Water System Operations Group

Water System Operations reliably treats and delivers high quality water to Metropolitan's member agencies in an efficient, sustainable, and environmentally responsible manner.

GENERAL MANAGER'S STRATEGIC PRIORITY #1 - Enhance Infrastructure Safety, Security and Resiliency

Metropolitan's vast network of aqueducts, pipelines, pumps and treatment facilities are the backbone of Southern California's regional water system. Metropolitan's flexible and adaptable system enables Metropolitan to move water across six counties from where it is sourced to where it is needed. Our robust treatment and delivery infrastructure allowed Metropolitan to supply Southern California almost entirely with Colorado River water in 2015 and then flip to delivering almost all Northern California water in 2017. However, this vital infrastructure is aging and heightened reinvestment in this system is essential to ensure Metropolitan can continue to deliver on its promise of reliability in the coming decades.

In the past, the bulk of Metropolitan's Capital Investment Plan was focused on large-scale projects such as Diamond Valley Lake, the Inland Feeder and the Ozone Retrofit Program with repair and replacement projects being secondary. The focus of our CIP has now shifted largely to reinvestment in our existing infrastructure. These projects will ensure the long-term reliability of Metropolitan's critical infrastructure and build seismic resilience into our facilities. In 2000, Metropolitan's annual CIP was nearly $600 million for approximately100 projects. Over the next budget cycle, Metropolitan will be managing nearly 400 individual capital projects for a $200 million CIP. This requires changes in organization and management of our capital program and is reflected in our budgeting actions and staffing plans. The four critical areas of focus will be the ongoing rehabilitation of the Colorado River Aqueduct, prestressed concrete cylinder pipe replacement, system seismic hardening and physical and cyber security. Staff will be bringing numerous action items to the Board in these areas and will be discussing with the Board strategies on best management techniques for handling the shifting nature of our CIP.

Objective #1 Provide Reliable Water Deliveries.

Action(s):

1. Maintain the system to ensure operational reliability for all reasonably expected demand scenarios.
2. Maintain eight-pump flow readiness and manage storage accounts to capture all available Colorado River supplies.
3. Plan long-term prestressed concrete cylinder pipe outages through member agency outreach and coordination.
4. Effectively utilize the manufacturing shops in La Verne to maintain infrastructure reliability and support water supply-related projects for Metropolitan and the member agencies.
5. Continue the multiyear upgrade of the Supervisory Control and Data Acquisition (SCADA) system to maintain and improve the ability to remotely operate the conveyance, distribution, and water treatment systems.

Objective #2	Ensure Water Quality Compliance, Worker Safety, and Environmental Protection.

Action(s):

1. Conduct water quality monitoring, regulatory reporting, and treatment optimization to ensure 100 percent compliance with primary drinking water standards.
2. Continue to participate in the State Water Resources Control Board's roll-out and implementation of new analytical laboratory quality assurance standards and requirements.
3. Evaluate reliability and accuracy of new technologies for online monitoring of distribution system water quality constituents to enhance operational decision-making.
4. Comply with all environmental (e.g., wastewater, stormwater, air quality, invasive species) and safety permits, and regulatory inspections, and submit all reports on time.
5. Work with the California Department of Fish and Wildlife to finalize the revision of Metropolitan's Quagga Mussel Control Plan. This revision will include an assessment of invasion vulnerabilities within the raw water storage and conveyance system, document lessons learned, and plan for the possibility of quagga mussel infestation in the southern portion of the State Water Project.
6. Prepare shutdown-specific raw water discharge plans for water containing quagga mussels, based on the control measures outlined in the Quagga Mussel Control Plan. Continue to track and participate in the regulatory process for invasive species.
7. Provide easy and real-time access to important information and documents (Operational Safety and Regulatory Services IntraMet site), safety and regulatory performance metrics (Safety and Regulatory Performance Chart), and quarterly lessons learned incident reports for injuries and spills. Provide results of incident investigations and keep procedures up to date.
8. Provide support for and review use of the Job Safety Hazard Checklist to improve project planning and safety. Incorporate improvements to the checklist as needed to further enhance safety.

Objective #3	Actively Engage in Capital Project Planning and Execution.

Action(s):

1. Fully participate in capital project development and review by ensuring all line managers review and approve project proposals before submittal to the Capital Investment Plan Evaluation Committee.
2. Evaluate and prioritize capital improvement and maintenance projects and programs to ensure reliable conveyance of Colorado River supplies to the service area.
3. Support the Colorado River Aqueduct Main Pump Reliability Program Phases 1 and 2 including detailed inspection of the main CRA pumps, pump components, and auxiliary support systems and comprehensive rehabilitation of one main CRA pump unit at Gene.
4. Closely coordinate review of engineering design packages that affect operations and maintenance. Incorporate lessons learned and operations and maintenance experiences to optimize project designs.
5. Improve capital project delivery through implementation of a new Project Delivery Unit. Work with Engineering Services Group to ensure capital projects are designed for efficient operations and maintenance with minimal life-cycle costs.

