Subcommittee on Long-Term Regional Planning and Business Modeling

CAMP4W Task Force- Signposts, Model Inputs, and Annual Reports

Item 3b

July 24, 2024

July 24
CAMP4W
Task Force

Agenda

1) Adaptive Management Process and Component
   - CAMP4W Annual Report Components
   - Signposts
   - Time-Bound Targets

2) Provide direction to Member Agency Managers regarding the scope of their input for the business model review

3) Status of Water Treatment cost recovery discussions

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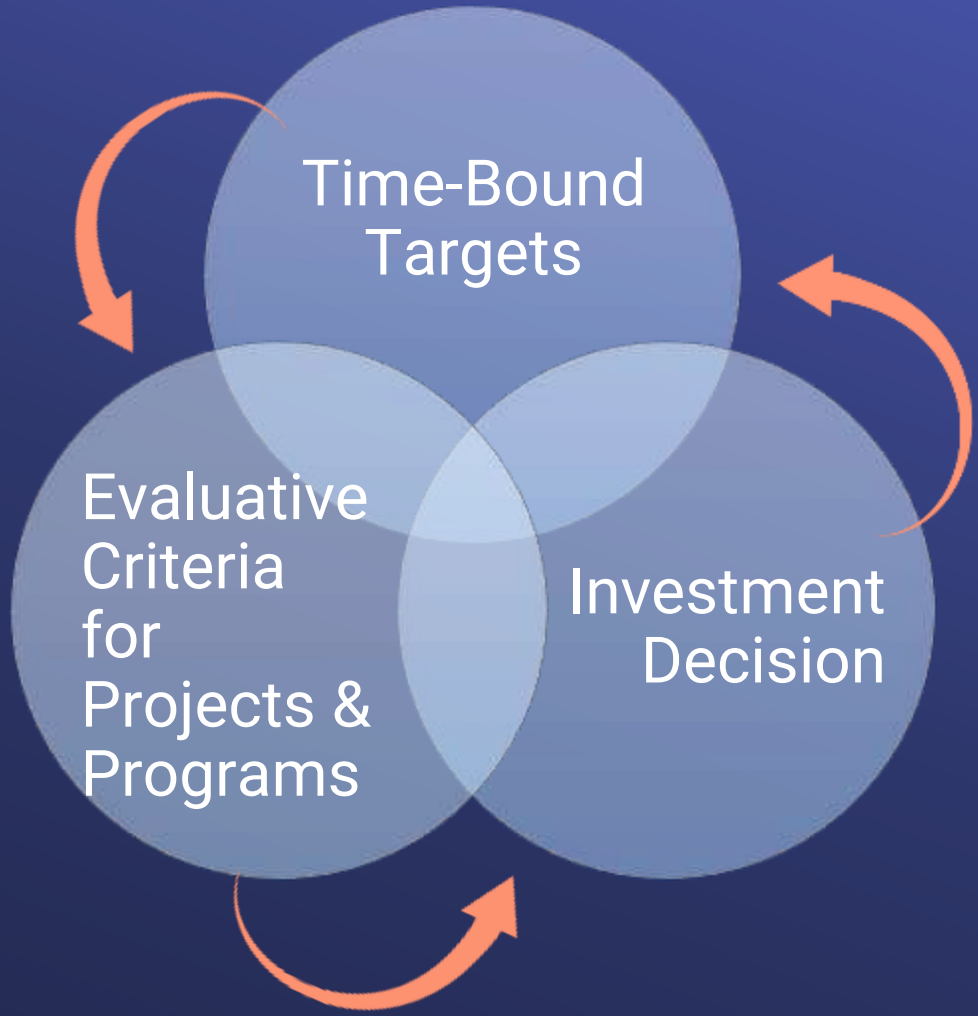
2024 Schedule of CAMP4W and Business Model Discussions

Adaptive management is a structured and ongoing process that:

1) Promotes flexible decision-making
2) Tracks real-world climate impacts and trends that impact water supplies and demands
3) Ensures inclusion of up-to-date information
4) Facilitates adjustments to planning assumptions and targets
5) Enables an iterative and informed climate adaptation plan



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Climate Adaptation Master Plan for Water

Climate Decision-Making Framework

Annual Report Outline

Metropolitan staff will prepare a CAMP4W Annual Report and hold a CAMP4W Annual Workshop to provide the Board with the tools it needs to understand the impacts of past decisions and to make informed decisions going forward.

