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.

FAIRP Committee
T. Smith, Chair
L. Dick, Vice Chair
D. Alvarez
J. Armstrong
A. Chacon
D. De Jesus
B. Dennstedt
L. Fong-Sakai
C. Miller
M. Petersen
B. Pressman
T. Quinn
K. Seckel

Finance, Audit, Insurance, and Real Property Committee

Meeting with Board of Directors *

October 10, 2023

10:30 a.m.

Tuesday, October 10, 2023 Meeting Schedule

08:30 a.m. L&C
10:30 a.m. FAIRP
12:30 p.m. Break
01:00 p.m. BOD
02:30 p.m. Bay-Delta

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 on matters within their jurisdiction as listed on the agenda via in-person or teleconference. To participate via teleconference 1-833-548-0276 and enter meeting ID: 815 2066 4276 or click https://us06web.zoom.us/j/81520664276pwd=a1RTQWh6V3h3ckFhNmdsUWpKR1c2Zz09

MWD Headquarters Building • 700 N. Alameda Street • Los Angeles, CA 90012
Teleconference Locations:
525 Via La Selva • Redondo Beach, CA 90277
3008 W. 82nd Place • Inglewood, CA 90305

* The Metropolitan Water District's meeting of this Committee is noticed as a joint committee meeting with the Board of Directors for the purpose of compliance with the Brown Act. Members of the Board who are not assigned to this Committee may participate as members of the Board, whether or not a quorum of the Board is present. In order to preserve the function of the committee as advisory to the Board, members of the Board who are not assigned to this Committee will not vote on matters before this Committee.

1. Opportunity for members of the public to address the committee on matters within the committee's jurisdiction (As required by Gov. Code Section 54954.3(a))

**** CONSENT CALENDAR ITEMS -- ACTION ****

2. CONSENT CALENDAR OTHER ITEMS - ACTION

A. Approval of the Minutes of the Finance, Audit, Insurance, and Real Property Committee Meeting for September 12, 2023 (Copies have been submitted to each Director, any additions, corrections, or omissions) **21-2505**

Attachments: 10102023 FAIRP 2A (09122023) Minutes

3. CONSENT CALENDAR ITEMS - ACTION

NONE

**** END OF CONSENT CALENDAR ITEMS ****

4. OTHER BOARD ITEMS - ACTION

NONE

5. BOARD INFORMATION ITEMS

9-2 Compliance with Fund Requirements and Bond Indenture Provisions **21-2696**

Attachments: 10102023 FAIRP 9-2 B-L

6. COMMITTEE ITEMS

a. Pure Water Southern California Cost Recovery Alternatives **21-2697**

Attachments: 10102023 FAIRP 6a PWSC Report
10102023 FAIRP 6a Presentation

b. Review Draft 2023 Long-Range Finance Plan Needs Assessment **21-2698**

Attachments: 10102023 FAIRP 6b Presentation

7. MANAGEMENT ANNOUNCEMENTS AND HIGHLIGHTS

a. General Auditor's report on monthly activities **21-2506**

b. Financial, Insurance, and Real Property activities **21-2716**

8. SUBCOMMITTEE REPORTS AND DISCUSSION

a. Discuss and provide direction to Subcommittee on Audits **21-2736**

b. Report from Subcommittee on Long-Term Regional Planning Processes and Business Modeling **21-2699**

c. Discuss and provide direction to Subcommittee on Long-Term Regional Planning Processes and Business Modeling **21-2700**

9. FOLLOW-UP ITEMS

NONE

10. FUTURE AGENDA ITEMS

11. ADJOURNMENT

NOTE: This committee reviews items and makes a recommendation for final action to the full Board of Directors. Final action will be taken by the Board of Directors. Committee agendas may be obtained on Metropolitan's Web site https://mwdh2o.legistar.com/Calendar.aspx. This committee will not take any final action that is binding on the Board, even when a quorum of the Board is present.

Writings relating to open session agenda items distributed to Directors less than 72 hours prior to a regular meeting are available for public inspection at Metropolitan's Headquarters Building and on Metropolitan's Web site https://mwdh2o.legistar.com/Calendar.aspx.

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.

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

MINUTES

FINANCE, AUDIT, INSURANCE, AND REAL PROPERTY COMMITTEE

September 12, 2023

Chair Smith called the meeting to order at 10:31 a.m.

Members present: Directors Alvarez, Armstrong, De Jesus, Dennstedt, Dick, Fong-Sakai, Miller, Pressman, Seckel, and Smith.

Members absent: Directors Chacon, Petersen, and Quinn.

Other Members present: Abdo, Ackerman, Bryant, Camacho, Cordero, Erdman, Faessel, Garza, Goldberg (AB 2449), Kurtz, Lefevre, McCoy, McMillan, Ortega, and Peterson.

Director Goldberg indicated she is participating under AB 2449 "just cause" due to testing positive for COVID-19. Director Goldberg appeared by audio and on camera.

Committee Staff present: Beatty, Benson, Chapman, Hagekhalil, Kasaine, Ros, and Suzuki.

1. OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE COMMITTEE ON MATTERS WITHIN THE COMMITTEE'S JURISDICTION

Darcy Burke, Lake Elsinore Municipal Water District commented on item 7-6.
Mark Gold, Natural Resources Defense Council commented on item 7-6 and 6b.
Caty Wagner, Sierra Club California commented on item 6b.
Doug Obegi, Natural Resources Defense Council commented on 6b.g

CONSENT CALENDAR ITEMS — ACTION

2. CONSENT CALENDAR OTHER ITEMS-ACTION

A. Subject: Approval of the Minutes of the Finance, Audit, Insurance, and Real Property Committee Meeting for August 15, 2023 (Copies have been submitted to each Director, Any additions, corrections, or omissions)

3. CONSENT CALENDAR ITEMS – ACTION

Director Dick recused himself on item 7-5 as he owns Cushman & Wakefield stock.

7-5	Subject:	Authorize the General Manager to execute a second amendment to extend the office lease located in Washington D.C. an additional ninety months with an option to extend another thirty-six months; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA
	Motion:	Authorize the General Manager to execute a second amendment to extend the office lease located in Washington D.C. an additional ninety months with an option to extend another thirty-six months.
	Presented by:	No presentation was requested.

The following Directors provided comments or asked questions:

1. Peterson

Staff responded to the Directors' comments and questions.

7-6	Subject:	Approve use of Representative Concentration Pathway 8.5 for planning purposes in the Climate Adaptation Master Plan for Water: the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA
	Motion:	Approve use of Representative Concentration Pathway 8.5 for planning purposes in the Climate Adaptation Master Plan for Water
	Presented by:	Elizabeth Crosson, Chief Sustainability, Resiliency, and Innovation Officer

Ms. Crosson presented the committee with an overview of the purpose of using RCP 8.5 in the Climate Adaptation Master Plan for Water. Her presentation included the four IRP assessment scenarios, climate impacts, planning versus implementation and proposed action.

The following Directors provided comments or asked questions:

1. Seckel
2. Armstrong
3. Smith
4. Ortega
5. Pressman
6. Dennstedt
7. Miller
8. Cordero

Staff responded to the Directors' comments and questions.

After completion of the presentation, Director De Jesus made a motion, seconded by Director Pressman, to approve item 2A, 7-5, and 7-6.

The vote was:

Ayes:	Directors Alvarez, Armstrong, De Jesus**,** Dennstedt, Dick, Fong-Sakai, Miller, Pressman, Seckel, and Smith.
Noes:	None
Abstentions:	None
Not Voting:	Director Dick (item 7-5)
Absent:	Directors Chacon, Petersen and Quinn.

The motion for item 2A and 7-6 passed by a vote of 10 ayes, 0 noes, 0 abstain, and 3 absent.

The motion for item 7-5 passed by a vote of 9 ayes, 0 noes, 0 abstain, 1 not voting, and 3 absent.

END OF CONSENT CALENDAR ITEMS

4. OTHER BOARD ITEMS – ACTION

8-4 Subject: Authorize three new agricultural lease agreements with Joey DeConinck Farms, Nish Noroian Farms, and Red River Farms, thereby allowing these existing lessees to continue farming on Metropolitan's fee-owned properties in the Palo Verde Valley; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA [Conference with real property negotiators: properties are approximately 2,815 gross acres of land north of Interstate 10 in and near Blythe, California in the county of Riverside: Assessor Parcel Nos. 830-210-009; 830-210-010; 833-230-001; 833-230-002; 833-280-002; 833-210-013; 833-060-004; 833-060-008; 833-060-018; 833-100-005;833-100-007; 833-100-011; 833-100-012 ; 833-100-016; 833-100-017; 833-060-001; 833-060-024; 833-060-025; 827-190-003; 827-190-004; 827-190-005; 827-190-006; 824-190-007; 827-190-009; 827-190-010; 827-190-012; 833-060-026; 815-302-008; 815-310-013; 815-320-007; 827-080-029; 833-030-012; 833-050-014; agency negotiators Anna Olvera and Kevin Webb; negotiating parties: Joseph Deconinck dba Joey DeConinck Farms; Nisha Noroian dba Noroian Farms; Michael Mullion dba Red River Farms; under negotiation: price and terms; to be heard in closed session pursuant to Government Code Section 54956.8]

Motion: No reportable action was taken.

Presented by: Anna Olvera, Pr Real Estate Representative

Ms. Olvera presented the committee with an overview of the new lease agreements in Palo Verde Valley. Her presentation included service area, Palo Verde fee-owned lands, subject leases, lease history and objectives.

The following Directors provided comments or asked questions:

1. Seckel
2. Cordero

Staff responded to the Directors' comments and questions.

In closed session, the committee heard the item. No reportable action was taken.

5. BOARD INFORMATION ITEMS

None

6. COMMITTEE ITEMS

a. Subject: Mid-Cycle Budget Review

Presented by: Khanh Phan, Unit Manager- Rates, Charges & Financial Planning

Ms. Kasaine introduced the item and Ms. Phan presented the committee with an overview of the biennial budget for fiscal year (FY) 2022/23 and 2023/24. Her presentation included water transactions, FY actuals versus budget, grant funding, storage projection, outlook and challenges, and next steps.

The following Directors provided comments or asked questions:

1. Smith
2. De Jesus
3. Dennstedt

Staff responded to the Directors' comments and questions.

b. Subject: Review Draft 2023 Long-Range Finance Plan Needs Assessment

Presented by: No presentation was given.

Item 6b was deferred.

Chair Smith acknowledged Natural Resources Defense Council's letter dated September 5, 2023 and San Diego County Water Authority's letter dated September 11, 2023. Both letters commented on item 6b.

7. MANAGEMENT REPORTS

a. Subject: Chief Financial Officer's report

Ms. Kasaine announced to the committee that the submitted letters will receive responses from Metropolitan prior to the October Finance, Audit, Insurance, and Real Property committee meeting.

b. Subject: General Auditor's Report

Mr. Suzuki updated the committee on the General Auditor's activity through October 31, 2023. His update included two new projects in planning, ten projects in process, six projects in reporting phase, and 25 other projects that are on the current year Audit business plan.

8. SUBCOMMITTEE REPORTS AND DISCUSSION

a. Subject: Report from Subcommittee on Audits

Presented by: Director De Jesus

Director De Jesus provided an overview of the items discussed at the Subcommittee on Audits on August 22, 2023

b. Subject: Discuss and provide direction to Subcommittee on Audits

No direction was given.

c. Subject: Report from Subcommittee on Long-Term Regional Planning Processes and Business Modeling

Presented by: Director Seckel

Director Seckel provided an overview of the items discussed at the Subcommittee on Long-Term Regional Planning Processes and Business Modeling on August 22, 2023

d. Subject: Discuss and provide direction to Subcommittee on Long-Term Regional Planning Processes and Business Modeling

The following Directors provided comments or asked questions:

1. Smith
2. Seckel

Staff responded to the Directors' comments and questions.

The following direction was provided to the Subcommittee:

1. Revisit fifty percent rebound on conservation in terms of what was established in the IRP.
2. Discuss possible actions on potentially saving 300 TAF from conservation measures and non-functional turf.
3. Review the locations of supply needs .
4. Discuss which scenario will be used in the Climate Adaptation Master Plan for Water.

9. FOLLOW-UP ITEMS

None

10. FUTURE AGENDA ITEMS

None

11. ADJOURNMENT

The next meeting will be held on October 10, 2023.

The meeting adjourned at 12:54 p.m.

Timothy Smith
Chair

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

INFORMATION

- **Board of Directors**
  Finance, Audit, Insurance, and Real Property Committee

10/10/2023 Board Meeting

9-2

Subject

Compliance with Fund Requirements and Bond Indenture Provisions

Executive Summary

Pursuant to the annual reporting requirement contained in Section 5204 of the Metropolitan Water District Administrative Code, entitled "Compliance with Fund Requirements and Bond Indenture Provisions," the Chief Executive Officer has determined that during Fiscal Year 2022/23, Metropolitan was in compliance with the minimum fund requirements outlined in Division V, Chapter 2, Sections 5201 and 5202 of the Administrative Code, and the provisions of the articles and covenants contained in resolutions for all outstanding Metropolitan bond issues.

Based upon information furnished by the General Manager and the Auditor's Department, the General Counsel concurs with this determination. A checklist certifying compliance with all applicable provisions is included in **Attachment 1**.

