommendations in this category are: eliminate the sharing of engineering positions; transition
organization to one engineering function; and projection of staffing needs using a performance plan.

The purpose of the recommendations presented in this category is to provide key recommendations to improve the existing organizational alignment with appropriate resource mix found in the individual groups. If implemented, these key recommendations will improve the organizational structure of Waterworks.

The seven (7) Directing/Scheduling Recommendations are concentrated on the improvement of the directing, assigning, and scheduling of work. Some examples of recommendations found in this category are: developing routine PM programs; establish a routine program for meter replacement using latest AMR technology; standardize process for service requests and work orders; define priority procedure for service requests, and; schedule work two weeks in advance.

The purpose of this category of recommendations is to provide ways to improve of work assignment and scheduling as well as to provide accountability to maintain the District’s assets and provide potable water. Fully implemented recommendations will assist Waterworks to have more optimal mix of resources assignments to achieve expectations and directives.

The nine (9) Controlling and Improving Recommendations are concentrated on the improvement, performance, and managing of work. Some examples of recommendations found in this category are: formalize engineering with methodology for the project tracking; account for all employee time; standardize tracking by activity and asset, and; link Customer Service with Hansen CMMS.

The purpose of this category of recommendations is to provide tools to improve the controlling and accountability, document actions and establish productivity monitoring, and benchmark activities for continuous improvement. All recommendations are listed on the following pages and outlined in detail in Section 4.
List of Recommendations

The following is a listing of all of the recommendations. The specifics for each are in the recommendation section 4.

4.1 General

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

4.1.2 Utilize all available technology and improvement tools with experienced leadership and obtain American Public Works Association (APWA) accreditation.

4.1.3 Consider re-branding by changing name of the District to reflect being a City responsibility.

4.1.4 Develop explicit mission and vision statements with goals for District that aligns with the City’s mission statement and direction of the District. Establish specific goals and objectives which include quantifiable performance measures and links to the vision and mission statement with input from employee teams.

4.1.5 Develop master plan and rate structure concepts to provide District direction and link to District’s mission and vision.

4.1.6 Eliminate redundant ancillary systems and utilize one system to manage maintenance and operations effort. Integrate and link various existing systems into a single computerized maintenance management system (CMMS) approach. Fully implement management tools and functionality of the Hansen CMMS and use at all levels for work management.

4.1.7 Develop a project management system for Engineering and share with other engineering functions within the City.

4.2 Planning

4.2.1 Update and confirm various water infrastructure assets with specific features. Publish complete inventory and store and/or link to the Hansen database.

4.2.2 Establish levels of service with effort for each asset based on condition, available resources, costs, and desires of the City.

4.2.3 Determine and maintain a replacement value of all assets within the Hansen system. Implement a condition assessment processes for underground and above ground facilities to identify needs.
4.2.4 Define activities with accomplishment units for all work done in each group utilizing employee teams.

4.2.5 Define performance guidelines and related measures for both groups and annually plan utilizing employee teams. Establish performance guidelines within the CMMS and other systems that are linked, integrated, and reported within the City’s budget.

4.2.6 Consider linking District customer water charge rates to wholesale rates charged the District.

4.2.7 Develop two overhead rates that reflect the City’s actual cost. Develop an avoidable overhead cost and use as a default value in Hansen. A second overhead rate should be used for external billing and reimbursement. Further, develop an annual process to update the rate and use in Hansen for job costing.

4.2.8 Identify actual equipment rates for each equipment class that includes all costs including repair, maintenance, fuel and fluids, replacement, and use. “Out of yard” hours for each piece should be tracked in the CMMS.

4.2.9 Water purchases should be separated from other expenditures as not to skew the Operations and Maintenance budget.

4.2.10 Develop a life cycle procedure of cost the impact for capital and replacement efforts. Utilize an annual prioritized capital improvement plan (CIP) based on optimizing asset life cycle costs.

4.2.11 Establish a CIP which is based upon actual available resources. All needed unplanned projects should be documented with the impact on the established CIP plan and related priority.

4.2.12 The revenue received should be balanced to provide a return similar as to industry benchmarks.

4.2.13 Establish the capability of developing a performance based budget with 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.

4.2.14 Review nexus of cost allocation of charges for services to Waterworks. This would allow for proper allocation of overheads and unit costing.

4.3 Organizing

4.3.1 Eliminate the sharing of engineering positions with other cost centers and assign one full-time engineer to Waterworks.
4.3.2 Transition organization in the future to have one engineering function and combine Water and Sanitation Engineering.

4.3.3 Pursue approval for full maximum utilization of Tapo Canyon Water Treatment Plant (TCWTP) using increased operating time per a week and per day and work toward unmanned automation of plant.

4.3.4 The growth of personnel costs for Customer Service and Administration should be evaluated. All costs should be based upon actual need.

4.3.5 The amount of billing staff appears high. Staff should charge for time used for Waterworks.

4.3.6 Staffing projections should be based upon work needs and production rates using an established performance plan. Process should be automated within the CMMS and reviewed annually based on need.

4.3.7 Align Organization with Waterworks having direct control over all water funded positions. Positions not performing Waterworks related work should be removed from the Waterworks budget. Those who provide partial support should directly account for their time.

4.3.8 Align Waterworks Services and upgrade position to a Waterworks Services Supervisor and reassign systems responsibilities.

4.3.9 Realign organization with one Environmental Compliance Program Coordinator assigned directly to Waterworks and the Environmental Compliance Inspectors should account for direct charges in the Waterworks’ Budget.

4.3.10 Develop backup and cross-training capabilities for some specialty staff with appropriate skills and certifications for plant operator. Obtain additional support is warranted for the treatment plant.

4.3.11 Evaluate support and allocations for GIS and CADD on actual support provided to others for full cost recovery of support.

4.3.12 Lower level staff should be trained so that they may be utilized for on-call and response, only dispatching supervisors to address a more complex issue(s).

4.3.13 Overtime percentage should be established as a benchmark goal comparing the future usage and other internal and external like organizations.

4.3.14 Enhance and fully utilize Sanitation Laboratory resources, therefore reducing the need for outsourcing functions for sampling and testing.

4.3.15 Establish charge rates that encompass all fleet related costs.
4.3.16 Integrate inventory with work reporting and consider centralizing and reducing inventories to a controlled location that is shared with other departments.

4.3.17 Establish a documented analytical process for determining opportunities to contract work that includes quantity, quality measurements, and all cost variables.

4.4 Directing/Scheduling

4.4.1 Develop routine PM programs with associated resources that are used for cyclical work and place within CMMS.

4.4.2 Establish a routine program for meter replacement with focus on use of latest AMI technology, eliminating need for physical reading and maximizing real time data utilization.

4.4.3 Standardize process for all service requests and work orders for all groups, involving Water Service Workers directly in all processes.

4.4.4 Define and document priority procedure for all service requests based on need, safety, and risk to the public. Attempt to identify all work to be done at latest two weeks in advance unless an emergency.

4.4.5 Fully develop a two-week schedule procedure with accountability established. Integrate with all systems and distribute schedule to staff. Relate schedules to annual work plans and routine processes.

4.4.6 Engineering should fully develop a two-week schedule procedure for all project related work and distribute to others within the District.

4.4.7 Develop process to establish accountability for adherence to schedule and accounting for items not completed.

4.5 Controlling/Improvement

4.5.1 Formalize and document a repeatable methodology for the tracking of projects, including District resources used for each task and phase. Account for one hundred percent (100%) of employee time in the CMMS.

4.5.2 All groups should standardize tracking of labor, equipment, and materials by activity and link to a specific asset or location.

4.5.3 Link or track all meter & Customer Service work effort with Hansen CMMS, tracking and recording resources to specific work orders.

4.5.4 Evaluate and identify the District’s historically high waterline breaks. Consider obtaining external support to determine rationale for high occurrences of breaks. Implement and
document corrective action taken. Compare against benchmarks on monthly basis and report action taken to ensure compliance or corrective measures taken.

4.5.5 Establish a documented field work quality review process. Include sampling of the work done and compliance to developed guidelines. Include identified actions to be taken to ensure compliance with established quality guidelines.

4.5.6 All supervisors and managers in Waterworks should be trained to understand and be fully capable of using the CMMS and linked GIS capabilities.

4.5.7 Supervisors should utilize the same system for work tracking and planning. Establish a monthly meeting to review data from the CMMS with management responsible for creating accountability.

4.5.8 Review and consider adopting many of these good business practices.

4.5.9 Establish a continuous improvement process with a quarterly update given to staff using CMMS data. Provide an annual State of Maintenance and 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 Maintenance and Operations report annually to City Manager.
SECTION 2
EXISTING OPERATIONS

This section outlines the existing operations for the Simi Valley Waterworks District No. 8 in Simi Valley, California. The management and work processes found within the Waterworks District are also identified.

2.1 General

A baseline assessment of the Simi Valley Waterworks operations and processes was conducted. The following information was compiled from LAC’s reviews, interviews, field and office observations, and research of various agency documents. The information was supplemented with input from LAC staff that is experienced in both maintenance operations and management systems. Information is presented in general terms, rather than in technical language, for all areas and presented through the best management practices of planning, organizing, directing, and controlling.

2.1.1 Good Practices and Innovative Ideas

The District is performing many innovative and good practices. Though only some of these are outlined, they have many positive efforts that have been completed and are underway.

- The use of a Hansen CMMS to plan, track, and manage some of the district maintenance activities;
- Distribution system is reported in 2010 Master plan as being in “good condition” by RBF engineers;
- The use and application of Geographical Information systems with spatial databases for work planning, operational guidance and work tracking;
- Development and operation of Tapo Canyon Water Treatment Plant (TCWTP) which helps reduce the reliance upon imported water;
- Enhance recycled water use to reduce reliance on purchased imported water;
- Utilization of SCADA system to monitor operations and monitor the TCWTP, pump stations and well sites;
- Establishment of routine scheduling process using combination of techniques is being utilized in production and operations;
- Utilization of the inventory control system for some portions of operations in place;
- Use of a combination of in-house and contract staff to complete maintenance and operations efforts;
- Application of use of radio technology for reading customer water meters for some processes; and
- The sharing of engineers across various programs such as water, capital, and others within the District.

2.1.2 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 south-east corner of Ventura County,
approximately thirty-seven miles northwest of downtown Los Angeles. Simi Valley has an average annual rainfall of 18.2 inches and average temperature of 63.5° F. The geography of the City is located in the valley and foothills of Ventura County with elevations varying between 700 and 1,000 feet.

The District’s General Plan indicates a service area covering 48.7 square miles, with 129,127 residents within their sphere of influence (Figure 2-1). Simi Valley is the 3rd largest City in Ventura County. Historically, the population of Simi Valley increased from approximately 114,000 in 2000 to over 125,000 in 2007, with a following slowed growth in recent years. Figure 2-2 shows the population trends from 2000 to 2011.
The District delivers potable water, with primarily imported water with approximately 3% local source and 97% imported water. Of the residents and businesses located in City of Simi Valley, 68% are serviced by the District and 32% are serviced by another company, the Golden State Water Company. The District purchases imported water from Calleguas Municipal Water District, who purchases it from the Metropolitan Water District of Southern California (Metropolitan). The primary source for water that is being delivered to the service area is from the State Water Project. If water service is disrupted from the State Water Project, Metropolitan operates other facilities to deliver alternative source of water from the Colorado River Aqueduct System.

The District’s local sources include groundwater and recycled water. The District pumps groundwater from the Gillibrand Sub-basin of the Simi Valley Basin via wells. Two wells were in operation through 2010, and a third well was added in early 2011. The wells supply groundwater to nearby customers for irrigation uses, and supplies water to the Tapo Canyon Water Treatment Plant. The District monitors the Simi Valley Basin, collecting water quality data to evaluate additional local water resources.

### 2.1.3 City Goals and Mission Statement

Key directional goals exist for the City that have been developed and published. For example, the City’s mission statement is specific to the delivery of excellent service which is efficient and accountable to its Citizens.

The City’s Mission Statement: “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.”
2.1.4 District Goals

The specific goal of the District (District Goal) is to provide a safe, reliable, and economical water supply for its customers in a manner that reflects responsive customer service.

The District has two organizations, Waterworks Engineering and Waterworks Services, which work toward achieving the District Goal.

2.1.4.1 Waterworks Engineering

The primary responsibility of Waterworks Engineering is developing and executing the Capital Improvement Program (CIP) to support the District Goal. Projects within the CIP address the following:

- Aging or obsolete water facilities and infrastructure to ensure operational reliability, flexibility, and efficiency (reliable and economical supply)
- Water quality issues to comply with California Department of Public Health (CDPH) regulations (safe supply)
- Enhancement of local water resource use such as groundwater and recycled water to reduce the District’s dependence on imported water supply purchased from Calleguas (reliable and economical supply)

Other Water Engineering responsibilities include the developing and executing water conservation programs, addressing right-of-way issues related to District water facilities, reviewing plan related to development projects, providing support for Waterworks Services, preparing the Waterworks budget and CIP, and preparing reports, as needed.

Waterworks Engineering uses the Environmental Compliance organization to develop and administer the District’s Water Conservation Program and to provide assistance in preparing the Urban Water Management Plan Updates, which now include demand management measures or “Best Management Practices”.

2.1.4.2 Waterworks Services

The primary responsibility of Waterworks Services is operating and maintaining the District’s Water System in a manner that supports the District Goal.

Waterworks Services uses the following automation and technology to monitor, operate, and maintain the Water System:

- Supervisory Control and Data Acquisition (SCADA) system
- Hansen CMMS
- Spatial Wave
- Meter Software
- Security Software (IVC)
Waterworks Services consists of two (2) groups, Distribution and Operations. Distribution operates and maintains the Water System to control tank water levels, time of use pumping, system pressures, and pipe lines and appurtenances. Operations maintain Districts on-site facilities such as tanks, pump stations, wells, and treatment facilities. Operations also installs, repairs, replaces, and reads water meters and addresses customer service issues.

2.1.4.3 District Documents and Standards

District facilities, operations, and activities are based on compliance or guidance in accordance with accepted documents and standards including, but not limited to, the following:

- Domestic Water Supply Permit issued by the CDPH
- Water Reclamation Requirements issued by the California Regional Water Quality Control Board (RWQCB)
- Waste Discharge Permit issued by the RWQCB
- FY 2013-14 Budget for the City of Simi Valley
- District Water Design and Construction Standards
- District Recycled Water Design and Construction Standards
- District Urban Water Management Plan (2010 Update)
- Recycled Water Master Plan (2008 Update)

2.1.5 Urban Water Management Plan

Assembly Bill No. 797 (“The Urban Water Planning Management Act”) of the 1983-1984 Regular Session of the California Legislature (Water Code Section 10610 et. seq.) requires that an Urban Water Management Plan (UWMP) be prepared by all water purveyors having more than 3,000 accounts or supplying more than 3,000 acre-feet of water annually. UWMPs are required to be submitted every five years.

In 2010, the District retained RBF Consulting of Irvine, California to update and submit the District’s UWMP. The UWMP was assembled and published to describe current and planned water supplies, current and planned water demands, and water conservation efforts. The plan outlines water resource needs and direction for the next 25 years. On June 6, 2011 the Waterworks District adopted the 2010 UWMP. This plan addresses laws and mandates which includes:

- The Urban Water Management Planning Act
- The Development Process of The 2010 Urban Water Management Plan
- Agency Coordination
- Water Supply and Quality
- Water Use
- Water Conservation
- Water System Reliability
- Water Recycling
The UWMP documents actions taken to implement the fourteen “Best Management Practices” for managing water demands.

BMP 1. Water Survey Programs for Single-Family and Multi-Family Residential Customer
BMP 2. Residential Plumbing Retrofit
BMP 3. Distribution System Water Audits
BMP 4. Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections
BMP 5. Large Landscape Conservation Programs and Incentives
BMP 6. High-Efficiency Washing Machine Rebate Program
BMP 7. Public Information Programs
BMP 8. School Education Program
BMP 9. Conservation Programs for Commercial, Industrial and Institutional Accounts
BMP 10. Wholesale Agency Assistance Programs
BMP 11. Conservation Pricing
BMP 12. Water Conservation Coordinator
BMP 13. Water Waste Prohibition
BMP 14. Residential Ultra Low Flow Toilet (ULFT) Replacement Program

In addition, and new for the 2010 UWMP, the UWMP states the District’s method to achieve the 20% reduction in water use by 2020 with an interim goal of a 10% by 2015.

2.1.6 Master Plan Study Underway

The study concerning various aspects of the Waterworks District is now being compiled. The study has produced some preliminary ideas related to rate allocation and CIP needs. An initial 162 page draft report was produced documenting the above and below ground assets. This document includes land use discussion, design criteria, water demand and supply, distribution systems, and hydraulic analysis along with suggested capital improvement projects. Among the twenty-two initial recommendations being further evaluated:

- Storage standards - 2 recommendations
- Reliability - 14 recommendations
- Operations/Reliability - 1 recommendation
- Hydraulics - 3 recommendations
- Operations - 2 recommendations

Also, some initial capital and rehabilitation needs of $29.6 million in projects were identified and discussed in the City 2012-2013 budget.
2.2 Work Planning and Budget

2.2.1 Assets and Characteristics

The District owns, operates, and maintains its Water Supply and Distribution System (Water System) that serves 23 pressure zones and that consists of the following primary facilities or assets:

- 1 – Supervisory Control and Data Acquisition (SCADA) system
- 43 - Tanks (Total Capacity: 48 MG)
- 22 - Pump Stations
- 12 - Calleguas Turn-Outs (Total Capacity: 57,900 GPM)
- 1 – Groundwater Water Treatment Plant (Total Capacity: 1 MGD)
- 24 - Pressure Reducing Stations
- 363 miles - Potable Water Lines
- 1,400 feet - Recycled Water Lines
- 8,400 - Valves
- 25,000 – Meters
- 2,800 – Fire Hydrants
- 809 Blow-offs

The replacement cost of the Water System is estimated at $222 million using unit values from the draft Water Master Plan.

2.2.1.1. Tapo Canyon Water Treatment Plant (TCWTP)

The Tapo Canyon Water Treatment Plant (TCWTP) is located on Bennett Road, north of the City. The Plant was constructed at a cost of approximately $5.2 million. The District received a Proposition 50 grant of $1.5 million and a FEMA grant of $509,000 to assist in the construction. The District also received two (2) local Resources Program grants from the Metropolitan Water District of Southern California of $100/AF of water produced by the TCWTP. The plant can produces up to 1-million gallons per day (MGD) of potable water for Simi Valley residents during the high demand of summer months with an average is .4 MGD annually. The site has a 1 MG potable water storage tank and .2 MG waste storage tank. Figure 2-3 shows the layout of the plant site. The Plant operates 8 hours a day and 5 days a week with one operator on site during work week.

Groundwater is pumped from existing wells, then treated at TCWTP, and delivered to customers to supplement the District’s purchased potable water supply helping to reduce some of their reliance on imported water from the SWP. In addition, the TCWTP improves the District’s water distribution system reliability by adding a one million gallon (MG) potable water storage tank to the system and providing another economical potable water supply source for the District’s customers.
2.2.1.2 Water Storage and Distribution System

The District has the storage capacity to store up to 51.6 million gallons (MG), including 9.9 MG in Wood Ranch Region, 13 MG in the West Region, 25.92 MG in the East Region, .26 MG in the Knolls Region, and 2.12 in the Box Canyon Region.

Figure 2-4a shows a table with the specific regions, pressure zones serving areas in each region, number of pumps per pressure zone, capacity in GPM and the storage in MG.
Figure 2-4b shows a table with a summary of existing pressure reducing (PR) stations. The PR stations reduce water pressure for small isolated areas, maintaining a maximum hydraulic grade line to prevent over pressuring these areas. In some cases the stations are reported by the city to provide a backup source of water supply to a pressure zone. The table below lists each station with source hydraulic grade, the set hydraulic grade line for the area served and the valve size.

<table>
<thead>
<tr>
<th>Name</th>
<th>Upstream Service Area</th>
<th>HGL</th>
<th>Downstream Service Area</th>
<th>HGL</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood Ranch No. 2</td>
<td>1330 South</td>
<td>1330'</td>
<td>1205</td>
<td>1205'</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Thompson PRV</td>
<td>Rocketdyne</td>
<td>2108'</td>
<td>Thompson</td>
<td>1890'</td>
<td>6&quot; / 3&quot;</td>
</tr>
<tr>
<td>Makar PRV</td>
<td>Rocketdyne</td>
<td>2108'</td>
<td>Makar</td>
<td>1796'</td>
<td>6&quot; / 3&quot;</td>
</tr>
<tr>
<td>Fire Station PRV</td>
<td>Makar</td>
<td>1790'</td>
<td>Fire Station</td>
<td>1588'</td>
<td>6&quot; / 3&quot;</td>
</tr>
<tr>
<td>Mesa PRV</td>
<td>Fire Station</td>
<td>1588'</td>
<td>Mesa</td>
<td>1360'</td>
<td>6&quot; / 3&quot;</td>
</tr>
<tr>
<td>Hartman PRV</td>
<td>Mesa</td>
<td>1360'</td>
<td>Hartman</td>
<td>1184'</td>
<td>6&quot; / 3&quot;</td>
</tr>
<tr>
<td>Las Virgenes</td>
<td>Mesa</td>
<td>1360'</td>
<td>(different system)</td>
<td>6&quot; / 2&quot;</td>
<td></td>
</tr>
<tr>
<td>Wood Ranch No. 1 PRV (1)</td>
<td>1205</td>
<td>1205'</td>
<td>1035</td>
<td>1035'</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Madera (1)</td>
<td>1190</td>
<td>1190'</td>
<td>1031</td>
<td>1031'</td>
<td>6&quot; / 3&quot;</td>
</tr>
<tr>
<td>Enchanted Way (1)</td>
<td>1190</td>
<td>1190'</td>
<td>1031</td>
<td>1031'</td>
<td>6&quot; / 3&quot;</td>
</tr>
<tr>
<td>Crosby (1)</td>
<td>1200</td>
<td>1200'</td>
<td>1031</td>
<td>1031'</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Sunnymdale No. 1 (1)</td>
<td>1172</td>
<td>1172'</td>
<td>1031</td>
<td>1031'</td>
<td>6&quot;</td>
</tr>
<tr>
<td>First St. South (1)</td>
<td>1172</td>
<td>1172'</td>
<td>1031</td>
<td>1031'</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Sunnymdale No. 2 (1)</td>
<td>1399</td>
<td>1399'</td>
<td>1172</td>
<td>1172'</td>
<td>6&quot; / 3&quot;</td>
</tr>
<tr>
<td>Azusa Hills (2)</td>
<td>1399</td>
<td>1399'</td>
<td>1172</td>
<td>1172'</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Mall PRV (1)</td>
<td>1248</td>
<td>1248'</td>
<td>1190</td>
<td>1190'</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Big Sky (1)</td>
<td>1470</td>
<td>1470'</td>
<td>1248</td>
<td>1248'</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Ditch PRV</td>
<td>1355</td>
<td>1355'</td>
<td>1355 sub-area</td>
<td>3&quot;</td>
<td></td>
</tr>
<tr>
<td>Walnut (1)</td>
<td>1355</td>
<td>1355'</td>
<td>1248</td>
<td>1248'</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Flanagan (aka Alamo) (3)</td>
<td>1560</td>
<td>1560'</td>
<td>1248</td>
<td>1248'</td>
<td>6&quot; / 2&quot;</td>
</tr>
<tr>
<td>Chumash (1)</td>
<td>1555</td>
<td>1555'</td>
<td>1248</td>
<td>1248'</td>
<td>8&quot;</td>
</tr>
<tr>
<td>Tapp Canyon</td>
<td>Treatment Plant</td>
<td>1355</td>
<td>1355</td>
<td>1355</td>
<td>2&quot;</td>
</tr>
<tr>
<td>Evening Sky (1)</td>
<td>1560</td>
<td>1560'</td>
<td>1355</td>
<td>1355</td>
<td>8&quot; / 4&quot;</td>
</tr>
<tr>
<td>Mine Rd (1)</td>
<td>1713</td>
<td>1713'</td>
<td>1355</td>
<td>1355</td>
<td>8&quot;</td>
</tr>
</tbody>
</table>
There are 12 Calleguas turnout connections that supply the District with imported potable water. Table 2-4c below shows the station, capacity in (GPM), size in inches, service area, and location.