-CAMP4W Year One Progress Report

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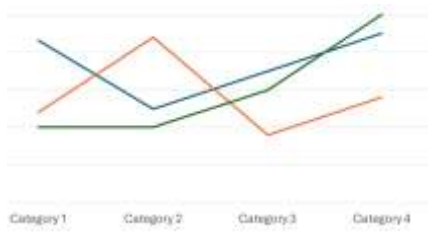
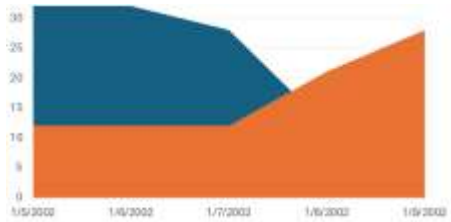
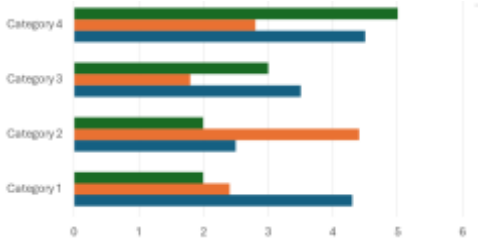
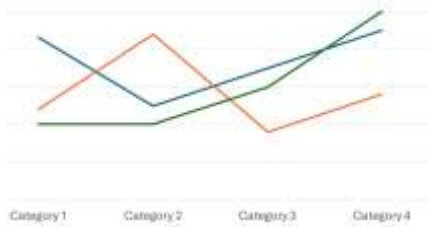
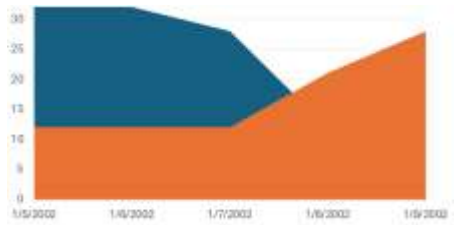
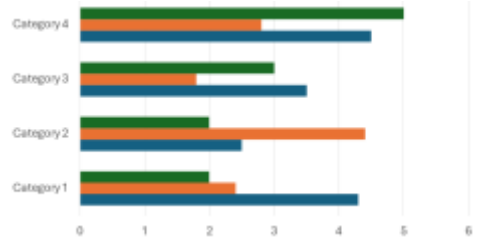
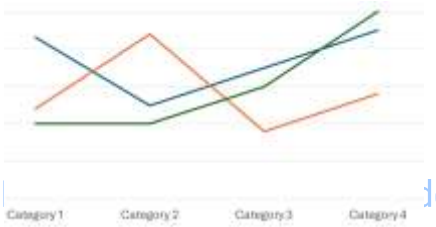
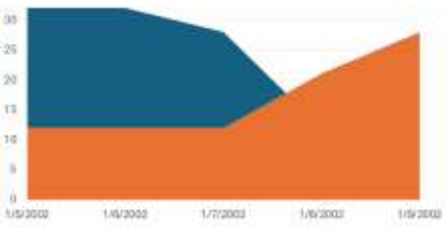
CAMP4W Annual Report

Status Update: Signposts

	Metric 1	Metric 2	Metric 3
Demand Signposts			
Signpost A	xx	xx	xx
Signpost B	xx	xx	xx
Signpost C	xx	xx	xx
Supply Signposts			
Signpost A	xx	xx	xx
Signpost B	xx	xx	xx
Signpost C	xx	xx	xx
Infrastructure Signposts			
Signpost A	xx	xx	xx
Signpost B	xx	xx	xx
Signpost C	xx	xx	xx
Financial Signposts			
Signpost A	xx	xx	xx
Signpost B	xx	xx	xx
Signpost C	xx	xx	xx