Katano Kasaine — 9/25/2023

Katano Kasaine
Assistant General Manager/
Chief Financial Officer
Date

9/27/2023

Adel Hagekhalil
General Manager
Date

Attachment 1 – Checklist for Compliance with Bonded Debt and Commercial Paper Requirements, Fiscal Year 2022/23

Ref# cfo12692147

CHECKLIST FOR COMPLIANCE WITH

BONDED DEBT AND COMMERCIAL PAPER REQUIREMENTS

Fiscal Year 2022/2023

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MWD ACT

Item	Action	Responsible	Completion Date	Initials
MWD Act				
PART 4 – POWERS AND PURPOSES				
Chapter 1 – Powers Generally				
Aggregate indebtedness (Pt. 4, Chap. 1, Sec. 123)	Aggregate indebtedness shall not exceed 15% of assessed valuation of all taxable property within Metropolitan.	Controller	06/30/2023	
PART 5 – BONDS AND OTHER EVIDENCES OF INDEBTEDNESS				
Chapter 1 – Bonds Requiring Approval of Voters				
Use of Bond Proceeds and Interest as Construction Cost (Pt. 5, Chap. 1, Art. 3, Sec. 228)	The proceeds of the bonds, except for premium and accrued interest, shall be placed in the Treasury of Metropolitan.	Treasury and Debt Manager	06/30/2023	SS
	These proceeds shall be exclusively applied to the purposes and objects mentioned in the bond ordinance, except as otherwise provided in this section. Premium and accrued interest shall be applied to bond interest payments and bond retirement.	Controller	06/30/2023	

MWD ACT

Item	Action	Responsible	Completion Date	Initials
Chapter 1.6 – Revenue Bonds				
Revenues to Pay Certain Costs (Pt. 5, Chap. 1.6, Sec. 238)	The board shall fix the rate or rates at which water shall be sold pursuant to Chapter 2 (commencing with Section 130) of Part 4 which, with reasonable allowances for contingencies and error in the estimates, shall be at least sufficient, together with any other revenues not derived from the levy of taxes, to provide revenues to pay the following amounts in the order set forth: 1. The necessary expenditures for operating and maintaining the properties, works, and facilities of Metropolitan, and also for such charges as may be payable by Metropolitan under a contract with this state for water which are classified as operation, maintenance, power, and replacement charges. 2. The principal and interest of the revenue bonds as the same become due and payable, including any sinking fund payments for term bonds, if any. 3. The deposits into any reserve funds that may be established to secure the revenue bonds. 4. Any other obligations which are liens or encumbrances upon the water revenues.	Revenue and Budget Manager	06/30/2023	A.V.

MWD ACT

Item	Action	Responsible	Completion Date	Initials
PART 6 – TAXES				
Chapter 1 – General Procedure				
Tax Levies - Determination of Rates (Pt. 6, Chap. 1, Art. 2, Sec. 307)	On or before the 20th day of August*, the board shall, by resolution, determine the amount of money necessary to be raised by taxation during the fiscal year beginning the first day of July next preceding for all Metropolitan purposes and shall fix rates of taxation designating the number of cents, upon each one hundred dollars ($100) assessed valuation of property taxable by Metropolitan in each county and shall levy a tax accordingly.	Treasury and Debt Manager	06/30/2023	SS
Tax Levies – Bond Service (Pt. 6, Chap. 1, Art. 2, Sec. 308)	If Metropolitan income will be inadequate to pay interest and principal (including any sinking fund) of any G.O. bonds, the Board shall at the time of fixing the tax levy, levy a tax sufficient to pay annual interest and such principal that becomes due before money from the next general tax levy becomes available. These taxes shall be used to pay only this principal and interest, except that it may be used to pay principal and interest on any voter-authorized bonds then outstanding or yet to be issued if the tax was originally levied to pay for authorized but unsold bonds which then remain unsold. Taxes shall also be levied to meet the requirement of any resolution adopted according to Section 287, Tax Levy for Notes. (See above.)	Treasury and Debt Manager	06/30/2023	SS

MWD ACT

Item	Action	Responsible	Completion Date	Initials
Statement of Tax Rates (Pt. 6, Chap. 1, Art. 2, Sec. 310)	Before the first day of September* the Controller of Metropolitan shall prepare and transmit to the auditor of each county in which property taxable by Metropolitan lies, a statement showing the tax rates to be applied to property taxable by Metropolitan. Such rates shall be the rates fixed by resolution of the board modified to the extent necessary to produce from each declaring public agency only the amount apportioned to it in such resolution, less any amount paid or undertaken to be paid by such agency, or credited thereto as provided in Chapter 2 (commencing with Section 331) of this part.	Controller	06/30/2023	
		Treasury and Debt Manager	06/30/2023	SS

*FN- Dates are directory only, and any failure to perform specified acts by the time specified shall not impair the authority conferred in the Act. (Pt. 6, Chap. 1, Art. 1, Sec. 320).

ADMINISTRATIVE CODE

Item	Action	Responsible	Completion Date	Initials
Administrative Code				
Division IV – Water Service Policies				
Chapter 3 – Water Sales Revenues				
Cost of Service and Revenue Requirement (§ 4301)(a)	The District shall fix rates for water such that anticipated water sales, revenues, together with anticipated revenues from any water standby or availability of service charge (such as the readiness-to-serve charge or capacity charge) or assessment, ad valorem tax revenues and other revenues pay the expenses of the District, provide for repairs and maintenance, provide for payment of the purchase price or other charges for property or services or other rights acquired by the District, and provide for the payment of the interest and principal of the District's outstanding bonded debt. Subject to the foregoing, such rates and charges shall reflect the costs of the district's major service functions, including water supply, conveyance, power, storage, distribution and treatment, to the greatest degree practicable.	Revenue and Budget Manager	06/30/2023	A.V.
Formula for Allocation of Water Revenues (§ 4301)(b)	Notwithstanding the provisions in subsection (a) above, amounts raised by ad valorem property taxation complied with the limitations established by section 124.5 of the Act.	Office of the CFO	06/30/2023	SS

ADMINISTRATIVE CODE

Item	Action	Responsible	Completion Date	Initials
Division V – Financial Matters				
Chapter 1 – Administrative Matters				
Investment of Surplus Funds (§ 5101)	The Board shall delegate to the Treasurer annually the authority to invest or to reinvest Funds of Metropolitan.	Treasury and Debt Manager	06/30/2023	SS
Reporting Requirements of the Treasurer (§ 5114)	The Treasurer shall not later than the June Board meeting submit Statement of Investment Policy to the Board for the following year.	Legal	06/30/2023	PBR
		Legal	06/30/2023	PBR
Chapter 2 – Financial Policies		Treasury and Debt Manager	06/30/2023	SS
Funds Established (§ 5201)				
General Obligation Bond Interest and Principal Funds and the Waterworks General Obligation Refunding Bonds Interest and Principal Funds (§ 5201(a))	Cash and securities in each fund as of June 30 shall equal debt service for the next 18 months, less anticipated revenue from tax levy specifically for this debt service.	Controller	06/30/2023	
Water Revenue Bonds Interest and Principal Funds, the Water Revenue Bonds Reserve Funds, the Water Revenue Refunding Bonds Interest and Principal Funds and the Water Revenue Refunding Reserve Bonds (§ 5201(b))	Cash and securities shall at least equal the minimums required by the respective resolutions of issuance for these bonds.	Controller	06/30/2023	
For the Subordinate Bonds Interest and Principal Funds, the Subordinate Water Revenue Bonds Reserve Funds, the Subordinate Water Revenue Refunding	Cash and securities shall at least equal the minimums required by the respective resolutions of issuance for these bonds.	Controller	06/30/2023	

ADMINISTRATIVE CODE

Item	Action	Responsible	Completion Date	Initials
Bonds Interest and Principal Funds and the Subordinate Water Revenue Refunding Reserve Funds (§ 5201(c))				
Bond Construction Funds (§ 5201(d))	No minimum requirement; provided that any cash and securities in such funds shall be restricted to use for the purposes such finances were required.	Controller	06/30/2023	
State Contract Fund (§ 5201(e))	Cash and securities on hand June 30 and December 31 shall equal the capital payments to the DWR that are due on July 1, of the same year and January 1 of the following year.	Controller	06/30/2023	
Special Tax Fund (§ 5201(f))	No minimum requirement.	Controller	06/30/2023	
Operation and Maintenance Fund (§ 5201(g))	Cash and securities shall at least equal the minimum required by the respective resolutions of issuance for revenue bonds (i.e., amount sufficient to pay estimated O&M Expenditures during current and next succeeding calendar month).	Controller	06/30/2023	
Revolving Construction Fund (§ 5201(h))	No minimum requirement. However, cash and securities in this fund shall be available for transfer to the Water Rate Stabilization Fund and the Water Treatment Surcharge Stabilization Fund at the discretion of the Board.	Controller	06/30/2023	
Commercial Paper Series A and B, Note Payment Funds (§ 5201(i))	Deposits to these funds shall be in an amount sufficient to pay principal of and interest on the Commercial Paper Notes in an amount at least	Controller	06/30/2023	

ADMINISTRATIVE CODE

Item	Action	Responsible	Completion Date	Initials
	equal to one-half of the projected interest payments due on such notes in the subsequent fiscal year.			
Water Standby Charge Fund (§ 5201(j))	There shall be no minimum requirement; provided that any cash and securities in such fund shall be restricted to use for the purposes such monies were authorized.	Controller	06/30/2023	
Excess Earnings Funds (§ 5201(k))	The minimum requirement for all Excess Earnings Funds shall be the amounts deposited into the funds in accordance with the provisions of the Tax and Nonarbitrage Certificates and Resolutions for the Bonds.	Controller	06/30/2023	
Iron Mountain Landfill Closure/Postclosure Maintenance Fund (§ 5201(m))	Cash and securities as of June 30, shall be at least equal to the CEO's latest estimates of closure and postclosure maintenance costs.	Controller	06/30/2023	
Optional Redemption Funds (§ 5201(n))	The minimum requirement shall be the amount necessary to redeem such untendered, refunded bonds which have been called for redemption.	Controller	06/30/2023	
Water Transfer Fund (§ 5201(o))	All amounts budgeted or pledged for purchase of water through transfers or similar arrangements and for the costs of filling the Diamond Valley Lake Project, shall be set aside in such fund and used solely for such purpose.	Controller	06/30/2023	

ADMINISTRATIVE CODE

Item	Action	Responsible	Completion Date	Initials
Fund Parameters (§ 5202)				
Revenue Remainder Fund (§ 5202(a))	The minimum cash and securities held in the Water Revenue Remainder Fund as of June 30 shall be equal to a portion of fixed costs estimated to be recovered by water sales revenues for the eighteen months beginning with the immediately succeeding July.	Revenue and Budget Manager	06/30/2023	A.V.
Replacement and Refurbishment Fund (§ 5202(b))	The end-of-year fund balance may not exceed $160 million. Available monies in excess of $160 million at June 30 shall be transferred to the Water Rate Stabilization Fund, unless otherwise determined by the Board. (Amounts increased from $95 million pursuant to Board adoption of Board Letter 8-1, on April 8, 2014)	Controller	06/30/2023	
Water Rate Stabilization Fund (§ 5202(c and e))	Remaining amounts in the Revenue Remainder Fund and the Replacement and Refurbishment Fund, collectively, on June 30, after meeting requirements in Sections 5202(a) and (b), shall be transferred to the Water Rate Stabilization Fund, and to the extent required under Section 5202(d), to the Water Treatment Surcharge Stabilization Fund.	Controller	06/30/2023	

ADMINISTRATIVE CODE

Item	Action	Responsible	Completion Date	Initials
	The amount held shall be targeted to be equal to the portion of fixed costs estimated to be recovered by water sales during the two years immediately following the eighteen month period in Section 5202(a). Funds in excess of targeted amount shall be utilized for capital expenditures in lieu of the issuance of additional debt, or for the redemption, defeasance or purchase of outstanding bonds or commercial paper, as determined by the Board. Provided that the fixed charge coverage ratio is at or above 1.2, amounts ratio in the Water Rate Stabilization Fund may be used for any lawful purpose as determined by the Board.	Revenue and Budget Manager	06/30/2023	A.V.
Water Treatment Surcharge Stabilization Fund (§ 5202(d))	After transferring funds as specified in Section 5202(c), that portion of those funds, if any, attributable to collection of treatment surcharge revenue in excess of treatment costs shall be transferred to the Water Treatment Surcharge Stabilization Fund. If a deficiency in treatment surcharge revenue exists, a transfer of funds will be made from this fund to reimburse funds used for the deficiency.	Controller	06/30/2023	
Indirect Credit of Metropolitan (§ 5203)	The GM may negotiate with DWR on the basis of using the indirect credit of Metropolitan to finance State Revenue Bonds so long as Metropolitan's obligation does not exceed its required obligation under the State contract.	GM (by Office of the CFO)	06/30/2023	SS

ADMINISTRATIVE CODE

Item	Action	Responsible	Completion Date	Initials
Compliance with Fund Requirements and Bond Indenture Provisions (§ 5204)	As of June 30 of each year, the GM shall make a review to determine whether the minimum fund requirements outlined in Chapter 2 have been met and whether Metropolitan has complied with the provisions of the articles and covenants contained in the resolutions of issuance for all outstanding Metropolitan bond issues during the preceding fiscal year. The GM, after consulting with the General Counsel, shall report the results of his review, in writing, to the Board of Directors annually.	GM (by Office of the CFO)	06/30/2023	SS

