

# The Metropolitan Water District of Southern California

# Agenda

The mission of the Metropolitan Water District of Southern California is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

## Board of Directors Workshop - Final

May 23, 2023

2:00 PM

Tuesday, May 23, 2023  
Meeting Schedule

08:30 a.m. Audits  
10:30 a.m. PAE  
12:30 p.m. Break  
01:00 p.m. Exec  
02:00 p.m. BOD Wksp -  
LTRPPBM

Agendas, live streaming, meeting schedules, and other board materials are available here: <https://mwdh2o.legistar.com/Calendar.aspx>. A listen only phone line is available at 1-877-853-5257; enter meeting ID: 862 4397 5848. Members of the public may present their comments to the Board or a Committee on matters within their jurisdiction as listed on the agenda via in-person or teleconference. To participate via teleconference (833) 548-0276 and enter meeting ID: 815 2066 4276 or click <https://us06web.zoom.us/j/81520664276?pwd=a1RTQWh6V3h3ckFhNmduUWpKR1c2Zz09>

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MWD Headquarters Building - 700 N. Alameda Street - Los Angeles, CA 90012

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1. Call to Order
2. Roll Call
3. Determination of a Quorum
4. Opportunity for members of the public to address the Board limited to the items listed on agenda. (As required by Gov. Code § 54954.3(a))
5. WORKSHOP ITEMS
  - a. Climate Adaptation Master Plan for Water: Terminology and Interests Workshop [21-2301](#)  
  
**Attachments:** [05232023 BOD Wkshop CAMP4W Terminology and Interests - Member Agency Questionnaire Responses \[Revision 2\]](#)  
[05232023 BOD Workshop 5a.1 Presentation](#)  
[05232023 BOD Workshop 5a.2 Presentation](#)
6. FOLLOW-UP ITEMS  
  
NONE

US 2-456 - MEETING DELAYED to 2:40 p.m.

## **7. FUTURE AGENDA ITEMS**

## **8. ADJOURNMENT**

**NOTE:** Each agenda item with a committee designation will be considered and a recommendation may be made by one or more committees prior to consideration and final action by the full Board of Directors. The committee designation appears in parenthesis at the end of the description of the agenda item, e.g. (EOT). Board agendas may be obtained on Metropolitan's Web site <https://mwdh2o.legistar.com/Calendar.aspx>

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Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Board Executive Secretary in advance of the meeting to ensure availability of the requested service or accommodation.



# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

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# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** City of Fullerton  
**Respondent's Name** Yvette Hanna  
**Respondent's Title** Principal Engineer - Water  
**Email** yvette.hanna@cityoffullerton.com

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability: Yes

Resilience: Yes

Financial Sustainability: Yes

Affordability: Yes

2. What should Metropolitan consider when defining these terms?

Reliability: Asset management

Resilience:

Be prepared, as in improved redundancy and other considering other water sources such as desal

Financial Sustainability

Consider investing in bonds and pursuing grants

Affordability:

**Promote environmental justice and social equity principles**

**3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?**

Reliability: N/A

Resilience: N/A

Financial Sustainability: N/A

Affordability: N/A

**4. How would you describe the difference between reliability and resilience?**

Reliability is the ability to consistently deliver the intended services to a high standard  
Resilience is the ability to recover as fast as possible in the event of a disaster

## Climate Vulnerabilities Specific to your Jurisdiction

**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

1: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

2: Extended drought

3: Limited access or lack of water storage

4: Energy availability and reliability

5: Operation and maintenance demands

6: Workforce preparedness

7: Seasonal demands and/or peak service challenges

8: Other natural disasters (i.e. wildfires, floods, high winds)

9: Sea level rise

10: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

11: Other

**5b. (optional) Please describe "other" climate vulnerabilities.**

N/A

**6. How are these climate vulnerabilities different today than in the past?**

Population growth and increased urbanization have presented challenges that may have not been necessarily dealt with in the past

## 7. What is the worst climate challenge you expect to encounter?

Extreme weather conditions i.e. severe drought to intense storm conditions

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

25-49% of customers

**9a. Check all programs your agency offers to DAC communities.**

Special circumstances may trigger consideration but have to be through a formal process, otherwise sharing other sources for opportunities with communities

## Workshop Materials



Tuesday, May 16, 2023

## Climate Adaptation Master Plan for Water

### Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** Inland Empire Utilities Agency  
**Respondent's Name** Michael Hurley  
**Respondent's Title** Director of Planning and Resources  
**Email** mhurley@ieua.org

### Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

Reliability is typically used in the context of an assessment or demonstration of water supply reliability, most commonly as part of a integrated resources plan or urban water management plan. These assessments focus on the availability of water supplies over an extended period of time when considering: (1) historic/projected hydrologic conditions, (2) an agency's legal access to water including water rights, contracts/agreements, compacts, etc (see MWD 2005 UWMP) (3) impacts of environmental regulations on the availability of these supplies, (4) current and potential facility capacities/capabilities to capture and deliver these supplies, (5) demands for current and future supplies. The emphasis is often on external factors and parties beyond an agencies immediate control.

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Resilience:



**Resiliency is typically used in regards to an assessment or demonstration of operational reliability, most commonly as part of a facility master plan. These assessments focus on the capability of an agency's facilities to capture, store, treat, and deliver the available supplies to customers under varying demands and conditions, including disruptions, in the environmental setting under which an agency operated. The emphasis is often more on internal factors within an agencies immediate control**

2. What should Metropolitan consider when defining these terms?

3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

Reliability:

**Planning, developing and managing supplies to address a range of hydrologic conditions is and has always been fundamental to water supply planning. Because we are seeing changes to hydrologic conditions is not a justification for abandoning past reliability planning approaches.**

#### **4. How would you describe the difference between reliability and resilience?**

Reliability refers to the assessment or demonstration of water supply availability over a long period of time, taking into account factors such as historical and projected hydrologic conditions, an agency's legal access to water, environmental regulations, facility capacities, and water demands. The focus often is primarily on external factors and parties beyond the agency's immediate control.

Resiliency, on the other hand, pertains to the assessment of an agency's operational reliability, commonly as part of a facility master plan. These analysis examine an agency's ability to capture, treat, store, and deliver its available water supplies to its customers, considering varying conditions, including disruptions, and the environmental conditions in which the agency operates. These evaluations place more emphasis on internal factors within the agency's immediate control.

## **Climate Vulnerabilities Specific to your Jurisdiction**

**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

1: Extended drought

2: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

3: Limited access or lack of water storage

4: Other

5: Seasonal demands and/or peak service challenges

6: Other natural disasters (i.e. wildfires, floods, high winds)

7: Operation and maintenance demands

8: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

9: Workforce preparedness

10: Energy availability and reliability

11: Sea level rise

**5b. (optional) Please describe "other" climate vulnerabilities.**

Rising temperatures/aridity, fire

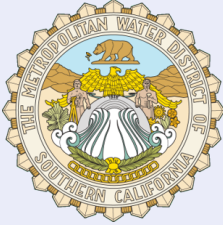
## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

1-24% of customers

**9a. Check all programs your agency offers to DAC communities.**

**9b. (optional) Please describe "other" programs for low-income**



# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** Foothill Municipal Water District  
**Respondent's Name** Nina Jazmadarian  
**Respondent's Title** General Manager  
**Email** nina.jaz@fmwd.com

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

This term we use with water resources and ensuring that available water is dependable over the long term. FMWD increases reliability by proactively investing in the maintenance & capital improvement of our infrastructure (pipes, pumps, reservoirs), ensuring we can reliably move our water to those that need it when they need it. FMWD also helps our retail agencies improve their own reliability by diversifying their water supply with imported water. FMWD has also helped ensure reliability through promotion of water conservation through education and home/landscaping improvements. Infrastructure, water resource diversification, and conservation are key means of ensuring reliability of supply.

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Resilience:

The ability to adapt to changing conditions without significant impact to reliability, affordability, and financial sustainability. Similar to reliability, FMWD bolsters our resilience by promoting diversity of water resources and consumer conservation, both of which allow us to better respond to future unknown challenges.

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Financial Sustainability:

**This is again a long term definition where the agency itself is able to pay its expenses not just this year but for the projected future. We look at five years for administration and operations and maintenance expenses and ten years for capital expenses, and maintain appropriate levels of financial reservers.**

Affordability:

**Whether the end user can pay for the water it needs to use. It starts with Metropolitan's costs, then Foothill's costs, then the retail agency's costs.**

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## **2. What should Metropolitan consider when defining these terms?**

Reliability:

**The economic impacts of not being dependable overall. Although reliability may vary based on local supplies developed within member agencies, the lack of reliability by one retail agency may have impacts on neighboring agencies. For example, if one agency such as Foothill is unreliable and companies within that agency shut down, people are unemployed. Since their spending power is less, they will cut out unnecessary expenses such as going to Legoland or a show at the Pantages which impacts the agency where that business is located. It is a domino effect. MWD should also 1) ensure sufficient investment in the maintenance & capital improvement of its existing infrastructure, continually invest in the diversification of its portfolio of water resources and continue to invest in water conservation efforts & education of its customers.**

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Resilience:

**The ability to be as flexible and adaptable as quickly as possible. Metropolitan is very responsive when it comes to emergency repairs for the existing distribution system. This same resiliency needs to occur with Water Resources. In this era of climate change, it will be necessary to make significant investments sooner than later in water resource diversification and the new or enhanced infrastructure it requires. To make those kinds of investments will require continued public education and strong political support.**

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Financial Sustainability

**Metropolitan, in the long term, needs to be ensured of a stable revenue stream, so that it may continue to operate. That stable stream as a fixed charge needs to be paid by all member agencies based on the amount of water they are able to take from Metropolitan not a rolling average where agencies are able to get off the payment system. Metropolitan is still maintaining that system for them, and other agencies are paying. Metropolitan also needs to ensure that if they building something new for member agencies or develop new supplies, those agencies will be using it and not leaving stranded asset for other agencies to pay.**

Affordability:

**The rate structure needs to be fixed so that member agencies are not paying for other agencies as other agencies roll off Metropolitan. This impacts the affordability of the end user since they are paying for other users in another agency, city, or County. The other issue Foothill has that is becoming a significant affordability issue to our end users is the cost of paying for infrastructure that should be owned and maintained by Metropolitan. Not only is Foothill paying for this infrastructure, but it is also paying for all other agencies' infrastructure that Metropolitan has built to their service boundaries and beyond. The inequity of this cost needs to be resolved with Metropolitan taking over this portion of Foothill's system.**

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### 3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

Reliability:

**The Raymond Basin is not as dependable as it once was. The lack of natural replenishment has caused groundwater basin levels to drop. This lack of groundwater has led agencies to agree with Watermaster to reduce pumping by 24% effective July 1, 2023. The Verdugo Basin has always been difficult to manage because of the structure of the basin. Metropolitan is also viewed as less dependable as the Colorado River reservoir levels have decreased and development of any new supply is years away. Simpler methods of developing supplies such as smaller MBR plants are not being considered as Metropolitan always looks for big projects.**

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Resilience:

**Metropolitan was viewed as resilient and able to adapt quickly to changing conditions. That is no longer the case as Metropolitan is caught between agencies having different goals and only considering their agencies' needs without considering all of Metropolitan.**

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Financial Sustainability:

It used to be thought that Metropolitan would always have a minimum amount of sales that were fixed and thus did not need a larger fixed charge. That is no longer the case as more conservation is needed while at the same time, Metropolitan is facing large costs due to more supply development. Thus, it needs to review its rate structure and reserves policy to ensure its financial sustainability over time.

Affordability: This has always been an issue at Foothill considering the size of the agency, infrastructure, and energy costs it must pay, considering Metropolitan does not deliver water to its boundaries.

#### 4. How would you describe the difference between reliability and resilience?

Resilience is an event that Metropolitan responds to nimbly. Resilience is planned for the long term but the action is quick and in response to something.

Resilience grows out of an organization's ability to be nimble, and to respond effectively to new or unforeseen challenges.

Reliability is also planned over the long term but the action is not in response to an event but a conceptual event that could occur in the future.

Reliability grows out of an organization's ability to plan for and invest in infrastructure effectively for the known needs of the future.

## Climate Vulnerabilities Specific to your Jurisdiction

5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.

1: Extended drought

2: Other natural disasters (i.e. wildfires, floods, high winds)

3: Limited access or lack of water storage

4: Energy availability and reliability

5: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

6: Workforce preparedness

7: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

8: Operation and maintenance demands

9: Seasonal demands and/or peak service challenges

10: Sea level rise

11: Other

5b. (optional) Please describe "other" climate vulnerabilities.

