

# Climate Adaptation Master Plan for Water (CAMP4W)

## WORKING MEMORANDUM 1

### SUMMARY OF CAMP4W PROCESS

---

August 2023

Metropolitan staff developed this Working Memorandum #1 as a supplement to the discussion provided during the Climate Adaptation Master Plan for Water (CAMP4W) Board retreat (Workshop #1) held in February 2023 and subsequent meetings. This memorandum summarizes the CAMP4W process and identifies work completed to date and the next steps in the process.

This Memorandum is divided into the following sections:

- Section 1: Background
- Section 2: Overall CAMP4W Process
- Section 3: CAMP4W Year 1
- Section 4: CAMP4W Year 2 and Beyond

The current schedule for the development of the CAMP4W is illustrated in Figure 1. As shown, the schedule provides for regular engagement with Board members and Member Agencies, as well as the public. To capture the values of the communities served, public engagement will include listening sessions, community-led sessions, technical charettes, and sector-specific meetings.

# Climate Adaptation Master Plan for Water: Timeline & Framework

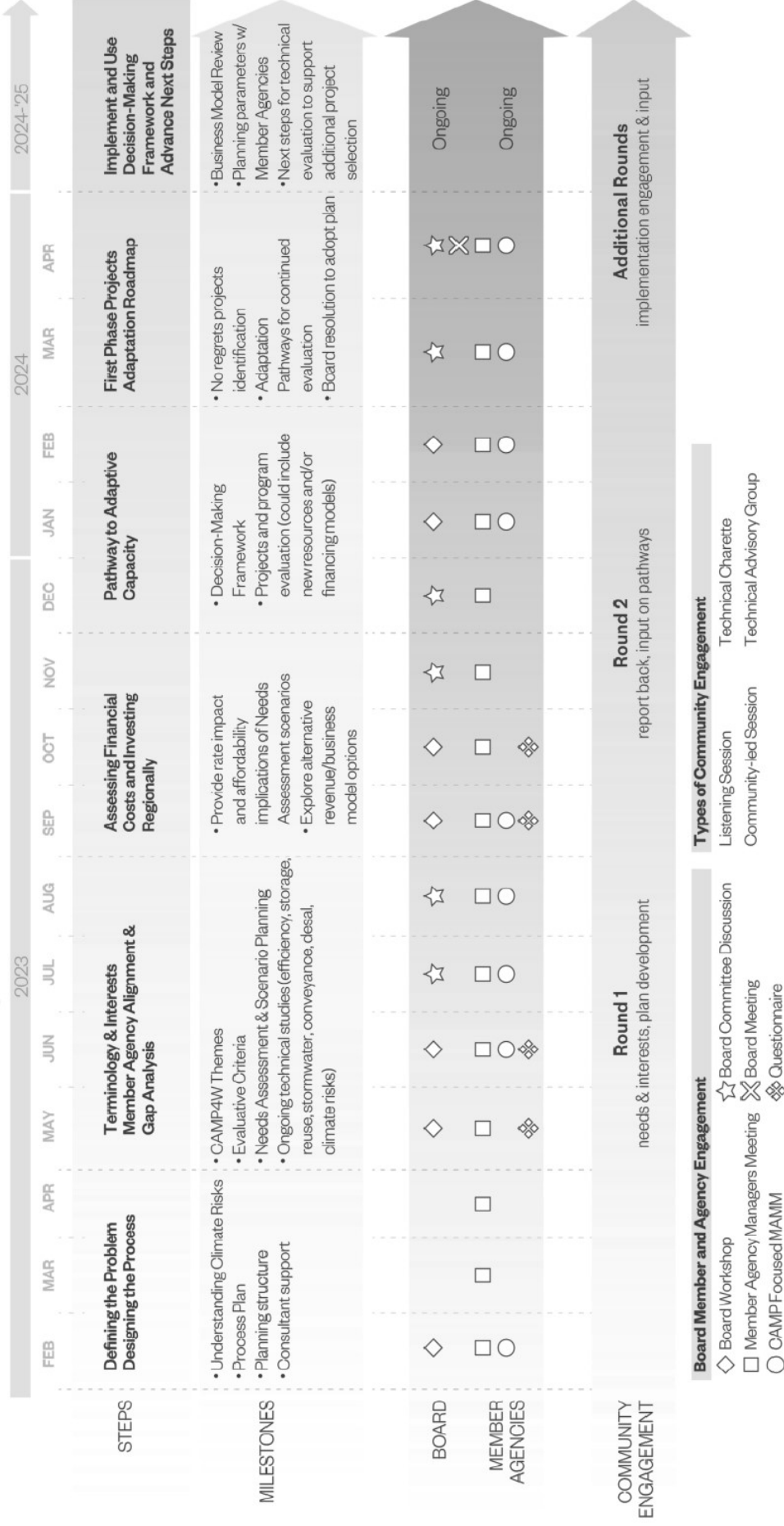


Figure 1. CAMP4W Timeline and Framework

## Section 1: Background

In 2022, Metropolitan adopted an updated Integrated Water Resources Plan (IRP) Needs Assessment that examined the water supply implications of a range of water resource conditions and demand projections. Since the IRP update process started in 2020, many unprecedented events have occurred including both a record drought and record snow and rain in California, record drought conditions in the Colorado River system, and economic volatility caused by the pandemic. These events have made evident the need to plan for risks and opportunities on a grand scale. The increasing climatic variability and water supply uncertainty have prompted Metropolitan’s Board of Directors (Board) to pursue the integration of climate and water resource planning with its financial plans.

The Board charged the leadership and staff of Metropolitan to expand the focus of water resource and financial planning to include climate adaptation strategies and to develop a Climate Adaptation Master Plan for Water (CAMP4W). The effort focuses on strengthening the resilience and reliability of Metropolitan, and its Member Agencies individually, in the face of a changing climate and the associated risks to our economic and environmental stability. As such, the information developed in the IRP Needs Assessment will be a key input to the CAMP4W as will the ongoing Vulnerability Assessment and Drought Mitigation Action Portfolios. The outcome of this process will be a holistic decision-making framework for setting investment plans to ensure the continued ability to fulfill Metropolitan’s mission. This forward-looking and integrated approach allows Metropolitan to adaptively manage its resources so that investments remain appropriate to current conditions and additional insight about the future.

---

### *CAMP4W Problem Statement*

---

