CITY OF

Corona

Department of Water and Power Organizational, Operational, and Financial Audit

Final Report / May 2021

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May 4, 2021

Tom Moody
General Manager, Department of Water and Power
City of Corona
755 Public Safety Way
Corona, CA 92880

Dear Tom,

Raftelis is pleased to provide this final report to the City of Corona Department of Water and Power (DWP). This report represents the findings of the Organizational, Operational, and Financial Audit. This document combines the work in Phase I and Phase II of the project.

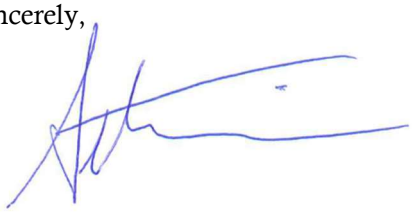
The following are the major objectives of the study:

- Review the organizational structure of the water, water reclamation, reclaimed water, and electric utilities.
- Assess services that DWP provides to customers and that DWP receives from other City departments.
- Evaluate staffing levels with respect to workload, appropriate span of management and supervisory oversight, and an internal environment that develops personnel.
- Review organizational and operational processes to evaluate alignment with industry best practices and identify areas of opportunity for improved efficiency and effectiveness.
- Review the operations and maintenance of the Department including the water, electricity, and wastewater systems and treatment processes.
- Evaluate financial practices, including allocation of major direct and indirect costs.
- Evaluate the effectiveness and accuracy of the utility billing and reporting processes.

The final report summarizes the key findings and observations.

It has been a pleasure working with you and your staff, and we look forward to completing efforts on this important engagement for the Department of Water and Power.

Sincerely,



Seth Garrison
Project Director

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Executive Summary

The Department of Water and Power (DWP) provides high-quality water, wastewater, and electric services to customers in the City of Corona, California ("City" or "Corona"). This work is vital to the health of the community and the quality of life of residents and visitors. DWP engaged Raftelis to conduct an audit of the Department's organizational structure and management, financial performance, and operational practices. The review included a comparison with peer organizations in the State of California and with national utility data. The results of this assessment show that DWP is a high-performing organization with talented and dedicated staff; however, there is room for improvement. Examples include moving toward industry best practices in asset management and improving alignment between DWP workgroups and other City departments.

To put the performance of DWP in context, Raftelis identified 10 peer organizations and collected data about their water, wastewater, and electric utility operations. These organizations are all similar in size and from the State of California (primarily from Southern California), so they experience similar operating conditions. Comparing DWP to peer communities, while not the only barometer of success, provides an indicator of relative performance and is a basis for further research and analysis.

Generally, DWP compares very favorably to peer utilities in terms of staffing and cost metrics. Performance indicators show DWP is a leanly staffed organization compared to peers. This can indicate an efficient and high-performing operation or a proclivity to outsourcing functions, but it can also indicate constraints providing services. The following table shows two common performance indicators across the peer organizations: million gallons per day (MGD) of water produced per employee and the number of customer accounts per employee. Both indicators are favorable. DWP produces relatively more water per employee and services more customers per employee than its peers.

Table 1: Peer Organization Water Produced and Water Accounts per Employee

Organization	MGD of Water Produced per Water Employee	Water Customer Accounts per Water Employee
Irvine Ranch Water District	0.12	391
Jurupa Community Services District	0.13	209
Elsinore Valley Municipal Water District	0.15	299
Yorba Linda Water District	0.22	309
Pasadena Department of Water and Power	0.26	365
Glendale Water & Power	0.27	448
Burbank Water and Power	0.30	506
City of Riverside	0.39	400
City of Corona	0.45	727

Organizational Structure and Staffing

DWP has a unique organizational structure for a water and wastewater utility. The City's Maintenance Services Department exists within the DWP organizational structure, despite its separate budget, staff, and distinct customers. The Maintenance Services Department provides a range of services to both internal customers in the City of Corona, through fleet management and facilities maintenance, and the public, through parks and streets maintenance, among others. Workgroups within the Maintenance Services Department report to different managers and supervisors

within the DWP organizational structure. These workgroups are in addition to and separate from staff that conduct maintenance activities for the utility, such as infrastructure maintenance and utility facility maintenance.

The maintenance structure is being reviewed by the City and there will likely be changes, according to staff. While this assessment was underway, the Parks Maintenance workgroup was in the process of being moved out of DWP. Other changes may occur. Determining the long-term location of non-utility maintenance services and how they interact with DWP will be an important part of the ongoing work that results from this assessment.

DWP Staffing levels have decreased in the last five fiscal years despite growing demand for services from a population that increased by 6% from 2015 to 2019.[1] Staff report that the City eliminated many mid-level management and administrative roles after the Great Recession in 2008. They have filled gaps with the remaining positions and through outsourcing with contractors. In FY2018, engineering staff focused on utility engineering were moved from DWP to the Public Works Department. These changes and reduced staffing levels result in less capacity to perform project management and analytical work, such as asset management.

Financial Management

A review of DWP's financial management practices and performance shows an organization that accounts for expenses and revenues appropriately. Raftelis did not find any malfeasance associated with financial practices. The debt coverage ratios for the Water Fund and Water Reclamation Fund are excellent, and additional debt capacity could easily be absorbed if needed. Total spending across all DWP funds only increased by about 4% between FY2017 and FY2021, and that is primarily due to rising personnel costs from increases to compensation and benefits. Spending management is commendable, but only if it is done without deferring needed investment in equipment, training, or facilities.

Financial policies and procedures can be improved in some areas. There is no working capital policy for the four enterprise funds. Working capital, like the fund balance in a general fund, allows enterprise funds to weather unexpected expenses or shortfalls in revenue. DWP should adopt a policy that establishes targets for each fund based on the specific characteristics of the different utilities. The method for allocating shared costs or positions across the different funds should also be reviewed and standardized to ensure each division and workgroup has a consistent methodology. The current methodology is very detailed from an accounting standpoint but somewhat complex and time-consuming to implement. The area with the biggest potential impact is the structure of the utility joint powers authority (JPA), which was established in 2002. It provides a mechanism to transfer money from the enterprise funds to the City's General fund to account for utility capital investments and other costs borne by the City. New case law and legal opinions may affect the leasing structure under the JPA.

Operations

Members of the project team conducted site visits and talked with frontline personnel about the operations and maintenance of the City's drinking water and water reclamation facilities. These site visits and an understanding of industry best practices informed an assessment of DWP's operations. DWP manages complex and highly regulated systems. Water comes from several different sources and is treated at different facilities as it comes to customers as drinking water and then is treated and distributed to select customers as reclaimed water. Data obtained show that DWP is meeting regulatory standards and the facilities appear to be operating relatively efficiently.

[1] U.S. Census Bureau, Population Estimates, https://data.census.gov/cedsci/profile?g=1600000US0616350; City of Corona, Data & Demographics, https://www.coronaca.gov/government/departments-divisions/economic-development/data-demographics

There are a few areas where DWP can improve. DWP should work to meet best practices in maintenance by adopting Reliability-Centered Maintenance (RCM) that shifts away from predominantly reactive and preventative practices to more predictive practices. RCM is a top tier industry practice. Implementing this approach can provide additional reliability, reduce costs, and improve the lifecycle performance of assets.

Implementation of advanced meter infrastructure (AMI) by the City has been somewhat uneven, requiring changes to meters, billing, and many other meter-to-cash practices. The substantial capital costs are a barrier to implementation, as are the changes in the job duties for billing and field staff. Raftelis acknowledges that AMI is the best practice technology for reading water meters but knows from experience that implementations are challenging. The City should carefully review its process for adopting AMI to ensure the implementation is a success.

There is room for improvement in how the different utility operations and maintenance workgroups, divisions, and utility staff communicate and plan their work. Maintenance and operations staff at the drinking water plants appear to work well together and have few issues. However, the two groups at the water reclamation facilities do not have the same refined working relationship. It is vital that operations and maintenance staff work together seamlessly and plan their work to maintain a high level of service while ensuring the facilities, equipment, and other assets get needed maintenance. Coordination between DWP and the engineering staff that serve the utilities is also important for both capital project planning and ensuring assets are maintained. Engineering staff currently are in the Public Works Department, which requires more thoughtful and proactive communication than may be necessary if the staff were in DWP. There are examples of projects that could use more input from Engineering, and it may be necessary to increase the capacity of the engineering team with additional staff. DWP should examine the resources devoted to engineering and project management to ensure they are sufficient. Raftelis noted a couple of incomplete projects that fell in the void of responsibility between engineering, operations, and maintenance staff.

DWP has much to be proud of and high performing employees upon which to build. This project compared DWP against industry best practices and peer organizations and, while there are still areas for improvement, the City compares favorably in many areas. Similarly, the services provided to DWP by other City departments allow the organization to serve its customers well and provide high-quality, core services. The identified improvement areas and process changes will allow the organization to further streamline DWP work.

The following table is a summary of the recommendations detailed in this report. They are organized into three categories relating to organizational practices, financial policies, and operational procedures.

Table 2: List of Report Recommendations

Number	Recommendation
Organizational Evaluation	
1	Continue separating non-utility related Maintenance Services Department workgroups from DWP.
2	Assess the need for project management and analyst roles to further enhance DWP performance.
3	Communicate regularly with DWP staff about the compensation study to set expectations and provide clear information.
4	Implement the recommendations of the compensation study to ensure DWP employees are paid in line with the market.
5	Develop a policy for assigning overtime to DWP staff.
6	Evaluate the current outsourcing contracts to calculate the cost of administering them and the performance of contractors.
7	Integrate the purchase order prioritization process into OneSolution.
8	Conduct a process improvement exercise with Administrative Services to address issues with invoice processing.
Financial Review	
9	Revise the home account allocation process for splitting FTEs across enterprise funds by division and workgroup.
10	Review the Corona Utility Authority lease structure to ensure it complies with recent court opinions and case law related to Proposition 218.
11	Establish a working capital target policy for each DWP enterprise fund.
12	Regularly assess and increase rates to reflect annual changes in operating costs and planned capital investments.
Operational Assessment	
13	Implement Reliability Centered Maintenance (RCM).
14	Resolve communication and coordination challenges.
15	Review the work order processes.
16	Review Engineering's role in asset management.
17	Explore collaboration opportunities between Water and Water Reclamation operators.
18	Incorporate the six "on account" DWP vehicles into the motor pool and replacement program.
19	Assess the cost of incorporating DWP vehicles and equipment into the City's fleet replacement program.
20	Consider additional resources for Engineering.
21	Review the location of DWP engineering in the organizational structure.
22	Continue implementation of Advanced Meter Infrastructure (AMI) technology.

Background and Methodology

In June 2020, the City of Corona ("City" or "Corona") engaged Raftelis to conduct an Organizational, Operational, and Financial Audit of the Department of Water and Power (DWP). The goal of the project is to compare DWP against industry best practices and peer organizations as well as review practices, structures, and processes used by DWP staff.

The Raftelis project team is composed of senior consultants led by Project Director Seth Garrison. Mr. Garrison has over 25 years of experience working for or in support of municipal utilities, especially in areas of organizational improvement.[2] Jim Armstrong is the municipal government subject matter expert and former City Manager for Santa Barbara, CA, among other cities in California. Melissa Elliott is the strategic communications and public outreach subject matter expert; she has broad experience in communications for utilities and is also the current President of the American Water Works Association. Ben Kittelson, Consultant, has experience with municipal finance, performance management, process improvement, and a range of local government operations.

The project was broken into two phases. Phase I of the study focused on DWP's organizational structure, benchmarking, and interdepartmental practices. Phase II involved site visits of DWP facilities and focused on financial and operational practices. Together, the major objectives of the study included the following:

- Review the organizational structure of the water, water reclamation, reclaimed water, and electric utilities.
- Assess services that DWP provides to customers.
- Assess services provided to DWP by other City departments.
- Evaluate staffing levels with respect to workload, appropriate span of management and supervisory oversight, and an internal environment that develops personnel.
- Review organizational and operational processes to evaluate alignment with industry best practices and identify areas of opportunity for improved efficiency and effectiveness.
- Review the operations and maintenance of the Department, including the water, electricity, and wastewater systems and treatment processes.
- Evaluate financial practices, including allocation of major direct and indirect costs.
- Evaluate the effectiveness and accuracy of the utility billing and reporting processes.

The project team interviewed operations, maintenance, and customer care staff as well as administrative staff in both DWP and other City departments. Tours of major DWP facilities were completed to gain an understanding of the state of facilities and equipment as well as maintenance activities. These tours included unstructured interviews with five frontline personnel and discussion of DWP operations. The following lists the staff interviewed during this project.

Table 3: Interviews Conducted

Name	Position	Department
Carol Appelt	Purchasing Specialist V	Administrative Services
Kim Sitton	Acting Director	Administrative Services
Scott Briggs	Acting Purchasing Manager	Administrative Services
Erma Montano	Financial Analyst II	Administrative Services

[2] Note that Townsend Collin left Raftelis in October 2020, shortly after completion of the Phase I draft report. Seth Garrison assumed the role of Project Manager and maintains the role as Project Director.

Name	Position	Department
Lien-Chi Cantuba	Senior Accountant	Administrative Services
Dean Derleth	City Attorney	City Attorney
Jacque Casillas	City Council - District 1	City Council
Jason Scott	City Council - At Large	City Council
Jim Steiner	Mayor	City Council
Wes Speake	City Council - District 5	City Council
Yolanda Carrillo	City Council - At Large	City Council
Jacob Ellis	City Manager	City Manager's Office
Roger Bradley	Assistant City Manager	City Manager's Office
Cynthia Lara	Administrative Services Manager (President of Corona Supervisors Association)	Community Development
Joanne Coletta	Director	Community Development
Aftab Hussain	Maintenance Manager	Department of Water and Power
Alfonso Paz	Lead Water Operator	Department of Water and Power
Amy Betancourt	Customer Care Rep III	Department of Water and Power
Chase Michelotti	Chief Distribution Operator	Department of Water and Power
Dominic Luna	Lead Water Operator	Department of Water and Power
Erin Kunkle	Business Supervisor	Department of Water and Power
Frank Garza	Chief Reclamation Operator	Department of Water and Power
Jacky Zukeran	Business Manager	Department of Water and Power
John Taylor	Maintenance Planner	Department of Water and Power
Justin Amon	Chief Water Operator	Department of Water and Power
Katie Hockett	Assistant General Manager	Department of Water and Power
Kristian Alfelor	Operations Manager	Department of Water and Power
Mark Law	Instrumentation & Control Engineer	Department of Water and Power
Mauro Casas	Lead Water Reclamation Operator	Department of Water and Power
Melissa Estrada-Maravilla	Operations Analyst II	Department of Water and Power
Melissa Morris	Customer Care Rep III	Department of Water and Power
Michelle Tveito	Administrative Supervisor	Department of Water and Power
Ryan Vergel de Dios	Management Analyst I	Department of Water and Power
Tom Moody	General Manager	Department of Water and Power
Angela Rivera	Chief Talent Officer	Human Resources
Chris McMasters	Chief Information Officer	Information Technology
Russell Leonard	Corona General Employees Association President	Police
Tom Koper	Director	Public Works
Vernon Weisman	District Engineer	Public Works

Raftelis also received and reviewed numerous documents about the utilities. The documents reviewed included but are not limited to the following:

- Organizational charts
- Budget documents
- Employee and personnel data

- Cost allocation plan and methodologies
- Customer account data
- Water production and wastewater collection data
- Prior benchmarking reports
- Lease agreements

About the Department of Water and Power (DWP)

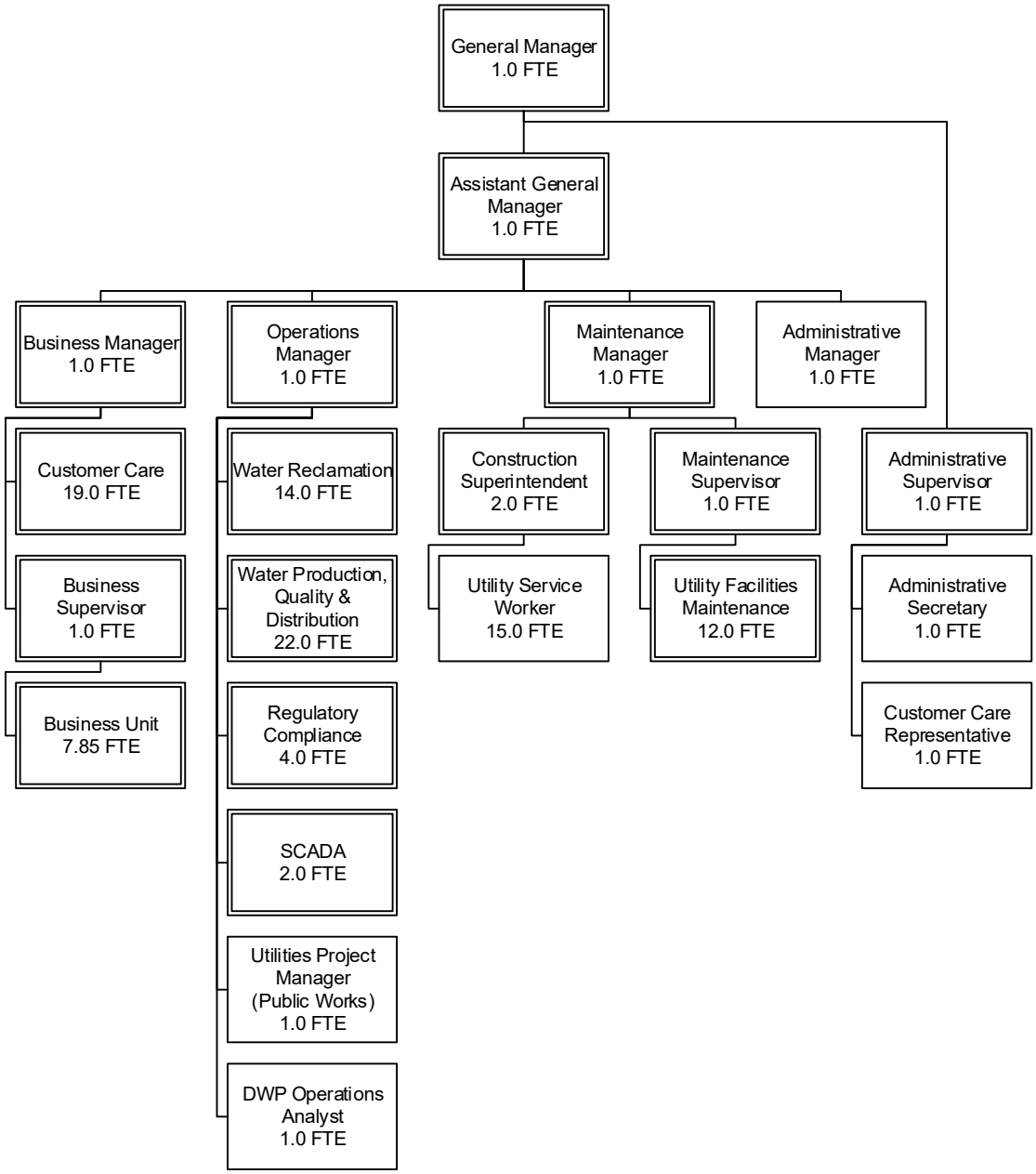
DWP serves the City of Corona residents by providing comprehensive water, water reclamation, and reclaimed water services, as well as electric service. Activities are divided into four distinct utilities, each with its own enterprise fund and supporting revenue stream but with shared resources allocated through accounting procedures. The Water Utility produces and distributes approximately 27.4 MGD of potable water from a variety of surface water and ground water sources. The Water Reclamation Utility collects and treats an average of 13.5 MGD using a combination of treatment methods, including advanced tertiary treatment. The Reclaimed Water Utility provides an average of 4 MGD a day of treated, non-potable water for use in landscape irrigation and other purposes. Each of these utilities has multiple complex treatment, pumping, storage, and support facilities, in addition to a network of collection and distribution pipelines. The level of treatment and the complexity of the systems in Corona is considered more complex than many peers.

For simplicity, the use of "wastewater" in this report will refer to both water reclamation and reclaimed water activities, unless otherwise noted. The encompassing term wastewater is more common in the industry because few utilities have separate water reclamation and reclaimed water utilities. Many organizations provide these as combined services. This nomenclature is also consistent with national data reporting, so using it will make it easier to interpret benchmarking data.

The Electric Utility provides service to 2,776 customers. There are two categories of electric customers: Greenfield and Direct Access. The City owns the distribution and transmission infrastructure associated with the Greenfield customers. The City purchases energy and delivers it to Direct Access customers through Southern California Edison because the City does not have the same infrastructure ownership for those customers. Greenfield customers make up about 66% of all customers and have grown by 23% in the last four years. Direct Access customers have decreased by about 2% since 2017 and make up 34% of all customers. The peak demand is 25 megawatts (MW), and in FY2020, the utility purchased 148,344,678 kilowatt-hours (KWh) of electricity for sale to customers. Most of the operational aspects of the Electric Utility are performed by contract operators. DWP manages billing and customer service functions for the Electric Utility.

DWP has 110.85 full-time equivalent (FTE) positions in the FY2021 adopted budget. DWP staff are organized under a General Manager and an Assistant General Manager. Three managers oversee business services, operations, and maintenance activities. Business Services includes a customer care (customer contacts) team that manages customer accounts and the billing process and provides customer service to the public and internal customers within the City. Business Services also provides administrative support for DWP, including budgeting and financial tasks. Operations staff provide water and wastewater treatment, distribution, and collection services to customers, as well as ensure regulatory compliance for the utilities. Electric operations are largely handled by contract personnel and do not require in-house operations staff. Maintenance staff maintain DWP facilities, buried infrastructure, and equipment. One position, the Utilities Project Manager, is funded in DWP but reports to the Public Works Department. The following figure shows the organizational structure for DWP based on the FY2021 adopted budget.

Figure 1: Department of Water & Power Organizational Structure, FY2021

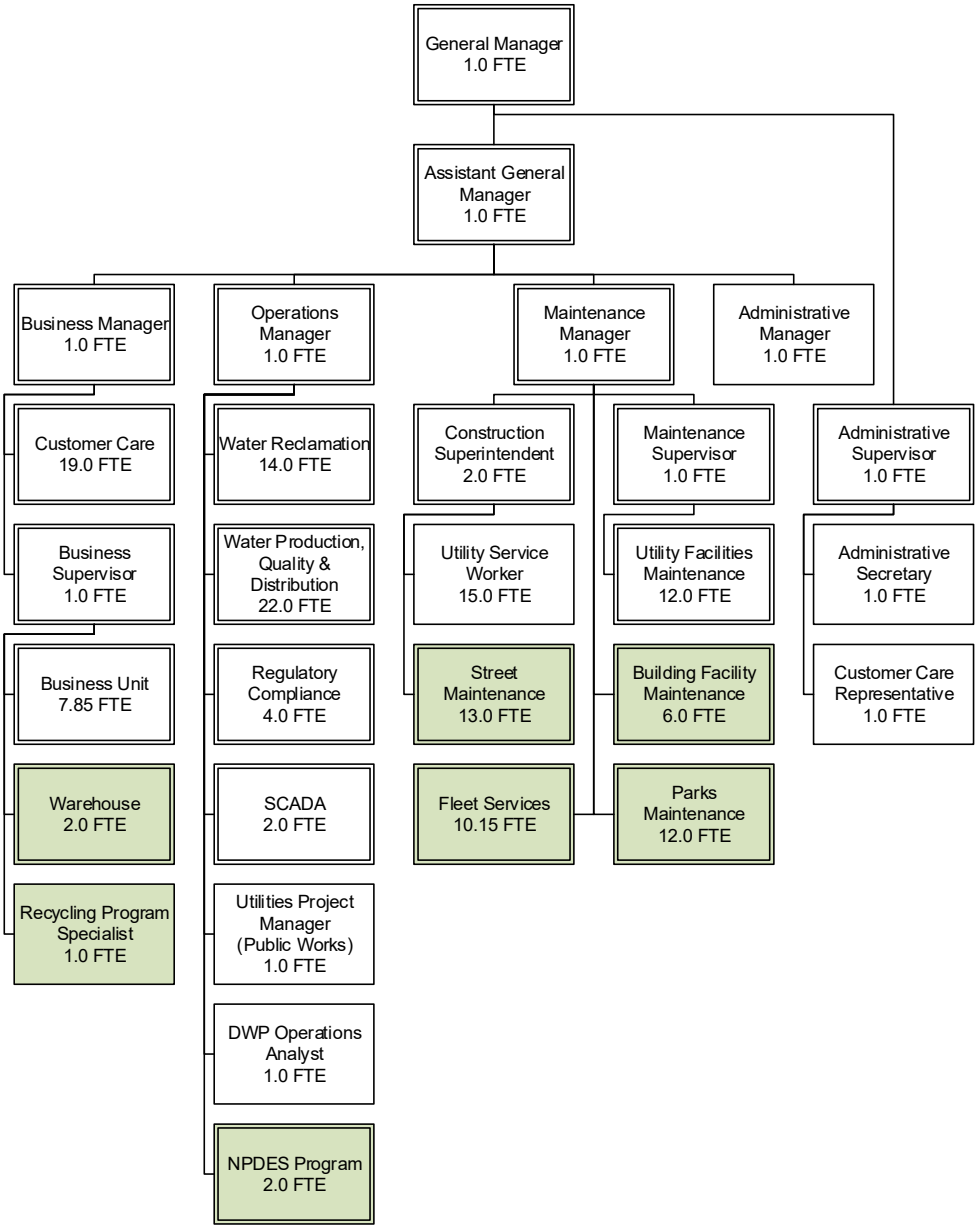


In addition to DWP operations and staff, the Maintenance Services Department for the City of Corona reports to DWP leadership. The DWP General Manager serves as the department director for both DWP and the Maintenance Services Department. Functions within the Maintenance Services Department primarily report up to the Maintenance Manager; however, other workgroups report to the Business Manager and Operations Manager. Implications of this arrangement are discussed in the Organizational Evaluation section of this report.