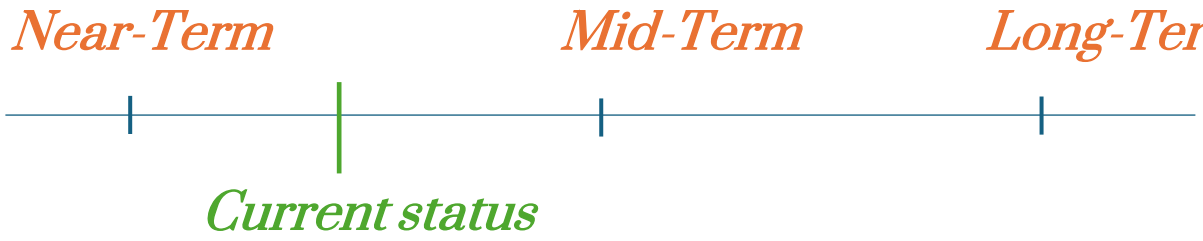
Tracking of Trends Over Long-Term

Status Update: Time-Bound Targets

Resource-Based Time-Bound Targets

Progress Toward Targets



Observations based on Signposts

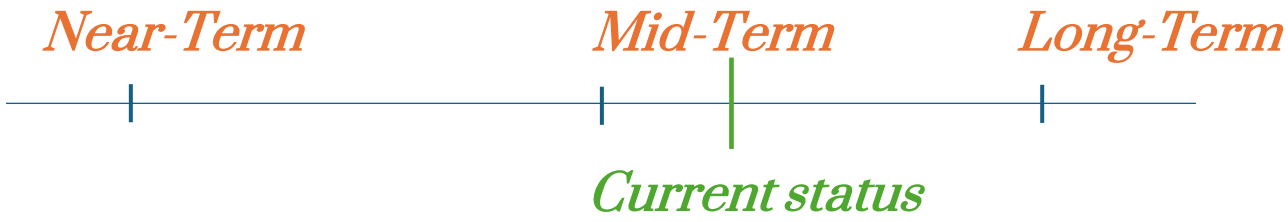
Narrative detailing how trends may later impact current Time-Bound Target.

Recommendations

Narrative How far from the next IRP update are we? What we should be watching for?

Policy-Based Time-Bound Targets

Progress Toward Targets



Observations based on Signposts

Narrative detailing how trends may later impact current Time-Bound Target.

Recommendations

Narrative What we should be watching for? Any Updates?

Status Update: Projects and Programs

Projects and Programs In progress

Project/Program 1, 2, 3 etc.

- CAMP4W Eval for current phase
- Implementation Stage: (concept, planning, design, implementation)
- Progress: 1-2 sentence update
- Major modification: Major changes since funded

Potential Projects and Programs being Considered During Next CIP/Budget Deliberations