<table>
<thead>
<tr>
<th>Station Name</th>
<th>Capacity (GPM)</th>
<th>Size (in)</th>
<th>Service Area</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winnycastle</td>
<td>5000</td>
<td>12</td>
<td>1330 South</td>
<td>Corner of Winnycastle and Circe Knolls Rd.</td>
</tr>
<tr>
<td>Woodranch</td>
<td>5000</td>
<td>12</td>
<td>1035</td>
<td>At Woodranch golf club greens on Woodranch Pkwy through gate</td>
</tr>
<tr>
<td>Easy Street</td>
<td>6000</td>
<td>14</td>
<td>1031</td>
<td>N.E. corner of Madera Rd and Easy St.</td>
</tr>
<tr>
<td>Erringer Road</td>
<td>3000</td>
<td>10</td>
<td>1031</td>
<td>N.W. corner of Erringer Rd and Fitzgerald</td>
</tr>
<tr>
<td>First Street</td>
<td>6000</td>
<td>12</td>
<td>1031</td>
<td>Middle median between Carefree Dr and Leisure Lane</td>
</tr>
<tr>
<td>Sinaloa #2</td>
<td>2000</td>
<td>8</td>
<td>1031</td>
<td>Corner of Highland Rd and Valley Gate Rd</td>
</tr>
<tr>
<td>Erringer/ Cochran St.</td>
<td>5000</td>
<td>16</td>
<td>1248 (Big Sky)</td>
<td>N.W. Corner of Erringer Rd and Cochran</td>
</tr>
<tr>
<td>Stearns Street</td>
<td>5000</td>
<td>12</td>
<td>1248</td>
<td>Stearns St. south to end of road through gate</td>
</tr>
<tr>
<td>Tapo Canyon/ Cochran St.</td>
<td>8500</td>
<td>12</td>
<td>1248</td>
<td>S.E. corner of Tapo Cyn Rd and Cochran St.</td>
</tr>
<tr>
<td>Yosemite/ Cochran St.</td>
<td>7500</td>
<td>12</td>
<td>1248</td>
<td>N.W. corner of Yosemite Ave abd Cochran St</td>
</tr>
<tr>
<td>Smith Road</td>
<td>1800</td>
<td>6</td>
<td>Knolls</td>
<td>On Smith Rd approximately 1000' from Kuehner Dr</td>
</tr>
<tr>
<td>Smith Road</td>
<td>3100</td>
<td>10</td>
<td>Station 2</td>
<td>On Smith Rd approximately 1000' from Kuehner Dr</td>
</tr>
</tbody>
</table>

The highest portion (or 49%) of the pipes in the system were installed in the decade of the 1960s, an additional 10% in the 1970s, 18% in the 1980s, 11% in the 1990s, and 8% in the 2000s. Age is unknown for four percent of the pipes in the system.

Figure 2-5 shows the percentage, by installation and by decade, of the pipes in the system. The 2010 Urban Water Management Plan and Draft 2010 Master Plan both reported a relatively new system, where the majority of the pipelines are less than 30 years old. Newer systems have a tendency to leak less and require fewer repairs to fix system leaks.

Further, as performance measure water loss is used confirming this unaccounted for water was less than 3% on average over the last five years (2005 to 2010).
The RBF 2010 Master plan also proposed a proactive $2-3 million annual pipe replacement program. 92% of the pipes installed are either asbestos cement or PVC. Figure 2-6 shows the percent breakdown of pipe material types within the City’s system.

The largest consumer of water usage is residential and multi-family at 65.1% and landscape at 21.5%. Figure 2-7 shows the breakdown of water consumed by category.
The Water District provides water to five (5) regions with twenty-four (24) service areas. The regions were historically divided based on older water companies and independent systems that have been absorbed by the District and integrated into one system. Currently all systems are interconnected with one only one region that is hydraulically independent. Figure 2-8 shows the hydraulic schematic of the Waterworks District that was compiled during recent RBF study.
2.2.2 Activities Performed

2.2.2.1 Waterworks Engineering

Water Engineering is primarily responsible for the development and execution of the District’s CIP. Some projects in the current Waterworks CIP include the following:

1. Complete the installation of a gas-driven generator to provide emergency power for the Smith Road Pump Station consisting of Alta Vista Pump Station serving the Knolls (1404) Pressure Zone and Station No. 1 Pump Station serving the Box Canyon area.
2. Complete the site work at Station No. 2 and Station No. 3 Pump Stations, serving the Box Canyon area, to accommodate portable fuel-driven generators to provide emergency power.
3. Complete the construction of the Stearns Yard Storage Building to house portable emergency generators and other waterworks materials and equipment.
4. Complete the specifications and purchase portable fuel-driven generators for use at Station No. 2 and Station No. 3 Pump Stations.
5. Complete the design and construction of the Los Angeles Avenue Water Line Replacement Project, consisting of 2,700 feet of 16-inch pipeline and appurtenances, to replace a section of aging, deteriorated water line that has been leaking.
6. Complete the design and construction of the First Street Water Line Replacement Project, consisting of 2,200 feet of 24-inch pipeline and appurtenances, to replace a section of aging, deteriorated water line that traverses though private property and that has been leaking.
7. Complete the construction of the West Easy Street Recycled Water Line consisting of 2,700 feet of 16-inch recycled water pipeline and appurtenances.
8. Complete the design of recycled water lines in West Cochran Street, Westhills Court, and Park Center Drive (Phase 1 of the West Simi Valley Water Recycling Project).

9. Assist potential recycled water customers to comply with recycled water regulations and secure user agreements.

10. Reccoat the interiors of Hilltop Tank and Alta Vista Tank No. 1.


12. Replace four aging bolted-steel tanks that are deteriorated and have been leaking.

Waterworks Engineering is responsible for the planning, design, and construction management for CIP projects. Project cost estimates are used to prepare budgets and are generally based on historical unit costs from previous similar projects, then adjusted on a project-by-project basis. Project schedules are based on Water System priorities and needs that are subject to change. In addition, other projects not identified in the CIP can result from unanticipated water facility failures that must be addressed in the short-term.

Non-CIP activities by Water Engineering include addressing right-of-way issues related to District facilities, reviewing plans related to development projects, providing support to Waterworks Services, and preparing reports, as needed. Such reports can include, but are not limited to, the following:

- Staff Reports
- Hydraulic Studies
- Technical Studies
- Alternatives Studies
- Economic Analyses
- Deed Documents
- Grant Applications
- Environmental Documentation
- Consumer Confidence Reports
- Master Plans
- Water Rates Studies
- Budget Documents

There are seven employees within this group with two assigned at ½ time effort. Waterworks Engineering performs various work categories (7). The activities breakdown was estimated as there is no current system being used for recording activity information. As with the Water Operations, their effort hours are also tracked and placed in the timekeeper system for payroll in general terms of work or in leave category. The general list of activities performed by Waterworks Engineering includes:

- Staff Management
- Project Management
- Public Involvement
- Design or Planning Criteria Development
- Request for proposals or Profession Selection
Based on City provided estimates, the percent of each work category is shown in Figure 2-10 by the seven (7) categories performed by this group. The highest estimate effort by category is Project Management at 35%.

2.2.2.2 Waterworks Services

Waterworks Services is primarily responsible for the operation and maintenance of the District’s Water System and consists of two groups, Distribution and Operations.

2.2.2.2.1 Distribution

Waterworks Services, Distribution and Operations both have a list of established activities. Although activities have been established, the Hansen CMMS’s primary focus is upon work orders and work performed on assets for Distribution, with limited activity information.

Work performed on water assets for maintenance (or repairs that have materials associated with them) are tracked on work orders and entered into the Hansen CMMS. Work is also generated and is tracked in another system for established distribution routines such as valve exercising and hydrant flushing in the SpatialWave system. Routes are loaded into laptops in the office then used by field employees in the SpatialWave system to record work on specific assets. After a route is completed, the Distribution Supervisor downloads the data and uploads new routes.
The effort hours are also tracked and placed in the timekeeper system for payroll. Their timekeeper system is used to track the pay types of regular, overtime, and leave. Time recorded includes the entire time to perform the activity including both preparation and travel time. Some of the activities performed by Distribution include:

- Valve PM/Exercising
- Valve Install/Repair
- Valve Remove and Replace
- Hydrant PM/Flush
- Hydrant Install and Replace
- Hydrant Repair
- Water Pipe Install and Replace
- Water Pipe Repair
- Air-Vac Maintenance/Installation/Repair
- Service Connection

2.2.2.2 Operations

Operations, including Customer Service and Meter Reading, also has a list of established activities that they plan and schedule resources. Customer Service and Meter Reading do not use work orders generated from the Hansen CMMS, but rather, from the billing software and meter reading software. Similar to Distribution, their effort hours are also tracked and placed in the timekeeper system for payroll and the time recorded includes the entire time to perform the activity including both preparation and travel time. An example of activities performed by Operations includes:

- Water Plant Maintenance and Repair
- SCADA Maintenance
- Meter Install and Replace
- Radio Meter Test and Replace
- Meter Read/Re-read
- Meter Repair
- Sampling and Water quality
- Pump Station Maintenance and Repair
- Meter Change Out
- Customer Service
  - Door Tags
  - Service turn ons/offs
  - High use investigation
- P.R. Station
- Electronic Maintenance
- SCADA Maintenance
- Reservoir Maintenance
- Security
In 2012 the Customer Service group of Waterworks’ Operations addressed over 17,000 tasks and issues; the largest was the distribution of door hangers at 56%, or over 9,000. Service related issues include investigation into such issues as leaks, high bills, low pressure, etc. Figure 2-9 shows the percent breakdown by category of issues for 2012.

**Figure 2-9**
Customer Service Category

2.2.3 Budget

A review was conducted of Budget documents to examine and review in detail the sources of revenue and expenditures for Waterworks as well as Capital Improvement Plan (CIP), reports, and recent Comprehensive Annual Financial Reports (CAFR).

The Waterworks District within the City of Simi Valley operates as an enterprise fund. There are three such funds within the City of Simi Valley including Sanitation, Waterworks, and Transit. The Waterworks District is funded through the collected revenues related to the production and distribution of water.

Enterprise Funds are used to account for operations that are financed and operated in a manner similar to private sector enterprise and it is the intent of the City that the costs (including depreciation) of providing goods or services to the general public be financed or recovered primarily through user charges.
2.2.3.1 Revenues

2.2.3.1.1 Water Accounts

Waterworks has over 25,000 active water service accounts with the majority of the accounts are for residential customers at 23,115 or 92% of the total. The meter categories are shown in figure 2-11. The “Other” category includes Agriculture, Industrial, Pool Clubhouses, and Schools/Institutions.

<table>
<thead>
<tr>
<th>Meter Category</th>
<th>Service Account</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>23,115</td>
<td>92%</td>
</tr>
<tr>
<td>Commercial/Frame Count/Construction</td>
<td>598</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>290</td>
<td>1%</td>
</tr>
<tr>
<td>Landscape</td>
<td>760</td>
<td>3%</td>
</tr>
<tr>
<td>Multi-Family</td>
<td>413</td>
<td>2%</td>
</tr>
</tbody>
</table>

2.2.3.1.2 Water Rates

The District meters all services and charges commodity rates for the amount of water used. The rates have been unchanged since 2010. Single Family Residential Accounts are currently billed at $2.45 per billing unit (100 cubic feet) of water for use from zero to 36 billing units, $2.94 per billing unit from 37 to 60 billing units, and $3.82 in excess of 60 billing units per cycle. All other accounts are billed at $2.91 per billing unit for all water consumed.

All modified potable and recycled water rates were presented in Resolution No. WWD-230, which was adopted on December 7th 2009 through a unanimous vote by the Board of Directors. Consistent with the City’s Green Community Action Plan, the District plans to increase the use of automated meter reading technologies to increase operational efficiency.

2.2.3.2 Expenditures

The FY2013-14 Operations Fund revenues were budgeted at $34,833,100. FY 2013-14 operating budget expenditures were budgeted at $37,894,000; this a negative balance of $3,060,900, or operating expenditure exceeding Operations Fund revenues. Figure 2-12 shows the historical collected revenues versus operating expenditures. In the last several years, from FY2010-11 until now, the operating expense has exceeded the revenue.
While the Waterworks District has been able to maintain its reserve at $8.8 million for FY 2012-13, a plan has not been established to fully fund water distribution and storage system infrastructure repair costs that are projected at $29,583,000 over the next five years.

The Districts working capital balance for June 30, 2012 was projected to be $22,401,820. The consolidated working capital balance is comprised of an Operations Fund, a Replacement Reserve Fund, and a Capital Improvement Fund. The Replacement Reserve Fund is further divided into a Vehicle Replacement Reserve and a Facilities Replacement Reserve.

The combined work capital balance is projected to decline to $14,052,820 at the end of FY2013-14 and to 9,411,220 at the end of FY2014-15.

Operations and Maintenance make up the greatest majority of the expenditures at 96% of the budget. The three (3) category budgets have an estimated increase over the FY 2012-13 projected at Administration increasing by 7%, Operation and Maintenance by 5%, and Utility Billing by 21%. Figure 2-13 shows the three (3) categories and their percent of the budget.
### Percent of Budget

<table>
<thead>
<tr>
<th></th>
<th>Estimated FY 2012-13</th>
<th>Budgeted FY 2013-14</th>
<th>Percent of Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>$482,800</td>
<td>$449,000</td>
<td>1%</td>
</tr>
<tr>
<td>Operation and Maintenance</td>
<td>$27,851,300</td>
<td>$29,228,700</td>
<td>96%</td>
</tr>
<tr>
<td>Utility Billing</td>
<td>$720,600</td>
<td>$868,900</td>
<td>3%</td>
</tr>
</tbody>
</table>

#### 2.2.3.2.1 Purchased Water Rates

The water that the District sells to the City’s customers is composed of 98% water purchased though Calleguas Water District who purchases water from the Metropolitan Water District (MWD). The rates for Calleguas Municipal Water District are shown in Figure 2-14 for domestic and municipal uses. The figure shows the three components of cost that the City is charging for water including MWD water charges along with water wholesaler Calleguas cost for both operations and capital. These costs are those that the City has no control and eventually must be passed to the water consumer and/or absorbed by the City’s general fund. In Figure 2-14 you can see that water rates have increased 30% since FY2010, while during that timeframe the City’s rates have not changed.
2.2.3.2.2 Personnel, Supplies, & Services

Personnel expense budgets consist of regular salaries, overtime, and benefits. Budgeted totals for personnel expense totaled $4,540,300 in FY13-14. The supplies and materials budget was $28,729,000 for the same time period with major portion being for water purchase of $27,205,000. Services has a budget of $1,344,800. Costs have been increasing, water purchase in the supplies and material being the largest portion of expenditures. Figure 2-14 shows budget categories and total values combined since FY06-07.

![Figure 2-14 Personnel, Supplies, and Services](image)

2.2.3.2.3 Internal Allocations/Cost Allocation Plan

A Cost Allocation Plan was developed within the City of Simi Valley in order to identify the total program costs of providing municipal services. As is the case with most organizations, both private and public, the costs of providing services or products can be classified into two categories: direct costs and indirect costs. Indirect costs are not readily identifiable with a particular operating program, but rather, are incurred for a joint purpose that benefits more than one cost objective. Common examples of indirect costs are accounting, purchasing, human resources, building maintenance, and utilities.

Although indirect costs are generally not clearly identified with the direct operating programs, they are incurred by the organization in providing a service or product. The purpose of a Cost Allocation Plan is to identify indirect costs and to allocate them to particular cost objectives in a logical and uniform manner.

General fund transfers by the City are allocated in seven categories, with methods being used. The various methods take into account budget documents, positions, budget dollars, and POs.
Cost allocation amount to $2.1 million with Administrative Services being the largest allocation at $0.7 million or 31% of the total. Public Works receives a fund transfer of $447,000. Figure 2-15 shows the internal allocations.

Figure 2-15
Budget Transfers

2.2.3.2.4 Expenses – Transfers

Reimbursements and transfers in FY13-14 budget totaled $3.5 million. This includes reimbursement to the General Fund, Retiree Benefits, Computer Equipment, Streets and Roads, GIS Capital, FIS Capital, Vehicle Replacement Reserve, Facilities Replacement, and from Workers’ Compensation.

Figure 2-16 shows historical budget transfers beginning in FY06-07. A considerable portion of the budget is transfers; some are for capital and others are cost allocation to others.
2.2.3.3 Performance Measures

Performance measures are often used to measure the progress of a defined budget and an organization’s operational goals. This may be measured in terms of work accomplished, such as number of meters read, or in terms of productivity, such as 10 feet of water line installed per labor hour. Utilizing performance measures provides an organization with measureable goals that relate directly to funding and budget programs.

The District does not appear to directly use any performance measures for reporting and monitoring on a systematic weekly or monthly basis, yet reports key accomplishments in their annual budget documents. General accomplishments identified in the FY 2013-14 Preliminary Base Budget include:

- Sold 7.2 Billion Gallons of water
- Read 26,000 meters for six cycles
- Tapo Canyon Water Treatment Plant produced 16.5 million gallons of water
- 1,500 water samples were collected for water quality testing and analytical results reported to the CDPH and USEPA
- Repaired 214 water main and service line leaks
- Service and repaired 240 pumps, tanks, wells and control valves
- Secured $40,000 grant from the Metropolitan Water District for Residential Water Customer Turf Removal Program
- Upgrade SCADA Hardware

In the past Waterworks reported specific effectiveness goals in their budget documents, which are project related goals. There were no goals reported in the FY 2012-13 budget. The goals for FY2011-12, along with achievements that occurred, are as follows:
• **Goal**: Complete the installation of emergency generators at Oak Knolls, Smith Road, and Station No. 2 Pump Stations.

**Achievement**: Purchased and installed a gas-driven generator at Oak Knolls Pump Station; in the process of purchasing generators for the Smith Road Pump Station and Pump Station No. 2.

• **Goal**: Recoat the interior of Flanagan Water Storage Tank.

**Achievement**: Inspected the Flanagan Tank and determined that it was not yet in need of interior recoating. This project has been deferred to allow for higher need recoating projects to go forward.

• **Goal**: Install water-circulating devices in Walnut Tank No. 1 and Walnut Tank No. 2.

**Achievement**: Installed mixing systems in the Greystone, Upper McCoy, and Marr Ranch No. 1 Tanks.

• **Goal**: Establish priorities and schedule replacement of old and/or inadequate water mains.

**Achievement**: Are now developing evaluation criteria prior to initiating replacement activities.

• **Goal**: Update Water Design and Construction Standards.

**Achievement**: Updated design standards for potable and recycled water distribution systems.

• **Goal**: Obtain funding and employ a consultant to further investigate the feasibility of using groundwater from the West Simi Valley Dewatering Wells.

**Achievement**: Submitted a grant application for State Proposition 84 funding.

**2.2.3.4 Capital Improvement Budgets**

A Capital Improvement Plan (CIP) is a plan to provide for the rehabilitation or replacement of existing public facilities and assets, and for the construction or acquisition of new ones. The CIP for the Waterworks District is adopted each year and used as a guide for the following 5 years. The fund is financed from user fees and other enterprise revenues. Waterworks’ CIP is 26% of the City’s CIP budget for FY2013-14 to FY2017-18. Figure 2-17 shows the overall City CIP budget by percent by group.
Waterworks’ CIP projects for FY2013-14 are budgeted for $4.2 million. These projects include such items as piping improvements, water tank maintenance, and cost of service evaluation. The estimated highest dollar amount project is the Recycled Water Project at $1.95 million, or 46% of the total projects. Figure 2-18 shows the projected projects for FY2013-14.
Although not approved, the RBF Consulting Draft Water Master Plan of February of 2010 identified a projected $28.7 million on CIP projects. This plan covered FY2010-11 to FY2014-15. The project addressed twenty-two (22) recommendations found in their submitted report. Figure 2-19 shows the list of projects, the year of the project and projected cost. Of the projected projects, RBF also recommended a proactive pipeline replacement program starting in FY2011-12.
2.2.3.5 Construction Projects and Professional Services

Capital funding has been budgeted for projects in FY12-13 and includes $1.9 million for in-construction projects and $713,213 in professional services. Since 2009, there have been six (6) construction projects awarded and of these projects the cost estimates have been 33% less than the Engineer’s estimates. Figure 2-20 shows the awarded projects, engineering estimate, average awarded bid amount, the selected bid amount and the percent of the estimate.
Since 2009, there have been five (5) awards for professional services with not-to-exceed amounts. Figure 2-21 shows the projects and not-to-exceed amounts.

### Figure 2-20
**Awarded Construction Projects**

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Project Description</th>
<th>Engineering Estimate</th>
<th>Average $ of Bids</th>
<th>Selected Bid Amount</th>
<th>Percent of Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/31/2009</td>
<td>Construction</td>
<td>Construction of Alta Vista Tank No. 3, Specification No. SV 09-21</td>
<td>$210,000</td>
<td>$219,839</td>
<td>$213,657</td>
<td>1.73%</td>
</tr>
<tr>
<td>5/17/2010</td>
<td>Construction</td>
<td>Recoat the Interiors of the Sterns Street Water Storage Tanks, Specification N. SV 09-56-R</td>
<td>$275,000</td>
<td>$214,118</td>
<td>$180,516</td>
<td>-34.36%</td>
</tr>
<tr>
<td>7/12/2010</td>
<td>Construction</td>
<td>Long Canyon Pressure Reducing Station and Pipeline, Specification No. SV 09-39</td>
<td>$200,000</td>
<td>$259,406</td>
<td>$187,361</td>
<td>-6.32%</td>
</tr>
<tr>
<td>7/2/2012</td>
<td>Construction</td>
<td>Construction of the West Los Angeles Avenue Improvement Project, Specification No. SV 12-18</td>
<td>$2,080,000</td>
<td>$2,136,606</td>
<td>$187,333</td>
<td>-90.99%</td>
</tr>
<tr>
<td>12/6/2010</td>
<td>Construction</td>
<td>Construct Two New Groundwater Wells in the Tapo Canyon Area, Specification N. SV 10-42</td>
<td>$1,119,000.00</td>
<td>$1,046,731</td>
<td>$911,337</td>
<td>-18.56%</td>
</tr>
<tr>
<td>9/18/2012</td>
<td>Construction</td>
<td>Relocate A Water Line in West Los Angeles Avenue</td>
<td>NA</td>
<td>NA</td>
<td>72,800</td>
<td>NA</td>
</tr>
<tr>
<td>1/28/2013</td>
<td>Construction</td>
<td>Recoat the Interiors of the Marr Ranch Water Storage Tank No.1, Specification N. SV 12-27</td>
<td>$265,000.00</td>
<td>$186,321</td>
<td>$169,751</td>
<td>-35.94%</td>
</tr>
</tbody>
</table>

### Figure 2-21
**Professional Services Projects**

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Company</th>
<th>Project Description</th>
<th>Not to Exceed Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/20/2009</td>
<td>Professional Services</td>
<td>RFB</td>
<td>Professional Services for the Environmental Analysis of the West Simi Water Recycling Project</td>
<td>$128,500</td>
</tr>
<tr>
<td>11/20/2009</td>
<td>Professional Services</td>
<td>AECOM</td>
<td>Continued Technical Support for Tapo Canyon Water Treatment Plant</td>
<td>$24,000</td>
</tr>
<tr>
<td>6/6/2011</td>
<td>Professional Services</td>
<td>MBA</td>
<td>Professional Services Contract for Consulting Services Related to Interior Recoating for Water Storage Tanks</td>
<td>$200,000</td>
</tr>
<tr>
<td>1/20/2012</td>
<td>Professional Services</td>
<td>CSI</td>
<td>Provide Engineering Support to Potential Recycled Water Customers</td>
<td>$300,000</td>
</tr>
<tr>
<td>4/16/2013</td>
<td>Professional Services</td>
<td>LAC</td>
<td>Professional Engineering Services for the Efficiency Analysis of Ventura County Waterworks District No. 8 Engineering and Operations</td>
<td>$60,713</td>
</tr>
</tbody>
</table>

### 2.3 Organization and Resources

#### 2.3.1 Organization

#### 2.3.1.1 Simi Valley Organizational Departments

There are four (4) levels of management above Waterworks Services, including the Utilities Assistant Director (*not shown*), Public Works Director, City Manager, and Mayor/City Council. This Departmental organizational structure is shown in Figure 2-22.
2.3.1.1.1 Public Works Department

The Public Works Department is led by a Director with six direct reports or span of control of 1:6, including the Development Services and Special Projects Deputy Director, Engineering Services Deputy Director, Maintenance Services Deputy Director, Utilities Assistant Director, an Administrative Services Deputy Director and an Administrative Secretary.