The Maintenance Services Department provides seven services, three of which are for other City departments. The Department provides fleet services to all City departments as well as building facility maintenance for all City facilities. Two staff manage the warehouse and its inventory, which support maintenance activities. The Maintenance Services Department staff also perform street maintenance and maintenance for all developed and undeveloped parkland, as well as contract management for solid waste and recycling services. In addition, two staff monitor stormwater infrastructure and ensure compliance with regulations. There is a shared Management Analyst

position between DWP and the Maintenance Services Department, which is split 85% to DWP and 15% to fleet services. The following figure shows the DWP organizational structure and how Maintenance Services Department staff are integrated. Boxes highlighted in green represent workgroups assigned to the Maintenance Services Department.

Figure 2: Combined DWP and Maintenance Services Department Organizational Structure, FY2021



BUDGET

The operations budget for DWP, not including capital expenditures, has increased by about 4% in total over the five-year span from FY2017 to FY2021. It is noteworthy that the rate of increase is less than the rate of inflation, despite evolving regulatory and customer requirements. Budget increases are primarily driven by personnel costs, which increased by $1.7 million over the last five fiscal years. Capital Outlay spending, which has decreased by 48%, is separate from Capital Improvement Plan (CIP) spending. CIP spending is related to larger capital projects that are

often planned years in advance, while capital outlay spending is one-time spending on equipment or small projects that is absorbed in the operating budget. The following table shows DWP expenditures by category for the last five fiscal years.

Table 4: Department of Water & Power Budget from FY2017 to FY2021

Expenditure Category	FY2017 Actual	FY2018 Actual	FY2019 Actual	FY2020 Budget	FY2021 Budget	Percent Change from FY2017 to FY2021
Salaries and Benefits	$15,050,546	$15,253,020	$15,546,440	$16,560,622	$16,727,400	11%
Non-Personnel Costs	$74,078,112	$79,351,903	$78,610,523	$75,157,635	$76,212,695	3%
Capital Outlay	$714,595	$230,177	$1,046,548	$441,573	$372,612	-48%
Total	**$89,843,253**	**$94,835,100**	**$95,203,511**	**$92,159,830**	**$93,312,707**	**4%**

The Maintenance Services Department budget has increased by about 47% from FY2017 to FY2021. The drivers for this notable increase were non-personnel costs and capital outlays. Personnel costs increased by about $1.3 million. Non-personnel cost increases were related to changes in the contract for refuse and recycling services, which increased by about $3.1 million from FY2017 to FY2021, as well as an increase of $2.6 million in the cost of parks and trees maintenance and $1.1 million for fleet operation. Capital outlays increased by $2.9 million due to Fleet Services-related spending. This is due to purchases of new vehicles and equipment based on the City's replacement schedule or new positions that require vehicles. The following table shows the changes in budget by expenditure category for the Maintenance Services Department for the last five fiscal years.

Table 5: Maintenance Services Department Budget from FY2017 to FY2021

Expenditure Category	FY2017 Actual	FY2018 Actual	FY2019 Actual	FY2020 Budget	FY2021 Budget	Percent Change from FY2017 to FY2021
Salaries and Benefits	$4,595,950	$5,069,375	$5,327,604	$5,508,329	$5,815,003	27%
Non-Personnel Costs	$19,826,031	$22,608,603	$23,372,458	$24,776,677	$27,368,073	38%
Capital Outlay	$444,294	$1,449,677	$145,413	$1,353,612	$3,339,727	652%
Total	$24,866,275	$29,127,655	$28,845,475	$31,638,618	$36,522,803	47%

STAFFING

Total DWP staffing has decreased slightly over the last five years. Staffing decreased by 5.85 FTEs in FY2018 due to the transfer of positions into the Public Works Department. Positions added since FY2017 include a Management Analyst in FY2019 that is split with the Maintenance Services Department and Deputy Chief positions over Water Reclamation and Water in FY2020. According to data provided by the City, there are approximately 14 vacant DWP positions compared to the authorized total of 110.85 FTEs.

Staffing allocations to different programs within DWP are based on estimates of staff time spent on each utility or in the administration of the Maintenance Services Department. These estimates may change year to year based on planned work or varying project demands. Changes in staffing between programs are based on estimated staff time calculations that occur as part of the annual budget process. Raftelis reviewed the allocation models used to assign staff time between utility functions, and that is discussed in more detail in the Financial Review section of this report. The following table shows the change in staffing level over the last five fiscal years by program area.

Table 6: Department of Water & Power Authorized Positions from FY2017 to FY2021

Department of Water & Power Program	FY2017	FY2018	FY2019	FY2020	FY2021	Percent Change from FY2017 to FY2021
Water	62.21	58.03	61.44	62.24	61.03	-2%
Water Reclamation	35.96	32.46	30.46	31.36	31.60	-12%
Electric	14.93	11.22	10.59	10.49	11.85	-21%
Reclaimed Water	1.75	3.21	3.22	3.07	3.12	78%
Maintenance Admin	0.00	4.08	4.14	3.69	3.25	-
Total FTEs	**114.85**	**109.00**	**109.85**	**110.85**	**110.85**	**-3%**

The Maintenance Services Department staffing has increased by 10 FTEs since FY2017, or about 28%. This is primarily in Parks Maintenance, which added two Park Maintenance Assistants in FY2020 and a Parks Service Worker in FY2021. Other FY2021 staffing changes include a Recycling Program Specialist position, a Building Maintenance Technician, and two Street Maintenance Worker positions. Fleet Maintenance added a Technician position and 15% of a Management Analyst position, split with DWP, in FY2019. The stormwater program and its two positions were transferred from Public Works to Maintenance Services in FY2018. According to data provided by the City, there are approximately eight vacancies in the Maintenance Services Department compared to the authorized total of 46.15 FTEs. The following table shows the change in staffing over time for the Maintenance Services Department by program area.

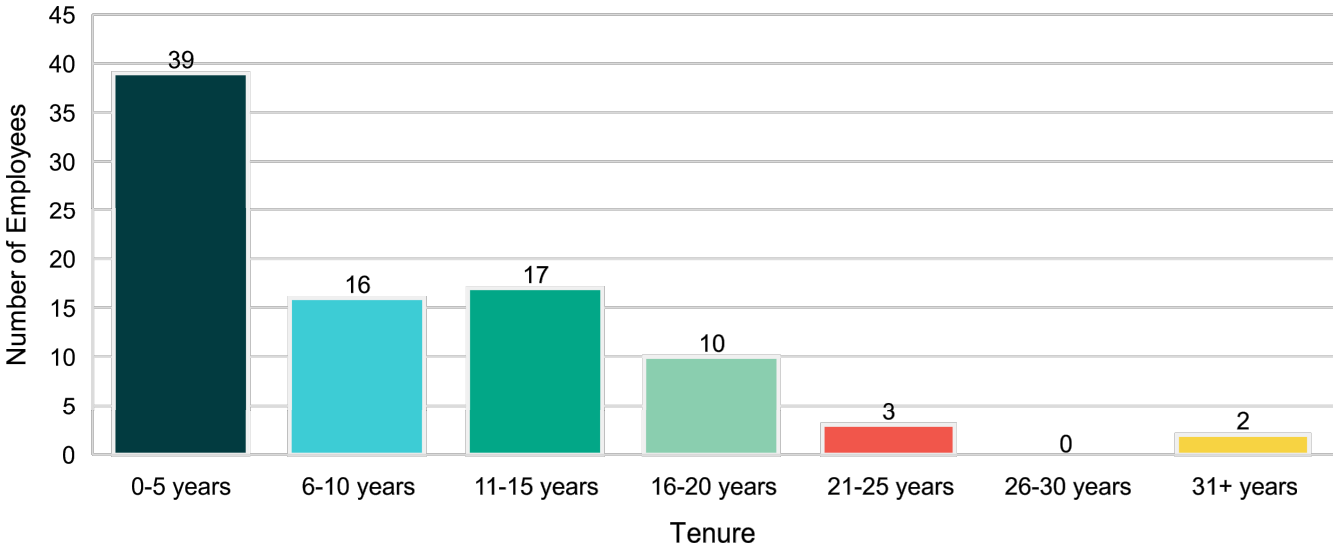
Table 7: Maintenance Services Department Authorized Positions from FY2017 to FY2021

Maintenance Services Department Program	FY2017	FY2018	FY2019	FY2020	FY2021	Percent Change from FY2017 to FY2021
Facility Maintenance	4.70	4.00	5.00	5.00	6.00	28%
Street Maintenance	11.10	12.60	11.60	11.60	13.00	17%
Parks, Trees and Medians Maintenance	8.40	8.40	8.40	10.40	12.00	43%
Street Lighting	1.50	0.00	0.00	0.00	0.00	-100%
NPDES (Stormwater)	0.00	2.00	2.00	2.00	2.00	-
Fleet Maintenance	9.00	9.00	10.15	10.15	10.15	13%
Refuse / Recycling	0.45	0.00	0.00	0.00	1.00	122%
Warehouse	1.00	1.00	2.00	2.00	2.00	100%
Total FTEs	**36.15**	**37.00**	**39.15**	**41.15**	**46.15**	**28%**

EMPLOYEE TENURE

According to data provided by the City, the average length of time DWP employees have been with the City is relatively short. Across all functions, about 45% of employees have been in their role for less than five years, and another 18% have been with City for between six and 10 years. This is atypical for many municipal and utility operations. Most have employees with a much longer average tenure. National data from the *AWWA Utility Benchmarking: Performance Management for Water and Wastewater 2019* indicates that the median tenure for employees is 11.3 years. This is substantially longer than the DWP average. The following figure shows the count of DWP staff by tenure category.

Figure 3: Tenure for DWP Employees



Shorter average tenure can be a sign of high turnover, which can impact how well a department or division performs. Many utility positions require extensive on-the-job training that occurs over multiple years. This is reflected in the qualifications for being a licensed operator in the State of California. Furthermore, training and onboarding new employees is expensive, as it requires time and money for training as well as the resources of other City departments such as the Human Resources Division. Bringing new employees into an organization and regular promotions that create vacancies at lower levels are characteristic of a high functioning organization, but excessive turnover is often a detriment. Across the water industry, salaries, benefits, working conditions, and work culture are often cited as reasons for high turnover in organizations.

Further analyzing the tenure of DWP employees shows that about 60% of administrative staff have been in their role for less than five years and another 22% for between six and 10 years. Distribution/Collection and Treatment Operations both have a higher percentage of long-tenured staff (over 10 years) than other divisions. The following figure shows the tenure by workgroup category.

Figure 4: Tenure for DWP by Category

Peer Benchmarking

The project team identified six peer organizations located near the City of Corona that provide similar utility services. They were used as peers for benchmarking comparisons. The peers have a similar service population as Corona and face similar regulatory and environmental conditions. Those organizations are the Cities of Riverside and Anaheim and the Irvine Ranch Water District, Elsinore Valley Municipal Water District, Jurupa Community Services District, and Yorba Linda Water District. To better compare the performance of the electric utility, four other California organizations were selected for comparison: the Cities of Burbank, Pasadena, and Glendale as well as the Modesto Irrigation District, a special district in Modesto, California. These organizations all provide both water and electrical services and are shaded in dark gray in the following table, which provides a summary of each organization compared to the City of Corona. Data from peer organizations came from publicly available sources such as the FY2021 adopted budget, water quality reports, or organization websites.

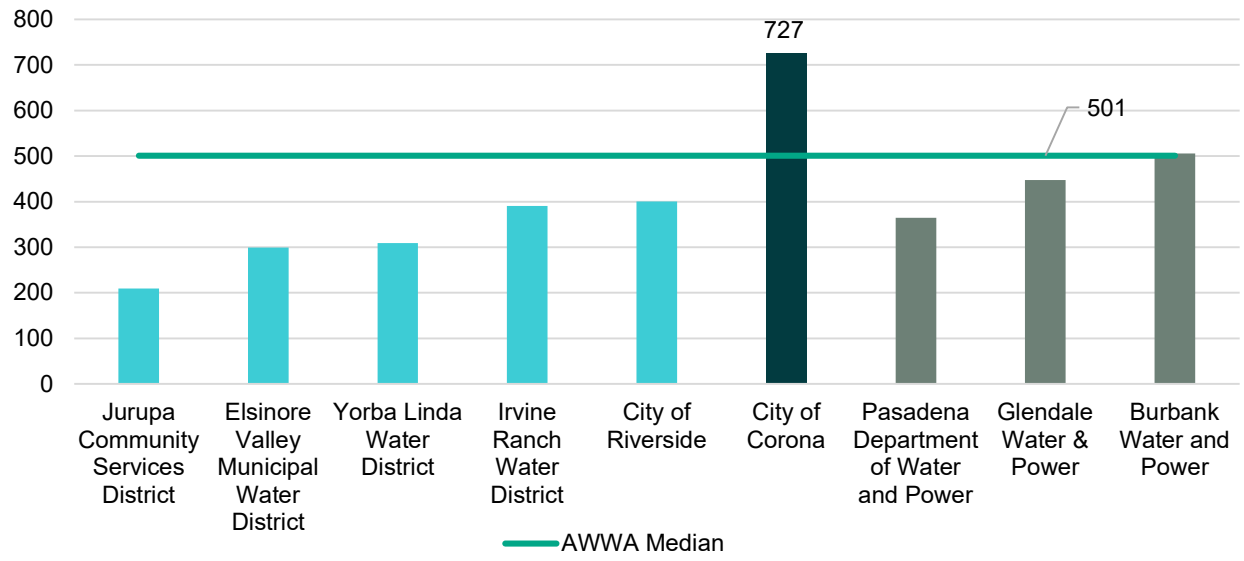
Table 8: Peer Organization Information

Organization	Utility Type	Population Served	Customer Accounts	Total FTEs	MGD Produced
Yorba Linda Water District	Water	81,000	25,200 (Water)	81.50	17.7
Jurupa Community Services District	Water	140,150	33,167 (Water)	158.50	20.8
Elsinore Valley Municipal Water District	Water, Wastewater	156,692	44,892 (Water)	172.00	22.3
City of Corona	Water, Wastewater, Electric	168,819	44,357 (Water); 2,776 (Electric)	110.85	27.4
City of Riverside	Water, Wastewater, Electric	328,042	65,803 (Water); 110,480 (Electric)	756.75	59.0
City of Anaheim	Water, Electric	358,000	64,168 (Water); 123,576 (Electric)	352.00	50.9
Irvine Ranch Water District	Water, Wastewater, Recycled	422,000	116,000 (Water)	410.00	36.1
Burbank Water and Power	Water, Wastewater, Electric	105,861	26,804 (Water); 53,298 (Electric)	345.00	15.8
Pasadena Department of Water and Power	Water, Electric	169,868	38,046 (Water); 66,510 (Electric)	419.00	27.0
Glendale Water & Power	Water, Electric	206,283	34,205 (Water); 89,564 (Electric)	318.60	20.8
Modesto Irrigation District	Water, Electric	315,324	3,104 (Water); 129,640 (Electric)	450.00	60.0

Using these baseline measures, the high-level performance of DWP can be roughly compared to peer organizations.

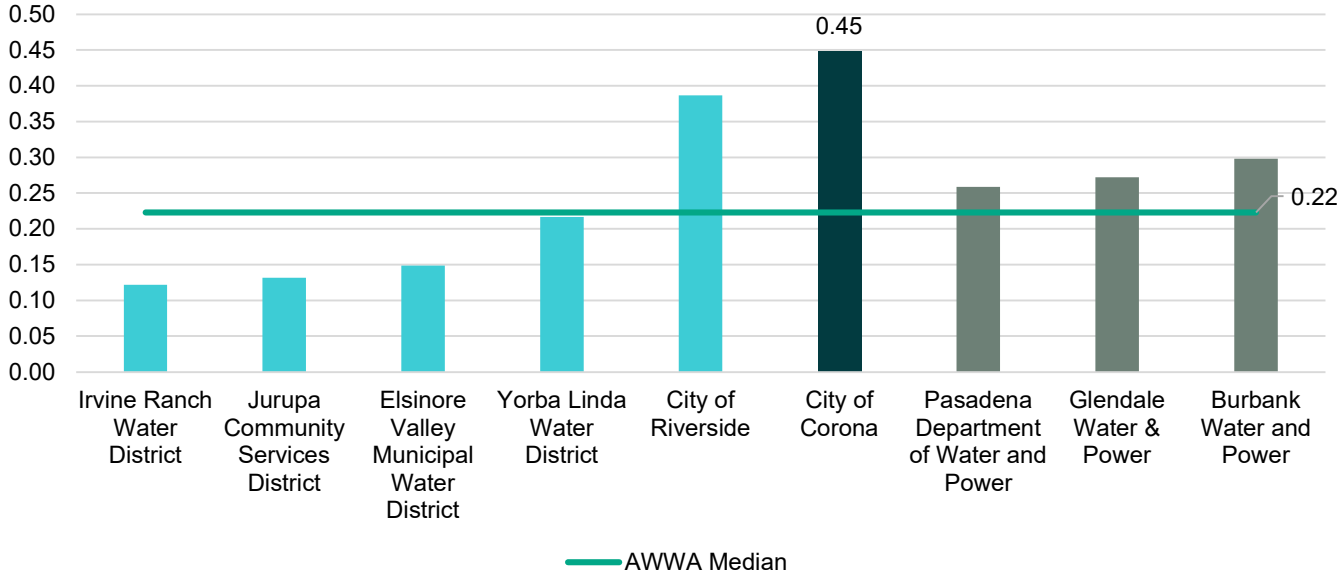
Two benchmarks are commonly cited across the water industry: the number of water customer accounts served per water employee and MGD of water produced per water employee. The City of Corona's water customer accounts per water employee is on the high end of the peer group, with approximately 727 accounts per employee. This measure shows that DWP requires fewer staff per customer account, which can be indicative of highly efficient staffing or, conversely, a dearth of staffing resources in one or more areas. The following figure shows water customer accounts per water employee across the peer organizations. The number of water employees in Corona is 61.03 FTEs.

Figure 5: Peer Organization Water Customer Accounts per Water Employee[3]



The City of Corona produces 0.45 million gallons a day of water per employee. This is the highest among the peer organizations. Having a higher MGD produced per employee can be indicative of a highly efficient utility but may also show the need for additional staffing. The following figure shows the MGD of water produced per water employee.

Figure 6: Peer Organization MGD of Water Produced per Water Employee[4]

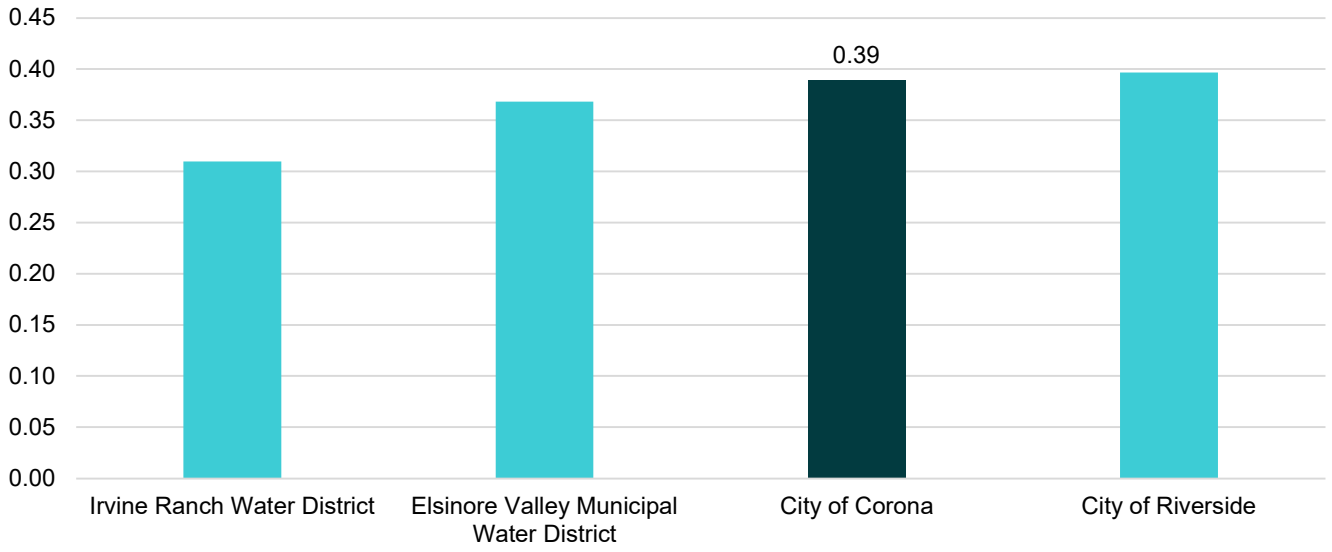


In addition to providing clean drinking water, the City of Corona also treats wastewater at its water reclamation facilities. The City has 34.72 FTEs assigned to water reclamation or reclaimed water and treats approximately 0.39

[3] The City of Anaheim and Modesto Irrigation District were excluded from this measure because they do not report separate employee counts for their water and electric operations.
[4] The City of Anaheim and Modesto Irrigation District were excluded from this measure because they do not report separate employee counts for their water and electric operations.

MGD per employee, which is one of the higher ratios compared to peer organizations. Only three peer organizations treat wastewater; others maintain sewer infrastructure within their jurisdictions but outsource treatment to other entities. Again, this data can be explained in many ways. Corona could be generating higher ratios through efficiency or providing a lower level of service by being deficient in one or more areas. The following figure shows the MGD of wastewater treated per wastewater employee by peer organization.

Figure 7: Peer Organization MGD of Wastewater Treated per Wastewater Employee



Funding for water and wastewater activities was assessed across the peer organizations. Although each organization is different, the operating budget shows the relative cost of providing water service in each community. The annual capital budget shows the level of investment in water infrastructure. The operating budget figures do not include funding for capital outlay, transfers, or debt service. Capital budget figures include CIP spending for water, wastewater, and, if applicable, reclaimed water projects in each organization. The following table shows the FY2021 adopted operating and capital budget for each organization. A more detailed examination of capital spending is discussed in the Financial Review section of this report.

Table 9: Peer Organization Water and Wastewater Budget Information

Organization	FY2021 Operating Budget	FY2021 Capital Budget	Capital Budget per Customer Account
Yorba Linda Water District	$36,126,109	$6,804,845	$270
Jurupa Community Services District	$50,493,044	$42,326,935	$1,276
City of Corona	$78,293,246	$24,331,620	$534
Elsinore Valley Municipal Water District	$79,252,696	$78,301,794	$1,744
City of Riverside	$113,994,990	$44,616,405	$678
City of Anaheim	$119,136,836	$37,474,900	$584
Irvine Ranch Water District	$173,576,000	$93,766,372	$808
Modesto Irrigation District	$26,246,476	$3,621,435	$1,167
Burbank Water and Power	$52,730,258	$7,845,183	$293
Glendale Water & Power	$59,630,960	$23,258,752	$680
Pasadena Department of Water and Power	$66,882,000	$21,580,000	$469

Most of the peer organizations selected did not have electric utilities, so the project team selected four other organizations in California that provide both water and electric service. These additional organizations bring the total number of peers with electric service to six. Among these organizations, the City of Corona has the smallest electric utility operation, with 2,776 customers and an FY2021 budget of $14.9 million across operating and capital spending. The peak energy demand for Corona is also the lowest at 25 megawatts (MW), compared to a median of 564 MW. Annual electric production figures were not readily available for all peer organizations. The following table shows information about each peer organization's electric utility.

Table 10: Peer Organization Electric Utility Information

Organization	Electric Customer Accounts	Rate per kilowatt-hour (cents)[5]	Electric Production (Million Kilowatt-Hours)	Peak Energy Demand (Megawatt)	FY2021 Electric Operating Budget	FY2021 Electric Capital Budget
City of Corona	2,776	11.808	148	25	$14,646,849	$271,337
City of Riverside	110,480	10.590	2,262	611	$340,525,533	$41,663,797
City of Anaheim	123,576	12.000	-	564	$392,079,594	$54,335,000
Burbank Water and Power	53,298	7.350	1,061	302	$228,328,410	$29,051,966
Pasadena Department of Water and Power	66,510	13.275	-	315	$218,734,000	$31,835,000
Glendale Water & Power	89,564	16.200	-	332	$246,510,755	$10,095,348
Modesto Irrigation District	129,640	14.490	2,486	671	$301,859,234	$28,240,449

[5] Rates per kilowatt-hour are residential rates for the first tier of use (up to 10 kWh per day and up to 300-500 kWh per month) and peak season if applicable.