Extreme weather conditions in recent years have presented Southern Californians with the stark reality of the challenges ahead – weather whiplash is abruptly swinging the state from periods of severe and extended drought to record-setting wet seasons, putting mounting pressure on the year-to-year management of all our available water resources. There is no question that climate change is here and is driving the need to strengthen and better integrate our existing infrastructure while building new water infrastructure designed for this century’s climate. For example, in 2022, three consecutive dry years exposed extreme vulnerability in the State Water Project Dependent Areas inspiring Board action to pursue equitable water supply reliability through an interconnected and robust system of supplies, storage and programs and, in many ways, catalyzing this comprehensive planning process. To ensure the continued water supply reliability and resilience for all the communities we serve, Metropolitan is developing a Climate Adaptation Master Plan for Water that will determine near-term capital investments, inform adaptive management strategies, and guide the evolution of Metropolitan’s business model as we confront our new climate reality in the years and decades ahead.

Considering the impacts of climate change and other hazards and the need to reduce these associated risks, CAMP4W will provide the basis for Metropolitan’s policy and investment decisions in the near term to best serve its Member Agencies in the long term. This involves a multi-year iterative process in which various aspects of the process build upon one another. Preliminary objectives (that will be refined through the process) include to:

- Increase the resiliency and reliability of Southern California’s water supplies,
- Build greater equity into our regional water storage and delivery systems, so that Metropolitan may have access to reliable water supplies, even in severe drought periods, for all our 26 Member Agencies.
- Pursue collaborative cost-sharing partnerships and promote affordability initiatives as we make the necessary investments to adapt Southern California’s water infrastructure to the demands of the 21st century,
- Clearly understand the Metropolitan Member Agency network of water resource supplies and infrastructure to determine opportunities to provide additional connectivity,
- Understand the climate risks and vulnerabilities the network is facing,
- Identify adaptation strategies that strengthen the network and reduce vulnerabilities,
- Identify opportunities to expand water resources,
- Identify opportunities for strategic sharing of resources and infrastructure across member agencies to maximize all potential local supply options,
- Develop a financial strategy to fund capital investments and equitably share both water supplies and costs among Member Agencies, and
- Develop a business model that supports Metropolitan’s role into the future.

## Section 2: Overall CAMP4W Process

Development of the CAMP4W requires a series of tasks that will extend over multiple years. Figure 2 presents an overview of the components that are underway and how they will be integrated into the process. Section 3 provides details on the tasks to be completed during Year 1, which extends through the first quarter of 2024. The work completed in Year 1 will culminate in a CAMP4W Part 1 Report. Section 4 discusses Year 2 and beyond, which will result in a completed IRP Phase 2: CAMP4W Report (Part 1 and Part 2 combined). As a living document, the implementation of the plan will evolve beyond the completion of the Report, and it will be updated as time progresses and conditions change.