The Utilities Assistant Director oversees all of Utilities including Waterworks Services, Water Engineering, Sanitation Engineering, Sanitation Services, and Environmental Compliance, with a span of control of 1:5. There are three levels of management between the Director of Public Works and the Waterworks Supervisors and four between the Director of Public Works and field staff. This organizational structure is shown in Figure 2-23. The blue highlighted area indicates the Director of Public Works’ direct reports. The green highlighted area indicates the Utilities Assistant Director’s direct reports.
2.3.1.1.2 Waterworks Services

Waterworks Services is led by the Deputy Director—Waterworks Services, who has three direct reports including a Water Operations Supervisor, a Waterworks Distribution Supervisor, and a Waterworks System Technician for a span of control of 1:3. Water Operations is led by the Waterworks Operations Supervisor and Water Distribution is led by the Waterworks Distribution Supervisor, both having a span of control of 1:3. Both Waterworks Operations and Distribution have two Waterworks Service Worker III positions. The Plant Operator reports to the Waterworks Operations Supervisor, and the Public Works Inspector reports to the Waterworks Distribution Supervisor. However, The Water Service Worker IIIs are not technically supervisors, with no personnel or budget authority; therefore, the span of control is shared with WSWIII and both supervisors performing some managerial and supervisor functions with assistance of the WSWIIIs. This makes the span for the Water Operations Supervisor to be 1:14 and the Waterworks Distribution Supervisor to be 1:10 with some day-to-day job duties in both cases managed by Water Service Worker IIIs.
This organizational structure is shown in Figure 2-24. The purple highlighted area indicates the direct reports of the Deputy Director-Waterworks Services, the yellow highlighted area indicates the direct reports of the Waterworks Operations Supervisor, and the blue highlighted area indicates the direct reports of the Waterworks Distribution Supervisor. There are twenty-seven employees in ten employee classes within Waterworks Services.

Figure 2-24
Waterworks Services

2.3.1.1.3 Waterworks Engineering

Waterworks Engineering is led by a Principal Engineer with three direct reports, including one Senior Engineer (full-time) and two shared position (cost centers 4640 and 4080) Senior Engineers (A), for a span of control of 1:3. The full-time Senior Engineer has three direct reports and shares efforts with the other shared position Senior Engineers, which includes an Associate Engineer, Assistant Engineer, and a Senior Engineering Technician, for a shared span of control of 1:3. This organizational structure is shown in Figure 2-25. The green highlighted area shows the direct reports of the Principal Engineer and the blue highlighted area shows the direct reports of the Senior Engineers. There are two (2) levels of management between the Senior Engineers and the Director of Public Works.

There are seven (7) employees in five (5) classes with four (4) PE’s, three (3) employees (Principal, Assistant Engineer and Senior Engineering Technician) with corresponding specialty skills (Water Engineering, GIS, and CADD) with the others being more general civil engineering professionals. The Assistant Engineer function includes pipeline layout and design, assisting in
specification preparation, project and construction management, and overseeing, maintaining, and using the Geographical Information System (GIS). He provides major GIS support for other departments within the City, while the Senior Engineering Technician is mainly used in design and drafting support for design efforts utilizing the City’s AutoCAD system. The two (2) shared Senior Engineers are currently being used for managing two (2) construction projects as they are not water specialist. The principal engineer is an experienced water engineer with lengthy background in all phases of water engineering. The full time District Senior Engineer manages many projects and guides the design team with a broad background in civil engineering and is a key employee.

2.3.1.1.4 Environmental Compliance

Environmental Compliance is led by the Deputy Director – Environmental Compliance with four (4) direct reports including four (4) Environmental Compliance Coordinators, for a span of control of 1:4. The four (4) Environmental Compliance Coordinators share direct reports of four (4) Environmental Compliance Inspectors for a span of control from 1:4 to 1:1. Of the eight (8) employees in this group, five (5) are shared positions (A) and three (3) do not work for the District (B). This organizational structure is shown in Figure 2-26.
The green highlight indicates the direct reports of the Deputy Director–Environmental Compliance and the blue highlighted area shows the direct reports of the Environmental Compliance Coordinators. There are three (3) levels of management between the Environmental Compliance Inspectors and the Director of Public Works. There are nine (9) employees in four (3) employee classes within Environmental Compliance.

Three FTEs (full-time equivalents) are assigned and budgeted to Waterworks District from this group with two, or 25%, of the four inspectors and 100% of one environmental compliance program coordinator being funded by the District.

### 2.3.1.1.4.1 Water Quality

The Environmental Compliance group oversees and executes the City’s Water Conservation program on behalf of the District. The purpose of the program is to reduce the water consumption within the jurisdiction of VCWWD through conservation, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, and maximize the efficient use of water within VCWWD’s service are. The City has developed water resource responsibilities to meet the purpose of the program. These responsibilities include but are not limited to developing and implementing City/District water conservation program, preparing and providing support to update water supply and use reports, prepare a program budget, coordinate inspectors, and integrate water use efficiency into existing City operations,
policies, and procedures. The City has also been involved in fourteen (14) major programs and projects that support water conservation and water use efficiency.

### 2.3.2 Resources

The resources used by the Waterworks District stage out of 500 W. Los Angeles Avenue in Simi Valley, California. The District’s resources consisting of labor, equipment, and materials were evaluated. Generally, most of the staff works a 9/80 schedule throughout the year.

#### 2.3.2.1 Labor

There are forty-seven (47) full and partially budgeted positions within the District with twenty-seven (27) in Waterworks Services, nine (9) in Environmental Compliance and seven (7) in Waterworks Engineering. Two (2) positions within Waterworks Engineering are share positions, both Senior Engineers. Likewise, four positions within Environmental Compliance are also share positions within budgets. According to the organizational chart, of the eight (8) positions in Environmental Compliance, four (4) do not work for the District.

Waterworks Services works a 9/80 schedule with normal work days starting at 7:00AM and finishing at 4:30PM. It is a staggered schedule where one group has every other Friday off and works 7:00AM through 3:30PM on flex days. They also receive ½ hour for lunch. Waterworks Services provides 24/7 coverage to respond to emergencies after hours and on weekends. Call-outs receive a minimum of 1.5 hours of pay on the weekends, overtime for after hours, and rest and recovery time. There is a minimum of three hours of pay for a call-out response effort. Stand-by employees receive $18.00 a day for scheduled work days and $24.00 a day for days off & Holidays.

All crews have radios, and Distribution uses laptops in the field to record work in SpatialWave. Meter Readers use handheld collection units to collect data from radio read meters.

#### 2.3.2.1.1 Employees and Employee Classes

There are currently twenty-seven (27) employees in twenty-five (25) classes within the Water District. Waterworks Services has twenty-seven (27) employees in ten (10) employee classes, as shown in Figure 2-27. This is an average of 2.7 employees per class.

Waterworks Engineering has six (6) FTEs in five (5) employee classes as shown in Figure 2-28. This is almost a 1:1 ratio of employees to employee class.

Environmental Compliance has four (4) employees that do not work or charge to the District and five (5) shared employees. There are four (4) employee classes in this group.
2.3.2.1.2 Work Shifts/Standby

Waterworks Services provide twenty-four hour response to maintenance emergencies. The two Waterworks Supervisors share the responsibility for call-outs and response after normal working hours. If a severe issue is responded to, the Deputy Director – Waterworks Services will also respond. If a larger group of employees is needed to mitigate an issue, the Supervisor will call needed employees. There is a two-hour minimum for any call out.
2.3.2.1.3 Historical Overtime Waterworks Services

Historically, over the past five years, there has been an average of 1,315 hours a year in overtime reported. The average has remained consistent, with a slight drop from the average in 2010. The reported overtime is shown in Figure 2-29. Using the total overtime reported and comparing to a calculated total hour per year for the past five (5) years, the average percent of overtime for total hours reported is under 2%. This is shown in Figure 2-30. Likewise, the total overtime hours reported in 2010 shows a drop in the percent of overtime used compared to the total hours worked.

![Figure 2-29](image)

**Figure 2-29**
Overtime Hours – Waterworks Services

![Figure 2-30](image)

**Figure 2-30**
Overtime Percent of Total Estimated Time
2.3.2.1.4 Employee Certifications and Licensees

Nineteen employees have acquired specialized certifications and training that is directly related to their job assignments. Some have acquired multiple certifications. The District is also a Grade V District, which is the highest certification level for a water company in the State of California. Figure 2-31 shows the number of specialized certifications. The California state certifications include twenty-four (24) Distribution Operators and nine (9) Water Treatment Operators, along with three (3) AWWA Distribution Operators.

![Figure 2-31 Certifications and Licensees](chart)

Engineering staff has four licensed professional Civil Engineers in their group for water with two of them being shared with another department.

2.3.2.2 Equipment

There are forty-five (45) pieces of rolling stock equipment within Waterworks. The majority are pickup trucks (52%). Figure 2-32 shows the total of rolling stock by equipment class. The average age of the rolling stock is 7 years. Figure 2-33 shows the average age by equipment class.

![Figure 2-32 Rolling Stock by Class](chart)
2.3.2.2.1 Fleet Replacement

When replacing fleet vehicles and equipment, the Water District establishes a replacement cost through State General Services support data. When calculating annual replacement costs, they use the prior year’s estimated replacement cost multiplied by 3% to compensate for inflation.

Several factors are taken into consideration when selecting vehicles or equipment for replacement. They use an established useful life for each class of vehicle. Figure 2-34 shows the useful life per class used for determining replacement.

The District calculates their replacement contribution through dividing the replacement cost by the useful life. After review of the Replacement Fund, the amount should be sufficient to replace vehicles with one year of useful life remaining. There is no replacement contribution for deferred vehicles in the year(s) of their deferral.

### Figure 2-33
Average Age of Rolling Stock by Class

<table>
<thead>
<tr>
<th>CLASS</th>
<th>AVERAGE AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACKHOE</td>
<td>11</td>
</tr>
<tr>
<td>DUMP (Dump Truck)</td>
<td>11</td>
</tr>
<tr>
<td>EXCAVATOR</td>
<td>5</td>
</tr>
<tr>
<td>FBTRUCK (Flatbed Truck)</td>
<td>7</td>
</tr>
<tr>
<td>GENTRUCK (Truck with Generator on Back)</td>
<td>4</td>
</tr>
<tr>
<td>HDPICKUP (Heavy Duty Pickup Truck)</td>
<td>5</td>
</tr>
<tr>
<td>MINIPICKUP (Small Pickup Truck)</td>
<td>11</td>
</tr>
<tr>
<td>PICKUP</td>
<td>9</td>
</tr>
<tr>
<td>SEDAN</td>
<td>3</td>
</tr>
<tr>
<td><strong>Average age of rolling stock</strong></td>
<td><strong>7</strong></td>
</tr>
</tbody>
</table>

### Figure 2-34
Useful Life

<table>
<thead>
<tr>
<th>USEFUL LIFE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedan (excludes Police Department)</td>
<td>10 years</td>
</tr>
<tr>
<td>Pick-up - Mini</td>
<td>10 years</td>
</tr>
<tr>
<td>Pick-up - Full-size</td>
<td>12 years</td>
</tr>
<tr>
<td>Sport Utility Vehicle &amp; Mini-Van</td>
<td>12 years</td>
</tr>
<tr>
<td>Van - Cargo &amp; Passenger</td>
<td>12 years</td>
</tr>
<tr>
<td>Street Sweeper</td>
<td>10 years</td>
</tr>
<tr>
<td>Construction-Related - Tractor, Backhoe, Grader, Loader, Dump Truck, Trailer, Compressor, Etc.</td>
<td>15 years</td>
</tr>
<tr>
<td>Police Sedan - Black &amp; White Patrol</td>
<td>3 years</td>
</tr>
<tr>
<td>Police Sedan - Black &amp; White Traffic and K-9</td>
<td>5 years</td>
</tr>
<tr>
<td>Police Sedan - Unmarked (Chief, Captains, Detective, Undercover, Admin)</td>
<td>6 years</td>
</tr>
<tr>
<td>Police Motorcycle - Black and White Patrol</td>
<td>4 years</td>
</tr>
<tr>
<td>Police Motorcycle - Off-road</td>
<td>6 years</td>
</tr>
</tbody>
</table>
2.3.2.3 Materials and Contracts

Material inventory is primarily staged at three locations including the Waterworks maintenance yard at 500 W. Los Angeles Avenue and two materials yards, one located at 1625 Stearns Street, the other at 3799 Walnut Street. The Waterworks maintenance yard is approximately seven (7) miles or a thirteen (13) miles drive time to the Walnut Yard. The Walnut Yard is used primarily for construction/bulk material storage, whereas the W. Los Angeles Yard is used to stock small parts. Field staff also carries small parts inventories on their trucks to allow for quick response. 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 Distribution Supervisor. There is no specific person assigned for inventory control and effort is shared among various positions.

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. Inventories are maintained in the Hansen database and are unlinked to the purchasing and budget system, SAP. Annual and monthly summaries are produced, pulling data from multiple sources.

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 a unit cost greater than five dollars are charged to each job, while a unit cost less than five dollars is fully charged out to the first work order it is applied.

If parts or materials are not in stock, request for purchase may originate from vendor visits, internet request, email, fax, phone, or credit card. Waterworks Service staff interfaces directly with vendors for securing parts and materials, yet though not solely tasked a WSW in Operations used as inventory support is the primary interface. Blanket PO’s and “One-Shot PO’s” that are under $5,000 can be approved by the Deputy Director, and if greater than $5,000, a bid process is required with City Hall approval.

2.3.2.3.1 Annual Maintenance Contracts

Waterworks Services also uses contracted services to provide goods and services for the repair and maintenance of the District’s assets. Contracts are used to supplement maintenance work and to provide needed materials for internal repairs. The following is a list of current contracts noting supplier and $1,097,000 amount budgeted for Maintenance Contracts.

- HD Supply (Pipeline Materials) $230,035
- Innocenti (Maintenance & Repair) $24,290
- Neptune Water Meters (Water Meters) $452,000
- Royal Wholesale (Electrical Suppliers) $15,000
- South Coast Systems (SCADA) $100,000
- Metro Landscape (Landscape) $44,202
2.4 Directing

2.4.1 Work Identification

Work is identified through several methods for Waterworks Services. This includes a combination of response work, preventative maintenance, project work, routines, and observation by staff in the field. However, Distribution’s work is primarily driven by routines, preventative maintenance, observations, and telephonic communications. Operations and Customer Service’s work is primarily driven by established routes along with customer service calls and maintenance programs i.e. route maintenance, repair logs, meter change out program, clean up lists.

Figure 2-35 shows the general work flow of work identification. Work is identified through crew, citizen, or leader observations. A Service Request is then created and forwarded to the appropriate Supervisors. The Supervisor confirms that it is a valid request, if it is not the requestor is notified and the request is closed. If the request is valid a work order is created and the work is scheduled. Routines and PMs are also scheduled with the incoming work orders.

Preventative maintenance is general maintenance that is usually performed to maintain and operate the asset and optimize the asset condition and operation while minimizing life cycle cost. Routine maintenance is work that is performed on a specific cycle or schedule. Preventative maintenance may often be performed on a routine. Most of the PM work performed is also routine maintenance. Routine activities include valve turning, meter reading, and facility maintenance (hydrants blow-offs, etc.).

Work that is identified by field staff is also documented so crews can return and repair the identified maintenance or repair need later. If the work is an emergency it will be repaired immediately.

Figure 2-35
Work Flow of Work Identification
2.4.2 Scheduling and Assignments

2.4.2.1 Waterworks Services

Once work is identified, it is planned, prioritized, and scheduled. Some routines have been established and two week schedules are prepared, yet often work is re-scheduled with maintenance staff daily, based on available resources. Scheduling is based on prioritization of incoming requests and backlog. Each morning supervisors meet with their crews and provide assignments. In the case of large projects, scheduling is done on a case-by-case basis. Some work flow processes vary slightly from unit to unit.

In most District work cases, the actual printed Work Order from the Hansen CMMS is used for assigning work to specific crews. Each employee also records their schedule in a daily log kept in the crew room to record activities performed and resources used at the specific locations worked. This provides the Supervisors summary information on such item such as emergency call-outs, high visibility actions, and equipment down.

2.4.2.2 Waterworks Engineering

Waterworks Engineering’s work is primarily based on specific capital projects. Staff members are assigned projects and other tasks verbally and via e-mail by the Principal Engineer. Specific direction is also provided in a similar manner. Staff periodically meets to coordinate projects and other tasks, and the Principal Engineer uses spreadsheets to plan, prioritize, schedule, and monitor projects and other tasks. Staff also meets weekly with Waterworks Services to coordinate projects and to secure input. Project priorities are based on addressing deficiencies in hydraulic capacity, operational reliability, operational flexibility, water quality, and cost associated with aging infrastructure and/or future development. Priorities are reflected in the Waterworks Capital Improvement Program and are subject to change due to unanticipated issues that may arise such as a large water facility failure. Non-capital tasks performed by Waterworks Engineering staff include, but are not limited to, the following:

- GIS support
- Right-of-Way
- Development Plan Reviews
- Water Improvement Plan Reviews
- Telecommunication Licenses
- Water Conservation
- Water System Studies

The next three figures 2-36, 2-37, and 2-38 show for various types of projects (planning, design and construction and related PMs undertaken over the last five (5) years. There were 18 planning, 28 design, 23 construction projects shared by the engineering staff.
**Figure 2-36**  
Planning Projects Undertaken in the Past Five Years

<table>
<thead>
<tr>
<th>Planning (Studies, Environmental Assessments, etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geohyrdolic Evaluation - Maximum Perennial Yield - Tapo Canyon</td>
</tr>
<tr>
<td>Gillibrand Basin Groundwater Management Plan</td>
</tr>
<tr>
<td>Recycled Water Master Plan Update</td>
</tr>
<tr>
<td>2010 Urban Water Management Plan Update</td>
</tr>
<tr>
<td>Water Master Plan</td>
</tr>
<tr>
<td>West Simi Valley Water Recycling Project</td>
</tr>
<tr>
<td>Mitigated Negative Declaration</td>
</tr>
<tr>
<td>Recycled Water Policy</td>
</tr>
<tr>
<td>User Agreements</td>
</tr>
<tr>
<td>Permits</td>
</tr>
<tr>
<td>CWSRF Grant/Loan Application</td>
</tr>
<tr>
<td>Proposition 84 Grant Application</td>
</tr>
<tr>
<td>Aerator Tank Replacement Project</td>
</tr>
<tr>
<td>Crown Hill Pump-Tank System</td>
</tr>
<tr>
<td>Site Evaluation/Acquisition</td>
</tr>
<tr>
<td>Environmental Documentation</td>
</tr>
<tr>
<td>Efficiency Analysis of Waterworks Engineering and Operations</td>
</tr>
<tr>
<td>Waterworks Facilities Assessment and Cost of Service Evaluation</td>
</tr>
<tr>
<td>Water Conservation Programs</td>
</tr>
<tr>
<td>Consumer Confidence Reports</td>
</tr>
</tbody>
</table>

**Figure 2-37**  
Design Projects Undertaken in the Past Five Years

<table>
<thead>
<tr>
<th>Design (Plans &amp; Specifications)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tapo Canyon Water Treatment Plant Project</td>
</tr>
<tr>
<td>Water Lines</td>
</tr>
<tr>
<td>Tapo Street Water Line</td>
</tr>
<tr>
<td>Royal Avenue Water Line</td>
</tr>
<tr>
<td>Long Canyon Water Line and Pressure Reducing Station</td>
</tr>
<tr>
<td>West Los Angeles Avenue Recycled Water Line</td>
</tr>
<tr>
<td>Alta Vista Tank Outlet Line Replacement</td>
</tr>
<tr>
<td>Los Angeles Avenue Water Line Replacement</td>
</tr>
<tr>
<td>First Street Water Line Replacement</td>
</tr>
<tr>
<td>West Easy Street Recycled Water Line</td>
</tr>
<tr>
<td>WSVWRF - Phase 1 Recycled Water Lines</td>
</tr>
<tr>
<td>Interior Recoating</td>
</tr>
<tr>
<td>First Street Tanks (NW) and (NE)</td>
</tr>
<tr>
<td>Stow Street Tanks No. 2 and No. 3</td>
</tr>
<tr>
<td>Stearns Street Tanks</td>
</tr>
<tr>
<td>Marr Ranch Tank No. 1</td>
</tr>
<tr>
<td>Wells 31C and 31D</td>
</tr>
<tr>
<td>Water Storage Mixing Systems</td>
</tr>
<tr>
<td>Wood Ranch Tank No. 1</td>
</tr>
<tr>
<td>Mt. Sinai Tank</td>
</tr>
<tr>
<td>Marr Ranch Tank No. 2</td>
</tr>
<tr>
<td>Madera (1190) Tank</td>
</tr>
<tr>
<td>Greystone Tank</td>
</tr>
<tr>
<td>Upper McCoy Tank</td>
</tr>
<tr>
<td>Marr Ranch Tank No. 1</td>
</tr>
<tr>
<td>Walnut Tanks No. 1 and No. 2</td>
</tr>
<tr>
<td>Emergency Generators</td>
</tr>
<tr>
<td>Oak Knolls Pump Station</td>
</tr>
<tr>
<td>Smith Road Pump Station</td>
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<tr>
<td>Station No. 2 Pump Station</td>
</tr>
<tr>
<td>Station No. 3 Pump Station</td>
</tr>
<tr>
<td>Stearns Street Storage Yard</td>
</tr>
</tbody>
</table>
2.4.3 Routines and Preventative Maintenance Programs

Routines exist for many operations and maintenance activities. These proactive efforts are performed to protect the asset and ensure proper operation as well as optimize the asset life cycle. Those identified and confirmed by the City are listed below and on the following page.

Meters:
- Route Maintenance
  - Meter boxes and lids, cleaning
- Meter Maintenance
  - Radios
  - Registers
  - Harness wiring
- Monthly Back flow program

Operations:
- Oil Changes
- Cla-valves/Roll Seals
- Pump/motor alignment
- External Tank Maintenance
- Internal Tank Maintenance
• Floats & Targets
• Tank Cleaning
• Aerator Tank
• Weed abatement program
• Customer Complaints
• Sampling
• Radio Maintenance
• WEH Sounding
• Treatment Plant

• Distribution
  • Valve turning
  • Hydrant maintenance
  • Fire Flows
  • Flushing
  • Painting
  • Weed Abatement
  • Conduct leak detection
  • Review of INV

2.4.4 Work Flow and Work Orders

2.4.4.1 Work Flow of Waterworks Services – Meters & Customer Service

Work for Waterworks Services – Meters & Customer Service is primarily generated through requests from City Hall, meter routes, routines, and PMs. The Operations Supervisor creates a weekly schedule of all identified work including requests, meter routes, routines, and PMs. The Supervisor distributes the schedule and meter routes are loaded into field readers by the Waterworks Service Worker III that oversees the Meter Readers. Employees also make manual work entries into a daily log in the crew room. If a request is determined as an emergency, a call is made for immediate dispatch. After work is assigned, the work is performed and tracked on daily sheets with hardcopy work requests for Customer Service. Meter reads are recorded in field readers and downloaded after routes are completed and data is forwarded to Billing at City Hall through email by the Waterworks Service Worker III that oversees the Meter Readers.

Error reports are systematically generated and high/low readings are identified that may require a re-read or maintenance on a specific meter. The Waterworks Service Worker III that oversees the Meter Readers will run the error report from the data downloaded routes and peruse for errors. If errors are found, meter readers or Customer Service staff will then re-read or investigate the error for correction. Errors are found in the data sent to the billing group at City Hall and a work order is created in the billing system and forwarded to Meters & Customer Services. Dependent on priority, the work order is scheduled to be addressed and billing is notified of the planned resolution. Figure 2-39 shows the general work flow of this group.
2.4.4.2 Work Flow of Waterworks Services – Operations

Work for Waterworks Services – Operations is primarily generated through requests, employee observations, and routines and PMs. The Operations Supervisor creates a weekly schedule in collaboration with the Service Worker III's of all identified work including routines, PMs, and requests that are based on priority and backlog.

The Supervisor distributes the schedule weekly and reviews the status of the schedule with staff each morning. Employees also make manual work entries into a daily log in the crew room. If a request is determined to be an emergency, a call is made for immediate dispatch. After work is assigned, the work is performed and work is tracked on daily sheets. All work orders and some PM’s are recorded in the Hansen CMMS, with materials used and recording a portion of labor and equipment also recorded. Some outputs are monitored for work accomplishment. Figure 2-40 shows the general work flow of this group.
2.4.4.3 Work Flow of Waterworks Services – Distribution

Distribution’s work is similar to Operations and is primarily generated through a combination of requests, employee observations, and routines and PMs. The Distributions Supervisor creates a weekly schedule with his Service Workers IIIs of all identified work including routines, PMs, and requests that are based on priority and backlog. The Supervisor distributes the schedule weekly and reviews the status of the schedule with staff each morning. Employees also make manual work entries into a daily log in the crew room. If a request is determined to be an emergency, a call is made for immediate dispatch.