Objective #3 Actively Engage in Capital Project Planning and Execution.

6. Stay current on member agency resource development and system modification projects and consider the implications and impacts on Metropolitan's system and future capital projects.
7. Partner with Engineering Services and Information Technology Groups to develop and implement a comprehensive Asset Management Plan. This plan will expand the use of asset data for improved planning and enhance the longer term visibility for the Capital Investment Plan.

Objective #4 Optimize Maintenance.

Action(s):

1. Plan, schedule, and execute the Annual Shutdown Plan to ensure reliable operation of the water delivery system, including a strategy to manage longer shutdowns to support increased infrastructure refurbishment and replacement projects.
2. Maintain infrastructure to ensure reliable water and power operations by implementing inspection, maintenance, and repair programs for:
    a. 242-mile Colorado River Aqueduct
    b. 830 miles of distribution system tunnels and pipelines, with 5,000 structures and 480 flow meters
    c. 308 miles of power transmission lines with 1,200 high voltage towers
    d. 1,000 miles of unpaved roads
    e. 5 water treatment plants
    f. 16 hydroelectric power plants
    g. 10 reservoirs
    h. 135,000 pieces of equipment
3. Ensure system reliability through:
    a. Patrolling 100 percent of every pipeline every week.
    b. Patrolling 100 percent of the Colorado River Aqueduct every week.
    c. Patrolling 100 percent of the Colorado River Aqueduct transmission lines two times per month for security risks, vegetation incursion, and needed road repairs.
    d. Inspecting and maintaining pipeline structures in accordance with a risk-based protocol.
4. Develop and implement a priority ranking system for addressing issues identified during condition-based maintenance on equipment such as pumps, motors, and valves as part of a comprehensive asset management program. A common framework will be used such that Engineering Services Group and Water System Operations staff can input and utilize the data for capital project planning and maintenance planning. This effort is an expansion of the ranking system that has been successfully used to gauge the severity and criticality of corrosion and coating-related issues for equipment throughout the system.
5. Execute annual plan for protective coatings as part of the asset management program. Prioritize critical structures, maintain consistency, and implement best business practices throughout all areas.
6. Develop SCADA (Supervisory Control and Data Acquisition) interface to provide operating history and trends as the critical criteria for a condition-based maintenance management plan. Establish an efficiency monitoring program on large pumps to optimize energy efficiency and reliability.

Objective #4 Optimize Maintenance.

Action(s):

7. Partner with the Engineering Services Group to ensure that all new or rehabilitated mechanical equipment includes appropriate instrumentation and controls to support a condition-based maintenance program. Also, ensure all asset and maintenance procedures are recorded in the computerized maintenance management system prior to project completion.

Objective #5 Manage the Power System.

Action(s):

1. Manage and limit price exposure for up to 2.5 million megawatt hours of wholesale energy to support Colorado River Aqueduct pumping requirements.
2. Complete Calendar Year 2018 self-audit of compliance with national electric reliability requirements.
3. Review and optimize operations and costs of new Colorado River Aqueduct energy agreements with the Arizona Electric Power Cooperative and the agreement with the Western Area Power Administration (WAPA) for Metropolitan's interconnection to WAPA's Mead substation. Perform billing reconciliations as needed.
4. Evaluate reliability upgrades to the Colorado River Aqueduct high-voltage transmission system, and potentially acquire Southern California Edison CRA circuit breaker assets that are located in Metropolitan's Eagle Mountain substation and at the Gene pumping plant.

Objective #6 Improve Security and Emergency Response.

Action(s):

1. Conduct quarterly testing of two-way radios and satellite phones to ensure effective communications during emergencies and for day-to-day activities such as patrolling, operations and maintenance, and shutdowns.
2. Conduct emergency response exercises for all operational units three times per year. Conduct one organization-wide functional exercise, which includes the member agencies, to gain their participation on a five-year cycle. Conduct routine tests of the MetAlert Emergency Notification System for emergency and security issues.
3. Prepare a mutual assistance agreement between Metropolitan, California Department of Water Resources, and Los Angeles Department of Water and Power as part of the Seismic Resilience Water Supply Task Force.
4. Comply with Federal Energy Regulatory Commission security requirements for power generating facilities.
5. Partner with the Engineering Services Group and the Chief Administrative Officer to coordinate with local emergency responders and jurisdictional agencies related to implementation of Emergency Action Plans for all California Division of Safety of Dams-jurisdictional dams.
6. Coordinate emergency response exercises for chlorine transloading and feed facilities with local fire departments and other emergency response entities.
7. Utilize fleet asset tracking software to monitor maintenance of vehicles and heavy equipment to ensure effective deployment during emergencies. Monitor and manage asset tracking software to achieve greater than 95 percent online performance of GPS (Global Positioning System) units.