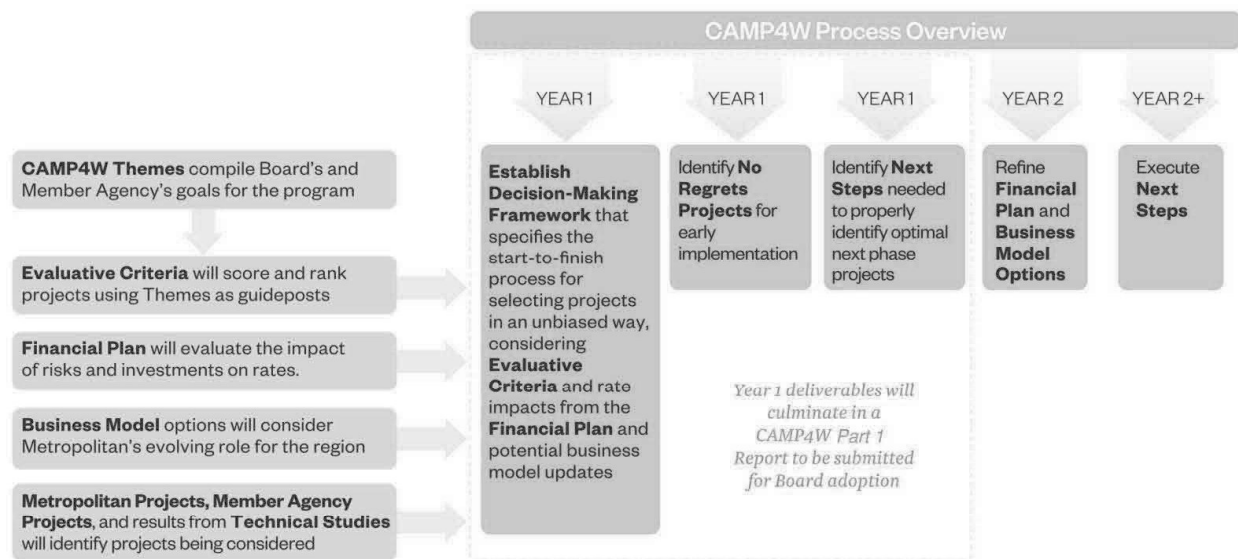
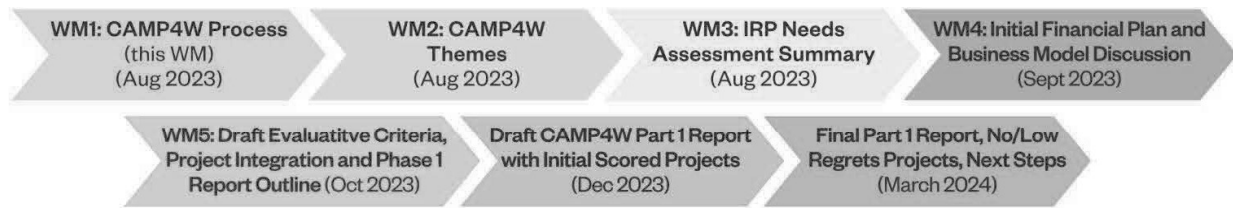


Figure 2. CAMP4W Process Overview

### Section 3: CAMP4W Year 1

Year 1 of the CAMP4W process, extending through the first quarter of 2024, involves the development of the CAMP4W Part 1 Report. The pathway to completing this report involves a series of workshops with the Board to ensure the CAMP4W process and outcome aligns with its goals. Working memoranda (WM) will be developed to capture workshop outcomes, as applicable, or to serve as draft sections of the CAMP4W Part 1 Report. These would be working documents to facilitate ongoing discussion with the Board ahead of delivery of the final report.

Figure 3 presents a summary of the deliverables that will be provided to the Board as part of Year 1 (through quarter 1 of 2024). Each of these deliverables is further discussed below.



**Figure 3. CAMP4W Year 1 Deliverables**

#### *WM2: CAMP4W Themes*

Developed early in the CAMP4W process, Themes are intended to capture the Board and Member Agencies’ preferences for what concepts and priorities should be incorporated throughout the CAMP4W development process. Initial ideas were captured at the Board retreat in February 2023 and the workshop held in May 2023 under the categories of reliability, resilience, financial sustainability, affordability, and equity (added following workshops). Subsequent discussions and a request for comments sent to Member Agencies in July 2023 led to the refinement of the Themes. The revised Themes are being presented to the Board in WM2.