FUND REQUIREMENTS

Item	Action	Responsible	Completion Date	Initials
FUND REQUIREMENTS				
Construction Funds	Metropolitan shall maintain certain funds and such funds shall be restricted to use for the purposes such finances were required..	Controller	06/30/2023	
Water Revenue Fund	Monies in these funds shall be used solely for the purposes authorized in Chapter 1.6 of Part 5 of the Metropolitan Water District Act.	Controller	06/30/2023	
	All operating revenues shall be allocated to this fund and all transfers from it shall be as specified in Article V of Board Resolution 8329.	Controller	06/30/2023	
Operation and Maintenance Fund	Transfer amounts sufficient for O&M Expenditures in current calendar month and succeeding calendar month from the Revenue Fund to the O&M Fund on or before first business day of each calendar month.	Controller	06/30/2023	
Interest & Principal Funds	Transfer appropriate amounts from the Revenue Fund to the Interest & Principal Funds on or before first business day of each calendar month.	Controller	06/30/2023	
	If the above transfer(s) are not sufficient, then the deficiency shall be transferred from the Reserve Fund.	Controller	06/30/2023	
Water Rate Stabilization Fund	Excess monies on or before the first business day of any calendar month shall be transferred to the Revenue Remainder Fund.	Controller	06/30/2023	

FUND REQUIREMENTS

Item	Action	Responsible	Completion Date	Initials
	The amount held shall be targeted to be equal to the portion of fixed costs estimated to be recovered by water sales during the two years immediately following the eighteen month period in Section 5202(a). Funds in excess of targeted amount shall be utilized for capital expenditures in lieu of the issuance of additional debt, or for the redemption, defeasance or purchase of outstanding bonds or commercial paper, as determined by the Board. Provided that the fixed charge coverage ratio is at or above 1.2, amounts ratio Water Rate Stabilization Fund may be used for any lawful purpose as determined by the Board.			
Revolving Construction Fund	There is no minimum amount required for this fund. Construction expenditures made from this fund may be reimbursed with proceeds from security sales.	Controller	06/30/2023	
Commercial Paper Note Payment Fund	For the Commercial Paper Note Payment Fund, Metropolitan shall deposit amounts sufficient to pay principal of, and interest on, the Commercial Paper Notes and repayment of any Advances as the same become due.	Controller	06/30/2023	
Bond Service Fund ,	Cash and securities are restricted to use solely for the purposes authorized in Chapter 1.6 of Part 5 of the MWD Act. And must be at least equal to the	Treasury and Debt Manager Controller	06/30/2023 06/30/2023	SS

FUND REQUIREMENTS

Item	Action	Responsible	Completion Date	Initials
	minimum required by Resolution #8329, Section 5.06 for payment of interest and principal.			
Water Revenue Bond Reserve Funds	Transfer from the Bond Proceeds or operating revenues the "minimum reserve requirement" as defined in the Supplemental Resolution established for each series of Revenue Bonds.	Treasury and Debt Manager Controller	06/30/2023 06/30/2023	SS BAPC
Investment of Proceeds,	Monies in any fund other than the Escrow Fund may be invested in any legally available obligation which matures or can be liquidated on or before the date on which monies are needed.	Treasury and Debt Manager	06/30/2023	SS
	Investments purchased with money from any fund shall be part of that fund as well as gains and losses related to those investments. For transferred funds, gains and losses shall be prorated for time spent in each respective fund.	Treasury and Debt Manager	06/30/2023	SS
	Cash and investments shall be available to meet payment or transfer from this fund as required by the Resolution of Issuance.	Treasury and Debt Manager	06/30/2023	SS
Warranty	An investment shall be valued at its cost for the purpose of determining the balance in any fund. Investments shall also be valued at market value. The Treasurer and each Fiscal Agent shall keep proper books of record and accounts for each transaction.	Controller Treasury and Debt Manager	06/30/2023 06/30/2023	BAPC SS

FUND REQUIREMENTS

Item	Action	Responsible	Completion Date	Initials
	Metropolitan shall preserve the security of the bonds and defend the rights of bondholders against all claims.	Legal	06/30/2023	PBR

USE OF PROCEEDS AND TAX LEVY

Item	Action	Responsible	Completion Date	Initials
USE OF PROCEEDS AND TAX LEVY				
Tax Levy / Interest and Principal Fund G.O. Bonds	If revenues of Metropolitan are inadequate to pay principal/interest on the bonds, the Board shall, at the time of fixing the tax levy, levy a tax sufficient to pay all principal and interest due until sufficient funds shall be available from the next general tax levy. These monies shall be put in the Interest and Principal Fund and used solely to pay principal and interest on these bonds.	Controller	06/30/2023	
Payment of Serial and Term Bonds	If the defeasance method is used, (see Item "Escrow Fund"), principal shall be paid by transferring monies from the Interest & Principal Fund to the Retirement Fund. If the crossover method is used (see Item "Escrow Fund"), principal, if any, and interest shall be paid from the Escrow Fund until the refunding date. Afterward, the bonds shall be paid as in the first sentence of this item.	Treasury and Debt Manager	06/30/2023	SS
Tax Covenant	Metropolitan will comply with applicable requirements of the Internal Revenue Code of 1986, Sections 103, and 141 through 150.	Legal	06/30/2023	PBR
		Controller	06/30/2023	
Additional Tax Covenant	Bond proceeds shall not be invested so as to become an "arbitrage bond" under Section 103 and 148 of the Internal Revenue Code of 1986 and the regulations of the Treasury Department and or which would cause the Bonds to lose exemption from federal income taxation of interest	Legal	06/30/2023	PBR
		Controller	06/30/2023	
		Treasury and Debt Manager	06/30/2023	SS

GENERAL OBLIGATION BONDS
DISTRICT SECURITIES INVESTIGATION LAW OF 1965

Item	Action	Responsible	Completion Date	Initials
General Obligation Bond Optional Redemption Fund	Sufficient amounts shall be maintained in the Optional Redemption Fund to retire untendered Bonds which were refunded.	Controller	06/30/2023	
		Treasury and Debt Manager	06/30/2023	SS

U.S. TREASURY REGULATIONS

Item	Action	Responsible	Completion Date	Initials
U.S. TREASURY REGULATIONS				
Arbitrage Restrictions (Treasury Regulations, Section 1.148)	Arbitrage rebate calculations have been made for all outstanding Bond issues which are subject to rebate.	Controller Legal	06/30/2023 06/30/2023	

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
WATER REVENUE BONDS				
Punctual Payment	Metropolitan must punctually pay the principal or redemption price and interest due in respect of all Bonds in strict conformity with the terms of such Bonds and their respective Resolutions.	Treasury and Debt Manager Controller	06/30/2023 06/30/2023	SS [signature]
Discharge Claims	Metropolitan covenants to fully preserve and protect the priority and security of the Bonds of Metropolitan by paying all lawful claims for labor, materials and supplies in connection with the Water System which, if unpaid, may become a lien or charge upon the Operating Revenues prior or superior to the lien of the Bonds and impair the security of the Bonds. Metropolitan shall also pay all taxes and assessments or other governmental charges lawfully levied or assessed on the Water System or any part of the Operating Revenues.	Controller	06/30/2023	[signature]
Against Sale, Eminent Domain	Metropolitan covenants that the Water System shall not be mortgaged or otherwise encumbered, sold, leased, pledged, any charge placed thereon, or disposed of as a whole or substantially as a whole unless such sale or other disposition be so arranged as to provide for a continuance of payments into the Water Revenue Fund sufficient in amount to permit payment therefrom of the principal and Accreted Value of and interest on and the premiums, if any, due upon the call and redemption thereof, of the Bonds and any Parity Obligations, and also to provide for such	Controller	06/30/2023	[signature]

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
	payments into any reserve fund or account as are required under the terms of the Resolution or any Supplemental Resolutions or any Parity Obligations documents.			
Against Sale, Eminent Domain (continued)	The Operating Revenues shall not be mortgaged, encumbered, sold, leased, pledged, any charge placed thereon, or disposed of or used, nor shall any charge be placed thereon, except as authorized by the terms of the Resolution or any Supplemental Resolutions. Metropolitan further covenants that it will not enter into any agreement which impairs the operation of the Water System or any part of it necessary to secure adequate Net Operating Revenues to pay the principal and Accreted Value of and interest on the Bonds or any Parity Obligations or which otherwise would impair the rights of the Owners with respect to the Operating Revenues or the operation of the Water System. If any part of the Water System is sold and such sale shall adversely affect the adequacy of Net Operating Revenues to pay principal and Accreted Value of and interest on the Bonds or any Parity Obligations, the payment therefor shall, at the option of the Board, either be used for the acquisition, construction and financing of additions to and extension and improvements of the Water System or shall be used to pay or call and redeem Outstanding Bonds in the manner provided in the Resolution or any Supplemental Resolutions.			

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
Against Sale, Eminent Domain (continued)	Metropolitan covenants that any amounts received as awards as a result of the taking of all or any part of the Water System by the lawful exercise of eminent domain or sale under threat thereof which shall adversely affect the adequacy of Net Operating Revenues to pay principal and Accreted Value of and interest on the Bonds or any Parity Obligations shall either be used for the acquisition and/or construction of improvements and extensions of the Water System or shall be placed in the Bond Service Fund or the Redemption Fund and shall be used to pay or call and redeem Outstanding Bonds in the manner provided in the Resolution.			
Insurance	Metropolitan covenants that it shall at all times maintain with responsible insurers, or through a program of self-insurance (or a combination thereof) all such insurance on the Water System as is customarily maintained with respect to works and properties against accident to, loss of or damage to such works or properties. If any useful part of the Water System shall be damaged or destroyed, such part shall be restored to use. The money collected from insurance against damage to or destruction of the Water System shall be used for repairing or rebuilding the damaged or destroyed Water System, and to the extent not so applied, shall be applied to the retirement of any Outstanding Bonds.	Risk Manager	06/30/2023	Drew Boronkay

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
	Metropolitan shall also (by self-insuring or by maintenance with responsible insurers, or by a combination thereof) provide for workers' compensation insurance and insurance against public liability and property damage to the extent reasonably necessary to protect Metropolitan and the Owners.			
Records and Accounts	Metropolitan shall keep proper books of records and accounts of the Water System separate from all other records and accounts in which complete and correct entries shall be made of all transactions relating to the Water System. Such books shall at all times be subject to the inspection of the Owners of not less than 10 percent of the Outstanding Bonds and any Parity Obligations, or their representatives authorized in writing.	Controller	06/30/2023	
	Metropolitan shall cause the books and accounts of the Water System to be audited annually by an independent certified public accountant or firm of certified public accountants, and will make available for inspection by the Owners at the principal office of Metropolitan, and at the office of each Fiscal Agent, a copy of the report of such accountant or accountants.	Auditor	06/30/2023	SS
Operating in an Efficient and Economical Manner	Metropolitan covenants and agrees to conduct the operations of the Water System in an efficient and economical manner and to maintain and preserve	Operations	06/30/2023	MC

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
	the Water System in good repair and working order.			
Rate Covenants	Metropolitan covenants in the Master Resolution that it will prescribe, revise, and collect rates and charges for the services, facilities, availability and water of the Water System which, after making allowances for contingencies and error in the estimates, will provide Operating Revenues, together with any Additional Revenues (defined in the Master Resolution to include interest, profits and other income received from the investment of any monies of Metropolitan and other revenues of Metropolitan (other than Operating Revenues) to the extent available to pay debt service on the Bonds), at least sufficient to pay the following amounts in the order set forth: 1. Operation and Maintenance Expenditures; 2. Principal of, premium, if any, and interest on the Prior Lien Bonds and any required deposits into any reserve funds or accounts for the Prior Lien Bonds; 3. Interest on and Bond Obligation (that is, the principal amount of any Current Interest Bond and the Accreted Value of any Capital Appreciation Bond, including Mandatory Sinking Account Payment) of the Outstanding Bonds and any Parity	Controller Revenue and Budget Manager	06/30/2023 06/30/2023	 A.V.