Organizational Evaluation

The project team examined the Department of Water and Power's organizational structure and specific practices that impact the Department's performance. DWP has a unique structure compared to other water and wastewater organizations in the industry due to the separate Maintenance Services Department that also reports to DWP managers and supervisors. Through peer benchmarking and staff interviews, it was clear that DWP has a lean staffing level. This can be a benefit to customers in the short-term who receive services for a lower cost, but in the long-term, lean staffing can impact DWP's ability to effectively manage projects and plan investments to maintain a high level of service.

Pay and benefits are common issues in any organization, and through staff interviews, this was also expressed in the City of Corona. The City is currently undergoing a compensation study, and DWP should be regularly communicating with staff about that process and setting expectations about the results of the study. In addition, DWP leadership should plan to implement appropriate recommendations from that study and the resulting budget impacts. Overtime policies need to be examined and updated. A small number of DWP staff are volunteering for and receiving a high amount of overtime, which can be a safety issue as well as a perception issue with customers. Overall, overtime is comparable to other organizations except for the handful of individuals with very high levels.

The City of Corona has not traditionally raised water rates or wastewater fees regularly. DWP went through a six-year period where rates were not raised at all. This practice can result in "rate shock" when a deferred rate increase must occur all in one year. DWP should be assessing and increasing rates annually to account for rising operating costs and planned investment in utility infrastructure. This will reduce rate shock and make sure rates are commensurate with utility activities.

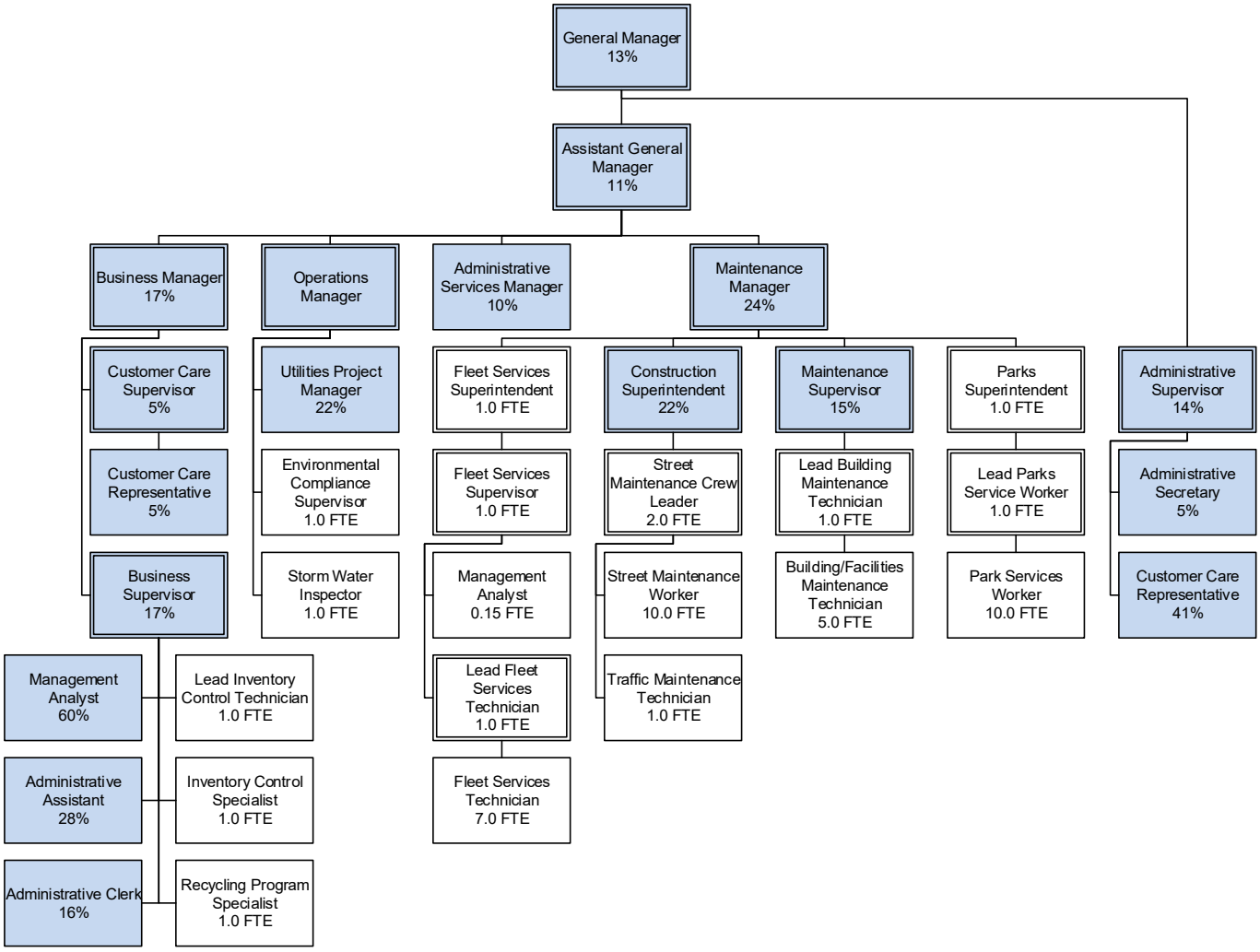
DWP uses several contractors to provide services. Some of these services are typically performed by staff at other utilities. Outsourcing is a common practice in the industry, but there is still a need for DWP staff to manage these contracts and ensure that high-quality services are being delivered. The procurement and purchasing process affects the capacity of DWP staff across the organization. There are opportunities for improvement to reduce staff time and improve communication with the Administrative Services Department.

Maintenance Services

A unique aspect of the Corona DWP organizational structure is the inclusion of non-utility related maintenance functions, such as Parks Maintenance, Street Maintenance, Fleet Services, and non-utility Facilities Maintenance under the supervision of the DWP General Manager. In most California cities the size of Corona, these services are part of a separate Public Works Department or in a separate maintenance department with its own management structure. Instead, in the City of Corona, the Maintenance Services Department is integrated into the Department of Water and Power. Although there is a separate budget, the supervision and management of Maintenance Services Department staff are performed by DWP staff.

Administration involves 21 employees but is equivalent to 3.25 FTEs. Maintenance Services Department programs are located within the DWP organization based on similar functions in DWP. This can create alignment with work planning and cross-training opportunities across different but similar functions. The following figure shows a detailed organizational chart of the Maintenance Services Department. Positions highlighted in blue are assigned to the Department of Water and Power, and the percentage represents the estimated amount of that position's time spent on maintenance administration, which is calculated by position as part of the annual budget process.

Figure 8: Maintenance Services Department Organizational Structure, FY2021



Several Maintenance Services Department programs align well with DWP programs and operations. Often, managers of frontline crews performing maintenance work need to coordinate and align workplans. This can occur more readily when staff are in the same organizational hierarchy. Staff that maintain City buildings and facilities do similar work to DWP staff that are maintaining utility facilities, and street maintenance staff have similar skillsets and job requirements to utility service workers. Two staff implement the City's stormwater regulations and ensure compliance with the National Pollutant Discharge Elimination System (NPDES) permit program. The work of stormwater management aligns well with DWP reclaimed water staff, and water reclamation activities also impact the water quality in local rivers and streams. Coordinating the work of these groups and aligning them organizationally is understandable.

Other Maintenance Services programs provide services to the public that are unrelated to DWP or include DWP as a customer along with other City departments. Parks Maintenance provides maintenance for all parkland, recreation, and community buildings, as well as for all City trees. While the skillset of Parks Maintenance staff may be similar to frontline staff in other programs, their workplan is likely separate. The customers for Parks Maintenance are also much different than DWP. Warehouse and Fleet Services staff both provide centralized services to City departments, and DWP is one of their customers. Performing this work for the organization requires an understanding of the needs of the whole organization, not just one department.

In Raftelis' review of day-to-day operations, it appears that this structure is working adequately and that maintenance activities are being performed for the organization and community. However, according to City staff, changes to the organizational structure are already underway. The parks maintenance workgroup has been transferred to another department in the City. The City should continue decoupling non-utility related maintenance functions from the DWP organizational structure. Three factors inform this recommendation:

1. **Complexity of Utility Operations** – City of Corona utility operations are diverse and complex. The City has numerous sources of water, various treatment facilities, a complex distribution system, and a complex reclamation system. Additionally, the City is continuing to face new development pressure, which will require significant attention toward expanding facilities and long-term planning. Layered upon the structure is the inclusion of the electric utility, adding another area of focus. With a relatively small management team, it is important that the General Manager has the "bandwidth" to focus on the strategic direction of the utility operations as well as focus on day-to-day management. Including the Maintenance Services Department under the General Manager's purview limits their ability to focus on these critical areas.

2. **Long-term Focus on City Streets, Parks, and Facilities Maintenance** – Throughout California, cities are finding that one of the most critical issues they face is aging streets, parks, and city facilities. As Corona ages, transportation, parks and recreation facilities, and government buildings constructed in the City's high growth periods will reach their projected life spans. As a result, there will be a need to focus much more strategic attention in this area, which is best provided by separate leadership and management.

3. **Complexity of Tracking Revenues and Expenditures** – As discussed in the Financial Review section of this report, DWP staff have displayed an impressive level of attention to segregating revenues and costs of the various utilities and general City maintenance operations. The Department, along with the City's Administrative Services Department, has developed a complex cost accounting system to ensure that revenues and expenditures are not co-mingled and that fees charged for services are appropriate. Including the Maintenance Services Department within the DWP structure creates an added level of complexity. This organizational structure has also resulted in concerns expressed by the public that utility operations may be subsidizing General Fund operating departments or even that the General Fund is providing subsidies to the utilities. Although the project team found that revenues and expenditures are all accounted for appropriately, separating the two departments will eliminate any potential confusion or perception about the accounting of costs within these areas.

As the City decouples the Maintenance Services Department from DWP, it will be necessary to account for the administrative workload of managing these programs. The current administrative workload associated with managing the Maintenance Services Department is equivalent to 3.25 FTEs based on the estimates used for the FY2021 budget process. These splits, as discussed in the Financial Review section, are based on estimates of time spent on these duties for each position. The following table shows the FTE allocation and estimated labor hours for each position.

Table 11: DWP Positions with Maintenance Administration Allocation, FY2021

Positions Allocated to Maintenance Administration	FTE Split	Annual Hours	Monthly Hours	Weekly Hours
Customer Care Representative	0.41	852.80	71.07	16.40
Management Analyst	0.30	624.00	52.00	12.00
Management Analyst	0.30	624.00	52.00	12.00

Positions Allocated to Maintenance Administration	FTE Split	Annual Hours	Monthly Hours	Weekly Hours
Maintenance Manager	0.24	499.20	41.60	9.60
Utilities Project Manager	0.22	457.60	38.13	8.80
Administrative Assistant	0.20	416.00	34.67	8.00
Business Manager	0.17	353.60	29.47	6.80
Business Supervisor	0.17	353.60	29.47	6.80
Maintenance Supervisor	0.15	312.00	26.00	6.00
Administrative Supervisor	0.14	291.20	24.27	5.60
General Manager	0.13	270.40	22.53	5.20
Assistant General Manager	0.11	228.80	19.07	4.40
Construction Superintendent	0.11	228.80	19.07	4.40
Construction Superintendent	0.11	228.80	19.07	4.40
Administrative Services Manager	0.10	208.00	17.33	4.00
Administrative Assistant	0.08	166.40	13.87	3.20
Administrative Clerk	0.08	166.40	13.87	3.20
Administrative Clerk	0.08	166.40	13.87	3.20
Administrative Secretary	0.05	104.00	8.67	2.00
Customer Care Supervisor	0.05	104.00	8.67	2.00
Lead Customer Care Representative	0.05	104.00	8.67	2.00
Grand Total	3.25	6,760.00	563.37	130.00

As Maintenance Services Department workgroups are separated from DWP, this may result in additional costs in the short term as administrative staff within DWP no longer charge a portion of their time to the General Fund. Additional positions may also be needed in the General Fund to support the Maintenance Services Department, depending upon the new organizational structure.

Recommendation 1: Continue separating non-utility related Maintenance Services Department workgroups from DWP.

The City should continue separating other non-utility related Maintenance Services Department workgroups (i.e., street maintenance, fleet maintenance, and non-utility facility maintenance) from DWP. The Parks Maintenance workgroup has already been transferred to another department. The City Manager's Office should work with DWP leadership to identify the appropriate structure for these Maintenance Services Department programs and the associated necessary administrative support.

Staffing and Span of Control

Staff interviews and peer benchmarking made it clear that DWP is a lean organization. The organizational structure and position list showed that there are not many positions in mid-level management or administrative and analytical staff. There are also not many layers of experience within individual job classifications, such as Position I, II, III, etc. Furthermore, DWP contracts out key services such as meter reading that are traditionally performed by a utility. This results in fewer total employees.

Since few positions within the Department perform management and high-level administrative and analytical tasks, these responsibilities are often up to managers and supervisors to perform. Pushing this work to managers and supervisors limits the time available to properly plan and manage the workgroups for which they are responsible.

The managers and supervisors are committed to their workgroups and DWP, so they perform these responsibilities; however, the time and energy it takes to perform the administrative and analytical tasks limits the capacity to perform other important functions. Anecdotally, interviews with staff revealed some cases where the lack of analytical support is limiting the ability of managerial staff to perform routine tasks.

The organization's lean nature is validated by several of the peer benchmarks, which show Corona to have a high number of accounts per employee and water production per employee. A lean organization can be a strength or weakness. Lean sometimes means efficient compared to peers, but it can also indicate important functions are not being performed adequately. Raftelis' reaction is that the organization has high levels of performance in many areas but is also understaffed in some areas.

One key area that is understaffed across the organization is the ability to execute projects, improve business processes, and manage administrative activities. These functions are typically filled by people with good analytical skills, who can manage various initiatives and efforts. These positions support the senior managers with data, planning, and execution capabilities and give the more junior staff the ability to execute their work without workarounds and bureaucratic obstacles. A few well-placed individuals with strong analytical skills would greatly help move projects forward and assist in improving internal processes and procedures.

One trend identified during interviews is that many DWP managers and supervisors are new in their current role but have been with the City or DWP for a while. The relative newness to the positions can often provide fresh energy for an organization, but there can also be downsides, such as lack of institutional knowledge, less experience managing and addressing personnel and performance issues, and reduced experience delegating tasks and responsibilities. Through interviews, each division director seemed confident and knowledgeable. DWP executive leadership should monitor for the possible downsides of newer management. DWP leadership may also want to focus on opportunities for training and professional development to mitigate potential impacts of younger and newer management.

Recommendation 2: Assess the need for project management and analyst roles to further enhance DWP performance.
After the implementation of organizational structure changes related to the Maintenance Services Department, DWP should evaluate the capacity of administrative staff. Currently, administration of the Maintenance Services Department is equivalent to 3.25 FTEs. As this workload changes, capacity should be created for project management and analyst roles to support data collection and analysis, work planning, and execution of departmental priorities. This may require reclassifying positions and reallocating FTEs to different areas of the organization. This may result in the need for additional positions because the reallocated Maintenance Services Department-related administration capacity cannot be readily converted to serve the project management and analytical needs of the organization. In this case, DWP management should work with the City Manager's Office and Human Resources Division to identify and create roles to support DWP.

Employee Relations

Staff interviews indicate a highly motivated, knowledgeable, and committed staff. There do not appear to be any problematic or difficult workgroups within DWP that detract from morale and culture, and each division indicated they have positive working relationships with other divisions in DWP. DWP staff were also positive in their assessment of their relationship with the other City departments. Other City departments reported similarly about their own services to DWP and DWP's role with other City departments. There did not appear to be any animosity among DWP divisions or other City departments and DWP. Anecdotally, DWP staff view executive management positively and communicated to Raftelis that they feel supported by DWP.

PAY AND BENEFITS

A common theme from interviews with DWP staff was a perception that the City of Corona pays staff less and benefits are not as good as those of nearby utility districts. Perceptions like this can impact the ability to retain talented staff, especially in a competitive labor market. Some of the perceptions may trace to the City eliminating a medical insurance opt-out payback program several years ago. Employees were able to receive a payment in lieu of medical insurance if they received insurance from another source, essentially raising total compensation for staff who participated. When this benefit was eliminated, it was perceived as a pay cut.

Interviews revealed that DWP is sometimes viewed as a training ground for some positions, like water operators who, once trained and licensed, leave for better paying jobs elsewhere. In California, it is common for independent utility districts that focus solely on one service to provide higher compensation and benefits to their employees compared to municipal utilities. This can make it difficult to hire and retain specialized positions.

The City is performing a compensation study, which will provide excellent information on pay and compensation compared to the market. Implementing the recommendations from a compensation study can often be expensive and require a lot of communication with staff. DWP management should be communicating with frontline staff regularly about this study and any updates provided by the Human Resources Division. Expectations should be set that pay increases are not a guarantee for every employee. Establishing clear expectations and frequent communication will be as important as the budget impact of implementing the results of the study. The study can be used as a tool to help adjust perceptions that are based on inaccurate information.

The City and DWP leadership should plan for the budget impact of the compensation study. Implementing pay rate changes across an organization can result in a large annual increase to the budget; DWP staff should prepare to account for the revenue necessary to implement the results of the compensation study. Increasing rates to implement a new compensation plan can also be the first step in regular rate increases, which provide the revenue necessary for regular merit and cost of living increases for employees, helping to reduce any existing disparity in pay from growing further.

In addition to addressing pay and benefits directly, there are other strategies to combat perceptions of disparity between the City of Corona and other organizations. Often, the most powerful tool municipal utilities have is organizational culture. DWP has a strong and positive organizational culture. Interviews with staff revealed that some employees who leave for local utility districts often come back because the culture is better at DWP. Additionally, if DWP can bring in additional administrative and analytical staff, this could help ease burnout and address capacity among its current managerial and supervisory staff. The additional resources and support should also help mitigate employees leaving for higher pay. Equitable overtime and work policies also contribute to higher retention.

Recommendation 3: Communicate regularly with DWP staff about the compensation study to set expectations and provide clear information.

DWP leadership should regularly communicate with staff about the compensation study and set expectations with staff. The results of the study may not involve a pay increase for every employee, and that should be made clear to DWP staff. Communication should also include information about timelines and any updates provided by the Human Resources Division. Management staff should plan to meet with frontline personnel to answer questions about the study both during its development and after it is complete.

Recommendation 4: Implement the recommendations of the compensation study to ensure DWP employees are paid in line with the market.
Once the compensation study is complete, the City will likely have new pay scales and pay ranges for positions that are better in line with the market. DWP should plan to implement the compensation study's recommendations, including any necessary rate or fee changes to account for the needed revenue in the enterprise funds. Calculating the needed revenue will require a detailed analysis of how the compensation changes impact each position in DWP and how each position is allocated across the different enterprise funds. This will need to be done in conjunction with the annual budget process.

Overtime Usage

The project team examined overtime records for both the Maintenance Services Department and DWP for calendar years 2018, 2019, and 2020. The project team also reviewed compensation data from calendar 2019 that was submitted to Transparent California as part of a public records request. This information included base compensation, special compensation, overtime pay, and costs for City-provided retirement and health care for employees.

While, for the most part, overtime worked by employees was typical of utility operations, there were several cases where employees worked a significant number of overtime hours. For example, in calendar year 2018, nine employees worked more than 500 hours of overtime; in 2019, 12 employees worked more than 500 hours; and in 2020, eight employees worked more than 500 hours. In one case in 2019, an employee worked 1,314 hours of overtime, which averages to more than 25 hours per week.

The use of overtime to cover emergencies, vacations, sick leave, on-duty injuries, and vacant positions is typical at utilities. Within DWP, there are no existing written policies concerning how overtime is assigned to employees. The unwritten policy is that overtime is allocated first to employees who volunteer to work extra shifts and, if there are no volunteers, assigned by management. The existing system results in a few employees working a significant number of overtime hours over the year.

It is important to monitor overtime usage to ensure that employees have adequate rest between shifts. This is especially important in an environment with dangerous equipment and complex instrumentation and certainly when dealing with public health. For example, after an employee has worked a 12-hour shift, it may not be appropriate to work another consecutive 12-hour shift with little to no rest.

Recommendation 5: Develop a policy for assigning overtime to DWP staff.
DWP leadership should review current overtime policies and develop a written policy to ensure overtime is assigned equitably and that employees have adequate rest. These policies should include an explanation of why overtime is needed, how it is assigned, rest period policies, and utilizing "floater" positions if it is cost effective. Any change in policy may be subject to appropriate meet and confer procedures with impacted employee organizations.

Outsourcing

DWP contracts with outside providers for several operational areas and services that could otherwise be managed by utility staff. Instead of providing these services directly, DWP staff manage the contracts with vendors. Contracting is often a good solution when resources are limited, if expertise is cost-prohibitive to maintain internally, and when services are not a core function of an organization. DWP utilizes contracts for the following major services:

- **Meter reading** – DWP contracts with Alexander's Contract Services, Inc. to collect readings from water meters.

- **Utility bill printing and mailing** – DWP contracts with Advanced Utility Systems, Inc. for its utility billing and customer information system and with InfoSend to print and mail bills.
- **Fleet services (select)** – DWP leases vehicles from Enterprise® to allow Fleet staff to focus on public safety assets and heavy-duty equipment, rather than maintain light vehicles.
- **Engineering services** – The Public Works Department contracts with engineering and professional service firms for many projects and studies.
- **Construction and maintenance** – Specific activities such as line replacement and line maintenance (electric) are contracted, especially when staff cannot perform the work due to capacity issues.

Many of these services are regularly contracted to third parties at other utilities, except for meter reading. Water utilities typically perform meter reading services using in-house staff. However, building out a meter reading workgroup in Corona would require additional staff. This may be cost-prohibitive for DWP. As DWP continues transitioning to Automated Meter Infrastructure, meter staff would rely more heavily on data analysis, hardware, and technology skills. This could reduce the number of employees needed to perform meter reading services compared to more labor-intensive manual meter reading. This would be an opportunity to insource all meter functions.

Contracting for a service does not eliminate the need for DWP staff to be involved. Contracts must be managed to ensure the work is done efficiently and effectively, that legal requirements are met, and that the financial aspects of both the contract and the service are managed appropriately. The administrative burden created by contracting requires staff time, and it is important that capacity is available for staff to sufficiently manage contracted services. Procuring services, developing contracts, effectively managing the contracts, processing and paying invoices, and creating new purchase orders each year for continuing services requires collaboration with other City departments, strong workflow processes, and intentional management activities.

DWP is a lean organization that relies upon the City's Administrative Services Department to assist with procurement, purchasing, and financial activities. However, DWP must have the capacity to adequately handle the administrative burden created by outsourcing. DWP leadership should work with the Administrative Services Department to evaluate the contracting practices and identify the resources required to administer them. If DWP and the City choose to continue to outsource at the current level, DWP may need to invest in additional resources. According to staff interviews, the Business Services Division has already begun working with DWP managers and supervisors and the Administrative Services Department to improve purchasing and procurement processes.

Recommendation 6: Evaluate the current outsourcing contracts to calculate the cost of administering them and the performance of contractors.
DWP staff should work with the Administrative Services Department to evaluate the outsourcing contracts used by DWP. The evaluation should calculate the cost in staff time of administering these contracts as well as the performance of the vendors compared to service level expectations. This should expose inefficiencies in the contracting process. Improvements should be made to reduce the staff time necessary to manage the contracts.

Procurement and Purchasing

Based on staff interviews and a review of the purchasing and procurement processes, there is room for improvement in the purchasing and procurement process. Both DWP and Administrative Services Department staff noted that the purchasing and procurement processes, practices, and policies can be inefficient, cumbersome, and under-resourced. While a review of non-utility functions is not part of the scope of this project, DWP is one of the largest consumers of procurement and purchasing services within the City, and they depend on the procurement process to operate

efficiently. This includes contracted services as well as contracts for materials and supplies that ensure safe and efficient services. The relationship between DWP divisions and Administrative Services is positive, but both sides confirmed that there are areas that need to be reviewed and improved.

In the FY2016 adopted budget, the Finance and Human Resources Departments were merged to form the Administrative Services Department.[6] During the course of that fiscal year, Citywide purchasing was centralized into the Administrative Services Department with the intention of leveraging economies of scale and purchasing power compared to individual departments managing their own purchases. These changes included a shift of administrative and financial staff from DWP to Administrative Services; a total of eight positions were eliminated from DWP in the move to consolidate purchasing positions within Administrative Services.[7] These changes occurred at the same time as DWP added other new positions, so the Department's total staffing only decreased by 1.11 FTEs in FY2016 compared to FY2015. Although overall staffing levels were relatively unaffected, positions with purchasing expertise were no longer in DWP.