Mudslides and earthquakes

6. How are these climate vulnerabilities different today than in the past?

When I was at Metropolitan, we planned that we would have enough water to meet demands 7 out of 10 years and be able to pull from storage other years to meet demands and avoid going into an allocation. Since then (23 years ago), water supplies shifted so that Metropolitan has enough water to meet demands 3 out of 10 years, pulls from storage 7 years and is in an allocation 1 of those seven years. It appears that with the Colorado River system in the precarious position it is in, we are heading to Metropolitan having enough water 1 out of 10 years when the State Water Project has ample supplies, pulling out of storage 9 years out of 10 and being in allocation 4 or 5 years of those 9 years until new supplies are developed and the Delta Conveyance is constructed to be able to bring more water into the service area and for storage during, not just years, but short periods of time when an atmospheric river occurs.

## 7. What is the worst climate challenge you expect to encounter?

A major earthquake with Metropolitan not having enough water in local storage because it has withdrawn it to meet drought conditions.

Long term drought, that depletes the ability of the State Water Project and the Colorado River to provide sufficient water to MWD's So Cal customers. This is the primary reason for MWD to continue developing additional sources of water (like the Pure Water Project) and continually reduce per capita water use through conservation efforts of customers.

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

1-24% of customers

**9b. (optional) Please describe "other" programs for low-income qualified customers.**

• since we are a wholesale agency, we do not provide any of these programs

## Workshop Materials

**1. What additional information or background would you like to provide that would be helpful for the Board Members in preparation for the May 23rd Workshop on Terminology and Interests?**

The history, reasoning and historic rates Metropolitan has offered for storage both within and outside of its service area.

Effective rate by agency of cost of water within Met's service area. This would include taxes, charges as well as volumetric rates paid.



Monday, May 15, 2023

## Climate Adaptation Master Plan for Water

### Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** San Diego County Water Authority  
**Respondent's Name** Sandy Kerl  
**Respondent's Title** General Manager  
**Email** Skerl@sdewa.org

### Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

Yes. The Water Authority uses all of these terms in an applied manner in its multiple resource and financial planning documents, as management implements policy and budgetary direction from our Board of Directors. Our Business Plan (<https://www.sdcwa.org/wp-content/uploads/2021/04/2023-2027-Business-Plan.pdf> --"Business Plan") describes the key focus areas, programs, management strategies, and objectives and tactics necessary to carry out the policies, budget and strategic direction set by the Water Authority's Board of Directors. The primary goal of the Water Authority's Long-Range Financing Plan (<https://www.sdcwa.org/wp-content/uploads/2021/10/LRFP2021Adopted.pdf>) - "LRFP") is to support the long-term fiscal sustainability of the Water Authority and includes detailed sensitivity analysis of all aspects of the Water Authority's business plan including existing and planned investments, CIP, capital financing policies, reserve policies, and more. Once set, the Water Authority staff conducts the business of the agency consistent with these policies. Relevant excerpts from the Business Plan and LRFP follow; however, the planning and implementation must be viewed in its entirety in the context of each and every one of the integrated plans approved by the Water Authority's Board of Directors.



**Water Equity and Affordability.** How water supplies and facilities are planned and built can have a tremendous effect on economic growth, the environment, workforce development, and the social fabric of communities. The consequences of a lack of water include lost economic opportunity, health issues, and other significant problems. The Water Authority is committed to pursuing its mission to provide safe, reliable water supplies in a manner that supports equitable access and social and economic prosperity. Water rate affordability is imperative to this goal. The Water Authority supports the criteria laid out in the Human Right to Water (HR2W, California AB 685) and establishing affordability mechanisms at the state and local level to assist customers and to identify quickly which areas of the state are at risk of being unable to provide clean, affordable water to its residents. The Water Authority has also reviewed and refreshed its organizational values to help ensure all of its approaches to water policy, outreach, business practices, and workplace culture are collaborative, inclusive and value diversity. To help people recognize how this approach is embedded in this Business Plan, each program description spotlights an objective that helps advance Water Equity and Affordability. Business Plan, p. 10. When cost effective and feasible, the Water Authority believes collaboration with private enterprise can help provide services and infrastructure to support affordability objectives. Business Plan, p. 11. **Climate Change.** The Water Authority has been incorporating the effects of climate change into its long-term planning on both the supply and demand side for the past two decades, most recently in its 2020 Urban Water Management Plan, to be more resilient. The Water Authority also adopted a Climate Action Plan to track and lower its greenhouse gas emissions to help mitigate its contributions to climate change. It has also made water supply investments to diversify its water resources and materially reduce its demand for water from the Bay-Delta. Business Plan, p. 13. **Environmental Sustainability.** The Water Authority is engaged in a variety of sustainability initiatives, such as the development of renewable energy sources, the reduction of fleet emissions, and a decrease in waste production. A commitment to support cost-effective sustainability programs that benefit the environment and promote thoughtful stewardship of natural resources is essential to decreasing the financial impact on ratepayers. These programs also help the Water Authority better anticipate and adapt to the impacts of climate change while reducing its greenhouse gas emissions, making a positive contribution to a more sustainable future for the region. Business Plan, p. 13.

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2. What should Metropolitan consider when defining these terms?

Reliability:

**MWD staff must define these terms based on what individual member agencies want and need from MWD, measured by what they are willing to pay for. The MWD Board must consider the affordability impacts of investing in supply projects that member agencies may want but are unwilling to pay for. This was the strong premise of the 1994 Blue Ribbon Task Force Final Report issued almost 30-years ago, namely, MWD is at risk to the extent it builds projects its member agencies don't want or need. We believe MWD should use commonly understood definitions to develop approaches that are grounded in member agency affordability and willingness to pay, which may not be the same for all member agencies. As MWD has acknowledged, the profile of individual member agencies varies and one-size-fits-all approaches will not be successful. Here are examples of definitions that can be used to start the analyses that are necessary to lead to the development of a much-needed MWD Long-Range Financing Plan. Reliability: "The degree to which the result of a measurement, calculation or specification can be depended on to be accurate." MWD has recently undertaken review of both its SWP and CR supplies in order to make its planning more accurate and therefore more dependable. Signs of challenges include shifting use of PayGo for unplanned purposes, increasing debt over planned budget, unplanned expenditures (e.g., delta islands), substantial water supply debt and other factors. These are important factors for the board to consider in refining a financing plan (also, all planned investments must be included in the financing plan in order for the board to refine it).**

**Resilience:**

**"Able to withstand or recover quickly from difficult conditions." This should be a major focus of the CAMP for water, with appropriate risk assessment balancing increased cost.**

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Financial Sustainability

**“Sustainability consists of fulfilling the needs of current generations without compromising the needs of future generations, while ensuring a balance between economic growth, environmental care and social well-being.” The Water Authority uses the following Guiding Principles as relevant factors: • Contribute to maintaining a AA+ or better credit rating; Adhere to industry Cost of Service Principles; ensure all beneficiaries of services pay a fair share of costs; provide equity for all Member Agencies; result in the consistent application of Board rate-setting and other financial policies; support intergenerational equity; fulfill all legal requirements; result in an appropriate level of fixed revenues for fixed obligations, consider our dynamic environment; maintain or enhance our fundamental mission; be consistent in the Water Authority's position on rate-setting and fiscal sustainability here and at MWD.**

Affordability:

**“Ability to be afforded.” You can afford to pay for something when you are “able to pay for it comfortably, in other words, to buy something and have enough money left over to carry on financially without getting into difficulties.” Affordability must be established both for DAC and member agencies and ratepayers generally.**

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**3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?**

Reliability:

**MWD staff should be conducting detailed due diligence on climate impacts on its major supply sources, SWP and CR. The ultimate decision where to invest will depend on these facts and analysis—MWD cannot afford to “do everything” so the analysis is essential and critical to success and affordability. All below, see above.**

**4. How would you describe the difference between reliability and resilience?**

Reliability is a plan we want and our member agencies and ratepayers can depend on and afford. Resilience is a plan to recover from specific, identified difficult conditions and should be part of reliability and climate planning.

## **Climate Vulnerabilities Specific to your Jurisdiction**

**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

1: Extended drought

2: Other natural disasters (i.e. wildfires, floods, high winds)

3: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

4: Seasonal demands and/or peak service challenges

5: Limited access or lack of water storage

6: Operation and maintenance demands

7: Energy availability and reliability

8: Sea level rise

9: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

10: Workforce preparedness

11: Other

**5b. (optional) Please describe "other" climate vulnerabilities.**

Related to 5a, we do not believe "rankings" are helpful and potentially lead to skewed outcomes and direction to staff by suggesting there is a hierarchy when in fact all of these elements should be considered on the merits and thoughtfully as part of long-term planning and the CAMP.

Related to 5b, Climate vulnerabilities do not exist in the abstract, but rather, as associated with each water resource asset and opportunity. We do not believe this level of analysis has yet been provided by MWD. One omission from the list is subsidence and this should be analyzed both in terms of the SWP as a water supply option and ownership of Delta islands.

**6. How are these climate vulnerabilities different today than in the past?**

The vulnerabilities are becoming more apparent as the impacts are felt, for example, to MWD as it has acknowledged the impacts were greater on both SWP and CR than it had earlier projected, even though climate was accounted for in past IRP's. There has been a wide range of opinions about climate impacts for decades with different agencies choosing to make investments and take action accordingly, or not.

**7. What is the worst climate challenge you expect to encounter?**

At a macro level, projecting the future for MWD at both SWP and CR imports as these historically lower cost supplies have become more unsustainable for a variety of reasons. This is the single greatest issue for MWD as it examines its future water supply portfolio and associated costs.

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

25-49% of customers

**9b. (optional) Please describe "other" programs for low-income qualified customers.**

Related to 8, see above re Water Equity and Affordability and inclusivity. Evolving programs to support our DAC must be grounded in an accountable Long Range Finance Plan (MWD's has not been updated since 2004), and adaptive management in concert with planned investments. MWD solutions for DAC cannot be implemented separate and apart from the need for sound long-range financial planning for all member agencies and ratepayers.

## **Workshop Materials**

**1. What additional information or background would you like to provide that would be helpful for the Board Members in preparation for the May 23rd Workshop on Terminology and Interests?**

Distribute:

1. Water Authority's Business Plan and LRFP.
2. 1994 Blue Ribbon Task Force Report.
3. Any analysis staff has completed on the subject of "insurance" MWD supplies in terms of which agencies want insurance and to pay for it, and what risk analysis staff has conducted in terms of pricing in providing this service.



# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** Calleguas Municipal Water District  
**Respondent's Name** Henry Graumlich  
**Respondent's Title** AGM - Water Policy & Strategy  
**Email** hgraumlich@calleguas.com

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

**Yes. Reliability generally refers to the ability to provide long-term water supplies to meet service area demands. Reliability encompasses water resource supply, operations, transmission infrastructure, water quality, and every phase of the continuity of our service to our customers.**

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Resilience:

**Yes. Resilience generally refers to our capacity to adjust to planned and unplanned interruptions in the continuity of our normal operations.**

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Financial Sustainability:

**Yes, the long-term stewardship of the resources necessary to maintain continuity of reliability and resilience.**

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Affordability:

**Yes. This is the relation context of the cost of service within the overall economy of costs necessary for financial sustainability. The Calleguas Board has a goal of smoothing fluctuations in annual rates from Metropolitan.**

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## 2. What should Metropolitan consider when defining these terms?

### Reliability:

**Given the diversity of Metropolitan's member agencies resource mixes, the definition of reliability will vary depending on how the member agency uses Metropolitan's system. Also, Metropolitan should consider how to balance the various "reliabilities" of its sources of imported water, storage, transmission infrastructure, water quality etc. to match how its member agencies may use its system in their own scale of reliability.**

---

### Resilience:

**Metropolitan should consider the extent to which it believes it can define and create resilience solely in terms of its span of control or whether it is more effective to create resilience with partnerships at both larger and smaller scales to create an overall more resilient system of systems.**

---

### Financial Sustainability

**Metropolitan should consider how individually diverse member agencies' reliability and resilience needs correlate, or fail to correlate, to their willingness to pay for reinvestment in regional long-term solutions.**

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### Affordability:

**Metropolitan should consider affordability as a function of affordability's relationship to financial sustainability, reliability, and resilience.**

---

## 3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

### Reliability:

**Climate change has introduced longer-term climate resilience issues into water supplies and system operations that were more reliable under mid – to late 20th century conditions.**

---

### Resilience:

**The uncertainty of projected greater variability and cascading, inter-related causes and effects will create novel resilience challenges.**

---

### Financial Sustainability:

**Uncertainty and increased volatility in both physical and institutional systems will introduce greater risk in making decisions about long-term capital investments even as the failure to invest will bring risk.**

---

Affordability:

**The probable lack of consensus on long-term investments will favor a decision-making context that will favor short-term interests and affordability over long-term sustainability.**

---

#### 4. How would you describe the difference between reliability and resilience?

Reliability is what we lose, when we take too short a view of resilience. Resilience is what we lose when we take too short of view of investment, innovation, and integration.