After work is assigned, the work is performed and is tracked on daily sheets and/or recorded in the Hansen system. Routes, such as valve exercising, are synced between the field laptops and office SpatialWave database. All work orders are recorded in the Hansen CMMS, with materials used and some labor and equipment also recorded. Some activities with outputs are monitored for the work accomplishment being recorded. Figure 2-41 shows the general work flow of this group.
2.4.4.4 Work Orders

Work orders have been entered into the Hansen CMMS, starting in FY 2006 for tracking of portions of completed work on District assets. The average total reported number of work orders in the CMMS is 415 over the time period. The highest recorded work orders total was in calendar year 2009, at 599. Figure 2-42 shows the historical recorded work orders by year from 2006 to 2013 that has a range of 282 to 599.
2.5 Controlling

2.5.1 Work Tracking

Waterworks Engineering uses spreadsheets to track the progress of its capital improvement projects and plan reviews. Status of capital improvement projects are updated monthly and status of plan reviews are updated as activity occurs. Professional engineering services tracked against task order budgets by comparing status reports and invoices submitted by the Consultants. Construction contracts are tracked against construction bid and schedule by comparing the status reports and invoices submitted by the Contractor. Spreadsheets are not standardized.

2.5.1.1 Plans Review Log

Waterworks Engineering has a manual process in place for monitoring plan submitted for City review. The tracking system uses Excel spreadsheets to track various stages from Preliminary Review, Formal Application to Call for Condition. Each phase is tracked by date recorded, date due and response. Each project is assigned a case number with a description and address. Figure 2-43 shows an example of a plan review log.
Waterworks Services uses a variety of systems, databases, spreadsheets, word documents, and manual forms for research and tracking some aspects of their work. Information is often compiled manually, accounting for past occurrences and the analysis of specific activities. Figure 2-44 shows the general process used for inquiries. Work is completed and recorded in various manual and electronic databases and reports are produced or direct response is provided to the requestor.

**Figure 2-44**
Process for Inquiries
2.5.1.2 Labor Hours Reported in Hansen

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 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 are 9/80, the value is still an appropriate estimate. Labor reporting data obtained from the City indicates thirteen (13) employees reporting in Operations and ten (10) employees reporting in Distribution.

Labor reporting data obtained from the City included summary hours for overtime and leave. During calendar year 2012, Waterworks Services’ employees reported 4,952 hours. Over the past eight years the average reported hours in the Hansen database has been 4,046. If calculated at 1,760 hours per year for a FTE, this equals 2.3 FTEs. There are currently twenty-three (23) in Waterworks Services that could potentially have reported hours within the Hansen database. Figure 2-45 shows the historical reported hours within the Hansen database.

![Reported hours within Hansen](image)
2.5.2 Systems for Control

2.5.2.1 Systems

The District 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’s utility asset and work order database, which has been in place in the City since 2006 and within Waterworks since 2007. It is used primarily by Waterworks, but is also configured for use by Sanitation. Distribution currently uses version 8.2.3 for work orders (materials and labor); it is not used for Preventative Maintenance schedules. Operation uses maintenance schedules and standard work orders.

Field Mapplet Spatial Wave – The City currently uses version 7.1.0 of this software. This software, primarily used by Distribution, is used in the field by staff to record accomplishments such as valve turning, hydrant maintenance, and flushing, and gets synced when workers return back to the yard.

Supervisory Control and Data Acquisition (SCADA) – The District’s system, Ifix, is used throughout the District with workstations available to all assigned operators with user login and authorized security permissions. Several modules are used for monitoring most site equipment components with automated control capabilities on most equipment. Some of the modules include:

- Ifix Web- Web SCADA Program for Desktops;
- Ifix SCADA GE- SCADA Monitoring Program (8550 Points); and
- I Historian- Historical Trending program; and
- RadioLinx Prosoft- SCADA radio software (56 units)

Equinox Neptune - Equinox Neptune is the software used by the meter readers of the Operation group. The software is used for uploading and downloading of handled meter reading devices used for radio read water meters. The software provides reports used by Billing at City Hall. The Equinox software lacks linage to the billing software at City Hall.

IMS - A modular software package by Hurco Technologies Inc. of Harrisburg, South Dakota. The software program is designed to provide detailed reports to manage your water distribution system. The system was designed around the recommendations of the American Water Works Association (AWWA) and the National Fire Protection Association (NFPA). The District uses IMS and its tools for their fire hydrant Flow Program.

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.
ERSI-GIS - A geographic information system (GIS) software integrates hardware and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information for water and other assets. GIS allows the City to view, understand, interpret, and visualize data in many ways to help visualize relationships, patterns, and trends using maps, reports, and charts.

AUTOCADD - Autodesk product used by engineering to assist in the design, creation, modification, analysis, or optimization of a water plans, modifications, and inventory locations. Design CAD software is also used to increase the productivity of both the engineers and technicians, improve the quality of design, improve communications through documentation, and to create a database for water facilities plans. The output is in the form of electronic files for print, construction or other water operations.

Water System Atlas - The Water System Atlas is an internally developed electronic and hardcopy atlas of water assets using GIS and CADD. This comprehensive database was created in 2007 and includes such asset features as valves, water lines, meters, blow offs, hydrants, service laterals, pressure reducing stations, wells, tanks, and turnouts. The atlas also includes land base features as the District and parcel boundaries, railroad lines, and road centerlines. Figure 2-46 is an example of a portion of the Atlas which includes such features as parcel boundaries, road centerlines, valves, meters, and waterlines.

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.

District Engineering uses multiple tools for evaluation, preparing drawing, and tracking project information, including the basic office software suite.
2.5.2.2 Systems Use and Monitoring

The Waterworks District relies upon a combination of manual tracking and automated systems for tracking and monitoring work, which is mainly used for after fact research and accounting for past occurrences. Multiple work logs exist with varying forms used by each group. Distribution field employees use laptops in the field to record and document completion of daily routines such as valve exercising, fire hydrant flushing, fire flow, air-vac and blow-off maintenance, and hydrant maintenance. A daily log book is also used in Distribution and Operations for manual recording of daily activity and to document any issues or concerns that occur.

Hansen work order reporting includes labor, equipment, and material resource utilization and is often linked to a specific asset in the database. All Waterworks Service Worker IIIs record work efforts in the Hansen database. Meter Readers and Customer Service also do not record work in the Hansen database.

All labor reporting utilizes a $25 standard rate in the Hansen database; Engineering, Environmental Compliance management, and administrative staff do not. Equipment rates are based on standard FEMA rates and unrelated to actual equipment costs incurred by the City. Performance measurement and costing is done on “case by case” basis. Labor rates are based on the Cities scheduled service charges.
2.5.3 Maintenance Management Process

The ideal management of maintenance follows four general phases: planning, organizing, directing, and controlling. This model is used as a basis for many observations.

Waterworks Services is partially performing many of these functions of the ideal maintenance management process. A basic activity list exists in Hansen with some but not all employee time reported to activity on work orders. Asset lists exist in various formats and files for key assets such as water pipes, valves, meters, pressure reducing station, and fire hydrants. Resource data exists, but is outdated or does not reflect the actual costs.

Service levels have been established for some routine activities, yet an annual work program and budget is lacking and is not part of the District work processes. Some short-term scheduling occurs using a combination of tools and is to a certain extent integrated with a work request and backlog system, yet a systematic approach to scheduling incoming, ongoing, and backlogged work is absent. Sometime labor, equipment, and material reporting is on work orders with only a slight portion of the overall operations effort being reported. Activity reporting lacks unit accomplishment and full cost to allow management report evaluation of performance. A few budget and inventory reports are generated routinely, with other ad-hoc report created based on inquiry by management and supervisory staff. Work monitoring of processes is being done.

Figure 2-47 depicts Waterworks’ maintenance management process as compared to the ideal process that is outlined in American Public Works Association (APWA) Public Works Administration (2008, p.110). Check marks “✓” are used in Figure 2-48 depicting District’s achievement of the tasks while a “P” is used if a portion or partial process is being undertaken. The District has many of these processes in place yet linkage between them is difficult to obtain due to the use of a combination of management tools to guide the employees.

Figure 2-47
Waterworks Maintenance Management Process
This working paper provides support information and analysis on opportunities to improve the existing maintenance operations. This section also uses research and analysis to identifying findings that will provide a basis for specific recommendations. It is structured to follow the fundamental management functions: planning, organizing, directing, and controlling/improving. By categorizing the findings under each function, management can approach the issues in a systematic manner.

This evaluation of efficiency involves two areas. First, is the identification of opportunities in which the work function could be done in a more efficient manner. Second, is the determination of the processes that would establish methods for continual improvement to meet the needs of a growing infrastructure system within the Waterworks District. Using the baseline information generated along with field observations and maintenance expertise, LAC evaluated Simi Valley Waterworks District No. 8 from several points of view.

LAC’s findings are supported from observations, interviews, data collection, comparisons, prior knowledge, and evaluation. The sixty-five (65) initial findings are classified into five (5) categories – general, planning, organizing, scheduling, and controlling and improving. The findings are not presented in order of importance, but sequence; however, many of the findings are related and should be reviewed in total, rather than each one independently. It should be noted that much of the support information used to determine the findings derives primarily from the baseline information that was covered in the baseline working paper.

3.1 General

3.1.1 The staff of Waterworks is dedicated and is attempting to make the most of their resources.

Waterworks’ employees have demonstrated an earnest desire to work well and improve, as demonstrated in their dedication to optimizing their resources. Some good practices and innovative ideas that were observed and documented in the baseline included:

- The use and application of a combination of Hansen, SpatialWave, and Geographical Information Systems with spatial databases for work planning, operational guidance, and work tracking;
- Development and operation of Tapo Canyon Water Treatment Plant (TCWTP) which helps reduce the reliance upon imported water;
- Enhanced recycled water use to reduce reliance on purchased imported water;
- Establishment of a routine scheduling process with specific schedules using a combination of techniques is being utilized in production and operations;
- Use of a combination of in-house and contract staff to complete maintenance and operations efforts;
- Application and use of radio technology for reading customer water meters for some processes; and
• The sharing of engineers across various programs such as water, capital, and others within the District.

3.1.2 Waterworks is a leader in the City for the use and integration of system technology such as CMMS, GIS, and SCADA, yet some technologies lack linkage.

Waterworks has proven to be a leader in the City of Simi Valley in the application and integration of systems and technology. Examples include the use of the Hansen CMMS to track and manage portions of their work, the use of the SpatialWave database to manage water assets and track routine maintenance on those assets, the extensive use and support Waterworks-Engineering provides to the District and others within the City, and the use of SCADA to monitor many assets within the District’s water delivery and production infrastructure.

The District 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. The primary automated systems used by Waterworks Services are the Hansen CMMS, the SpatialWave system, and Supervisory Control and Data Acquisition (SCADA) system. Also used is the Equinox Neptune system for customer service and meter reading.

These systems used for planning, organizing, and scheduling work lack integration and automated linkages. Other similar agencies have linked automated systems, reducing the dependence on manual processes and increasing their ability to monitor and control resources, and determine levels of effort based on condition information through a developed performance work plan and budget.

3.1.3 Ventura County Waterworks District No. 8 is a special district in the City and is governed by the City Council yet retains the County name.

The Ventura County Board of Supervisors originally formed Ventura County Waterworks District No. 8 in the 1960’s in order to provide water service to the Simi Valley area. The responsibility for administering this function was transferred to the City of Simi Valley on July 1, 1977. Approximately 68% of the developed portion of Simi Valley is served by the District.

Ventura County Waterworks District No. 8 is an independent district supplying water to 68% of the City’s residents. The Simi Valley City Council serves as the Board of Directors with the responsibility for operations and financial management. The District also serves some unincorporated areas located southeast and north of the City boundary.

The name implies that water service is provided by the County, yet administration is by the City with Simi Valley directly billing to customers for water services. This name has the potential for customers to not fully understand that the City, though an independent district, is responsible for their potable water services, and to properly assign accountability to the District for their water service delivery.
3.1.4 Both the City and District have adopted water conservation ordinances with specialized environmental employees monitoring areas in and out of the District.

Simi Valley has an average annual rainfall of 18.2 inches with a population of approximately 130,000 residents. Taking this into account, the City and District have developed and adopted water conservation ordinances. One ordinance is for an area covered directly by the District, while the other ordinance is for the entire City including those areas serviced by another water purveyor, Golden State Water. The purpose of both ordinances is to reduce water consumption through conservation, effective water supply planning, water loss prevention, and to maximize the efficient use of the water that is used.

The District adopted the Waterworks District No. 8 Water Conservation Program Ordinance which became effective on May 11, 2009. The ordinance applies to all customers and properties within the service area of the Ventura County Water Works District (VCWWD). The ordinance places permanent work conservation requirements, prohibiting wasting water resources. The requirements include: limits on watering hours; limits on watering duration; no excessive water flow or runoff; no washing down hard or paved surfaces; obligation to fix leaks, breaks, and malfunctions; recirculating water required for water fountains and decorative water features; limits on washing vehicles; drinking water serviced upon request only; commercial lodging establishments must provide guests option to decline daily linen services; no installation of single pass cooling systems; no installation of non-recirculating water systems in commercial car washes and laundry systems; restaurants required to use water conserving dish wash spray valves; and commercial car wash systems.

To further the cause of water conservation, the City of Simi Valley also passed a separate ordinance, the “City of Simi Valley Water Conservation Program Ordinance” which became effective July 16, 2009. This ordinance applies to all Simi Valley City residents. As with the Waterworks ordinance, it placed permanent work conservation requirements prohibiting waste and prohibits the same wasteful practices.

3.1.5 An overall Mission statement exists for the City, yet Waterworks lacks a formal statement.

The City’s vision and mission statement indicate explicit desires for excellent service delivery and efficiency, which can be measured in various ways. Key performance measures such as unit time and unit cost can be used by managers for identifying operation areas needing attention.

Although Waterworks has developed explicit goals in the past that were included in their budget documents, they currently lack a developed and documented mission statement. Business practices and related database capabilities are lacking, which would allow Waterworks 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.

Mission, vision, and value statements are essential management tools for communicating to an organization’s employees and customers the common purpose of the organization, vision of what
leadership wants the organization to strive for, and the values which the organization will use to get there.

An independent agency is anticipated to have a formal direction or mission statement based on the service that is planned to be provided, even though directed by the same City elected leaders. Most water districts have such formal directives identified and documented.

3.1.6 **Informal goals have been prepared by the Engineer, yet are primarily effectiveness and accomplishment related and lack established measures for efficiency.**

There have not been any established goals set by the District. Goals in previous budgets were solely focused on projects without specific focus to a mission or vision of the District.

Waterworks’ Principal Engineer has prepared some internal goals for FY2013-14. These include many key performance goals that are primarily effectiveness and accomplishment related. These goals provide direction, yet have not been promoted to employees or accepted by senior management. Further, though relevant goals, they lack established measures for efficiency such as cost per linear foot, cost per square yard, or work units per time.

The Department’s engineering group computes various cost components when estimating capital project needs, using unit cost estimates by asset component (i.e. pipe, tank, etc.) with contingency and engineering cost also projected. However, no performance measures are included in any formalized goals or displayed in the budget for engineering or operations, except for special project completion goals.

3.1.7 **Both informal and formal goals exist. Formal goals in the City’s budget documents are primarily project related and lack established measures for effectiveness or efficiency.**

Waterworks has explicit goals that are included in the budget document, however they are primarily project related and lack established measures for cost effectiveness or efficiency. Ten project related goals were found in the current budget document, which included the installation of a gas-driven generator at Smith Road Pump Station, the development of specifications for propane-driven generators for use at Station No. 2 and Station No. 3 Pump Stations, the re-coating of the interior of Marr Ranch Tank No.1, the installation of water storage mixing systems in Walnut Tanks No.1 and No.2, and six other tasks.

All ten goals are directly related to project completion. In addition, no specific efficiency goals were found to exist for Waterworks Services. Often such specific efficiency and effectiveness goals would be established to set a benchmark for items such as the number of meters to be replaced in a period of time and/or the cost to replace each meter. The Department in some cases may be projecting internally when work is to be done, estimated effort, and cost to complete the work. However, these are not translated to any goals within the Department and placed into a formal document or the City budget.
3.1.8 Standards exist for planning, design, construction, and survey for both water and recycled water.

The District’s planning, design, construction, and surveys for water and recycled water are influenced by several internal and externally adopted standards. These standards require compliance or guidance of efforts in accordance with standards found in each document.

For example, the California Regional Water Quality Control Board (RWQCB) has issued requirements and standards related to water reclamation requirements and the California Department of Public Health (CDPH) has developed and issued standards related to the treatment and distribution of drinking water. On the regional level, the Los Angeles Regional Water Quality Control Board (LARWQCB) also has regulations and standards which affect all aspects and activities of the District.

Several locally adopted criteria and standards have also been adopted that influence the planning, design, construction, and survey and maintenance activities of the District. For example, standards that have been adopted and found within the District’s Water Design and Construction Standards, the District’s Recycled Water Design and Construction Standards, and the District’s Recycled Water Master Plan of 2008, as well as adopted projects within the FY 2013-14 City of Simi Valley Budget.

In addition to the external and other internal standards, other mandates related to the production and distribution of water exist, including Assembly Bill No. 797 (“The Urban Water Planning Management Act”) of the 1983-1984 Regular Session of the California Legislature (Water Code Section 10610 et. seq.) requires that an Urban Water Management Plan (UWMP) be prepared by all water purveyors having more than 3,000 accounts or supplying more than 3,000 acre-feet of water annually.

In 2010, the District retained RBF Consulting of Irvine, California to update and submit the District’s UWMP. The UWMP was assembled and published to describe current and planned water supplies, current and planned water demands, and water conservation efforts. The plan outlines water resource needs and direction for the next 25 years. The plan addresses many state, regional, and local laws and mandates.

3.1.9 Many initial study’s recommendations are now being compiled.

The District has one study underway that concern two various aspects of the District, one covered by an outside engineering firm and the other by their technical financial consultant, Raftelis Financial Consultants (RFC). They are conducting a capital charge study and making recommendations related to rate allocations. The other part of study is being performed by RBF Consulting. The initial information compiled in the identification of CIP above and below ground asset needs within the District. The current study is now underway includes a more complete update of the original data.

The initial information from study included land use discussion, design criteria, water demand and supply, distribution systems, and hydraulic analysis along with suggested capital
improvement projects. $28.7 million in recommended above and below asset projects was identified in the initial 162 page draft submission.

3.1.10 Waterworks provides considerable support to the City for GIS maintenance and internal budget allocations are made for some of the coverage.

The Waterworks District provides GIS support within the City including sanitary, engineering, and planning. The Waterworks Engineering Department has five employee classes with four PE’s, and three employees (Principal, Assistant Engineer, and Senior Engineering Technician) that have corresponding specialty skills (Water Engineering, GIS, and CADD).

The Assistant Engineer’s functions include pipeline layout and design, assistance in specification preparation, project and construction management, and overseeing, maintaining, and using the Geographical Information System (GIS). He provides considerable GIS support and maintenance for other departments within the City. There is an internal allocation made during budget process to help fund and share cost for some of this support.

3.1.11 Waterworks Engineering lacks a system to plan, track, and account for effort.

The primary responsibility of Waterworks Engineering is developing and executing the Capital Improvement Program (CIP) to support the District. Other engineering responsibilities include developing and executing water conservation programs, addressing right-of-way issues related to District water facilities, reviewing plans related to development projects, providing support for Waterworks Services, preparing the Waterworks budget and CIP, and preparing reports as needed.

Waterworks Engineering uses a combination of tools, automated and manual, to manage the planning, design, and construction processes. The tools used for the capital improvement program and project management are performed primarily through the use of Excel and Word programs. The status of capital improvement projects are updated monthly and the status of plan reviews are updated as activities occur. Professional engineering services are tracked against task order budgets by comparing status reports and invoices submitted. Construction contracts are tracked against the construction bid and schedule by comparing them to the status reports and invoices submitted.

Waterworks Engineering lacks an automated system to plan, track, and account for effort. Other similar agencies have linked automated systems, reducing the dependence upon manual processes and increasing their efficiency of planning, tracking, and accounting for effort.

3.1.12 Waterworks systems perform different and independent functions. Hansen is primarily used for tracking maintenance effort that utilizes materials. SpatialWave is used for routine production efforts.

Hansen’s primary focus is on work orders and work performed on assets for maintenance and repairs in which materials are used. Those repairs that have materials associated with them are tracked on work orders, which are entered into the Hansen CMMS.
Established distribution programs and routines are tracked in the independent SpatialWave system. Customer service and meter reading are not in either Hansen or SpatialWave systems.

The use of the SpatialWave software primarily focuses upon the recording and tracking of Distribution’s established routes and routines. The SpatialWave system is a very powerful tool for distributing and tracking work by this group. Routes are loaded into laptops in the office then used by field employees to record work on specific assets. After a route is completed, data from the completed routes are downloaded into the SpatialWave database and new routes are uploaded for the next set of routes and routines such as valve exercising and hydrant flushing.

Customer Service and Meter Reading do not use work orders generated from the Hansen CMMS, but rather, from the Equinox Neptune billing and meter reading software. The software is used for the uploading and downloading of hand-held meter reading. The software provides reports used by Billing at City Hall. The Equinox software lacks linage to the billing software at City Hall.

The Equinox Neptune software is used by the Meter Reading group in Waterworks Services. This software creates a file with meter reading data from the field meter reading units and is provided to Utility Billing for their customer’s water usage information.

The Hansen, Equinox Neptune, and SpatialWave systems currently lack automated linkages and rely upon manual processes for compiling data between each of the systems. Though efforts are being made to link the SpatialWave software with Hansen, activities that are recorded in the SpatialWave and the Equinox Neptune software have historically been lacking in the Hansen CMMS.

All effort hours are tracked and placed in the timekeeper system for payroll. The timekeeper system is used to track the pay types of regular, overtime, and leave. Time recorded includes the entire time to perform the activity, including both preparation and travel time.

Some similar agencies utilize their CMMS to capture all resources used against the assets they perform maintenance or repairs on. This allows the agency to capture all costs and productivity units. In addition, with this collected information, they have the ability to develop annual performance plans and budgets based upon their asset inventory, level of service, and available resources.

3.1.13 SCADA is used and maintained at the maintenance yard and TCWTP.

Supervisory Control and Data Acquisition (SCADA) is capable of collecting and compiling real-time statistics, which can be summarized and automatically compiled. The District’s system, Ifix, is used throughout the District with workstations available to all assigned operators with user login and authorized security permissions. Several modules are used for monitoring most site equipment components with automated control capabilities on most equipment. Many assets are able to be controlled, monitored, and observed remotely via workstations at the maintenance yard and the TCWTP.
3.2 Planning

3.2.1 City’s Water responsibility includes many assets, with most assets being defined while some conflicts in information for the amount of underground pipe.

The District owns, operates, and provides maintenance and repairs to a considerable number of assets such as valves, fire hydrants, pump stations, water storage tanks, pipes, and other related water delivery components. Some assets that exist within the system include: approximately 26,000 service connections, 8,400 valves, 2,800 fire hydrants, 22 pump stations, 43 water storage tanks, 809 blow offs, 74 sampling stations, 2 wells, 1 water treatment plant, 42 reservoirs, and 357 miles of pipe. The system also has 23 pressure zones with 25 pressure reducing stations. Flush points, blow offs, and hydrants, are strategically used for flushing operations on a 90 day cycle. Each of the District’s pressure zones has a corresponding pump and reservoir system that operate almost in autonomous fashion.

A comparison of the amount of Waterworks assets to those in an AWWA 2002 study of 327 water agencies and a recent sample of three recent LAC projects is in Figure 3.2-1. It shows that, proportionally, Waterworks’ assets exceed the AWWA national data and have some values both higher and lower than LAC data.

The information in Figure 3.2-1 implies that Waterworks’ workload is proportionally higher than other benchmarks, as it shows higher number of services per capita. This is most likely due to the terrain, amount of pressures zones, and elevation gradients that must be addressed to provide service. The three agencies (Mesa Water, the City of Buenaventura, and Prescott) are in LAC’s recent sample. The data shows that, correspondingly, Waterworks did have less hydrants and valves while having more high maintenance pump stations (i.e. 12%) and water tanks (i.e. 135%) than LAC’s benchmark. Using the AWWA study data, Waterworks had more services per capita and more hydrants and valves per service.
The maintenance and operations staff must manage equipment and technology that is changing as a result of both mandates and better business practices, requiring employees to have a variety of specialty skills and knowledge. This information, shown in Figure 3.2-1, indicates staffing required for the District most likely exceeds that of similar benchmark agencies just to maintain their assets.

3.2.2 Waterworks can produce more cost efficient water in their plant than it can purchase, but is limited in the amount that it can produce.

The District’s Tapo Canyon Water Treatment Plant (TCWTP) can produce up to 1-million gallons per day (MGD) of potable water for their customers during the high demand of summer months, with an average of .4 MGD annually. It is estimated that the plant could produce enough water to serve approximately 500 homes. However, it is only now producing about 130 AF or 0.12 MGD due to only one operational shift and reported lack of state approval to attempt an unmanned operation.

The site has a 1 MG potable water storage tank and 0.2 MG waste storage tank. The water supply is pumped from existing wells and then is treated. The treated water supplements the District’s
potable water supply, helping reduce their reliance upon purchased water. In addition, the project improves the District’s water distribution system reliability, by adding a one million gallon (MG) potable water storage tank to the system and providing another economical potable water supply for the District’s customers.

