



Subcommittee on Long-Term Regional Planning Processes and Business Modeling

2/26/2025 LTRPPBM Subcommittee Meeting

3b

Subject

Review Draft Climate Adaptation Policy Framework

Executive Summary

In February 2023, the Board directed staff to integrate water resources, climate, and financial planning into a Climate Adaptation Master Plan for Water (CAMP4W). In October 2023, the Board chartered a Joint Task Force of Board Members and Member Agency Managers to facilitate the development of CAMP4W in a timely and transparent process. CAMP4W includes: (1) Climate and Growth Scenarios, (2) Time-Bound Targets, (3) A Framework for Climate Decision-Making and Reporting, (4) Policies, Initiatives,¹ and Partnerships, and (5) Business Models and Funding Strategies. CAMP4W will increase Metropolitan's understanding of the climate risks to water supplies, infrastructure, operations, workforce, and business model. CAMP4W will also provide decision-making tools and long-term planning guidance for adapting to climate change to ensure Metropolitan is mitigating that risk and ultimately strengthen its ability to fulfill its mission.

This item presents a Climate Adaptation Policy Framework to help guide the implementation of CAMP4W, including the development and pursuit of new and enhanced policies, initiatives and partnerships. While much of the Board's deliberations related to CAMP4W to date have focused on the development of the Climate Decision-Making Framework, Board policy direction is necessary to institutionalize climate adaptation across the agency.

Building on the climate adaptation priorities articulated in [Working Memorandum #2](#), which presents the Board-developed themes and priorities, the attached Working Memorandum #10 (**Attachment 1**) identifies five high-level policies in the Board-identified priority areas of Reliability, Resilience, Financial Sustainability, Affordability and Equity. These five priority areas are described in detail below. The Policy Framework is intended to guide future specific implementation actions for advancing climate adaptation, including future policies, initiatives, and partnerships. These future actions remain subject to Board deliberation and approval, wherever appropriate. This effort is linked to the next steps enumerated in the [CAMP4W Year One Progress Report](#).

Fiscal Impact

No impact

¹ The term "initiative" is used to represent actions or strategies intended to address climate adaptation challenges, and can include programs, studies, projects, research, and other similar activities.

Applicable Policy

By Minute Item 52776, dated April 12, 2022, the Board adopted the 2020 Integrated Water Resources Plan Needs Assessment.

By Minute Item 52946, dated August 15, 2022, the Board adopted a resolution affirming Metropolitan's call to action and commitment to regional reliability for all member agencies.

By Minute Item 53381, dated September 12, 2023, the Board approved the use of Representative Concentration Pathway (RCP) 8.5 for planning purposes in the Climate Adaptation Master Plan for Water.

By Minute Item 53630, dated May 14, 2024, the Board concurred with the CAMP4W: Draft Year One Progress Report and Next Steps, with the understanding that staff would provide the Board updated data and other information before consideration and approval of any CAMP4W projects.

Related Board Action/Future Action

The Climate Adaptation Policy Framework in the Board-identified priority areas of Reliability, Resilience, Financial Sustainability, Affordability and Equity will be included in the CAMP4W Implementation Strategy anticipated for adoption in April 2025.

Details and Background

Background

As a core component of CAMP4W, the Climate Adaptation Policy Framework will help to institutionalize climate adaptation across Metropolitan and provide guidance for proactively and explicitly integrating climate adaptation planning and implementation into Metropolitan activities. The Framework informs the evaluation of current internal practices and the development of specific policies, initiatives, and partnerships to meet Metropolitan's immediate and long-term climate adaptation goals of Reliability, Resilience, Financial Sustainability, Affordability, and Equity. Metropolitan's activities, including efforts to advance policies, initiatives, and partnerships will continue to remain subject to Board deliberation and approval, wherever appropriate.

The following are the goals of the Climate Adaptation Policy Framework:

- 1) Systemically integrate climate adaptation to increase climate preparedness, deepen knowledge and understanding of impacts, and improve climate hazard response.
- 2) Update existing and set new policies to strengthen the role of adaptive management and climate adaptation in Metropolitan's initiatives and decision-making.
- 3) Underscore the value of the Metropolitan member agency cooperative and other partnerships in achieving regional climate resilience.

This effort is linked to the next steps enumerated in Section 5 of the [CAMP4W Year One Progress Report](#) to develop policies and initiatives for achieving resource development goals, establish new or enhance existing initiatives and programs, lead further study or research, or other actions that further Metropolitan's climate adaptation goals. Specifically, the Year One Report anticipated efforts to: (1) Develop and consider policies and initiatives, (2) Explore Metropolitan and Member Agency partnership opportunities, (3) Pursue external partnership and collaboration opportunities, and (4) Continue community engagement.

Draft Climate Adaptation Policy Framework

Building on the climate adaptation priorities articulated in [Working Memorandum #2](#), which presents the Board-developed themes and priorities, the CAMP4W Planning Team developed five high-level draft policies for Board feedback at the March 2025 LTRPPBM Subcommittee Meeting. The Policy Framework is focused on integrating climate adaptation into each of the five focus areas as described below:

- Reliability: Policy guidance to integrate climate adaptation into water supply reliability efforts
- Resilience: Policy guidance to achieve climate resilience of resources and infrastructure

- Financial Sustainability: Policy guidance to account for financial risks associated with climate change
- Affordability: Policy guidance to consider cost impacts of climate change and of adaptation planning and implementation
- Equity: Policy guidance to involve affected communities in climate adaptation

Based on these general approaches, staff drafted the following Climate Adaptation Policy Framework with the expectation of receiving feedback from the Board. The Policy Framework is intended to guide future specific implementation actions for advancing climate adaptation for Metropolitan and its member agencies, including future policies, programs, studies, research, and partnerships. Additional details are provided in Working Memorandum #10 (**Attachment 1**).

Themes	Policy Framework
Reliability	Metropolitan will consider climate risks and integrate climate adaptation strategies into water supply programs, policies, planning, implementation, and operations.
Resilience	Metropolitan will integrate climate risk and vulnerability assessments for climate-related hazards, including drought, extreme heat and precipitation, sea level rise, flooding, and wildfire, using the best available climate science and climate change information into planning, implementation, and operations.
Financial Sustainability	Metropolitan will reduce short-term and long-term climate-related financial risks through periodic reviews and potential refinement of its business model, active monitoring and managing of financial conditions, and by maintaining flexible financing alternatives.
Affordability	Metropolitan will continue to support retail user affordability efforts that support our mission to provide regional wholesale water service in the most economically responsible way.
Equity	Metropolitan will engage with the diverse communities we serve to listen, communicate transparently, and co-create solutions for greater equity in climate adaptation planning and implementation.

Concurrently with developing the Climate Adaptation Policy Framework, staff worked to refine Working Memorandum #7 (**Attachment 2**) to describe the importance and methodology for incorporating climate adaptation considerations into Metropolitan's project and program development, planning, and evaluation. This approach is consistent with the Policy Framework above and demonstrates the commitment to institutionalize climate adaptation across Metropolitan.

Timing and Urgency

The Climate Adaptation Policy Framework will be included in the Climate Adaptation Master Plan for Water Implementation Strategy. Staff will seek approval of this strategy in early 2025. Member agency comments on Draft Working Memorandum #10 were incorporated where appropriate, and comment letters are attached (**Attachment 3**).

Project Milestones

February 26, 2025: CAMP4W Task Force: Discuss Climate Adaptation Policy Framework and Seek Board Input on Draft Master Plan Implementation Strategy

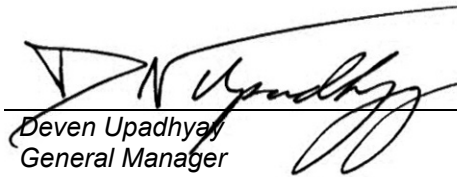
March 26, 2025: CAMP4W Task Force: Review Climate Adaptation Master Plan Implementation Strategy

April 8, 2025: Seek Board Approval of Climate Adaptation Master Plan Implementation Strategy



2/24/2025

Elizabeth Crosson
Chief Sustainability, Resilience and
Innovation Officer

Date

2/24/2025

Deven Upadhyay
General Manager

Date

Attachment 1 – CAMP4W Working Memorandum #10

Attachment 2 – CAMP4W Working Memorandum #7

Attachment 3 – Member Agency Comments on Working Memorandum #10

Ref# sri12701532

Climate Adaptation Master Plan for Water (CAMP4W)

WORKING MEMORANDUM 10

CLIMATE ADAPTATION POLICY FRAMEWORK

January 2025

1 Introduction

In February 2023, the Board directed staff to integrate water resources, climate, and financial planning into a Climate Adaptation Master Plan for Water (CAMP4W) and in October 2023, chartered a Joint Task Force of Board Members and Member Agency Managers to facilitate the development of CAMP4W in a timely and transparent process. CAMP4W includes: (1) Climate and Growth Scenarios, (2) Time-Bound Targets, (3) A Framework for Climate Decision-Making and Reporting, (4) Policies, Initiatives,¹ and Partnerships, and (5) Business Models and Funding Strategies. CAMP4W will increase Metropolitan's understanding of the climate risks to water supplies, infrastructure, operations, workforce, and business model. CAMP4W will also provide decision-making tools and long-term planning guidance for adapting to climate change to ensure Metropolitan is mitigating that risk and ultimately strengthen its ability to fulfill its mission.

This Working Memorandum presents a Climate Adaptation Policy Framework to help guide implementation of CAMP4W, including the development and pursuit of new and enhanced policies, initiatives and partnerships. While much of the Board's deliberations related to CAMP4W to date have focused on the development of the Climate Decision-Making Framework, Board policy direction is necessary to institutionalize climate adaptation across the agency.

Building on the climate adaptation priorities articulated in [Working Memorandum #2](#), which presents the Board-developed Themes and priorities, this Working Memorandum identifies five high-level policy objectives in the Board-identified priority areas of Reliability, Resilience, Financial Sustainability, Affordability and Equity that are included below in Section 3. These policy objectives are intended to guide future specific implementation actions for advancing climate adaptation, including future policies, initiatives, and partnerships. These future actions remain subject to Board deliberation and approval, wherever appropriate. The role of policy direction in the overall CAMP4W process is indicated below in **Figure 1**. This effort is linked to the next steps enumerated in the [CAMP4W Year One Progress Report](#).

¹ The term "initiative" is used to represent actions or strategies intended to address climate adaptation challenges, and can include programs, studies, projects, research, and other similar activities.

CAMP4W is a long-term adaptive management approach to systemically address the impacts of climate change. It includes a stepwise approach to assess climate risks and vulnerabilities, set goals and policy direction, develop strategies, and ensure alignment of implementation with overall adaptation priorities, financial planning, member agencies, and interested parties. A critical component of the adaptive management approach includes monitoring and reporting on real-world conditions, updated climate projections, and implementation progress to inform and adjust goals and priorities as needed. This memo focuses on overall policy direction for developing and integrating climate adaptation across the agency.