## Climate Vulnerabilities Specific to your Jurisdiction

**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

1: Limited access or lack of water storage

2: Extended drought

3: Other natural disasters (i.e. wildfires, floods, high winds)

4: Other

5: Energy availability and reliability

6: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

7: Workforce preparedness

8: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

9: Sea level rise

10: Seasonal demands and/or peak service challenges

11: Operation and maintenance demands

**5b. (optional) Please describe "other" climate vulnerabilities.**

Other - Lack of regulatory and policy coherence across state and regional programs. Local water resource managers face state and federal policies at cross-purposes as well as regulatory programs that continue to rely on historical climate patterns to set baseline compliance for water quality and ecosystem function.

**6. How are these climate vulnerabilities different today than in the past?**

These new vulnerabilities are occurring in a context of uncertainty and increased volatility in both physical and institutional systems.

**7. What is the worst climate challenge you expect to encounter?**

The inability of Metropolitan to find a new balance between regional benefit and its member agencies' self-interest in the context of climate change adaptation.



# Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

1-24% of customers

**9a. Check all programs your agency offers to DAC communities.**

Bill assistance

Direct install

Discounted rates

DAC targeted rebates

Community benefits programs

Prop 1 DAC Community Involvement Programs for water education and community priorities

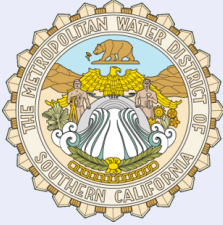
**9b. (optional) Please describe "other" programs for low-income qualified customers.**

Through the Watersheds Coalition of Ventura County, Calleguas supports implementation of a DAC Community Involvement Program. We also address special needs for small water systems adjacent to our service area that cannot afford Metropolitan's annexation fees.

## Workshop Materials

**1. What additional information or background would you like to provide that would be helpful for the Board Members in preparation for the May 23rd Workshop on Terminology and Interests?**

None at this time. We may provide additional information prior to the workshop. Thank you for the opportunity to provide our perspective.



# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** Burbank Water and Power  
**Respondent's Name** Richard Wilson  
**Respondent's Title** Assistant General Manager-Water  
**Email** [rwilson@burbankca.gov](mailto:rwilson@burbankca.gov)

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

**Reliability - Supply, storage and transmission of water imported via MWD and the state and treated, stored and distributed to customers within Burbank city limits over the long term without unplanned interruption.**

---

Resilience:

**Resilience – The ability to adapt to and recover from: (1) short-term unplanned interruptions of water supply and delivery; and (2) sudden changes in climate without affecting reliability.**

---

Financial Sustainability:

**Financial Sustainability – The ability to capture sufficient revenue over a long time period to cover the cost to provide equitable reliability and resilience to all partners through a defined and agreed range of operating conditions and while doing so, accumulate sufficient cash reserves for emergencies.**

---

Affordability:

**Affordability – From a retail customer’s perspective: not having to choose over which basic needs one can provide for themselves or family. Naturally, the consumer’s decision, then, is relative to the cost of other basic needs that are not related to the cost to deliver water. From a water purveyor’s perspective, water is affordable when a customer pays the cost to store, treat and deliver water to that customer without the cost subsidized by another customer class. In actuality, affordability is what is politically tolerable and will affect that degree of reliability, resilience and sustainability that can be achieved.**

**2. What should Metropolitan consider when defining these terms?**

Reliability:

**Things to consider for these terms: equity, abandon old narratives, forget about the past - look forward**

---

Resilience:

**Things to consider for these terms: equity, abandon old narratives, forget about the past - look forward**

---

Financial Sustainability

**Things to consider for these terms: equity, abandon old narratives, forget about the past - look forward**

---

Affordability:

**Things to consider for these terms: equity, abandon old narratives, forget about the past - look forward**

---

**3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?**

Reliability:

**Since Burbank has no water rights and is 100 percent dependent on imported water from both SWP and the Colorado River, we prioritize long-term, uninterrupted access to these supplies as paramount to the health and economic vitality of our residents. The single-tunnel Delta conveyance project and Sites Reservoir are key insurance policies for providing a reliable way to capture rains from atmospheric storms as they become more intense and frequent.**

---

Resilience:

Burbank stores its imported raw water in the San Fernando ground water basin. We can store up to 35,000 acre-feet and can also purchase up to 4,200 acre-feet from LA each year. This provides us with a measure of resilience to react and recover from short-term and sudden interruptions of SWP supplies. However, we cannot use the stored ground water without blending it with purchased treated water from MWD. Our operating permit requires that we blend to reduce nitrate and chrome VI levels to 80% below the MCL. Evolving climatic conditions that affect SWP-dependent areas and the availability of treated supplies factors into how we prioritize resilience.

Financial Sustainability:

The unpredictable effects of climate change means rethinking MWD's business model to pivot to a new way of thinking about functionalizing costs so that agencies who do not have access to their own supplies and must remain wholly or predominantly on MWD's current and future supply, storage and transmission capabilities, cannot bear the brunt of the cost to maintain and upgrade infrastructure to the benefit of others whose reliance on MWD is shrinking. Using cash reserves for what they are meant for is needed for financial sustainability.

Affordability:

Climate change will force utilities to fund new power grids, new electric vehicle fleets, but renewable energy, convert power plants to new fuels and comply with new regulations regarding lead and copper in water systems, PFOS, PFAS, etc. Combined, these factors will make everything more expensive and affordability will need to be redefined.

#### 4. How would you describe the difference between reliability and resilience?

Already discussed.

## Climate Vulnerabilities Specific to your Jurisdiction

**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

- 1: Extended drought
- 2: Limited access or lack of water storage
- 3: Other natural disasters (i.e. wildfires, floods, high winds)
- 4: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)
- 5: Energy availability and reliability
- 6: Operation and maintenance demands
- 7: Workforce preparedness
- 8: Seasonal demands and/or peak service challenges
- 9: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)
- 10: Sea level rise
- 11: Other

**6. How are these climate vulnerabilities different today than in the past?**

New modes and models of water management must be developed now while we are simultaneously adapting to climate change in other areas: the electrical grid must be redesigned, renewable energy must be sourced, vehicle and transportation modes must be reconfigured, and threats to the information networks that tie all of this together are being attacked and hacked.

**7. What is the worst climate challenge you expect to encounter?**

Inability to find common ground, political divisiveness.

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

25-49% of customers

**9a. Check all programs your agency offers to DAC communities.**

- Bill assistance
- Discounted rates
- DAC targeted rebates
- Community benefits programs



# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

Agency

LADWP

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

**Our definition of water supply reliability is that, under any single-year or multi-year dry and/or critically dry scenarios, including unpredictable factors such as growth and climate change, both now and in the future, our agency has direct access, through connected conveyance infrastructure, to all available supplies and storage, both regionally and locally, and sufficient capacity in that infrastructure to meet full peak summer demands/needs of all our customers.**

---

Resilience:

**Ability to respond and recover from unpredictable, unprecedented near- and long-term known challenges (e.g. earthquake, drought, climate change) by having adequate infrastructure and carrying capacity to ensure operational flexibility to convey all necessary supplies, including those in storage available locally and regionally, to areas in need. There is now a greater probability of supply sources to be simultaneously at risk (e.g. SWP low allocation, Colorado River shortage, groundwater contamination), which highlights the importance of interconnected regional infrastructure. Additionally, ensuring water is used in an environmentally responsible and sustainable manner is also necessary to ensure that this scarce resource is not wasted and is available to support these unpredictable, unprecedented challenges.**

---

Financial Sustainability:

**Ability to collect revenues to cover our expenses while exercising prudent fiscal management, ensuring ratepayer equity, and maintaining ratepayer engagement and support. Revenues collected must be based on cost of service to build and operate a resilient and reliable system to meet all customers' full service demands through all hydrologic scenarios thereby insuring the sales revenue necessary to maintain fiscal integrity.**

Affordability:

**When developing and maintaining a reliable and resilient water supply, all costs to the customer for water service including commodity rates, fixed charges (i.e. property taxes, service charges, etc.), and historical contributions must be considered and be equitably applied to avoid the shifting of both costs and risk onto the customer by their water service provider. Water used for basic, essential daily needs should be made affordable by retail water providers to end use residential customers.**

---

## 2. What should Metropolitan consider when defining these terms?

Reliability:

**Metropolitan should view the definitions above considering that Metropolitan's customers are not only the Member Agencies but also the retail customers that those member agencies serve. More importantly, Metropolitan must review its mission and Board adopted policies to clearly understand the basis for solutions that were implemented to address these issues in the past, and understand what worked or didn't work before identifying new solutions.**

---

Resilience: Same as above.

Financial Sustainability Same as above.

Affordability: Same as above.

## 3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

Reliability:

**Our understanding, use and prioritization of these terms has not changed due to the evolving climate conditions; however, climate conditions have exposed the fallacy that all Metropolitan Member Agencies enjoy a similar level of water supply reliability/resilience from Metropolitan.**

---

Resilience: Same as above.

Financial Sustainability: Same as above.

Affordability: Same as above.

#### 4. How would you describe the difference between reliability and resilience?

Reliability is the ability to meet all customer's full-service demands throughout all hydrologic conditions including severe events, whereas resilience is the system's ability to recover from unforeseeable events/disasters and return to reliable conditions.

## Climate Vulnerabilities Specific to your Jurisdiction

**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

1: Other

2: Limited access or lack of water storage

3: Extended drought

4: Other natural disasters (i.e. wildfires, floods, high winds)

5: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

6: Workforce preparedness

7: Seasonal demands and/or peak service challenges

8: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

9: Operation and maintenance demands

10: Energy availability and reliability

11: Sea level rise

**5b. (optional) Please describe "other" climate vulnerabilities.**

Metropolitan's lack of regional connectivity and conveyance infrastructure resulted in its inability to serve available water supplies to only certain Metropolitan member agencies (SWPDA), resulting in an isolated severe emergency water shortage allocation (e.g. Human Health Safety).

Note that "other" noted above is the most important climate vulnerability, and encompasses all of the other high-ranking vulnerabilities.

**6. How are these climate vulnerabilities different today than in the past?**

The recent Metropolitan Emergency Water Conservation Program for SWPDA member agencies revealed a lack of regional connectivity due to deficient conveyance infrastructure resulting in Metropolitan's inability to deliver available supplies, including available stored supplies, to those Member Agencies vulnerable to SWP water supply shortages. Climate change impacts have exposed the fallacy of prior assumptions about all regional supplies being available to all Member Agencies by offsetting demands, which has been used during Metropolitan's entire history as the basis for



infrastructure investments. Because climate change has exposed this fallacy Metropolitan should comprehensively review and evaluate all system reliability gaps and construct new conveyance infrastructure to ensure that all Member Agencies have connected capacity to all of Metropolitan's available storage and supplies.

## 7. What is the worst climate challenge you expect to encounter?

We just got a glimpse to how recent extreme climate conditions negatively impacted the region. Metropolitan had to borrow Human Health and Safety water from the California Department of Water Resources to serve its SWPDA member agencies. Metropolitan was unable to serve its own water to these six agencies, while Metropolitan's other 20 member agencies were not impacted. This isolated shortage highlighted the six agency's lack of regional connectivity to Metropolitan's available supplies and storage in times of drought.

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

50-74% of customers

**9a. Check all programs your agency offers to DAC communities.**

Bill assistance

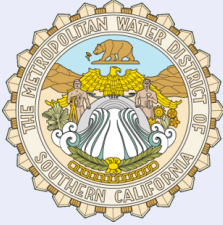
Direct install

Community benefits programs

## Workshop Materials

**1. What additional information or background would you like to provide that would be helpful for the Board Members in preparation for the May 23rd Workshop on Terminology and Interests?**

Metropolitan Board must review all prior relevant Board adopted policies to clearly understand basis for solutions that were implemented to address specific problems, understand what worked / didn't work to identify any new problem(s), before re-defining or changing definitions that may have unintended negative consequences. Board needs to focus on identifying the problems that they are trying to solve. It is imperative to understand existing solutions before attempting to develop new solutions.



# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** Burbank Water and Power  
**Respondent's Name** Dawn Lindell  
**Respondent's Title** General Manager  
**Email** DrothLindell@burbankca.gov

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

**Always able to serve - when customer turns on water faucet, clean, high quality water is available**

---

Resilience:

**When there is a problem with the water, we quickly resolve the issue. We have the ability to overcome drought and other issues to continue to serve**

---

Financial Sustainability:

**We have rates that enable us to meet our costs and keep a reserve amount on hand adequate to meet most needs.**

---

Affordability:

**Our customers can afford to pay their water bills**

2. What should Metropolitan consider when defining these terms?

Reliability:

**Water supply needs to be consistent and clean - how do we build to meet the needs today and for the next 100 years?**

---

Resilience:

**When one water source is strained, we need other water sources that are available to meet the needs.**

---

Financial Sustainability

**We cover the costs. This includes developing a reserve to build for the future.**

---

Affordability:

**Rates need to be predictable and defensible to meet the needs.**

---

### 3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

Reliability:

**Conservation plays a key role in enabling reliability. Customers need to be responsible in water use and continue to find better ways to conserve**

---

Resilience:

**We need to ensure that we are looking at all options - importing water, desal, direct potable reuse, increased storage and capture for the atmospheric river phenom,**

---

Financial Sustainability:

**We need to look to federal and state aid. CA supplies 1/3 of the nation's food supply - water here is critical to national health. We need to be pursuing solutions for new capture and storage, desal, direct potable reuse, etc.**

---

Affordability:

**Seeking grants can help but this is the most difficult question. Water is critical and costs a fraction of gasoline or milk yet it is viewed as a right. People don't want to pay for a right. How do we change public opinion on what they can afford?**

---

### 4. How would you describe the difference between reliability and resilience?

Reliability means that the water is available and high quality whenever it is needed by a customer for their use.