The cost of water production and delivery from the TCWTP is estimated at $770 per acre-foot if producing 450 acre-foot or more. However, currently the usage is 130 per acre-feet and the unit cost is reported at $1,830. This cost was compared to the cost to purchase and deliver imported water from the Calleguas Municipal Water District and Metropolitan Water District’s Local Resource Program. Rates for FY 2014-2015 to purchase imported water from Calleguas will be $1,173 per acre-foot for tier 1 to $1,315 per acre-foot for tier 2.

The Water District’s operational employees indicate that they could produce up to 1.2 MDG or 1,344 an acre-foot with current staffing and/or unmanned operations. This water production could result in a cost reduction of hundreds of thousands of dollars versus purchased water. However, at the current 130 and acre-foot usage, it is actually cheaper to purchase water from Calleguas Municipal Water District than to produce it at TCWTP.

3.2.3 General pipe system needs estimate was based on equalizing or leveling the replacement cycle, not a condition evaluation. A more detailed condition evaluation is being planned for completion.

The high portion (or 49%) of pipes in the system were installed in the 1960s, an additional 10% in the 1970s, 18% in the 1980s, 11% in the 1990s, and 8% in the 2000s. The age of 4% of the pipes in the system is unknown. The 2010 Urban Water Management Plan and prior planning data both reported a relatively new system, with the majority of the pipelines being less than 30 years old. A proactive $2-3 million annual pipe replacement program has been considered. The pipeline replacement recommendation was based upon equalizing or leveling the replacement cycle over the entire system versus a condition evaluation.

Engineering staff has indicated that they have a future plan prepared with an update of the condition of underground assets using specific methodology.

3.2.4 Topography of area presents challenges in the delivery of water and also requires the use of pressure reducing stations in some areas with related maintenance efforts.

Waterworks provides water to five regions, with twenty-three (23) pressure zones. The regions were historically divided based on older water companies and independent systems which have been absorbed by the District and integrated into one system. Currently, all systems are interconnected.

Most of the city’s residents as well as those services are in the valley with terrain in all direction being at higher elevations. This topography of the area served by the District presents challenges to delivering water, with only a small portion of the District service area is served by pressure reducing stations. The two largest areas served by the District are located on the valley floor and are supplied by its two primary distribution systems, the 1031-35 pressure zones and the 1248 pressure zone. The demands in these two pressure zones are reported by City and in the initial
water master plan to be 74% out of the total average daily demand. Both zones are serviced from various Calleguas turn-outs with the 1031-35 Pressure Zone being supplied directly and the 1248 Pressure Zone is supplied from pump stations that draw directly from those turn-outs.

The topography is higher in elevation north and south of the valley floor and requires the District to pump water from the two primary pressure zones to establish higher elevation pressure zones. These higher pressure zones are served by pump-tank systems. Pump-tank systems are necessary to provide proper service pressures, reliability and fire protection in accordance with District Standards but are reported by the City to much more costly to operate and maintain compared pressure reducing stations.

Only four pressure zones (Maker, Fire Station, Hartman, and Thompson) receive supply from the Rocketdyne Pressure Zone via pressure reducing stations with a combined average daily demand of less than 1% of the total average daily demand. These pressure reducing station are maintained with routine efforts planned that utilize some labor resources.

3.2.5 Engineering work effort is based on estimates and balancing needs to available resources.

The primary responsibility of Waterworks Engineering is the development and execution of the Capital Improvement Program (CIP). Other Water Engineering responsibilities include developing and executing water conservation programs, addressing right-of-way issues related to District water facilities, reviewing plans related to development projects, providing support for Waterworks Services, preparing the Waterworks budget and CIP, and preparing reports, as needed.

There are seven (7) employees within this engineering group, with two (2) assigned on a ½ time effort. The effort breakdown for this group, as shown in Figure 3.2-2 is an estimate, as there is no current system being used for recording activity information. Their effort hours are tracked and placed in the timekeeper system for payroll in general terms of work or leave category. Their work effort is based on estimates of needed resources and balanced to available resources.
3.2.6 Environmental compliance support. Waterworks with some water quality efforts using two FTE’s. This effort is done outside of Waterworks Engineering and includes education, documentation, research, coordination, promotion, customer service, and counsel.

The District is supported by the Environmental Compliance group. This group consists of four (4) Environmental Compliance Coordinators.

The two (2) FTEs are assigned and budgeted to Waterworks District from this group with 25% of the four inspectors and 100% of one environmental compliance program coordinator being funded by the District. This assignment of cost is based on the budget and anticipated work, not the actual effort being expended in support of the District.

The District is supported from the Environmental Compliance group, which is outside of Waterworks Engineering or Services. The Environmental Compliance group provides such efforts as educational programs for District and City customers, research, water conservation, and promotion. Annual they assist in preparation and compilation of the water quality documentation that is mandated by the state. They also provide counsel to District staff and external customers on issues related to water quality and water conservation.

Many agencies have this function directly aligned and integrated with the water utility operations or engineering groups.

3.2.7 Waterworks uses a combination of contract, Sanitation Laboratory, and internal staff to conduct samples and test for compliance.

Waterworks uses a combination of contract, Sanitation Laboratory, and internal staff to conduct samples and test for compliance. The Laboratory is funded exclusively from the Sanitation budget, yet they perform testing for Waterworks. Waterworks also uses contracted services and internal staff to collect and test samples for compliance with mandates and regulations.
Though not unusual for agencies to use such a combination of support for testing, the internal Sanitation Laboratory appears to have the capacity to assist in some of the testing that is outsourced.

3.2.8 Field Customer Service activities are shared by Meter Readers on a rotation basis.

The meters and customer service group with Waterworks Operations has one (1) WSW III, four (4) WSW I’s and two (2) meter readers. In addition to meter reading routes, meter change outs, and repairs, this group addresses customer service issues. Issues such as the distribution of door hangers and service related issues including the investigation of meter leaks, reports of high bills and low pressure, move in/out service orders, and water turn on and termination of service.

With this, the customer service activities are shared by the WSW I’s on a rotation basis. One WSW will address the customer service related issues where the others will address meter change outs and repairs and meter box clean outs.

3.2.9 The average water rates charged to the City have increased 30% since FY 2010, with no change of the City’s rates.

Most (98%) of water used by the District is purchased from the Calleguas Municipal Water District (CWD), who is a wholesaler who purchases water from the Metropolitan Water District (MWD). There are three cost components which the City pays: the MWD water charges and CWD’s wholesaler cost for both operations and capital. These costs the City has no control over and eventually must be passed to the water consumer and/or absorbed.

Since FY 2010 average water rate charges for Tier 1 and Tier 2 that the District pays have increased 30%, while the District’s rates have remained the same. The District meters all services and charges commodity rates for the amount of water used. Single Family Residential Accounts are currently billed at $2.45 per billing unit (100 cubic feet) of water for use from zero to 36 billing units, $2.94 per billing unit from 37 to 60 billing units, and $3.82 in excess of 60 billing units per cycle. All other accounts are billed at $2.91 per billing unit for all water consumed.

In the FY 2013-14 budget, this issue was discussed by the City Manager with her stating “I have greater concerns at this time regarding the Waterworks District Fund than the Sanitation fund.”

The amount paid for water to the water wholesaler is a major portion (71%) of the Waterworks 2013-2014 budget. It appears that the current budget has not been nor may be capable in the future of absorbing such increases without a negative cash flow.
3.2.10 City residential rates are overall lower than most other regional water providers. The higher user billing unit rates (>1500 CF) are considerably lower than 4 of 5 providers. Waterworks has lower rates than other benchmark local agencies and only has a higher rate than some at the very low water use tier.

In billing rates for water usage the charge rates normally increase as the amount of billing units (i.e. cubic feet) increase. In a sample benchmark of rates by billing units of other Ventura County water providers, Simi Valley (i.e. Waterworks) was lower than 4 of 5 for water users of more than 1,500 cubic feet monthly with the exception of Las Virgenes Water District.

For very low water user charge rate tiers (i.e. less than 10 cubic feet monthly), Simi Valley rates are about average, being higher than three agencies compared. However, this lowest tier rate usage limit is so low that most water users easily exceed it. This would mean that the water user would most likely end up using a higher rate tier structure that is higher than Waterworks. Thus, the lower rate tier would only account for a small number of customers. Most other agency customers would probably pay at the higher tier rates costing them more than Simi Valley Waterworks for the same quantity of water. Further, the City has independently reported in a recent March 2014 survey that for seven local agencies in a multi-tier comparison Waterworks is cheaper in 22 of 24 categories with only one category, in Camarillo and Moorpark, being cheaper than Waterworks.

Figure 3.2-3 shows the comparison of the six agencies LAC surveyed along with an average rate (red line) for all seven agencies by billing unit. Simi Valley (pink dotted line) is lower than the average rate in all cases as shown by the purple double arrows depicting the actual difference from Waterworks rate and the agency average at three points.
3.2.11 Systems being used have minimal cost accounting capabilities without an overhead rate being used for maintenance operations. Equipment cost utilizes standard rates which are unrelated to the actual City cost.

Minimal cost accounting is being utilized in the system due to the Hansen database storing nominal cost and rate information. Further, work order costs are very rough estimates and not adequately related to the actual work being done. A standard labor rate of $25 is used for all employees without any overhead rates being applied. Equipment rates are outdated and based on industry standards rather than actual costs to operate their equipment. Lastly, only 10-20% of all employee time is entered into the system.

Reporting actual resource costs would provide useful information for planning work and estimating project costs for rehabilitation and maintenance.

The costing in the various systems does not represent the actual cost that is occurring and reduces the ability of Waterworks to display their accountability or cost effectiveness of the operation.

3.2.12 Defined and documented activity lists for some groups are lacking. Associated activity guidelines by groups are also lacking.

The District’s operations and maintenance activities are based upon direction from their supervisors and based on compliance and/or in accordance with mandates and related federal, state, and local standards. Waterworks Services in the Operations and Distribution groups have a list of established activities they use for accounting for time and tracking work done, yet lack specific definitions or defined work units.

These activities are accounted for in various databases include Hansen, SpatialWave, and the water billing and payroll systems. Although some documented activity lists have been established for most groups, limited formal activity guideline information or standard operating methods exist.

Specific work methods are primarily communicated verbally for most activities, resulting in methods based upon the most experienced crew member, their own experience, and/or the judgment of their supervisor. This includes the specific labor, equipment, work methods, quality standards, and anticipated performance determined by each crew or employee with direction from supervisors. The documentation and standardization of work methods and resource allocation is lacking as specific activities and work methods can vary among crews and staff. This can also result in work not being fully understood by other City employees being provided work accomplishment data.

A clearly-defined list of tasks and activity guidelines could aid maintenance staff in applying the proper resources to each activity. This would allow managers and supervisors the ability to manage and control resources more effectively and efficiently. This can be done by communicating clear expectations and performance goals to staff, in addition to potentially reducing maintenance and operational costs.
In addition, Waterworks Engineering currently lacks an automated system to track their activities performed. In addition, this group also lacks a documented list of activities, which results in a minimal amount of performance data. The implementation of an automated system to track their activities performed and development of a documented list of activities would create project employee accountability information.

In addition to many agencies having such documentation and processes in place, it is recommended in APWA’s certification documentation (2013) and Administrative Manual (2008).

3.2.13 The City’s budget document does not describe Waterworks financial situation clearly as water purchases magnitude skew budget values. The major budget cost is water purchases, which is increasing due to external factors.

A review was conducted of budget documents to examine and review, in detail, the sources of revenue and expenditures for Waterworks, as well as Capital Improvement Plan (CIP), reports, and recent Comprehensive Annual Financial Reports (CAFR).

The Districts’ working capital balance for June 30, 2012 was projected to be $22,401,820. The consolidated working capital balance is comprised of an Operations Fund, a Replacement Reserve Fund, and a Capital Improvement Fund. The Replacement Reserve Fund is further divided into a Vehicle Replacement Reserve and a Facilities Replacement Reserve.

The combined work capital balance is projected to decline to $14,052,820 at the end of FY 2013-14 and to $9,411,220 at the end of FY 2014-15.

The budget does not describe Waterworks situation clearly, as water purchases skew budgeted values and needs, with the purchase of water increased by almost 5%, contributing almost 72% of expenditures for the FY 2013-14 budget. The water that the District sells to their customers is composed of 98% water purchased though Calleguas Municipal Water District, who purchases water from the Metropolitan Water District (MWD.)

Figure 3.2-4 shows the past three (3) years of Operation Fund Expenditures. The chart shows six (6) categories including Personnel, Supplies, Services, Transfers, Other, and Water Purchases. Though the overall expenditures decreased from FY2011-12 to FY2012-13 by 8%, water purchases increased by 10% and went from 59% of the total expenditures to over 71%. The FY 2013-14 budget increased by almost 4% and the purchase of water increased by almost 5%, thus water purchases contributing to almost 72% of all expenditures.
As shown in Figure 3.2-3, water purchases are increasing while transfers are decreasing. A large portion of the transfers are for Waterworks capital and replacement needs. The reductions can result in the future inability to properly maintain assets and optimize their life cycle cost.

3.2.14 **A the Waterworks budget has identified $29.6 million in needs which exceeds the FY 2012-13 water fund reserves at $9 million.**

It appears that in both the initial evaluation in the master plan and in the budget that resources available does not match capital needs. The 2012-2013 budget (p. ix) states: “While the Waterworks District has been able to maintain its prudent reserve, which is $8.8 million for FY 2012-13, it will not be possible to do so and fully fund water distribution and storage system infrastructure repair costs, projected at $29,583,000 over the next five years, without consumer water rates keeping pace with increases in the cost of purchased water.” - Laura Behjan, the 2013 City Manager/Executive Director.

The Waterworks District has been able to maintain its reserve at $8.8 million for FY 2012-13. A plan has not been established to fully fund water distribution and storage system projected infrastructure repair costs over the next five years.

3.2.15 **Water Capital Improvement for the City is projected to increase by 65% between FY 2013-14 and FY 2014-15, with reductions through FY 2016-17. City current plan shows funds being depleted for capital and replacement being greatly reduced by FY 2015-16.**

A Capital Improvement Plan (CIP) is a plan to provide for the rehabilitation or replacement of existing public facilities and assets, and for the construction or acquisition of new ones. The CIP for the Waterworks District is adopted each year and used as a guide for the following 5 years. The fund is financed from user fees and other enterprise revenues.
The City’s Capital Improvement needs are projected to increase by 65% between FY 2013-14 and FY 2014-15, with reductions through FY 2016-17.

Figure 3.2-5 shows the City’s Capital costs between FY 2011-12 and FY 2015-16, by the categories of capital replacement and capital projects. The average total capital costs for FY 2011-12 and FY 2012-13 was almost $14,000,000. The figure also shows a consistent and significant reduction starting in FY 2013-14 and continuing through FY 2015-16.

Figure 3.2-5 shows a negative value for capital funds in 2015-2016 and if the current trends continue Waterworks would most likely just discontinue funding of any capital projects without other funds being made available.

![Figure 3.2-5: Future Capital Costs](image)

Figure 3.2-5 depicts a 2015-16 projected negative balance of $2.2 million for capital needs and reduction of replacement reserves at $3.2 million. If this occurred it would prevent readily maintaining assets (i.e. without obtaining other funding) that would degrade the system and most likely increase future operational and replacement cost as well as put system integrity at greater risk of failure.

3.2.16 Operating expenses have gradually increased an average of 9% from FY 2012-13 to FY 2013-14.

Operating expenses including personnel, supplies, and services as depicted in the City’s FY 2013-14 Budget depicted an increased just over 9% from FY 2012-13 budget actuals to the FY 2013-14 budget. Personnel expense component in the budget consists of regular salaries, overtime, and benefits. The Actual FY 2012-13 personnel cost was $4,015,200 and the budget
for FY 2013-14 is $4,540,300, an increase of 13%. Actual FY 2012-13 for supplies was $1,450,600 and the budget for FY 2013-14 is $1,476,000, an increase of 2%, and the category of Services increased by 12%. The cost of personnel related expenses increased the most. Figure 3.2-6 shows budget categories and values comparing actual FY 2012-13 with budgeted FY 2013-14.

3.2.17 Personnel costs have increased between FY 2012-13 and FY 2013-14, primarily due to the growth in Administration and Customer Service. They comprise 34% of all personnel dollars.

Personnel costs have increased between FY 2012-13 and FY 2013-14, primarily due to the growth in Administration and Customer Service. Overall, there was an increase of 13% between the two (2) years, with Customer Service increasing $156,900, or 22%, Administration increasing $198,500, or 41%, and Operations increasing $169,700, or 6%.

In FY 2013-14 Administration and Customer Service comprises 34% of all personnel dollars. Figure 3.2-7 shows the comparison between the two (2) years and the percentage of the three categories, with the operations portion decreasing as a percentage of total personnel cost while others increased.
3.2.18 Expenses are projected to exceed revenues by $3.1 million, or 8.8%, in FY 2013-14.

The FY 2013-14 Operations Fund revenues were budgeted at almost $35 million, while FY 2013-14 operating budget expenditures were budgeted at almost $38 million. This creates a negative cash balance of $3.1 million, or operating expenditures exceed fund revenues. Figure 3.2-8 shows the historical collected revenues versus operating expenditures. In the last several years, from FY 2010-11 to present, the operating expense has exceeded the revenue. In FY 2013-14, expenses are expected to exceed revenues by 8.8%.

3.2.19 Transfer allocations for facility reserve have established internal levels transfers but can vary by year. Some other transfer categories have annually appeared to increase.

Transfers to Facilities Reserve of Waterworks are maintained at an established level for the past five fiscal years; in the amount of $1,460,000. In the past, when reserve accumulates in the operating reserve, a one-time excess transfer to the Replacement Reserve is performed (requested by staff and authorized by the District Board). The budget amounts for personnel, supplies, services, water purchases, and other total $34,737,200 in Operations for the 2013
budget. Reimbursements and transfers totaled $3,752,000 for the same period, which equates to 10% of the budgeted funds, excluding capital outlay. The actual reimbursements and transfers in FY 2011-12 were $9,908,000 or 25%, and in FY 2012-13 were $3,752,000 or 10%. Both fiscal years had previous monies accumulated in the funds.

The transfers include four main categories: Reimbursement of the General Fund, Facilities Replacement, Vehicle Replacement, and Other. Figure 3.2-9 depicts the transfer of funds since 2011. However, when comparing actual FY 2011-12 to FY 2012-13, reimbursement to the General Fund increased by 12% and Vehicle Replacement increased by 16%.

![Figure 3.2-9](image)

3.2.20 In FY 2013-2014, 9% of Waterworks’ budget is for cost allocation transfers.

Reimbursements and transfers total $3.5 million, or 9% of the Waterworks FY 2013-14 budget. This includes reimbursements to the General Fund, Retiree Benefits, Computer Equipment, Streets and Roads, GIS Capital, FIS Capital, Vehicle Replacement Reserve, Facilities Replacement, and Workers’ Compensation.

Between FY 2011-12 to FY 2012-13 there was an estimated decrease in transfers of 165% and an additional decrease of 7% between FY 2012-13 and FY 2013-14. Figure 3.2-10 shows historical budget transfers beginning in FY 2009-10.
3.2.21 General fund allocations in FY 2012-2013 for the Waterworks Department were 11% of the total for the City.

A cost allocation plan was developed within the City of Simi Valley in order to identify the total program costs of providing municipal services to various groups within the City. As is the case with most organizations, the costs of providing services or products can be classified into two categories: direct costs and indirect costs. Indirect costs are not readily identifiable with a particular operating program, but rather, are incurred for a joint purpose that shares benefits among more than one cost objective. Common examples of indirect costs are accounting, purchasing, human resources, building maintenance, and utilities. These costs are allocated to groups based on specific criteria.

The General Revenue cost allocation amount equals $19.3 million, with Police being charged the largest allocation for a total of $4,300,000, or 22.4% of the total allocation. Waterworks was charged $2,130,600, or 11.1% of the total. Figure 3.2-11 shows the distribution by percent of the total by group.
3.2.22 **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.**

The $2.3 million for the Public Works 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 or 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.

3.2.23 **Goals were not established in the FY 2013-2014 budgets for Waterworks. In previous years, Waterworks reported some project accomplishment goals and achievements in the City’s budget documents.**

The Waterworks accomplishments and goals were not included in the FY2013-2014 budget. In previous years Waterworks reported some goals and achievements. While goals and achievements were reported, they were primarily effectiveness goals related directly to projects. For example, in prior budgets the City had: **Goal: Complete the installation of emergency generators at Oak Knolls, Smith Road, and Station No. 2 Pump Stations.** **Achievement:**
Purchased and installed a gas-driven generator at Oak Knolls Pump Station; in the process of purchasing generators for the Smith Road Pump Station and Pump Station No. 2.

Performance measures are often used to measure the progress of a defined budget and an organization’s operational goals. This may be measured in terms of work accomplished, such as number of meters read or meters replaced, or in terms of productivity, such as 10 feet of water line installed per labor hour or cost to repair a leak. Utilizing performance measures provides an organization with measureable goals that relate directly to funding and budget programs.

The District does not appear to directly use performance measures for reporting and monitoring on a systematic annual, weekly, or monthly basis. However, they do report key accomplishments in their annual budget documents.

It is good business and accounting practice, as well as recommended in the Government Finance Officers Association (http://www.gfoa.org) and APWA (https://www.apwa.net) to have such performance goals outlined. Many city, water, and utility agencies have both goals and accomplishments reported annually.

3.3 Organizing

3.3.1 Waterworks has the responsibility of all water production and distribution infrastructure assets in the District Boundaries with includes some area outside the city limits and excludes some area within the City limits.

Waterworks has the responsibility of all water production and distribution infrastructure assets within the district boundaries, which also includes some customers outside of the City limits. Approximately one third of the city is now serviced by private a company, Golden State Water. The District owns, operates, and maintains its water supply and distribution system which serves an estimated 26,000 water accounts. The primary responsibility of Waterworks Services and Engineering is to operate and maintain the District’s Water System.

The City also owns and operates the Tapo Canyon Water Treatment Plant (TCWTP), which can produce up to 1 million gallons per day (MGD) of potable water during the high demand of summer months, with an average of .15 MGD annually. The Plant operates 8 hours a day and 5 days a week with one operator on-site during the work week.

3.3.2 Waterworks overall staffing appears lower than industry benchmarks. AWWA benchmarks indicate that the City is in the 75% percentile for coverage. The distribution staffing is similar to LAC staffing benchmark per mile for national and California.

The number of accounts per full-time equivalent is higher than AWWA benchmark’s 75th percentile. There are currently thirty-eight (38) FTEs (full-time equivalent) employees within Simi Valley Water District that service 25,176 accounts in various ways. The thirty-eight (38) FTEs include all Waterworks District 8 employees except the Engineers (5), Engineering Technicians (2), Inspector (1), and Environmental Compliance employees (2). This benchmark indicates that there are a large number of accounts per FTEs. Figure 3.3-1 shows Simi Valley
compared to AWWA benchmarks (Lafferty & Lauer, 2006). Simi Valley appears to have lower staffing overall than national averages of water agencies.

Simi Valley (i.e. Waterworks) oversees 357 miles of pipeline with a total of 15.5 FTEs (full-time equivalents) who maintain the distribution lines and direct water appurtenances, which puts their staff per 100 miles of water line at 4.3, as shown by the red line in Figure 3.3-2.

The FTEs included in this benchmark include all Distribution staff excluding meter readers, plant workers, SCADA, and inspectors. Simi Valley’s staff per 100 miles of pipeline is slightly less than LA Consulting’s National and California benchmark average of 5.1 for water agencies. Figure 3.3-2 shows both the National benchmark and California’s benchmark compared to Simi Valley with values for maximum, minimum, average, and median. As shown, Simi Valley is slightly lower in this benchmark than both State and National averages and medians. This implies lower staffing per asset than other water agencies.
3.3.3 The Assistant Director of PW–Water Engineering and Waterworks Services has a span of control of 1:6 which is the upper end of the benchmark range.

The Utilities Assistant Director oversees all of Utilities, including Waterworks Services, Water Engineering, Sanitation Engineering, Sanitation Services, and Environmental Compliance. This oversight creates a span of control of 1:6 including a secretarial support person who formally reports to another group.

Although this span of control is within benchmark values, it is in the upper end of the range for best management practices. A range of 1:4-8 is a desirable benchmark and good business practice for this management level unless direct reports need increased supervision or consistent direction and communication.

3.3.4 The amount of positions and cost for those managed by others outside of Waterworks direct control is considerable. Further, one position in Waterworks budget was not depicted in Budget.