This type of reorganization within municipal organizations is common and can provide upsides for efficiency and risk management. However, there can be downsides to removing the purchasing roles from the functional areas doing the purchasing for their lines of business. Based on staff interviews, Administrative Services appears to be understaffed to handle the amount of purchasing and procurement activity that DWP creates. In addition, the processes, workflows, and technologies used to create, prioritize, and execute purchase orders are inefficient and burdensome to staff. This is exacerbated by inefficient workflows for processing invoices and payments.

Recommendation 7: Integrate the purchase order prioritization process into OneSolution.
DWP staff reported that creating purchase orders is difficult and time-consuming. To help address this issue, the Information Technology Department created a workaround system called P-Track. This allows managers to submit a purchase order request to Administrative Services and assign a priority for how quickly the purchase order must be completed. Staff see P-Track as helpful; however, it is a workaround that does not address the root cause of purchase ordering inefficiency. Additionally, creating P-Track added a second system to the process because P-Track does not integrate with the City's financial system, OneSolution. As a result, staff must enter data into both the P-Track system and OneSolution, which creates waste within the purchase order process, adding time and further delay. DWP staff should work with the Administrative Services and Information Technology Departments to review the purchase order process and identify opportunities for improvement. Integrating a prioritization system into OneSolution will save staff time and improve the overall timeline for processing purchase orders.

Recommendation 8: Conduct a process improvement exercise with Administrative Services to address issues with invoice processing.
The process to approve invoices is inefficient and includes unnecessary steps. Invoices are initially reviewed and coded for payment by Administrative Services and sent to DWP for final approval. However, invoices are often sent to DWP for approval with incorrect coding because Administrative Services staff do not know the intricacies of DWP operations. When incorrectly coded invoices are sent to DWP staff for review and approval, invoices often must be sent back to Administrative Services, evaluated by Administrative Services staff in conjunction with the help of DWP employees, and resent to the correct group in DWP. If DWP staff had more responsibility for initially reviewing and coding invoices or DWP staff could address incorrectly coded invoices on their own without sending the invoice back to Administrative Services, less time and resources would be wasted by both Administrative Services and DWP staff. DWP staff should work with the Administrative Services Department to improve the invoice processing workflow and eliminate wasteful process steps.

[6] City of Corona, FY2016 Adopted Budget, Page 12.
[7] City of Corona, FY2017 Adopted Budget, Page 120.

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Financial Review

Raftelis completed a financial assessment of DWP water, reclaimed water, water reclamation, and electric utilities. The assessment consisted of reviewing records and reports, such as adopted budgets and Comprehensive Annual Financial Reports (CAFR) as well as interviews with DWP and Finance Division staff. As discussed in the Background and Methodology section of this report, the operating budget for DWP has increased by about 4% from FY2017 to FY2021. Budget increases are primarily driven by personnel costs, which increased by $1.7 million over the last five fiscal years. Non-personnel costs increased by about 3%. The drivers of those changes will be discussed in more detail in the following sections. The table below shows the Department's overall budget across all funds by expenditure category.

Table 12: DWP Operating Budget by Expenditure Category, FY2017 to FY2021

Expenditure Category	FY2017 Actual	FY2018 Actual	FY2019 Actual	FY2020 Budget	FY2021 Budget	Percent Change from FY2017 to FY2021
Salaries and Benefits	$15,050,546	$15,253,020	$15,546,440	$16,560,622	$16,727,400	11%
Non-Personnel Costs	$74,078,112	$79,351,903	$78,610,523	$75,157,635	$76,212,695	3%
Capital Outlay	$714,595	$230,177	$1,046,548	$441,573	$372,612	-48%
Total	**$89,843,253**	**$94,835,100**	**$95,203,511**	**$92,159,830**	**$93,312,707**	4%

Further analysis of the DWP budget shows that overall increases were driven by the water and water reclamation utilities. Both the reclaimed water and electric utilities saw an overall decrease in their budgets by about $600,000 and $900,000, respectively. The decreases were driven by non-personnel costs in Reclaimed Water and by salaries and benefits cost in Electric. This personnel decrease is due to adjustments in the split of employee time spent on activities related to the Electric Utility. Non-personnel costs also decreased for the Electric Utility due to reduced electric consumption and lower energy prices. The Water Reclamation Utility saw a 14% increase from FY2017 to FY2021, or about $3.2 million. This increase was primarily driven by non-personnel costs in operations and facilities maintenance. The following table shows the DWP budget by utility and expenditure category for the last five fiscal years.

Table 13: DWP Budget by Utility and Expenditure Category, FY2017 to FY2021

Utility and Expenditure Category	FY2017 Actual	FY2018 Actual	FY2019 Actual	FY2020 Budget	FY2021 Budget	Percent Change FY2017 to FY2021
Water Utility						
Salaries and Benefits	$7,809,980	$8,010,061	$8,106,545	$9,073,087	$9,045,935	16%
Non-Personnel Costs	$39,825,002	$41,555,040	$39,768,514	$38,655,688	$40,688,112	2%
Capital Outlay	$433,188	$113,789	$209,089	$271,374	$212,798	-51%
Water Utility Total	**$48,068,170**	**$49,678,890**	**$48,084,148**	**$48,000,149**	**$49,946,845**	4%
Water Reclamation Utility						
Salaries and Benefits	$4,878,620	$5,312,794	$5,223,414	$5,267,663	$5,288,792	8%
Non-Personnel Costs	$17,748,096	$20,220,899	$22,119,611	$19,370,025	$20,674,451	16%
Capital Outlay	$270,022	$115,928	$818,549	$157,390	$116,639	-57%
Water Reclamation Utility Total	**$22,896,738**	**$25,649,621**	**$28,161,574**	**$24,795,078**	**$26,079,882**	14%
Reclaimed Water Utility						
Salaries and Benefits	$199,733	$514,969	$399,018	$487,632	$503,059	152%

Utility and Expenditure Category	FY2017 Actual	FY2018 Actual	FY2019 Actual	FY2020 Budget	FY2021 Budget	Percent Change FY2017 to FY2021
Non-Personnel Costs	$3,068,489	$3,244,955	$3,056,224	$2,138,259	$2,092,897	-32%
Capital Outlay	$0	$0	$18,910	$2,135	$11,235	-
Reclaimed Water Utility Total	**$3,268,222**	**$3,759,924**	**$3,474,152**	**$2,628,026**	**$2,607,191**	-20%
Electric Utility						
Salaries and Benefits	$2,162,214	$1,415,196	$1,817,463	$1,732,240	$1,889,614	-13%
Non-Personnel Costs	$13,436,524	$14,331,007	$13,666,174	$14,993,663	$12,757,235	-5%
Capital Outlay	$11,385	$461	$0	$10,674	$31,940	181%
Electric Utility Total	**$15,610,123**	**$15,746,664**	**$15,483,637**	**$16,736,577**	**$14,678,789**	-6%
Grand Total	**$89,843,253**	**$94,835,099**	**$95,203,511**	**$92,159,830**	**$93,312,707**	4%

The Department further breaks down its budget by program area; these are distinct programs within the Department that contribute to the overall operation and success of each utility. Operations is the program dedicated to providing the specific utility service to customers. The general services program provides leadership, policy, and planning support to the utilities operations. Facilities maintenance focuses on the upkeep and repair of the Department's plant equipment, buildings, and grounds. The infrastructure and system maintenance program provides upkeep and installation of assets in the field related to each utility, such as electrical lines, water and sewer pipes, and meters. Utility billing and customer care was designated as a separate program in the FY2018 budget, although the program and staff existed previously. Regulatory compliance is the work ensuring each utility complies with state and federal regulations. Lastly, the Sustainability and Conservation Program was created to conduct outreach and education around efficient water and electricity use as well as education about not disposing fats, oils, greases, and drugs down the drain.

The operations program saw a 30% increase from FY2017 to FY2021, or about $12.2 million. The general services program saw a 41% decrease. This is due to a shifting of costs from this category to other programs, such as operations, and departments. For example, engineering was moved to the Public Works Department, and the Utility Billing and Customer Care program was separated in the FY2018 budget. System maintenance, which is specific to the Electric Utility, increased by 80% from FY2017 to FY2021. This increase was primarily in non-personnel expenses due to increased costs for contract system maintenance. The utility billing program has increased by $1.3 million over the past four fiscal years, or about 73%. The Sustainability and Conservation Program was created from positions in General Services in FY2018, and the Department has consistently invested in it, with increases in the salaries and benefits expenditure category as well as non-personnel costs. The following table shows the budget across all funds and utilities for the different programs provided by DWP.

Table 14: DWP Budget by Program, FY2017 to FY2021

Programs	FY2017 Actual	FY2018 Actual	FY2019 Actual	FY2020 Budget	FY2021 Budget	Percent Change FY2017 to FY2021
Operations	$40,029,858	$42,980,081	$42,349,006	$48,602,518	$52,185,380	30%
General Services	$37,971,706	$35,176,502	$33,298,431	$26,153,260	$22,422,926	-41%
Facilities Maintenance	$4,611,228	$5,934,496	$6,599,436	$5,827,166	$6,170,526	34%
Infrastructure Maintenance	$5,030,775	$4,666,485	$5,345,368	$5,035,208	$5,501,162	9%
Utility Billing/Customer Care	$0	$1,813,854	$2,935,845	$2,948,559	$3,145,922	-
Regulatory Compliance	$1,767,654	$1,759,524	$1,903,493	$1,929,339	$2,148,064	22%

Programs	FY2017 Actual	FY2018 Actual	FY2019 Actual	FY2020 Budget	FY2021 Budget	Percent Change FY2017 to FY2021
System Maintenance	$429,396	$473,669	$528,900	$652,434	$773,281	80%
Sustainability/Conservation	$2,636	$199,686	$441,566	$1,011,346	$965,446	36,525%
Debt Service Depreciation	$0	$1,830,802	$1,801,466	$0	$0	-
Grand Total	**$89,843,253**	**$94,835,099**	**$95,203,511**	**$92,159,830**	**$93,312,707**	**4%**

Separating the programs by utility, the drivers for budget increases can be attributed to the different services provided to the public. The cost of operations has increased across all four utilities. Similarly, the cost of the general services program saw decreases across all four utilities. However, the facilities maintenance program increased by about $1 million just for the water reclamation utility. Both the electric and reclaimed water utilities decreased their overall budgets over the last five fiscal years. In both cases, this was driven by decreases in the general services program. The following table shows the DWP budget for each utility by program for the last five fiscal years.

Table 15: DWP Budget by Utility and Program, FY2017 to FY2021

Utility and Program	FY2017 Actual	FY2018 Actual	FY2019 Actual	FY2020 Budget	FY2021 Budget	Percent Change FY2017 to FY2021
Water Utility						
Operations	$22,931,668	$25,077,170	$23,498,075	$26,523,735	$28,662,558	**25%**
General Services	$18,916,731	$16,576,967	$15,489,066	$12,016,352	$11,610,681	**-39%**
Facilities Maintenance	$2,067,330	$2,449,033	$2,317,657	$2,700,890	$2,427,793	**17%**
Infrastructure Maintenance	$3,523,785	$3,357,106	$3,826,553	$3,591,982	$3,880,753	**10%**
Utility Billing/Customer Care	$0	$1,381,603	$1,815,326	$1,779,302	$1,923,387	**-**
Regulatory Compliance	$626,020	$641,781	$697,329	$724,151	$814,516	**30%**
Sustainability/Conservation	$2,636	$195,230	$440,142	$663,737	$627,157	**23692%**
Water Utility Total	**$48,068,170**	**$49,678,890**	**$48,084,148**	**$48,000,149**	**$49,946,845**	**4%**
Water Reclamation Utility						
Operations	$7,740,289	$8,147,632	$9,413,926	$10,564,401	$12,390,139	**60%**
General Services	$10,690,415	$10,373,470	$10,113,605	$8,791,563	$7,219,750	**-32%**
Facilities Maintenance	$2,400,791	$3,122,970	$4,067,410	$2,757,138	$3,388,405	**41%**
Infrastructure Maintenance	$1,467,839	$1,209,747	$1,430,782	$1,331,164	$1,511,097	**3%**
Utility Billing/Customer Care	$0	$273,801	$693,258	$669,489	$858,213	**-**
Regulatory Compliance	$597,404	$686,743	$639,703	$670,614	$710,889	**19%**
Sustainability/Conservation	$0	$4,456	$1,424	$10,709	$1,389	**-**
Debt Service Depreciation	$0	$1,830,802	$1,801,466	$0	$0	**-**
Water Reclamation Utility Total	**$22,896,738**	**$25,649,621**	**$28,161,574**	**$24,795,078**	**$26,079,882**	**14%**
Reclaimed Water Utility						
Operations	$665,519	$746,663	$683,608	$805,323	$842,812	**27%**
General Services	$1,982,194	$2,156,600	$2,041,227	$866,576	$786,708	**-60%**
Facilities Maintenance	$143,107	$362,493	$214,369	$369,138	$354,328	**148%**
Infrastructure Maintenance	$39,151	$99,632	$88,033	$112,062	$109,312	**179%**
Utility Billing/Customer Care	$0	$194	$9,314	$59,156	$23,062	**-**
Regulatory Compliance	$438,251	$394,342	$437,601	$415,771	$490,969	**12%**
Reclaimed Water Utility	**$3,268,222**	**$3,759,924**	**$3,474,152**	**$2,628,026**	**$2,607,191**	**-20%**

Utility and Program	FY2017 Actual	FY2018 Actual	FY2019 Actual	FY2020 Budget	FY2021 Budget	Percent Change FY2017 to FY2021
Electric Utility						
Operations	$8,692,382	$9,008,616	$8,753,397	$10,709,059	$10,289,871	**18%**
General Services	$6,382,366	$6,069,465	$5,654,533	$4,478,769	$2,805,787	**-56%**
System Maintenance	$429,396	$473,669	$528,900	$652,434	$773,281	**80%**
Utility Billing/Customer Care	$0	$158,256	$417,947	$440,612	$341,260	**-**
Regulatory Compliance	$105,979	$36,658	$128,860	$118,803	$131,690	**24%**
Sustainability/Conservation	$0	$0	$0	$336,900	$336,900	**-**
Electric Utility Total	**$15,610,123**	**$15,746,664**	**$15,483,637**	**$16,736,577**	**$14,678,789**	**-6%**
Grand Total	**$89,843,253**	**$94,835,099**	**$95,203,511**	**$92,159,830**	**$93,312,707**	**4%**

Cost Allocation

The project team reviewed the methodology DWP uses to allocate expenses and positions to the different enterprise funds. This is done as part of the annual budget process and involves a review of individual line items and an estimate of workload for each employee based on planned projects and departmental needs.

Expenses for program areas, like Customer Care or General Services, are reviewed individually, and a determination is made about what utilities the cost supports. If an expense serves multiple utilities, it is allocated based on the number of meters each utility has as a percentage of all meters. For the FY2021 budget process, the number of active meters at the end of FY2019 was used to calculate this split. The following table shows the number of active meters and the percentage of total meters in each utility. Notably, the Electric and Reclaimed Water Utilities have a small percentage of the overall meters, so some rounding is needed to allocate costs.

Table 16: Active Meter Allocation

Utility	Active Meters FY2019 Year End	Percent Allocation
Water	44,357	50.6%
Water Reclamation	39,755	45.3%
Electric	3,219	3.7%
Reclaimed Water	384	0.4%
Total	**87,715**	**100%**

As an example of how this process works, the following table shows four expenses in the FY2021 budget for Utility Billing and how they were split between each fund. For an expense like electric meter reading, the entire expense was allocated to the Electric Fund. Similarly, the contract cost of water meter reading was split between the Water Fund and the Reclaimed Water Fund – this leaves out the Water Reclamation Fund, but that is because a fixed fee is charged for wastewater services and is not based on metered usage. There is some discrepancy between how costs are allocated to include the Reclaimed Water Fund. Billing postage was split between Water, Water Reclamation, and Electric, but Reclaimed Water was excluded. The payment kiosk cost was split between all four based on the meter percentage.

Table 17: Example Expense Allocation, FY2021

Utility Billing	Water Fund		Water Reclamation Fund		Electric Fund		Reclaimed Water Fund		FY2021 Budget Total
Expense	Amount	Percent Split	Amount	Percent Split	Amount	Percent Split	Amount	Percent Split	
Billing postage	$123,692	51%	$111,566	46%	$7,276	3%	$0	0%	**$242,534**
Electric Meter Reading	$0	0%	$0	0%	$11,760	100%	$0	0%	**$11,760**
Meter reading	$554,715	99%	$0	0%	$0	0%	$5,603	1%	**$560,318**
Payment Kiosk	$11,750	50%	$10,575	45%	$940	4%	$235	1%	**$23,500**

This practice of allocating expenses based on the percentage of meters they represent is appropriate and should be continued. It is also reasonable for specific expenses that only support one or two of the utilities to be allocated to only those funds.

The method for allocating the cost of FTEs is not based on a specific measure or indicator but instead involves an estimate of planned time spent for each individual position. These splits are reviewed as part of the budget process and can change year to year. Actual spending is based on these estimates and does not necessarily reflect actual labor hours. These splits are as low as 5% and can vary by as little as 1-2%, depending on the position. As an example, 37 positions have a share of Electric Utility responsibility, which adds up to 11.85 full-time equivalent positions. The following table shows the FTE split for each position and the estimated labor hours based on 2,080 annual hours.

Table 18: DWP Positions with Electric Fund Allocation, FY2021

Position Allocated to Electric Utility	FTE Split	Annual Hours	Monthly Hours	Weekly Hours
Customer Care Representative	1.00	2,080.00	173.33	40.00
Electric Utilities Analyst	1.00	2,080.00	173.33	40.00
Maintenance Technician	1.00	2,080.00	173.33	40.00
Administrative Services Manager	0.90	1,872.00	156.00	36.00
Customer Care Representative	0.50	1,040.00	86.67	20.00
Maintenance Technician	0.50	1,040.00	86.67	20.00
General Manager	0.43	894.40	74.53	17.20
Assistant General Manager	0.37	769.60	64.13	14.80
Customer Care Representative	0.34	707.20	58.93	13.60
Instrumentation & Control Engineer	0.34	707.20	58.93	13.60
Instrumentation & Control Engineer	0.34	707.20	58.93	13.60
Maintenance Planner	0.34	707.20	58.93	13.60
Maintenance Technician	0.34	707.20	58.93	13.60
Operations Manager	0.32	665.60	55.47	12.80
Utilities Project Manager	0.30	624.00	52.00	12.00
Customer Care Supervisor	0.28	582.40	48.53	11.20
Lead Customer Care Representative	0.28	582.40	48.53	11.20
Maintenance Supervisor	0.25	520.00	43.33	10.00
Regulatory Technician	0.25	520.00	43.33	10.00
Regulatory Technician	0.25	520.00	43.33	10.00
Regulatory Technician	0.25	520.00	43.33	10.00
Regulatory Technician	0.25	520.00	43.33	10.00

Position Allocated to Electric Utility	FTE Split	Annual Hours	Monthly Hours	Weekly Hours
Business Manager	0.22	457.60	38.13	8.80
Business Supervisor	0.22	457.60	38.13	8.80
Customer Care Representative	0.18	374.40	31.20	7.20
Administrative Supervisor	0.17	353.60	29.47	6.80
Customer Care Representative	0.15	312.00	26.00	6.00
Customer Care Representative	0.15	312.00	26.00	6.00
Customer Care Representative	0.15	312.00	26.00	6.00
DWP Operations Analyst	0.15	312.00	26.00	6.00
Maintenance Manager	0.11	228.80	19.07	4.40
Administrative Assistant	0.10	208.00	17.33	4.00
Administrative Clerk	0.10	208.00	17.33	4.00
Administrative Clerk	0.10	208.00	17.33	4.00
Management Analyst	0.10	208.00	17.33	4.00
Management Analyst	0.07	145.60	12.13	2.80
Administrative Secretary	0.05	104.00	8.67	2.00
Total	**11.85**	**24,648.00**	**2,053.94**	**474.00**

The process of estimating time spent on duties related to each utility is a necessary part of the budget process, but actual personnel spending by DWP is based on these FTE splits. The actual salary, benefits, and overtime costs of each position are allocated to the funds based on these projections of estimated time spent. Although the splits are reviewed as part of the budget process, they are not assessed by supervisors and managers in a detailed manner each year. In practice, changes made in position allocations occur when a new position is created or filled or if a new supervisor reviews the allocation and requests changes.

Recommendation 9: Revise the home account allocation process for splitting FTEs across enterprise funds by division and workgroup.

The employee allocation process should be simplified and standardized. The current process is labor intensive and results in different allocations for similar positions in the same workgroup. In addition, according to staff, the small percentage splits of some positions cause errors in the City's payroll system. The system is unable to process benefits information because of the small allocations in different funds.

The employee allocation process should be re-evaluated as part of the FY2022 budget cycle. Supervisors of distinct divisions or workgroups should evaluate their workload across the different funds and decide on an allocation for the entire workgroup or division. Individual positions within the same workgroup should no longer have different allocations. The splits should also be no less than 10% of an employee's time; this will allow the payroll software to better manage the position allocations. Each supervisor or manager should estimate their team's allocation based on measures like share of customers, share of facility square footage, or capital project budget share. If a measure on which to base the allocation is not readily available, it should be based on an estimate of the coming year's workplan. These allocations should be reviewed by the Finance Division and updated annually with DWP supervisors and managers.

INDIRECT COST ALLOCATION PLAN

The City of Corona uses a cost allocation plan to identify, value, and distribute indirect costs across City departments. These indirect costs are commonly referred to as "City overhead" or administrative support. Examples of indirect

costs include legislative costs (i.e., City Council), general administrative services, financial services, information technology, legal services, human resources, risk management, and insurance premiums. In many local governments, these functions are staffed and funded through the General Fund. Cities then allocate a portion of these costs to non-General Fund operations such as utility enterprise funds, federal and state grants, gas tax funded projects, and capital improvement projects. California cities generally do not allocate indirect costs to General Fund operating departments since there is no net gain to the General Fund.

The City contracts with MGT Consulting Group to prepare an annual cost allocation plan. MGT is a national firm that has extensive experience in preparing such plans consistent with Federal grant guidelines. The Raftelis consultant team reviewed MGT's complete study to determine if costs are being allocated appropriately and consistent with industry standards. Interviews with Finance staff were also conducted to determine how the cost allocation plan is used in the preparation of the City budget.

MGT's most recent study for the City of Corona was completed in April 2020. In the study, they identified approximately $20.7 million in overhead costs. The method of calculating how much of these overhead costs is attributed to different funds and operations varies depending on the cost being allocated. MGT uses the operating budget to allocate the cost of providing fiscal support and the number of full-time positions to allocate general administrative activities. For some specific services like recruitments or accounts payable transactions, the usage of those services determines the amount of cost allocated to a fund or department. Building maintenance or depreciation costs are allocated based on square footage used by the non-General Fund operation.

In the City of Corona's FY2021 Budget, a total of $5,453,187 in overhead costs is allocated to non-General Fund operations of the City. For DWP, these costs total $4,623,361. The following table shows the allocation by each DWP fund.

Table 19: Indirect Cost Allocation – FY2021

Fund	FY2021 Indirect Cost
Water Capacity Fund	$20,985
Reclaimed Water System Fund	$91,205
Water Utility Fund	$2,404,460
Water Reclamation Utility Fund	$1,403,477
Electric Utility Fund	$703,234
Total Indirect Cost	**$4,623,361**

Based upon the review of the cost allocation plan and methodology, it is appropriate and consistent with industry standards in local government. The detailed analysis conducted to allocate costs by different methods is in line with best practices. Additionally, it appears that the costs included in the study were appropriate and not inflated to benefit the General Fund at the expense of the enterprise funds. The City should continue this indirect cost allocation process. Using an external contractor allows for an independent calculation and ensures a fair allocation plan.

CORONA UTILITY AUTHORITY

In 2002, the City established the Corona Utility Authority as a joint powers authority (JPA) agreement between the City and the former Redevelopment Agency of the City of Corona. The purpose of the Authority is to assist the City by receiving lease payments for infrastructure constructed for the Water and Water Reclamation utility systems. The Authority's Officers are the Corona City Council and the City's executive management.

In February 2002, the Authority executed capital leases with the City for the City's Water and Water Reclamation facilities. The terms of the leases are 55 years. The leases terminate on February 6, 2056, at which time the Authority

could renew the capital leases of the Water and Water Reclamation facilities. The capital assets of the Water and Water Reclamation facilities were recorded at the City's historical cost, net of accumulated depreciation. The following table shows the lease payments made in FY2019 by the Authority to the City.

Table 20: Corona Utility Authority Lease Payments, FY2019

Utility	Lease Payment
Water Utility	$3,041,878
Water Reclamation Utility	$2,041,048
Total FY2019 Payment	**$5,082,926**

Using JPAs to facilitate capital financing of infrastructure facilities is common in California. However, this type of leasing arrangement is not as common since it appears the City incurred no underlying debt to construct or upgrade the facilities being leased to the Authority that was not paid with utility fee revenues.

Raftelis is not a law firm and cannot provide a legal opinion on the lease payments being made by the Corona Utility Authority. However, we note that the utility is collecting money through utility user rates that are used to fund other functions in municipal government. It appears utility customers who initially paid for infrastructure through utility rates and debt supported by utility rates may now also be paying to lease these same facilities through the Corona Utility Authority.