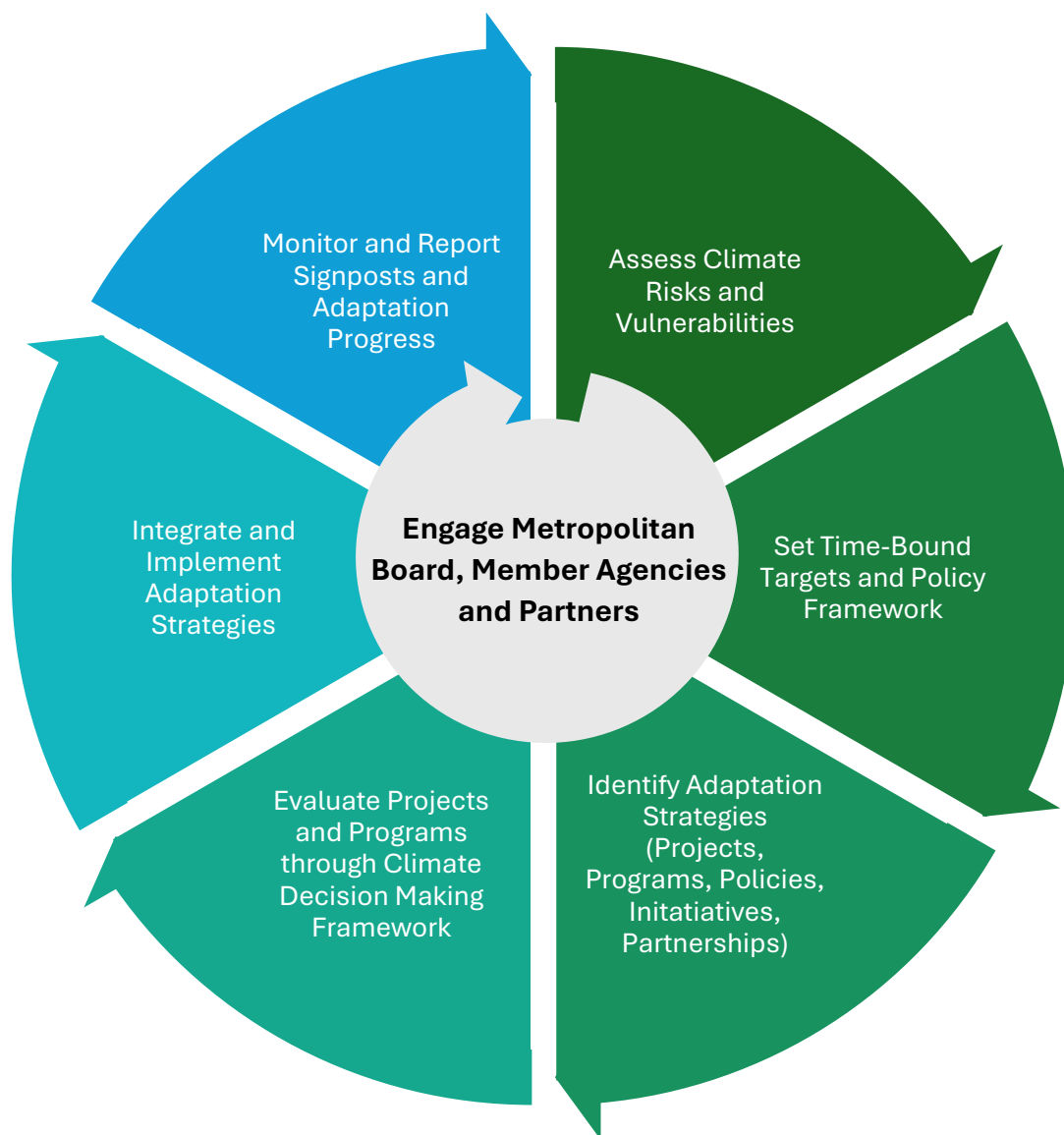


Figure 1. Climate Adaptation Master Plan for Water Implementation Process

2 The Role of the Climate Adaptation Policy Framework in Metropolitan's Planning

Metropolitan has identified acute and chronic climate hazards that are impacting its water and energy resources, infrastructure, and operations. In recent years, several unprecedented climate events have directly impacted Metropolitan's water supply and operations, including record weather conditions (extended drought conditions and historic snow and rain in California and record drought conditions in the Colorado River system), extreme precipitation and severe flooding, and significant wildfires (member agency mutual aid, water quality impacts, disruptions and public safety power shutdowns, danger to staff and facilities, ash, increased erosion and sedimentation). These extreme weather conditions as well as global climate science have presented Metropolitan with a preview of the challenges ahead. Recognizing these immediate threats and other future impacts, Metropolitan and its member agencies have incorporated climate risks and impacts into their integrated resources planning over time. Now, the District is taking additional steps through the CAMP4W process to evaluate climate risks and vulnerabilities and integrate climate, infrastructure and water resources planning with operations and financial planning.

Understanding that Metropolitan's mission and success relies on a complex network of natural and built systems that span across thousands of square miles and across multiple states, Metropolitan's climate adaptation efforts must also reach across multiple parts of the organization. As a core component of CAMP4W, the Climate Adaptation Policy Framework comprises a set of high-level policies to institutionalize climate adaptation across the District and provide guidance for proactively and explicitly integrating climate adaptation planning and implementation into Metropolitan activities. The Policy Framework informs the evaluation of current practices and the development of specific policies, initiatives, and partnerships to meet Metropolitan's immediate and long-term climate adaptation goals of Reliability, Resilience, Financial Sustainability, Affordability, and Equity. Metropolitan's activities, including efforts to advance policies, initiatives, and partnerships will continue to remain subject to Board deliberation and approval, wherever appropriate.

The following are the goals of the Climate Adaptation Policy Framework:

- 1) Systemically integrate climate adaptation to increase climate preparedness, deepen internal knowledge and understanding of impacts, and improve climate hazard response.
- 2) Update existing and set new policies to strengthen the role of adaptive management and climate adaptation in Metropolitan's initiatives and decision-making.
- 3) Underscore the value of the Metropolitan member agency cooperative and other partnerships in achieving regional climate resilience.

3 Climate Adaptation Policy Framework

The Climate Adaptation Policy Framework builds on the climate adaptation priorities articulated in [Working Memorandum #2](#), and specifically each of the Board-identified priority areas of Reliability, Resilience, Financial Sustainability, Affordability and Equity. In general, the policy objectives advance those priorities as described below:

- Reliability: Policy guidance to integrate climate adaptation into water supply reliability efforts
- Resilience: Policy guidance to achieve climate resilience of resources and infrastructure

- **Financial Sustainability:** Policy guidance to account for financial risks associated with climate change
- **Affordability:** Policy guidance to consider cost impacts of climate change and of adaptation planning and implementation
- **Equity:** Policy guidance to involve affected communities in climate adaptation

Based on these general approaches, staff drafted and incorporated board and member agency input into the following Climate Adaptation Policy Framework.

Policy Framework	Implementation Examples
Reliability Metropolitan will consider climate risks and integrate climate adaptation strategies into water supply programs, policies, planning, implementation, and operations.	→ Incentives for member agencies to increase regional water resilience → Infrastructure projects to improve access to water supplies → Watershed resilience projects to strengthen imported supplies → Programs to actualize benefits from wet weather years
Resilience Metropolitan will integrate climate risk and vulnerability assessments for climate-related hazards, including drought, extreme heat and precipitation, sea level rise, flooding, and wildfire, using the best available climate science and climate change information into planning, implementation, and operations.	→ Establish infrastructure performance criteria and implement infrastructure projects to achieve climate resilience → Assess power system vulnerabilities → Review workforce and equipment safety measures for climate risks → Update fire management plans for critical facilities
Financial Sustainability Metropolitan will reduce short-term and long-term climate-related financial risks through periodic reviews and potential refinement of its business model, active monitoring and managing of financial conditions, and by maintaining flexible financing alternatives.	→ Track financial implications of climate-induced expenses → Consider updates to reserve policy → Consider adjustments to fixed and volumetric rate structures
Affordability Metropolitan will continue to support retail user affordability efforts that support our mission to provide regional wholesale water service in the most economically responsible way.	→ Identify new partnerships, grants, and revenue sources for climate adaptation → Work with Member Agencies to identify funds for statewide low-income rate assistance → Enhance water conservation incentives to reduce financial impacts

Equity Metropolitan will engage with the diverse communities we serve to listen, communicate transparently, and co-create solutions for greater equity in climate adaptation planning and implementation.	→ Develop community engagement standards → Develop environmental justice and community benefits policy
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4 Conclusion and Next Steps

This Climate Adaptation Policy Framework will continue to develop based on Board direction and over time as specific policies, initiatives, and partnerships are pursued. Providing a structure to guide, track, and report on climate adaptation activities ensures transparency and continued alignment with the CAMP4W priorities and enables adaptive management in response to changing conditions, resources, and needs.

4.1 Next Steps for Climate Adaptation Policy Framework

In 2025, the CAMP4W Planning Team will provide a CAMP4W Implementation Strategy for Board review that will include high-level policy direction on climate adaptation. Next steps include:

- **Finalize Policy Framework:** Receive feedback and refine as appropriate;
- **Document the Framework:** Include Climate Adaptation Policy Framework in Master Plan Implementation Strategy;
- **Review Existing:** Systemically review existing policies, initiatives, and partnerships to align activities with Climate Adaptation Policy Framework and CAMP4W priorities and identify gaps;
- **Develop New:** Develop new policies, initiatives, and partnerships to implement the Policy Framework;
- **Implement:** Implement policies, initiatives, and partnerships to advance the Climate Adaptation Policy Framework in alignment with overall CAMP4W objectives; and
- **Report on Progress:** Annually report on implementation actions as part of the CAMP4W Annual Report.

Climate Adaptation Master Plan for Water (CAMP4W)

WORKING MEMORANDUM 7

INTEGRATING CLIMATE CHANGE ADAPTATION INTO METROPOLITAN'S PLANNING PROCESSES

December 2024

1 Introduction

Extreme weather conditions in recent years have presented Southern Californians with an unsettling preview of the challenges ahead, where climate change is resulting in weather whiplash, abruptly swinging the state from periods of severe and extended drought to record-setting wet seasons. This is putting mounting pressure on the year-to-year management of the region's available water and power resources. In response, the Board directed staff to integrate water resources, climate, and financial planning into a Climate Adaptation Master Plan for Water (CAMP4W) and in October 2023, chartered a Joint Task Force of Board Members and Member Agency Managers to facilitate the development of CAMP4W in a timely and transparent process. CAMP4W includes: (1) Climate and Growth Scenarios, (2) Time-Bound Targets, (3) A Framework for Climate Decision-Making and Reporting, (4) Policies, Initiatives, and Partnerships, and (5) Business Models and Funding Strategies. CAMP4W will increase Metropolitan's understanding of the climate risks to water supplies, water and energy infrastructure reliability, operations, workforce, and business model. CAMP4W will also provide decision-making tools and long-term planning guidance for adapting to climate change to ensure Metropolitan is mitigating that risk and ultimately strengthen its ability to fulfill its mission.

The development of a Climate-Decision Making Framework, including evaluative criteria, has been a significant component of the CAMP4W process to date. Using a comprehensive assessment approach, projects and programs will be evaluated through a set of criteria to determine consistency with the Board's overall climate adaptation objectives. This Working Memorandum describes Metropolitan's approach to identifying new projects and programs and provides initial recommendations to ensure that climate adaptation considerations are integrated into existing and future planning processes. The stepwise approach of CAMP4W, including the identification and evaluation of projects and programs, is included in **Figure 1**.