Objective #6 Improve Security and Emergency Response.

Action(s):

8. Conduct a study of remote Supervisory Control and Data Acquisition sites and prioritize the implementation of hardening measures (e.g., fencing, heavy-duty enclosures) to improve security and protection of these assets.
9. Provide design reviews and construction support for the Headquarters Security Improvement capital project to ensure security improvements are appropriately incorporated.

Objective #7 Optimize Water Treatment and Distribution.

Action(s):

1. Optimize water treatment in the following areas:
    a. Benchmark ozone production efficiency at treatment plants in order to reduce power consumption and assess bromate control costs as appropriate.
    b. Collect and analyze ozone disinfection byproduct data and monitor filter media biomass levels to evaluate and optimize biological filtration process control at the treatment plants.
    c. Implement operational strategies to manage ozone off-gassing.
    d. Increase potential to beneficially re-use water treatment solids by effectively increasing the percent solids content to over 20 percent.
2. Deliver and transload at least 50 percent of chlorine deliveries using the Chemical Unloading Facility.
3. Track and reduce the number of reportable chemical releases at water treatment plants through internal program reports, evaluations, and assessments.
4. Complete down-rating of Robert A. Skinner Water Treatment Plant from 630 to 350 million gallons per day and receive the associated permit amendment from the State Water Resources Control Board, Division of Drinking Water.
5. Complete analysis, and if recommended, initiate down-rating of the Joseph Jensen Water Treatment Plant (assuming Board approval). Evaluate capital expenditures that can be deferred at Jensen, including an examination of the need for new solids dewatering facilities. Negotiate contract amendment with Los Angeles Department of Water and Power, as needed.
6. Participate in, and report on, the activities of the State Water Resources Control Board's Drinking Water Operator Certification Advisory Committee.

Objective #8 Provide Technical Support to Member Agencies.

Action(s):

1. Provide water quality updates to member agencies, as requested, using appropriate communication forums.
2. Assist member agencies with water quality concerns such as taste-and-odor control, nitrification, disinfection byproduct minimization, and implementation of new regulations.
3. Conduct surveys and coordinate regional strategies for areas of mutual interest between Metropolitan and member agencies (e.g., changes in drinking water regulatory program, implementation of discharge permits, and effects of new regulations or public health determinations).
4. In partnership with member agencies, develop quagga mussel control strategies and plans for deliveries of State Water Project water for groundwater replenishment, if needed.

Objective #8 Provide Technical Support to Member Agencies.

Action(s):

5. If requested and feasible, support Skinner area member agencies by switching from chloramines to free chlorine in the distribution system for one month.
6. Partner with member agencies to develop alternative operating scenarios to address low flows and resulting water quality challenges.
7. Provide support and training to member agencies through hands-on workshops, classes, and meetings (e.g., electrical and mechanical training for apprentices, regulatory initiatives impacting member agencies).

Objective #9 Prepare for Future Legislation and Regulation.

Action(s):

1. Monitor current and proposed legislation, regulations, and permit requirements involving water recycling (direct and indirect potable reuse) and evaluate impacts on Metropolitan.
2. Track and review legislative and regulatory developments for existing and emerging water quality constituents, including public health goals, maximum contaminant levels, and total maximum daily loads.
3. Conduct applied research to support legislative and regulatory decision-making and to provide cost-effective analytical methods and treatment technologies for relevant constituents in water. These studies will focus on the following areas: (a) cyanotoxin measurement and identification; (b) constituents of concern in recycled water; (c) improved detection and confirmation of quagga mussel veligers; (d) pathogen detection in water reuse applications; (e) control of disinfectant byproducts; (f) development of a bioanalytical screening program to evaluate emerging chemical constituents; and (g) the practical implementation of health advisories.
4. Provide input and review, as appropriate, on the regulatory development process for new maximum contaminant levels (MCLs) for chromium-6, perchlorate, and perfluorinated compounds.
5. Participate in technical advisory workgroups and/or partner with water industry advocacy organizations to guide the U.S. Environmental Protection Agency in the following areas: (a) the six-year review of all drinking water regulations; (b) the process for proposing new regulations; (c) the review of monitoring data for emerging chemical and microbial contaminants; and (d) the development of a national water reuse action plan.
6. Monitor and provide comments on legislative and regulatory proposals related to the supply-chain reliability (including manufacturing, delivery, and storage) and use of elemental chlorine (gas and liquefied). Advocate for the continued use of elemental chlorine at Metropolitan's water treatment plants as the most efficient and appropriate means of applying chlorine disinfection.
7. Monitor and provide comments on regulatory proposals to assess emergency preparedness and resiliency of Metropolitan's water infrastructure and facilities to natural hazards and malevolent acts.
8. Review and comment on pending environmental/safety regulations and legislation that impact Metropolitan and its member agencies. Interest areas include air quality; criteria pollutants, greenhouse gases, and toxics; stormwater; wastewater; worker health and safety; underground and aboveground tanks; recycled water; invasive species; and hazardous materials and wastes.