When the JPA and the facility leases were approved by the City Council in 2002, they were developed by outside counsel. Due to evolving case law and recent opinions related to Proposition 218, Raftelis recommends that the City review the JPA structure and facility leases to ensure that the leasing structure continues to be appropriate and meets current statutory requirements.

Recommendation 10: Review the Corona Utility Authority lease structure to ensure it complies with recent court opinions and case law related to Proposition 218.
Due to recent changes in case law and legal opinions around Joint Powers Authorities and the State of California's Proposition 218, the City should review the Corona Utility Authority lease structure. This structure results in lease payments from the Water and Water Reclamation utilities to the City for the use of DWP facilities. In FY2019, this payment was $5,082,926. The lease agreement was originally entered into in February 2002 and goes through 2056. The City Attorney should review this agreement and ensure it complies with statutory requirements and appropriate practices.

Working Capital

In addition to analyzing the annual operating budget for each utility, the project team examined the working capital for each fund over the last five fiscal years. Working capital is the difference between current assets and current liabilities. According to the Government Finance Officers Association (GFOA), maintaining adequate levels of working capital ensures that the City can meet financial obligations or manage risks like revenue shortfalls or unanticipated expenses.[8] Credit rating agencies also consider the availability of working capital when evaluating creditworthiness for enterprise funds.

[8] Government Finance Officers Association (GFOA), Best Practices: Working Capital Targets for Enterprise Funds, https://www.gfoa.org/materials/working-capital-targets-for-enterprise-funds

Across all DWP enterprise funds, working capital has grown from $52.5 million in FY2017 to $63.9 million in FY2021. This increase is largely due to an increase in the Water Reclamation Fund in FY2018. The Water Fund, the largest of the four funds, has drawn down on its working capital over the last five fiscal years, decreasing from $15.7 million to $5.1 million. The Reclaimed Water Fund has had zero working capital in three of the last five fiscal years, with a plan to draw it down from its peak of $1.4 million in FY2020 to $0 in FY2021. The following table shows the estimated working capital by fund from FY2017 to FY2021 as well as the annual change.

Table 21: Working Capital by DWP Fund[9]

Estimated Working Capital	FY2017	FY2018	FY2019	FY2020	FY2021 Forecast
Water Fund	$15,658,241	$8,775,862	$11,297,890	$12,959,167	$5,106,468
Increase / (Decrease)	-	*($6,882,379)*	*$2,522,028*	*$1,661,277*	*($7,852,699)*
Water Reclamation Fund	$28,565,558	$55,886,200	$45,627,064	$50,520,534	$51,168,935
Increase / (Decrease)	-	*$27,320,642*	*($10,259,136)*	*$4,893,470*	*$648,401*
Reclaimed Water Fund	$0	$0	$613,935	$1,406,918	$0
Increase / (Decrease)	-	*$0*	*$613,935*	*$792,983*	*($1,406,918)*
Electric Fund	$8,302,003	$14,508,104	$16,847,455	$6,981,404	$7,654,995
Increase / (Decrease)	-	*$6,206,101*	*$2,339,351*	*($9,866,051)*	*$673,591*
Total All Funds	**$52,525,802**	**$79,170,166**	**$74,386,344**	**$71,868,023**	**$63,930,398**
Increase / (Decrease)	-	*$26,644,364*	*($4,783,822)*	*($2,518,321)*	*($7,937,625)*

The working capital forecast for FY2021 as a percentage of each fund's operating budget varies significantly. The Water Reclamation Fund working capital represents 196% of the fund's operating expenses, the Electric Fund 52%, the Water Fund 10%, and the Reclaimed Water Fund is forecast to be 0% of the operating budget. The City does not have a target for working capital in its enterprise funds. GFOA represents public finance officials and provides best practices guidance to its members. One of GFOA's best practices is to establish targets for working capital through a formal, adopted financial policy. The City has done this for the General Fund; a fund balance policy for the General Fund was established in 2010 and is set at three months of regular operating expenses.[10]

The City should adopt a policy for working capital in the enterprise funds. A common target in the industry is 30 to 45 days of operating expenses, which is about 8% or 12% of adopted budget. Mirroring the fund balance policy adopted for the General Fund would be about 25% of operating expenses. Before establishing a policy, the City and DWP leadership should consider several factors: [11]

- **Cash Cycles** – If individual funds experience higher levels of cash during certain times of the year, it may be appropriate to have higher levels of working capital. Billing cycles can also influence this; if DWP ever creates a longer billing cycle compared to the current monthly cycle, more working capital would be needed.
- **Demand for Services** – If the demand for a service fluctuates, more working capital may be needed to manage that volatility. Similarly, if a utility only relies on a small number of customers for a large portion of revenue, more working capital would be needed.
- **Asset Age and Condition** – The age and condition of each utility's infrastructure should impact the working capital needed. The older the infrastructure, the more prepared DWP should be for unexpected repair needs.

[9] Estimated working capital from FY2018 to FY2021 Adopted Budget documents.
[10] City of Corona, Comprehensive Annual Financial Report, Year Ending June 30, 2019, Page xiii.
[11] Government Finance Officers Association (GFOA), Best Practices: Working Capital Targets for Enterprise Funds, https://www.gfoa.org/materials/working-capital-targets-for-enterprise-funds

- **Volatility of Expenses** – If some expenditures are inconsistent or have the potential to increase significantly in a single year, more working capital would be needed to manage that uncertainty. On the other hand, if expenses are stable, less working capital may be needed.
- **Debt Position** – Enterprise funds often have significant debt to build and repair capital assets. This debt and the type of debt can impact the amount of working capital needed for a fund. For example, if a large lump sum payment of debt is planned in a given year or interest rates are potentially volatile, it may be appropriate to build up working capital to manage debt payments.
- **Natural Disasters** – Reserves are an important tool in responding to natural disasters. In California, the potential for damage to utility infrastructure from earthquakes or fires leads many organizations to hold higher reserves to account for unplanned costs.

The following table shows the working capital needed by fund for FY2021 based on different policy targets. These percentage targets would result in one to three months of operating expenditures in reserve.

Table 22: FY2021 Working Capital Target by Different Policy Amounts

Fund	8% Target	12% Target	16% Target	25% Target
Water Fund	$3,995,748	$5,993,621	$7,991,495	$12,486,711
Water Reclamation Fund	$2,086,391	$3,129,586	$4,172,781	$6,519,971
Reclaimed Water Fund	$208,575	$312,863	$417,151	$651,798
Electric Fund	$1,174,303	$1,761,455	$2,348,606	$3,669,697
Total All Funds	**$7,465,017**	**$11,197,525**	**$14,930,033**	**$23,328,177**

Recommendation 11: Establish a working capital target policy for each DWP enterprise fund.
The City of Corona does not have a formal policy for working capital in the enterprise funds. In FY2021, the amount of working capital for each enterprise fund ranges between 0% and 196% of operating expenditures. The City does have a policy for the General Fund where the fund balance amount is targeted at 25% of annual operating expenses in that fund. Establishing a working capital policy for enterprise funds is a best practices recommendation from GFOA and will allow the utilities to have enough resources to manage any unforeseen expenses or reductions in revenue. DWP staff should work with the City Manager and Finance Division to establish a working capital target for each enterprise fund. These targets do not need to be the same across all funds but instead should consider billing cycles, demand for services, asset condition, expense volatility, potential impacts of natural disasters, and debt position for each fund.

Debt Coverage Ratio

The project team also looked at the City's debt coverage ratio for the Water and Water Reclamation enterprise funds. The debt coverage ratio compares the amount of operating income (operating revenue minus operating expenses) to the debt service paid – both principal and interest payments. The standard ratio of a high performing organization is greater than a 1.0 ratio, meaning that the operation produces more operating income than the amount paid toward debt. The City does not have any outstanding debt for the Electric Fund, so a debt coverage ratio was not necessary, and the Reclaimed Water Utility is included with the Water Fund for financial reporting purposes. The following table shows the debt coverage ratio for each fund from FY2016 to FY2020 as well as an average for those three fiscal years.

Table 23: Debt Coverage Ratio by DWP Fund

Debt Coverage Ratio	FY2016	FY2017	FY2018	FY2019	FY2020
Water Fund					
Operating Revenue	$52,162,994	$55,561,657	$57,994,471	$61,115,671	$59,023,260
Operating Expenses	$39,821,195	$41,365,813	$45,248,787	$42,660,220	$46,639,151
Operating Income	$12,341,799	$14,195,844	$12,745,684	$18,455,451	$12,384,109
Debt Service	$4,279,851	$4,455,179	$4,640,637	$4,432,771	$4,776,784
Debt Coverage Ratio	**2.88**	**3.19**	**2.75**	**4.16**	**2.59**
Water Reclamation Fund					
Operating Revenue	$33,115,413	$33,625,281	$33,326,878	$37,688,878	$35,444,862
Operating Expenses	$17,808,146	$16,808,820	$17,979,218	$20,133,073	$20,978,460
Operating Income	$15,307,267	$16,816,461	$15,347,660	$17,555,805	$14,466,402
Debt Service	$2,936,006	$3,146,560	$2,922,225	$2,926,477	$1,516,354
Debt Coverage Ratio	**5.21**	**5.34**	**5.25**	**6.00**	**9.54**

This calculation was conducted by the City's Finance Division as part of the reporting for the City's bond covenants. Some revenues and expenses are excluded from these figures because they are not regular operating costs or revenue for the Water Utility or Water Reclamation Utility. The debt service figures for both utilities include revenue bonds issued by the City and a loan from the State of California from the State Revolving Loan Fund that supported construction of facilities to support the reclaimed water utility at WRF No. 1 and the tertiary filtration project at WRF No. 2.[12]

The best performing fund by this measure is the Water Reclamation Fund, which had between a 5.21 and 9.54 debt coverage ratio. The Water Fund had a lower ratio but was well above an acceptable level. The Water Utility and Water Reclamation Utility are in a strong financial position and have adequate coverage to issue additional debt if needed.

Capital Spending

As part of the peer benchmarking process, the project team collected three years of CIP information for each organization. The three years of data can then be used as an average to understand overall trends and level of investment by each organization. It is important to use a trend because capital spending can vary year to year due to large projects or planned investment taking place.

Over the last three fiscal years, the City of Corona has averaged $12.7 million in capital spending related to water projects. This is slightly below the peer organization median of $15.1 million. The following table shows the CIP spending by year for each peer organization.

Table 24: Peer Organization Water Capital Budget

Peer Organization	FY2019	FY2020	FY2021	Three Year Average
Yorba Linda Water District	$3,542,500	$3,204,425	$6,067,845	$4,271,590
Burbank Water and Power	$4,999,353	$6,584,353	$4,998,278	$5,527,328
Modesto Irrigation District	$11,236,284	$2,698,307	$3,621,435	$5,852,009
Glendale Water & Power	$8,602,062	$11,834,800	$8,198,752	$9,545,205

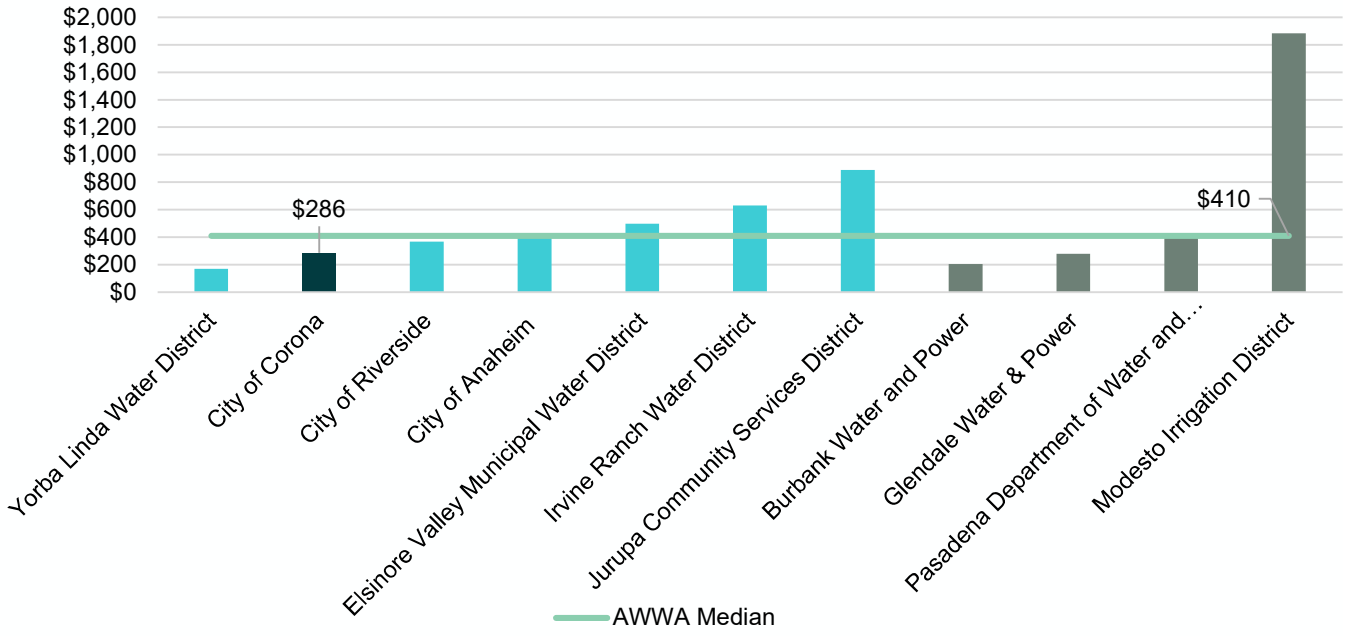
[12] City of Corona, Comprehensive Annual Financial Report (CAFR), Year Ending June 30, 2019, Page 89-90.

Peer Organization	FY2019	FY2020	FY2021	Three Year Average
City of Corona	$8,696,504	$11,356,226	$18,008,219	$12,686,983
Pasadena Department of Water and Power	$15,160,000	$12,306,000	$17,830,000	$15,098,667
Elsinore Valley Municipal Water District	N/A[13]	$20,758,511	$23,877,687	$22,318,099
City of Riverside	$22,799,458	$18,903,354	$30,616,405	$24,106,406
City of Anaheim	$32,382,000	$26,644,000	$17,093,000	$25,373,000
Jurupa Community Services District	$20,699,950	$43,397,950	$24,440,439	$29,512,780
Irvine Ranch Water District	$65,532,990	$76,865,621	$76,864,735	$73,087,782

One of the common measures in the water utility industry is the amount of capital spending per customer account. This shows the relative investment by an organization regardless of the size of its water utility. Using this measure, the City of Corona spends about $286 on water capital spending per customer account, which is the second-lowest of the peer organizations, only higher than the Yorba Linda Water District. This relatively low spending per customer account can be indicative of newer infrastructure but can also be a sign of underinvestment.

DWP and Engineer staff report that they have difficulty delivering all the projects on schedule because of staffing shortages. In recent years, they have concentrated on reducing the capital projects backlog and have added only a handful of new projects to the CIP. Since many DWP assets are in the middle of their useful lives, this approach has not impacted service levels. However, DWP has aging reclaimed water treatment facilities and other assets that will require significant investments soon. The following figure shows the water capital budget spending by customer account for all peer organizations.

Figure 9: Peer Organization Three Year Average Water Capital Budget Per Customer Account



Wastewater related capital spending was collected for peer organizations that either treat or collect wastewater. The City of Corona has averaged $6.8 million in spending on wastewater capital projects over the last three fiscal years.

[13] Elsinore Valley Municipal Water District does not have their FY2019 Capital Improvement Plan publicly available.

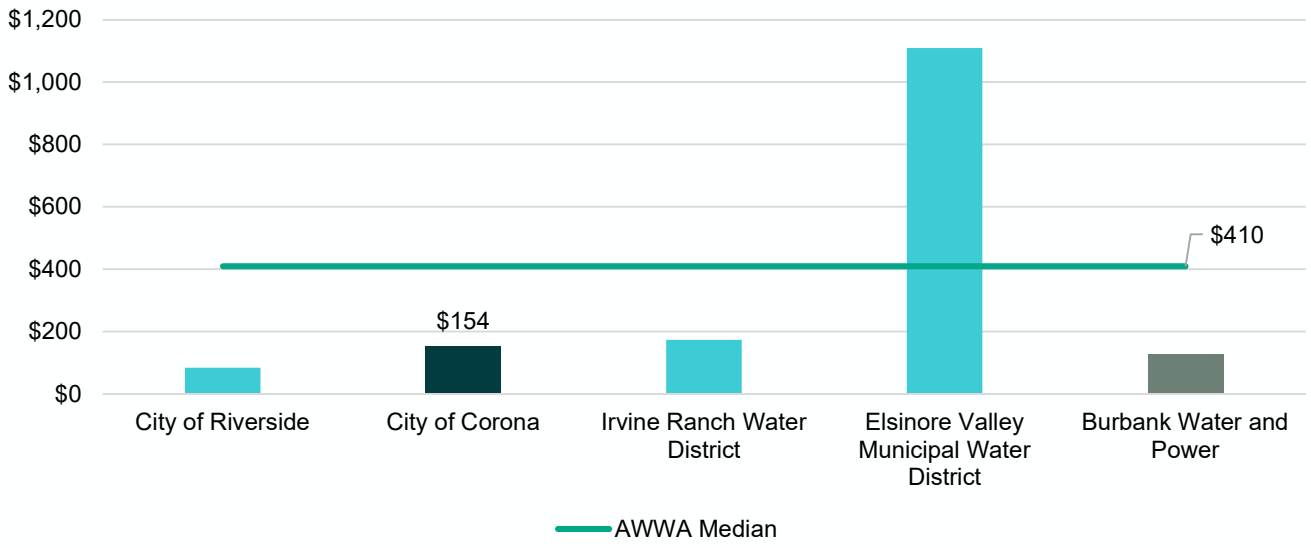
This level of spending is similar to peer organizations that treat wastewater. Out of the 10 identified peer organizations, only four treat wastewater. The other organizations partner with nearby jurisdictions to perform wastewater collection and treatment. The following table shows the CIP spending on wastewater capital projects for the last three fiscal years for peer organizations.

Table 25: Peer Organization Wastewater Capital Budget

Peer Organization	FY2019	FY2020	FY2021	Three Year Average
Burbank Water and Power	$2,049,737	$5,241,170	$2,846,905	**$3,379,271**
City of Riverside	$1,966,761	$709,343	$14,000,000	**$5,558,701**
City of Corona	$2,701,198	$11,452,180	$6,323,401	**$6,825,593**
Irvine Ranch Water District	$29,289,469	$13,991,695	$16,901,637	**$20,060,934**
Elsinore Valley Municipal Water District	N/A[14]	$45,100,000	$54,424,107	**$49,762,054**

Using a three-year average, the capital spending per customer account can be calculated. This measure shows the relative spending effort compared across organizations with different sized customer bases. The City of Corona spends about $154 per customer account, which is higher than the City of Riverside and the Yorba Linda Water District. However, it is lower than the other peer organizations. The following figure shows the wastewater capital spending per customer account across all the peer organizations.

Figure 10: Peer Organization Three Year Average Wastewater Capital Budget Per Customer Account



Electric utility-related capital spending was also evaluated. Using the three-year average, the City of Corona spent about $1.2 million per year, the lowest of all the peer organizations that provide electric service. This is due to the relatively small electric operation that the City has compared to other organizations. The following table shows the capital spending by year for each peer organization.

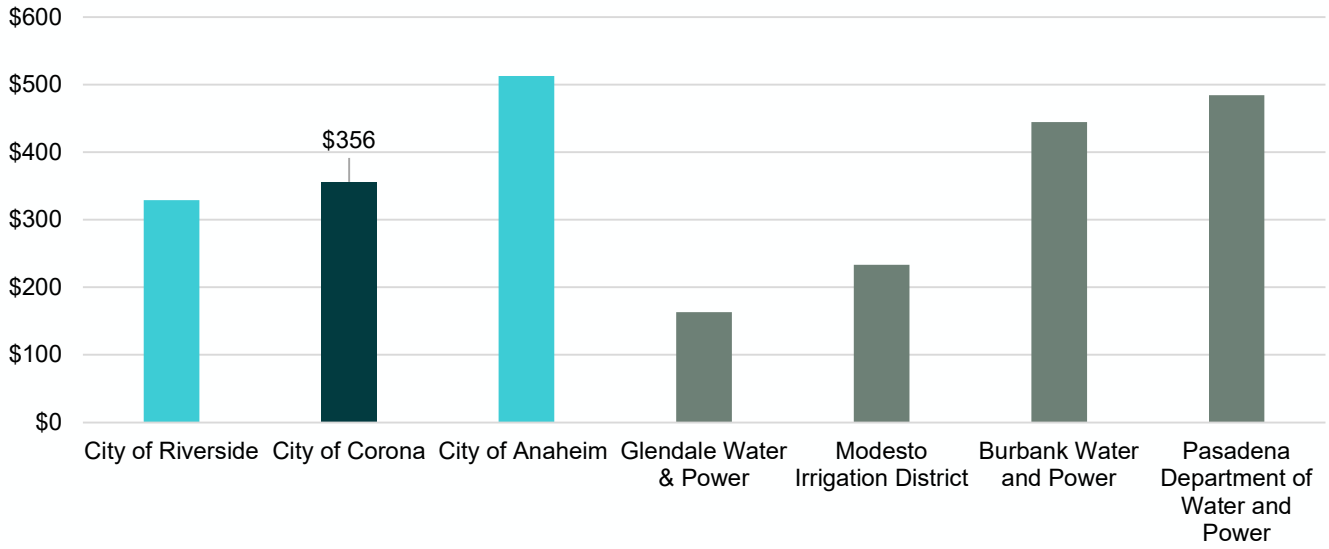
[14] Elsinore Valley Municipal Water District does not have their FY2019 Capital Improvement Plan publicly available.

Table 26: Peer Organization Electric Utility Capital Budget

Electric Capital Budget	FY2019	FY2020	FY2021	Three Year Average
City of Corona	$180,250	$2,990,000	$271,337	**$1,147,196**
Glendale Water & Power	$12,783,938	$21,086,300	$10,095,348	**$14,655,195**
Burbank Water and Power	$22,113,048	$19,988,052	$29,051,966	**$23,717,689**
Modesto Irrigation District	$28,910,438	$33,653,799	$28,240,449	**$30,268,229**
Pasadena Department of Water and Power	$37,947,000	$26,949,000	$31,835,000	**$32,243,667**
City of Riverside	$32,657,664	$34,651,602	$41,663,797	**$36,324,354**
City of Anaheim	$67,160,000	$68,600,000	$54,335,000	**$63,365,000**

The electric utility spending per customer account shows the City of Corona in a more favorable position than its peers. The City spends $356 per customer account, which is the median amount for all peer organizations. The following figure shows the electric capital spending per customer account for all peer organizations.

Figure 11: Peer Organization Three Year Average Electric Capital Budget Per Customer Account



Capital spending is heavily dependent on the condition of the assets, service area growth, and regulatory requirements. Because the average age of water and wastewater pipelines is relatively low in Corona and the treatment facilities are in the middle of their useful lives, there have not been many opportunities for significant capital outlays, nor do there appear to be any in the next few years. It appears that most capital expenditures are on routine growth and renewal related asset upgrades. Capital spending is cyclical, so the City of Corona must prepare for when major facilities reach the end of their remaining useful lives. This will trigger major capital expenditures. To minimize rate shock associated with big treatment projects and to level capital spending, more emphasis should be put directly toward CIP development and capital project delivery. This is discussed further in the Engineering section of this document.

Rate Planning

Over the most recent five-year span (FY2017 to FY2021), DWP has increased water and wastewater rates by only 4% in total. Over the same time, the cost of living has gone up about 8.3% based on inflationary indicators. This rate

of revenue growth compared to inflationary pressures puts pressure on a utility's budget and can affect a utility's ability to provide high-quality services.

Regular rate increases are a critical component of a healthy utility. Operating costs for chemicals, labor, healthcare, and other key resources consistently increase. The cost of infrastructure, construction, and building materials also increase regularly. Incrementally increasing rates each year, instead of approving large rate increases less frequently, is an important part of maintaining a healthy utility. When rate increases span multiple years, the increases needed to keep up with rising costs are often many times more than what would be needed if a small rate increase occurred each year. This difference in scale can lead to "rate shock," where customers balk at needed rate increases because of the size. Rate shock often reduces the likelihood that a rate increase will occur, and if it does occur, the approved increase can negatively impact the utility's standing with its customer base.

The most recent rate increase in the City of Corona was approved in January 2020. This increase was the first in six years. The City's previous rate adjustment was effective in February 2014 for potable water and July 2013 for reclaimed water. The rate plan approved that began in FY2020 resulted in a 5% rate increase each year from 2020 to 2024 for potable water and even higher rate increases for the first three years for reclaimed water. Six years between appropriate and cost-justified rate increases is too long. DWP should strive to approve rate increases more regularly. Doing so will allow for annual rate increases that are more in line with inflationary pressures instead of drastic rate increases that account for underfunding of the system in years when there were no rate increases.