The Waterworks District funds support from many positions outside of their direct control. This includes employees in administrative services, engineering, and environmental compliance. Using the 2014-15 budget (p. 294) the positions are shown in Figure 3.3-3 which includes two (2) categories (purple stars) that have one of two (2) positions outside of Waterworks control and the rest (blue stars) have 9 positions reporting to other groups completely out of Waterworks control.
Figure 3.3-3
Waterworks Staffing

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<th>FY 2013-14</th>
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<td>Water Distribution Supervisor</td>
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<tr>
<td>Senior Management Analyst</td>
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<tr>
<td>Environmental Compliance Program Coordinator</td>
<td>1.0</td>
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<tr>
<td>Secretary</td>
<td>2.0</td>
<td>2.0</td>
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</tr>
<tr>
<td>Waterworks Services Worker III</td>
<td>4.0</td>
<td>4.0</td>
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</tr>
<tr>
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<td>11.0</td>
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<tr>
<td>Waterworks Services Worker I</td>
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<tr>
<td>Waterworks Meter Reader</td>
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<tr>
<td>Waterworks Systems Technician</td>
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<tr>
<td>Plant Operator II (Waterworks)</td>
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</tr>
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<td>Administrative Aide (Note 1)</td>
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<tr>
<td>Customer Services Representative (Note 1)</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

TOTAL REGULAR POSITIONS | 47.0 | 47.0 | 47.0 |

A considerable amount of positions are funded by Waterworks yet work or are managed through other divisions, with all of these depicted above except one (1) position (Environmental Compliance Inspector). Two (2) Senior Engineers are half funded by the District but work primarily for the Capital Projects Division. Water Engineering also fully funds one Senior Engineering Technician working for Sanitation, one Environmental Compliance Coordinator (ECC) involved with the Water Conservation Program, one Environmental Compliance Inspector working for Environmental Compliance, one (1) Senior Management Analyst for Public Works, and two (2) Secretaries for Public Works of which one works part-time for Water Engineering.

The Environmental Compliance Division, not Water Engineering, has the responsibility for developing and executing the Water Conservation Program with the two mentioned positions assigned.

The sharing of positions and funding of positions outside of water utility is not usual in a City or County utility, but it does present issues with accountability and documentation of cost for supporting an internal service fund.

3.3.5 Two Senior Engineers are shared with another Cost Center.

Waterworks Engineering is led by a Principal Engineer with three direct reports, including one (1) Senior Engineer (full-time) and two (2) shared positions (Cost Centers 4640 and 4080), Senior Engineers, for a span of control of 1:3. There are two levels of management between the Senior Engineers and the Director of Public Works. The two (2) shared Senior Civil Engineer
positions are currently being used for managing two (2) construction projects but only on a part
time basis, as they are not water specialists but general civil engineers. The Principal Engineer is
an experienced Water Engineer with lengthy background in all phases of Water Engineering.

3.3.6 **Spans of control found within Waterworks Services and Engineering are both within
the industry benchmark range, yet are in the lower end of the range. Some
Operations Supervisor ranges appear high.**

Waterworks Services is led by the Deputy Director–Waterworks Services, who has three (3)
direct reports, including a Water Operations Supervisor, a Waterworks Distribution Supervisor,
and a Waterworks System Technician, for a span of control of 1:3. Water Operations is led by
the Waterworks Operations Supervisor and Water Distribution is led by the Waterworks
Distribution Supervisor, both having a span of control of 1:3 to the Water Service Worker IIIs.

However, The Water Service Worker IIIs are not technically supervisors, with no personnel or
budget authority; therefore, the span of control is shared with WSWIIII and both supervisors
performing some managerial and supervisor functions with assistance of the WSWIIIIIs. This
makes the span of control for the Water Operations Supervisor to be 1:14 and the Waterworks
Distribution Supervisor to be 1:10, with some day-to-day job duties, in both cases, managed by
Water Service Worker IIIIs

Waterworks Engineering is led by a Principal Engineer with three direct reports, including one
Senior Engineer (full-time) and two shared positions (*cost centers 4640 and 4080*), Senior
Engineers, for a span of control of 1:3. The Full-time Senior Engineer has three direct reports
and shares efforts with the other shared position Senior Engineers, which includes an Associate
Engineer, Assistant Engineer, and a Senior Engineering Technician, for a shared span of control
of 1:3. There are two (2) levels of management between the Senior Engineers and the Director of
Public Works.

Although the spans of control were found within benchmark values, they are in the lower end of
the range for best management practices. A range of 1:4-8 is a desirable benchmark and good
business practice unless direct reports need increased supervision or there is a need for consistent
direction and communication. The Water Operations Supervisor and Waterworks Distribution span of
control ranges look high, yet is somewhat mitigated with Water Service Worker IIIs directing on-
site job work.

3.3.7 **Most spans of controls in Environmental Compliance are lower than industry
benchmarks, with two (2) classes having a 1:1 span.**

Environmental Compliance is led by the Deputy Director – Environmental Compliance with four
direct reports including four (4) Environmental Compliance Coordinators, for a span of control
of 1:4. The Environmental Compliance Coordinators share direct reports of four (4)
Environmental Compliance Inspectors for a span of control from 1:4 to 1:1. Of the nine
employees in this group, five (5) are shared positions and three (3) do not work for the District.
Although the span of control for the Deputy Director is within benchmark values, the classes of
Environmental Compliance Coordinator are lower than best management practices and LAC’s
experience for similar agencies. A range of 1:4-8 is a desirable benchmark and good business
practice unless direct reports need increased supervision or there is a need for consistent direction and communication.

Two (2) positions are solely funded by Waterworks, yet five (5) positions work on Waterworks projects and all four (4) environmental compliance inspectors perform some work on water projects. The allocation to Waterworks is based on budget allocation, not on the actual work being done.

3.3.8 There are nineteen (19) employee classes found within Waterworks Services with most (12) being unique.

There are currently forty-two (42) employees that work within the Waterworks District. Waterworks–Services has twenty-seven (27) employees, and Waterworks–Environmental Compliance has eight (8) employees with five (5) being shared positions and three (3) positions that do not work for the District, yet are shown on their organizational chart. Waterworks–Engineering has seven (7) employees, with two (2) Senior Engineers being shared positions.

Of the forty-two (42) employees there are nineteen (19) classes, with twelve (12) being unique. This calculates to 3.5 employees per class. Waterworks–Services’ ratio is 1:2.7, with six (6) unique classes, Waterworks–Environmental Compliance’s ratio is 1:2.25, with two (2) unique classes, and Waterworks–Engineering’s ratio is 1:1.17, with four (4) unique classes.

There are currently seven (7) employees with two (2) shared positions within the Waterworks–Engineering group. The group also has two (2) shared positions from Cost Centers 4640 and 4080. The two (2) shared positions are both Senior Engineers. Of the seven (7) employees, there are five (5) employee classes. This calculates to 1.17 employees to 1 class.

3.3.9 Waterworks Services provided 24/7 coverage through a 9@80 schedule and an after-hours/weekends on-call rotation coverage by supervisors.

Waterworks Services provides 24/7 coverage using a 9@80 employee work schedule and an after-hours/weekends on-call rotation coverage to respond to emergencies. The two (2) Waterworks Supervisors share the responsibility for call-outs and response after normal working hours.

If a severe response issue occurs, the Deputy Director – Waterworks Services may also be on-site. If a larger group of employees is needed to mitigate an after-hours issue, the Supervisor will call needed employees.

3.3.10 Historical reported overtime by Waterworks is below LAC’s benchmark of 4-8%.

The hours tracked by the City in 2012 included approximately 1,400 hours of overtime. Using the total overtime reported and comparing to a calculated total hour per year for the past five years, the average percent of overtime for total hours reported is under 3%. In 2012, with approximately 2,080 regular annual hours per full-time employee, the overtime hours equated to 3% of reported hours for Waterworks Services. Historically, their average has
been below the expected benchmark range in LAC’s database and LAC’s agency average of 4%. The historical average is shown in Figure 3.3-4 which is less than LAC’s benchmark.

![Figure 3.3-4](image)

3.3.11 Certifications exist within Waterworks which meet or exceed industry requirements.

Waterworks’ employees possess certifications which meet or exceed State regulations and industry recommendations. Twenty-four (24) employees have acquired specialized certifications and training that is directly related to their job assignments, with some acquiring multiple certifications. The group has twenty-six (26) certified Distribution Operators in Grades D1 through D5, with the majority in D3 (8). In Water Treatment, the group has nine (9) certificates in Grades T1 and T2, with the majority in T2 (8). The group also has three (3) certificates in AWWA Distribution Operator, two (2) in Grade D3, and one (1) in Grade D5 which is included in the original twenty-six (26) certified Distribution Operators.

In addition, the Waterworks’ Engineering group has four (4) licensed professional Civil Engineers for Water, with two (2) of them being shared with another department.

3.3.12 Average fleet age (7 years) is lower than LAC’s 8-10 year benchmark average.

There are forty-eight (48) pieces of rolling stock equipment within Waterworks. The majority are pickup trucks (52%). Figure 2-34 in the Baseline shows the total of rolling stock by equipment class. The average age of Waterworks’ rolling stock is 7 years which is less than LAC’s benchmark database and that of industry benchmarks, with both in the 8-10 year range.

A fleet of this age generally indicates that there should be an anticipated lower operational cost and less maintenance needs to be performed on the fleet, allowing for higher operational hours and less down time. This was shown in Figure 2-34 of the Baseline with a list of vehicles by category.
3.3.13 Fleet uses an ISF and charges users for maintenance, insurance, replacement, and fuel monthly against a budget that Fleet establishes. Any salvage or early disposal funds are returned to Fleet.

Fleet Management uses an internal service fund (ISF) to charge users for maintenance, insurance, fuel, and replacement. The ISF is used to replace a vehicle at the end of its determined life. Fleet Management administers the fund and annual charges of Waterworks’ vehicle replacement. This fund is replenished against a budget that Fleet establishes. Once a vehicle reaches the replacement age and is planned for replacement, the fund is used to purchase the vehicle.

The annual charges are estimated based on the initial cost of the vehicle appreciated to a value considering the vehicle’s anticipated value at the end of its estimated life. These annualized replacement values are accessed annually for funding the replacement vehicle. For example, with a new truck with a value of $18,000 and a ten (10) year life would cost $21,000 at the end of its useful life. The annual assessment would be $2,000 and a salvage value of $1,000.

At the end of the estimated life of the vehicle, Fleet would purchase the vehicle, if the need is still warranted. If the life of the vehicle extends past the anticipated life, Waterworks is not charged any more monies for replacement. Also, if the vehicle replacement value is more than the fees collected for replacement the ISF still pays the amount using interest earned on the ISF monies collected.

If equipment is salvaged or disposed of earlier than the projected life and not replaced, the collected monies belong to Fleet Management. For instance, if the Waterworks District eliminates pieces of equipment such as a Haul Truck and does not replace the equipment, the monies collected for disposal and salvage are retained by Fleet Management. There is an incentive for Waterworks on a financial basis for optimizing fleet within the life cycle of the vehicle.

3.3.14 Waterworks Services maintains two sites for materials storage.

Material inventory is primarily staged at two locations including the Waterworks maintenance yard at 500 W. Los Angeles Avenue and a materials yard located at 3799 Walnut. The Waterworks Maintenance Yard is approximately seven (7) miles or a thirteen (13) mile drive time to the Walnut Yard. The Walnut Yard is used primarily for construction/bulk material storage, whereas the W. Los Angeles Yard is used to stock small parts. Field staff also carries small parts inventories on their trucks to allow for quick response. 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 (2) groups for affirmation and resolution by the Distribution Supervisor.

Considerable manual support effort is required to maintain inventory, including recording on inventory reduction forms which are unlinked to the inventory or purchasing databases. Inventories are maintained in the Hansen database and are unlinked to the purchasing and budget.
system, SAP. Annual summaries are produced by pulling data from multiple sources by a Distribution Supervisor. 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 a unit cost greater than five dollars are charged to each job, while a unit cost less than five dollars is fully charged out to the first work order it is applied.

3.4 Directing

3.4.1 Work is scheduled based on routines and some service requests, and coordinated by the Distribution and Operations Supervisors for their respective groups through the use of various scheduling tools.

For Waterworks Services, some routines have been established and two week schedules are prepared and maintained, yet often work is adjusted with maintenance staff daily, based on available resources. Scheduling is based on prioritization of incoming requests and backlog. Each morning, supervisors meet with their crews and provide assignments. In the case of large projects, scheduling is done on a case-by-case basis. Coordination, scheduling, and work flow processes vary slightly between Distribution and Operations.

Waterworks Engineering’s effort is primarily based upon specific capital projects. Staff members are assigned projects and other tasks verbally and via e-mail by the Principal Engineer. Specific direction is also provided in a similar manner. Staff periodically meets to coordinate projects and other tasks, and the Principal Engineer uses various spreadsheets to plan, prioritize, schedule, and monitor projects and other tasks. Staff also meets weekly with Waterworks Services to coordinate projects and to receive input.

Some agencies utilize automated system tools to schedule one or more weeks in advance and modify those schedules based upon staff and equipment availability, as well as need.

3.4.2 Routine preventive maintenance procedures have been established for some activities using a combination of the SpatialWave and Hansen databases and external spreadsheets.

Routine preventive maintenance procedures have been established for some activities using a combination of the Hansen, SpatialWave database and external spreadsheets. These proactive efforts are performed to protect the asset and ensure proper operation as well as optimize the asset life cycle. Some examples of these preventative maintenance routes are as follows: meter box cleaning, meter maintenance including radios, registers, and harness wiring, oil changes, clavves/roll seals maintenance, pump/motor alignment, internal and external tank maintenance, valve turning, hydrant maintenance, and weed abatement.

Although the Hansen and SpatialWave databases are used to track and monitor many of these preventive maintenance procedures, the current Hansen CMMS has many tools and functions that would allow for Waterworks Services to automate plan, organize, schedule, and track all activities. The ability to track and record all resources used in preventive maintenance activities
could allow for the development of performance measures based upon productivity and unit costs.

**3.4.3 Within Waterworks Engineering, most schedules are project based and communicated one-on-one verbally.**

Waterworks Engineering’s work is primarily based on specific capital projects. Staff members are assigned projects and other tasks verbally and via e-mail by the Principal Engineer. Specific direction is also provided in a similar manner. Engineering staff periodically meets to coordinate projects and other tasks, using spreadsheets to plan, prioritize, schedule, and monitor projects. Engineering staff also meets weekly with Waterworks Services to coordinate projects and secure input. Project priorities are based on addressing deficiencies in hydraulic capacity, operational reliability, operational flexibility, water quality, and cost associated with aging infrastructure and/or future development.

**3.4.4 Several systems are in place, with the Hansen database being configured primarily for Waterworks Services, yet is also utilized by Sanitation for a portion of their asset management, work order processing, and material inventory control.**

Waterworks 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.

The Hansen CMMS is the City’s utility asset and work order database and has been used since 2007 within Waterworks. It is primarily configured for use in Waterworks Services, yet is also utilized by Sanitation for a portion of their asset management, work order processing, and material inventory control. Distribution currently uses version 8.2.3 for work orders (materials and labor); with limited use for Preventative Maintenance scheduling and tracking.

**3.4.5 Only a portion of the capabilities of the Hansen system are being utilized.**

The CMMS offers the capability to communicate information of asset conditions, job planning, preventative maintenance monitoring, monitoring of routines, repair projects, and work order and work request tracking to the user. The system has the ability to allow for the estimating and importing of job plans and the ability to compare actual resources used.

Although available, many of the tools are being utilized at a very low functional basis with tracking of a small portion of work completion and the lack of comparison to any established benchmarks.

The data recorded appears to vary by group. The lack of consistency in reporting of work and resources that are used makes it difficult to analyze outputs for work planning, organizing, scheduling, and monitoring work.
3.5 Controlling and Improving

3.5.1 The amount of breaks for the District is high as compared to industry benchmarks.

The water system integrity can be a major issue or benefit to stakeholders. Simi Valley reported two hundred and fourteen (214) leaks and breaks in FY 2012-2013 budget which put them in the top 75th percentile in number of breaks where a high value is not desirable.

Figure 3.5-1 shows Simi Valley leaks and breaks as a ratio to 100 miles of water lines which is compared to AWWA’s benchmark (2006) which is slightly higher than AWWA’s 75th percentile. This high number of leaks and breaks in the District impacts the reactive support and related number of employees and time expended/needed to address these issues.

3.5.2 A work flow process exists for addressing meter reading and customer service. The system used to produce work orders from City Hall lacks linkage to the Hansen CMMS.

Work for Waterworks Services – Meters & Customer Service is primarily generated through requests from City Hall, meter routes and routines. The Operations Supervisor creates a weekly schedule of all identified work, including requests, meter routes, routines, and PMs. The system and processes used to produce work orders from City Hall lacks linkage to the Hansen CMMS. The Supervisor distributes the schedule, and meter routes are loaded into field readers by the Waterworks Service Worker III. Meter reads are recorded in field readers and downloaded after routes are completed and data is forwarded to Billing at City Hall through e-mail.

A good business practice is to account for all of the work time and track by activity. Without such reporting of basic data needed for improvement and accountability strategies of costing, efficiency, unit cost, and productivity cannot occur.
3.5.3 Operations and Distribution use established work flows using a combination of manual process.

Work for Waterworks Services – Operations is primarily generated through requests, employee observations, and routines and PMs. The Operations Supervisor creates a weekly schedule in collaboration with the Service Worker III's of all identified work including routines, PMs, and requests that are based on priority and backlog using manual processes.

The Supervisor uses manual schedules to review work statuses with staff each morning. Employees also make manual work entries into a daily log in the crew room. After work is assigned, the work is performed and work is tracked on daily sheets. Work that has materials used is entered into Hansen, with some outputs monitored for work accomplishment.

Similar to Operations, Distribution’s work is primarily generated through a combination of requests, employee observations, and routines and PMs. Similar to the Operations Supervisor, the Distribution Supervisor creates a weekly schedule in collaboration with his Service Worker III's of all identified work including routines, PMs, and requests that are based on priority and backlog using manual processes.

After work is assigned, the work is performed and tracked on daily sheets and/or recorded in the Hansen system if materials are used for the activity. Routes, such as valve exercising, are synced between the field laptops and office SpatialWave database.

SpatialWave is primarily used by Waterworks Distribution for reporting work performed on assets and tracking of routines such as valve turning, hydrant maintenance, and flushing. The SpatialWave software is not linked to the Hansen system and lacks utility in providing management and supervisors with productivity and unit costing compared to an established benchmark.

3.5.4 The average number of Hansen work orders has reduced from CY2009 to CY2012.

Work orders are entered into the Hansen CMMS, since CY 2007 for tracking of portions of completed work on Waterworks’ assets. The average total reported number of work orders in the CMMS between CY 2007 to CY 2012 is 459. The highest recorded work orders total was in CY 2009, at 599. The average number of work orders has consistently reduced from CY 2009 to CY 2012, reducing 217 work orders, or over 36%. Figure 3.5-2 shows the historical work order numbers for water work orders as reported from Hansen data.
3.5.5 Each group uses a variety of systems and manual processes to track and monitor work, primarily for after-the-fact reporting.

The Waterworks District relies upon a combination of manual tracking and automated systems for tracking and monitoring work, which is mainly used for after-the-fact research and accounting for past occurrences. Multiple work logs exist with varying forms used by each group. A daily log book is also used in Distribution and Operations for the manual recording of daily activity and to document any issues or concerns that occur.

The information in the various systems lack linkage and has minimal ability to capture figures and statistics to be applied for controlling work and tracking accomplishment.

3.5.6 Engineering uses a combination of Excel spreadsheets and manual processes to track project status.

Many unlinked efforts are used to manage projects from manual files, check lists, spreadsheets and, occasionally, Microsoft Project. However, basic tools and linkages from the various processes are used on an inconsistent basis. Minimal cost, schedule, and quality processes exist and lack linkage. Pre-planning, schedule adherence, and cost accounting are not being done and tools do not exist to assist them to manage the projects.

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.
3.5.7 Work reporting is inconsistent and sometimes performed in multiple, redundant files without abilities to cost or determine performance.

All groups report work, utilizing various methods and tools. Further, the type, amount, accuracy, and details all vary. This results in a lack of both management and other accounting data for leadership and field employees to use for making decisions. The Waterworks staff indicates support staffing prevents complete reporting of all work done.

Multiple work logs exist, with varying forms used by each group. 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. Some routines are being tracked in the SpatialWave system. Most also 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.

3.5.8 The monitoring of systems is being managed by diligent staff but is cumbersome, lacking lineage, automation, and control.

Although managed by diligent staff, the monitoring of work systems and processes was found to be cumbersome in that a combination of automated and manual processes are utilized and are not always linked, including cost and accomplishment, routines and preventative maintenance schedules, and tracking.

The risk of unlinked systems is that the potential exists for not all costs or accomplishment to be tracked or applied to every activity or work location. In addition, the lack of consistent reporting and potential inaccuracies limits the ability of supervisors and managers to compare established efficiency and effectiveness benchmarks against work being performed by their staff for specific activities.

3.5.9 Some desired management functions are being partially performed in some groups yet lack linkage, integration, and uniformity to allow accountability and complete management process.

Using the benchmark work functions of the ideal maintenance management process that is outlined in the APWA Administrative Manual (2008), some desired management functions were found to be partially performed in some groups. Further, of those functions that are being performed, they lack linkage, integration, and uniformity to provide accountability. General work activities do exist in the Hansen CMMS, 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 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. Multiple unlinked systems and processes are used to record portions of work. Monitoring and feedback to field crews related to productivity and unit cost is lacking. The use of performance and unit cost reporting is lacking and lacks linkage to an annual performance plan for updating planning values. A continuous improvement process has not yet been established. Tools which would enable automation and better quality control of data exist, yet have not been fully configured for use in daily operations and a continuous improvement process.

Figure 3.5-3 depicts Waterworks’ maintenance management process. Check marks indicate compliance while ‘P’ marks indicate partial compliance with many processes in place yet many are not linked.

![Figure 3.5-3 Work Management Process](image-url)
SECTION 4
RECOMMENDATIONS

This section outlines the details of the maintenance and operational recommendations. The recommendations are organized into five categories with a number of suggested actions – General (8), Planning (18), Organizing (11), Directing/Scheduling (5), and Controlling/Improvement (9). The fifty-one (51) recommendations are not in priority, but are in a suggested implementation sequence, after the general recommendations. Further, the recommendations are related in many cases so that complete benefits indicated may not occur without the prior recommendations being implemented.

Ventura County Waterworks District 8 has many positive components that are in place, as outlined in Section 3 – Findings. The following recommendations are structured to further assist and provide specific actions for the improving of the existing operations.

4.1 General

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

Waterworks employees have shown an earnest desire to implement good business practices. Employee involvement is a key component in the implementation of effective improvement processes.

Employee support and acceptance can be further enhanced by establishing capable employee teams. This employee involvement will provide a conduit for ideas and information flow during the implementation. Key involvement includes the development of work methods, annual work plans and equipment needs. Supervisors and senior workers would then be consulted on the work methods and activity guidelines to ensure valuable input is obtained from those employees 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.

4.1.2 Utilize all available technology and improvement tools with experienced leadership and obtain American Public Works Association (APWA) accreditation.

APWA is a professional international organization of local, county, state/province, and federal agencies, as well as private sector firms and companies. Their mission statement is to “…develop and support the people, agencies, and organizations that plan, build, maintain, and improve our communities. Working together, APWA and its membership contribute to a higher and sustainable quality of life.”
In 1996, APWA began grant accreditation to agencies that submitted to the evaluation, verification, and compliance with a series of recommended management practices. The purpose of the accreditation program is to provide a means of recognizing public works agencies for compliance with these practices. The first phase of the process is to conduct a self-assessment using the Public Works Management Practices Manual. This tool and phase is used by agencies to determine how their policies, procedures, and practices compare to recommended practices. After the Self-Assessment Phase is completed, a team of evaluators will review and verify the Self-Assessment documentation for compliance on-site. If the agency is found to be in compliance with each of the recommended practices, they will be granted accreditation. The initial accreditation is for a period of four years, with a semi-annual update required to demonstrate continued compliance (APWA, 2011).

The leadership and management found within the Simi Valley Waterworks have considerable experience in the utilities industry. Waterworks should take full advantage of the existing situation to utilize for the implementation of a self-accreditation process. In addition to the leadership’s forward and proactive direction, many processes, technologies and improvement tools are already in place. This accreditation would provide acknowledgement to the public and elected leaders that the agency has the processes in place to optimize provided financial resources. It also requires Waterworks to add missing process and document to assure the key process and tools are in place and operational.

4.1.3 Consider re-branding by changing name of the District to reflect being a City responsibility.

The Ventura County Board of Supervisors originally formed Ventura County Waterworks District No. 8 in the 1960’s in order to provide water service to the unincorporated Simi Valley area. The responsibility for administering this function was transferred to the City of Simi Valley on July 1, 1977. Further, Simi Valley’s City Council also serves as the Board of Directors with the complete responsibility for operations and financial management. The District is a separate legal entity but is led by the same elected leaders as the City.