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
Rate Covenants (continued)	Obligations as the same become due and payable; 4. All other payments required for compliance with the Master Resolution or any Supplemental Resolutions (including any required deposit to any reserve fund or account for any Series of Bonds); and 5. All other payments required to meet any other obligations of Metropolitan which are charges, liens or encumbrances upon or payable from Net Operating Revenues.			
Additional Indebtedness	Metropolitan covenants in the Master Resolution that no additional indebtedness evidenced by revenue bonds, revenue notes or any other evidences of indebtedness payable out of its Operating Revenues shall be issued pursuant to the Act or any other law of the State of California having any priority in payment of principal, premium (if any) or interest over the Bonds. Metropolitan covenants in the Master Resolution that, except for refunding bonds or Parity Obligations to pay or discharge outstanding Prior Lien Bonds, Bonds or Parity Obligations, and which do not result in any increase in the average annual debt service on all Prior Lien Bonds, Bonds or Parity Obligations to be Outstanding, no additional Bonds or Parity Obligations shall be created or incurred unless:	Legal	06/30/2023	PBR

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
Additional Indebtedness (continued)	FIRST: Metropolitan is not in default under the terms of the Master Resolution.			
	SECOND: Either (1) the Net Operating Revenues of Metropolitan for the latest fiscal year or for any 12 consecutive months within the last completed 24 month period ended not more than one month before the issuance of additional Bonds or Parity Obligations, or (2) the estimated Net Operating Revenues for the first completed fiscal year when improvements to the Water System financed by the proceeds of the additional Bonds or Parity Obligations would be in operation, shall have amounted to not less than the sum of (i) 120 percent of the Maximum Annual Debt Service in any Fiscal Year thereafter on all Bonds and Parity Obligations to be Outstanding immediately subsequent to the issuing or incurring of such additional Bonds or Parity Obligations plus (ii) 100 percent of the maximum annual debt service in any Fiscal Year thereafter on all Prior Lien Bonds to be Outstanding immediately subsequent to the issuing or incurring of such additional Bonds or Parity Obligations, as certified by the Board or a Metropolitan officer authorized by the Board to so certify. In making this calculation, Metropolitan may take into consideration any changes in water rates or charges which shall have been approved by the Board prior to the	Treasury and Debt Manager	06/30/2023	SS
		Treasury and Debt Manager	06/30/2023	SS

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
Additional Indebtedness (continued)	creation of such additional Bonds or Parity Obligations, any increase in Net Operating Revenues which may arise from additions or improvements to the Water System to be made or acquired with the proceeds of such additional Bonds or Parity Obligations or using the proceeds of bonds previously issued, Additional Revenues and certain other funds specified in the Master Resolution.			
	THIRD: The amount in any reserve fund or account established for any Bonds or Parity Obligations will not be less than an amount required on the date of delivery of and payment of such additional Bonds or Parity Obligations by supplemental resolution or other documents creating such fund.	Controller	06/30/2023	
Reserve Funds	Pursuant to a Supplemental Resolution, Metropolitan may establish a reserve fund or account for a series of Bonds to be maintained in such amount as may be set forth in such Supplemental Resolution.	Legal	06/30/2023	PBR
Flow of Funds	Metropolitan shall allocate all Operating Revenues to the Water Revenue Fund and shall effect transfers from the Water Revenue Fund to the following special funds or accounts as soon as practicable in each month in the following order	Controller	06/30/2023	

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
Flow of Funds (continued)	of priority and amounts shall be withdrawn from said special accounts only for the following purposes: *First,* to the Operation and Maintenance Fund, amounts sufficient for the payment of the estimated Operation and Maintenance Expenditures during the current calendar month and the succeeding calendar month. *Second,* Metropolitan shall make any required transfers for payment of the Prior Lien Bonds and the maintenance of any required reserve funds or accounts therefor. *Third,* for deposit in the Bond Service Fund, at least (A) (i) an amount sufficient on a monthly pro rata basis to pay the aggregate amount of the interest which will become due and payable on the Bonds with a fixed rate of interest on the next interest payment date and (ii) 110 percent of the interest which the Treasurer estimates in his or her reasonable judgment will accrue during that month on the Bonds with a variable rate of interest, *Fourth,* in the event that monies are withdrawn from the Reserve Fund (or any reserve account for other Bonds or Parity Obligations), to the Reserve Fund (or any reserve account for other Bonds or Parity Obligations), (i) one-sixth of any unreplenished prior withdrawal and (ii) the full amount of any deficiency due to a valuation of			

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
Flow of Funds (continued)	the Reserve Fund (or any reserve account for other Bonds or Parity Obligations) investments until the balance is at least equal to the amount required to restore the Reserve Fund unless the Interest Account contains at least the amount equal to the interest to become due and payable within the next six months and (B)(i) one-sixth of the semi-annual Bond Obligation becoming due and payable on the Outstanding Bonds within the next ensuing six months and (ii) one-twelfth of the yearly Bond Obligation becoming due and payable on the Outstanding serial Bonds or of the amount becoming due on term Bonds within the next twelve months, provided that if Metropolitan irrevocably determines by resolution that any principal payments on the Bonds of any series shall be refunded on or prior to their due dates or paid from amounts on deposit in a reserve fund maintained for Bonds of that series, no amounts need to be set aside toward such principal. *Fifth*, to the Excess Earnings Fund (or any such fund or account for other Bonds or Parity Obligations), the amount, if any, required in accordance with Metropolitan's tax and nonarbitrage certificate delivered in connection with the issuance of the Bonds (or any other Bonds or Parity Obligations). *Sixth*, for transfer for any required transfer or deposit for the payment of any obligation of			

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
	Metropolitan with a lien on, or payable from, Net Operating Revenues junior to the Bonds.			
Investments of Monies in Funds and Accounts	All monies in any of the funds and accounts established pursuant to the Resolutions shall be invested solely in investments in which Metropolitan may legally invest sums subject to its control. Subject to the provisions of the First Supplemental Resolution, obligations purchased by the investment of monies in the various funds and accounts established pursuant to the Resolutions shall be deemed at all times to be a part of such funds and accounts and any income realized from investment of amounts on deposit in any fund or account therein shall be credited to such fund or account. The Treasurer shall sell or present for redemption any investments whenever it may be necessary to do so in order to provide monies to meet required payments or transfers from such funds and accounts. For the purpose of determining at any given time the balance in any such funds, any such investments constituting a part of such funds and accounts shall be valued at the then estimated or appraised market value of such investments. Amounts in the Construction Fund may be temporarily invested and the proceeds thereof and interest thereon shall be applied exclusively to the purposes set forth in the Resolutions. Investments credited to the 1991 Reserve Fund shall be valued as of	Treasury and Debt Manager	06/30/2023	SS

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
Investments of Monies in Funds and Accounts (Continued)	June 30 of each year (or the next preceding or succeeding business day, as determined by Metropolitan, if June 30 is not a business day) at their fair market value.			
Information	Metropolitan will deliver, or make available, to the Bank under each Standby Bond Purchase Agreement copies of its annual report, audited annual financial statements, quarterly unaudited financial report, quarterly no-default certificate (if applicable) and other documents as described in section 6.1 of the Standby Bond Purchase Agreement.	Controller	06/30/2023	
Amendments Funds and Accounts (Continued)	The District will not amend, supplement, modify or waive any provisions of bond resolutions, the Paying Agent Agreement or any of the Related Documents, or consent to any of the foregoing, without the prior written consent of the Bank under the Standby Bond Purchase Agreement (if any); *provided, however,* the consent of the Bank will not be required for any amendment, supplement, modification or waiver of any of the foregoing documents which does not require the consent of the Owners unless such amendment, supplement, modification or waiver (a) affects the Bank's rights under such document or (b) affects any covenant of the District contained in Article VI of the Master Resolution. The District	Legal	06/30/2023	

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
Amendments (continued)	will give the Bank notice as promptly as practicable (but in no event less than ten (10) Business Days) of any proposed amendment, supplement, modification or waiver of any provision of the applicable bond resolution and of any meeting of the Board at which any of the foregoing will be discussed or considered.			
Taxes and Liabilities	The District will pay all the indebtedness and obligations of the Water System promptly and in accordance with its terms and pay and discharge, or cause to be paid and discharged, promptly all taxes, assessments and governmental charges or levies imposed upon it or upon its income, or upon any of its property, real, personal, or mixed, or upon any part thereof, before the same shall become in default, except for those matters which are being contested in good faith by appropriate action or proceedings or for which the District has established adequate reserves in accordance with accounting principles of the Government Accounting Standards Board applied on a consistent basis.	Controller Treasury and Debt Manager	06/30/2023 06/30/2023	 SS

WATER REVENUE BONDS

Item	Action	Responsible	Completion Date	Initials
Paying Agent; Remarketing Agent	The District shall not substitute or replace the Paying Agent or the Remarketing Agent unless the District shall have received the prior written approval of the applicable Bank with respect to a successor or replacement for such Person, which approval shall not be unreasonably withheld.	Treasury and Debt Manager	06/30/2023	SS
Sale or Encumbrance of System	The District will not sell, dispose of or, except as permitted under the applicable Standby Bond Purchase Agreement, under the applicable Paying Agent Agreement or under the Resolutions, create any lien, security interest or other encumbrance on the Water System or on any of its Operating Revenues; *provided, however,* that this provision shall not prevent the District from disposing of any portion of the Water System which is being replaced or is deemed by the District to be obsolete, worn out, surplus or no longer needed for the proper operation of the System. Net proceeds from any such disposition shall be used only for such purposes provided in the Resolutions. Any agreement pursuant to which the District contracts with a person, corporation, municipal corporation or political subdivision to operate the Water System or to lease and/or operate all or part of the Water System shall not be considered as an encumbrance of the Water System.	Controller Legal	06/30/2023 06/30/2023	 PBR

COMMERCIAL PAPER

Item	Action	Responsible	Completion Date	Initials
COMMERCIAL PAPER				
Punctual Payment	Metropolitan will duly and punctually pay principal and interest on every Note, and payments into and transfers to the Commercial Paper Note Payment Fund will be made in strict conformity with the terms of the Notes and the commercial paper resolution.	Treasury and Debt Manager	NA	SS
		Controller	NA	
Records and Accounts	Metropolitan shall keep proper books of record and account, and cause its books and accounts to be audited annually by an independent CPA.	Controller	NA	
		Auditor	NA	SS
Rates	Metropolitan will prescribe, revise and collect such rates and charges for the services, facilities, availability and water of the Water System which shall provide Operating Revenues at least sufficient to pay: 1. Operation and Maintenance Expenses; 2. Principal, accreted value, interest and required deposits into reserve funds or accounts for the Prior Lien Obligations (including Prior Lien Bonds and Water Revenue Bonds); 3. Principal of and interest on the Notes and amounts due to a Bank under the Liquidity Facility, when due; 4. Any other obligations payable from Net Operating Revenues, expressly including amounts under the State Water Contract which	Revenue and Budget Manager	NA	A.V.

COMMERCIAL PAPER

Item	Action	Responsible	Completion Date	Initials
	do not constitute Operation and Maintenance Expenses.			
No Maturity to Exceed Term of Liquidity Facility	Metropolitan shall not issue any Commercial Paper Note with a maturity date after the scheduled expiration date of a Liquidity Facility, without prior confirmation from the Rating Agencies that such action shall not adversely affect the rating on the Notes.	Treasury and Debt Manager	NA	SS
Tax Exemption	Metropolitan will comply with applicable requirements of Section 103 and Sections 141 through 150 of the IRC and covenants in the Tax and Nonarbitrage Certificate.	Legal	NA	PBR
Information	Metropolitan will deliver to the Bank copies of its annual report, audited annual financial statements, quarterly unaudited financial reports, quarterly Certificate of an Authorized Representative and other documents described in §5.01 of the Revolving Credit Agreement.	Treasury and Debt Manager	NA	SS
No Amendments	Metropolitan will not amend the Commercial Paper Resolution or Related Documents without the prior written consent of the Bank.	Legal	NA	PBR
Proceeds of Loans	Metropolitan will use the proceeds of Revolving Loans only to pay Series B Notes and the proceeds of Term Loans only to refinance Revolving Loans. Metropolitan will not use the proceeds of any Loan to pay any Series A Note or for any other unauthorized purpose.	Treasury and Debt Mangaer	NA	SS
		Controller	NA	

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COMMERCIAL PAPER

Item	Action	Responsible	Completion Date	Initials
Investments	Metropolitan shall not borrow money solely for the purpose of investment in an amount at any time greater than 20% of its unleveraged investment portfolio; maintain any of its portfolio in a pool of investments managed by another person whose investment practices would result in indirect violation of the above covenant; or invest in any derivative or investment with a derivative embedded in it, except to the extent all such investments do not exceed 20% of its unleveraged investment portfolio.	Treasury and Debt Manager	NA	SS
Issuing and Paying Agent and Dealers	Metropolitan shall not substitute or replace the Issuing and Paying Agent or any Dealer without the prior written approval of the Bank as to the successor or replacement.	Legal	NA	PBR

SHORT-TERM CERTIFICATES

Item	Action	Responsible	Completion Date	Initials
SHORT-TERM CERTIFICATES				
Establishment and Application of Funds and Accounts	The District shall establish, and the Treasurer of the District shall maintain, such funds and/or accounts with respect to the Certificates, Credit Facilities and Trust Agreements as may be required pursuant to the terms of such Certificates, Credit Facilities and Trust Agreements	Treasury and Debt Manager	06/30/2023	SS
		Controller	06/30/2023	

- **Pure Water Southern California: White Paper No. 2, Addendum to White Paper No. 2 and Conceptual Cost Recovery Alternatives Report by Raftelis**

Summary

White Paper No. 2 and Addendum to White Paper No. 2

White Paper No. 2 (Planning, Financial Considerations, and Agreements) for the Pure Water Southern California Program (Program), published in 2020, provided material regarding Pure Water Southern California's role in Metropolitan's regional resource planning and included information regarding certain financial and other considerations related to the Program. White Paper No. 2 included an analysis of the Program's role in regional resource planning from the 2015 Integrated Resources Plan (IRP), documentation of the regional benefits of the Program, identification of cost recovery approaches for the Program, and evaluation of institutional arrangements and agreements that would be required from Program participants. White Paper No. 2 was discussed at an Engineering & Operations Committee workshop on October 12, 2020.

Since White Paper No. 2 was published, significant changes to the Program include Board adoption of the Regional Needs Assessment of the 2020 IRP, development of the Climate Adaptation Master Plan for Water (CAMP4Water), the State Water Board's Division of Drinking Water (DDW) has progressed in the development of criteria for direct potable reuse (DPR),the Colorado River partners (Southern Nevada Water Authority, Central Arizona Project (CAP), Arizona Department of Water Resources) as well as State Water Project contractor San Gabriel Valley MWD (SGVMWD) have expressed interest in the Program and formalized Letters of Intent (LOIs), and enhancements to the project including refining the member agency demands, evaluating opportunities to start the Program earlier, eliminating the direct to Orange County line, and updates to the treatment process and nitrogen limits.

The Addendum to White Paper No. 2 (Addendum) addresses the changed conditions since White Paper No. 2 was published, the need for the Program, and the regional benefits to all member agencies. As shown in this Addendum, Pure Water Southern California improves regional resilience of Metropolitan's service area and integrated system by reducing chances of net shortage, improving chances of low regional shortage, improving groundwater sustainability, and improving development of local supplies. Pure Water Southern California plays an important role in Metropolitan's future.