As shown in Figure 2, the Themes will be used to inform the development of evaluative criteria, which will in turn inform the process for selecting projects. In this manner, the Board and Member Agencies’ preferences and priorities will be carried through the CAMP4W process. The Themes are intended to be adaptable and flexible throughout the multi-year process and can be revised to allow continued alignment between the next steps and Board and Member Agencies’ preferences.

### ***WM3: IRP Phase 1: Needs Assessment Summary***

The Integrated Resources Plan (IRP) Phase 1: Needs Assessment was completed by Metropolitan in 2020 and adopted by the Board in 2022. This effort involved comprehensive modeling to identify the storage and supply needs for the region across multiple planning scenarios. The planning scenarios were developed based on both population and demand forecasts, as well as the impacts of climate change. Member agencies were involved throughout the process, and they provided input on the modeling parameters, such as population, demand, and local supply forecasts.<sup>1</sup>

The June 2023 Board workshop included a presentation summarizing the Needs Assessment. WM3 summarizes this discussion and includes an overview of how it will be used in the CAMP4W process.

### ***WM4: Initial Financial Plan and Business Model Discussion***

A key part of the CAMP4W process involves integrating resource and climate planning with Metropolitan's ongoing financial plan and business model considerations. This will ensure Metropolitan's planning reflects the project and program costs needed to continue to provide a reliable and resilient system in the face of a changing climate.

Metropolitan is currently developing a financial plan that assesses the economic feasibility of proposed projects and the rate impact of developing projects to meet the volumes of water supply and storage identified in the Needs Assessment. In addition, as Metropolitan's role in the region resource planning evolves, such as through the implementation of the Pure Water program, updated business model options will be considered. WM4 will provide an overview of these elements, which will be discussed during subsequent Board workshops as presented in the timeline in Figure 1.

As the CAMP4W process progresses, the financial plan will be refined to consider specific projects needed to meet the storage and supply volumes identified in the Needs Assessment as well as additional infrastructure needed to be resilient and reliable across multiple climate risks (e.g., drought, stronger storms, flooding, wildfires, extreme heat, and sea level rise) and other hazards (e.g., earthquakes). Additional discussion on this process is provided in the next section.

### ***WM5: Draft Evaluative Criteria and Integration of Additional Projects***

**Evaluative Criteria:** The Evaluative Criteria will provide a method of scoring and ranking projects and programs based on criteria important to the Board and Member Agencies, as reflected in the Themes. Evaluative Criteria can be used to compare proposed projects and differentiate them from one another. Weighting factors will be applied to each Evaluative Criteria, where weighting factors increase or decrease their relative importance. These weighting factors will be based on the Themes, thereby incorporating the Board and Member Agency priorities into the evaluation process. For example, assigning a higher weight to providing connectivity within the network would reflect the Board's policy to address shortages in the State Water Project Dependent Areas. The initial evaluation of projects will be further evaluated on costs so that projects with the highest cost-benefit ratio can be identified.

---

<sup>1</sup> <https://www.mwdh2o.com/how-we-plan/integrated-resource-plan?keywords=IRP>

**Integration of Additional Projects:** Output from the IRP Needs Assessment is a key input in the CAMP4W evaluation process. The Needs Assessment: 1) addresses the climate impacts of increased incidence of drought and changing precipitation patterns from a water supply standpoint, and 2) identifies general volumes of storage and supply needs based on population and demand forecasts. The CAMP4W process will identify specific projects to meet those needs, which will be scored as discussed above.

In addition to storage and supply needs, other key inputs to the CAMP4W include potential climate change impacts beyond changing drought and precipitation patterns (e.g., wildfire, sea level rise, extreme heat and more) as well as other hazards (e.g., earthquakes) and an assessment of the additional projects needed to increase resilience to these impacts. Ongoing Vulnerability Assessments and Hazard Mitigation Plans will identify these additional vulnerabilities (including employee safety and customer resilience) within the system and may identify capital projects needed to harden and strengthen existing infrastructure or to add additional conveyance.