The name implies that water service is provided by the County, yet administration is by the City, with Simi Valley directly billing to customers for water services. This name has the potential for customers to not fully understand that the City, though an independent district, is responsible for their potable water services, and to properly assign accountability to the District for their water service delivery.

Consider re-branding by changing the name of District to reflect being a City, not County, responsibility. The name change that directly shows the accountability of the potable water function is with the City of Simi Valley.
4.1.4 Develop explicit mission and vision statements with goals for District that aligns with the City’s mission statement and direction of the District. Establish specific goals and objectives which include quantifiable performance measures and links to the vision and mission statement with input from employee teams.

Waterworks has developed some explicit goals in the past that were included in the City’s budget documents which were related to projects. The City has a mission statement while the Waterworks District has no documented statement.

The mission statement provides clear purpose with rationale for existence. The mission statement can help guide the Districts’ actions, provide a path, and guide decision-making (APWA, 2008; 2011; Bain, 2013).

Waterworks should utilize a facilitated management team to establish an explicit mission statement that aligns with the City’s mission statement and work being performed by the District. They should also compose a detailed vision statement as well as specific goals, which identify specific efficiency and effectiveness measures. The goals, along with mission and vision statements, should be included in budget documents.

The goals should be linked to specific quantifiable performance measures. These performance measures would have performance indicators (e.g. number valves turned, number of pumps serviced, etc.) to allow for periodic progress evaluations. Items such as unit cost, productivity (work units/hour), and total cost should be in the goals.

These measures should be directly integrated within the CMMS for Water Services and project management for Waterworks 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. For example, 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. (Balance, 2014)

4.1.5 Develop master plan and rate structure concepts to provide District direction and link to District’s mission and vision.

The District has started evaluation of various aspects of the District. A Plan has been drafted that identified above and below ground multimillion dollar CIP needs within the District. $ Further, a new update is planned for the master plan adding more complete assets data that will allow for a more complete evaluation.

The initial ideas documented in the initial master plan should be reviewed for implementation based upon the needs identified and available resources of the District. If the decision is made by
the District to postpone or not implement specifically identified needs, the justification should be documented and published.

4.1.6 Eliminate redundant ancillary systems and utilize one system to manage maintenance and operations effort. Integrate and link various existing systems into a single computerized maintenance management system (CMMS) approach. Fully implement management tools and functionality of the Hansen CMMS and use at all levels for work management.

Waterworks utilizes several unlinked databases and some manual files to manage maintenance and operational efforts 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 to manage maintenance and operations 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.

All Waterworks Services’ work data should be stored in the Hansen (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 District and its customers. 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 both GIS and web capabilities. This will allow for full integration of maintenance information and utilized for planning purposes that can track and account for a work accomplishment.

Fully implement management tools and functionality of the Hansen CMMS. The current capabilities of Hansen should be evaluated for application for implementation of all management tools. The management tools should be utilized by managers and supervisors for all management functions of planning, organizing, scheduling, and controlling. Currently, the system already appears to function well for some functions within Waterworks Services and for other similar agencies.

4.1.7 Develop a project management system for Engineering and share with other engineering functions within the City.

Waterworks Services uses a variety of systems, databases, spreadsheets, word documents, and manual forms for research and tracking aspects of their work and projects. Information is often compiled manually, accounting for past occurrences and the analysis of specific activities. They attempt to plan 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 or monitor resources to meet the desired goals and due dates.
A complete project management approach and system should be established to plan all work efforts by project, with access to deliverables for all parties. They should estimate resources needed to accomplish the work and balance the resources with those available to ensure an achievable plan. The developed and implemented system should be established and shared with all City Engineering groups and functions within the City. The systems should also allow clients, managers, and maintenance supervisors to have access to monitor project status.

4.2 Planning

4.2.1 Update and confirm various water infrastructure assets with specific features. Publish complete inventory and store and/or link to the Hansen database.

The District has considerable infrastructure assets under its responsibility, which requires routine maintenance to ensure safety and maximum usable life. Waterworks has an inventory of some infrastructure assets.

Waterworks should update and confirm various infrastructure assets with specific features and attributes (i.e. size, type, capacity, etc.). The detailed inventory of all assets that the District is responsible for should be stored or linked to a spatial database and integrated with the Hansen CMMS, allowing the information to be viewed in both asset parameters and graphically by staff at all levels. This will allow the District to monitor maintenance performed on assets more effectively and develop a work plan and resource needs based upon the actual inventory. Further, this will allow for more accurate location identification and reporting as well as permit for ease of assignment of work orders to assets.

4.2.2 Establish levels of service with effort for each asset based on condition, available resources, costs, and desires of the City.

The actual levels of effort (i.e. whether quantitative or qualitative) are not known for some activities performed by Waterworks. Due to the lack of established levels of service, work is performed without knowing whether specific overall goals of service are being achieved.

A good business practice as outlined by APWA (2008) is to define levels of service by the individual maintenance activity the District desires or is required to achieve, and then allocate the corresponding resources.

The work effort in production units for the year can be determined by knowing the amount of assets to maintain and the frequency of each activity to maintain each asset. These units are the basis of information needed to estimate the resources required to perform the work and to prepare a performance budget by activity.

The maintenance effort level should be established by activity and policy for all infrastructure assets. This would allow the District to develop work plans and give direction to supervisors in their use of resources.
The ability to establish specific maintenance and performance goals allows for the development of service levels, which help to determine the funding and yearly service projections. The effort levels and performance goals can be adjusted to reflect population growth, need mandates and rising customer expectations. Optimal routine maintenance cycles improve the quality of assets, reduce the need to perform response work, and help minimize life cycle costs. There is a cost-benefit trade off that must be determined of the cost versus the service being provided. Benchmarking to others can assist to determine this value, but it should be a combination function of the community’s desires and the effort to optimize asset life.

The District should establish specific levels of effort and then through the budget and resource process, determine specific cycles that would be achieved. A process should be established to monitor status to assure compliance and understanding of shortfalls for actions planned.

4.2.3 Determine and maintain a replacement value of all assets within the Hansen system. Implement a condition assessment processes for underground and above ground facilities to identify needs.

The District should determine and maintain a replacement value for all assets linked to the Hansen CMMS. These values and data should then be used for short-term maintenance planning and to provide input and support in developing replacement and rehabilitation actions for both above and below ground assets. These assets and related attributes should be placed or linked to the District’s CMMS and be used as.

In 2010, RBF Consulting produced and submitted a Draft Water Master Plan which identified CIP needs for above and below ground assets within the District. For the identified needs submitted in the plan, the Consultant used observations and interviews for above ground asset evaluation and based below ground recommendations upon statistical analysis.

Although the plan was helpful to identify CIP needs, the District should develop, implement, and document condition assessment processes for both above and below ground assets. The processes should include the physical inspection of each asset class, comparing the discovered condition data to an established rating scheme developed through technical guidance and industry standards.

The results of the implementation of these condition assessment processes would be a more accurate evaluation of existing assets compared against a documented set of condition standards. In addition, the data collected and analysis made will further assist in the development of CIP candidates and assist in directing maintenance efforts to maximize the life cycle of the District’s assets.

4.2.4 Define activities with accomplishment units for all work done in each group utilizing employee teams.

Each operational group should develop a list of specific, well-defined activities for maintenance operations that is understood and communicated to all employees. Employee teams with supervisor facilitation support should be used annually to identify the initial key activities and
associated work units for their respective groups. Historical data and institutional knowledge of staff should be utilized to accomplish this effort. This concept should be applied by employee teams working independently in the following years to further configure, refine, and update. A guideline and performance standards should be developed and documented for each activity. Each activity guideline should include:

- An activity definition;
- Criteria to use for work identification;
- The mix of resources required;
- The method to conduct work;
- An expected daily productivity (ADP);
- Work quality expectation; and
- Anticipated service levels.

This information should serve as a benchmark of identified resource needs for work planning, as well as provide 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 and benchmarking to determine how various decisions are impacting efficiency and allow for staff input in the work process. Once documented, the guidelines should be stored or linked electronically to Hansen and then made available and retrievable to all maintenance staff.

4.2.5 Define performance guidelines and related measures for both groups and annually plan utilizing employee teams. Establish performance guidelines within the CMMS and other systems that are linked, integrated, and reported within the City’s budget.

Employee teams with supervisor facilitated support should establish performance measures for all groups that include both efficiency and effectiveness components. The established performance measures should be stored in the Hansen CMMS and linked and integrated within the District’s budget. The performance measure component will allow planned dollars to be directly linked to the quantity and quality of work that is planned. Each outcome should not only concentrate on accomplishment but should be linked to a quality standard for outcomes.

This category of performance measures 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. Standardization of costs and units of measure would allow for benchmarking and comparison between agencies of like services.

4.2.6 Consider linking District customer water charge rates to wholesale rates charged the District.

Most of the water utilized by customers within the District service area is purchased from the Calleguas Water District (CWD), a wholesaler who purchases water from the Metropolitan Water District (MWD). There are three cost components which the District pays: the MWD
water charges and CWD’s wholesaler costs for both operations and capital. The District has no control over these costs and they must eventually be passed on to the water consumer and/or absorb.

Since FY 2010, water rates the District pays have increased 30%, while the District’s rates have remained the same. The changes in the amount paid for water to the water wholesaler is a major portion (71%) of the Waterworks 2013-2014 budget, and it appears that the current budget has not been capable of absorbing such increases without a negative cash flow, and may not be capable in the future.

In a sample benchmark of rates of other Ventura County water providers, Simi Valley (i.e. Waterworks) was lower than all but one other water providers, with users of more than 1,500 cubic feet. For low water users, Simi Valley rates are average to other benchmarked agencies. In an overall view, Simi Valley is lower than the benchmark average billing unit rate in all water use amounts.

The District should consider increasing and linking water rates thus to pass to the customer the actual cost to the water purchased. This will allow matching of the actual cost of purchasing water and the costs that customers are paying and stop the District from absorbing external costs that they have no control over. District rates are currently lower than most other local agencies.

4.2.7 Develop two overhead rates that reflect the City’s actual cost. Develop an avoidable overhead cost and use as a default value in Hansen. A second overhead rate should be used for external billing and reimbursement. Further, develop an annual process to update the rate and use in Hansen for job costing.

Waterworks should establish an avoidable rate for internal cost comparisons and use it for outsourcing determination. Applying this rate allows analysis, benchmarking, and other comparative studies in relation to direct maintenance costs. This rate should also be used as the default value in the Hansen CMMS.

A second rate should be determined for a full overhead allocation to take into account the costs related to all aspects of the District 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 District’s 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. These rates should be reviewed and updated on an annual basis.

4.2.8 Identify actual equipment rates for each equipment class that includes all costs including 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.

Waterworks should adopt the methods outlined in APWA publication (McCorkhill, 2008). 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/or 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.

### 4.2.9 Water purchases should be separated from other expenditures as not to skew the Operations and Maintenance budget.

A review was conducted of budget documents to examine and review, in detail, the sources of revenue and expenditures for Waterworks. The Districts’ working capital balance for June 30, 2012 was projected to be $22,401,820. The consolidated working capital balance is comprised of an Operations Fund, a Replacement Reserve Fund, and a Capital Improvement Fund. The Replacement Reserve Fund is further divided into a Vehicle Replacement Reserve and a Facilities Replacement Reserve.

The budget does not describe Waterworks situation clearly, as water purchases skew the budgeted values and contributing almost 72% of all expenditures for the FY 2013-14 budget.

The water that the District sells to their customers is composed of 98% water purchased though Calleguas Water District, who purchases water from the Metropolitan Water District (MWD). Since FY 2010, water rates that the District pays have increased 30%, while the District’s rates have remained the same.
Although water that is purchased is an operational cost, it should be separated from other expenditures as not to slant the portrayal of Operations and Maintenance budget. The separating of this expense will assist Waterworks’ managers and supervisors to plan and schedule resources based on operational and maintenance costs that they can control and clearly display to the leaders cost that they cannot control.

4.2.10 Develop a life cycle procedure of cost the impact for capital and replacement efforts. Utilize an annual prioritized capital improvement plan (CIP) based on optimizing asset life cycle costs.

The District has a draft Master Plan which is in the process of being updated to describe current and planned water supplies, current and planned water demands, and needs. The plan outlines water resource needs and direction for the next 25 years. The replacement value in the study along with their life estimates for each asset type, were used to estimate the amount of replacement needs that are annually anticipated. The replacement cost of the water system assets are estimated at $222 million with a five year estimate of $29.6 million in capital project needs suggested in the 2012-2013 budget (p. ix).

The specific amount of need for any given year is dependent on the life cycle of each asset, and is impacted as new and rehabilitated assets are installed or replaced. The District should develop and implement a methodology of estimating life cycle costs. The methodology should account for the impact of the new and replaced assets on the overall Capital Replacement Program. The method should be used to estimate the needs based on the optimal annual asset rehabilitation and replacement cycle.

The CIP for the Waterworks District is adopted each year and used as a guide for the following 5 years of projects. The fund is financed from user fees and other enterprise revenues. In FY 2015-16 there is a projected negative balance of $2.2 million for capital needs and reduction of replacement reserves of $3.2 million.

The District should establish an annual prioritized CIP listing of all approved and funded projects. The District should also utilize collected condition data, repair, and maintenance history from the Hansen CMMS, and technical recommendations from various sources to create the prioritized list. The priority should be dependent upon projects that can be funded and provide the highest benefit to the overall asset network. The result of this process will insure the projects that most cost effective are planned which optimize life cycle costs of the total assets.

4.2.11 Establish a CIP which is based upon actual available resources. All needed unplanned projects should be documented with the impact on the established CIP plan and related priority.

The District’s capital improvement needs are projected to increase by 65% between FY 2013-14 and FY 2014-15, with reductions through FY 2016-17. In FY 2015-16 there is a projected negative balance of $2.2 million for capital needs and reduction of replacement reserves at $3.2 million. If this occurred it would prevent readily maintaining assets (i.e. without obtaining other
funding) that would degrade the system and most likely increase future operational and replacement cost, as well as put system integrity at greater risk of failure.

The District should establish a CIP which is based upon actual available resources and funding. Only projects that can be funded should be included in the plan. Establishing this methodology of CIP planning will better insure the completion of projects and provide education to elected officials on unfunded needs. In addition, all needed unplanned projects should be documented with the impact on the established CIP plan and related priority and provided to the elected leaders and senior management.

4.2.12 The revenue received should be balanced to provide a return similar as to industry benchmarks.

The District’s FY 2013-14 Operations Fund revenues are budgeted at $34.8 million. In the same year the Operating expenditures are budgeted at $37.9 million creating a negative balance of $3.1 million where operating expenditure will exceed Operations Fund revenues. In the last several years, from FY 2010-11, the operating expenses have continued to follow this trend.

The District should seek to take measures, at minimum, to become revenue and expense neutral with plan to provide returns similar to industry benchmarks. The District should only spend to the level of the revenues generated as well as accounting for a basic return.

4.2.13 Establish the capability of developing a performance based budget with 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.

Waterworks should establish a process to allow each group 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 work program should be established for each organizational unit by activity and include inventory, level of service, productivity, and required resources. Also, each outcome (valves exercised and meters read) should be linked to a quality standard. For example, develop a goal that includes the number of pumps PMs and establish a budget based upon actual maintenance performance. The performance budget would establish accountability and is a good business practice because it ensures that work is planned based on a desired measured outcome.

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 should be 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.

4.2.14 **Review nexus of cost allocation of charges for services to Waterworks. This would allow for proper allocation of overheads and unit costing.**

A cost allocation plan is currently used for departments within the City of Simi Valley. The plan identifies indirect costs of providing municipal services to various groups within the City. Indirect costs are not readily identifiable with a particular operating program, but rather, are incurred for a joint purpose that shares benefits among more than one cost objective. Common examples of indirect costs are accounting, purchasing, human resources, building maintenance, and utilities. These costs are allocated to groups based on specific criteria.

In Waterworks’ FY 2013-14 budget, reimbursements and transfers total $3.5 million, or 9% of their budget. This includes reimbursements to the various groups General Fund, Retiree Benefits, Computer Equipment, Streets and Roads, GIS Capital, FIS Capital, Vehicle Replacement Reserve, Facilities Replacement, and Workers’ Compensation.

The District should evaluate and review the relationship between the allocation of charges provided to Waterworks by other groups in the City and to the actual service provided. The purpose of this review would allow the District to identify and properly allocate accurate overhead costs of providing their own services. In addition, unit costs require a proper calculated overhead and without proper allocation an inaccurate comparison could be made to industry benchmarks and like agencies. These inaccurate comparisons would then provide distort data to managers and supervisors reducing their capability for making potential decisions for improvement.

4.3 **Organizing**

4.3.1 **Eliminate the sharing of engineering positions with other cost centers and assign one full-time engineer to Waterworks.**

Waterworks Engineering is led by a Principal Engineer with three direct reports (i.e. span of control 1:3), including one Senior Engineer (full-time) and two shared Senior Engineers positions (Cost Centers 4640 and 4080). There are two levels of management between the Senior Engineers and the Director of Public Works.

The two shared Senior Civil Engineer positions are currently being used for project managing two water construction projects. Their experience is in general civil design and construction and they are not water specialists.

The District should eliminate the shared engineering positions, assigning one full time Engineer to Waterworks for the performance of tasks to include the managing and administration of related District water construction projects. The result of this re-alignment would allow the remaining
full-time Engineer to concentrate on District projects and increase in their knowledge of all phases on water related construction projects.

4.3.2 Transition organization in the future to have one engineering function and combine Water and Sanitation Engineering.

The Utilities Assistant Director oversees all Utilities including Waterworks Services, Water Engineering, Sanitation Engineering, Sanitation Services, and Environmental Compliance, with a span of control of 1:5. Two of the functions are engineering functions.

The span of control found within Waterworks Services, Waterworks Engineering and Environmental Compliance each are within industry benchmarks in the lower end of the range. A range of 1:4-8 is a desirable benchmark and good business practice unless direct reports need increased supervision or there is a need for consistent direction and communication.

The Principal Engineer who heads up Water Engineering is an experienced water engineer with lengthy background in all phases of water engineering, planning, and construction. The other engineers assigned have civil experience and proper credentials yet are not water engineering specialists. This is similar to the situation in Sanitation Engineering with the Principal Engineer being the only seasoned sanitation engineer. The advantage of having specialized groups appears minimal as the only specialist in water or sanitation is the Principal Engineer Leader.

The District should transition the organization in the future to have all engineering related services report to one Deputy Director. The implementation of this re-alignment will allow sharing of resources (i.e. CAD, GIS, PM, engineering) for cross training and ease the level of workloads for both by sharing resources and improving efficiency.

4.3.3 Pursue approval for full maximum utilization of Tapo Canyon Water Treatment Plant (TCWTP) using increased operating time per a week and per day and work toward unmanned automation of plant.

The District’s Tapo Canyon Water Treatment Plant (TCWTP) can produce 1 to 1.2 million gallons per day (MGD) of potable water for their customers. TCWTP produces about 1 MGD during the high demand of summer months, but is now only achieving an annual amount of .2 MGD. The site has a 1 MG potable water storage tank and .2 MG waste storage tank. The treated water supplements the District’s potable water supply, helping reduce their reliance upon purchased water.

The cost of water production and delivery from the TCWTP (with an average of .4 MGD annually) is $770 per ac-foot, much less than the $1,173 (tier 1) and $1,315 (tier 2) for the cost to purchase imported water from the Calleguas Municipal Water District and Metropolitan Water District’s Local Resource Program.

The District should seek to obtain all necessary approval for the full utilization of the TCWTP, operating the facility seven days a week, for greater than eight hours during the day. Waterworks Services should utilize the annual performance plan and budget to determine the needed labor.
resources to fully utilize the Facility. This may create the need for another operator as well as increase in use of SCADA monitoring and operations technology.

The result of this implementation would further reduce the District’s reliance upon purchased water, produce water at a lower cost, and increase the availability of potable water to its customers. An estimated $600,000 could be saved by increasing production to maximum values even with funding another operator position. The current water production level (.2 MGD) is actually more expensive than purchasing water from Calleguas Municipal Water District.

### 4.3.4 The growth of personnel costs for Customer Service and Administration should be evaluated. All costs should be based upon actual need.

Personnel costs have increased between FY 2012-13 and FY 2013-14, primarily due to the growth in Administration and Customer Service. Overall, there was an increase of 13% between the two (2) years, with Customer Service increasing 22%, Administration increasing 41%, and Operations increasing 6%.

The growth of personnel costs for Customer Service and Administration should be evaluated by the District with all costs based upon actual need for support of Waterworks. The level and mix of labor resources should be determined by utilizing the desired level of service for each activity performed. Staffing should be based upon identified needs and service levels to determine labor classifications and number of positions, rather than just using historical efforts and the capabilities of existing resources.

### 4.3.5 The amount of billing staff appears high. Staff should charge directly for time used for Waterworks.

The six billing staff members are budgeted to support Waterworks. They are currently reporting to the Department of Administrative services. The billing function is integrated with other similar effort in a City-wide effort.

Based on the amount of water services and using AWWA benchmarks (Lafferty & Lauer, 2006) it appears that only 2 FTES are warranted for such water billing support while five are funded.

This support staff should charge their time against water support. Further, the time should be compared to industry benchmarks to evaluate actual support needs. This AWWA benchmark (i.e. amount of billing/employees) should be used as a performance measure for this support group and reported annually. This evaluation should help plan the needed allocation of staff supporting Waterworks.

### 4.3.6 Staffing projections should be based upon work needs and production rates using an established performance plan. Process should be automated within the CMMS and reviewed annually based on need.

Currently, full-time staffing is determined by the waterworks supervisors estimating the future year’s needs along with the existing resources that are available. Full-time staffing request
should be based upon work needs and production rates using an established performance plan and budget. The plan should include asset inventories and service levels. Any temporary seasonal increases in work demands should be met with a combination of contracts, part-time, and appropriate overtime.

Staffing can be planned utilizing this performance plan methodology to meet the annual projections for work accomplishment, the expectations of senior and elected leaders and District customers, as well matching the repair and maintenance needs of the District’s asset inventory.

It appears that based on finding of benchmarks, projections, and observations, direct staffing for maintenance and operations is inadequate to perform some basic operational needs with two or more FTEs needed. Many current positions being funded by Waterworks do not appear not to be directly performing Waterworks services, as discussed in prior billing, engineering, environmental, and administrative recommendations. An evaluation using performance plans of the actual positions needed for support should be done with proper accounting of all time for those support functions. After the evaluation any unwarranted positions should be reassigned to operations to meet specific needs.

4.3.7 Align Organization with Waterworks having direct control over all water funded positions. Positions not performing Waterworks related work should be removed from the Waterworks budget. Those who provide partial support should directly account for their time.

Waterworks funds support for many positions outside of their direct control. This includes employees in Administrative Services, Engineering, and Environmental Compliance. Using the 2014-15 budget (p. 294) the positions include: Senior Engineer (two), Engineering Technician, one Environmental Compliance Program Coordinator, Secretary, Customer Service Manager, Administrative Aide, Senior Customer Service Representative, and Customer Service Representative. Two categories have one of two positions outside of Waterworks’ control and nine positions report to other groups completely out of Waterworks’ control.

The City should align the Organization with Waterworks having direct control over all water funded positions. The implementation of this re-alignment will assist in increased accountability and improved documentation for costs of supporting an internal service fund.

4.3.8 Align Waterworks Services and upgrade position to a Waterworks Services Supervisor and reassign systems responsibilities.

In review of current spans of control, responsibilities, and assignments of the Waterworks Services Supervisors, the supervisors should be expanded. The Waterworks Service Worker III (Customer Service/Meter Readers) position should be upgraded to a Waterworks Services Supervisor, at the same level as the current Waterworks Operations Supervisor and Waterworks Distribution Supervisor. The new Waterworks Services Supervisor would be the primary point of contact, with the responsibility of service requests and all meter related issues as well as coordination with Finance on billing.
The District should continue the integration of the meter reader’s positions with the functions of customer service which results in an interchangeable and flexible workforce. In addition, this effort would increase the ability to provide supplementary resource in the absence of meter reader or customer service employees. Finally, the staffing in the meter area appears adequate when all staff is available, which has not been the case with a reduction of personnel due to a workman compensation issue. Additional support should be obtained until the workman compensation question is resolved and staff is available to work.

The results of this re-alignment would allow for an increase in direct managerial control of all areas of Waterworks Services. The Supervisors of each of the primary functions would report directly to the Deputy Director.

In addition, Waterworks Systems Technician should become a direct report of the Waterworks Operations Supervisor. This re-alignment will maintain the span of control ratio for the Deputy Director–Waterworks Services as well as the Waterworks Operations Supervisor. Attachment I illustrates both the prior and suggested organizational re-alignment.