Objective #9 Prepare for Future Legislation and Regulation.

Action(s):

9. Participate in association committees and regulatory agency working groups to represent Metropolitan on environmental, safety, water quality and energy related issues.

GENERAL MANAGER'S STRATEGIC PRIORITY #2 – Prepare for More Extreme Hydrology

Maximize Storage Opportunities: The recent historic drought cycle sequence highlighted the enormous value of Metropolitan's regional storage investments. Over the past decade, California has had eight drought years with two wet years. To meet regional demands, Metropolitan drew on storage heavily in most years over this period but was able to take full advantage of the wetter years to restore storage reserves. But for Metropolitan's robust storage portfolio and conveyance capabilities, Southern California would have faced severe shortages this past decade. Regional storage has become increasingly critical to maintaining water supply reliability in the face of increasing water supply volatility due to climate change. Staff will work closely with the Board to assess Metropolitan's storage capabilities, current strategies and review future needs to identify whether new strategies and/or new investments are needed.

Promote Innovation and Efficiency in Water Use: Water use efficiency and conservation investments were also essential to managing through the historic drought by reducing regional demands nearly 25 percent. Metropolitan is a national leader in water conservation and reached a significant milestone in 2017 by achieving more than one million acre-feet per year in annual water savings. Most of this progress was built on Metropolitan's successful rebate programs and advocacy to change codes and standards. To build on that success, Metropolitan will examine new opportunities to leverage technology and innovation to promote conservation, efficient water use and water stewardship through a comprehensive demand management program that includes investments in research, innovation and public education along with targeted incentives for the residential, commercial, industrial and institutional sectors.

Objective #1 Manage Water Reserves.

Action(s):

1. Develop an Annual Operating Plan for Calendar Year 2020 in coordination with the member agencies to meet requested deliveries, including groundwater replenishment, under anticipated conditions.
2. Effectively plan and schedule imported deliveries on the State Water Project and the Colorado River Aqueduct to meet demands, storage objectives, water quality goals, and financial targets.
3. Coordinate deliveries and operations with member agencies and storage partners to allow deliveries to storage accounts in CY 2019 under the high State Water Project allocation.

Objective #2 Examine and Mitigate Adverse Water Quality Outcomes.

Action(s):

1. Review lessons learned from impacts of drought-breaking rainfall on water quality in source and treated waters and incorporate into future operational planning.

Objective #2 Examine and Mitigate Adverse Water Quality Outcomes.

Action(s):

2. Review impacts on State Water Project drinking water quality as a result of current and predicted water supply conditions. As part of this evaluation, review, and recommend treatment strategies associated with water quality challenges such as bromide, turbidity, alkalinity, and organic carbon.
3. In conjunction with member agencies, re-evaluate current water quality indices (e.g., chloramine residual goals, nitrite levels, ammonia levels) given longer detention times and changed operations as a result of reduced demands and water conservation mandates.
4. Develop and implement lake management strategies for Diamond Valley Lake to reduce the frequency of anoxic reservoir conditions and problematic cyanobacterial blooms, which may limit the availability of lake water when it is needed.

GENERAL MANAGER'S STRATEGIC PRIORITY #3 - Ensure Imported Supply Reliability

Southern California's foundational water supply remains the Colorado River and the State Water Project and their ongoing reliability is critical for the region. Important decisions on both supplies need to be made over the next two years.

The emphasis for the State Water Project will be on working with the Newsom Administration to make the necessary revisions to the process to accommodate a single-tunnel approach with minimal loss of time. Simultaneously, staff will be working with the state to extend the State Water Project Contract, complete repairs at Oroville reservoir and review the status and upkeep of all SWP facilities. Also essential will be strategic investments regarding science and restoration of the Delta ecosystem in support of the co-equal goals of water supply reliability and environmental restoration. This includes support for California EcoRestore projects, salmon and smelt resiliency plans, and development of a multiuse, long-term plan for Metropolitan's Delta Islands.

On the Colorado River, the emphasis over the next year will be on implementing the completed Drought Contingency Plan providing stability on the Colorado River while protecting Metropolitan's supplies and access to storage in Lake Mead. Additionally, staff will analyze the combined impacts of long-term hydrological conditions and various competing demands, including pending tribal water rights litigation and environmental interests, such as the Salton Sea, to ensure Metropolitan's Colorado River water supplies remain protected and reliable. Finally, Metropolitan will continue to work proactively to manage its Palo Verde lands in a way that supports long-term water supply goals and a vibrant agricultural economy in the region.