Conceptual Cost Recovery Alternative Report by Raftelis

The Board requested that staff complete an evaluation of conceptual cost recovery alternatives for the Pure Water Southern California (PWSC) program. The purpose of the evaluation is to identify and assess potential alternatives for the allocation and recovery of PWSC program costs. Metropolitan retained Raftelis to complete the evaluation and study in October 2022.

Key objectives of the Study were to:

- Analyze and recommend different cost recovery alternatives that reflect the benefits provided by PWSC and the potential usage of PWSC.
- Complete a conceptual functionalization and allocation of revenue requirement to cost components based on cost recovery alternatives.

The attached "Pure Water Southern California Conceptual Cost Recover Alternatives Report" documents and details Raftelis' conceptual development of alternatives for the recovery of PWSC program costs.

Date of Report: 10/10/2023

Purpose

Informational

Detailed Report

Attachment 1 – White Paper No 2

Attachment 2 - Addendum to White Paper No 2

Attachment 3 – Conceptual Cost Recovery Alternatives Report by Raftelis

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Regional Recycled Water Program

White Paper No. 2

Planning, Financial Considerations, and Agreements

October 12, 2020

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SUMMARY

White Paper #1 was presented in July 2019 at the Metropolitan Board Workshop No. 1 for the Regional Recycled Water Program (RRWP or Program). The first White Paper addressed three alternative approaches to RRWP implementation, as well as Metropolitan's potential role in the development of direct potable reuse (DPR). This White Paper #2 (paper) provides an update regarding the RRWP's role in Metropolitan's regional resource planning, and also provides information regarding certain financial and other considerations related to the Program. It is intended that the additional information provided in this paper will assist the Board in decision making related to the RRWP—whether to move forward with environmental review and associated work on the Program.

The role of the RRWP in Metropolitan's resource planning was addressed in the Feasibility Study, Report No. 1530, in November 2016. The Feasibility Study showed the local resource targets set in Metropolitan's 2015 Integrated Water Resources Plan (IRP) Update have not been met and the RRWP could serve to help meet those targets. The Feasibility Study also presented other potential benefits of the Program, such as a reduction of shortage possibilities and increased system flexibility that could be derived from the Program. While the IRP will be updated many times before construction of the RRWP could be completed, these updates are not likely to change most of the core benefits this program could provide. This paper highlights the nature of those regional benefits.

In the preparation of this paper, staff conducted a preliminary review of the potential cost-recovery approaches for the Program based on the benefits identified to date. The results of this assessment are provided in this paper and may be used by staff to conduct a cost-of-service study at the appropriate time. At this time, the preliminary review and information is being provided to the Board to obtain policy direction as to preferred cost-recovery methods. If the Board is not interested, as a matter of policy, in pursuing a program under a particular type of general approach, then it may consider and discuss that now.

This paper also includes a section describing the purchase commitments required for water deliveries and the agreements and arrangements needed to ensure successful water deliveries to the groundwater basins located on the path of the conveyance system from the RRWP. Lastly, this paper provides a high-level review of how Metropolitan can collaborate with other agencies and how the total project costs can be reduced through potential partnerships, grant funding, and low-interest loan programs. These issues would be further developed as Metropolitan pursues the environmental and engineering planning for the program.

1.0 INTRODUCTION

The conclusion of the Conceptual Planning Studies Report (Report 1618, February 21, 2019) included recommendations that Metropolitan should:

- Continue evaluation of the Program's regional water supply benefits in the context of Metropolitan's Integrated Water Resources Plan (IRP);

- Present information to the Metropolitan Board to obtain policy direction as to preferred cost-recovery methods, and
- Undertake discussions to confirm the willingness of potential recipients of the purified water to commit to delivery quantities/schedule, operational requirements, and overall financial needs of the Program.

In response to these recommendations, this paper addresses the RRWP's role in supporting Metropolitan's water supply planning and reviews potential approaches to cost recovery. This paper also provides information addressing the following key questions:

- How does the RRWP fit into Metropolitan's regional resource planning given changes since the 2015 IRP Update?
- How could the Program's costs be recovered by Metropolitan?
- What kind of institutional arrangements and agreements would be required from Program participants?

This paper will be discussed at an E&O Committee workshop on October 12, 2020.

1.1 Program Overview

The RRWP will produce and is currently planned to deliver up to 150 million gallons per day (mgd), or approximately 168,000 acre feet (AF) per year (AFY), of purified water from a new advanced water treatment (AWT) facility located at the Los Angeles County Sanitation Districts (Sanitation Districts) Joint Water Pollution Control Plant (JWPCP). The Program also includes a new conveyance system that would deliver water to groundwater basins within Metropolitan's service area for indirect potable reuse (IPR) and potentially to two Metropolitan treatment plants for direct potable reuse (DPR). It is anticipated that the Program will be constructed in a phased approach to ensure that production of purified water closely matches the anticipated demands by member agencies.

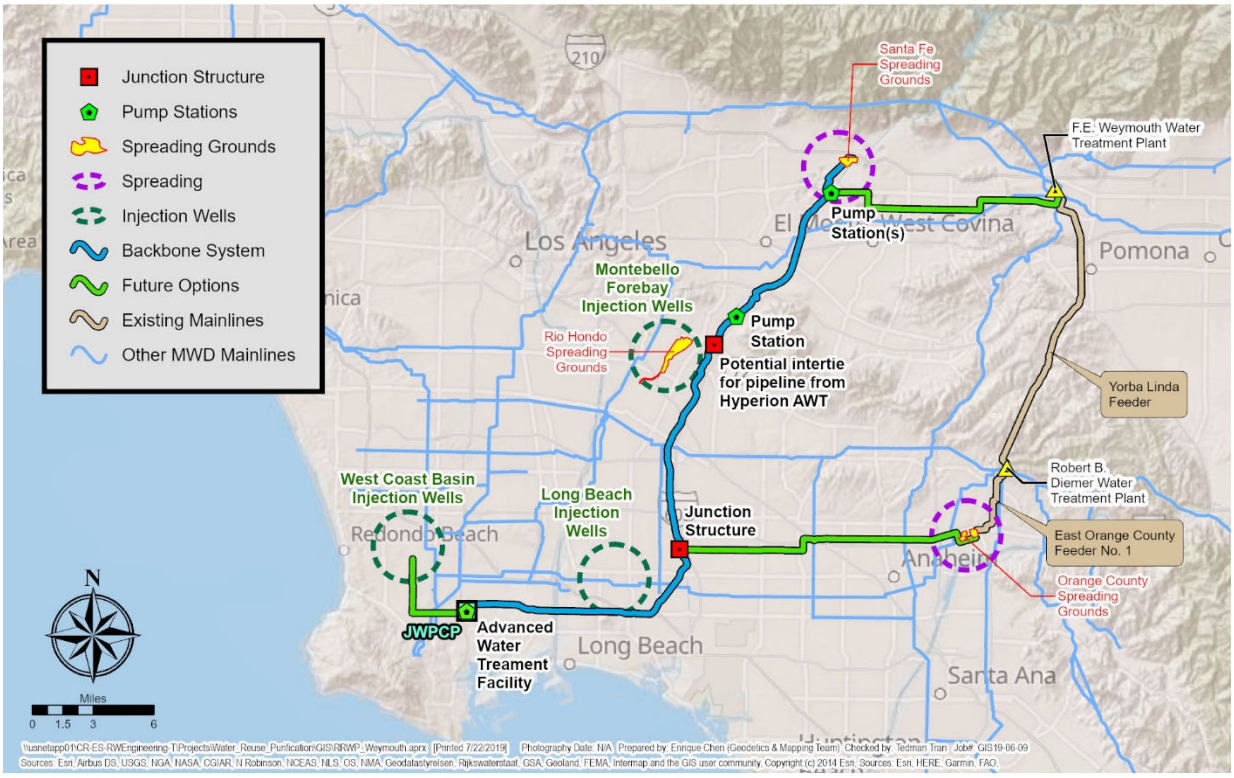
Four groundwater basins in Southern California are being considered as potential recipients of this purified water: Central Basin, Main San Gabriel Basin, Orange County Basin, and the West Coast Basin. The RRWP will also have the flexibility to accommodate industrial users in the Harbor areas whose needs are consistent with the quality of water produced by the AWT facility. Finally, the Program will have the flexibility to be expanded in the future to implement potential DPR through raw water augmentation (RWA) at the Weymouth or Diemer water treatment plants (WTPs). While numerous potential approaches to implementation can be developed, for the purposes of this paper, the assumption is that the RRWP would be implemented in two phases. The first phase would be a 100 mgd AWT and conveyance pipeline to the Santa Fe Spreading Grounds (Backbone System) while in Phase 2, the Backbone System would be expanded to the "Full System" to include facilities to meet the remaining IPR demands and the extension to the WTPs for RWA. Additional sub-phases of this program may be considered as the environmental and planning work are conducted. Figure 1 shows the full Program as described in the Conceptual Planning Studies Report.

The RRWP is being developed to achieve the following objectives:

- Provide a new local source of reliable, high quality, and climate-change resilient water to meet demands on Metropolitan

- Diversify Metropolitan's water sources for the region
- Add to the regional recycled water supply in the region
- Provide an additional local resource within the region with a reduced risk of disruption from significant seismic events on the San Andreas or other major faults
- Increase Metropolitan's regional water reserves
- Enhance Metropolitan's operational reliability and flexibility
- Contribute to the water quality of groundwater basins, an important source for Metropolitan's member agencies during emergencies and shortages of imported water
- Create a cost-effective, stand-alone project
- Achieve regulatory approvals to ensure protection of public health
- Offer flexibility to accommodate future DPR

Figure 1: Full Regional Recycled Water Program Elements



1.2 Program Implementation and Delivery White Paper (White Paper #1)

Following completion of the Conceptual Planning Studies Report and White Paper #1, a Board workshop was held in July 2019 to provide an opportunity for discussion of the Program implementation, policy considerations, and issues requiring further exploration before starting the environmental review and

possibly preliminary engineering. Three potential approaches to implementing the Program were outlined in the first white paper and discussed at the workshop. An overview of the Program and recommended approach to the environmental review process was provided. Additional activities that could be undertaken during the environmental review were also described. White Paper #1 highlighted possible alternative approaches to RRWP implementation and explained how Metropolitan could potentially play a role in the development of DPR through raw water augmentation. The topic of program implementation was outlined with three potential approaches for initiating the RRWP:

- *Approach 1 – Traditional***.** The traditional option completes the Program Environmental Impact Report (PEIR) before starting the design of any facilities.

- *Approach 2 – Accelerated Construction*. This approach leads to the accelerated start of construction for a portion of the backbone pipeline. In this option, the design of a portion of the conveyance piping (3.5 miles), near the JWPCP in Carson, would begin in parallel with work on the PEIR. Final design and construction would start following Board certification of the PEIR.

- *Approach 3 – Accelerated Water Delivery***.** This approach leads to the accelerated start of water deliveries to selected uses near the JWPCP. In this option, design of a portion of the AWT (approximately 20 mgd) and conveyance facilities needed to support early deliveries of purified water to industrial users in the Harbor Areas and for replenishment water in the West Coast Basin would begin in parallel with the work on the PEIR. Preliminary design for the facilities would be completed during PEIR preparation, and the final design and construction would commence after the Board certified the PEIR.

The first white paper also outlined an approach to provide the flexibility to meet demands for direct potable use through future RWA, in addition to meeting demands for regional groundwater replenishment. Finally, the paper outlined how Metropolitan could take steps to work with the California Division of Drinking Water (DDW) to provide input on future development of regulations that would permit DPR to move forward. Staff now recommends proceeding with Approach 1- Traditional Delivery, beginning with Board approval to begin the PEIR work in November 2020.

1.3 Planning, Financial Considerations and Agreements (White Paper #2)

This paper addresses the RRWP's role in supporting Metropolitan's regional water resource planning, describes the Program's anticipated costs and benefits identified to date, preliminarily review potential cost-recovery approaches to obtain policy direction from the Board, details the commitments needed for water deliveries, and introduces opportunities to work with Program partners.