Resilience is the ability of the water systems to recover when there is an interruption to service. This means if one water source is struggling, we can resolve that struggle and/or use another water source to meet the needs.

## Climate Vulnerabilities Specific to your Jurisdiction

**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

- 1: Extended drought
- 2: Other
- 3: Limited access or lack of water storage
- 4: Workforce preparedness
- 5: Operation and maintenance demands
- 6: Other natural disasters (i.e. wildfires, floods, high winds)
- 7: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)
- 8: Seasonal demands and/or peak service challenges
- 9: Energy availability and reliability
- 10: Sea level rise
- 11: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

**5b. (optional) Please describe "other" climate vulnerabilities.**

For us, other is asset management. Burbank has 276 miles of pipe. about 170 miles are over 100 years old or will be in the next 20 years. We have been on a replacement plan of 1 mile per year. We do not have adequate revenue to replace all the old lines that we need to replace. Other assets also have challenges like a reservoir that leaks if half full. We need to be able to continue to build out our purple pipe as well.

**6. How are these climate vulnerabilities different today than in the past?**

The aridification has added an urgency that was not present before. Global warming creates real concerns.

**7. What is the worst climate challenge you expect to encounter?**

Long term drought without adequate water to meet the communities needs at a price that is affordable to our customers. AND earthquakes - we have over 30 lines that cross Verdugo fault.

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

25-49% of customers

**9a. Check all programs your agency offers to DAC communities.**

Bill assistance

Discounted rates

DAC targeted rebates

Community benefits programs

Conservation programs

**9b. (optional) Please describe "other" programs for low-income qualified customers.**

Home improvement programs - a free service to assess and modernize

## Workshop Materials



# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency:** Western Municipal Water District

**Respondent's Name:** Ryan Shaw

**Respondent's Title:** Director of Water Resources

**Email:** RShaw@wmwd.com

### **Terminology: Reliability, Resiliency, Financial Sustainability, Affordability**

1. **Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?**

- a. Reliability -

The ability to consistently provide safe and uninterrupted water services to our customers. It encompasses various aspects that ensure the continuous and efficient functioning of the water supply and distribution infrastructure. Western Water uses this term to talk more generally about the reliability of our systems and sources.

- b. Resiliency -

The ability of a water system to adapt, recover, and continue functioning effectively in the face of various challenges, shocks, and stresses. It involves proactive measures and strategies that enable the water utility to withstand and bounce back from disruptions, whether they are caused by natural disasters, climate change impacts, infrastructure failures, or other unforeseen events.

- c. Financial Sustainability –

The ability of a water system to generate sufficient revenue and effectively manage its finances in both the short and the long term to support the provision of reliable and high-quality water services. It involves maintaining a balance between the costs of operating, maintaining, and upgrading the water infrastructure, and the revenue generated from customer fees and other sources. Western Water uses Financial Stewardship more regularly in our communications to describe how Western Water uses rate payer dollars strategically, efficiently, and appropriately.

- d. Affordability -

Our agency does not regularly use this term, nor have we defined it as an agency.

## **2. What should Metropolitan consider when defining these terms?**

### **a. Reliability -**

Reliability begins with adequate and sustainable water supplies, such as surface water, groundwater, and recycled water. The planned and optimized management of that source is then key to meeting the varying and long-term demands of its customers, including during periods of peak consumption or in times of drought or emergencies. Key considerations should also include redundancy in key facilities, water treatment for standards of quality, changing conditions, fiscal management, asset management and emergency preparedness.

### **b. Resiliency -**

Resiliency considerations should include risk management planning, water supply diversification and redundancy, operational flexibility, climate adaptation, integrated water management, collaboration and partnerships, and effective communication. Resiliency should evaluate near- and long-term opportunities and challenges to effectively prepare for sustained water service.

### **c. Financial Sustainability -**

Financial sustainability relies on a long-term plan for generating adequate and stable revenue to cover the costs of providing water services. Financial sustainability should consider revenue generation, cost recovery, sound planning and budgeting, debt management, and operational efficiency and optimization.

### **d. Affordability -**

Our agency does not regularly use this term, nor have we defined it as an agency.

## **3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?**

### **a. Reliability -**

As climate change continues to affect weather patterns, precipitation levels, and the availability of water resources, water agencies need to adapt their approaches to ensure reliable water services. Evolving climate conditions place greater emphasis on the importance of resilience and adaptation in maintaining reliability within water agencies. Climate change impacts the availability, quality, and vulnerability of water resources, necessitating a proactive and forward-thinking approach to ensure reliable water services in the face of these challenges.

### **b. Resiliency -**

Climate change is leading to more frequent and severe extreme weather events such as storms, floods, and droughts. These events can disrupt water supply systems, damage infrastructure, and compromise the reliability of water services. Water agencies must prioritize resiliency by adopting sustainable water resource management practices. This includes diversifying water sources, enhancing water storage, implementing water conservation measures, and promoting efficient water use to ensure a reliable and resilient water supply in the face of changing climate conditions.

### **c. Financial Sustainability -**

Climate change introduces additional costs and investment needs for water agencies. Investments may consider infrastructure upgrades to withstand extreme weather events, address changing water availability, or adapt to new regulatory requirements. These investments can strain financial resources and require additional financial planning and prioritization to ensure long-term financial sustainability.

Analyzing long-term potential climate related impacts to revenue and expenses may help adapt financial strategies to maintain financial sustainability while meeting the evolving needs of customers.

d. Affordability -

Climate change impacts costs, necessitates infrastructure resilience and adaptation, and introduces new regulatory and compliance requirements, which all impact the affordability of water. Climate change can have economic and financial impacts on customers, potentially affecting their ability to pay for water services. Changes in weather patterns, such as prolonged droughts or increased frequency of extreme events, can lead to economic disruptions in communities, job losses, or increased household expenses.

**4. How would you describe the difference between reliability and resilience?**

Both reliability and resiliency are essential aspects of a well-functioning water utility. Reliability ensures the day-to-day continuity of services, while resiliency enhances the utility's ability to withstand and recover from unexpected events, ultimately providing robust and dependable water services to customers.

Reliability refers to the ability of a system to consistently and dependably provide its intended services or functions, focused on delivering a continuous and uninterrupted water supply under normal operating conditions. It involves maintaining the infrastructure, ensuring adequate water supply, and minimizing service interruptions. Reliability is about consistent performance and minimizing the occurrence of failures.

Resilience refers to the ability of a system to adapt and recover from disruptions, shocks, or stresses. It emphasizes the system's ability to withstand and respond effectively to unexpected events or challenges. In the context of a water agencies, resilience involves proactive measures, planning, and strategies to anticipate and recover from disruptions such as natural disasters, infrastructure failures, or other unexpected events.

**Climate Vulnerabilities Specific to your Jurisdiction**

**5a: Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

1. Other Natural Disasters (wildfires, floods, high winds)
2. Extended Drought
3. Limited access or lack of water storage
4. Energy availability and reliability
5. Water quality management (runoff, treatment, violations, saltwater intrusion, source water, turbidity, algal blooms)
6. Ecosystems (coastal erosion, wetland loss, endangered species)
7. Seasonal demands and/or peak service challenges
8. Operation and maintenance demands
9. Workforce preparedness
10. Sea level rise



Other

**5b. Describe “Other” (Optional)**

N/A

**6. How are these climate vulnerabilities different today than in the past?**

Our understanding of climate change and its impacts has significantly improved over time. Scientists now have a more comprehensive understanding of the mechanisms behind climate change and can attribute certain extreme weather events to its influence. This enhanced understanding allows us to better identify and anticipate climate vulnerabilities. Vulnerabilities today may include accelerated climate change, climate extremes, increasing population and urbanization, vulnerability of critical infrastructure, interconnectedness and dependency, and improved technological and scientific capabilities.

**7. What is the worst climate challenge you expect to encounter?**

The worst climate challenge may include a combination of climate challenges occurring simultaneously and leading to infrastructure damage and no reprieve from climate impacts. For example, having a multi-year drought on various water sources, including surface and groundwater, increases in wildfires destroying major infrastructure along the State Water Project, Colorado River Aqueduct, and locally. Then during the wintertime, few intense storms that come down as precipitation instead of snowpack, leading to flooding, mudslides, and additional infrastructure damage. Intense swings are challenging for infrastructure as well as messaging to the community.

**Community Programs**

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

25-49% of customers

**9. Check all program your agency offers to DAC communities.**

Bill assistance (just for retail, not wholesale)

Direct install

Discounted rates

DAC targeted rebates

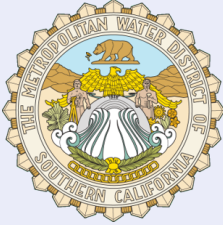
Community benefits programs

Other – Please describe

## Workshop Materials

### **10. What additional information or background would you like to provide that would be helpful for the Board Members in preparation for the May 23rd Workshop on Terminology and Interests?**

Showing what climate change projections looked like 10-20 years ago (from the IPCC) and showing that it is happening now. Demonstrating the varying ranges of impacts based on climate change scenarios.



# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** City of Beverly Hills  
**Respondent's Name** Shana Epstein  
**Respondent's Title** Director of Public Works  
**Email** sepstein@beverlyhills.org

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability: Consistent, dependable service

Resilience: flexibility to respond to the unplanned

Financial Sustainability:

fiscal responsibility with respect to long term planning with near term decisions

Affordability: reasonable costs for the customers

2. What should Metropolitan consider when defining these terms?

Reliability:

providing a steady water resource supply that includes demand side management as well as new resources.

Resilience:

ability to respond to future conditions and emergency conditions; continuity of service

Financial Sustainability:

healthy reserves, steady revenue stream, and appropriate expenses to insure fiscal health

Affordability:

**conscious of diverse social economic means of the 22 million customer base**

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3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

Reliability:

**This term is about the basics. We are in business and build trust because we are dependable.**

---

Resilience:

**Resilience becomes a risk management discussion; how will water utilities/municipalities be able to provide service continuity in an ever changing environment so that all customers have access.**

---

Financial Sustainability:

**This term takes on the ability to be creative in finding new partners and different revenue streams to provide reliable and resilient resources for an indefinite time.**

---

Affordability:

**This aspect of providing service all depends upon how well we are able to plan and implement financial sustainability.**

---

4. How would you describe the difference between reliability and resilience?

In my response to question 3, I differentiated the two terms as reliability is about the basics and not forgetting why water utilities were created. Resilience is the next building block on top of reliability so that we plan beyond the known.

## Climate Vulnerabilities Specific to your Jurisdiction

**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

1: Limited access or lack of water storage

2: Other natural disasters (i.e. wildfires, floods, high winds)

3: Extended drought

4: Workforce preparedness

5: Operation and maintenance demands

6: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

7: Energy availability and reliability

8: Seasonal demands and/or peak service challenges

9: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

10: Sea level rise

11: Other

## **6. How are these climate vulnerabilities different today than in the past?**

The threat of fire has become a top concern in recent years due to the increased frequency. The extended droughts that really make that condition the norm.

## **7. What is the worst climate challenge you expect to encounter?**

1. Fire, 2. Earthquake, 3. Drought

# **Community Programs**

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

1-24% of customers

**9a. Check all programs your agency offers to DAC communities.**

Community benefits programs (funded from city general fund)

**9b. (optional) Please describe "other" programs for low-income qualified customers.**

Mostly our seniors in the community - offer cooling stations.

# Workshop Materials

## **1. What additional information or background would you like to provide that would be helpful for the Board Members in preparation for the May 23rd Workshop on Terminology and Interests?**

Affordability needs to be addressed through grants, federal and state designation so that we do not violate proposition 218.



# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** Las Virgenes Municipal Water District  
**Respondent's Name** David Pedersen  
**Respondent's Title** General Manager  
**Email** dpedersen@lvmwd.com

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

Yes, LVMWD uses the term, and it is a key element of our mission statement. LVMWD also has a business value that is focused on providing reliable water supplies and service. Reliability is a measure of LVMWD's ability to meet current and future water demands without the need for extraordinary or emergency actions.

Resilience:

Yes, LVMWD uses the term. Resilience is a measure of LVMWD's ability to recover quickly from an event or stressor that sets us off center. An example would be a major earthquake or wildfire. Redundancy is a key element of providing resiliency.