Regular rate increases allow the utility to keep up with inflationary pressures on operations and maintenance and construction costs. Appropriate funding also allows the utility to staff at levels needed to execute its proposed capital plan. As major capital projects are identified and planned, appropriate staffing levels in key project management, construction, and engineering roles are needed to execute the projects in a timely and efficient manner. When regular rate increases do not occur, it can often be difficult for utilities to fund adequate staffing levels to absorb and execute growing capital project demands. Over time, delayed delivery of capital plans can negatively impact the maintenance, replacement, and growth of infrastructure. This ultimately results in larger rate increases to pay for repairing and replacing an underfunded system.

Recommendation 12: Regularly assess and increase rates to reflect annual changes in operating costs and planned capital investments.

DWP should assess rates annually and increase rates regularly to reflect changes in operating costs and the cost to implement capital projects. Waiting too long to implement rate increases can result in rate shock when a large rate increase is needed to fund operations and capital projects and maintain adequate working capital. Annual rate increases are more in line with inflationary pressures that account for rising personnel costs, costs for supplies like chemicals, and construction costs. Instead of drastic rate increases that can negatively impact the customer perception of DWP, annual rate increases should be adopted and implemented to account for the cost of providing services to the public.

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Operational Assessment

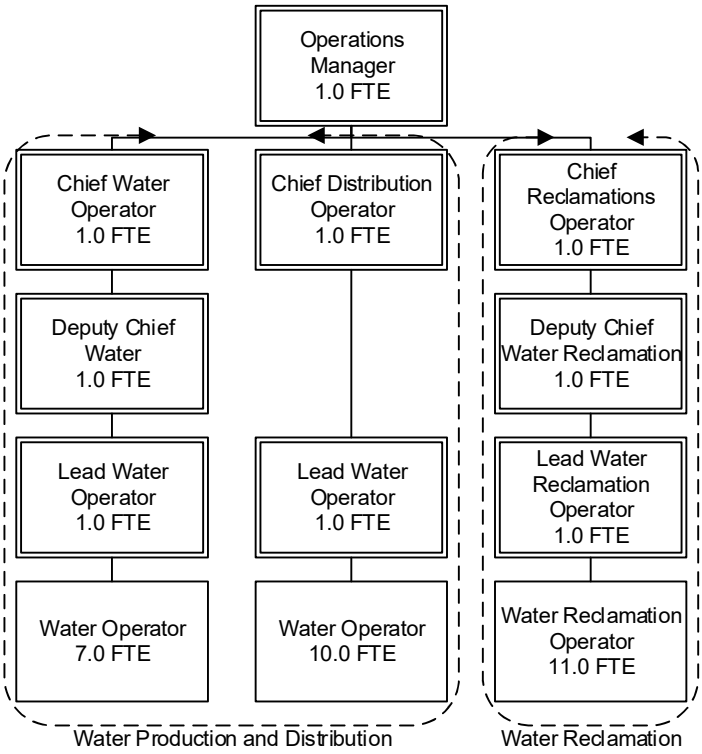
Raftelis completed an assessment of the operations and maintenance (O&M) for water, reclaimed water, water reclamation, power, and customer service areas of DWP. The assessment consisted of reviewing records and reports, interviewing select O&M staff, and visiting major facilities, including the Lester Water Treatment Plant (Lester WTP), City Park Ion Exchange Treatment Plant (City Park IXTP), wastewater reclamation facilities (WRF) No. 1 and No. 2, two treated water reservoirs, the Garretson Booster Station, Well 17, and the main warehouse facilities. The project team did not visit the Sierra Del Oro Water Treatment plant due to time constraints or the WRF No. 3 because it is reportedly scheduled for decommissioning. Raftelis did not perform any engineering investigations to assess the condition of assets such as buried pipes or electrical equipment. Interviews were conducted with DWP staff, and reports were used to understand the condition of these assets and their O&M. Visual assessments of certain assets are sometimes only marginally valuable (e.g., electrical equipment) or not possible, as in the case of buried pipelines, without specialized equipment.

The utility operations in Corona, as well as in other parts of California, are heavily regulated. Regular reporting and rigorous licensing requirements are in place to ensure that the utilities provide acceptable quality services that protect the environment and public health. For example, DWP must complete an Urban Water Management Plan (UWMP) according to the California Department of Water Resources (DWR) to ensure that it is sustainably managing water resources. It must also complete and submit regular reports on water treatment and water quality testing performed by an independent laboratory. A Sanitary Sewer Management Plan (SSMP), as required by the California Water Resources Control Board, describes how DWP manages the water reclamation and reclaimed water systems. These documents provide extensive guidance on the management of water, reclaimed water, and water reclamation operations.

Information collection activities provided a representative sample of DWP's major operations. It allowed Raftelis to review how well DWP performs core functions such as treating and distributing drinking water, collecting and treating wastewater, distributing reclaimed water, power distribution, and utility billing and customer service functions.

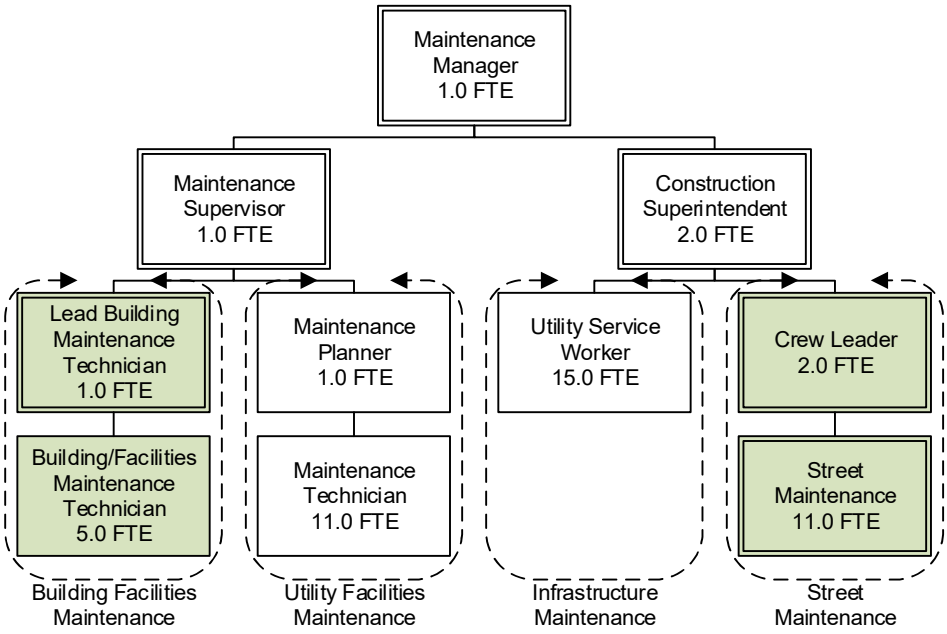
Operations staff are divided into three general areas: water production, water distribution, and water reclamation. Each is led by a Chief Operator who reports to the DWP operations manager. The number of operators varies, but according to the FY2021 adopted budget, 17 operators were assigned to water production and distribution and 11 operators to Water Reclamation, as well as one Lead Operator for each area. The following figure shows the Operations organizational structure and staffing resources for FY2021.

Figure 12: Operations Staffing, FY2021



Maintenance staff for DWP are divided into two teams: Facility Maintenance and Infrastructure Maintenance. The utility facilities maintenance team is focused on utility assets across all utilities; however, maintenance staff specialize in certain facilities or types of assets. There is also a building facilities maintenance team, which is part of the Maintenance Services Department and is focused on maintenance for other City buildings and reports to the DWP Maintenance Supervisor. The Infrastructure Maintenance staff repair and maintain the water distribution and wastewater collections system across the City, with assistance from specialized contractors. The City's street maintenance team also reports to the same Construction Supervisors. The following figure shows the maintenance staffing level for FY2021; the positions shaded in green are part of the Maintenance Services Department.

Figure 13: Maintenance Staffing, FY2021



Drinking Water Treatment

The drinking water facilities observed appear to be well maintained and in good condition. Interviews with operations personnel indicate that they have adopted a continuous improvement mindset and take seriously their role of providing a public health service. Operators have the required state licenses to operate the drinking water facilities, the possession of which requires annual state approved training. Having competent and motivated operations personnel is especially important for the City of Corona because of the complexity of its water system.

Corona employs a mix of water sources, including groundwater wells owned and operated by the City, surface water from the Colorado River provided by the Metropolitan Water District of Southern California through their pipeline to Lake Mathews, and a small portion of water from the State Water Project's California Aqueduct. In 2019, about 48.7% of the City's water came from groundwater, 47.7% from the Colorado River, and 3.6% from the State Water Project. The use of sources can vary from year to year, depending on environmental conditions. Water sources must be skillfully treated and blended to comply with regulations and meet the aesthetic preferences of customers. Water consumption varies by season from approximately 20 MGD in the winter to 40 MGD in the summer.

The Water Utility has a good track record of providing water that is free from harmful microorganisms, which is verified through independent laboratory testing, and treats surface water sources appropriately. There have been instances where groundwater exceeded the primary standards for fluoride, nitrate, and perchlorate, according to the annual Consumer Confidence Report (CCR). The most recent CCR for the 2019 sampling year indicates exceedances of fluoride, nitrate, and perchlorate in the narrative, although, the actual data did not show a fluoride exceedance. The City indicates that potable water delivered to customers did not violate drinking water standards because the exceedances were before treatment and blending. The City Park IXTP and Temescal Desalter is designed to remove these contaminants. Water from multiple sources is also blended so that the water reaching customers meets standards for these constituents. This is not evident in the 2019 CCR and should be restated more clearly.

The aesthetic qualities of the water, which are very important to customers, are reportedly satisfactory. Pressure levels are maintained in a reasonable range through six pressure zones, and there are few taste and odor complaints.

The average hardness of the water is considered high to very high because it is in the range of 169 ppm (9.9 grains per gallon). Elevated hardness levels can impact plumbing and leave a white film on some surfaces. Some systems reduce the hardness of water through blending or treatment.

Staff indicate that there are enough personnel to operate the water treatment and blending facilities at current staffing levels. Seven Operators and one Lead Operator report to the Chief Water Operator, 10 Operators and one Lead Operator report to the Chief Distribution Operator, and one Deputy Chief Operator reports to both the Chief Water Operator and the Chief Distribution Operator. These 22 FTEs work collaboratively to manage water and reclaimed water operations. According to data provided by the City, two Operator positions are currently vacant as well as a Deputy Chief Operator role. The ability to operate multiple water facilities at this staffing level is a testament to the skills of the operations personnel, quality of maintenance performed, and the design of the facilities, including the extensive use of Supervisory Control and Data Acquisition (SCADA) systems to automate and monitor processes. With vacancies, vacations, and other absences, there are typically only 2-4 people at the main WTP during day shifts and fewer at night.

Operations staff work 12-hour shifts from 7:00 a.m. to 7:00 p.m. or 7:00 p.m. to 7:00 a.m. on alternating three- and four-day shifts. The night shift has less staff than the day shift. The Chief Operators and Lead Operators work four 10-hour days per week. As noted in previous sections, staffing is relatively lean throughout DWP, so there is not an overreliance on labor to operate facilities. The number of staff compares favorably with other treatment facilities in California with similarly complex operations; although, compared to utilities with only one facility that is less complex and has easy to treat groundwater systems, Corona may look overstaffed. The following table shows water staffing and the ratio of MGD produced per water employee by peer organization.

Table 27: Peer Organization Water Staffing[15]

Organization	Water Only FTEs	MGD Produced Per Water Employee
Burbank Water and Power	53.00	0.30
City of Corona	61.03	0.45
Glendale Water & Power	76.42	0.27
Yorba Linda Water District	81.50	0.22
Pasadena Department of Water and Power	104.30	0.26
Elsinore Valley Municipal Water District	150.00	0.15
Jurupa Community Services District	158.50	0.13
City of Riverside	164.50	0.39
Irvine Ranch Water District	297.00	0.12

During the site visits, Raftelis noted that the lead operators interviewed appeared knowledgeable and comfortable operating a complex water system. When asked technical questions about each of the facilities' O&M, they responded appropriately. The project team observed that the Department has standard operating procedures (SOPs) for major activities and events. These SOPs appear to be well developed and meet industry standards; however, Raftelis did not review each of them exhaustively.

The Lester WTP has a solid regulatory compliance record, which is another sign of competent operations. The Lester WTP, which was built in the 1960s and significantly upgraded in 1996, shows few outward signs of major

[15] The City of Anaheim and Modesto Irrigation District were excluded from this measure because they do not report separate employee counts for Water.

degradation. Minor signs of corrosion around chemical pumps and similar wear is the extent of observed aging. While the Lester WTP is rated for 30 million MGD, operations staff indicated it is only capable of about 25 MGD because of backwashing requirements. This capacity meets current and near-future demand projections in combination with other sources. The following figure is a picture taken during site visits by the project team; it shows the chemical pumps at the Lester Water Treatment Plant.

Figure 14: Chemical Pumps at Lester WTP

The City Park IXTP and its associated groundwater wells have experienced some minor compliance issues, but it appears to be in good shape, and operations staff seem highly competent. There are some reported design challenges. For example, staff noted that the Reverse Osmosis (RO) Desalter's ion exchange process at the Temescal Desalter uses much more salt than anticipated, sometimes taking salt deliveries 2-3 times per day but usually taking 3-4 deliveries per week. A switch to granular activated carbon is being considered, despite this being a relatively new process. There are two treatment processes in the City Park IXTP: one ion exchange process treats for perchlorates and one treats for nitrates. Only one resin is regenerated with brine. The following figure shows the Ion Exchange Treatment Plant facility.

Figure 15: Ion Exchange Treatment Plant Treatment Process

Lead operators had no significant concerns about plant operation at either treatment facility, nor did any surface during the document review and other interviews Raftelis conducted. Operations personnel were effusive in praise of maintenance staff. They reported that Preventative Maintenance (PM) occurs at necessary levels and as scheduled. All maintenance work, including PMs, is recorded in NexGen, Corona's Computerized Maintenance Management System (CMMS). Operators can access NexGen via tablets, along with the SCADA system. Leads and chiefs have laptops that allow SCADA access at home, as well. There was no evidence of a utility in "firefighting mode," as is sometimes seen in more troubled utilities.

Operators report that they have appropriate backups for critical equipment. Raftelis visually observed backups for many systems during the site visits. The water system is complex, but it appears to have appropriate equipment redundancy and backup systems. For example, during a recent power blackout initiated by the power supplier to deal with an extreme weather event, operators were able to idle the Temescal Desalter rather than firing up plant generators. This type of flexibility is important to deal with emergencies.

Major facility assets are labeled with identification numbers and barcodes. Operators can scan the barcodes with their tablets. Staff typically issue work orders from their tablets. Work orders are prioritized and designated as planned or unplanned (emergency) action. Operators often attach pictures and comments for clarification. Maintenance staff are assigned to a water facility, allowing them to become familiar with each facility's assets. Operations staff hold weekly meetings with maintenance staff to discuss needs and plans. Raftelis observed an excellent level of communication and solid relationship between O&M personnel during site visits. For example, while at the Lester Plant, maintenance staff interrupted the Lead Operator giving Raftelis a tour of the facilities to provide an update on a recently completed workorder. At the City Park IXTP, the same staff member stopped to talk with the Lead Operator regarding a different work order the team was now addressing.

The project team did not visit the Sierra Del Oro (SDO) Treatment Plant. This facility treats an average of 5 MGD through a conventional treatment method that includes a sedimentation process and filtration. This facility is the smallest of the four drinking water treatment plants, and staff did not report any issues with this facility.

Recommendation 13: Implement Reliability Centered Maintenance (RCM).
Water treatment O&M appears to be more advanced than many other utilities in terms of their maintenance and operations practices, coordination, communications, and utilization of staff. They have adopted best practices in many areas. While their efforts in maintenance are considered advanced by industry standards, the next step will be to implement the top tier practices, including Reliability Centered Maintenance (RCM) and advanced asset management. RCM advances past PM and reactive maintenance to practices that rely on monitoring condition, criticality, and past maintenance data to develop individual formal maintenance plans for all major assets. Advanced asset management ties in with the concepts of risk-based prioritization for renewal. These are the next steps for the water O&M staff. When implemented, they will provide additional equipment reliability, reduce lifecycle costs of assets, and more effectively use resources.

Water Reclamation (Wastewater Treatment)

Raftelis visited the City's two main water reclamation facilities, WRF No. 1 and No. 2. Both employ tertiary treatment, which is a step beyond the secondary treatment employed at most other wastewater facilities across the country. Raftelis did not visit WRF No. 3 as that facility is scheduled for decommissioning. The facilities inspected appear to be in acceptable condition but do show signs of aging. Generally, they were not in as good of condition as the water treatment facilities. Wastewater assets typically degrade faster than water assets because of the harsh substances they process. It is expected that water and wastewater assets of roughly the same age would show different amounts of wear.

WRF No. 1 was constructed in 1967-1968 and expanded in 1998. It consists of two parallel secondary process trains with a total treatment capacity of 11.5 MGD. The first treatment train is a traditional secondary treatment (nitrification and denitrification) process that runs at a constant flow of 5.5 MGD. The second treatment train is an oxidation ditch processing flow over the initial 5.5 MGD. The effluent from both treatment trains is combined to receive tertiary treatment through filtration. The condition of major assets appears appropriate for their age. The following figure shows the treatment process at the WRF No. 1.

Figure 16: WRF No. 1 Treatment Process

WRF No. 2 was formerly called the Sunkist Treatment Plant and was originally designed to treat industrial wastewater. The City purchased it in 1986 and completed renovations to the facility in 1988. Upgrades were completed in 2017 to add a tertiary treatment process and allow the City to decommission WRF No. 3. WRF No. 2 treats approximately 3 MGD through the tertiary treatment process, and the facility has room for expansion. WRF No. 2 looked to be in reasonable condition. Most of the major assets (clarifiers, headworks, etc.) date from the 1980s. Tertiary treatment is conducted with filters. Raftelis did not inspect the filter interiors, but the external appearance and concrete appeared to be in good shape. The inspection of assets did not reveal any concerning asset degradation or glaring maintenance issues. The following figure shows the treatment process at the WRF No. 2 plant.

Figure 17: WRF No. 2 Treatment Process

Staff indicate that there are enough personnel to operate the water reclamation facilities. This is noteworthy because the reclamation facilities operate with about the same number of staff as the water facilities. Typically, wastewater plants require more staff per MGD than water plants because of the complex nature of their biological processes. Like the water facilities, most reclamation operations staff work 12-hour shifts, with fewer staff on nights and weekends. Overtime is reportedly minimal.

As noted in previous sections, staffing is lean throughout DWP, so there is not an overreliance on labor to operate the facilities. The number of staff compares favorably with other treatment facilities in California with similarly complex operations. The following table shows wastewater staffing for peer organizations as well as the MGD of wastewater treated per employee. Only three of the peer organizations treat wastewater; other peer organizations partner with a nearby municipality to manage wastewater treatment.

Table 28: Peer Organization Wastewater Staffing

Organization	Wastewater Only FTEs	MGD of Wastewater Treated per Wastewater FTE
Elsinore Valley Municipal Water District	22.00	0.37
City of Corona	34.72	0.39

Organization	Wastewater Only FTEs	MGD of Wastewater Treated per Wastewater FTE
Irvine Ranch Water District	113.00	0.31
City of Riverside	116.00	0.40

Interviews with operations personnel indicate that they are knowledgeable and exhibit care in operating the facilities. Operators have the required state licenses to operate the facilities. These licenses require annual training to maintain. Due to the complexity of the City's wastewater treatment systems, competent and motivated operations personnel are particularly important.

The project team reviewed water quality reports submitted to the State of California by the City. The City has not received a violation notice from the Regional Board, but there have been several violations in the last five years. Many of the violations have occurred at WRF No. 1. The following table shows the wastewater violations by year and facility from 2016 to 2020.

Table 29: Wastewater Violations by Facility 2016 to 2020

Facility	2016	2017	2018	2019	2020	Total
WRF No. 1	17	12	6	48	2	**85**
WRF No. 2	24	2	0	3	0	**29**
Total Violations	**41**	**14**	**6**	**51**	**2**	**114**

Examining these violations by type shows that the most common violation was due to turbidity. There were 64 instances of an abnormal turbidity level, 46 of which occurred in 2019. The next most common type of violation was for coliform bacteria; the number of coliform violations has decreased from 11 in 2016 to zero in 2020. The level of contact time was not met in 19 instances in 2016, although this type of violation has not occurred since. The following table shows all wastewater violations by type from 2016 to 2020.

Table 30: Wastewater Violations by Type 2016 to 2020

Violation Type	2016	2017	2018	2019	2020	Total
Turbidity	6	12	0	46	0	**64**
Coliform	11	0	6	5	0	**22**
Contact Time	19	0	0	0	0	**19**
Chlorine	3	0	0	0	0	**3**
Discharge Secondary Effluent	2	0	0	0	0	**2**
Flow Exceeded	0	2	0	0	0	**2**
Heptachlor Epoxide	0	0	0	0	2	**2**
Total	**41**	**14**	**6**	**51**	**2**	**114**

Raftelis did not investigate the cause of these water quality violations since they are not attributable to a single source or event. The number of violations is more than an average wastewater facility. According to AWWA, combined utilities with water and wastewater operations achieve a median performance of 99.7% compliance with wastewater regulatory standards and 100.0% performance at the 75% percentile. Mitigating factors must be considered, such as the more stringent California requirements (as compared with most other states) and the more advanced treatment at Corona.

There are 14 total FTEs assigned to Water Reclamation: 11 Operators, one Lead Operator, a Deputy Chief Operator, and Chief Operator. Staff indicate that there are enough personnel to operate the facilities at this staffing level; currently, only the Deputy Chief Operator position is vacant. The ability to operate multiple advanced (tertiary treatment) WRFs with only 11 Operators and one Lead Operator is a testament to the skills of the operations personnel, quality of maintenance performed, and the design of the facilities, including the extensive use of SCADA systems to automate and monitor facilities. When asked technical questions about each of the facilities' O&M, the operators responded appropriately.

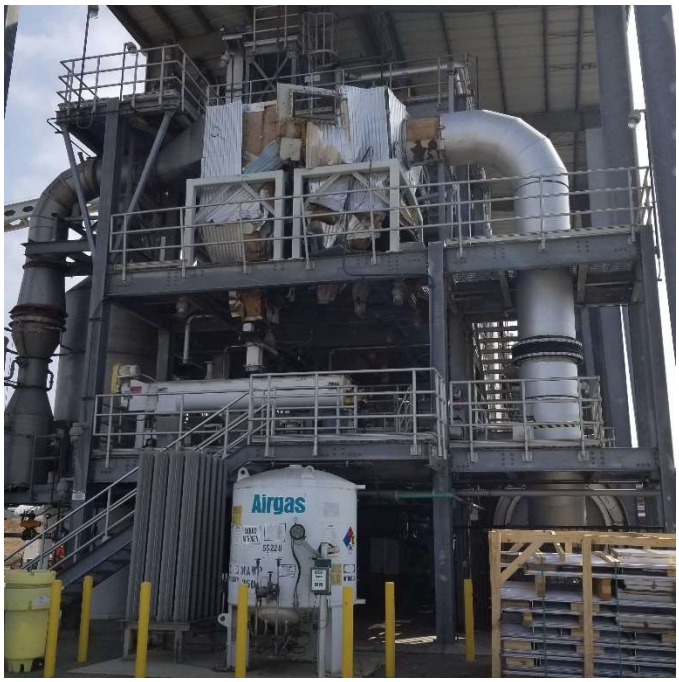
Operating and maintaining a WRF is often more challenging and costly than operating a WTF of similar size because of the delicate nature of the biology in the processes and because of the corrosive nature of the wastewater being treated. Wastewater is often high in ammonia and grit concentrations and produces hydrogen sulfide (H_2S), which is corrosive. These agents are hard on equipment and can produce hazardous environments. More frequent cleaning and maintenance is generally required at WRFs. Process control is required to maintain high-functioning biological processes.

Unlike the water facilities, there were communication and coordination issues between O&M personnel at the water reclamation facilities. Raftelis several staff and each demonstrated a mission-driven focus on the facilities and a clear understanding of the system. However, there were conflicting claims about the responsiveness of maintenance staff regarding the timely completion of work orders, the amount of PM done, and the completeness of work orders. This could not be confirmed through the data provided by DWP, but DWP leadership should work closely with the operations and facilities maintenance staff in water reclamation to address any issues and encourage improved communication and coordination.

Raftelis noted several projects that did not appear complete or have been ongoing at the WRFs for some time. At WRF No. 2, a contractor substantially installed a new Motor Control Center (MCC) about 6-7 years ago but did not complete the work. Staff suggested that maintenance personnel were going to complete the project. In February 2020, staff met with the contractor to review the MCC equipment, but there was significant oxidation build-up, and they did recommend installing the equipment. Staff report that repairing the damaged equipment would cost about the same as installing new equipment. DWP leadership should work with the engineering division to ensure there is adequate capacity to manage projects like this MCC installation and avoid this issue in the future.