2.0 RRWP ROLE IN METROPOLITAN'S REGIONAL PLANNING

Metropolitan's long-term resource strategy is developed through its IRP. The IRP has, among other information, a series of targets on supply development and assumptions about demands and population growth. In practice, it serves to define Metropolitan's agenda for ensuring water reliability in the region. Through its IRP process, Metropolitan plans for regional water supply reliability for all its 26 voluntary member agencies. Demands on Metropolitan are projected, in part, based on the availability of local supplies in Metropolitan's service area. Metropolitan establishes reliability targets based on identified trends in imported and local water supply, and water conservation that, if successful, would reduce water

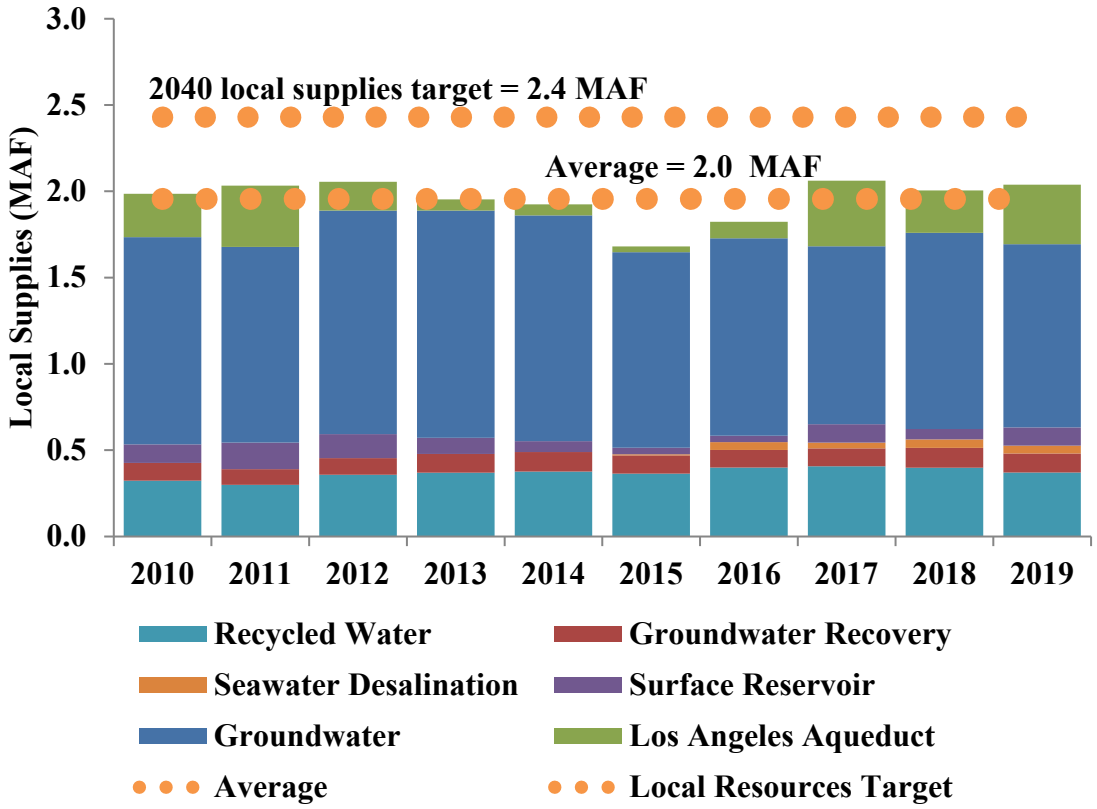
shortages and mandatory restrictions under planned conditions. Metropolitan has begun its next planning cycle with the 2020 IRP.

2.1 Progress Toward Meeting Local Resources Targets

The IRP strategy relies on maintaining local supply production into the future, the development of additional local supplies for future demands, and protection against reduction of imported water. The 2015 IRP targets for local supplies of 2.4 million AFY by 2040 from a combination of existing and new local sources. Figure 2 shows the contributions made toward meeting the local supply goal from various sources within Metropolitan's service area from 2010 to 2019. Unless new sources of water are acquired, the region will continue to fall short of the IRP local resource target and, without additional supplies, the deficit is projected to be about 400,000 AFY by 2040. When the local supplies target is not met, it is anticipated that the deficit will result in increased demands on Metropolitan. Implementation of the RRWP would afford Metropolitan the opportunity to fill that shortfall with a new, local source of water which would produce water for Metropolitan's own wholesale service.

Figure 2 shows the challenge of increasing local supply production. Member and local agencies have put significant effort into developing local supply sources. Despite these efforts, while local production has bounced back from the lows within the historic drought, production has not grown beyond historic levels. Regional efforts to build on local supplies seem only to help maintain ground, but the actual growth in total local supply production does not appear to be happening as agencies have planned.

Figure 2: Progress toward Meeting the Local Resources Target (2010-2019)



The RRWP supports the goal of developing additional local supplies, by adding up to an additional 168,000 AFY to the total local supplies available within Metropolitan's service area. Unlike typical locally produced supplies, the RRWP would be a Metropolitan owned and operated program. As such, the Program would produce purified water for Metropolitan, which in turn would be available to deliver to its member agencies. This approach differs from Metropolitan's historical local supply approaches, which have focused on the production of local supplies by member agencies or other local agencies, rather than Metropolitan. Such member agency-produced water is not available as a supply source within Metropolitan's control to provide its wholesale water services, even though it reduces the need for Metropolitan to import water into the service area.

2.2 Recent Changed Conditions and the Upcoming 2020 IRP

In the five years since completion of the 2015 IRP Update, the region's water reliability situation has continued to evolve. In 2015, the region was in the grip of an historic statewide drought. By 2017, conditions had changed, resulting in an extremely wet year. Following 2017's largest-ever additions to regional storage, calendar year 2019 was another year that combined relatively high imported supplies with low per capita water demands. Figure 3 shows the changes in Metropolitan demands since 2015. Metropolitan's end-of-year storage balance in 2019 was the highest ever. Even so, the region continues to face near- and long-term challenges, some familiar but others only becoming apparent in the last year. Notable among the new challenges are: (1) the reevaluation of the long-term Delta conveyance solution, (2) a growing consensus that climate change impacts are affecting yield of both imported and local supply sources, (3) recently-recognized threats to groundwater basins posed by emerging contaminants such as per- and polyfluoroalkyl substances (PFAS), and (4) pandemic threats to the region such as COVID-19.

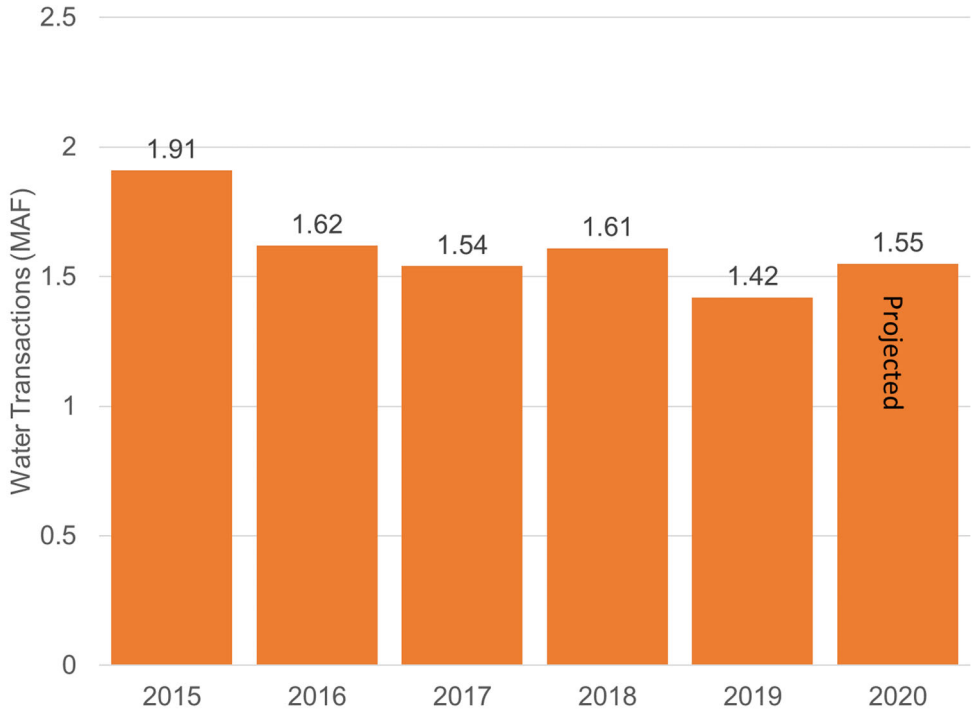
The 2020 IRP starts afresh with a new IRP with a different format that will incorporate various scenarios for the future. Given all the uncertainties the region faces, the 2020 IRP is not going to develop just a single forecast. Rather, it will include a look at multiple possible futures that could plausibly unfold. From this exercise, the 2020 IRP will evaluate resources, policies, and investments needed to maintain reliable water supplies through 2045. In addition, it will also identify a series of performance measures and reality checks to determine if a change in direction is required.

Metropolitan is currently in the early stages of developing the 2020 IRP, so planning details or scenarios to be evaluated are not yet available. While the 2020 IRP will result in updated targets for local supplies and conservation, it is likely that the underlying philosophy of working to maintain Metropolitan's imported supplies while meeting additional needs of the region through conservation and local supply development will continue. Even if the Board chose to reduce future regional local supply targets, the RRWP would still be beneficial to meet demands on Metropolitan for replenishment and consumptive use (through raw water augmentation) and to enhance Metropolitan's existing integrated water system.

2.3 The Role of the RRWP in Local Resources Development

Metropolitan has a choice with respect to local resources development. Since 1982, Metropolitan has been providing financial incentives to member agencies for developing local projects under the Local Resources Program (LRP). The LRP currently provides incentives for the development of water recycling, groundwater recovery, and seawater desalination supplies. The objective of the LRP is for local supplies to replace an existing or new demand on Metropolitan's imported water, thereby reducing the need to import water and increasing overall water supply reliability in the region as a result of the increased flexibility in Metropolitan's system. Metropolitan is also legislatively directed to increase

Figure 3: Metropolitan Water Transactions since 2015



Note: Water transactions include water sales, exchanges, and wheeling

its efforts in conservation, recycling, and groundwater replenishment pursuant to SB60. Today, nearly half of the total recycled water and groundwater recovery production in the region has been developed with LRP support. The LRP also plays an important role in meeting Metropolitan's IRP goals. In that light, in 2018, Metropolitan's Board authorized staff to solicit an additional 170,000 AFY of local supply projects under the LRP.

Since the RRWP would add to the total local supplies within Metropolitan's service area, it will help meet local supplies targets. The RRWP would have the additional benefit of providing a new supply source within Metropolitan's control to deliver to its member agencies. Although local supplies targets may be adjusted based on many different factors, the RRWP could enhance local supplies and Metropolitan's integrated water system. The RRWP would help member agencies sustain or increase local production from groundwater basins by providing a sustainable source for groundwater recharge and a future raw water augmentation source to meet needs throughout the region. Additionally, the RRWP would add to the reliability of Metropolitan's entire service.

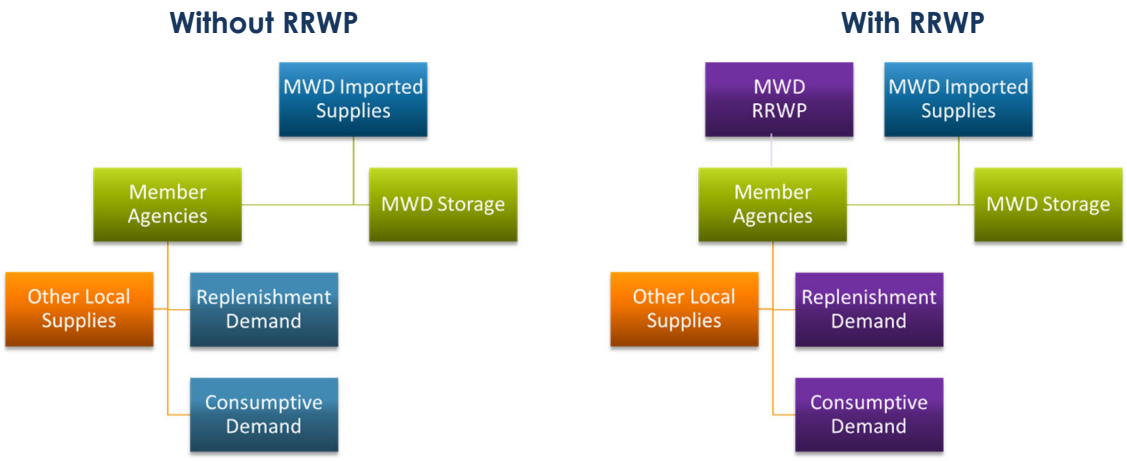
3.0 BENEFITS TO THE REGION FROM IMPLEMENTING THE RRWP

Metropolitan's purpose and focus has always been to provide regional benefits for all the District's member agencies. The District charges the same rates, for the same water services, regardless of the location of the member agency in the six-county service area, reflecting the uniform services and reliability provided to all member agencies. The District has embarked on projects, such as Diamond Valley Lake, the Inland Feeder and the Delta Conveyance, that benefit all agencies, not just some. In-District initiatives, such as the LRP described above, have reflected this regionalism, given how a local supply improvement bolsters water reliability and reduces system costs for all agencies.

The RRWP will also provide regional benefits to all member agencies, not just the agencies that would directly receive the purified water. While the RRWP would provide water directly to certain member agencies for groundwater replenishment through IPR, and potentially to some industrial users, these deliveries would replace current and future imported deliveries as well as increase Metropolitan's storage, increasing reliability for everyone. In the future, the RRWP could also deliver water through DPR via raw water augmentation to Metropolitan's Weymouth and/or Diemer plants. This DPR approach would directly serve many member agencies as treated water from Weymouth and Diemer is delivered to most of Metropolitan's service area. This would include member agencies throughout Los Angeles and Orange Counties. As an increased source within the Common Pool of Metropolitan's distribution system, other imported sources are made available for use in the rest of the service area and for storage.

Figure 4 diagrammatically illustrates the regional benefits of the RRWP. Metropolitan would primarily make groundwater replenishment deliveries through the RRWP which would free up imported water supplies for other uses by Metropolitan. Then, in the future, as DPR regulations are established, RRWP supplies can directly supplement imported supplies through a blending process at Metropolitan's Weymouth and/or Diemer treatment plants.

Figure 4: Meeting Regional Demands Without and With Program



Metropolitan faces many challenges to meet the anticipated demands of its member agencies, including long-term drought in both the Northern California and Colorado River watersheds, climate change, regulatory and environmental restrictions, changing hydrological and biological conditions in the Bay Delta, and unresolved issues with the development of a Delta Conveyance initiative. These challenges can result in variable and severe water delivery restrictions. The RRWP would help ensure a reliable supply of water in the face of these ongoing and increasing uncertainties. The following section describes benefits to Metropolitan's wholesale services anticipated from implementing the RRWP. More benefits may be identified as the Program is developed further.