Financial Sustainability:

Yes, LVMWD uses the term. Financial sustainability is the ability of LVMWD to generate sufficient revenues to fund its operating and capital infrastructure needs over the long-term, while maintaining a strong credit rating.

Affordability: Yes, LVMWD uses the term. Affordability is a measure of LVMWD customers' ability to pay for the essential services that they need.

## 2. What should Metropolitan consider when defining these terms?

Reliability:

**Reliability is a measure of MWD's ability to meet current and future water demands of its Member Agencies without the need for extraordinary or emergency actions.**

---

Resilience:

**Resilience is a measure of MWD's ability to recover quickly from an event or stressor that sets it off center (i.e. major earthquake or wildfire).**

---

Financial Sustainability

**Financial sustainability is the ability of MWD to generate sufficient revenues to fund its operating and capital infrastructure needs over the long-term, while maintaining a strong credit rating.**

---

Affordability:

**Affordability is a measure of MWD customers' ability to pay for the essential services that they need.**

---

## 3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

Reliability:

**The evolving climate conditions do not change LVMWD's understanding or prioritization of the terms; however, climate change clearly makes it more difficult to both accomplish and balance the four items together.**

---

## 4. How would you describe the difference between reliability and resilience?

Reliability speaks more to the issue of consistently meeting demands; whereas, resilience addresses the ability "bounce back" quickly and effectively when affected by an outside stressor.

## Climate Vulnerabilities Specific to your Jurisdiction



**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

- 1: Limited access or lack of water storage
- 2: Extended drought
- 3: Other natural disasters (i.e. wildfires, floods, high winds)
- 4: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)
- 5: Seasonal demands and/or peak service challenges
- 6: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)
- 7: Operation and maintenance demands
- 8: Energy availability and reliability
- 9: Sea level rise
- 10: Workforce preparedness
- 11: Other

**6. How are these climate vulnerabilities different today than in the past?**

The primary change that we have observed at LVMWD is the rate of change we are experiencing with respect to these vulnerabilities becoming more severe/significant – particularly wildfire and drought.

**7. What is the worst climate challenge you expect to encounter?**

Currently, severe and prolonged drought remains the worst climate change vulnerability that we expect to encounter because of our dependency on imported water and limited connectivity within the MWD service area.

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

1-24% of customers

**9b. (optional) Please describe "other" programs for low-income qualified customers.**

LVMWD has a budget-based rate structure and serves essential indoor water needs at a very low cost.

# Workshop Materials

## **1. What additional information or background would you like to provide that would be helpful for the Board Members in preparation for the May 23rd Workshop on Terminology and Interests?**

I think it is a good idea to focus the discussion on defining the terms rather than on how to accomplish/implement them, which is a much more complex matter that would require additional time. Also, I think it is best to keep the definitions as simple as reasonably possible. There is probably merit to expand the list of terms to define as part of a future discussion - two additional terms that come to mind are (1) equity and (2) sustainability.

For the four terms here, I believe that there needs to be a balance to achieve them all and avoid a singular focus on one at the expense of the others. This is the real challenge. Lastly, for each of these items, I believe there is a degree of shared responsibility to achieve them. For example, MWD alone is not (and cannot be) entirely responsible for affordability as MWD costs are only one component of the total cost to the customer.

# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

Agency: Eastern Municipal Water District

Respondent's Name:

First Name: Joe

Last Name: Mouawad

Respondent's Title: General Manager

Email: mouawadj@emwd.org

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

**1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?**

Reliability: Reliability means consistently providing water service to current and future customers.

Agree with the definition for reliability, however EMWD would not count conservation as a supply unless it was some kind of permanent reduction in demand such as turf removal. For resilience, I think it is appropriate to consider this term to apply to MWDs system, such as transmission pipelines and treatment plants. If that is the perspective that we frame resilience from, then I also agree with this definition as it will help us deal with our greatest vulnerability, which is loss of service from Mills WFP or the Santa Ana Valley Pipeline.

Is MWD assuming some level of demand management when using the term reliability?

Resilience: For EMWD, resilience is our diverse water supply portfolio that includes local groundwater, and near 100 percent utilization of recycled water, as well as imported supplies.

Resilience is also achieved through vigilant O&M of EMWD's infrastructure to avoid system failures, as well as cutting edge cyber security practices.

Financial Sustainability:

For EMWD, financial sustainability is inclusive of establishing rates in adherence to Prop 218 that cover the cost of service with a balance of fixed and variable revenue. EMWD also achieves financial sustainability by aggressive, and continued pursuit of external funding (state and federal), and maintaining healthy reserves, and a AAA credit rating.

Affordability:

Affordability can be defined and measured utilizing a number of different methods. EMWD commissioned UC Riverside to conduct a study of EMWD's water affordability in 2019, which identified EMWD's water as affordable.

Details of the study can be found here: <https://www.emwd.org/ucr-affordability-study>

# Climate Adaptation Master Plan for Water

EMWD's budget based tiered rate structure also promotes water affordability. Customers who stay within Tier 1 have the benefit of the lowest cost water supply. The rate structure empowers customers who want to save money to reduce consumption to Tier 1 levels.

## 2. What should Metropolitan consider when defining these terms?

First, we believe MWD should consider its mission in defining these terms. "The mission of the Metropolitan Water District of Southern California is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way." We believe two significant considerations from this mission are:

1. The mission is TO PROVIDE its service area supplies. The commitment to provide should be the foundational in each term.
2. The mission clearly states providing reliable supplies for not only current but FUTURE needs. Future needs include the needs of future customers and the terms defined in this process should reflect that. We must be reliable for today's customers, and we need to plan and be reliable for future customers as well.

Reliability: When MWD says the "most severe drought conditions" what SWP allocation defines the most severe drought? Also – are there different scenarios? (i.e. 1 year of exceptional drought vs 5 years of severe drought).

Is MWD assuming some level of demand management when using the term reliability?

Is demand considered 100-percent of normal use, or a reduced demand?

"Always" is a strong word.

MWD and MAs need to define our tolerance for being in some stage of our water shortage contingency plan.

Resilience:

What constitutes a disruptive experience?

Definition of Resilience should also be inclusive of system elasticity and the ability to accommodate periods of large flows and exceptional hydrology, as well as low flows.

Financial Sustainability:

Growth in much of MWD's service area has flattened, and demand has even declined. MWD needs to be financially sustainable in a space of declining sales

MWD rates do not reflect the current financial environment and its current financial model does not appear sustainable and it is not structured to address the collective challenges we face. Considering the potential need for greater investments by MWD to mitigate the impacts of climate change, the anticipated financial stresses on MWD will require a thoughtful reconsideration of its current financial model.

Affordability: beyond MWD making financially prudent choices, and offering rebates and other incentives to disadvantaged communities, we struggle to see what role MWD has in affordability. That should be addressed at the retail level.

# Climate Adaptation Master Plan for Water

One way to promote affordability is to store as much water as possible during wet years through programs like cyclic storage. Additional incentives for entities to store water in wet years may help promote affordability.

### **3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?**

#### Reliability:

CA's major water infrastructure was developed to manage water supplies in a climate that relied on snowpack as our reservoirs and is not equipped to capture and leverage periods of extremely high flows.

#### Resilience:

Developing new supplies will become increasingly challenging as the climate changes, because permitting will become even further constrained as habitats and species adapt. Increased CEQA challenges and litigation.

#### Financial Sustainability:

Sales will decline further, leaving less revenue for MWD under the current rate structure.

As stressors continue to impact the SWP and CRA supplies, agencies will be motivated to develop more local supplies, which equates to further decline in sales for MWD.

Pure Water is a much more reliable source of water, so it is still needed even if demands are flat.

However, it is expensive, and will negatively impact affordability and financial sustainability in the absence of Federal and/or State funding participation.

MWD's rates do not reflect the current financial environment.

#### Affordability:

Met's role in retail level water affordability is limited. Met should do all in its power to be fiscally prudent, maintain a strong credit rating, aggressively pursue external funding, and maximize revenue that is collected on the property taxes, and other fixed revenue.

Met can be a conduit to share with other member agencies rate structures that promote affordability, but Met should not involve itself in retail level rate design.

This will be a challenge because the cost of water supply is increasing rapidly, and the political will to maintain lowest costs supplies (such as the Delta and Colorado River) is waning.

### **4. How would you describe the difference between reliability and resilience?**

# Climate Adaptation Master Plan for Water

## Climate Vulnerabilities Specific to your Jurisdiction

**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

1	Extended Drought
	Other natural disasters (i.e. wildfire, floods, high winds)
2	Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)
	Seasonal demands and/or peak service challenges
	Limited access or lack of water storage
	Operation and maintenance demands
	Energy availability and reliability
	Sea level rise
	Ecosystems (i.e. coastal erosion, wetlands loss, endangered species)
	Workforce preparedness
	Other

- Outside of these two, EMWD does not have significant vulnerabilities with respect to our local supplies, assuming our access to MWD supplies remains relatively unchanged.

Some of these vulnerabilities would be more concerning if we expanded this question to include MWD supplies, for example:

- Natural disasters (supply interruption due to a seismic event)
- Peak service & storage (if we see a Mills/Skinner outage)
- O&M demands (if Mills/Skinner need to be offline for extended periods)
- Sea level rise/ecosystems (if it were to impact MWD's access to imported water supplies)

### **5b. (optional) Please describe "other" climate vulnerabilities.**

In our subagency listening session we learned that many of the greatest threats and vulnerabilities our agencies face is not related to climate. These threats include managing known water quality contaminants and constituents of emerging concern. In addition, concern was expressed regarding the lack of political will to build large projects like Delta Conveyance and Sites Reservoir.

### **6. How are these climate vulnerabilities different today than in the past?**

Not all species will adapt well to climate change, so as threatened species become more threatened due to climate change, project permitting could become even further constrained. CEQA challenges and litigation will increase in frequency.

### **7. What is the worst climate challenge you expect to encounter?**

We expect to encounter increasing climate extremes that may compromise supply reliability from the SWP and CRA.

Inadequate storage to capture supplies during wet periods.

# Climate Adaptation Master Plan for Water

Wildfires destroying the headwaters where SWP and CRA supplies originate is another potential challenge.

Wildfires in service areas could also be encountered.

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

- 0 of customers
- 1-24% of customers
- 25-49% of customers
- 50-74% of customers
- 75-100% of customers

**9a. Check all programs your agency offers to DAC communities.**

- Bill assistance
- Direct install
- Discounted rates
- DAC targeted rebates (through Metropolitan)
- Community benefits programs (what are these?)  
The Youth Ecology Corps Program, and IEWorks.

9b. (optional) Please describe "other" programs for low-income qualified customers.

- Payment extensions
- Budget Billing (Level Pay Plan)
- EMWD assist
- Help2Others Payment Assistance Program

For additional information:

<https://www.emwd.org/payment-assistance-programs>

In addition to EMWD's programs, we work hard to leverage other opportunities to assist EMWD customers. EMWD has been a leader in this space over the past three years, and has secured the following funding on behalf of low-income customers:

CAP Cares, Riverside County's Community Action Partnership Program that utilized federal COVID aid funding: **\$124,318.84** (Nov 2020-May 2021)

CWWAPP: Water bill assistance **\$3,693,160** and sewer bill assistance **\$1,795,428**.

United Lift (United Way): **\$823,996** (program to date, and still processing applications)

# Climate Adaptation Master Plan for Water

Low Income Household Water Assistance Program (LIHWAP, managed by CSD): **\$935,621** (to date)

## Workshop Materials

### 1. What additional information or background would you like to provide that would be helpful for the Board Members in preparation for the May 23rd Workshop on Terminology and Interests?

Other EMWD questions/comments:

1. The narrow focus on “climate adaptation” does not capture the full scope of threats and vulnerabilities confronted by water agencies. Water quality threats (such as PFAS and constituents of emerging concern), and political will to advance/fund large infrastructure projects, as well as an unfavorable regulatory environment are major challenges, however, are not consequences of a climate change.
2. All EMWD’s planning scenarios for water supply assume roughly 50% of demands to be met by Metropolitan. While EMWD continues to develop local resources, Met will always be a critical part of our services. Also, it may be dangerous to assume conservation as a form of supply. EMWD data proves that conservation efforts can reduce demands, but conservation can go only so far (demand hardening).
3. MWD makes up a large portion of our potable supplies, particularly during high demand summer months. The worst-case scenario for EMWD is to lose supply from Mills WFP or Skinner WFP during these high demand times. These outages can also be caused by pipelines that are single points of failure, such as the Box Springs Feeder or Santa Ana Valley Pipeline.
4. Groundwater contamination, such as PFAS, is another major vulnerability. The rapidly changing regulatory landscape in this area is putting our groundwater wells and desalter production at risk of being shut down until expensive treatment facilities can be added. Not only are the capital costs to address these issues very high, but ongoing O&M expenses to operate PFAS treatment facilities are substantial as well. Disposal of contaminated, spent media comes at a cost that is even greater than treatment.
5. EMWD experienced a shutdown of the Mills plant for an extended period during the summer as described above. We were lucky to make it through the event, but it took extreme measures, and those events will be harder to survive as overall demands on the system grow.
6. Risks have increased compared to the past. As our region grows supplies become more critical.
7. Increasing stringent regulation is making it more difficult to develop local resources and infrastructure.
8. We know the next increment of supplies will be far more expensive than the supplies that are already developed, which will have a detrimental impact on affordability. The cost of water is escalating and will continue to escalate rapidly.
9. Metropolitan’s antiquated governance/voting structure is another threat confronted by agencies like EMWD. As the Met agencies with the largest voting percentage roll off of Metropolitan water supplies yet are controlling the outcome on votes related to rates, and how Met finances future water infrastructure, the financial impact on EMWD customers could be detrimental.





# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** City of Santa Ana  
**Respondent's Name** Armando Fernandez  
**Respondent's Title** Principal Civil Engineer  
**Email** AFernandez@santa-ana.org

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

**Reliability is defined as the capability of a water system to ensure that it is dependable and can consistently deliver water to the City's customers.**

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Resilience:

**Resilience is defined as the system's ability to be prepared for hazards and emergencies. In terms of the City's water system, resilience aligns with being able to identify possible threats to the water system and respond.**

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Financial Sustainability:

**Financial capability is defined as the capacity for a water system to obtain a sufficient amount of revenue to be able to provide reliable water supply for its customers.**

---

Affordability:

**Affordability is defined as a measure of how a water system is able to provide reasonably-priced water to the community/customers while being able to maintain operations to provide safe and reliable drinking water.**

---

## 2. What should Metropolitan consider when defining these terms?

Reliability:

**Water availability and water system redundancy.**

Resilience:

**Water system's capability to increase preparedness for hazards and emergencies.**

Financial Sustainability

**Ability to ensure that a water system is capable of generating funds/sufficient revenue to operate and maintain water facilities and deliver supplies.**

Affordability:

**Being able to provide water to all types of communities (small/large water systems); consideration of different income levels (low-income, etc.)**

## 3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

Reliability:

**As climate conditions continue to evolve, the City has continued to uphold our standard to maintain our ability to meet the demands of the system. The City is constantly reviewing and improving our water system's performance through assessments, studies, and projects.**

Resilience:

**Ensuring that our water system can maintain operations in different scenarios by investing in back-up equipment and materials in case of any unplanned outages**

Financial Sustainability:

**With evolving climate conditions, operating costs and asset management costs are expected to increase as well. The City performs regular review of budgets to ensure that necessary improvements are made to be prepared for these changing climate conditions.**

Affordability:

**With extreme climate variability, water supplies during droughts may become more scarce or expensive which may lead to the need to increase water rates.**

#### 4. How would you describe the difference between reliability and resilience?

Reliability describes how a water system is able to continue to deliver water and resilience describes how a water system withstands challenges to maintain reliability.

## Climate Vulnerabilities Specific to your Jurisdiction

5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.

1: Extended drought

2: Other natural disasters (i.e. wildfires, floods, high winds)

3: Energy availability and reliability

4: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

5: Seasonal demands and/or peak service challenges

6: Limited access or lack of water storage

7: Operation and maintenance demands

8: Sea level rise

9: Workforce preparedness

10: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

11: Other

#### 6. How are these climate vulnerabilities different today than in the past?

Several of these climate vulnerabilities are becoming more extreme which increases unpredictability and has the potential to have larger impacts on operations and result in higher costs to address.

#### 7. What is the worst climate challenge you expect to encounter?

Earthquakes, Drought

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

50-74% of customers

**9a. Check all programs your agency offers to DAC communities.**

Bill assistance

## **Workshop Materials**



# Climate Adaptation Master Plan for Water

## Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** Municipal Water District of Orange County  
**Respondent's Name** Melissa Baum-Haley  
**Respondent's Title** Director of Issues & Policy  
**Email** mbaum-haley@mwdoc.com

## Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

**Water supply reliability measures water shortages caused by hydrology (e.g., droughts and extended dry periods); whereas system reliability measures water shortages caused by unplanned outages (e.g., seismic events or major system failures).**

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Resilience:

**The continuing ability of a local water agency to meet customer water demands when there are unplanned emergency outages of key water facilities (e.g., treatment plants, conveyance, and distribution pipelines), caused by seismic events, facility failures, or other catastrophic events (typically for the duration of weeks or months).**

---

Financial Sustainability:

**Balanced and predictable revenue and strong credit ratings under short and long-term variations in water sales.**

---

Affordability:

**As a wholesale agency, we promote and advocate for efficient and cost effective essential projects, programs, and operations to meet reliability and resiliency objectives.**

## 2. What should Metropolitan consider when defining these terms?

Reliability:

**Metropolitan's ability to meet member agency demands regardless of the frequency and intensity of hydrologic events through an adaptable supply portfolio that is complemented with structural water use efficiency, accessible surface and groundwater storage, and a flexible conveyance system that enables balanced delivery of Metropolitan's supplies throughout its service area.**

---

Resilience:

**Metropolitan's capacity to respond and recover quickly from emergencies and extreme hydrologic events by utilizing a diverse portfolio of water management strategies in conjunction with flexible storage and conveyance. Resiliency is a component of reliability.**

---

Financial Sustainability

**A Metropolitan business model that supports financial stability through balanced and predictable revenue and strong credit ratings under short and long-term variations in member agency water sales.**

---

Affordability:

**Metropolitan's efficient and effective delivery of essential projects, programs, and operations to meet reliability and resiliency objectives. Ensure Metropolitan's component of member agencies' customer water costs is economical.**

---

## 3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

Reliability:

**While our reliability goals may remain the same, climate change does impact our potential actions.**

---

Resilience:

**Climate change impacts our resiliency goals by needing additional planning and implementation elements to create a buffer to guard against the risk of having conditions beyond foreseeable conditions.**

---

Financial Sustainability:

**While our financial sustainability goals may remain the same, climate change does impact our potential actions.**

---

Affordability:

While our affordability goals may remain the same, climate change does impact the bandwidth of what it takes to be cost effective.

#### 4. How would you describe the difference between reliability and resilience?

Resiliency is a component of reliability. Reliability is having enough water supplies to meet water demands under different hydrologic conditions, measured in terms of frequency (probability of occurrence), duration (length of occurrence), and magnitude (size) of water shortages. Where as resiliency is the capacity to respond and recover quickly from emergencies and extreme hydrologic events by utilizing a diverse portfolio of water management strategies in conjunction with flexible storage and conveyance.

## Climate Vulnerabilities Specific to your Jurisdiction

5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.

1: Extended drought

2: Other natural disasters (i.e. wildfires, floods, high winds)

3: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

4: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

5: Limited access or lack of water storage

6: Seasonal demands and/or peak service challenges

7: Operation and maintenance demands

8: Sea level rise

9: Energy availability and reliability

10: Workforce preparedness

11: Other

#### 6. How are these climate vulnerabilities different today than in the past?

1. Climate change is already underway. The current 1.1 degrees C of global temperature rise (with the last decade being the warmest in over 125 years) has resulted in: glacial retreat and loss of summer arctic ice that is greater than anytime during the last 2,000 years; sea level rise that has been faster than any prior century for 3,000 years; and ocean acidification is that is at its highest level in last 26,000 years.

2. Climate impacts are more widespread and severe than expected. Every degree increase beyond the current 1.1 degrees C increase will result in significantly more droughts, extreme heat events, flooding, and wildfires; and significant loss of food-producing agriculture and ecosystem biodiversity.

3. Some climate impacts are so severe that they can never be adapted. Some areas around the global have reached a point where climate adaptation can no longer be implemented, resulting in permanent losses and damages.

4. Global greenhouse gas emissions will continue to climb. Global emissions will continue to climb

through 2030 before leveling off and then start to decrease if current world governments mitigation efforts are successful. As a result, between 2021 and 2050 there is a more than a 50 percent chance that global temperature rise will surpass 1.5 degrees C and a 25 percent chance that temperatures will rise past 3.5 degrees C.

5. Changes in precipitation and intensity will vary in North America. The findings indicate that there is a high confidence that total precipitation will increase for the northern half of North America, and medium confidence that it will decrease in parts of the western and south western United States. Further, a greater fraction of precipitation is expected to occur as "intense events" such as those caused by atmospheric rivers. Regional evidence of climate change can be seen in decreased snowpack in the Western United States. Snowpack is essentially free storage and in an average year it represents about 30 percent of the fresh water supply in California and Colorado River basin.

## 7. What is the worst climate challenge you expect to encounter?

The 2023 OC Water Reliability Study developed five plausible planning scenarios made up of combinations of uncertainties facing Southern California and Orange County. The most severe climate challenged scenarios included significant hot/dry climate future (with a change in temperature of 2.5 - 3.5 degrees C by 2050 and 5% - 10% decrease in precipitation by 2050), coupled with increased retail water demands, decreased local supply availability, along with increased stress on imported supplies.

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

1-24% of customers

**9a. Check all programs your agency offers to DAC communities.**

Direct install

DAC targeted rebates

## Workshop Materials





Tuesday, May 16, 2023

## Climate Adaptation Master Plan for Water

### Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** City of Anaheim  
**Respondent's Name** Philip Bogdanoff  
**Respondent's Title** Water Planning and Resources Manager  
**Email** pbogdanoff@anaheim.net

### Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

**Quality or Ability of a water system to maintain water supply, water quality, system pressure and system flow that all meet federal, state and local standards.**

---

Resilience:

**The capacity of a water system to respond or recover from outages, change in operations or changes in water supply. Resiliency is related to water infrastructure, operations and water supply.**

---

Financial Sustainability:

**Maintaining revenue at levels that allow a utility to achieve the desired Level of Service (i.e. maintaining reliability and resiliency goals).**

---

Affordability:

Maintaining water rates that are consistent with the desired Level of Service (Reliability, Resiliency and Sustainability). Affordability should be based on efficient operations and realistic projections. Additionally, affordability should be based on the needs of the system and the community.

## 2. What should Metropolitan consider when defining these terms?

Reliability:

**Water supply reliability in Southern California is highly dependent on precipitation and snow pack. Having the ability to capture available water supply and storing that water supply is critical to maintaining reliability.**

---

Resilience:

**Maintaining and expanding the flexibility of MWD's system to best utilize available water supplies.**

---

Financial Sustainability

**The needs and impacts of its Member Agencies and their customers, including DACs.**

---

Affordability:

**The needs and impacts of its Member Agencies and their customers, including DACs..**

---

## 3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

Reliability:

**Climate conditions are evolving and are uncertain. Sound decisions based on a range of possible outcomes (similar to most recent IRP process) should be considered. All terms included here should include enough flexibility to respond to ever evolving climate conditions. Where possible, focus efforts on multi-benefit projects that result in gains in all these areas.**

---

Resilience:

**As stated, climate conditions are evolving and are uncertain. Sound decisions based on a range of possible outcomes (similar to most recent IRP process) should be considered. All terms included here should include enough flexibility to respond to ever evolving climate conditions. Where possible, focus efforts on multi-benefit projects that results in gains in all these areas.**

---

Financial Sustainability:

**Similar to those responses above, climate conditions are evolving and are uncertain. Financial Sustainability should include provisions for long term planning that avoid large or unexpected increases in rates due to unforeseen changes**

---

Affordability:

**Similar to those responses above, climate conditions are evolving and are uncertain. Projected water rates should not be overly conservative. Should include provisions for long term planning that avoid large or unexpected increases in rates due to unforeseen changes.**

---

#### 4. How would you describe the difference between reliability and resilience?

In basic terms, reliability is a measure of how likely a system will experience a failure and resiliency is a measure for how quickly or efficiently a water system responds to an outage.

## Climate Vulnerabilities Specific to your Jurisdiction

**5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.**

1: Extended drought

2: Other natural disasters (i.e. wildfires, floods, high winds)

3: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

4: Seasonal demands and/or peak service challenges

5: Limited access or lack of water storage

6: Operation and maintenance demands

7: Energy availability and reliability

8: Sea level rise

9: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

10: Workforce preparedness

11: Other

#### 6. How are these climate vulnerabilities different today than in the past?

As stated above, climate conditions are evolving and are uncertain. Sound decisions based on a range of possible outcomes (similar to most recent IRP process) should be considered. Future planning should be flexible enough to respond to evolving climate vulnerabilities.

#### 7. What is the worst climate challenge you expect to encounter?

This question is somewhat vague and difficult to answer. Are “climate challenges” different than “climate vulnerabilities”? Are we to assume “worst” to mean most impactful? As stated above, climate conditions are evolving and future challenges are uncertain.

## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

25-49% of customers

**9a. Check all programs your agency offers to DAC communities.**

Bill assistance

Direct install

Discounted rates

DAC targeted rebates

## Workshop Materials



Monday, May 22, 2023

## Climate Adaptation Master Plan for Water

### Member Agency Questionnaire: Terminology and Interests

In preparation for the Metropolitan Board of Directors Workshop on May 23rd, please submit your thoughts on the following questions. We request one response per member agency if possible. We would appreciate your responses by May 15th to inform Workshop preparation. Thank you!

**Agency** Pasadena Water and Power  
**Respondent's Name** Stacie Takeguchi  
**Respondent's Title** Assistant General Manager  
**Email** stakeguchi@cityofpasadena.net

### Terminology: Reliability, Resilience, Financial Sustainability, Affordability

1. Does your agency regularly use these terms? If so, how are they defined, and how are they applied in your service area?

Reliability:

These terms are generally applied in the Pasadena Water and Power service area as follows: Continue to provide and deliver clean water to meet current and future demands throughout a range of planning scenarios, and a set amount of time after an unplanned emergency o Components and examples of reliability for Pasadena include: □ Supporting a prosperous future, quality of life,

Resilience:

**A component of reliability. Minimize impacts to customers during emergencies. This includes developing local sources of supply and storage, and developing redundant distribution pathways and backup power to ensure water is available during emergencies. Recover to serve water to customers after a disruption**

---

Financial Sustainability:

**Rates that recover costs and support capital improvements for continued water reliability into the future without excessive debt ratio. Maintain appropriate levels of financial reserves.**

---

Affordability:

**Providing reliable water service cost-effectively o Pasadena is one of the founding members of Metropolitan, as regionally pooled resources for economies of scale provides for affordability not achievable by a single agency o Steadily maintain and invest in capital improvements and respective rate increases to avoid sudden massive rate hikes**

---

2. What should Metropolitan consider when defining these terms?

Reliability:

o Aligned with Metropolitan's core mission: to provide its service area with adequate supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way  
o Other considerations/components include □ Regional

Resilience:

A component of reliability  
o Partnerships are key  
o Adaptive planning/management, water system, and operations  
o In-region storage

---

Financial Sustainability

o Sufficient revenues for adequate cost recovery and investments (ability to pay for water reliability): consistent/steady recovery of fixed costs, availability of supplies to sell  
o Programs to increase sales during low demands (e.g., local storage programs), and decrease demands when costs to purchase additional supplies (e.g., transfers) are high  
o Maintain investments in water system (not hit with deferred costs at one time)  
o Maintain credit worthiness and adequate financial reserves  
o Cost-effectiveness

---

Affordability:

o Can't afford not to have water  
o Economies of scale and cost sharing □ The genesis of Metropolitan's creation □ "Establishment of overlapping and paralleling governmental authorities and water distribution facilities to service Southern California areas would place a wasteful and unnecessary financial burden upon all of the people of California, and particularly the residents of Southern California" –Laguna Declaration  
o Cost-effectiveness (not just total cost) for water reliability □ Example: CRA and DVL were large overall capital investments, and proved critical for regional water reliability □ Even if an agency "rolls off" of Metropolitan, the scale and ability of Metropolitan to deliver supplemental supplies when needed for seamless reliability provides significant cost-savings and diminishes economic impacts of not being able to deliver clean water • Examples: local project goes offline, contaminated local sources □ Regional benefits  
o It's less affordable for agencies that consistently purchase Metropolitan supplies when fixed costs are primarily recovered by the variable rate □ This then drives agencies to shift to peaking on Metropolitan, which in turn further increases the variable rate and decreases affordability

---

3. How do evolving climate conditions impact your understanding, use, or prioritization of these terms?

Reliability:

Generally for all terms: Evolving climate conditions are one of the many challenges (including economic changes, new/increasing regulatory restrictions, being limited to basic apportionment/decreased water rights, aging infrastructure, etc.) incorporated as part of an adaptive planning process/approach (both on a regional and local

#### 4. How would you describe the difference between reliability and resilience?

Resilience is a component of reliability.

## Climate Vulnerabilities Specific to your Jurisdiction

5a. Please rank the climate vulnerabilities to your local water supply, with 1 being your top concern and 10 being your lowest concern.

1: Extended drought

2: Other natural disasters (i.e. wildfires, floods, high winds)

3: Water quality management (i.e. runoff, treatment, violations, saltwater intrusion, source water, turbidity, and algal blooms)

4: Seasonal demands and/or peak service challenges

5: Limited access or lack of water storage

6: Operation and maintenance demands

7: Energy availability and reliability

8: Sea level rise

9: Ecosystems (i.e. coastal erosion, wetland loss, endangered species)

10: Workforce preparedness

11: Other

#### 6. How are these climate vulnerabilities different today than in the past?

More extreme, requiring systems and storage to manage these extremes

#### 7. What is the worst climate challenge you expect to encounter?

- Losing the Delta (SWP system) should the Delta Conveyance Project not move forward (this magnitude of water cannot be sustainably recovered by smaller projects)
- Continued "mega-drought" on the Colorado River
- Decreased overall groundwater recharge (if not able to adequately capture wet conditions)
- Decreased power reliability



## Community Programs

**8. Disadvantaged Community (DAC), defined in Water Code 79505.5 (as a community with an annual median household income that is less than 80% of the statewide median household income), are typically more vulnerable to the effects of climate extremes. What percentage of DAC make up your service area?**

1-24% of customers

**9a. Check all programs your agency offers to DAC communities.**

Bill assistance

Direct install

DAC targeted rebates

Community benefits programs

**9b. (optional) Please describe "other" programs for low-income qualified customers.**

• Medical Assistance Program - Residential electric customers with qualifying electric powered medical equipment can receive \$10 monthly bill credit • Payment Arrangements • Bill Credits for water leak assistance program • EUAP, CARES, CARES, LIHWAP, LIHEAP • \*\*Water & Energy Direct Installation Program (WeDIP); Energy Savings Assistance Program (SoCalGas Direct Install Program. Partnership w/PWP) • \*\*\* Bonus incentives for EV rebates and chargers;

## Workshop Materials

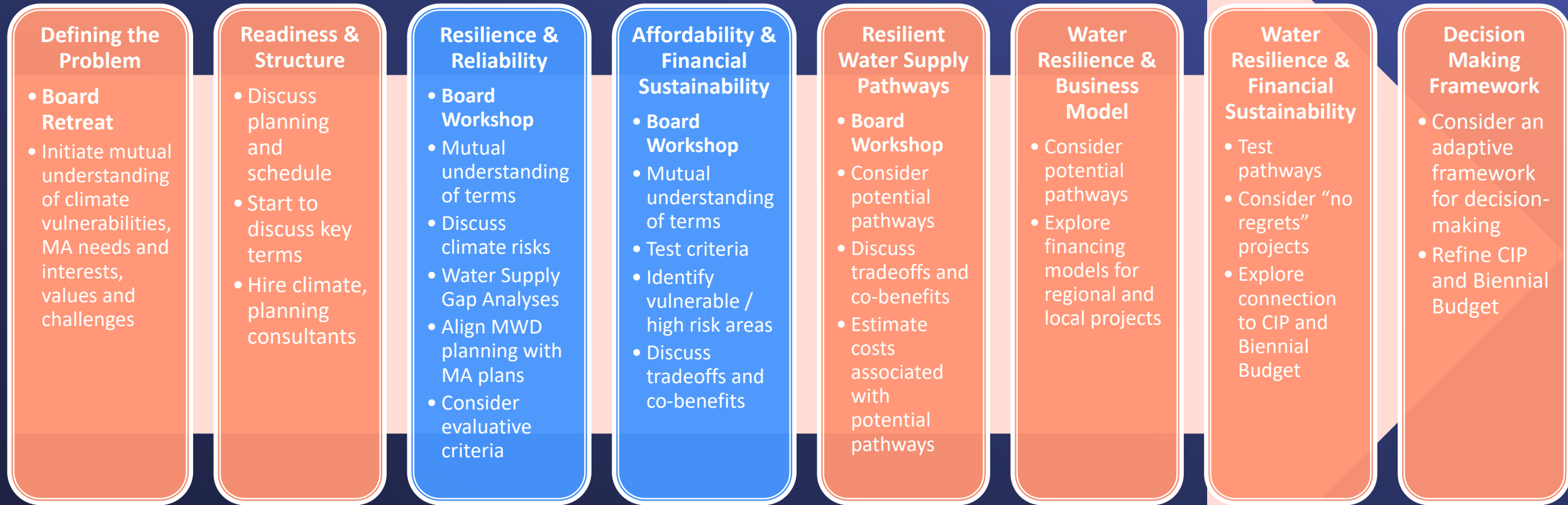


Board of Directors Workshop Long-Term Regional  
Planning Processes and Business Modeling

# Climate Adaptation Master Plan for Water: Terminology and Interests

Item 5a  
May 23, 2023

# Potential Climate Adaptation Master Planning Process



Member Agency and Public Engagement

# Today's Discussion: Terminology & Interests

Reliability

Resilience

Affordability

Financial Sustainability

- How does Metropolitan define these terms now?
- How are they used in practice?
- How do evolving climate conditions impact our understanding of these terms?

## Reliability & Resilience

- (Supply) Reliability  
*Always meet water demands*
- (System) Resilience  
*Withstand & recover from  
disruptions*

Working Definition

# How Metropolitan defines...

Supply Reliability denotes the importance of developing a diversified portfolio of projects/programs to meet projected water demands

## Reliability

Source: Integrated Resources Plan

### Early goal

- Avoid shortages for firm demand in all but the most severe drought (1 in 50 years)

### Later goal (with buffer)

- Full capability to meet all retail-level water demands under all foreseeable hydrologic events (100% reliability)
- Through integrating imported and local water resources

### Future goal (expanded “foreseeable”)

- Full capability to meet all retail-level water demands under all foreseeable hydrologic events (test through scenarios)

# Reliability in Practice

Source: Integrated Resources Plan

Working Definition

## How Metropolitan defines...



Water Use Efficiency



Local Supply



Imported Supply



Water Storage

# Combination of actions by both retail and wholesale water providers

Working Definition

Reliability  
(Supply)  
&  
Resilience  
(System)





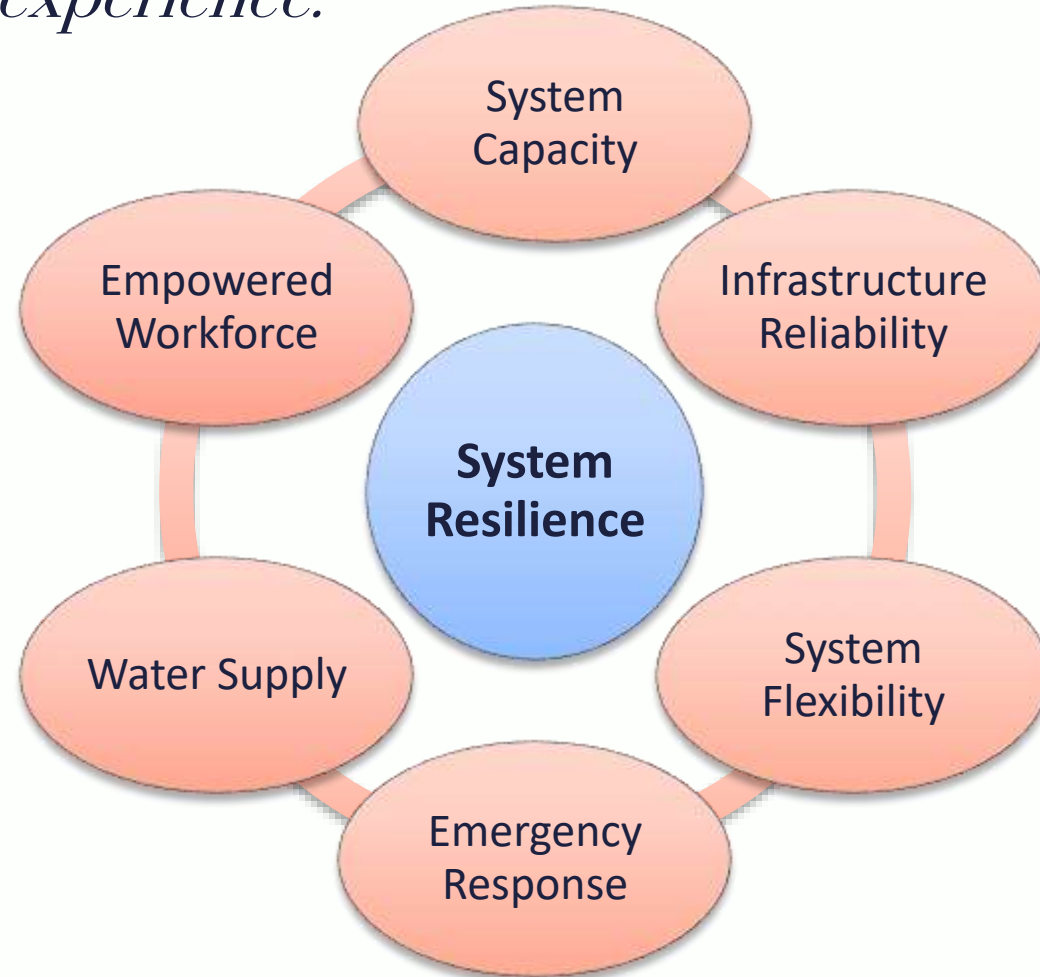
# How Metropolitan defines...