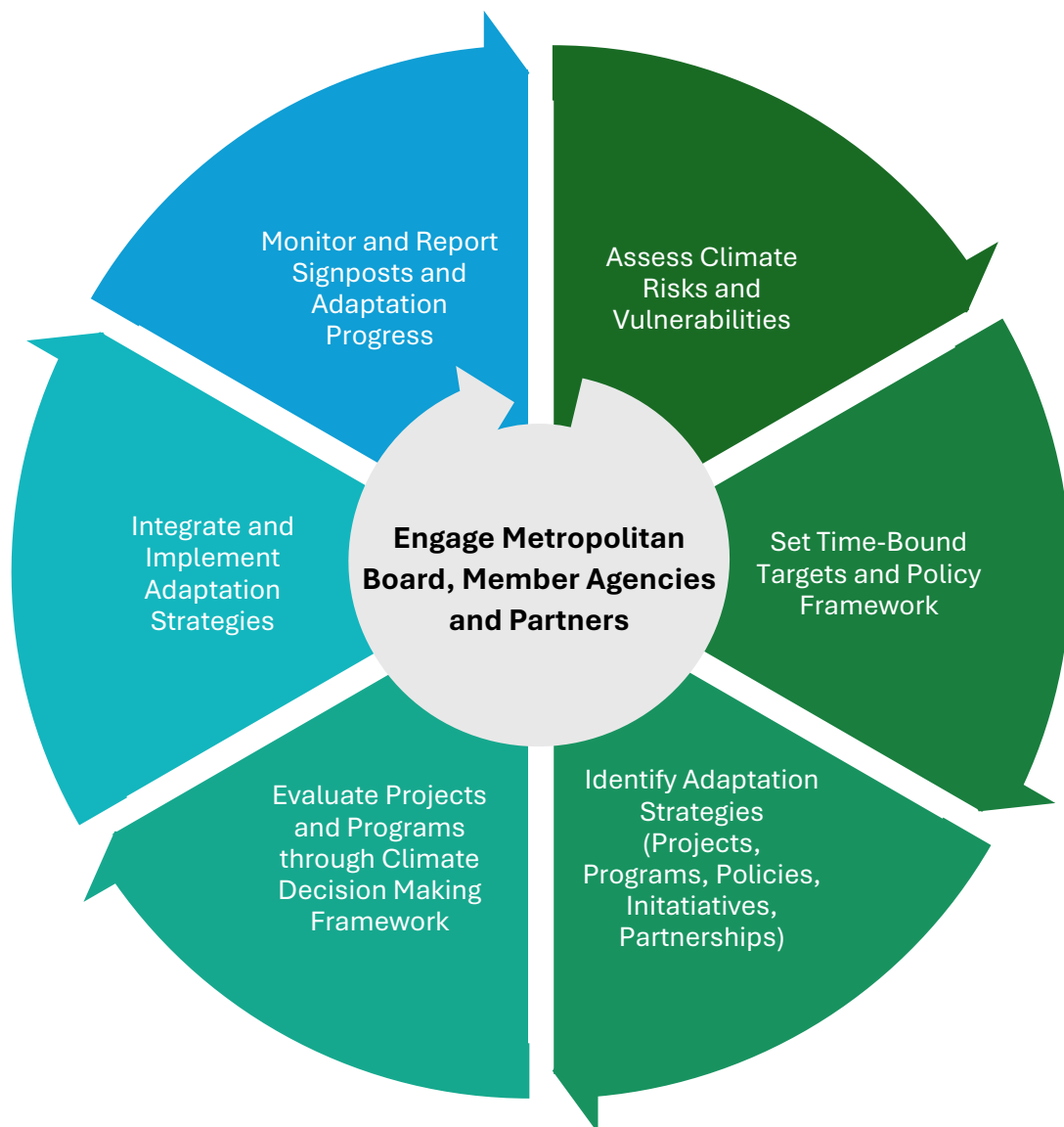


Figure 1. Climate Adaptation Master Plan for Water Implementation Process

In general, Metropolitan identifies potential projects and programs to advance water supply and power reliability, continued system operation, asset management, infrastructure reliability, and energy sustainability through several planning processes initiated by various groups within Metropolitan. These existing processes are described in detail in **Appendix A** and have varying assessment cycles, with some occurring more frequently than others, and some only occurring when needed. While these processes have effectively identified projects and programs to meet Metropolitan's needs, changing climate conditions and increased uncertainty require additional considerations and criteria in project and program development as well as project and program evaluation.

Through CAMP4W, staff recommends adding climate adaptation considerations into every aspect of the organization's resource and infrastructure planning processes to align with the CAMP4W Climate Decision-Making Framework and evaluative criteria. Importantly, climate considerations should also extend to projects and programs not evaluated through the CAMP4W process (e.g. replacement and refurbishment projects) to ensure Metropolitan infuses climate change into all investments and moves towards a climate resilient future.

This approach is consistent with the following Next Steps identified in the CAMP4W Year One Progress Report:

- "Refine adaptive management and how to institutionalize it in Metropolitan's processes."
- "Refine the process for integrating CAMP4W projects into CIP and budget."

2 Existing Project Identification and Evaluation Process

New projects and programs are identified to meet needs through the processes presented in **Appendix A**; through staff identification of replacement and refurbishment (R&R) projects to support existing infrastructure, which may include new capital projects; and through other Board directives. However, currently there is no formal process for evaluating each list of projects holistically nor is considering the impacts of climate change an integral part of each process. Therefore, Metropolitan has identified the need to modify elements of existing processes to better serve the needs of its Member Agencies and to integrate the Board-identified climate adaptation priorities, as reflected in the CAMP4W evaluative criteria.

To establish the best path forward for making modifications, it is important to understand existing processes. Projects and programs are identified to address needs through the planning processes identified in **Appendix A**. They currently proceed following multiple paths forward, as shown in **Figure 2**, including:

- Projects and programs are developed through either operations or engineering staff identification of a needed improvement to the system, or they are developed following other Board directives. The majority of projects are for R&R to support existing infrastructure and are evaluated in the Capital Improvement Plan (CIP) process prior to inclusion in the budget.
- Non-infrastructure programs, such as local resource development, water transfer, banking, and conservation, are not part of the CIP process. They move directly to the Board for approval as programs and become part of the budget.
- Some strategic infrastructure investments, such as Inland Feeder, Diamond Valley Lake, and Pure Water Southern California undergo a separate path forward for a longer development and evaluation process compared to a typical CIP project. These long-term infrastructure projects eventually are included in the CIP budget after Board approval.

While the current CIP process does involve a thorough review of each project, a risk evaluation, and a prioritization process to establish which projects will advance, there is also a need to ensure climate adaptation objectives are included in the CIP evaluation process as well as for those programs that do not

go through the CIP evaluation. Elements of current processes account for climate risks and vulnerabilities; however, there is not a consistent set of climate considerations applied throughout the District that address reliability and resilience needs. Through CAMP4W, the Task Force has developed a comprehensive assessment methodology for evaluating projects and programs and these same elements should be integrated into planning processes for consistency at each stage of a project or program's development, where applicable. With many of these projects and programs extending over multiple years and funding cycles, there will be multiple iterations of evaluation and decision-making prior to a project or program's final implementation, which supports the adaptive management process.

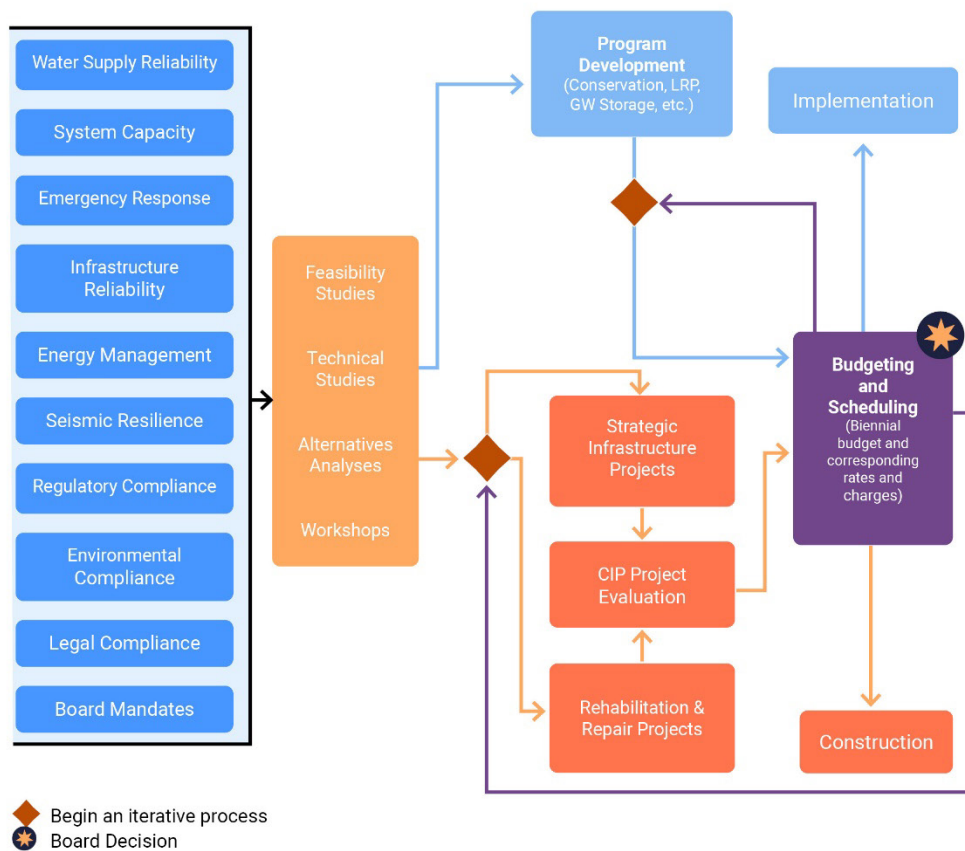


Figure 2. Current Project Development Process

3 Infusion of Climate Adaptation into Project and Program Identification and Evaluation

Climate impacts and vulnerabilities must be considered at each phase of project and program development and evaluation. This will ensure that project and program development is aligned with the CAMP4W evaluative criteria and assessment approach, which will work to streamline planning and implementation. Projects and programs that go beyond R&R will most likely be developed to fulfill a CAMP4W Time-Bound Target (e.g. core supply or storage need identified in the IRP Needs Assessment) or to address a specific climate vulnerability identified through Metropolitan's ongoing Climate Vulnerability and Risk Assessment. New studies or existing processes, including the existing processes detailed in **Appendix A**, may help identify the specific investments needed to adapt to changing climate conditions and ensure long-term resilience (e.g., storage options, wildfire protections, energy sustainability, heat mitigation, and the compounded impacts from other infrastructure risks such as those from earthquakes).

Opportunities to Infuse Climate Considerations. Infusing climate adaptation into existing planning, evaluation, deliberation, and implementation processes is an efficient and effective method of institutionalizing climate adaptation. Specific actions to integrate climate adaptation into each phase could include:

- 1) Planning Phase:
 - a. Incorporate CAMP4W priorities, as reflected in the CAMP4W evaluative criteria, in updates to Metropolitan plans, guidelines, standards, and reports,
 - b. Add language to Requests for Proposals, if applicable, and project scoping documents to reflect climate adaptation priorities, and
 - c. Update data sets and analyses to reflect real-world conditions (as reported through Signposts) and the best available climate science.
- 2) Evaluation Phase:
 - a. Evaluate projects and programs meeting the CAMP4W threshold utilizing CAMP4W evaluative criteria, and
 - b. Modify CIP evaluative criteria to reflect CAMP4W priorities and utilize for all projects being evaluated
- 3) Deliberation Phase:
 - a. Support Board deliberation at each iteration, and
 - b. Prepare CAMP4W briefing sheets for Board actions
- 4) Implementation Phase:
 - a. Develop project and program implementation documents (specifications, provisions, plans, etc.) to advance CAMP4W priorities.

Projects and programs identified through existing and new planning processes will continue to be developed and evaluated through feasibility studies, technical studies, alternative analyses, and resource management evaluation as is currently done, but with additional climate adaptation and resilience considerations. The information gathered from these studies will be used to support the CAMP4W evaluation process both by providing data needed for the assessment process, and by providing additional information to better support Board deliberations regarding a project or program.