Objective #1 Support Imported Supply Reliability

Action(s):

1. Participate with the California Department of Water Resources on value engineering efforts to ensure cost-effective rehabilitation of State Water Project conveyance, pumping, and generation facilities.
2. Track the Oroville spillways rehabilitation, operations, and comprehensive needs assessment. Examine potential risks to Metropolitan's infrastructure based on identified risks.
3. Coordinate with water suppliers (DWR and U.S. Bureau of Reclamation), storage partners, and member agencies to maximize the regional water supply benefit.

Objective #1 Support Imported Supply Reliability

4. Support SWP reliability by fully utilizing the multiyear contract with DWR for maintenance, engineering, and water quality services, and participating in the State Water Contractors Operations, Maintenance, and Engineering Committee.
5. In partnership with the Engineering Services Group and other agencies, implement the Seismic Resilience Action Plan to update the assessment of vulnerable areas on the Colorado River Aqueduct, California Aqueduct, and Los Angeles Aqueduct. Develop coordinated response and recovery actions in response to identified vulnerabilities.
6. With member agencies and regional partners, support the evaluation of new water supplies to supplement State Water Project and Colorado River supplies, including groundwater pump-in programs.
7. Develop operational guidelines for the introduction of alternative water supplies (e.g., desalinated seawater, recycled water, groundwater) into Metropolitan's raw and treated water distribution systems.
8. Assist groundwater storage partners with the assessment of trichloropropane (1,2,3-TCP) and jointly determine operational and treatment strategies to meet DWR pump-in criteria. In conjunction with Water Resource Management, evaluate the need for potential investments to address water quality concerns in order to maintain or improve the water supply benefits of Metropolitan's storage programs.

GENERAL MANAGER'S STRATEGIC PRIORITY #4 – Maximize Local Resources

In 2019, construction of the Regional Recycled Water Advanced Purification Center demonstration facility in partnership with the Sanitation Districts of Los Angeles County was completed. While Metropolitan learns about the technical and water quality aspects of the project to optimize design of treatment processes for a full-scale facility, staff will begin work with the Board and member agencies on a review of issues associated with the Regional Recycled Water Program. This review will inform the Board and seek policy direction related to the next phase of Program activities. The issues addressed will include how project costs would be allocated, how revenues would be collected, what form water delivery would take to local agencies, cooperation and cost sharing with non-member agencies, and other policy issues.

Objective #1 Support the Regional Recycled Water Program.

Action(s):

1. Provide treatment process, water quality, and regulatory support for development of the Regional Recycled Water Program and support for a potential Board action to initiate the full-scale program.
2. Conduct operations, testing, and monitoring at the Regional Recycled Water Advanced Purification Center for technology acceptance of a membrane bioreactor within a potable reuse application, which ultimately would support permitting of a full-scale advanced water treatment facility.
3. Develop and implement an applied research program to investigate detection and removal of potential contaminants and surrogates, process controls and monitoring, and finished water blending strategies in potable reuse applications.

Objective #1 Support the Regional Recycled Water Program.

4. Complete a testing and monitoring plan for the second phase of demonstration testing at the Advanced Purification Center, and submit plan for approval from the State Water Resources Control Board, Division of Drinking Water.
5. Participate in workgroups, collaborate with the U. S. Environmental Protection Agency and California Regional Water Quality Control Boards, and support the SWRCB's Division of Drinking Water in developing and implementing potable reuse regulations, safe practices, standards, and guidelines.

Objective #2 Develop and Integrate Local Water Supplies.

Action(s):

1. With member agencies, regulatory agencies and regional partners, support the evaluation of new water supplies potentially introduced into Metropolitan's distribution system including groundwater recovery and ocean desalination.
2. Provide technical support and water quality expertise for implementation of integrated water resources programs.

GENERAL MANAGER'S STRATEGIC PRIORITY #5 - Promote Environmental Stewardship and Sustainability

Metropolitan has undertaken a comprehensive program of environmental stewardship both internally and externally. In the course of accomplishing its mission and mitigating for impacts of its projects and operations, Metropolitan establishes and manages open space, and partners with other organizations to preserve and support native species and habitat. In the coming years, Metropolitan will continue to lead with programs that promote actions that support sustainable practices, reduce greenhouse gas emissions and protect natural habitat and water quality. A comprehensive risk management strategy is needed to address the uncertainty and threat associated with climate change. As understanding of climate change impacts advances, Metropolitan will develop and implement strategies to improve resiliency, reduce risk and increase sustainability for infrastructure, water systems and the ecosystems.