To illustrate how these parallel efforts integrate, Figure 4 displays the following:

1. Inputs used in the selection of potential low/no regrets projects (e.g., preliminary list of projects to fulfill the water volume requirements identified in the Needs Assessment *plus* projects to increase overall climate resilience of Metropolitan’s infrastructure and operations identified during vulnerability assessments and hazard mitigation planning),
2. Identification of which data are informing the initial financial plan (discussed in WM4, and including only Needs Assessment volumes), and
3. How the CAMP4W process will progress to integrate both the **volume of additional storage and supply needed** with the **infrastructure and operations needs** to create a comprehensive process for selecting projects. This will result in an updated economic evaluation from the initial evaluation that accounts for storage and supply needs alone.

WM5 will provide a summary of the draft evaluative criteria and weighting factors, summarize how infrastructure projects are being incorporated, and will include an outline for the CAMP4W Part 1 Report. These elements will be discussed during subsequent Board workshops as presented in the timeline in Figure 1.

### CAMP4W Program Elements

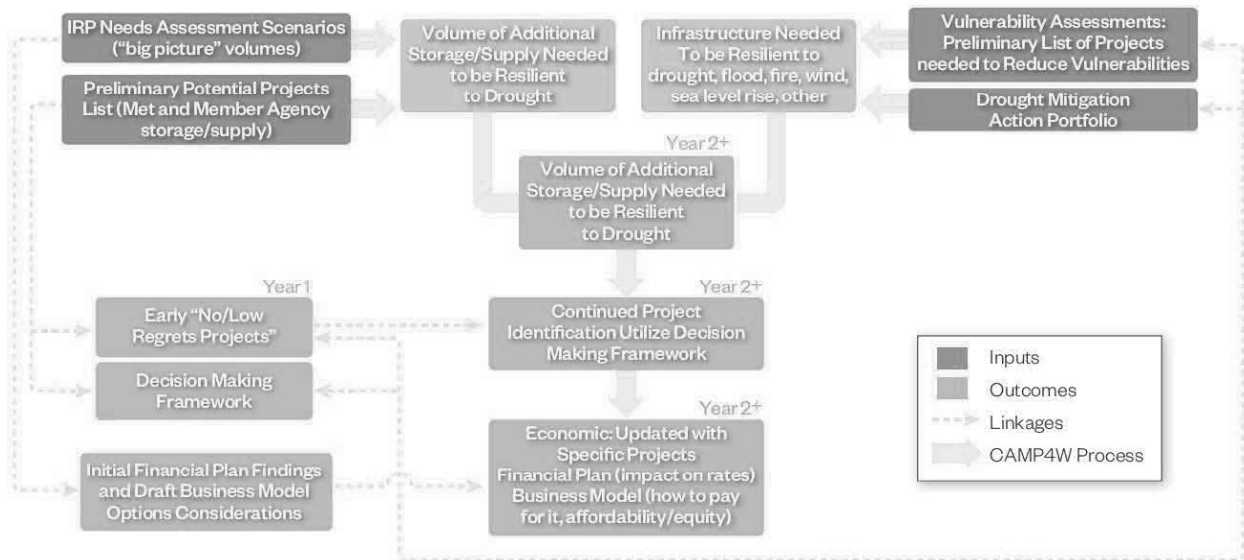


Figure 4. CAMP4W Inputs and Process

#### Draft and Final CAMP4W Part 1 Report

The CAMP4W Part 1 Report will summarize the work completed during Year 1 of the CAMP4W process. Part 2 will be developed in Year 2 and combined into a final CAMP4W Report.

The Draft Part 1 Report will incorporate the documentation provided in WMs 1-4 and will include a comprehensive decision-making framework that will compile all parts of the process into a stepwise approach for evaluating projects for implementation. This will include:

- Tools for scoring and ranking projects (Evaluative Criteria, WM5),
- Cost effectiveness assessment of scored and ranked projects,
- Methodology for compiling individual projects into portfolios of multiple projects (e.g., combining projects that address the State Water Project Dependent Areas), and
- Assessment of the impacts to rates and affordability based on implementing various portfolios of projects (Alternatives Analysis) using the financial plan currently being developed.

The Draft Part 1 Report will provide a list of projects scored using the evaluative criteria presented in WM5. Following submittal of the draft, Board discussions and input from Member Agencies will result in revisions to the document, to be incorporated into the Final Part 1 Report. In addition, the Final Part 1 Report will take the list of scored storage, supply, and infrastructure projects and identify low/no regrets projects based on assessments of cost effectiveness, economic feasibility/affordability, and impacts to rates. By identifying these projects early on, Metropolitan and its Member Agencies can begin their implementation in a timely manner.