A Dual Path Approach to Project Evaluation. The CAMP4W process has identified a threshold for projects and programs to undergo a focused climate adaptation evaluation utilizing evaluative criteria defined through the CAMP4W Task Force. The goal of establishing this threshold is to allow staff and the Board to focus the additional detailed evaluations on strategic infrastructure investments and programs with the potential to have a much larger impact in helping to meet Metropolitan’s climate adaptation goals, as well as projects and programs specifically conceived to contribute toward achieving Time-Bound Targets. The threshold is summarized in

Figure 3. Projects that do not meet this threshold will still be evaluated as part of the CIP evaluation process, which will be modified to infuse additional climate considerations, as discussed in subsequent sections.

As shown in **Figure 4**, these two paths forward have unique components that culminate in Board deliberations and funding decisions. This section will provide a discussion on each of the two pathways and how climate adaptation will be infused into each.

Determining whether a project or program meets the conditions for CAMP4W evaluation

A “yes” answer to any of the following four questions means a project or program will be considered through the CAMP4W process.

- Is the project or program providing a new core supply, flex supply, or storage, or is the project supporting a new core supply, flex supply or storage project?
- Is the project or program addressing a known vulnerability to an asset(s) and does it involve significant improvements beyond what would be required to perform traditional R&R for that asset?
- Does the project or program work specifically towards significant contribution to a Time-Bound Target?
- Does the project or program exceed a certain flow-based threshold (CFS or AFY) or cost threshold (capital or O&M cost)?

Figure 3. CAMP4W Evaluation Threshold

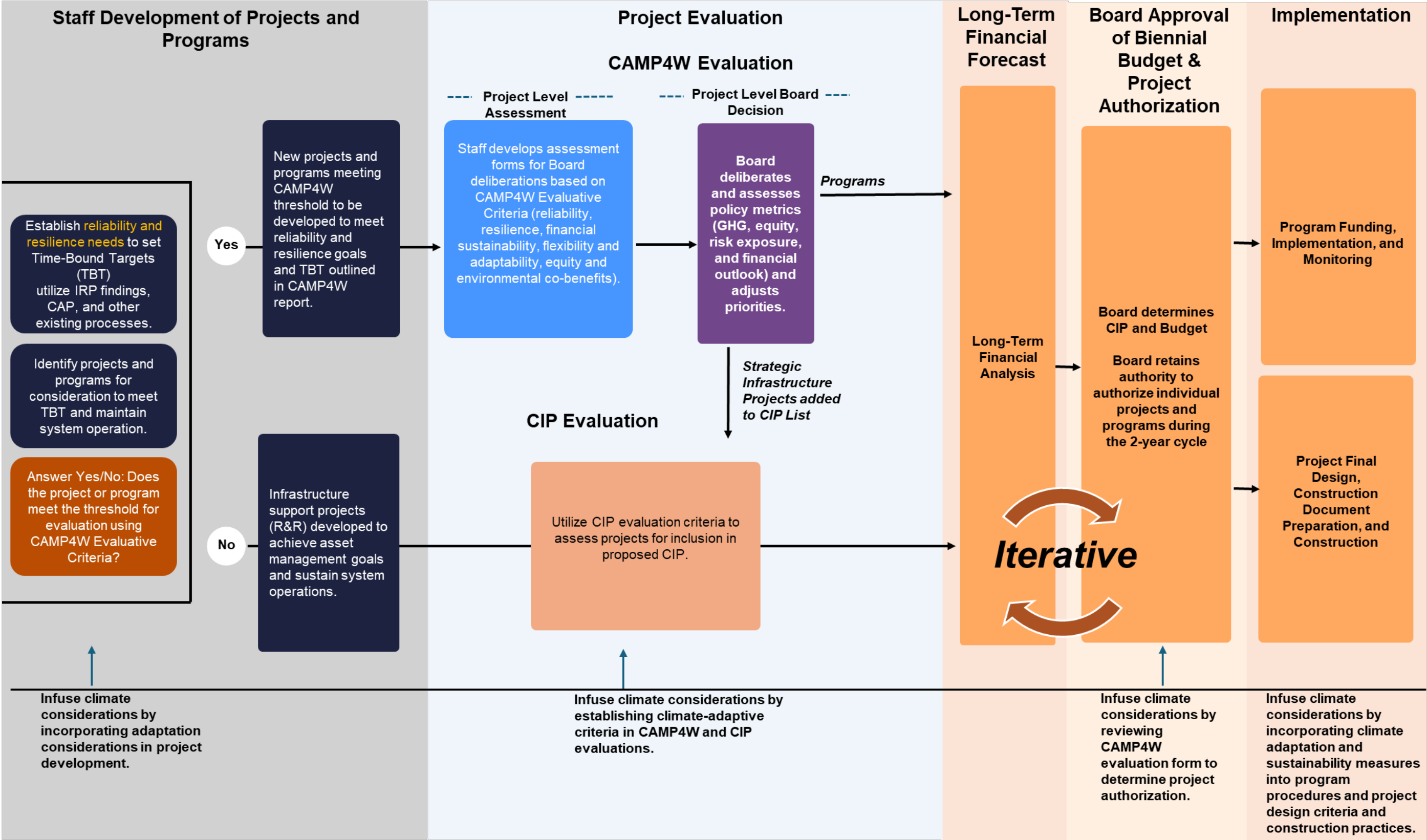


Figure 4. Infusion of Climate Adaptation in Project Identification and Evaluation

3.1 New Projects and Programs meeting CAMP4W Evaluation Threshold

Climate adaptation considerations are integrated into project and program evaluation through the development of the Climate Decision-Making Framework. Projects and programs that meet the CAMP4W threshold conditions (

Figure 3) will undergo the comprehensive assessment process using the CAMP4W Evaluative Criteria developed through the Task Force. This evaluation includes a series of assessment questions under the categories of reliability, resilience, financial sustainability, adaptability and flexibility, equity, and environmental co-benefits that incorporate climate adaptation into their attributes. The information gathered and assessed will be used to support Board deliberations on a project's or program's merits and alignment with the Boards climate adaptation goals. If consented by the Board, projects and programs will be considered in Metropolitan's long-term financial analysis and will eventually be incorporated into the CIP, where appropriate.

Depending on its developmental stage, projects or programs that are within the approved CIP and Biennial Budget would either be developed further to refine scope or advance for implementation. Importantly, all projects and programs listed in the recommended CAMP4W portfolio, regardless of their developmental stage, will continue to be a part of the long-term financial analysis and Board deliberation process that results in an approved biennial budget. This will establish which projects and programs from among all being considered will be funded for a particular budget cycle. In this way, the Board will deliberate and determine the timing and extent of funding for a project or program. Deliberation will be based on a number of factors including priority, urgency, need, and available funding. Upon approval of a budget, the Board still retains authority for determining which projects and programs in the budget are actually authorized to begin implementation. Due to the long-term nature of many projects and programs that will undergo this process, it is important to note that these efforts will extend across or repeat over multiple years and funding cycles. Steps include the following:

- Project / program identified (see studies that lead to project identification in **Appendix A**)
- Project / program evaluated using CAMP4W Evaluative Criteria
- Project / program receives Board approval to either continue its development or advance to CIP for implementation
- Project / program evaluated by staff to determine, considering all other Metropolitan needs and commitments, whether it will be proposed for funding in current or future budget cycle
- Board budget deliberations determine biennial funding allocations and timing of implementation (this could be an iterative process among staff and Board)
- Continued Board oversight since projects / programs included in the biennial budget still require Board authorization at various stages of implementation

**Note that the timing for the CAMP4W Evaluative Criteria evaluation process for a project or program could be completed outside of the CIP budgeting cycle so that it is ready when the next CIP budget cycle commences.*

Next Steps. Next steps involve continued refinement of the Evaluative Criteria and project and program assessment process, refinement of the Time-Bound Targets, and refinement of the Signposts. Next steps also include establishing the methodology for including climate adaptation considerations in the planning processes such as those summarized in **Appendix A**.

3.2 Existing Projects and Programs not Meeting the CAMP4W Threshold

Metropolitan performs regular R&R to its infrastructure as a normal course of business. Overtime, assets experience reduced functionality and reach the end of their useful lives, and Metropolitan reserves a budget in the CIP based on its asset management plan to ensure the functionality of existing infrastructure. Replacement needs are often established prior to infrastructure failure through management of assets and the diligence of engineering and operations staff. Some repairs are unexpected and occur due to impending failure or failure of an asset or system of assets.

With the impacts of climate change placing increasing stress on Metropolitan's facilities, additional planned and unexpected R&R projects are becoming necessary to maintain the system during and after extreme events. These projects as well as other programs needed to support Metropolitan are identified and evaluated for inclusion in the biennial CIP. The CAMP4W process has identified the need to infuse climate adaptation into the evaluation process for these projects to ensure climate adaptation planning is embedded in all investment decisions.

To support infusing climate adaptation into the development of these types of projects and programs, Metropolitan will develop guidelines, which may include policies, checklists, and criteria, that will lead to solutions that are more climate adaptive and resilient. This will bring climate adaptation to asset level improvements, where appropriate, to ensure Metropolitan is building for climate resilience.

Specific metrics are being developed and may address those categories discussed for integrating climate adaptation considerations into existing planning processes in Section 3. Staff will also consider including greenhouse gas emissions assessments, revised design standards to protect against fire and flood, and implementation of heat resilience standards to mitigate the impacts of extreme temperatures. This will help Metropolitan withstand the impacts of climate change and reduce Metropolitan's carbon and environmental footprint. Metropolitan is also considering additional guidelines to improve the long-term sustainability of its projects and facilities by considering the durability, life cycle costs, and resource efficiency of materials and construction practices. Long-term monitoring will also be an essential component to test the efficacy and impact of new and revised criteria.

Once these R&R projects are established, they will proceed to the existing CIP and budget evaluation process, as shown in **Figure 4**.

Next Steps. Key next steps will be to develop the list of assessment questions, guidelines, or policies that will become a part of the CIP evaluation process and the program evaluation process. This will be an ongoing effort as the CAMP4W process moves forward.

4 Conclusion and Next Steps

CAMP4W provides the roadmap of infrastructure and program development and implementation, allowing Metropolitan to take a holistic look at the problems that need to be solved. While iterative in nature through the adaptive management process, CAMP4W will provide a reasonable indication of what planned capital investments will achieve over time. This process will serve to:

- Reflect the values of Metropolitan and its Member Agencies
- Prioritize Metropolitan's capital investments.
- Confront our new climate reality.
- Meet our Member Agency water demands (Reliability)
- Improve our ability to withstand and recover from disruptions (Resilience)
- Exemplify a fair, just, inclusive, and transparent process (Equitable)

Presented in **Figure 4** is a project delivery process directed by the Board deliberation and with climate adaptive measures infused into each stage of the process, including project identification, evaluation, deliberation, implementation, and the decision-making points. Projects and programs evaluated through the CAMP4W process will be evaluated at each decision point, from funding for initial planning efforts, through design, and construction or program implementation. In this way, Metropolitan can utilize the adaptive management process to decide at each decision point whether to continue to fund the project based on real world conditions (Signposts and Time-Bound Targets) and the feasibility of the project or program to meet needs while avoiding stranded assets.

Next Steps. The next steps in this process involve further refining the Climate Decision-Making Framework components, including the Signposts, Time-Bound Targets, and Evaluative Criteria both as it pertains to new investments and investments to maintain Metropolitan's existing system. This involves infusion of climate adaptation considerations into existing processes, including the CIP evaluation process.

In addition to the next steps for the project identification and evaluation phases, which are documented in the previous sections of this memorandum, Metropolitan aims to develop guidelines to promote the use of sustainable materials and practices in project implementation. As an example, Metropolitan may require implementation-level sustainability measures for materials, construction practices, and monitoring requirements, which could be verified as part of the CIP evaluation process.