Objective #1 Manage Power Resources and Energy Use in a Sustainable Manner.

Action(s):

1. Acquire and submit Greenhouse Gas Allowances to the California Air Resources Board to satisfy AB32 compliance obligations for Calendar Year 2017. This obligation results from energy purchased to support CRA operations that was imported into California. As the importing party, Metropolitan incurs the responsibility to account for the greenhouse gasses associated with the imported energy.
2. Update Metropolitan's Energy Intensity Report for CY 2018. Metropolitan has developed a report quantifying the amount of electrical energy associated with an acre-foot of water delivered to its Member Agencies in megawatt-hours/AF. The report identifies the energy intensity for several processes including the conveyance of water to Metropolitan's service area from the State Water Project and Colorado River Aqueduct, the treatment of water, and the distribution of water. Each year the energy intensities are updated with actual data from the prior calendar year.

Objective #1 Manage Power Resources and Energy Use in a Sustainable Manner.

3. Identify and evaluate options for disposition of renewable energy from Foothill, Lake Mathews, San Dimas, Yorba Linda, and Greg Avenue hydroelectric power plants. Existing contract for the sale of energy to the California Department of Water Resources expires September 30, 2019.
4. Partner with Engineering Services Group to develop and implement an Energy Sustainability Plan. This plan will evaluate Metropolitan's energy use and power resource options to define strategies to increase operational flexibility, reduce energy costs, and reduce greenhouse gas emissions (e.g., renewable generation, battery storage, energy efficiency, load shifting).

Objective #2 Protect Source Water Quality.

Action(s):

1. Perform source water monitoring and evaluation of uranium, perchlorate, chromium-6, arsenic, radionuclides, 1,2,3-TCP, and anthropogenic constituents introduced by wastewater discharges and agricultural contamination. Implement actions to ensure levels of these constituents do not compromise regulatory or other water quality standards of importance to Metropolitan and its member agencies.
2. Monitor cyanobacterial blooms for toxin production and optimize cyanobacteria/algae management activities in source waters. Develop innovative approaches to improve the reliability and timeliness of monitoring for cyanobacteria and algae in source water lakes.
3. Participate in workgroups, support construction of the final remedy, and advocate for expeditious completion of the Topock chromium-6 groundwater treatment system.
4. Engage with key stakeholders on ongoing perchlorate cleanup activities and development of a long-term remedial plan for the Nevada Environmental Response Trust site in Henderson.
5. Evaluate impacts of emerging invasive species on source water supplies and work with appropriate regulatory agencies to develop strategies for compliance with discharge permit requirements and California Department of Fish and Wildlife provisions.
6. Increase monitoring and surveillance for quagga mussel veligers and adults in the west and east branches of the State Water Project, if necessary, to track the extent and impact of invasive mussels in this system. Coordinate with appropriate agencies in early warning monitoring of invasive and other nuisance species in source waters.
7. Participate in the Lower Colorado River Water Quality Partnership and the Clean Colorado River Sustainability Coalition to further Metropolitan's effectiveness in protecting Colorado River water.
8. Partner with the California Department of Water Resources Municipal Water Quality Investigations Program to track and monitor water quality in the Sacramento-San Joaquin Delta region.
9. Support source water protection regulatory, legislative, and policy initiatives to help ensure the availability of high quality water supplies.

GENERAL MANAGER'S STRATEGIC PRIORITY # 6 – Foster Leadership and Strengthen Workforce Capabilities

More than half of Metropolitan's workforce has reached retirement age, including many members of Metropolitan's executive management team. The retirement rate at Metropolitan is now slightly more than 100 employees a year and will remain at that level through this budget cycle. This is a challenge

to Metropolitan's capacity to adequately train and prepare its workforce but is also an opportunity to build a workforce geared for the challenges of the future. To retain essential agency knowledge capture and ensure smooth leadership transitions, Metropolitan will expedite internal promotions and recruitment processes, and augment employee development training programs to ensure employees have the knowledge and technological skills to compete in today's competitive job environment. Succession planning actions will be enhanced to increase the availability of experienced and capable employees prepared to assume critical roles as they become available, building on Metropolitan's current successful apprenticeship program and management academies. While Metropolitan's workforce is becoming increasingly more diverse, Metropolitan will continue to foster an inclusive and innovative workplace, promoting a safe and discrimination-free work environment, and provide opportunities for all employees to use their diverse talents to support Metropolitan's mission.

Objective #1 Manage Vacancies.

Action(s):

1. Manage vacancy rate within two percent of budgeted vacancies. Recruit and fill vacancies as needed.
2. Conduct training for a new apprentice class in the mechanical and electrical trades with emphasis on the Desert Region.
3. Partner with Human Resources to streamline the recruitment process with particular attention to improved and validated testing techniques for journey-level trade crafts.