Working Definition

Most efforts to address resilience have focused on system reliability and seismic resilience

# Resilience

*The capacity to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.*



# Resilience in Practice

Working Definition

How  
Metropolitan  
defines...



## Financial Sustainability & Affordability

- (Enterprise) Financial Sustainability  
Revenues sufficient to cover expenses over the short- and long- term
- (Customer) Affordability  
Relative cost burden and elastic ability to access (pay for) service

# Financial Sustainability

Working Definition

How  
Metropolitan  
defines...

- Enterprise-wide assessment of Metropolitan's financial health
- Revenues sufficient to cover expenses over the short- and long-term
  - Maintain adequate monetary reserves to withstand unforeseen expenditures and revenue declines due to variations in economic and hydrologic conditions
  - Ensure business model remains viable into the future

# Financial Sustainability in Practice

Working Definition

How  
Metropolitan  
defines...

- Remaining cost competitive
  - Efficient use of resources
  - Cost-containment strategies
- Maintain creditworthiness for access to capital markets / debt financing
  - Operational liquidity
  - Reserve sufficiency and sustainability
  - Debt Coverage Ratios
  - Net position / debt capacity

# Financial Sustainability in Practice

Working Definition

How  
Metropolitan  
defines...

- Long-term planning...
  - Invest to maintain our targeted water supplies
  - Fund replenishments and refurbishments of core system
  - Maintain highly skilled workforce
  - Forecast impact on projected average rates
- ...Incorporating climate change
  - Rating agencies are developing more robust models to assess the risk exposure of climate change on their portfolio of credits
  - Increased uncertainty and variability due to climate change requires Metropolitan to update its projected financial outlook

# Affordability

Working Definition

How  
Metropolitan  
defines...

- Economy of scale concept
  - Met was created to deliver regional projects (CRA/SWP) more affordably for Member Agencies
- Relative cost concept
  - Comparative Cost – to other source of water (\$/AF)
  - Cost Value – ROI as a metric may help assess cost value and scalability of a project or program (can include multiple benefits)
  - Lifecycle Cost – What is the value over the long-term? O&M in addition to upfront capital costs

# Affordability in Practice

Member Agency Perspective

## Affordability Is Complex

It has different implications for  
Metropolitan vs. Wholesale  
Member Agencies and Retail  
Member Agencies

- Member Agencies have distinct profiles of financial capacity
  - Large and small
  - Growing and established
  - Different levels of financial capacity
  - Different levels of rate capacity
  - Varying levels of reliance on Metropolitan supplies
- Retail customer capacity to pay (income as a measure of capacity to pay)
  - Disposable income
  - Household vs. per capita income
  - Research on metrics and overlapping rate burden

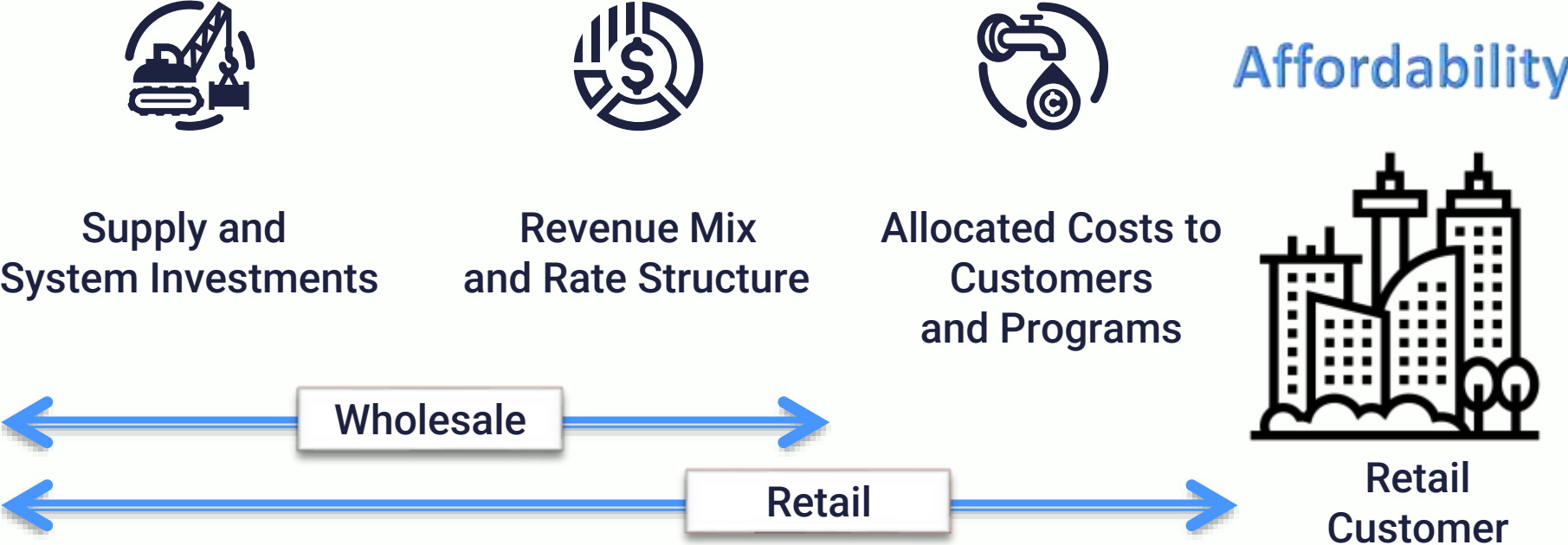


# Retail customer ability to access water service is based on their overlapping rate burden and capacity to pay

System Perspective

## Affordability Is Local

As a wholesaler, Metropolitan doesn't control how its Member Agencies pass on Metropolitan's costs to its member agencies and/or their customers





# Workshop Agenda

## Climate Adaptation Master Plan for Water Terminology, Interests, Guiding Principles

<b>Time</b>	<b>Topic / Format</b>	<b>Presenter/s</b>
<b>2:00</b>	Call to Order; Welcome Public Comment	Chair Richard Atwater
<b>2:10</b>	Meeting Agenda Overview, Introductions with Lightning Roundtable Question, Guides for Productive Meetings	Joan Isaacson
<b>2:30</b>	Metropolitan Staff Presentation on Terminology and Interests	Liz Crosson, Brad Coffey, Sam Smalls
<b>2:45</b>	Member Agency Roundtable on Terminology and Interests	Shivaji Deshmukh, IEUA Sandy Kerl, SDCWA Dave Pedersen, LVMWD Alex Rojas, Central Basin MWD Stacie Takeguchi, Pasadena Water & Power
<b>3:05</b>	Board Input and Discussion on Key Elements for Metropolitan – Reliability, Resilience, Financial Sustainability, and Affordability	Joan Isaacson, Facilitator
<b>3:40</b>	Small Group Discussions on Ideas for Guiding Principles (5 groups in room; 1 on zoom)	Joan Isaacson Met Staff CAMP Planning Team
<b>4:40</b>	Post slides from each brainstorm group; clarifications; reflections	Met Staff CAMP Planning Team Board Directors
<b>4:55</b>	Discussion of Next Steps	Joan Isaacson & Kit Batten
<b>5:00</b>	Adjourn	Chair Richard Atwater

# Lightning Roundtable

What is one of the top water-related priorities that your agency/city is addressing this month?

# Guides for Productive Meetings

# Guides for Productive Meetings

- Participate, and support the participation of all Directors.
- Keep input and discussions concise and focused.
- Share interests, explanations, needs, and ideas; avoid focusing on positions and opinions.
- Seek ideas and solutions that address multiple needs and achieve multiple benefits.
- Expand relationships, knowledge, and trust within the Board.
- Enjoy working together to drive important and significant change.

Terminology and  
Interests for  
Climate Adaptation  
Master Plan

# Member Agency Questionnaire Input



# Member Agency Questionnaire: Terminology and Interests

- 19 out of 26 Member Agencies so far
- Most responses available in Board Packet
- Climate Adaptation Advisor will produce summary report before the next workshop
- Top four climate vulnerabilities identified:
  - Extended Drought
  - Limited Water Storage
  - Sea Level Rise
  - Water Quality

Questionnaire Responses

# Reliability: How do Agencies Define the Term?

Dependable, Uninterrupted Service Under all Conditions with no unplanned interruptions

High quality, clean water that meets federal, state, local standards

Emphasis on external factors beyond an agency's immediate control

Includes supply, operations, infrastructure, water quality, system pressure

Supply to meet 1 year of demands

Current System

Questionnaire Responses

# Resilience: How do Agencies Define the Term?

Having the ability and flexibility to quickly resolve short- and long-term problems due to drought, earthquake, climate change, etc.

Includes outages, changes in operations, and changes in water supply

Emphasis on internal factors within an agency's immediate control

Preparedness for catastrophic and unprecedented events

Adaptability without significant impacts to reliability, affordability, and financial stability

Proactive measures and strategies to withstand and bounce back

Questionnaire Responses

# Financial Sustainability: How do Agencies Define the Term?

Ability to collect revenues to cover our expenses while exercising prudent fiscal management, ensuring ratepayer equity, and maintaining ratepayer engagement and support

Fiscal responsibility with respect to long-term planning with near-term decisions

Maximize cost-effective water resources and maintain efficient and safe operations

Maintaining revenue at levels that allow a desired level of service

Ability to accumulate sufficient cash reserves for emergencies

Term “Financial Stewardship” is also used

Questionnaire Responses

# Affordability: How do Agencies Define the Term?

## Ability of customers to pay their water bills

All water service costs (commodity rates, fixed charges such as property taxes, service charges, etc.), and historical contributions must be considered and be equitably applied to avoid the shifting of both costs and risk onto the customer

Customer: not having to choose one basic need over another

Agency: customer pays the cost without needing subsidies

Equitable costs based on return on investment

Affordability should be based on efficient operations and realistic projections, and needs of system and community

Affordability is what is politically tolerable and will affect what degree of reliability, resilience and sustainability can be achieved

Member  
Agency  
Roundtable:  
Terminology  
& Interests

Shivaji Deshmukh, IEUA

Sandy Kerl, SDCWA

Dave Pedersen, LVMWD

Alex Rojas, Central Basin MWD

Stacie Takeguchi, Pasadena Water & Power

Board Input on Key Elements  
for Met – Reliability,  
Resilience, Financial  
Sustainability, Affordability

What are key elements for Met  
regarding. . .

Reliability



What are key elements for Met  
regarding. . .

Resilience

What are key elements for Met  
regarding. . .

# Financial Sustainability

What are key elements for Met  
regarding. . .

Affordability

# Small Group Discussions: Ideas for Guiding Principles

# Definition: Guiding Principles

*Guiding Principles* are high-level and actionable statements of what the Board wants the CAMP to accomplish. They ensure that important needs, priorities, and conditions are being considered and balanced.

CAMP Guiding Principles will

- Inform and drive planning components (i.e. evaluative criteria, project portfolios)
- Steer decision-making during the planning process
- Provide scaffolding to discussions on Reliability, Resilience, Financial Sustainability, & Affordability

Small Group Discussions

Reliability

Resilience

Financial  
Sustainability

Affordability

For each term (10 minutes on each):

What are the primary needs and opportunities that the guiding principles should address?

Based on answers to the first question, what are your ideas for guiding principles?

# CAMP4W Requires Actionable Guiding Principles – a few examples:

## Potential Actionable Guiding Principles

Promote water efficiency programs as a key component of achieving reliability

Continue investment and/or partnership in member agency projects as critical to building resilience

Maintain sufficient reserves for liquidity and resilience to rapidly declining revenues and/or increasing costs

Explore options in rates and/or program funding to address access and affordability concerns for certain retail customer segments

# Report Back: Ideas for Guiding Principles



# Wrap Up and Next Steps

# Next Steps

- **Prepare for next workshop: Tuesday, June 27th**
- Synthesize today's input and return to Board with initial set of Draft Guiding Principles for feedback and fine-tuning
- Use today's input to develop initial framework of evaluative criteria for Board feedback and fine-tuning
- Produce summary report of Member Agency feedback on terminology and interests
- Debrief and solicit additional Member Agency input for June workshop including input on aligning Member Agency planning process with CAMP

# Definition: Evaluative Criteria

- Throughout this process, Metropolitan and Member Agencies will identify potential pathways and investments needed to increase reliability and resilience.
- Evaluative criteria will help score, weight, and rank pathways to facilitate the objective analysis of alternatives to understand tradeoffs and opportunities to provide multiple benefits.
- The development of evaluative criteria will be iterative and will be based on working understandings of priorities and guiding principles.