As Metropolitan refines these processes and the methodology for infusing climate adaptation into each phase of project and program development, Metropolitan will move towards meeting the goals of the Task Force and creating a reliable and resilient future water supply.

Appendix A

Existing Planning Processes for Project Identification

1 Historical System Reliability Strategy Planning

In 2007, Metropolitan developed the Integrated Area Study, which identified five processes that together contribute to the System Reliability Strategy, as presented in **Figure 1**. This was a collaborative process between Metropolitan and its Member Agencies.

The Water Supply Reliability component addresses Metropolitan's ability to supply water to meet Member Agency demands under all foreseeable hydrologic conditions. The System Capacity component addresses Metropolitan's ability to convey, treat, and distribute supplies to meet firm demands under peak conditions. The Infrastructure Reliability component addresses Metropolitan's ability to maintain facilities in readiness to ensure system deliveries. The System Flexibility component addresses Metropolitan's ability to respond to short-term changes in water supply, water demands, and water quality and meet Member Agency water demands during planned or unplanned facility outages. The Emergency Response component addresses Metropolitan's ability to respond quickly to unplanned outages to restore service.

By addressing each of the five reliability components, Metropolitan has developed a robust approach to ensure the overall system reliability for its service area. These have the potential to identify projects or programs that Metropolitan may implement that are resilient and sustainable, and that can address risks due to climate change. The following sections provide additional information on each of these processes.

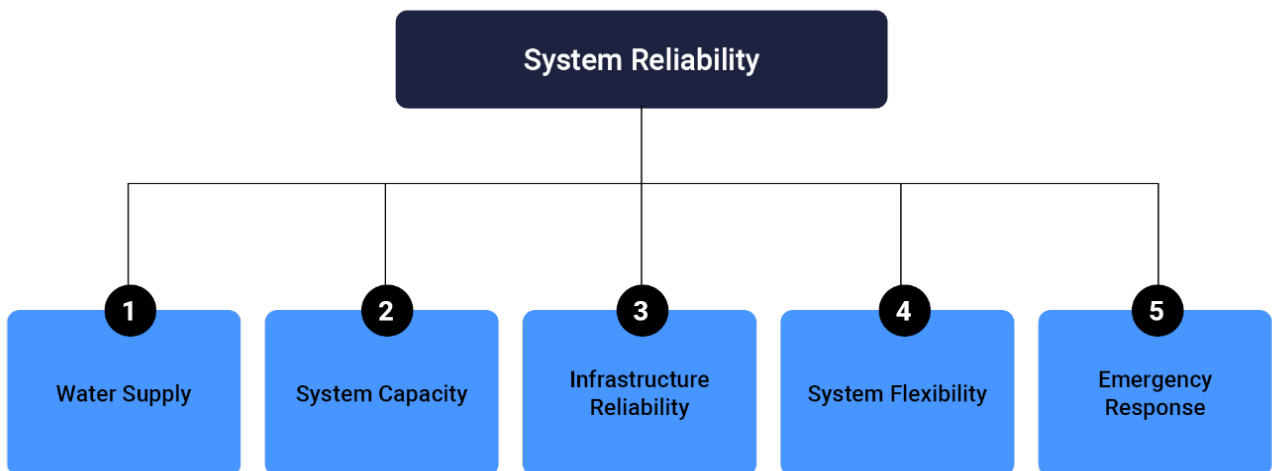


Figure 1. System Reliability Strategy

1.1 Water Supply Reliability

The **water supply reliability** component is intended to develop and maintain an adequate water supply portfolio to meet retail demands under all foreseeable hydrologic conditions.

This component is the focal point of Metropolitan's Integrated Resources Plan (IRP) development process and is also reflected in the Urban Water Management Plan. The IRP assesses the changing conditions facing Southern California to better adapt to those changes. The IRP planning process resulted in the Board adopting IRPs in 1996, 2004, 2010, and 2015, with the most recent IRP being completed in 2020 and approved by the Board in 2022. The IRP lays the foundation for water supply reliability, establishes future water demand for the region, and establishes Metropolitan's water resource vision and strategy. The purpose of the water supply reliability planning process is to achieve reliability by maintaining the existing water supply, diversifying water portfolios, exploring local supply investments, and advancing conservation.



Example Project Identified through Water Supply Reliability Planning

Diamond Valley Lake is a key example of the results of Metropolitan's water supply reliability planning efforts. Diamond Valley Lake is a storage facility that nearly doubled Metropolitan's in-region surface storage while increasing emergency storage.

Other examples include the Local Resources Program (LRP), which provides Metropolitan funding to support Member Agency projects that reduce demand for imported water supplies and increase regional resilience.

Metropolitan's conservation programs also provide water supply reliability through turf removal and efficiency rebate programs.



Diamond Valley Lake West Dam and Forebay

1.2 System Capacity

The **system capacity** component addresses Metropolitan's ability to convey, treat and distribute supplies to meet firm demands under peak conditions.

The studies conducted under this component are designed to explore options for meeting IRP-identified capacity needs, including additional local facilities. In 2004, system capacity was evaluated through the System Overview Study. This study followed the 2004 IRP, which established the resource development needs and identified gaps. The System Overview Study was used to understand how the system can address supply gaps, evaluate facilities required to deliver imported water supply and evaluate policies and guidelines for infrastructure improvements. In 2007, the Integrated Area Study was completed to expand beyond the System Overview Study to review policies and guidelines for infrastructure improvements and develop portfolios of projects to meet the IRP-identified gaps at that time.

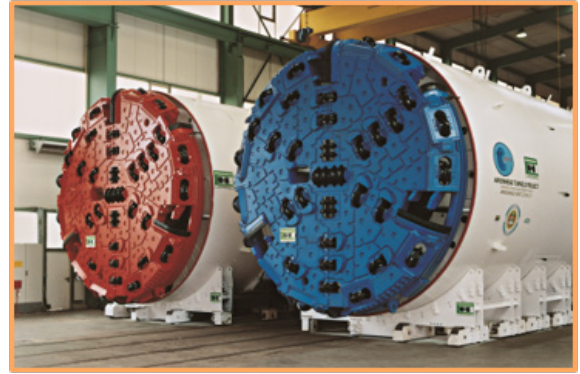
During the development of those studies, proposed projects were not evaluated based on whether they were Member Agency or Metropolitan projects but whether they achieved the desired objectives of collectively meeting community demands. The studies outlined facilities that must be developed to convey and distribute Metropolitan supplies to meet demands.

In addition, the robust hydraulic and hydrologic models of Metropolitan's entire system are used to identify and address constraints related to capacity in the system. Hydraulic and hydrologic modeling tools provide more dynamic and descriptive results, which have helped Metropolitan arrive at more efficient and cost-effective solutions to capacity concerns. Continued upgrades to the model are ongoing.

Example Project Identified through System Capacity Planning

The Inland Feeder is an example of a project identified through this process. Inland Feeder more than doubled Metropolitan's water delivery capacity from the State Water Project (SWP) east and is an essential second supply to multiple MWD reservoirs such as Diamond Valley Lake, Skinner, and Matthews, depending on how the system is operated.

The hydraulic model was also used to identify solutions to address State Water Project dependent areas and drought mitigation efforts.



Arrowhead Tunnels Boring Machine

1.3 Infrastructure Reliability

The Infrastructure Reliability component refers to the maintaining of facilities in a state of readiness to ensure system deliveries.

To ensure reliable service to the Member Agencies, the Integrated Operations Planning and Support Services Group, the Treatment and Water Quality Group, and the Conveyance and Distribution Group, collectively referred to as the Water System Operations Groups (WSO) Group, and the Engineering Services Group (ESG) work to maintain Metropolitan's infrastructure readiness. These groups have developed specialized programs to inspect, maintain, replace, and rehabilitate equipment as needed. These programs require collaboration between WSO and ESG to identify and prioritize needed projects and implement them in an economically and environmentally responsible manner.

WSO oversees the **Maintenance Management Program (MMP)**, which ensures reliable day-to-day performance of Metropolitan's infrastructure by implementing best practices in maintenance activities. This is accomplished through inspection and monitoring to assess the condition of facilities and equipment, identify needed repairs, or perform maintenance tasks.

WSO utilizes the **Computerized Maintenance Management System (CMMS)** to collect information to plan, schedule, and track the maintenance of Metropolitan's infrastructure and over 140,000 pieces of equipment. The information is used to evaluate the effectiveness of maintenance practices, revise maintenance strategies, meet regulatory reporting requirements, and investigate the root cause of systemic equipment problems.

Metropolitan's ESG oversees the Infrastructure Protection Plan (IPP). The goal of the IPP is to ensure reliable long-term performance of Metropolitan's infrastructure by conducting special condition assessments and vulnerability assessments, which involve:

- Special condition assessments: extensive evaluation of facilities beyond routine maintenance and monitoring activities. The assessments are conducted to identify needed R&R projects that can lead to long-term reliability programs.
- Vulnerability assessments: postulate hazards such as vehicle impact, flooding, fire, equipment failure, and earthquakes to identify their potential impacts on water delivery. The assessments look at both individual facilities and Metropolitan's system as a whole.

These efforts result in projects being identified that proceed to the CIP evaluation process.

Example Project Identified through Infrastructure Reliability Planning

CRA pump and discharge valve rehabilitation at Iron Mountain presents an example of a project identified through infrastructure reliability planning. In Iron Mountain, newly installed cranes were used to work on the CRA pumps and discharge valve rehabilitation work.

Examples of Metropolitan's reliability programs include:

- Treatment Plant Improvement Programs
- Colorado River Aqueduct Reliability Program
- Pipeline & Distribution System Reliability Programs
- Hydroelectric Power Plant Improvements Program
- Dam Rehabilitation and Safety Improvements Program
- Seismic Upgrade Program

Examples of the vulnerability assessments include:

- Treatment Plant Vulnerability Assessments
- Colorado River Aqueduct Vulnerability Assessment
- Distribution System Vulnerability Assessment
- Seismic Vulnerability Assessment

1.4 System Flexibility

The **System Flexibility** component considers Metropolitan's ability to respond to short-term changes in water supply, water demands, and water quality and the ability to meet Member Agency needs during planned or unplanned outages.

System flexibility has two components – operational flexibility and delivery flexibility:

- Operational flexibility is Metropolitan's ability to respond to short-term changes in water supply, water demands, and water quality.
- Delivery flexibility is the capacity to meet Member Agency needs during planned and unplanned outages.

Metropolitan's System Flexibility Study is used to assess the impacts of planned and unplanned outages as well as to evaluate how potential failures in the system could impact Metropolitan's ability to deliver water. The study uses modeling to evaluate the impacts of pipe breaks, for example, to identify how many service connections could have re-routed water and how many would not have an available backup alternative. Metropolitan frequently meets with Member Agencies to discuss the findings and evaluate potential solutions in the event that the modeled conditions were to occur.

Example Project Identified through System Flexibility Planning

An example of a system flexibility project includes the Inland Feeder/Lakeview Intertie. This project was created in 2015 in response to the 2014- 2015 drought. It enabled the delivery of water from Diamond Valley Lake to Mills Water Treatment Plant (WTP) and Lakeview Pipeline service connections. This project removed the Mills WTP service area from the SWP-dependent area. During low SWP allocation periods between May and December 2021, approximately 131,000 acre-ft of water was made available for agencies needing water.

The drought mitigation projects in the SWP-dependent areas, in some cases, were identified as flexible solutions.

1.5 Emergency Response

Emergency response is the ability to respond to unplanned outages and restore service as quickly as practical.