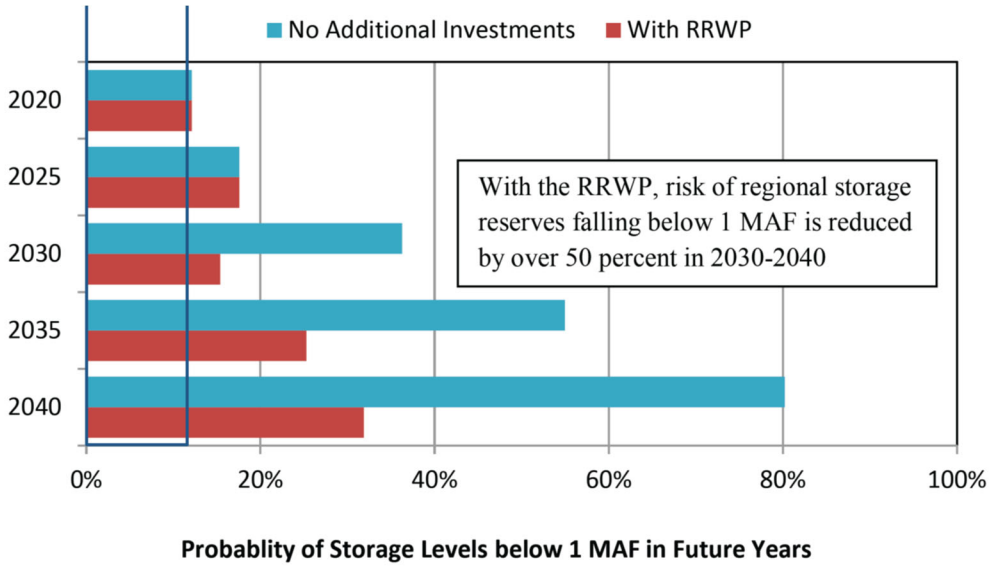
3.1 The RRWP Increases Regional Storage and Reduces Probability of Water Supply Allocations

Report No. 1530 (Feasibility Study) explored the potential for the RRWP to reduce the need for mandatory supply allocations in the future. This section summarizes the results of that analysis.

Metropolitan storage levels of less than 1 million acre-feet (MAF) are assumed to be a threshold level for the consideration of mandatory water supply allocations. Figure 5 summarizes the probabilities of low storage levels in 5-year increments, without (no new investments in imported water resources, imported water conveyance such as Delta conveyance improvements, or storage capacity) and with the RRWP. Assuming no new investment in water supply and storage capacity, estimates of the probability of storage reserves being low enough to necessitate a mandatory allocation are 36 percent of the time in 2030, 55 percent of the time in 2035, and 80 percent of the time in 2040. Adding the anticipated water supply from the RRWP would reduce the projected probabilities of low Metropolitan storage reserves and mandatory water supply allocations.

Assuming that the project is online and available by 2030, the improvements in Metropolitan storage reserves can also be seen in Figure 5. Estimates of the low Metropolitan storage reserves and the mandatory water supply allocation projections with the project decrease to 15 percent of the time in 2030, 25 percent of the time in 2035, and 32 percent of the time in 2040. These significant reductions in the probability of low Metropolitan storage reserves and mandatory water supply allocations benefit all of Metropolitan's member agencies.

Figure 5: Probability of Storage Levels Below 1 MAF



Reference: Potential Regional Recycled Water Program Feasibility Study, Report No. 1530, November 30, 2016

3.2 The RRWP Provides Operation Flexibility to Metropolitan's Integrated System

With a service area spanning 5,200 square miles in six counties, Metropolitan has built an integrated conveyance and distribution system to ensure consistent supplies, reliability, and flexibility throughout the region. The interconnected nature of the system means that Metropolitan can address constraints in one area of the system for the benefit of the system as a whole. For example, at any particular time, one area could be served exclusively from one supply source, while another area could be served a blend of water sources. The need to change the water sources may arise either from the unavailability of a water resource, a water quality issue related to a resource, or other reasons. The integration of its water resources and system flexibility are fundamental to Metropolitan's wholesale water service.

Adding the RRWP as an additional water source benefits Metropolitan's overall system flexibility by increasing the options available to meet demands throughout its service area. The additional imported water resulting from demands replaced by the RRWP purified water deliveries would increase Metropolitan's overall water resource portfolio. In the future, operations staff could potentially route some of the purified water to potable water treatment plants for DPR to convey to other areas not adjacent to the RRWP conveyance pipelines.

In addition to freeing up capacity in the existing facilities to meet demands by member agencies or DPR, the freed-up capacity could also be used to import water for additional storage within and outside of Metropolitan's service area. Full implementation of the RRWP would free up 168,000 AFY of capacity in the existing conveyance and distribution system. This would allow Metropolitan the flexibility to capture additional opportunities for imported water, either through transfers, exchanges, or other agreements. In addition, Metropolitan would have added flexibility for capturing more available water during wet years.

3.3 The RRWP Provides Supplies during a Major Earthquake Emergency

The RRWP would also benefit the service area in the event of a catastrophic earthquake by increasing the opportunities to ensure that supplies are maintained within the region. As result of a strong earthquake (e.g. M 7.8 ShakeOut Scenario) on the southern San Andreas Fault system, the Colorado River Aqueduct (CRA), the State Water Project (SWP), and the Los Angeles Aqueduct (LAA) could be severely damaged. The extent of damage from this type of event could potentially cause protracted outages, ranging from several months to extended periods of time on one or more aqueducts. In the aftermath of such an event, the region would need to rely entirely on local supplies such as the RRWP, surface storage, and groundwater production while repairs are being made to the aqueducts. As shown in Figure 6, the RRWP is located on the coastal side of the San Andreas Fault, which could make the water produced from the RRWP available during an earthquake emergency, and significantly improve the seismic resilience of the region.

The RRWP could also improve the seismic resilience of the region by enhancing and maintaining the storage level in groundwater basins prior to a major seismic event, and by providing a reliable, local supply of high-quality water for groundwater replenishment and for raw water augmentation throughout the emergency. During an emergency, the region would rely heavily on groundwater production, which is supported by the RRWP. In addition, purified water from the RRWP would be available to keep water flowing in Weymouth and Diemer treatment plants even if imported supplies were cut off by the earthquake event. This would allow Metropolitan to continue to meet member agency demands throughout the emergency.

Figure 6: Location of the RRWP Relative to the San Andreas Fault

3.4 Benefits to the Region from Implementing DPR

The location of two of Metropolitan's water treatment plants in relation to the proposed RRWP facilities provides an opportunity for purified water to supplement raw water supplies to a drinking water treatment plant. The median daily average flow at the Diemer and Weymouth treatment plants over a 10-year period (2009 through 2018) ranged from 120 to 293 mgd. As the Weymouth and Diemer plants are two of the three treatment plants that supply treated water to a large part of the service area, introduction of the purified water to these two treatment plants would augment a significant portion of Metropolitan's treated water distribution system, further enhancing water supply reliability and system flexibility for Metropolitan's service area. Raw water augmentation, blending RRWP purified water with imported supplies, would replace deliveries of imported supplies and allow for additional storage of those supplies in groundwater basins or Metropolitan reservoirs.

If for any reason, the full amount of purified water cannot be delivered to the groundwater basins for IPR, it may also be possible to deliver this extra recycled water for raw water augmentation instead, allowing the AWT to operate most efficiently in continuous production. The amount of RWA flow that can be utilized for DPR will be dependent on the amount of blend water required by future regulations. In light of rapid developments related to the promulgation of DPR regulations, DPR may become a primary objective of the RRWP. Figure 7 shows a schematic of the proposed RRWP facilities for the DPR option.

As appropriate regulations are codified, and DPR through RWA is permitted, purified water could be added to Metropolitan's treated water supplies as is imported surface water, available to deliver to all member agencies. The potential benefits for Metropolitan when RWA becomes available include (1) increasing the number of available raw water sources, (2) increased drought resilience as purified water is largely independent of rainfall, (3) the ability to serve purified water to additional member agencies, and (4) improved water quality from lower TDS concentrations as compared to Colorado River water. Table 1 summarizes the additional DPR benefits realized from the RRWP.

Figure 7: Proposed Regional Recycled Water Program DPR Options

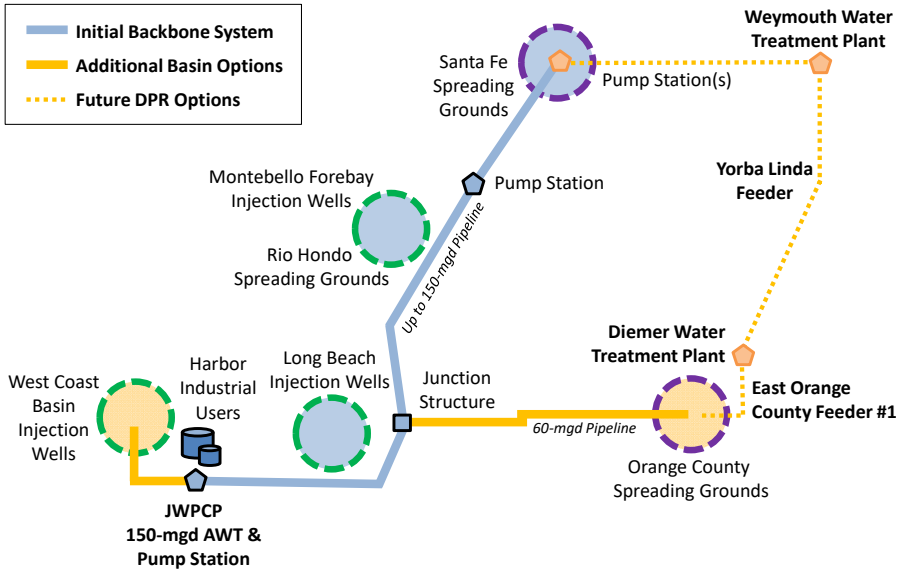


Table 1: DPR Benefits from the RRWP

Benefit	DPR Benefits
RRWP Capacity & Operations	• Helps to maintain continuous production and delivery from the RRWP that are not subject to replenishment demand variability and availability of spreading facilities • Increased flexibility for Metropolitan's integrated conveyance system to move imported water • Potential to introduce additional AWT supplies in the RRWP conveyance systems (i.e. water from LADWP's recycled water Program NEXT, see Section 6)
Drought Resistant	• Maintains raw water augmentation during droughts • Reduces potential for allocation reductions
Additional Supply Resource	• Raw water augmentation can be continued during wet weather when some IPR recharge facilities may be dedicated to stormwater capture/recharge. • Extends service along backbone pipeline to all areas served by Weymouth and Diemer WTPs
Improved Water Quality	• Lower TDS at Metropolitan's treatment plants

3.5 Compilation of Additional Benefits to the Region from Implementing the RRWP

A compilation of the RRWP's additional benefits outlined in the Feasibility and Conceptual Design Reports are shown in Table 2.

Table 2: Compilation of Additional Regional Benefits

Compilation of Regional Benefits	
Reduced reliance on imported water	• Further diversifies Metropolitan's resource portfolio by adding a new alternative source of supply with different resource attributes. • Increases the water available for a myriad of circumstances, such as short-term dry conditions, multi-year droughts, emergency curtailments on imported water, and distribution system outages. • Increases ability to rely on groundwater basins and reduces reliance on Metropolitan's imported water supplies.
Free-up conveyance capacity	• Locally produced water frees up capacity in Metropolitan's system to convey both Metropolitan water and water from non-Metropolitan sources.
Reduced vulnerability to climate change	• The effective detachment of new purified water supplies from the hydrologic cycle benefits: (1) the availability of deliveries under all weather conditions; and (2) the production of water supplies outside of critical habitat that could be adversely affected by climate change. • Protections against drought and climate change introduce a water security benefit not available with other Metropolitan sources.
Economy of scale	• Can achieve economies of scale by increasing production and lowering unit costs. • Avoids duplicative overhead costs through efficient management by a single agency.
Consistent with legislative mandate to expand water recycling, replenishment, and storage	• Production of recycled water from the RRWP would help meet future demand consistent with SB 60's directive to Metropolitan to "expand water conservation, water recycling, and groundwater recovery efforts" and "place increased emphasis on sustainable, environmentally sound, and cost-effective water conservation, recycling, and groundwater storage and replenishment measures."

4.0 POTENTIAL COST-RECOVERY APPROACHES FOR THE RRWP

This section provides a description of potential cost-recovery approaches for the RRWP. Metropolitan currently provides wholesale water services to all its member agencies, relying on a combination of water resources from the Colorado River and State Water Project, reduction in demand through local resources and conservation, and an integrated conveyance and distribution system. Accordingly, Metropolitan sets uniform rates and charges based on classes of service it provides and not by the specific water source received or portions of the system used for individual transactions. The following explores how the RRWP fits into Metropolitan's service and provides a preliminary review by staff of which cost-recovery approaches may be appropriate for RRWP deliveries.

The discussion in this section is a preliminary review of general factors and considerations for cost-recovery approaches and is not intended to be a cost-of-service study. Instead, it is provided to the Board to assist in a policy discussion about the kind of cost-recovery approach the Board would like to pursue. If, for example, the Board determines that its policy with respect to the RRWP is that all costs must only be recovered from direct recipients, then the information provided here will inform the Board about factors it should consider in adopting that policy. The Board may direct staff to conduct a cost-of-service study, internally or with consultants, at a time it deems most appropriate.