These low/no projects will be presented to and discussed with the Board and Member Agencies at Member Agency Manager's Meetings and Board workshops (see timeline in Figure 1) prior to inclusion in the final report so that identified projects are properly vetted and selected. Identified projects can include both storage and supply projects or programs as well as infrastructure projects (such as those needed to harden existing infrastructure vulnerable to climate conditions).

In addition to the development of a Decision-Making Framework and a list of low/no regrets projects, the final report will include a detailed understanding of next steps that must be implemented moving into year two (beginning quarter 2 of 2024) and beyond.

The final report will be submitted to the Board for adoption (see timeline in Figure 1).

#### **Section 4: CAMP4W Year 2 and Beyond**

The CAMP4W process will continue directly into Year 2 (beginning quarter 2 of 2024), where the recommendations identified and adopted by the Board will be implemented and additional projects beyond the low/no regrets projects will be evaluated. Based on discussions to date, this may involve developing a methodology for identifying opportunities for Member Agencies to further collaborate, and a pathway for Metropolitan to facilitate this collaboration. Additional projects will become part of Metropolitan's Adaptive Management Process.

Figure 3 presents an illustration of adaptive management. As shown in the figure, real-world conditions will inform the process and selection of projects. Because projects often take years to plan and implement, there will be ample time for Metropolitan to reassess decisions based on both global and local assumptions which will serve to either:

1. Reduce the potential of stranded assets due to overdevelopment by having the ability to not construct a project that was preliminarily planned for but not needed, and
2. Reduce the potential of under preparedness if conditions require more infrastructure in the future by having planning phases underway early on to position Metropolitan to implement those projects if they are needed.

This adaptive management process provides optimal flexibility, which is critical in the face of a changing climate.

# Adaptive Management Process

Planning for Rapid Change and Adjusting based on Real World Conditions

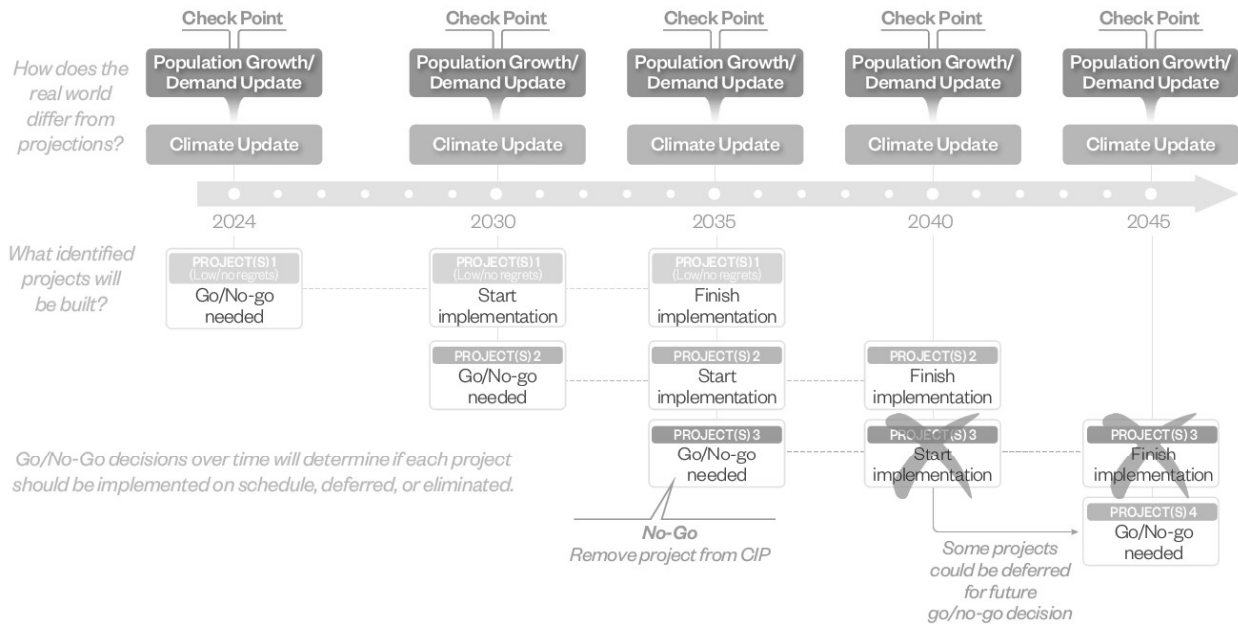


Figure 5. Adaptive Management Process