Emergency response is addressed through multiple plans, including but not limited to:

- Emergency Response Plan
- Business Continuity Plan
- Information Technology Disaster Recovery Plan
- Seismic Resilience Task Force
- Mutual aid agreements
- Prequalified emergency contractors
- Pandemic Action Plan

Metropolitan maintains an Emergency Response Plan that outlines the strategy to respond to emergencies. A Business Continuity Plan outlines strategies, procedures, personnel, and resources that will be used to allow Metropolitan to conduct its essential functions after an emergency or a disruption. An Information Technology (IT) Disaster Recovery Plan focuses on the restoration of Metropolitan's computer and network systems following a disruption in services. Additionally, Metropolitan periodically evaluates the

effectiveness and reliability of its Emergency Operations Center, Disaster Recovery Facilities, communication infrastructure, cyber security, fuel storage, and a variety of other systems. A Seismic Resilience Task Force focuses on ensuring Metropolitan is prepared for seismic events.

Metropolitan considers the development of Mutual Assistance Memoranda of Understanding (MOU) a vital piece of emergency planning. These MOUs would allow for an organization to provide assistance to other agencies and organizations in times of emergency if able to do so and outline procedures for receiving this assistance, provide for reimbursements of costs and expenses, and address indemnification issues. An executed MOU allows for expedited assistance after a seismic event. Metropolitan also encourages collaborative efforts amongst local and regional agencies through partnerships such as the Seismic Resilience Water Supply Task force collaborative effort between Metropolitan, DWR, and LADWP.

Maintaining a list of prequalified emergency contractors reduces the time to procure services in an emergency. A Pandemic Action Plan was developed in response to the Covid-19 pandemic and is in place in the event of a future pandemic.

Example Effort Identified Through Emergency Response Planning

Metropolitan owns and operates machining, fabrication and coating shops. These facilities are equipped to respond to two simultaneous pipeline breaks in the system. Frequently used materials such as steel plates and valves are stockpiled so that they are readily available in an emergency. Metropolitan also staffs its own construction crews and owns construction equipment (e.g. truck mounted generators, ventilations systems, portable pump systems, etc.) that can be quickly mobilized.

Metropolitan also conducts workshops and exercises regularly that simulate a major emergency event. In past years, Metropolitan has conducted over 50 emergency response exercises; many of the exercises were with Member Agencies and other critical utility partners such as Southern California Edison and the Department of Water Resources. Metropolitan is party to multiple mutual aid agreements that can be utilized in events that require additional resources beyond those maintained by Metropolitan.

Additionally, Metropolitan takes the security of its facilities seriously following an event, and has participated in exercises with emergency responders, the national guard, and the military in preparation for such an event.



Examples of preparedness in the event of a two-line break emergency:

- **Heavy tracking equipment for immediate mobilization**
- **Ensuring shop capacity**
- **Maintaining inventory of structural repair resources**



2 Additional Processes Developed following the System Reliability Strategy

Since 2007, multiple programs have been created and implemented, using the System Reliability Strategy as a general framework for achieving overall reliability goals. These include the following:

- Energy Management Policy (2010) / Energy Sustainability Plan (2020)
- Earthquakes – Seismic Resilience Strategy (2018)
- Aging Infrastructure – Asset Management Program (2019)
- Water Quality – WQ Event Response Guidelines (2023)
- Pandemics – Pandemic Action Plan (2022)
- Drought – SWPDA Drought Mitigation Actions (2023)
- Climate Change – Climate Vulnerability and Risk Assessment (2024)
- Resilience – Strategic Infrastructure Resilience Plan (2024 – 2025)

2.1 Energy Management / Energy Sustainability Plan

The development of economically responsible energy projects is something Metropolitan is actively seeking to incorporate. Solar projects and battery projects are gradually being implemented into the system, with the goal of moving Metropolitan towards energy independence. Included in this process was the development of the Energy Policy Principles and the Energy Management and Reliability Study.

Energy Policy Principles (2008)

Goals of the 2008 Energy Policy Principles include:

- Protect Metropolitan's investment in long-term renewable power resources such as the Hoover and Parker Dams' power plants.
- Develop economically responsible renewable energy projects.
- Promote energy conservation through water conservation.
- Promote effective and equitable legislation and regulations regarding energy-related climate change and sustainability issues.

Energy Management and Reliability Study (EMRS) (2010)

Goals of the 2010 Energy Management and Reliability study include:

- Adoption of Energy Management Policies (2010)
- Contain costs and reduce exposure to energy price volatility.
- Increase operational reliability by providing system redundancy.
- Provide a revenue stream to offset energy costs.
- Move Metropolitan toward energy independence.

2.2 Seismic Resilience Strategy

The Seismic Resilience Strategy is presented to the Board annually to provide a verbal update, with a written report delivered every five years, with the next to be delivered in 2025. This effort includes the components in **Figure 2** which comprise Metropolitan's Seismic Resilience Strategy, developed through a structured program that identifies projects that increase the seismic resilience of Metropolitan.



Figure 2. Seismic Resilience Strategy

Impacts to Metropolitan's infrastructure, such as the risks posed by seismic events, have the potential to cause significant disruptions, to which Metropolitan must be prepared to respond. The Puente Hills Thrust

Fault and the Newport Inglewood Fault have the potential to cause major damage to our local water systems. Additionally, there are four aqueducts that cross the Southern San Andreas earthquake fault: the east and west branches of the State Water Project, the City of Los Angeles' Los Angeles Aqueduct, and Metropolitan's Colorado River aqueduct. Each presents a vulnerability to Metropolitan's supply reliability were damages to occur. More distant but also potentially significant is the potential damage to the levies within the Bay-Delta if there is a major earthquake in the Bay-Delta region in Northern California because of the disruption that would cause to the State Water Project supplies as they move through the Delta. This disruption would not only be immediate but there would be potential long-term impacts on the water quality caused by seawater intrusion.

Within Metropolitan's service area, seismic vulnerabilities include potential damage to individual facilities and pipelines and tunnels. To reduce the risk of damage and service interruptions from earthquakes, for over thirty years Metropolitan has worked to strengthen its facilities and develop a robust and collaborative seismic resilience strategy that has several elements, including:

- Assess the structural adequacy of all facilities.
- Maintain capacity to perform rapid repairs, including support to Member Agencies
- Identify vulnerabilities in pipelines and aqueducts for areas vulnerable to liquefaction or ground deformation.
- Evaluate with Member Agencies the need for interconnections, backup supplies, or local storage.
- Incorporate seismic resilience into the design of all new facilities and retrofits, including design to the latest codes.

2.3 Asset Management Program

Asset management is a systematic and comprehensive lifecycle approach to managing infrastructure assets through integrated and effective business processes to maximize the value of each asset while balancing costs and risks to meet service demands in an economically and environmentally responsible manner. Metropolitan's asset management strategy is defined in the Strategic Asset Management Plan (SAMP) published in 2021.

The SAMP was designed to provide guidance on how to enhance infrastructure reliability by managing risk and while developing staff in asset management processes. It provides the framework for developing tactical plans for managing Metropolitan's infrastructure and other assets to determine when assets will be refurbished or replaced to deliver a high standard of service to the Member Agencies. Currently, the plan does the following:

- Outlines the strategy and objectives for managing Metropolitan's physical assets effectively and
- Ensures that assets are managed in a way that supports Metropolitan's goals.

Metropolitan will continue developing and improving the asset management strategy into the future. Key outcomes of the SAMP are revisions to Metropolitan's written specifications (to include requirements to collect data from every contractor based on a lifecycle analysis) and a refined CIP prioritization based on standard asset risk criteria to allow for identification of priority projects.

2.4 Water Quality Response Guidelines

Metropolitan first created a compilation of Water Quality Action Response Guidelines (Guidelines) in 1989. The guidelines establish procedures for staff to follow when a water treatment plant does not comply with Metropolitan's established water quality goals. These guidelines were developed to ensure compliance with applicable state and federal drinking water regulations.

In addition, these goals allow a sufficient margin of safety and time to implement corrective actions prior to the required notification to the Division of Drinking Water (DDW) and/or Metropolitan's member agencies. Metropolitan's primary goal has always been to always maintain 100 percent compliance with drinking water regulatory requirements. Over the years, these goals have evolved to include water quality goals and action level response guidelines for the water treatment plants, distribution system, source water reservoirs, quagga mussel control program, and desert domestic water supply systems.

The Guidelines provide detailed action levels for Water Treatment Plants, the Distribution System, Source Water, and the Desert Domestic Water System. An action level is a concentration of a substance or water quality parameter that, if exceeded, triggers operational changes, increased monitoring and sampling, or other requirements by staff. The Water Quality Action Response Guidelines contain target water quality ranges or goals for these substances and parameters. Water quality ranges above or below these goals are categorized as Action Level 1 (just outside of normal range) or Action Level 2 (a more serious issue). The Guidelines summarize the target and action level ranges currently used by Metropolitan and indicate the minimum responses that staff are required to follow.

2.5 Pandemic Action Plan

The focus of the Pandemic Action Plan is to prepare Metropolitan to respond to an infectious disease outbreak or pandemic that affects employees while maintaining operational continuity. It was published on March 11, 2020, immediately before the effects of the COVID-19 pandemic started to cause serious disruptions to life in Southern California. The plan describes the actions that can be taken to coordinate and synchronize a district-wide response to such an event. This plan assumes that local health officials will provide guidance and in some cases directives on the actions that Metropolitan will need to take to mitigate the spread of the illness.

The plan provides background on possible types of illnesses that may be encountered, key coordinating agencies, and a concept of operations describing Metropolitan's planned response actions. The following objectives drive the preparedness, response, and recovery actions taken by Metropolitan in the event of a wide-spread illness which may threaten Metropolitan employees and/or its operations:

- Prepare for and respond to wide-spread illness and protect the health and safety of employees.
- Identify wide-spread illness preparedness, mitigation, and associated triggers for response.
- Ensure continuity of critical operations and business activities during a multi-week period of random employee absenteeism of up to 40%.
- Ensure a safe, healthful, and supportive workplace and reduce employee fears of coming to work.
- Implement an effective communications strategy during advisories or crises, including two-way communications with stakeholders where appropriate.

2.6 State Water Project Dependent Area Drought Mitigation Actions

Extreme drought in northern California between 2020 and 2022 resulted in a historic low cumulative three-year allocation from the State Water Project. The low allocation resulted in mandatory conservation for those areas highly dependent on SWP supplies. To mitigate a potential recurrence of the drought and its impacts, a plan was developed to address the supply reliability of the SWP dependent areas and develop a Drought Mitigation Action Portfolio. The results of these efforts are presented in **Figure 3**.