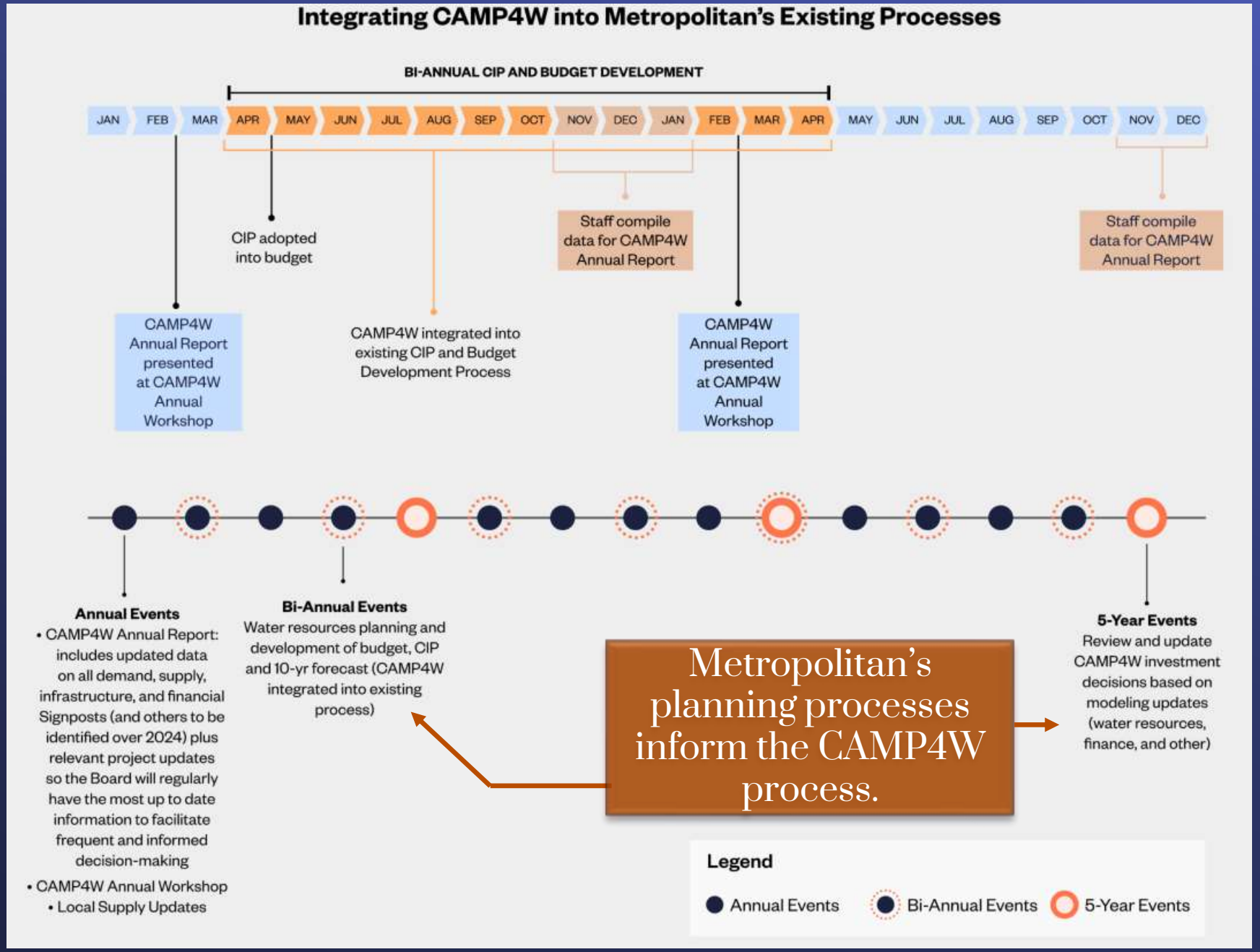
Project/Program 1, 2, 3 etc.

- Potential CAMP4W Eval
- Implementation Stage: (concept, planning, design, implementation)
- Progress: 1-2 sentence update
- Major modification: Major changes since funded

Map of Project Location(s)

CAMP4W Reporting Schedule

Institutionalizing Adaptive Management



CAMP4W Climate Adaptation Master Plan for Water

Climate Adaptation Master Plan for Water

Climate Decision-Making Framework

Signposts Discussion

Signposts

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Climate Adaptation Master Plan for Water

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Climate Decision-Making Framework

Signposts Discussion

Signposts

A key part of the Adaptive Management process involves reading the Signposts to understand the real-world conditions and determine if the Time-Bound Targets need to be revised, which would in turn impact investments. The complete CAMP4W will include a comprehensive and detailed list of Signposts that Metropolitan will be tracking. Below is a summary of the initial categories, which will be expanded upon over the coming year.

Proposed Signposts Metrics Examples

Signposts should be measurable, updatable, and readily available

DEMAND	SUPPLY	INFRASTRUCTURE	FINANCIAL
Population	Climate Change Indicators	Unexpected Shutdowns	O&M Trends
Economy	Regulations	Infrastructure Loss	Capital Cost Trends
Local Agency Supply	Storage	Emergency Response	Emergency Response Costs
Demand Management	Water Quality	Power Interruptions	
Regulations		Connectivity and Robustness	
		Infrastructure Capability	

Source: CAMP4W Year One Progress Report

Climate Adaptation Master Plan for Water

Climate Decision-Making Framework

The Value of Scenario Planning is to Increase Awareness of and Preparedness for Climate Change

2020 IRP Needs Assessment accomplished the following:

- Identified major drivers or sources of uncertainty
- Quantified the impacts of these uncertainties

The IRP Scenarios are not intended to:

- Control, select, or predict the likelihood of the uncertainties
- Predict the future

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Climate Decision-Making Framework