Another concerning example is the dryer used for pelletizing biosolids at WRF No. 1. The dryer suffered a catastrophic failure and exploded. Evidence of the failure was still visible during site visits by Raftelis. Fortunately, there were no staff injuries. DWP has two reports analyzing the failure. After some routine maintenance, the dryer would not restart, and during attempts to correct this, it did not purge properly. This resulted in a buildup of gas, and when the dryer began running again, it sparked an explosion. The following figure, a picture taken during the project team's site visit, shows the damage from the biosolids dryer explosion.

Figure 18: Biosolids Dryer at WRF No. 1



A final example involves a boiler at WRF No. 1. The boiler currently rests on railroad ties as opposed to a fixed concrete base. Operations staff report that there is a design ready to mount the boiler on a permanent base, but there is no immediate plan to finish the work. Engineering project management likely has a role in this situation as well.

Raftelis asked questions to learn more about these events. The project team received the reports on the dryer used for pelletizing biosolids, which did not suggest any overt negligence and instead pointed to some equipment and data awareness issues. The project team was also curious about support data from the NexGen CMMS to understand work order history. WRF operations staff reported difficulty getting historical information from the NexGen system and problems measuring the work order backlog. The issues with the MCC and the boiler at WRF No. 1 seem to be a resourcing issue between engineering and operations.

Given the information available, there does not appear to be a software or equipment issue but instead communication and coordination challenges. DWP leadership should work with water reclamation operations staff and facilities maintenance and engineering staff to improve communication and coordination.

Recommendation 14: Resolve communication and coordination challenges.
There appear to be some communication and coordination challenges between O&M and engineering staff. Raftelis recommends instituting regular meetings between O&M staff and involving higher-level managers to resolve outstanding communications and personality issues.

Recommendation 15: Review the work order processes.
The extent of the work order backlog, if it exists, was unclear within the water reclamation group. It also was unclear how long it takes to complete work orders and if the work is completed satisfactorily. The condition of the assets suggests that maintenance is performed regularly but perhaps not to the satisfaction of all the operations staff and not sufficiently to maximize the equipment's lifecycle costs. This is not necessarily a failure by the maintenance staff but probably related to the communication between operations and facilities maintenance staff. In conjunction with

addressing communication issues, Raftelis recommends a detailed review of outstanding work orders and the work order process to improve activities.

Recommendation 16: Review Engineering's role in asset management.
It was unclear the extent to which the engineering staff is responsible for challenges with the completion of the MCC and boiler work or suspected design issues with the ion exchange process that requires more than daily deliveries of salt. Raftelis recommends that DWP incorporate engineering more in ongoing asset management at all facilities and be responsible for the completion of all capital projects, even when maintenance staff participate in construction. These activities must be done in close collaboration with O&M staff. The role of engineering should transition from project developers and managers to full shared stewards of DWP assets. This may require additional engineering staffing.

Recommendation 17: Explore collaboration opportunities between Water and Water Reclamation operators.
Water and water reclamation treatment operate as separate entities with very little crossover. This is understandable because both systems are complex, and the facilities do not have enough staff to allow significant periods of downtime. While some of the staff dismissed the idea of more interaction between the two groups during interviews, there are benefits to cross-training or, at the very least, exposing operations staff to the other facilities and practices. Benefits include exposure to different practices, resource sharing, promoting a collaborative environment, and joint training. DWP should consider ways to get the groups working together more, understanding that each facility has different licensing requirements.

Infrastructure and Facilities Maintenance

The distribution and collection systems are maintained by the DWP Infrastructure Maintenance workgroup, which includes 15 Utility Service Workers and two Construction Superintendents. These Superintendents also oversee the City's Street Maintenance workgroup within the Maintenance Services Department. Utility facilities maintenance is managed by 11 Maintenance Technician positions, one Maintenance Planner, and a Maintenance Supervisor. The Supervisor also oversees the City's Building Facilities Maintenance workgroup, which maintains other City facilities as part of the Maintenance Services Department.

DWP relies on contract services to help with distribution and collection system maintenance. For example, there is a contract with Wachs Water Services for monthly valve exercising, and there have been several pipeline assessment contracts. This is consistent with the model that Corona has adopted to keep staff numbers lean and leverage contract services in several areas. Other utilities tend to perform more services with in-house personnel.

The sewer system has 18 high maintenance areas that are on a monthly or quarterly cleaning schedule. These areas receive more attention than the cleaning and maintenance of general system assets. DWP employs SCADA technology to monitor the 13 active sewage pump stations throughout the City and regularly inspects and maintains pump stations. DWP contracts out fire hydrant testing and maintenance, while City crews manage the booster stations, wells, WTPs, and WRFs.

System water losses are 7% of total production, according to the UWMP. That is considered in the range of other well-run water systems with roughly the same average asset ages. The water system consists of 593 miles of pipe and the wastewater system consists of approximately 368 miles of gravity sewer pipe ranging in size from 6-inches to 42-inches in diameter. Approximately 83% of the pipes are 8-inch in diameter. The majority of the system was built in the 1980s and 1990s. Construction date information was unavailable for approximately 313,000 feet of pipe.

The City delivers roughly 0.4 MGD of Title 22 reclaimed water to 384 metered connections via a dedicated distribution system for landscaping irrigation, toilet flushing via dual plumbed system, firefighting, dust control, and various construction applications.

DWP has an SSMP, as required by the California Water Resources Control Board. It was adopted by the City Council of Corona and must be updated every five years and audited every two years. It was last updated on March 1, 2017. The plan requires that DWP have adequate and up-to-date maps of the existing sewer system, which it has in Geographical Information System (GIS) and hard copy formats. These maps show all gravity line segments, manholes and their associated identification number, pumping facilities, and pressure pipes and valves. The GIS contains information on sewer assets such as installation date, length, diameter, upstream and downstream invert, slope of line, material type, and manhole depth and lid size. It also describes maintenance activities such as system cleaning, root removal, and closed-circuit television (CCTV) inspections, which are performed by an outside contractor with the goal of reviewing the entire sewer system regularly. DWP plans to have the entire sewer and transmission system videoed and cleaned at a minimum of every five years. DWP also contracts a company to perform smoke testing of the sewer mainline to find leaks and illegal hookups in the sewer system on an as-needed basis. DWP staff report that they are meeting their obligations under the SSMP, but Raftelis did not independently verify this information through records.

Electric Utility

The City of Corona Electric Utility serves 2,776 customers. The Utility was created in 2001 in response to rolling blackouts in California and unstable prices.[16] Most City residents receive electric service from Southern California Edison; however, new developments are prospective customers of the City's Electric Utility, and the City provides electric service to most City buildings. The City has two types of customers: Greenfield customers receive fully bundled electric service through City-owned infrastructure, and Direct Access customers receive energy purchased by the City but delivered by Southern California Edison through their equipment and facilities.

According to data provided by the City, electric customers have grown by 13% since 2017. This has primarily been driven by an increase in residential Greenfield customers, which grew by 298 customers, or 30%. The number of Direct Access customers has decreased over this period by 2%; these customers are either commercial or industrial, and the decrease is primarily driven by fewer commercial customers. The following table summarizes the customers by type from 2017 to 2020.

[16] City of Corona, Electric Services & Rates, https://www.coronaca.gov/government/departments-divisions/department-of-water-and-power/customer-care/services/electric-services-rates

Table 31: Electric Utility Customers by Type, 2017 to 2020

Electric Customers	2017	2018	2019	2020	Percent Change 2017 to 2020
Greenfield Customers					
Residential	986	1,115	1,277	1,284	30%
Commercial	489	514	536	533	9%
Industrial	9	9	9	9	0%
Total Greenfield Customers	**1,484**	**1,638**	**1,822**	**1,826**	**23%**
Direct Access Customers					
Commercial	960	953	943	944	-2%
Industrial	7	7	6	6	-14%
Total Direct Access	**967**	**960**	**949**	**950**	**-2%**
Total All Customers	**2,451**	**2,598**	**2,771**	**2,776**	**13%**

Although customer accounts have increased, the electricity consumption in Corona has decreased. Since FY2016, total kilowatt (kW) consumption has decreased by 3% across all customer types. This has been driven by Direct Access customers and specifically governmental accounts. According to a City staff, the decrease in governmental consumption is driven by upgrades to facilities that improve efficiency, such as LED light retrofits and improved efficiency of equipment. Some of the decrease in residential and industrial consumption can be attributed to the growing number of accounts utilizing solar energy. Other drivers of the decrease for 2020 are the impacts of the ongoing COVID-19 pandemic, especially for non-residential accounts. The following table shows the electric consumption by customer type in kilowatts for the last five fiscal years.

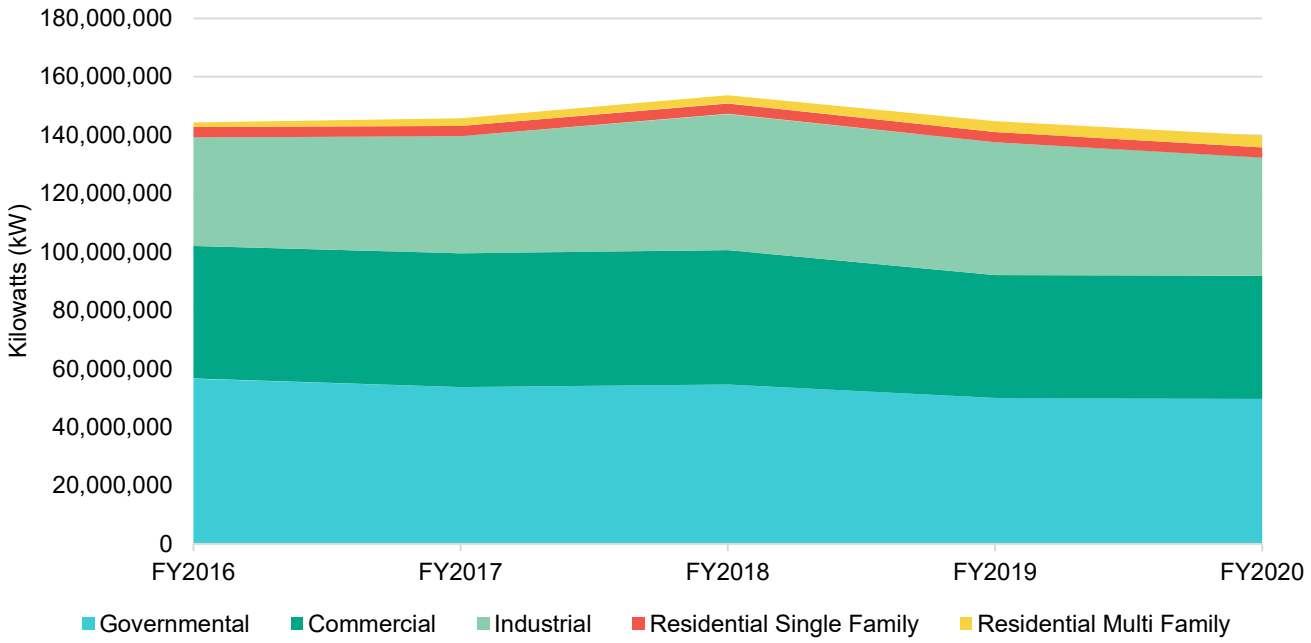
Table 32: Electric Consumption in Kilowatts by Customer Type, FY2016 to FY2020

Kilowatt (kW) Consumption	FY2016	FY2017	FY2018	FY2019	FY2020	Percent Change FY2016 to FY2020
Greenfield Consumption						
Residential Single Family	3,618,701	3,598,580	3,607,112	3,503,584	3,462,309	-4%
Residential Multi Family	1,612,192	2,561,725	2,779,503	3,717,020	4,080,302	153%
Commercial	41,635,668	41,733,885	42,013,728	39,319,841	38,859,256	-7%
Industrial	13,683,769	15,673,047	21,768,565	22,182,179	20,360,159	49%
Governmental	17,506,320	16,634,330	17,492,399	15,011,544	15,440,784	-12%
Total Greenfield kW	**78,056,650**	**80,201,567**	**87,661,307**	**83,734,168**	**82,202,810**	**5%**
Direct Access Consumption						
Commercial	3,829,467	4,019,263	3,959,228	2,775,940	3,286,960	-14%
Industrial	23,386,012	24,443,701	24,939,308	23,292,104	20,131,201	-14%
Governmental	39,121,222	37,094,354	37,106,793	34,985,222	34,284,951	-12%
Total Direct Access kW	**66,336,701**	**65,557,318**	**66,005,329**	**61,053,266**	**57,703,112**	**-13%**
Total kW Consumption	**144,393,351**	**145,758,885**	**153,666,636**	**144,787,434**	**139,905,922**	**-3%**

The largest category of consumption for the Electric Utility across both types of customers is governmental accounts. When governmental usage decreases, it reduces revenue for the utility but also indicates savings for the City as a whole, which experiences lower electric costs. Commercial and industrial customers make up the next largest consumers of electricity, representing 30% and 29% of all consumption, respectively. Residential consumption is the

smallest category in Corona, representing about 5% of total consumption. The following figure shows consumption by customer type for both Greenfield and Direct Access customers.

Figure 19: Combined Greenfield and Direct Access Consumption, FY2016 to FY2020

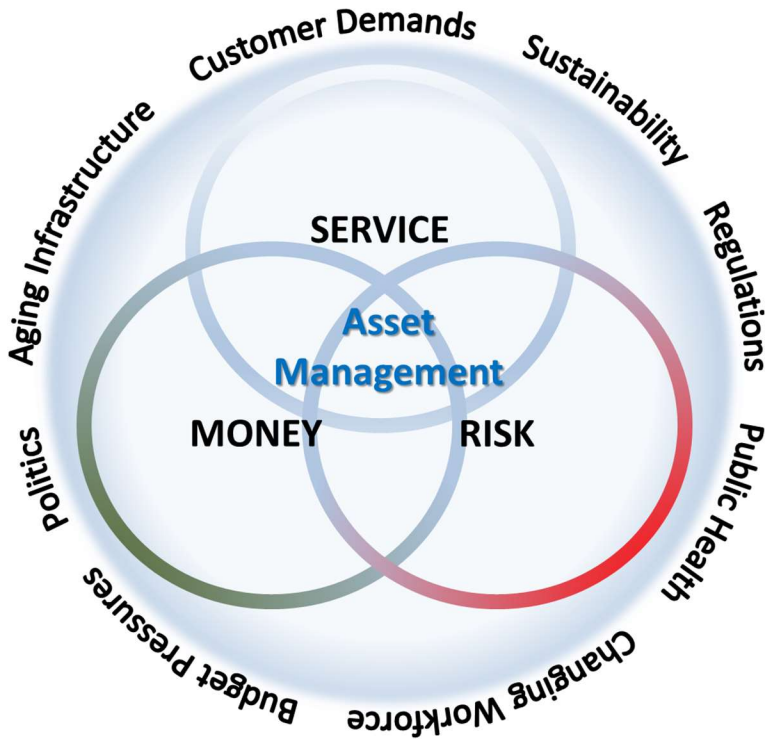


The City of Corona has a small but growing Electric Utility. According to staff, much of the infrastructure was installed between 2004 and 2005. There is a PM schedule for the City-owned infrastructure, and in November 2020, the City issued a request for proposals (RFP) for condition assessment services for the electric distribution system. This assessment will be an important part of the maintenance of the utility's infrastructure and facilities. The results of the assessment should be incorporated into the City's CIP in order to maintain the quality of electric service and continue growing the Utility's customer base.

Asset Management

Asset management is a "way of doing business" that helps effectively balance budgets, service levels, and risk. It cannot be just a piece of software or a collection of maintenance practices. DWP is involved in an array of asset management activities throughout the lifecycle of its assets, encompassing planning, design, operations, maintenance, and renewal activities. It is performing many, but not all, of these activities at a high level. Execution of these activities is discussed in various sections of this document. The following figure outlines how asset management becomes an interconnected "way of doing business."

Figure 20: Asset Management as a "Way of Doing Business"



There are three areas of asset management that DWP should strengthen as it moves toward best in class performance:

- **Risk-Based Management** – DWP has many of its infrastructure assets in GIS and its CMMS, NexGen. Many of these assets reportedly have linked information about maintenance history, installation date, age, size, location, etc. DWP does not track asset condition or risk level, where risk is the combination of the probability of an asset failing (represented by condition) and consequence of failure. DWP should use risk more prominently in decision making.

- **Reliability-Centered Maintenance (RCM) Practices** – RCM advances past Preventative Maintenance (PM) and reactive maintenance to practices that rely on condition, criticality, and past maintenance data to develop individual formal maintenance plans for all major assets. Advanced asset management ties in with the concepts of risk-based activities. (See Recommendation 13.)

- **Use NexGen as an Asset Management and Planning Tool** – DWP records much of its maintenance work in NexGen, which also contains information about assets. Tracking work for the sake of compiling information is not the best use of resources. The information in NexGen should be used to make decisions on maintenance and capital planning. Using the information in NexGen, DWP could make better decisions on how to operate and maintain assets and when to repair, rehabilitate, and replace assets. NexGen is not being used to its fullest extent. (See Recommendation 15.)

Warehouse

Two staff maintain a central warehouse and manage supplies for utility activities as well as other City functions. The condition of the main warehouse, shops, and central maintenance facilities was clean and appeared well organized,

as did the condition of mobile equipment that the Raftelis team observed. This is consistent with equipment renewal and service information that Raftelis reviewed.

The warehouse reportedly has an adequate stock, which is set based on economic analysis to determine the optimal minimum, maximum, and reorder quantities. There are Fastenal vending machines that are badge operated to distribute consumable materials. Critical motors, pumps, and other items are in stock. The following figure is a picture of the Fastenal vending machine that distributes equipment to DWP staff.

Figure 21: Fastenal Vending Machine

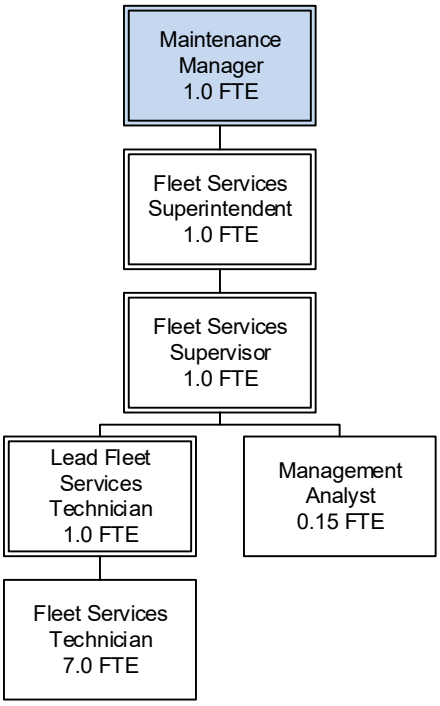
Warehouse staff perform inventory counts regularly, and parts are linked to NexGen work orders. While warehouse staff do not control the inventory on trucks, they do issue materials and supplies, and these items appear on work orders, which controls the inventory on vehicles indirectly.

Fleet Services

The Fleet Services operation in the City of Corona is part of the Maintenance Services Department, which is incorporated into the DWP organizational structure. Fleet Services provides all maintenance and repair services for City vehicles and manages the vehicle replacement and new vehicle acquisition process. Fleet is funded through an internal service fund, which charges each department a fixed "motor pool rate" annually to support the operations of the division. This rate incorporates both maintenance and operational costs as well as future replacement costs for vehicles and equipment.

The City has 10.15 FTEs assigned to Fleet Services: seven Fleet Services Technicians and one Lead Technician in addition to a Fleet Services Supervisor and Fleet Services Superintendent. A Management Analyst position is split 15% to Fleet Services and 85% to DWP. The following figure shows the organizational structure for Fleet Services, which reports to the Maintenance Manager in DWP.

Figure 22: Fleet Services Organizational Structure



As part of the budget process, the Fleet Services Superintendent works with the Management Analyst to prepare a cost allocation for all motor pool vehicles. This motor pool rate is made up of three components: the estimated maintenance cost of each vehicle based on history, the operations cost of each vehicle and the Fleet Services Division, and an amortized future cost of a replacement vehicle. This annual cost for replacement vehicles is calculated based on the expected number of years the vehicle will be in service and the projected future cost of the vehicle when it will be replaced. Through this methodology, departments pay in advance to replace their fleet vehicles, ensuring there is funding when the need for a replacement occurs. However, most vehicles are not charged the replacement portion of the motor pool rate but are only charged for the operations and maintenance components of the motor pool rate. Only about 37% of City vehicles are charged annually for the future replacement cost of their vehicles. DWP is one of two department with no replacement cost charged for any of their vehicles. Therefore, only operation and maintenance cost for DWP vehicles are captured in the motor pool rate.

The motor pool rate is reviewed by the Finance Division and all departments with fleet vehicles. Each department's motor pool rate is added to their operating budget, and the cost is journaled on December 31, halfway through the fiscal year, to the Fleet Internal Services Fund.

Most of the City's vehicles are part of the motor pool, and the cost of operating and maintaining those vehicles is covered by the motor pool rate. However, there are two other categories of vehicles that are not part of the motor pool. The first is what the City refers to as "retention" vehicles; these are motor pool vehicles that were eligible for replacement and have been replaced by a new vehicle, but the department that uses the vehicle wishes to retain the vehicle. This happens most frequently with vehicles that are still usable after they are eligible for replacement. Departments can retain these vehicles, and the cost of vehicle operation and maintenance is charged to the department as part of the motor pool rate. However, the vehicle will not be replaced again, so when it is no longer usable, it is sold as surplus. If a department wants to replace a retention vehicle, it needs to request funding for a new vehicle as part of the budget process separate from the fleet replacement program.

The final category of vehicle is known as "on account" vehicles, which are vehicles that were purchased outside of the fleet program and are separate from the motor pool. According to staff, this type of vehicle is primarily owned by DWP, which has six "on account" vehicles. The cost to operate, maintain, and replace these vehicles is not part of the motor pool rate. According to staff interviews, these vehicles were purchased outside of the fleet program because the City froze new vehicle purchases for non-public safety departments after the Great Recession. Departments are charged by Fleet Services for the actual cost of maintenance and repair as well as the cost of fuel. As the "on account" vehicles become ready for replacement, DWP has purchased new vehicles and incorporated them into the motor pool so that in the future, the replacement cost will be built into the motor pool rate.

According to data provided by the City, DWP has 62 fleet assets in FY2021 that are part of the motor pool. These are primarily heavy- or medium-sized trucks. The average age for DWP vehicles is between 9.2 and 14.2 years. The department also has nine trailer and equipment assets. DWP was charged $302,802 in FY2021 for the motor pool rate. The following table is a summary of DWP assets in the motor pool by type.

Table 33: DWP Fleet Assets in Motor Pool

Asset Category	Number	Average Years in Service
Heavy Truck	20	12.85
Medium Truck (F-250 and F-350)	17	9.23
Trailers and Equipment	9	31.19
Pickup Truck	9	14.19
Loader	5	39.25
Sedan	1	9.67
SUV	1	12.67
Total Motor Pool Assets	**62**	**16.79**

In FY2021, DWP had 41 assets purchased "on account" and separate from the motor pool. These are primarily trailers and equipment; only six vehicles were purchased "on account." The vehicles have all been in service for less than four years. The following table summarizes the DWP "on account" assets.

Table 34: DWP Fleet Assets Purchased "On Account"

Asset Category	Number	Average Years in Service
Pickup Truck	3	2.53
SUV	3	2.19
Generator	6	25.81
Forklift	1	20.92
Trailers and Equipment	28	18.22
Total "On Account" Assets	**41**	**17.07**

Recommendation 18: Incorporate the six "on account" DWP vehicles into the motor pool and replacement program.

The "on account" fleet assets exist outside of the City's normal funding and replacement cycle. As discussed previously, these assets were purchased in response to a freeze on new vehicle purchases for non-public safety vehicles. However, DWP still had operational need and available funding for fleet assets. Spreading the cost of replacement vehicles over several years is a best practice in the fleet industry and allows a department like DWP to

avoid spikes in expenditures that could affect the need for rate adjustments. DWP should avoid making "on account" fleet purchases in the future and should incorporate the current six vehicles into the City's motor pool and replacement program.

The City replaces pickup trucks and SUVs on a 12-year cycle. This means that the future replacement cost of a vehicle is normally paid in 12 annual increments. These "on account" vehicles should be added to the DWP motor pool assets and the future replacement costs paid over the remaining life cycle of each vehicle. Based on the average purchase price of other pickup trucks and SUVs in the City's fleet system, the annual cost to incorporate these vehicles into the replacement program can be calculated. The future price for a pickup truck or SUV is estimated to be $25,038 or $24,575, respectively, based on a 1.5% annual inflation rate. The following table shows the annual cost to add each of the six "on account" vehicles to the replacement program beginning in FY2022.