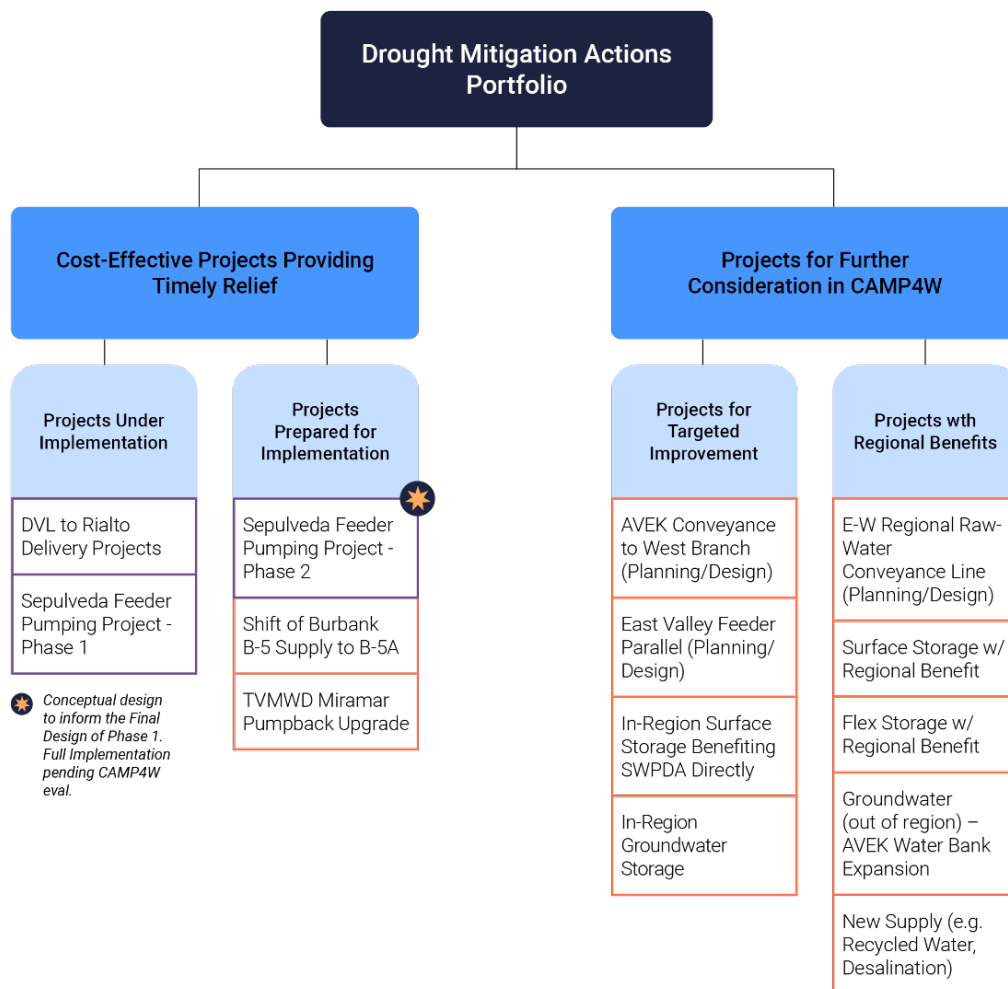


Figure 3. SWPDA Drought Mitigation Actions

2.7 Climate Vulnerability and Risk Assessment

The Climate Vulnerability and Risk Assessment (CVRA) was completed in 2024 and presents an evaluation of the climate risks Metropolitan faces across a range of hazards. The CVRA serves to:

- Establish the framework for an adaptive management process in the face of a changing climate.
- Identifies how Metropolitan is currently managing risk associated with climate change.
- Provide structural recommendations that will enable Metropolitan to better adapt.

The CVRA includes the following recommendations:

- Characterization of a broad range of climate hazards
- Assessment of vulnerabilities to infrastructure, operations, workforce, and business model
- Development of climate adaptation actions that can build Metropolitan's resilience.

2.8 Strategic Infrastructure Resilience Plan (2024 – 2025)

Metropolitan's Strategic Infrastructure Resilience Plan (SIRP) is designed to support maintaining a robust conveyance and distribution system capable of absorbing shocks while continuing to operate and fully restore any potential service losses as quickly as possible. The plan addresses Metropolitan's ability to manage an event or risk as it unfolds in real-time. The plan covers the water and electric power systems owned and operated by Metropolitan. The SIRP is a framework that can be used for strategic planning over the next decade or more. The SIRP will be used to enhance and expand Metropolitan's organization-wide resilience program. The SIRP will be updated as necessary as the organization-wide resilience program is implemented and with more knowledge gained from resilience lessons learned over time. The SIRP addresses multi-hazard and is multidisciplinary. It provides a comprehensive and systematic approach to addressing the need to maintain services and restore any lost or reduced services to member agencies in a timely manner following an event. The timeliness of service restoration focuses on the member agencies' public health and safety needs and the regional socioeconomics related to water use. The SIRP looks at Metropolitan's dependencies on other systems and the interactions needed to reduce impacts from dependent systems.

By addressing resilience, Metropolitan will have the ability to react to events including, but not limited to:

- Drought
- Seismic Activity
- Liquefaction
- Erosion/Scour/Flooding
- Wildfires

- Wind & Wind Blown Projectiles
- Climate Change
- Vehicle Impacts
- 3rd Party Construction Impacts
- Vandalism
- Terrorism
- Hydraulic Surge
- Corrosion
- Equipment Malfunction
- Cyber Security
- Pandemic

2.9 Local Hazard Mitigation Plan

The Local Hazard Mitigation Plan (LHMP) will assess Metropolitan's exposure to natural hazards including earthquake, wildfire, landslide, flood, severe weather, drought, and climate change. The plan sets goals for hazard mitigation and identifies and prioritizes studies and projects that will move the organization toward those goals. The plan requires approval by the Federal Emergency Management Agency (FEMA) as well as Metropolitan's Board of Directors for finalization and adoption. Completion of the LHMP would qualify Metropolitan for federal grant funding programs to offset the costs of hazard mitigation studies and projects identified in the plan.

The LHMP is required to undergo a formal update and approval every five years. However, an approved plan can be amended at any time to include new studies and projects that have been identified without requiring additional approval. This process complements the adaptive decision-making framework of the CAMP4W process, and the projects identified in the LHMP through a risk-based evaluation can inform the CAMP4W as part of its portfolio.



BUILDING A STRONGER L.A.

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Wilma J. Pinder

Chante L. Mitchell, Secretary

Janisse Quiñones, Chief Executive Officer and Chief Engineer

February 13, 2025

Mr. Deven Upadhyay
General Manager
Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, California 90012

Dear Mr. Upadhyay:

Subject: Climate Adaptation Master Plan for Water – Comments to Draft 2024 Annual Report and Working Memorandum #10

The Los Angeles Department of Water and Power (LADWP) appreciates the continued opportunities to collaborate with the Metropolitan Water District of Southern California (Metropolitan) Board members and fellow Member Agency Managers during the Climate Adaptation Master Plan for Water (CAMP4W) Joint Task Force.

We appreciate Metropolitan staff soliciting comments to the CAMP4W Draft 2024 Annual Report. LADWP previously provided comments through email on January 16, 2025, enclosed for reference. These comments included the following requests:

- Identification of Sepulveda Feeder Pumping Stage 2 as “Category 1” for implementation,
- Clarification of Time Bound Targets progress with measurable data,
- Consistency in assumptions and trends used for water supply/demand projections and financial analyses,
- Specification of State Water Project Dependent Area benefits by location, and
- Correction to the Future Supply Actions Program section.

We request that our comments be incorporated in the final version of the CAMP4W 2024 Annual Report as they do not appear to have been addressed in the reports distributed on February 5, 2025.

In addition, the “Overarching Policy Objectives” detailed in Working Memorandum #10 – Climate Adaptation Policy Framework, could be further expanded with explanation as to

Mr. Deven Upadhyay

Page 2

February 13, 2025

how to better serve the needs of the region. For example, several Member Agencies Managers and Directors have previously provided comments on policy objectives, specifically how have prior comments been incorporated. It should be recognized that Metropolitan is serving its 26 Member Agencies as a regional wholesaler. As a wholesaler, Metropolitan will need to consider all the information from its Member Agencies in order to set informed and impactful objectives to benefit the end-user customer through the affordability and equity lens.

Regarding the next steps for the Climate Adaptation Policy Framework, the Ad Hoc Business Model Working Group needs to be integrated into the policy framework for the evaluation and development processes before the policy objectives are finalized by Metropolitan staff for Board review and input. The Board established the Ad Hoc Working Group to oversee the business model refinement process, which covers the financial stability and affordability areas. The Ad Hoc Business Model Working Group needs to be consulted to provide vital input towards financial policy evaluation and development. Any changes should be first reviewed from a holistic perspective to thoroughly evaluate and deliberate intended and unintended consequences.

LADWP appreciates Metropolitan's work in ensuring that this CAMP4W process is open and transparent so that the Board can make informed, educated, and intentional decisions on where and when investments are made. We look forward to the continued engagement and collaboration with Metropolitan staff and our fellow Member Agencies Managers.

If you have any questions or if further information is required, please call me at (213) 367-1022, or have your staff contact Mr. David R. Pettijohn, Director of Water Resources, at (213) 367-0899 or by email at David.Pettijohn@ladwp.com.

Sincerely,



Anselmo G. Collins

Senior Assistant General Manager – Water System

ST:lj

Enclosure

c: Mr. Adán Ortega, Jr., Metropolitan Board Chair

Metropolitan Subcommittee on Long-Term Regional Planning Processes and

Business Modeling Committee Members and CAMP4W Task Force Members

Ms. Liz Crosson, Metropolitan Chief Sustainability, Resilience and Innovation Officer

Mr. David R. Pettijohn, LADWP

From: [Tsui, Sabrina](#)
To: [Crosson, Elizabeth K](#); Camp4Water@mwdh2o.com
Cc: [Sutley, Nancy H](#); [Petersen, Matt](#); [Quinn, Tracy](#); [Luna, Miguel](#); ["CDouglas@mwdh2o.com"](mailto:CDouglas@mwdh2o.com); [Collins, Anselmo](#); [Pettijohn, David](#); [Kwan, Delon](#)
Subject: RE: [EXTERNAL] CAMP4W 2024 Annual Report -- Draft for Review
Date: Thursday, January 16, 2025 12:09:00 PM

Good afternoon Liz and CAMP4W team:

Thank you for the opportunity to review and comment on the Draft CAMP4W 2024 Annual Report. Below are a few preliminary comments for your consideration.

1. Sepulveda Feeder Pumping Stage 2 was already identified as a “Category 1” project (projects under or prepared for implementation) in Metropolitan’s prior reports to the Board. Sepulveda Feeder Pumping Stage 2 should be implemented without going through the CAMP4W evaluation, similar to other “Category 1” projects such as DVL to Rialto. Statements regarding Sepulveda Feeder Pumping Stage 2 in the CAMP4W report under the Drought Mitigation Projects section, and wherever else it is discussed, should be edited as such.
2. Time Bound Targets – the listed items and advancements don’t clearly define and quantify how each of these would help achieve the time bound targets. For example, Policy-Based Time-Bound Targets lists the “Authorized storage of 100,000 acre-feet over two years through the Reverse Cyclic Program” as an action related to equitable supply reliability, demand management, GHG reduction and others. Please explain how this action help achieve Time Bound Targets, and how it relates to surplus water management. In prior discussions, Metropolitan had described the pre-selling of 100,000 acre-feet as a “cash management’ tool. As the City of Los Angeles has comment in the past – one-off programs must be reviewed holistically to determine how they fit in the overall supply reliability of the region and impact Metropolitan’s financial position.
3. Please expand on the statement under “Local Agency Supply” that “lower retail demands have led to low local agency water production”. Other factors like hydrology, contamination, operations/facility shutdowns, etc. seem to be likely causes of low local agency water production. Also note that groundwater replenishment was curtailed due to Metropolitan’s low supplies in years like 2022.
4. Please expand on the detailed discussions in Appendix A, specifically for supply and demand signposts and trends. It would be helpful to better understand the direct relevance to, and conclusive support of, the IRP scenarios from which Time Bound Targets been derived from. As we’ve noted before, consistency in assumptions is important, such as those used for financial analyses.
5. Please provide background and data on the 4-year drought sequence mentioned in this report. It would be helpful to better understand the assumptions related to Member Agency demands and the forecasted supply-demand gap, as well as where the gap may be located.