Glossary

- **Drivers of Change** - Specific factors whose future values and outcomes are uncertain but significantly impact future water supply reliability
- **Scenario** - A singular view of the future under specified assumptions and outcomes
- **Supply/Demand Gap** - An analysis performed for each scenario to determine the frequency and timing of net shortage conditions
- **Time-Bound Targets** - Development goals to address future reliability needs as identified by the scenario supply/demand gaps
- **Signposts** - Measurable indicators of the direction and trends of identified Drivers of Change through time

Climate Decision-Making Framework

Understanding Signposts

In the context of long-term planning:

- **Factual:** Signposts are based on objective and verifiable data, not subjective opinions
- **Measurable:** Signposts are quantifiable ensuring they can be tracked over time
- **Available:** The data required to monitor must be accessible and can be regularly updated
- **Non-Discretionary:** Signposts are chosen based on predetermined criteria and are not subject to change based on individual preferences or ad hoc decisions

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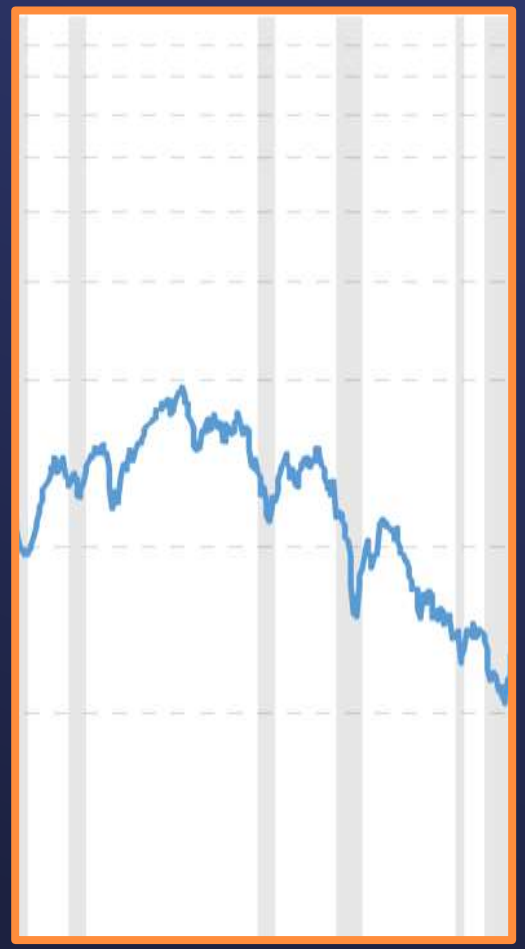
Climate Decision-Making Framework

A Disciplined Approach for Identifying & Interpreting Reliability Signposts

1. Metropolitan staff developed criteria to test the appropriateness of using proposed signposts
2. Acknowledgement that signposts may not eliminate uncertainty, but using them allows for more structured and evidence-based decision-making
3. Trends take time to observe, they require statistical analysis, contextual understanding, and iterative review

A Disciplined Approach for Identifying and Interpreting Reliability Signposts (Cont'd)



What can we infer from this chart?

A Disciplined Approach for Identifying and Interpreting Reliability Signposts (Cont'd)

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A Disciplined Approach for Identifying & Interpreting Reliability Signposts (cont'd)

4. Signposts should not trigger actions. Actions are triggered by Board policy decisions based on relevant information

5. Recognition that, although signposts are based on facts and observed data, data can still be subject to revision

6. Avoid falling into the trap of Recency Bias that can lead to distorted decision-making as we might believe current events will persist indefinitely, neglecting the possibility of change or long-term patterns

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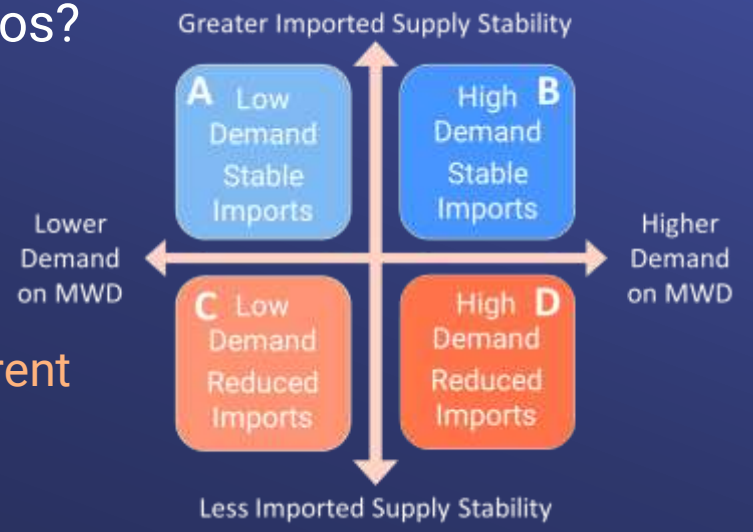
Climate Decision-Making Framework