Objective #2 Prepare Employees for New Opportunities.

Action(s):

1. Identify skill gaps created by projected retirements and secure temporary positions to overlap incoming and retiring employees by up to six months.
2. Rotate and temporarily transfer staff and managers between work organizations to cross-train, enhance productivity, and share resources.
3. Complete the fourth 10-month-long Water System Operations Management Academy training program to maintain managerial capacity for workforce turnover.
4. When appropriate, use annuitants on a limited basis to mentor new staff in select positions to expedite training and improve knowledge capture.
5. Increase employee knowledge of operations, maintenance, and water quality through technical and management training, including water treatment/distribution operator training. Track training per person in Water System Operations with a goal of 90 percent compliance.
6. Track regulatory, safety and environmental training per person in Water System Operations with a goal of 90 percent compliance.
7. Implement the new MyLearning application to administer training activities and manage training records.
8. Develop and implement alternative training delivery such as online, webinar, and self-study classes to improve safety and environmental training completion rates while maximizing flexibility and reducing travel costs.
9. Develop and provide electrical cross-training for the Desert Region mechanical staff to prepare employees for future opportunities.

Objective #3 Enhance Support Infrastructure at the Desert Facilities

Action(s):

1. Continue support for the Desert Housing Renovation Program. Collaborate with Real Property and Engineering Services Groups to renovate housing, while applying lessons learned during the initial pilot project.
2. Partner with the Engineering Services Group to support design for the replacement of the domestic water systems at the Colorado River Aqueduct pumping plants.

Objective #4 Support Education and Outreach Initiatives.

Action(s):

1. Provide tours for directors, legislators, member agencies, public officials, community leadership groups, and educational institutions as needed, to enhance awareness of Metropolitan's mission.
2. Ensure Metropolitan's facilities provide a positive message to the public by adhering to local water conservation ordinances and signage.
3. Engage employees as ambassadors to work within our communities (peer, industry, education) to educate and share knowledge about Metropolitan's culture, career opportunities, and work.
4. Partner with External Affairs to develop appropriate messaging strategies to ensure public confidence of water served by Metropolitan.
5. Promote the technical capabilities, innovation, and reputation of Water System Operations staff by pursuing publication of groundbreaking research and work in reputable journals and conferences.

GENERAL MANAGER'S STRATEGIC PRIORITY #7 – Maintain Sound Business Practices and Fiscal Integrity

Metropolitan will continue its longstanding practice of operating in a productive, cost-effective, transparent and efficient manner to ensure sound financial stability. Metropolitan holds some of the nation's highest credit ratings for government agencies by maintaining strong reserves and limiting its use of debt. Long-term investments will be made through a prudent combination of long-term funding sources as well as annual rate revenues. Capital expenses will continue to be funded at a significant level on a pay as-you-go (PAYGO) basis per Board policy. Potential investments such as modernizing the State Water Project would be phased in over time and have been prudently built into Metropolitan's rate projections. After a decade of virtually no rate increases, then a few steep catch up years in 2009 and 2010, Metropolitan's overall rate increases have stabilized over the past four years to close to the rate of inflation. Thanks to prudent management of Metropolitan's capital program, reduction in debt load and management of labor costs, the proposed budget limits overall rate increases to three percent in each year while it continues funding Metropolitan's PAYGO policy, paying down Metropolitan's Pension and Other Post Employment Benefit liability, and expanding Metropolitan's conservation and demand management programs. Most importantly, due to the continued sound financial management practices of Metropolitan, the ten-year financial forecast predicts overall rate increases will remain within the three to five percent range over the next decade.

Objective #1 Ensure Accurate Billing Infrastructure.

Action(s):

1. Calibrate all revenue meters at six-month intervals. Physically inspect meters during any planned shutdowns, if feasible.
2. Initiate a process to make billing meter calibration records available online for easy access and data management.
3. Work with member agencies to evaluate and retrofit revenue meters based on Board-adopted policies on operating flow ranges.
4. Address service connection upgrades or modifications as requested by member agencies in a timely manner.
5. Monitor developing policies and regulations involving water loss management (established from SB 555), and evaluate impacts on Metropolitan, including reporting requirements for annual water meter testing.

Objective #2 Administer Group Operations, Provide Management Controls, and Access Available Funding.