6. Also, reiterating comments from our December 13, 2024 letter, as this report doesn't seem to have addressed them:
- Location matters, yet the assessment examples were silent on the direct benefits to specific areas, such as westside State Water Project Dependent Areas. We encourage the use of studies and evaluations of Metropolitan's system/infrastructure and delivery capacity, such as the System Overview and Integrated Area Studies, to support the assessment.
 - Existing Time-Bound Targets need to be re-evaluated using the latest data and trends. Newly proposed Time-Bound Targets (first introduced in WM #8) need to be discussed with MA Managers, CAMP4W Task Force Members and Directors first. We recommend focusing on addressing concerns/questions of the established ones first, before adding more.
7. Under the Future Supply Actions Program section,
- a. Please note that LADWP is also participating in Las Virgenes MWD's OceanWell study
 - b. The description of LADWP's Headworks Reservoir Complex Direct Potable Reuse Pilot should state "... evaluated for removal efficiency of pathogens..." rather than "... evaluated for addressing pathogens..."

We look forward you addressing our comments and concerns before the January 29th CAMP4W Task Force. Please let me know if you have any questions.

Sabrina Y. Tsui, P.E.

Manager, Resource Development & Watershed Management
Water Resources Division
(213) 367-4131

 Please consider the environment before printing this email.

From: Office of the General Manager <OfficeoftheGeneralManager@mwdh2o.com>

Sent: Monday, January 6, 2025 11:54 AM

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Subject: [EXTERNAL] CAMP4W 2024 Annual Report -- Draft for Review

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THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Date: January 6, 2025
To: Board of Directors
Member Agency Managers
From: Liz Crosson, Chief Sustainability, Resilience, and Innovation Officer
Subject: CAMP4W 2024 Annual Report -- Draft for Review

The **Draft CAMP4W 2024 Annual Report is attached for your review.** This first report provides the template for annually reporting on CAMP4W Signposts, Time-Bound Targets, and Implementation Highlights.

We plan to discuss this at the CAMP4W Taskforce meeting on January 29, 2025, and will provide the final report following that meeting. If you'd like to provide initial questions and comments before the January 29 Task Force, please send them to Camp4Water@mwadh2o.com by Friday, January 17 to help us prepare for the presentation and discussion. Otherwise, we ask for any written comments on the Draft Annual Report by Monday, February 10.

Please note the scheduled dates for future CAMP4W Taskforce meetings. They are on the board calendar for 9:30 a.m. to 12:30 p.m., with start time subject to change.

- January 29, 2025
- February 26, 2025
- March 26, 2025

If you have any questions, please contact us at Camp4Water@mwdeh2o.com.

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February 13, 2025

Deven Upadhyay
General Manager
Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, CA 90012
Electronic copy via email DUpadhyay@mwdh2o.com

RE: Climate Adaptation Master Plan for Water – Comments to Draft 2024 Annual Report and Working Memorandum #10

Dear Mr. Deven Upadhyay,

The San Diego County Water Authority appreciates the continued opportunities to collaborate with MWD board members and MWD agency managers via the Climate Adaptation Master Plan for Water (CAMP4W) Joint Task Force.

We appreciate MWD staff soliciting comments to the CAMP4W Draft 2024 Annual Report. The Water Authority previously provided comments, most recently on January 17, 2025, enclosed for reference. These comments include the following fundamental elements:

- Need to update underlying data and assumptions prior to any projects or programs being brought to the board for implementation, including the location and extent of supply gaps;
- Inclusion of all planned local projects and maximum use of existing MWD and member agency supplies and facilities; and
- Need to fully integrate financial planning to address affordability constraints and prioritize investments.

We also refer you to our previous comment made on October 23 ([Attachment 2 pages 13-16 MWD's November 20, 2024, board memo](#)) and December 18, 2024 (attached). We ask that our comments be incorporated into the final version of the CAMP4W 2024 Annual Report or included as an appendix if they are not going to be addressed in the final report.

The Water Authority appreciates MWD's work to ensure this CAMP4W process is open and transparent so the board can make informed decisions and achieve its objectives related to both reliability and affordability. We look forward to continued collaboration and engagement with MWD board members and member agencies toward these mutual objectives.

Sincerely,



Dan Denham
General Manager

Attachments:

Mr. Upadhyay
February 13, 2025
Page 2 of 2

1. Water Authority's comments on Draft CAMP4W 2024 Annual Report dated January 17, 2025
2. Water Authority's letter on CAMP4W Taskforce Schedule and Draft Working Memorandum #8 dated December 18, 2024

cc: Water Authority MWD Delegates Fong-Sakai, Goldberg, Katz and Miller
Adán Ortega, MWD board chair
CAMP4W Task Force Members
Liz Crosson, MWD Chief Sustainability, Resilience, and Innovation Officer

From: Mendelson-Goossens, Liz <LMendelson@sdewa.org>

Sent: Friday, January 17, 2025 19:39

To: Camp4Water <Camp4Water@mwdh2o.com>

Subject: Comments on Draft CAMP4W 2024 Annual Report

Good evening Liz and CAMP4W team:

In response to MWD's request for comments on the Draft CAMP4W 2024 Annual Report (Draft Annual Report) we provide the following comments:

1. The Draft Annual Report should reflect that before projects or programs are brought to the board for consideration through the CAMP4W process, the underlying data and assumptions will be updated, and subsequently, the time-bound targets may be updated.
2. The Draft Annual Report should be revised to reflect member agency requests to identify the location and extent of supply gaps, including to prioritize investments over time. This analysis should include: (a) planned local projects; and (b) maximum use of existing MWD and member agency supplies and facilities before new MWD investments are proposed.
3. A section should be added to describe how MWD's financial planning will be fully integrated to address affordability constraints and prioritize investments.
4. The signposts should be clear on how their trends impact and related to projected MWD supplies and demand for MWD water. Similarly, the status of, or progress related to, time-bound targets should also be clearly stated and in terms that match the target. For example, if a target is in acre-feet, then the status of the target should be reported in acre-feet.

We also refer you to our previous comments made on October 23 (Attachment 2 pages 13-16 MWD's [November 20, 2024, board memo](#)) and December 18, 2024 (attached).

We appreciate your consideration of these high-level comments. We look forward to further discussions and please let me know if you have any questions.

Thank you,

Liz Mendelson-Goossens (she/her/hers)

Acting MWD Program Manager

Cell (619) 209-9266

Email lmendelson@sdewa.org



4677 OVERLAND AVENUE, SAN DIEGO, CA 92123



December 18, 2024

Ms. Liz Crosson, Sustainability, Resiliency and Innovation Officer
Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, CA 90012
Electronic copy via email Camp4Water@mwdh2o.com

RE: CAMP4W Taskforce Schedule and Draft Working Memorandum #8

Dear Ms. Crosson,

We appreciate the opportunity to provide comments on CAMP4W Working Memo #8 and look forward to continued discussions among the member agencies and board members. We have the following high-level comments based on the draft memo, Water Authority prior comments, and also a number of comments by board members at the December 10, 2024, Finance and Asset Management (FAM) Committee meeting that we hope will be addressed by staff.

1. The time-bound targets should be updated to recognize reduced demand for MWD water, increased conservation, member agency local projects and other current data (e.g., population). Several signposts indicate the need for such an update, which in turn, would also adjust the relevant planning scenario accordingly. Current demands are tracking below the bookends established by all four of the 2020 IRP-NA scenarios, which is perhaps the most critical signpost indicating the need for this update. Staff may already be planning to provide this update. We suggest sharing the timeline for this update with the board and member agencies.
2. Climate adaptation needs, resource needs, and financial (business model, rates, and budget) outcomes should be functionally integrated and based on consistent assumptions. While Working Memo #8 suggests this integration will be done, it does not explain how or when it will occur. We suggest the draft memo be updated to clearly explain how the integration will be done, including the use of consistent assumptions.
3. There should be discussion on how investments will be prioritized, including a timeline for deliberation and potential implementation. Many board members have commented on the fiscal reality that it is not possible to “do everything” at the same time. As well-stated by Director Seckel at the December 2024 FAM Committee:
“...based on where we are at today, we might not need a whole lot of new supplies coming in the next couple of years, but that has yet to be determined. And so, the CAMP4W process that will tee up and maybe reform what our needs are; I am really looking forward to that. I hope that we see that sometime again



in the early springtime of 2025, how that process will help us make decisions among the options that are confronting us because I think that will be key to this process."

At a more detailed level, the various working memos have different descriptions of what CAMP4W is, which makes it difficult to focus on its intended outcomes and assess its progress. All working memos (and CAMP4W related documents) should have a consistent statement of CAMP4W's purpose and intention. Until the board refines the existing proposed time-bound targets as suggested above, we do not suggest developing additional ones.

We look forward to continued discussion and refinement of Working Memo #8 and again, appreciate your continued and collective efforts to complete this historic process.

Sincerely,

A handwritten signature in blue ink that reads "Dan Denham". The signature is written in a cursive, flowing style.

Dan Denham
General Manager

Climate Adaptation Master Plan for Water (CAMP4W)

Comments from Las Virgenes Municipal Water District

February 12, 2025

Working Memorandum 7: Integrating Climate Change Adaptation into Metropolitan's Planning Processes dated December 2024

General Comment: Las Virgenes originally submitted comments on October 18, 2024. Some of our recommendations from this earlier submittal are repeated below.

- Overarching Comment: Given the importance and complexity of this issue, a focused meeting of the Member Agencies would be very helpful to provide a better understanding of how climate planning is to be **integrated** with Metropolitan's existing planning processes. Based on the descriptions provided in the memo, it remains difficult to understand how that integration is envisioned to happen. It is also difficult to discern how the proposed integration would result in streamlining the project development process. Planning is a core function and strength of Metropolitan, so a common understanding of the changes proposed in this memo is very important.
- Page A-11, Appendix A: Existing Planning Processes for Project Identification. The appendix describes numerous planning efforts to identify projects. However, some of the planning processes described have not been performed in more than 15 years (e.g., System Overview Study in 2004 and the Integrated Area Study in 2007). Please provide an explanation whether these planning processes are expected to continue and when they might be updated.
- Page A-23, State Water Project Dependent Area Drought Mitigation Actions. The preceding pages describe, in detail, multiple programs that have been developed and implemented to address system reliability. However, the program addressing the State Water Project Dependent Area Drought Mitigation Actions, Section 2.6, is very brief with minimal background and detail presented. Please consider expanding this section to include infrastructure conditions, water supply conditions, impacts on SWP-dependent agencies, and Metropolitan's Call to Action to provide equitable access to water supply and storage assets. Also, the second sentence in the paragraph should be corrected to read, "The low allocation, coupled with the infrastructure limitations described in the August 2022 Call to Action and Commitment to Regional Reliability, resulted in mandatory conservation for those areas highly dependent on SWP supplies".
- Page A-23, Figure 3. SWPDA Drought Mitigation Actions. The Drought Mitigation Actions Portfolio presented in Figure 3 should be consistent with the portfolio presented to the Board on February 13, 2024. Please adjust Figure 3 to include Eastern SWP-dependent Area projects and Western SWP-dependent Area projects. Also, modify Figure 3 to include Stages 1 and 2 (not Phases 1 and 2) of the Sepulveda Feeder Pumping Project.

Climate Adaptation Master Plan for Water (CAMP4W)

Comments from Las Virgenes Municipal Water District

February 12, 2025

Working Memorandum 10: Climate Adaptation Policy Framework dated January 2025

- Page 4, CAMP4W Overarching Policy Objectives, Reliability. Add infrastructure improvement programs to the description: “Metropolitan will consider climate risks and integrate climate adaptation strategies into water supply programs, infrastructure improvement programs, policies, planning, and operations”.
- Page 4, CAMP4W Overarching Policy Objectives, Reliability, Implementation Examples. Add “Infrastructure resilience projects to improve access to water supplies” to the example list.
- Page 4, CAMP4W Overarching Policy Objectives, Resilience. Implementation Examples. Modify the first example to read “Establish infrastructure performance criteria and implement corrective measures to achieve climate resilience”.