Planning vs. Implementation

- Planning provides the necessary foresight and strategic framework, while implementation puts those strategies into action
  - Planning informs development and implementation
  - Implementation should not limit foresight and strategic thinking
  - IRP scenarios and signposts offer a disciplined approach to planning
- What prompts an update to the IRP Scenarios?
  - A structural or systemic change in the underlying uncertainties
  - New data or insights indicating that the cause-and-effect relationships made for underlying drivers of change are different than originally assumed
  - When things become more certain



- During Implementation, continuous signpost tracking adds to overall awareness
- IRP updates are expected roughly every 5 years

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Climate Decision-Making Framework

Key Questions When Selecting Water Supply Reliability Signposts

1. Is it measurable?
2. Does it matter to supply/demand?
3. Is the impact of the signpost persistent and not transitory (i.e., systemic)?
4. How does it help us with information and support for implementation decisions?

Water Supply Reliability Signpost Evolution

Year 1 Report

Population

Climate Change

Local Supply

Storage

Regulations

Water Quality

Demand Management

Economy

Track as Signposts

Demographics

- Population, Housing, Jobs

Climate Change

Local Supply

- Water Quality

Storage (MWD)

- Water Quality

Regulations

- Water Quality

Not Signposts

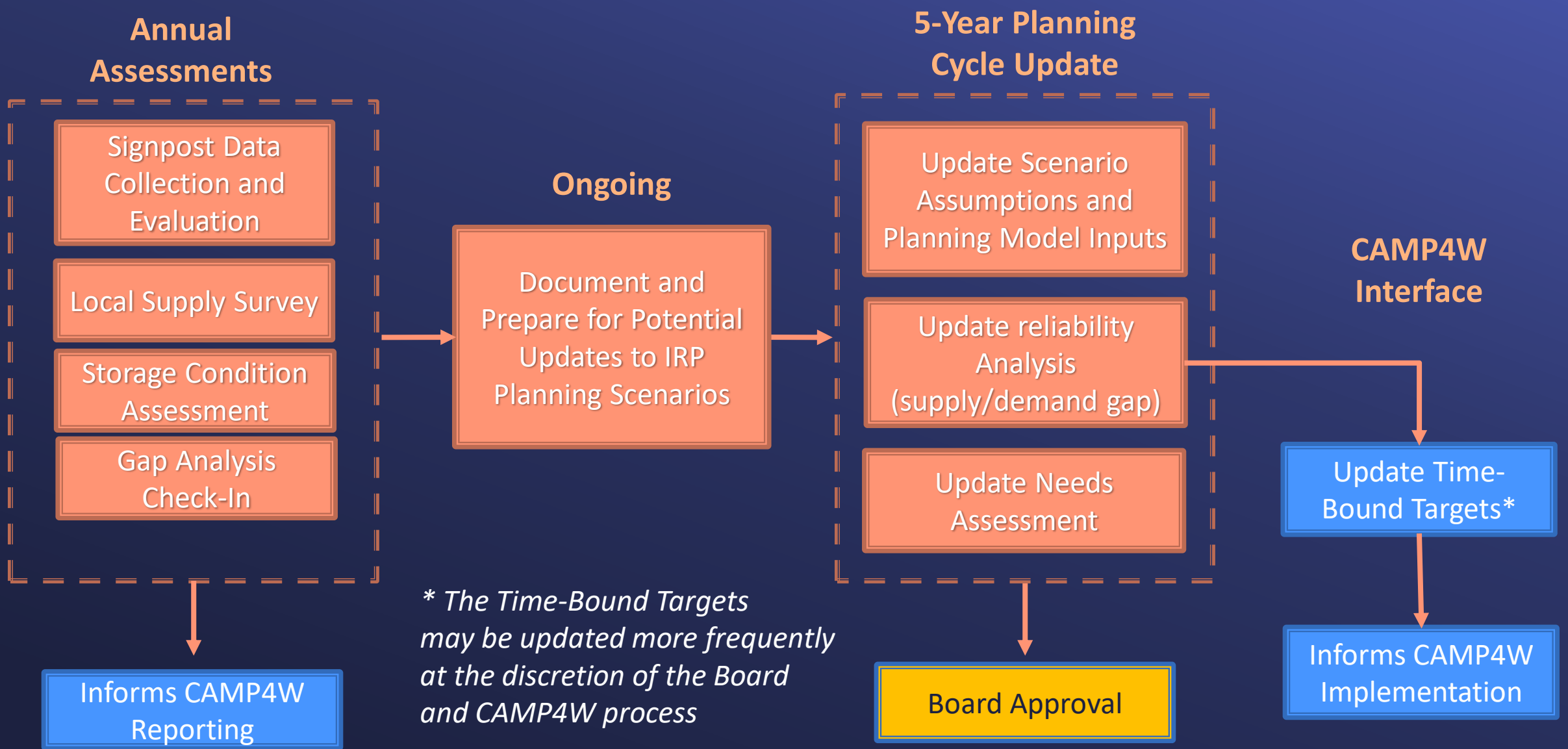
Demand Management

- Discretionary actions taken by the Board
- Effectiveness of implementation is uncertain
- Reported monthly at OWS Committee Meetings

Economy

- Cyclical in nature
- Influenced by signposts being tracked under Demographics

Metropolitan's Long-Term Strategic Planning Cycle



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Climate Decision-Making Framework

Reliability Signposts Discussion

Reliability Signpost Details

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Demographic Signpost

Data and Sources

- Population and Household
  - Department of Finance, Census
- Employment
  - CA Employment Development Department

Importance

- Key inputs in modeling retail demand
- Systemic changes can affect demand/supply gaps (e.g. low birthrate and migration)

Limitations

- Annual data are estimates by governmental agencies and are subject to revision