Table 35: Estimated Replacement Cost for "On Account" Vehicles

Equipment Number	Asset Category	Purchase Price	Future Price	Remaining Years	Annual Cost
52162	Pickup Truck	$20,941	$25,038	8.00	$3,130
52163	Pickup Truck	$20,941	$25,038	8.00	$3,130
52165	SUV	$20,555	$24,575	9.00	$2,731
52166	SUV	$20,555	$24,575	9.00	$2,731
52167	Pickup Truck	$20,941	$25,038	10.00	$2,504
52168	SUV	$20,555	$24,575	10.00	$2,458
				Total Annual Cost:	**$16,684**

Depending on the length of time the vehicles have been in service, the annual cost is higher because the replacement vehicle cost is spread over fewer fiscal years. The total annual cost in FY2022 and beyond is estimated to be $16,684 to add the six vehicles to the City's replacement program. If this amount were added to the FY2021 motor pool rate, it would increase DWP's fleet costs by 5.5% to $319,486. This amount is only the replacement cost portion of the motor pool rate; DWP should work with Fleet Services and Finance Division staff to estimate operations and maintenance costs for these vehicles to include in the DWP motor pool rate.

Recommendation 19: Assess the cost of incorporating DWP vehicles and equipment into the City's fleet replacement program.

DWP vehicles are not charged for the replacement cost as part of their motor pool rate. This is surprising given the number of DWP vehicles operated by the department and the potential cost for replacing heavy trucks and equipment. Paying annually for the future cost of replacing vehicles will smooth out year to year funding needed for vehicle and equipment replacement, allowing DWP to better understand annual costs and needed rate increases. DWP should work with Fleet Services and the Finance Division to assess whether DWP vehicles should be added to the replacement program and the timeline to do so. Due to cost impacts, it may be appropriate to only apply this replacement fee to new vehicles acquired by DWP rather than all current vehicles.

Engineering

Engineering services that support DWP and other departments of the City are housed within the Public Works Department. There are four Utility Engineer positions within Public Works dedicated to utility engineering activities. Their activities include infrastructure planning and studies, coordinating and reviewing new development related to utilities, mapping and collecting data on assets, and project management for utility capital programs. Outside contractors/consultants are used heavily to support engineering activities. Consultants conduct significant studies,

produce reports for compliance and planning, and do the bulk of the infrastructure design and inspection work, with oversight from an engineer. Contractors do the bulk of the installation work for new and renewed infrastructure, and engineering consultants provide the bulk of the project inspection services for capital projects. As noted previously, the City relies heavily on outsourcing.

Several staff, including the lead for DWP engineering, acknowledge that Engineering services are stretched thin. Incomplete projects at the water and reclaimed water facilities suggest that some smaller projects do not get the follow-through that they require. While O&M staff may share in some of the responsibility for completing these projects, engineering is typically the group that oversees delivery of capital projects. Engineering also needs to have an integral role in asset management across the lifecycle of all assets. For example, Engineering should be heavily involved in two projects that were mentioned by operations staff:

- A carbon dioxide (CO_2) injection system to reduce pH, adding CO_2 as an acidifier, which would allow the use of normal alum at roughly half the current dose.
- A combined plant effluent meter at the filters at the Lester WTP, which might improve operability through improved chemical dosing

These are both smaller projects, but Engineering should have a significant role in their development.

In addition to inadequate engineering resources dedicated to DWP work, the location of DWP engineering services in the Public Works Department does not help to facilitate good communication with utility O&M activities. Changing the location of DWP engineering functions alone would not improve the situation. However, changing the location of DWP engineering along with providing additional resources would likely have a significant impact.

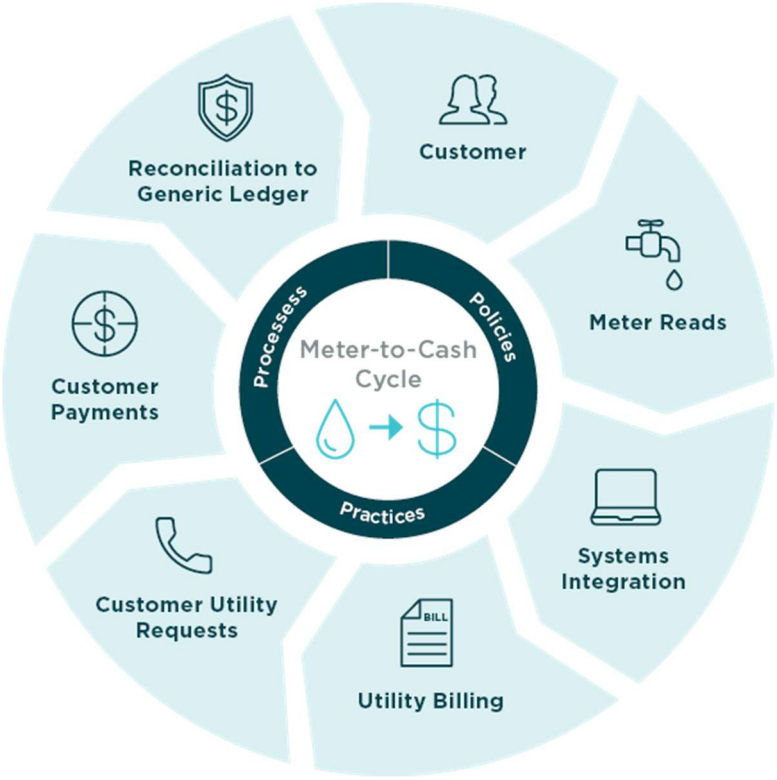
Recommendation 20: Consider additional resources for Engineering.
Engineering currently is unable to meet the capital project load and the addition of new customers without significant assistance from outside engineering firms. This does not leave sufficient resources that can work on operations analysis and advanced asset management activities. Raftelis recommends adding a person who would assist with operations engineering activities, planning, and implementing advanced asset management.

Recommendation 21: Review the location of DWP engineering in the organizational structure.
In parallel with this audit, there is an ongoing study on the overall City organization. Together, these studies should provide insight on the best location for City engineering services. Regardless of their location, Raftelis believes that embedding some engineers within DWP but keeping them part of the larger engineering team makes sense. This would allow them to coordinate more closely with DWP staff.

Utility Billing and Customer Care

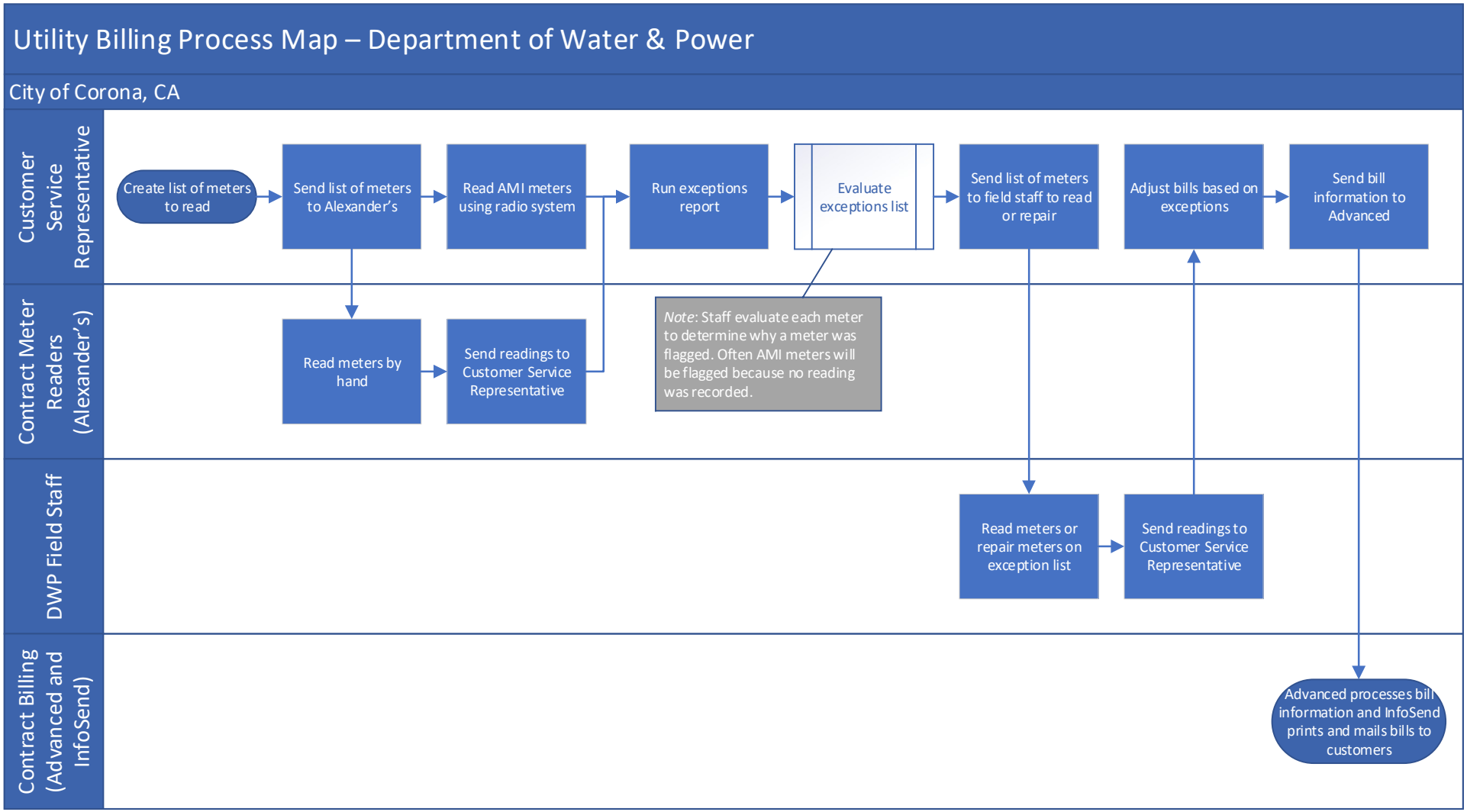
DWP bills customers monthly for water, reclaimed water, wastewater, and electric services. The activities associated with billing are conceptually simple, but in practice, the "meter-to-cash" cycle is complex, with many steps and nuances associated with every subprocess. The following figure provides a synopsis of the meter-to-cash process.

Figure 23: The Utility Meter to Cash Cycle



Raftelis carefully reviewed all the major steps in the billing process with the staff who perform them. These practices were compared to industry best practices and metrics. The meter-to-cash cycle starts with meters. New meters are installed by DWP on behalf of developers and property owners for domestic and landscape meters. Engineering staff within the Public Works Department review and approve the meter size. DWP has hired contractors to read water and power meters; meter readings go into a customer information system (CIS)/billing system by Advanced Utility Systems where monthly bills are calculated. DWP staff then send a billing file to another contractor, InfoSend, which prints and mails the bills to customers. Using a bill printing vendor is common in the utility industry but using a meter reading service is uncommon. The following figure provides a high-level process map of utility billing in the City of Corona.

Figure 24: The Utility Billing Process Map



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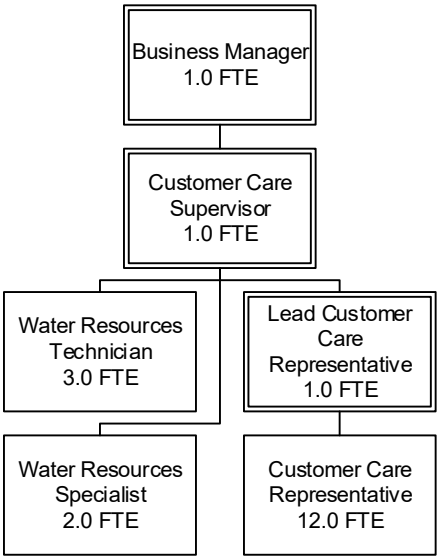
According to staff interviews, there are two primary Customer Care Representative positions responsible for billing and a third staff member who can back up these roles. Each of the two current billing staff have over 10 years of experience at DWP, and each has advanced through the ranks to their current positions. Customer Care Representatives interact with customers to collect payments, address inquiries and property changes, and manage delinquent accounts. There are a total of 12 Customer Care Representatives at various levels, including the two dedicated billing staff and a Lead Customer Care Representative. All positions are assigned to the utility billing program except for 5% of both the Customer Care Supervisor and Lead Customer Care Representative, which is assigned to Maintenance Administration. The lead position is currently vacant. The following figure shows the organizational structure of the Utility Billing and Customer Care staff for FY2021.

Figure 25: Utility Billing and Customer Care Organizational Chart, FY2021



The number of customer service representatives is roughly in line with those of other utilities from across the country. The following table shows a comparison of customer care operations at other utilities.

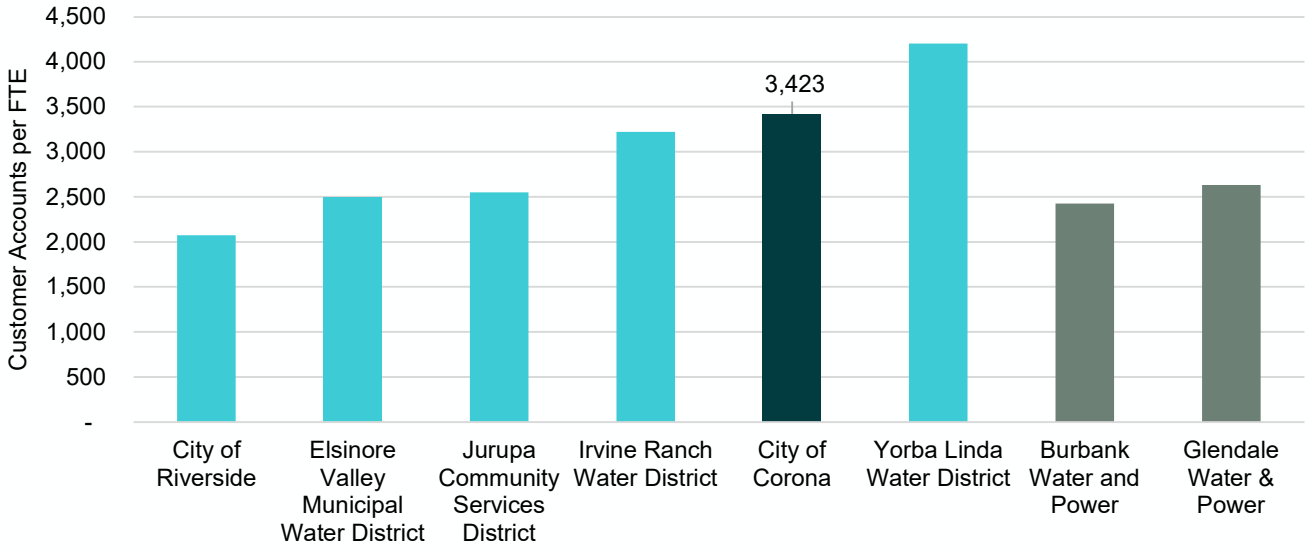
Table 36: Peer Organization Customer Care Staffing[17]

Organization	Frontline Customer Service FTEs	All Customer Care FTEs	Total Organization FTEs
Yorba Linda Water District	5.00	6.00	**81.50**
City of Corona	12.00	13.90	**110.85**
Jurupa Community Services District	7.00	13.00	**158.50**
Elsinore Valley Municipal Water District	13.00	18.00	**172.00**
Irvine Ranch Water District	21.00	36.00	**410.00**
City of Riverside	57.00	85.00	**756.75**
Glendale Water & Power	34.00	47.00	**318.60**
Burbank Water and Power	28.00	33.00	**345.00**

[17] The City of Anaheim, Pasadena Department of Water and Power, and Modesto Irrigation District were excluded from this measure because they do not report separate employee counts for Utility Billing or Customer Care.

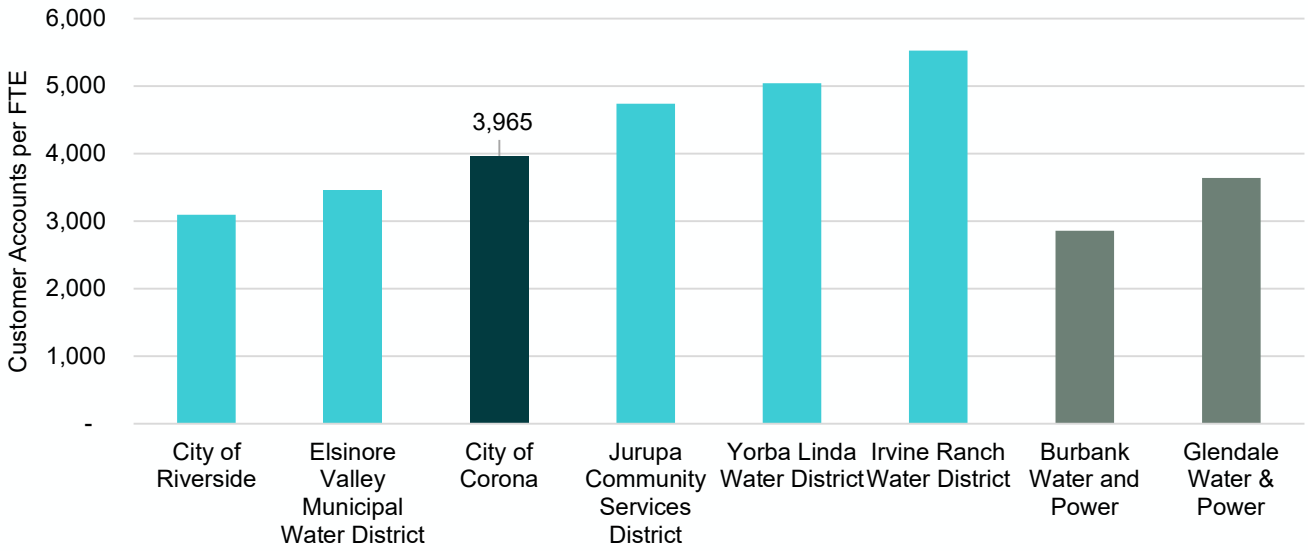
A common industry method for comparing the relative workload of customer service across different organizations is to examine the ratio of customer accounts per FTE. Corona has 3,423 customer accounts per customer care FTE, which is in line with other organizations. The following figure shows the customer accounts per customer care FTE for the City of Corona and its peer organizations.

Figure 26: Peer Organization Customer Accounts per Customer Care FTE



Looking at just the frontline customer service FTEs, excluding supervisors and support staff, the City of Corona has 3,965 customer accounts per FTE. This is in line with the peer organizations in the following figure.

Figure 27: Peer Organization Customer Accounts per Frontline Customer Service FTE



Customer care staff report high turnover in the entry-level Customer Care Representative positions. Low entry-level compensation and the challenging nature of the position may be factors. Customer service staff often deal with demanding and irate customers. The class and compensation study ongoing at the City should answer questions

about the adequacy of compensation. It is not unusual to have high turnover in public-facing customer care roles at utilities, especially when there is a competitive job market and alternative positions are readily available.

According to data provided by the City, the number of accounts billed each month has increased by about 1% each year between 2018 and 2020. On average, the Utility Billing team processes 43,606 accounts each month across 28 cycles with distinct geographic areas. The following table shows all accounts billed by month and year.

Table 37: Total Accounts Billed by Month

Month	2018	2019	2020
January	42,637	43,171	43,460
February	42,552	42,156	43,441
March	42,571	43,113	43,466
April	42,650	43,125	43,596
May	41,087	43,092	43,644
June	42,693	42,556	43,691
July	42,731	43,168	43,682
August	42,775	43,249	43,679
September	42,883	43,261	43,794
October	43,007	43,351	-
November	42,900	43,324	-
December	43,079	43,409	-

As part of each billing cycle, staff run a report to flag any meter with a reading that appears abnormal. Each meter flagged in this report requires follow up from staff to determine the accuracy of the meter reading. First, a Customer Care Representative will review the reading and determine if further attention is needed. In most cases, the customer care staff can resolve the abnormal reading, but for about 8% of all abnormal readings, a field staff member must be sent out to physically check the meter and make repairs or replace it. The following table shows the total number of abnormal readings made since the beginning of 2018 and the number that required field staff attention.

Table 38: Abnormal Readings by Year

Year	Total Abnormal Readings	Abnormal Readings Requiring Field Staff	Percent of Abnormal Readings Requiring Field Staff
2018	109,364	9,288	8.5%
2019	127,383	10,269	8.1%
2020	87,168	6,626	7.6%
Total	**323,915**	**26,183**	**8.1%**

The utility billing process is divided into 28 cycles, each with a corresponding geographic area and consistent due date each month for customers. This number of cycles requires DWP staff to process a cycle each day of the month. However, in practice, staff only process cycles Monday through Thursday, combining weekend days with the Thursday cycle. The number of accounts per cycle ranges from 770 to 2,889. On average, each cycle has between 121 and 1,250 abnormal readings each month, which represent 12% to 45% of all accounts for that cycle. Through September 2020, there were, on average, 736 meters a month that required attention from field staff. The following table shows the average number of accounts billed, abnormal readings, and the number of meters that required field staff attention for 2020.

Table 39: Average Accounts Billed and Abnormal Readings by Cycle, January to September 2020

Cycle	Monthly Accounts Billed	Average Meters with Abnormal Readings	Abnormal Readings as a Percent of All Accounts	Average Abnormal Readings Requiring Field Staff
1	2,058	532	26%	40
2	1,594	357	22%	23
3	972	121	12%	9
4	1,101	232	21%	21
5	1,082	221	20%	27
6	1,410	265	19%	20
7	1,302	279	21%	16
8 & 8A	2,808	1,250	45%	77
9	826	195	24%	13
10	1,968	434	22%	52
11	960	173	18%	10
12	1,176	336	29%	26
13	2,451	545	22%	64
14	2,293	441	19%	52
15	2,287	454	20%	31
16	978	146	15%	11
17	1,108	255	23%	16
18	1,692	460	27%	59
19	1,154	370	32%	17
20	941	169	18%	10
21	770	132	17%	9
22	1,410	264	19%	12
23	1,745	310	18%	13
24	1,649	285	17%	20
25	1,661	412	25%	29
26	1,277	169	13%	14
27	2,043	306	15%	19
28	2,889	574	20%	26
Total	**43,606**	**9,687**	22%	**736**

The reason meters require attention from field staff varies. Customer Care Representatives provide comments about the abnormal readings to inform field staff. The City provided detailed notes on the October 13 billing date for Cycle 13. These notes showed that about 74% of the meters requiring attention were AMI meters that were not transmitting their readings. The remaining meters either recorded no usage or unexpected usage based on previous months. Each instance requires field staff to physically collect a new reading, make repairs, or replace a broken meter. To provide an example of reasons for abnormal readings, the following table shows the breakdown of the reasons for abnormal readings for Cycle 13's October 13, 2020 billing.

Table 40: Cycle 13 Reasons for Abnormal Reading – October 13, 2020 Billing Date

DWP Comment on Reason for Abnormal Reading	Number of Meters	Percent of Abnormal Readings
AMI Meter Needs Reading	62	73.8%
High Usage	11	13.1%
Low Usage	7	8.3%
No Usage Measured	4	4.8%
Grand Total	**84**	**100.0%**

The review of the Utility Billing and Customer Care operations at DWP indicates that staffing and activities are in line with peers and generally consistent with industry norms. Turnover of frontline Customer Care staff is perhaps the most disruptive issue. While turnover among frontline staff creates a burden on other staff and is taxing on City HR personnel who need to fill and train those positions, as well as supervisors and managers, it does not appear to have had a noticeable impact on customers or billing activities. The workload and responsiveness of field meter staff was also mentioned as an occasional issue. This may warrant additional resources.

The biggest opportunity revolves around meter reading. Many systems have adopted Advanced Meter Infrastructure systems allowing meters to be read remotely. Installing such a system in Corona would eliminate the need for a meter reading vendor and provide important additional data for conservation programs, leak detection, and more accurate meter reading. It would also change the job of the billing and field meters staff by reducing billing exceptions but creating more front-end work as meters transmit information about their health. The downside of AMI is the initial capital cost. The cost of each residential meter could be as much as double, and there is a need for multiple base stations to collect readings, in addition to software to read and process meter data. This high initial investment often leads to improved customer service through better communication and faster identification of leaks or abnormal usage.

Recommendation 22: Continue implementation of Advanced Meter Infrastructure (AMI) technology.
Corona should continue implementing AMI technology to improve utility billing and meter reading processes. Although AMI technology often requires a high initial capital investment, there are non-monetary benefits for customers, including improved service and a more streamlined billing process. As AMI technology is implemented, DWP leadership should monitor staffing needs related to data analysis and technology management to ensure the skills needed to maintain AMI technology exist in the Department. It will also be important for DWP to identify analytical skills in order to take advantage of all of the capabilities associated with AMI.

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Conclusion

The Department of Water and Power is a high performing organization that meets industry best practices in a variety of areas. Staff provide high-quality water, wastewater, and electric services to customers, improving public health and quality of life for residents and visitors. DWP has much to be proud of and upon which to build. Peer comparisons show that DWP operates at an efficient and lean staffing level while maintaining an investment in the City's infrastructure.

This audit of the Department's organizational structure and management, financial performance, and operational practices shows there is still room for improvement. Better coordination with other City departments and improved processes will allow staff to save time and focus on other tasks, like contract or project management, that will enable DWP to operate more effectively. Better coordination is also needed within DWP, especially between operations and maintenance staff who must plan and execute their work together. The Department is in a strong financial position, which can be built upon by adopting working capital policies and regularly assessing and increasing rates.

The recommendations identified in this report will allow the Department of Water and Power to build upon its current success and align with industry best practices.