Action(s):

1. Manage Water System Operations spending within the FY 2019/20 budget. When appropriate, provide explanations for variances that are necessary.
2. Develop consistent business processes and budgeting by the development of desk procedures/protocols and document new or revised procedures/processes during the fiscal year.
3. Provide budget reporting to section managers by the 21st of each month, and to unit/team managers within 30 days of the end of each quarter, to track financial performance and ensure fiscal controls.
4. On a quarterly basis, conduct a comprehensive budget variance analysis, which projects year-end expenditures and recommends possible actions for the section managers to adjust spending.
5. Timely complete employee evaluations as part of an ongoing performance management process to positively impact job satisfaction and optimize productivity.
6. Process invoices for professional and non-professional contracts in an accurate and timely manner.
   a. Contract Administrators: process/approve within five business days of receipt
   b. Administrative Assistants: process via Requisition/Release within five business days of receipt
7. Improve shutdown budgeting process by establishing and approving shutdown budgets in advance, reviewing shutdown charges for accuracy, and reporting on budgeted vs. actual shutdown expenses.
8. Provide timely responses to staffing requisitions, job audits, and other requests. Delegate as appropriate.
9. Work with and support other Metropolitan business organizations on strategic initiatives:
   a. Document management and access to digital documentation
   b. Headquarters Seismic Retrofit and floor design management
   c. Seismic retrofit and facility improvements at the Water Quality Laboratory

Objective #2	Administer Group Operations, Provide Management Controls, and Access Available Funding.

10. Apply for state and/or federal funding for any appropriate Metropolitan project. Seek funding, when appropriate, for disaster recovery projects and coordinate with the Federal Emergency Management Agency and California Office of Emergency Services to facilitate timely reimbursements.

Key Performance Measures

Key Performance Measure	Target
Unexpected outages. Minimize outages disrupting normal service.	0
Meet all scheduled water deliveries. Ensure reliable delivery of water supplies.	100%
Colorado River Aqueduct reliability. Maintain 8-pump flow readiness.	Conduct stable test at > 1,750 cfs
Water supply flexibility. Manage surface storage for operational flexibility and in preparation for future droughts.	Manage surface storage to over 2 MAF by the end of CY 2019
Support State Water Project reliability. Timely complete WSO-managed machine shop work contracted by California Department of Water Resources.	> 90% on-time performance
Prioritize preventive maintenance. Ensure timely completion of preventive maintenance work orders.	> 90%
Complete regulatory maintenance. Ensure timely completion of regulatory preventive maintenance work orders.	> 99%
Revenue Meter Maintenance. Ensure calibration of all revenue meters at 6-month intervals.	100%
Secure power for CRA. Secure sufficient and economic power to satisfy CRA pumping requirements.	100%
Optimize hydropower generation. Minimize power revenue lost to forced outages.	< 5%
Meet electrical reliability standards. Ensure conformance with annual internal audit.	100%
Cap and trade. Acquire and submit required compliance instruments (allowances and offsets) to the California Air Resources Board to satisfy Metropolitan's greenhouse gas obligations associated with imported energy for the CRA.	Acquire & surrender compliance instruments by November 1, 2019
Emergency generators. Perform monthly testing on all primary generators. Ensure all stationary generators at water treatment plants conform to National Fire Protection Association Standard for Level 1 Generators.	100% of all testing; zero emergency generator failures
Prepare for emergencies. Ensure that operational units are prepared to respond to emergencies by conducting regular training exercises.	3 exercises per year for each unit
Employee O&M training. Ensure workforce skill competency by monitoring compliance with Safety and Environmental regulatory training.	> 90%
Apprenticeship program. Ensure a minimum number of graduates from the program in each fiscal year.	≥ 15 per year
Compliance with primary drinking water quality standards. Deliver water that complies with all health-based water quality standards. Track all Level 1 and Level 2 Water Quality Action Level exceedances.	100% compliance; tracking of all action level exceedances
Control salinity. Deliver water that meets water quality goals for salinity (when water supply conditions allow).	≤ 500 mg/L TDS as RAA

Key Performance Measure	Target
Water quality satisfaction. Monitor and respond to all water quality taste-and-odor complaints reported by member agencies as an indicator of consumer satisfaction.	Respond to 100% of complaints
Water quality regulatory process. Proactively engage in water quality regulatory processes and provide comment to agency or industry groups on proposed regulations that affect Metropolitan and/or its member agencies.	Provide timely review and comment on 100% of draft proposals
Engage on source water protection. Actively protect source waters by engaging stakeholders on each recommendation from the 2015 Colorado River Watershed Sanitary Survey prior to next survey, scheduled for 2020.	Engage on 100% of recommendations
Compliance with environmental and safety permit requirements. Monitor issuance and renewal of environmental and safety permits as an indicator of compliance with environmental and safety laws and regulations.	100% compliance
Ensure worker safety. Monitor workdays lost by measuring the injury and illness rate and keeping it below statewide averages. Conduct safety training to achieve 90% completion for each team in order to ensure safe work practices. Utilize the job safety hazard checklist as a safety planning tool.	< 5.4 incidents/ year/100 employees; 0 Cal OSHA citations
Budget. Manage WSO spending within budget.	Manage within FY budget; report explanation for any necessary variances