- Signs of systemic change can take a long time (Census)

Local Agency Supply Signpost

Data and Sources

- Member agency coordination/ Local Supply Survey
- Groundwater basin reports

Importance

- Key inputs in modeling Metropolitan's demand
- Systemic changes can affect demand/supply gaps (e.g. impaired groundwater basins)

Limitations

- Local Supply is also dependent on weather variation
- Data is not available in real-time (year plus delay)
- Data is provisional and subject to reconciliation and revisions

Regulation Signpost

Data and Sources

- DWR's Delivery Capability Report (CALSIM III)
- SWP BiOps
- USBR 24-Month Study Reporting (CRSS)
- CRA Post-2026 Operating Guidelines
- CRA Constituents of Concerns

Importance

- Regulations may have significant impacts on Metropolitan's core supplies and demands
- Regulatory parameters are reflected in Metropolitan's modeling

Limitations

- Implementation and effectiveness of regulations may be uncertain
- May be subject to legal challenges and negotiations

Metropolitan Storage Signpost

Data and Sources

- Metropolitan's storage accounting
  - Put/take capacity
  - Accessible storage by region
  - End-of-year storage balances

Importance

- Stored water is a core supply needed to balance demand and supply.

Limitations

- Storage balances can fluctuate from year-to-year

Climate Change Signpost

Data and Sources

- GHG emission
  - Annual California Hydroclimate Report
  - Intergovernmental Panel on Climate Change National Oceanic and Atmospheric Administration
- CALSIM III (DWR's modeling tool)
- CRSS (USBR's modeling tool)

Importance

- Emission trends are an indicator of how climate change risk is developing
- RCPs are reflected in MWDs modeling
  - CALSIM III includes RCP modeling
  - Estimated climate impacts associated with RCPs are applied to the CRSS inputs

Limitations

- Difficulty in downscaling impacts to local areas
- The impacts of climate change take years to be established
- Climate models incorporate the latest thinking, but climate science continues to evolve

Climate Decision-Making Framework

Reliability Signposts Discussion

Next Steps

- Refine the identified Water Supply Reliability Signposts
- Identify potential additional Water Supply Reliability Signposts
- Come back with an update on the Infrastructure and Financial Signposts in a future CAMP4W Task Force meeting


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928