Finally, in an effort to balance the workload and relieve the Deputy Director of routine automated systems duties, the current Waterworks Operations Supervisor should assume the role of managing the support for automated systems within Waterworks Services. This would reduce the current detail efforts of coordination and administration of systems by the Deputy Director, the most senior manager at Waterworks Operations. The difference in the organization structure can be seen in the Figure 4.3.8a of the existing organization and proposed in Figure 4.3.8b.
4.3.9 **Realign organization with one (1) Environmental Compliance Program Coordinator assigned directly to Waterworks and the Environmental Compliance Inspectors should account for direct charges in the Waterworks’ Budget.**

The Environmental Compliance group includes four (4) Environmental Compliance Coordinators which share the direct reports of four (4) Environmental Compliance Inspectors. Of the eight (8) employees in this group plus the Deputy Director-Environmental Compliance, five (5) share support for Waterworks and three (3) do not work for the District. In the budget two (2) of the positions are solely funded by Waterworks. The fund allocation to Waterworks is based on budget allocation not on the actual work being done.

The District should adjust the group organization. One of the Environmental Compliance Program Coordinators should be assigned directly to Waterworks. In addition, the various Environmental Compliance Inspectors should account for direct work charges in the Waterworks’ Budget. The result of this realignment will increase accountability for work and increase communication within Environmental Compliance and Waterworks.

4.3.10 **Develop backup and cross-training capabilities for some specialty staff with appropriate skills and certifications for plant operator. Obtain additional support is warranted for the treatment plant.**

The operator of the Tapo Canyon Water Treatment Plant (TCWTP) understands the maintenance and operational processes and need of the Facility. However, he is the sole operator of the Facility and there is minimal backup when he is absent. Another employee is needed to be
assigned or retained and to allow for a more complete use of the plant. If plant operations can be increased to .7-1 MDG for water production the position can be fully funded while saving $100,000 of monies used to purchase external water.

The District should provide comprehensive cross-training for multiple backups with appropriate skills and certifications for plant operations. This training should include the use of operational tools, related technologies, and specific maintenance needs of the facility. In addition, the District should establish minimal operational standards and testing for all future operators that will work at the facility.

The Water Operations Supervisors should have a working knowledge of the maintenance and operational need of the TCWTP facility. The operational needs of the facility should be based on an established and implemented work plan. The work plan should take into account maintenance requirements, desired level of service, and desire to increase production.

4.3.11 Evaluate support and allocations for GIS and CADD on actual support provided to others for full cost recovery of support.

The Waterworks District provides GIS support for groups within the City including Sanitation, Engineering, and Planning. The Assistant Engineer’s functions include spatial pipeline layout and design, assistance in specification preparation, project and construction management, and overseeing, maintaining, and using the Geographical Information System (GIS). He provides considerable GIS support and maintenance for other groups within the City.

Although there is an internal allocation made during the budget process to help fund and share costs for some of this support, Waterworks Engineering should fully evaluate the provided support and the allocations made by the other groups. The allocation made by others should be based upon the actual support and provide full cost recovery. All work done in GIS by Waterworks employees should be tracked to the appropriate department and allocation should be made based on actual work.

4.3.12 Lower level staff should be trained so that they may be utilized for on-call and response, only dispatching supervisors to address a more complex issue(s).

Waterworks Services provides 24/7 coverage using a 9@80 employee work schedule and an after-hours/weekends on-call rotation coverage to respond to emergencies. The two Waterworks Supervisors share the responsibility for call-outs and response after normal working hours.

If a severe response issue occurs, the Deputy Director – Waterworks Services may also be on-site. If a larger group of employees is needed to mitigate an after-hours issue, the Supervisor will call needed employees.

Waterworks Services is equipped with a highly skilled staff which holds several water production and delivery certifications. As a result, Waterworks Services should plan, cross-train, and utilize lower level staff for all on-call and after-hours stand-by, with dispatched supervisors if the on-call employee lacks the ability to address the specific issue. The result of this change would be a lower cost to provide after-hours/weekends coverage without sacrificing the quality of response.
4.3.13 Overtime percentage should be established as a benchmark goal comparing the future usage and other internal and external like organizations.

The hours tracked by the City in 2012 included approximately 1,400 hours of overtime. Using the total overtime reported and comparing to a calculated total hour per year for the past five years, the average percent of overtime for total hours reported is under 3%. Waterworks’ average is lower than the expected benchmark range in LAC’s benchmark database with an agency average of 4%.

The District, as a control, should compare to other benchmark agencies for overtime use. Overtime percentage should be established as a benchmark goal comparing to internal and external similar organizations. This benchmark should be reported annually to the Deputy Director and Public Works Director. The benchmark should also be used in decisions on staff request as judicious use of overtime may negate the need for additional employees.

4.3.14 Enhance and fully utilize Sanitation Laboratory resources, therefore reducing the need for outsourcing functions for sampling and testing.

The Sanitation Laboratory provides coverage on a 365-day per year basis. 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 fixed and maintained for plant support. Currently, Waterworks makes use outside contract services for work that appears to be within the capability of the City’s Laboratory resources.

The District should enhance and fully utilize the resources of the Sanitation Laboratory. If the District needs sampling or testing, they should first confirm that it cannot be done with the existing resources within the Sanitation’s Laboratory before the function is outsourced. In a previous study, it appeared that required coverage by Laboratory technicians exists yet they have the available capacity to perform more work, if properly planned and scheduled. If this additional support is provided, this would save the District from paying for unnecessary outside expenditures as well as optimize existing Sanitation employees. Also, knowledgeable laboratory employees with a vested interest would be managing the testing process.

4.3.15 Establish charge rates that encompass all fleet related costs.

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* (McCorkhill, 2008). 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.

### 4.3.16 Integrate inventory with work reporting and consider centralizing and reducing inventories to a controlled location that is shared with other departments.

Waterworks’ inventory is only one of many inventories in the Public Works Complex. Most Waterworks inventory areas are secure and are organized with labeled storage areas and bins with each item identified and recorded in a material inventory. Inventories are maintained in the Hansen database and are unlinked to the purchasing and budget system, SAP. Annual summaries are produced by pulling data from multiple sources by a Distribution Supervisor.

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 centralized warehouse function. Other options may be considered using benefit and cost of consolidation.

### 4.3.17 Establish a documented analytical process for determining opportunities to contract work that includes quantity, quality measurements, and all cost variables.

A documented process to determine if work should be contracted or performed in-house is now lacking. A process should be established that would enable the District to produce the information necessary to conduct this analysis.

One tool used to accomplish this is the performance budget as outlined in Recommendation 4.2.13. An overall unit cost by activity can be determined that would incorporate actual labor, equipment, and material costs including an applied avoidable overhead rate. This will allow the District to compare the true cost of conducting particular operations and compare the cost with other agencies for benchmarking and goal setting purposes. Further, the District will be able to
evaluate the efficiency of each group by analyzing productivity levels and have the opportunity to correct any deviation to allow for continuous improvement.

The District should have the capability to develop a work plan for contracted work with a defined work quantity and projected cost. This can allow for proper contract management and monitoring progress based upon accomplishment and cost. Further, contracted work should have a defined quality measure for the finished product so as to compare the expected end product delivered. The defined quality standard should be clearly outlined and communicated with both the contractor and staff that are used to monitor.

This effort would allow the District to annually evaluate all activities and determine whether any activities appear to be warranted for consideration for outsourcing. The District would then take action to improve that activity or function or consider it as a candidate to outsource in a competitive effort. The purpose of this process would ensure an internal focus to always compete without being required and look for continuous improvement via external benchmarks. This process should be annually conducted by Waterworks staff and reported to the Director of Public Works.

4.4 Directing/Scheduling

4.4.1 Develop routine PM programs with associated resources that are used for cyclical work and place within CMMS.

Many activities with related assets can be predetermined, grouped, and scheduled. Managers and Supervisors should focus on these activities by structuring as many activities as possible into defined routines. These routines should be documented with established levels of effort. Waterworks Services should develop a documented routine program for cyclical work in support of maintenance efforts and water infrastructure. Existing routine list and manual records for repetitive work on pumps, valves, etc. should be transferred into the Hansen system for use in PM modules.

These routines should be used within Hansen as a basis for the annual plan and distribution of resources as well as generation of proactive work orders from the system. The development and subsequent use of routines will aid managers and supervisors to better plan, organize, and schedule their resources. By grouping and scheduling work, travel time and setup can also be minimized.

4.4.2 Establish a routine program for meter replacement with focus on use of latest AMI technology, eliminating need for physical reading and maximizing real time data utilization.

Simi Valley Waterworks reads, repairs, and maintains approximately 26,000 water meters within the Water District. The District also has approximately 25,000 active water service accounts, with the majority (92%) being residential. They also maintain and read commercial, agriculture, industrial, pool clubhouses, and schools/institutions. Consistent with the City’s Green
Community Action Plan, the District has plans to increase the use of automated meter reading technologies to increase operational efficiency.

The District should establish a routine program for meter replacement with focus on the full utilization of the latest Advanced Metering Infrastructure (AMI) technology. Water loss often will be reduced through the implementation of a meter replacement program as meters may be past their useful life. With the utilization of AMI technology, labor cost will also be reduced, eliminating the need for physical reading and maximizing real time data utilization to make other decisions. AMI can, as an alternative usage, be used for leak detection, turn on and turn off support, and water usage monitoring.

4.4.3 **Standardize process for all service requests and work orders for all groups, involving Water Service Workers directly in all processes.**

Waterworks Services currently tracks work using a combination of the Hansen CMMS, SpatialWave, and meter reading and billing software. Manual processes are used for compiling data. Work requests and work orders are addressed differently as separate documents. The manner in which work data is reported and tracked is unique to each group, with the consistency and accuracy of the data captured being an issue for all groups. These two items have affected the validity of the data, which makes system outputs and the ability to use the information to make informed decisions for management questionable.

All work should be reported with actual labor, equipment, and materials by activity by location along with the work unit (linear feet, pump, meter, etc.) within the Hansen CMMS. This will allow unit costs and productivity to be computed accurately within a single system, by crew and location, for each activity. The data then can guide management in the evaluation of the effectiveness of the work as well as the efficiency of each crew or group. Work should be tracked in a standardized method consistently by all Waterworks Services, including preparatory and travel time to the job site.

This recommendation would require standardized processes and complete documenting for all service requests, work orders and reporting of production. The operational employees such as Water Service Workers and Supervisors should be involved in all phases of the process. This will include training of the employees and the monitoring of the results. This will allow ownership in the developed processes by all involved employees.

4.4.4 **Define and document priority procedure for all service requests based on need, safety, and risk to the public. Attempt to identify all work to be done at latest two weeks in advance unless an emergency.**

Crews report and identify repairs and maintenance throughout the work day, in addition to receiving service requests from customers via phone, walk-in or City Hall. Further, some work is directed on a day to day basis and based upon the available resources, workload and experience of the supervisors. Though there is an ability to assign priority to work in the system, this is minimally utilized with all work initially has equal system priority.
The District should define and document priority procedures for all service requests based on need, safety, and risk to the public. All attempts should be made to identify work to be done at least two weeks in advance unless an emergency action should be made. This will further assist managers and supervisors in the planning and scheduling of resources based on a planned work effort and meeting the maintenance needs of the District’s assets and requests from their customers based on priority.

4.4.5 Fully develop a two-week schedule procedure with accountability established
Integrate with all systems and distribute schedule to staff. Relate schedules to annual work plans and routine processes.

The development of a systematic two-week scheduling process should occur with all employees trained 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 managers and supervisors should occur to assist with the coordination of equipment, labor and material needs, methodology, and any special circumstances. A two-week scheduling meeting should involve managers and supervisors to discuss the adherence to and future efforts of these schedules. Various points related to this process should 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 maintenance employees to be aware of the planned work. Further, 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.

Supervisors should be held accountable for their schedule completion. Several tools such as a PM program, routines, performance plans, cross-training, and an adequately configured Hansen system must be operational prior to a scheduling system for an effective system.

Work assignments should be directed by supervisors for their respective sections with support provided by field lead workers. 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 field employees. 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.
4.4.6 Engineering should fully develop a two-week schedule procedure for all project related work and distribute to others within the District.

Similar to recommendation 4.4.5 recommended for Waterworks Operations, Waterworks Engineering should develop and implement a systematic two-week scheduling process for all project related work. This schedule should be distributed to others within the District for enhancing the current daily work assignment process. The developed process should include all projects, phases, individual status, and anticipated accomplishments for the allotted time period based on a developed annual project plan. A systematic involvement of managers and engineers should occur to assist with internal resources and contracted services. This meeting would involve the review of adherence to and future efforts of the project schedules.

The project schedule should be prepared and released for all managers, engineers, maintenance supervisors, and contractors to be aware of planned work, status, and anticipated completion of specific phases. Further, the responsible engineer 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 assigned engineer should be held accountable for the schedule completion. This two week scheduling process will assist in completion of the various projects and the annual project plan as well as adherence to established performance measures.

4.4.7 Develop process to establish accountability for adherence to schedule and accounting for items not completed.

Some routines have been established for Waterworks Services and two week schedules are prepared and maintained, though work is often adjusted with maintenance staff daily, based on available resources. Scheduling is based on prioritization of incoming requests and backlog. Each morning, supervisors meet with their crews and provide assignments. In the case of large projects, scheduling is done on a case-by-case basis. Coordination, scheduling, and work flow processes vary slightly between Distribution and Operations.

Waterworks Services should hold supervisors and leads at field levels accountable for adherence to schedules and an explanation should be provided for items not completed. Review of these schedules should be held during the two-week scheduling meetings and their compliance should be one factor for managers to use for their annual review determination and proving guidance.

4.5 Controlling/Improvement

4.5.1 Formalize and document a repeatable methodology for the tracking of projects, including District resources used for each task and phase. Account for one hundred percent (100%) of employee time in the CMMS.

Waterworks Engineering 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 a significant amount of all cost on a project, there is no tracking of time and/or effort.
Waterworks Engineering should establish a mechanism for 100% tracking of time 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. Waterworks should utilize the same concept on their projects as required of District contractors and outsourced engineering support.

Simi Valley currently does limited work tracking using a combination of work reporting processes in manual databases and unlinked systems. The work being reported varies for each group 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 (i.e. number of valves repaired, meters replaced, LF of pipe repairs) would be included in work reporting. All work activities would then be stored in the Hansen CMMS. In addition, locations such as zone or area 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 efforts are concentrated.

4.5.2 All groups should standardize tracking of labor, equipment, and materials by activity and link to a specific asset or location.

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 groups, including preparatory and travel time to the job site. When possible, work should also be tracked to specific assets and/or locations to allow for the lifecycle costing of infrastructure assets and maintenance history reporting. The data on accomplishment would also be included in work reporting.

All work data collected would then be stored in the Hansen CMMS and used for process improvement and continuous monitoring. The collected data 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 data should involve management staff in using the information to improve operations.

4.5.3 Link or track all meter & Customer Service work effort with Hansen CMMS, tracking and recording resources to specific work orders.

Work for Waterworks Services by Meters & Customer Service is primarily generated through requests from City Hall, meter routes, routines, and PMs. The Operations Supervisor creates a weekly schedule of all identified work, including requests, meter routes, routines, and PMs. The system and processes used to produce work orders from City Hall lacks linkage to the Hansen CMMS. The Supervisor distributes the schedule, and meter routes are loaded into field readers by the Waterworks Service Worker III. Meter reads are recorded in field readers and downloaded after routes are completed and data is forwarded to Billing at City Hall through e-mail.
All Meter Reading & Customer Service work efforts should be linked or tracked with Hansen CMMS through the recording resources to specific work orders. The recording and tracking of basic resource data, such as labor, equipment materials, and units accomplished improvement and accountability strategies of costing, efficiency, unit cost, and productivity can be used by supervisors and managers to compare against established industry benchmarks.

4.5.4 Evaluate and identify the District’s historically high waterline breaks. Consider obtaining external support to determine rationale for high occurrences of breaks. Implement and document corrective action taken. Compare against benchmarks on monthly basis and report action taken to ensure compliance or corrective measures taken.

A water system’s integrity can be a major issue or benefit to stakeholders and customers. Simi Valley reported two hundred and fourteen (214) leaks and breaks in their FY 2013-2014 Budget (p. 298) in AWWA’s top 75th percentile in number of breaks where a high value is not desirable. This high number of leaks and breaks in the District impacts the reactive support and related number of employees and time expended/needed to address these issues.

The District should evaluate and identify the historically high waterline breaks as compared to AWWA benchmarks (Lafferty & Lauer, 2006). External support should be considered to determine the rationale for the high occurrences of breaks. Once identified, if in their control, the District should implement and document corrective action taken. Further, the occurrences should be compared against industry benchmarks on monthly basis and report specific action that are taken to ensure compliance or corrective measures.

4.5.5 Establish a documented field work quality review process. Include sampling of the work done and compliance to developed guidelines. Include identified actions to be taken to ensure compliance with established quality guidelines.

A system should be established and documented to review the quality of work produced on a short-term basis using system tools: activity guidelines and various system outputs form the Hansen CMMS. This will help determine how well each group is completing work and servicing customers as well as how much is accomplished and at what cost. The guidelines and performance standards discussed earlier should have a defined quality for each activity.

An independent review by a supervisor should occur to ensure the desired results and performance expectation is achieved. The work being done should be treated in a similar fashion as contractor work with quality controls being performed by supervisors. Feedback should be provided to staff to ensure compliance to desired quality standards. Specific guidance and/or training should be given to individuals and groups as necessary to meet these guidelines.

4.5.6 All supervisors and managers in Waterworks should be trained to understand and be fully capable of using the CMMS and linked GIS capabilities.

The current Hansen system exists with only a couple of lower level staff utilizing some of the capabilities. Management reports are lacking for improvement and performance enhancement.
Only a few capabilities are being used. GIS utilization is primarily used through the SpatialWave software yet lacks linkage to Hansen.

All supervisors and managers should be trained to understand and be fully capable of using the CMMS and linked GIS. They should have the ability to generate management reports by location, activity, or employee for monitoring work efficiency and effectiveness. Managers and supervisors should also possess the skills and ability to work accomplishment to the annual performance plan and budget as well as established benchmark parameters. This capability will allow for data and tool to monitor work done and planning for future works and projects. Further, the capability will provide tools for adherence to performance measures and monitoring production and cost.

4.5.7 Supervisors should utilize the same system for work tracking and planning. Establish a monthly meeting to review data from the CMMS with management responsible for creating accountability.

All supervisors should utilize the same system and method for work tracking and planning. Each group should create a report in a similar format and provide feedback to the Deputy Director Waterworks Services monthly on how they are performing against the performance plan. This will allow the Deputy Director to review the information for the District as a whole or individually by group, in an easy to understand format. Further, the reports should be created from data stored and retrieved from the Hansen CMMS and include planned versus actual data by activity for labor days, cost, accomplishment and productivity.

In addition to providing the data to the Deputy Director, information from reports and the CMMS should be reviewed by the Deputy Director’s staff to provide accountability and ensure information is accurately tracked and system goals are being achieved. This would allow the managers and supervisors to manage with data used to respond to issues and understand the consequences of these actions, thus making better more informed decisions.

4.5.8 Review and consider adopting many of these good business practices.

Several industry publications are available that focus upon best management practices for a water utility and a potable water distribution system. One such publication is the Public Works Management Practices Manual (APWA, 2011). Several sections within the manual provide focus on the unique elements associated with the distribution of potable water. Some examples of good business practices are listed below and come from this manual.

• **Potable Water Source and Use:** A directive that establishes the source of potable water and any limitations on usage.
• **Water Quality or Quantity Changes:** A plan that established operating procedures used during a change in quality or quantity of available raw water and identifies procedures to minimize treatment problems.
• **Infrastructure Inventory:** An inventory of potable water infrastructure is maintained and updated.
• **Infrastructure Condition**: A record of the potable water infrastructure condition that is maintained and updated.

• **Infrastructure Management**: A system used to guide the development and maintenance of potable water infrastructure assets.

• **Potable Water Treatment**: A water quality treatment program that outlines methods, facility maintenance, staffing requirements, and the quality and quantity of potable water to be produced.

• **Energy Consumption Review**: The performance of energy consumption reviews.

• **Fire-Flow Requirements**: A policy establishes fire-flow requirements and provides for testing and maintenance of fire-flow volumes and pressures for the various zones within the service area.

• **Operations and Use of Water Resources**: A program established the operation and use of reservoirs, wells, surface potable water sources, and pump stations to enable efficient delivery of treated water, including drought contingency plans.

• **Water Source Protection**: Protection and testing measures established for raw water to prevent contamination.

• **Vulnerability Assessment**: A vulnerability assessment of the water system is conducted to ensure optimum security is provided for the water supply.

• **Water Distribution System Operations and Maintenance**: Maintenance practices that are developed for the water distribution system to include installation, testing, and preventive maintenance activities for all elements of the system.

• **Cross-Connection Control**: A program established to protect the potable water supply from possible contaminants, pollutants, or entry of other waters from an unapproved source.

• **Inspection Schedule**: An inspection schedule that establishes the time and frequency of equipment inspection for all elements of the water treatment and distribution system.

• **Meter Reading**: Meter reader responsibilities that are developed and include a meter-reading schedule.

• **Pumping Operation**: A schedule established for inspection activities and preventive maintenance for pumping operations.

• **Disinfection Procedures**: Disinfection procedures are developed to provide measures for dealing with water main breaks, installation of new services, and additions to the distribution system.

• **Public Notification Procedures**: Public notification procedures established with detail water contamination conditions.

• **Sampling and Testing**: A program established for the sampling and testing of water quality in the system.

• **Public Education Program**: A program established to educate the public on water resource issues.

• **Long-Range Water Resource Plan**: A long-range water resource plan developed.

• **Incentives for Water Conservation**: A program to encourage the conservation of water should be developed and incentives put in place where needed.

• **Testing Alarms**: A schedule developed to determine the frequency of alarm system testing. A log or records of the test results are maintained.

The District should incorporate and consider adopting many of these good business practices related to the production and distribution of potable water to the customers of Simi Valley.
Waterworks. Utilizing good business practices, such as those outlined within the *Public Works Management Practices Manual*, will help to the District to provide consistent, safe and reliable potable water in an efficient and effective effort.

4.5.9 Establish a continuous improvement process with a quarterly update given to staff using CMMS data. Provide an annual State of Maintenance and 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 Maintenance and Operations report annually to City Manager.

The District has many good work processes in place, yet they are not linked and integrated as discussed in prior recommendations. System feedback is not used to update any planning or scheduling data from one year to the next. Short term scheduling is done, yet it is independent of other processes. Work is tracked, yet there is a lack of linkage to a performance work plan and budget. Many tools are in place, but they lack system integration and understanding by employees on how they should work together.

A systematic method for evaluating effectiveness and efficiency of the operation is not currently available. The District’s mechanism for tracked, planning and scheduling is recorded in various databases and spreadsheets, which does not allow for evaluation of cost effectiveness and/or measurement of efficiency.

The current Hansen CMMS system should be fully utilized as a planning tool to establish a baseline consisting of frequency of service, desired quality, and quantity of work and unit cost for all activities that can be extracted on a routine basis by any specific time frame and/or location. By developing these capabilities, training the managers and supervisors and then re-engineer processes, methods could be established to have an integrated business like operation. Each group should have tools to review all alternatives for providing cost-effective, quality service, and select the best options (internal, contract, or combination) to best meet these criteria. These tools, if implemented, could provide a process and mechanism to maximize the best use of the public’s dollars and increase stewardship of District assets.

A complete continuous improvement process as outlined in APWA’s Public Works Administrative Manual (2008, p. 110), NACE (1992) and discussed in AWWA (2005) should be implemented with facilitation and all of these independent systems linked and optimized. Training should be done to guide managers and supervisors in how to fully utilize system concepts to plan, organize, schedule and improve their work. This system would then provide both data and feedback methods to all levels to work toward continuous improvement. The District has many of the processes, but they are not tied together, with employees lacking the background on how to implement this concept. A quarterly meeting should occur where summary information on costing, productivity and accomplishment is presented to all employees. Actions planned as a result of this information should be documented and used as targets for improvement. Various activities performance in cost and productivity should be available and posted for all employees to observe results.
Further, information should be compiled into a short report on an annual basis and provided to the Deputy Director Waterworks Services, outlining the results of work effort and compliance to the annual performance work plan. Information on response to customers, performance measures, unit cost, accomplishment, and productivity should be provided. Proposed actions to ensure compliance and acknowledgment of success should also be provided. Once information is confirmed and reviewed, the “State of The Maintenance District” should be presented to the City Manager.
REFERENCES


WORK PLANS

The following has list of four work plans – water operations, distribution, engineering and environmental compliance. They are listed by program by activity.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Program</th>
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## City of Simi Valley
### WORK PLAN - SUMMARY

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Total: 7,958