4.1 Cost Projections for the RRWP

There are many financial considerations the Board must undertake in relation to implementing a program of this magnitude. As indicated in Table 3, the RRWP is currently estimated to have a construction cost ranging from $2.6 to $3.4 billion (2018 dollars), depending on the project phasing approach approved by the Board. The estimates do not include any additional facilities needed for implementation of DPR through raw water augmentation, should that option be implemented in the future.

Table 3: Backbone System and Full Program Costs (Without DPR)[1]

Cost Description	Backbone System (2018 Dollars)	Full Program [2,3] (2018 Dollars)
Production Capacity (mgd)	100	150
Capital Program Cost [4]	$2.6 billion	$3.4 billion
Annual O&M Cost ($/year)	$69 million	$129 million
Program Unit Cost of Yield Capital Unit Cost O&M Unit Cost Total Program Unit Cost	 $1,181/AF $631/AF $1,813/AF	 $1,054/AF $772/AF $1,826/AF

Notes:
1. Costs are from the Conceptual Planning Studies Report (2018 dollars). Costs will be updated during the PEIR phase, if approved by the Board.
2. Adds Orange County and West Coast Basin deliveries to the initial Backbone System
3. Does not include cost for DPR to Weymouth or Diemer WTPs
4. Costs include a 25 percent contingency for engineering services and a 35 percent overall program contingency.

In addition to the construction costs, annual operations and maintenance costs are estimated to be $69 million for the Phase 1 Backbone System and up to $129 million for the full Program, not including DPR. Along with the Backbone System and full Program costs, Table 1 also provides the accompanying projected unit costs for the recycled water for each phase of the Program.

Estimates of the RRWP costs will be updated as part of the environmental planning process for the project. It should be noted that unit costs referenced above and later in this paper reflect the raw costs of this project divided by the acre-feet produced. Sharing of these costs with partner agencies and accounting for potential grant opportunities could substantially reduce the unit cost.

4.2 Potential Cost-Recovery Approaches Reviewed for the RRWP

The potential cost-recovery methods for a Metropolitan project must be evaluated in the context of Metropolitan's organizational structure, wholesale water services, conveyance and distribution system, and the purpose the project meets for Metropolitan. The *Technical Memo: Case Study Compilations – Methods of Recovering Revenue Requirements from Significant Capital Projects*, Appendix G to the Feasibility Study, provides examples of cost-recovery approaches for large-scale projects. The examples vary by water agency, based on the circumstances of those projects and the types of services provided by those agencies.

This section provides an overview of potential cost-recovery approaches and a discussion of whether those approaches would or would not be appropriate for the circumstances of the Program or

Metropolitan's services. The cost-recovery approaches discussed do not contain a full cost-of-service analysis. The discussion includes a review by staff of the following approaches:

1. *Direct Recipient Pays 100% of Metropolitan's RRWP Costs* - Recover 100% of Metropolitan's RRWP costs only from those member agencies that directly receive purified water from the Program (direct recipients);

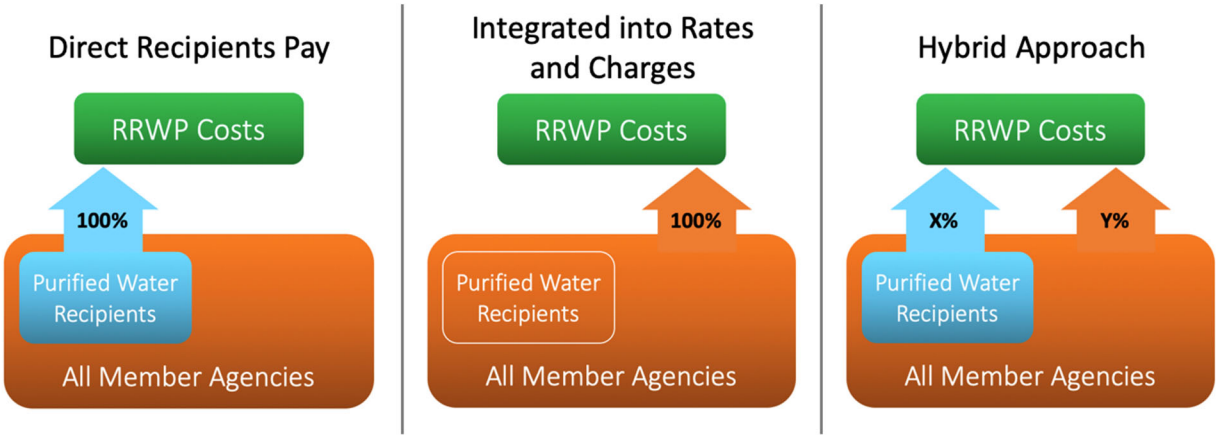
2. *RRWP Costs are Integrated into Metropolitan's Water Service Rates and Charges* – Recover 100% of Metropolitan's RRWP costs by integrating those costs into Metropolitan's regional wholesale water service costs and recover the integrated costs through an integrated rate structure based on the cost-of-service process; and

3. *Hybrid Cost Recovery*– Implement a hybrid cost-recovery approach in which a portion of the costs are recovered from member agencies directly receiving purified water and the rest is recovered through Metropolitan's costs integrated rate structure.

Figure 8 provides a schematic overview of the cost-recovery approaches discussed below. Sections 4.3 through 4.5 provides a preliminary evaluation of suitability of each approach.

Funding of major projects for Metropolitan were historically funded through the collection of a special tax or charge on all real property within Metropolitan's service area. Similar to those early major projects, the RRWP is planned for the benefit of Metropolitan's entire service area, as it enhances availability of service for all member agencies and all property within Metropolitan's service area. Thus, its purpose and benefits are similar to the Colorado River Aqueduct (CRA) and the State Water Project (SWP). Those projects were paid with property taxes by all owners of real property throughout Metropolitan's service area. This approach, however, is impractical today in that Metropolitan's service area covers 5,200 square miles and procedural requirements for approval by the voters have changed significantly since the elections on the CRA and SWP. For that reason, staff has not included further evaluation of such a funding option.

Figure 8: Overview of Cost-Recovery Approaches



4.3 Approach: Direct Recipients Pay 100% of RRWP Costs

Under this approach, Metropolitan would recover 100% of the RRWP costs only from those member agencies that directly receive the purified water from the RRWP. The following factors are considered relevant for evaluating this potential cost-recovery approach.

Direct recipients would pay significantly more than they would pay for replenishment supplies they already purchase at Tier 1 rate, or any other full-service rate in place at the time of the RRWP completion. With the direct pay approach, the member agencies that purchase the purified water from the RRWP would pay approximately $1,800 per AF for replenishment supplies. If the direct recipients of the water are required to pay for the full cost of the RRWP, the direct recipients would pay significantly more for water that they can already purchase from Metropolitan at the full-service untreated rate (currently $731 per AF) for an increase of about $1,100 per AF). They would pay more to meet the same demands currently being met by Metropolitan with imported water. They would also pay for the costs of providing the RRWP benefits to all 26 member agencies. This would mean that under this approach, the direct recipients would be paying significantly more than their fair share of the project cost and would be unlikely to participate in the Program, making the benefits of the Program also unavailable to the rest of the region.

Other agencies would receive the benefits of direct recipients' firm commitments, but not be required to pay. Under any approach, the RRWP would require a firm commitment from the direct recipients. This commitment exceeds any obligation currently required for Tier 1 purchases. Today, member agencies purchase water at their own need-based schedule, or based on a voluntary purchase order, and everyone shares in the integrated costs. However, under this approach, direct recipients would provide all 26 member agencies the reliability of a firm purchase commitment from the direct recipients but would receive no benefit for the commitment. Additionally, based on the integrated nature of the RRWP into Metropolitan's existing system and services, a cost-recovery approach that charges direct recipients the entire costs of the RRWP would not reflect costs of providing the benefits to all member agencies that are attributable to the entire regional service. Because other member agencies throughout the service area would receive benefits of the reliability and availability of Metropolitan water, they should share in the cost of the Program. As discussed in Section 3, those benefits are not incidental to Metropolitan's integrated water service.

The improved water quality from RRWP water provided to direct recipients is balanced by the use restrictions and commitments associated with receiving that water. Although direct recipients would receive higher quality water from the RRWP than may be the case for imported water, deliveries of RRWP water will not be flexible. Therefore, although improved quality would be welcomed by direct recipients, the use of RRWP is not flexible and requires additional commitments. Because Metropolitan may dedicate the use of the RRWP for replenishment and other uses by direct recipients, it frees up water and reliability of the rest of Metropolitan's system. The balance is consistent with Metropolitan's integrated service.

The direct pay approach is incompatible with DPR. The RRWP may be able to supply recycled water for both IPR for replenishment and for DPR through raw water augmentation. Therefore, it would not be equitable for direct recipients to incur 100% of the costs of a program that could also deliver water directly to Metropolitan's treated water system. Additionally, the extent of the role of DPR in the Program is undefined at this time. Therefore, it is impractical to separate costs of the program dedicated to DPR from the benefits to direct recipients.

Summary. In summary, the following factors are relevant for evaluating this approach:

- Direct recipients would pay significantly more for replenishment water than they currently pay to meet the same demands.
- Other agencies not directly receiving the water would be receiving the benefits of direct recipients' firm commitments and not paying for them.
- Firm commitment from the direct recipients would be mandatory, but not credited to them.
- The improved water quality from RRWP water provided to direct recipients is balanced by the use restrictions and commitments associated with receiving that water.
- The Program benefits Metropolitan's integrated resources and system for all 26 member agencies.
- This approach is not compatible with the DPR component of the Program.

Therefore, the direct pay approach is not currently considered a reasonable cost-recovery approach in light of the current objective and planned operation for the RRWP.

4.4 Approach: Integrated Costs into Metropolitan's Rates and Charges

Under this approach, 100% of Metropolitan's RRWP costs would be integrated into Metropolitan's regional wholesale water service costs and rates and charges for services. This means that all Metropolitan member agencies would pay for the RRWP within the integrated rate structure, in accordance with a cost-of-service study to determine the proper rates and charges. Per the Conceptual Planning Studies Report for the RRWP, it is estimated that the Metropolitan untreated rate would increase for all member agencies by about $170 per AF (full Program, 2018 dollars), if the costs are integrated in this manner. The following factors are relevant to evaluate this potential cost-recovery approach.

The effects of meeting replenishment demands with purified water support an integrated approach. Purified water would replace member agencies' current demands on Metropolitan's imported water supplies for groundwater replenishment, making that imported water available to meet other regional demands on Metropolitan. Alternatively, that water could be placed in storage for future emergency and dry-year needs for the entire service area. Currently, Metropolitan delivers approximately 213 TAF per year on average to all member agencies for groundwater replenishment. Metropolitan anticipates an increase in demand for groundwater replenishment (resulting from both increased production and increased recharge needs due to climate change), which could be met with purified water from the RRWP rather than water from the SWP or the CRA. Imported supplies replaced by the Program become available for all agencies, may be stored, and create delivery flexibility.

Mandatory firm commitments for purified water benefits all member agencies. Under any approach, the RRWP would require firm commitments from direct recipients. This commitment exceeds any obligation required for Tier 1 purchases. Currently, member agencies can purchase water for replenishment whenever they would like, which requires more planning and standby than would the constant delivery of water from the RRWP. Therefore, the stabilization of deliveries to groundwater basins is a benefit for both the direct recipients and for all of Metropolitan's member agencies and is associated with the costs of providing Metropolitan's ongoing service to all agencies.

The improved water quality from RRWP water provided to direct recipients is balanced by the use restrictions and commitments associated with receiving that water. Although direct recipients would receive higher quality water from the RRWP than may be the case with imported water, deliveries of RRWP water is not flexible. Therefore, although improved quality would be welcomed by direct recipients, the use of RRWP is not flexible and requires additional commitments. Because Metropolitan may dedicate the use of the RRWP for replenishment and other uses by direct recipients, it frees up water and reliability of the rest of Metropolitan's system. The balance is consistent with Metropolitan's integrated service, as do Metropolitan's other water resources.

DPR through raw water augmentation supports an integrated approach. If DPR is approved for direct integration of the RRWP into Metropolitan's treated water system in the future, it would further support the integrated cost-recovery approach. The RRWP would supply both direct recipients for groundwater replenishment and the Common Pool for all member agencies. Groundwater replenishment provides a use for the purified water developed by the Program until DPR methods are fully available to Metropolitan. Thus, the integration of the Program into Metropolitan's system is even more evident given the objective the RRWP to accommodate the flexibility for DPR in the future.

Use within Metropolitan's integrated system supports an integrated approach. The RRWP would be developed to integrate the Program into Metropolitan's existing water service and would meet existing and future demands by its member agencies with its new source of purified water. Accordingly, integration of the RRWP costs into its revenue requirements and recovery of those costs through generally applicable rates and charges for its water services would reflect the objective of the Program. It would reflect the costs of Metropolitan providing its water services to all its member agencies. Cost-recovery approaches that assign all costs to only those Metropolitan member agencies that directly receive purified water would not reflect the purpose of the Program and its integration into Metropolitan's wholesale water services.

The RRWP serves a purpose within Metropolitan's existing wholesale water services with benefits as detailed in Section 3 above. The approximate 168,000 AF of annual deliveries of purified water to groundwater basins for IPR and to Metropolitan's treatment plants for DPR would make an approximate equivalent amount of Metropolitan's imported water supplies available for Metropolitan's regional wholesale water service to all its 26 member agencies. The imported water freed up as a result of the RRWP would also be available for dry-year and emergency storage for use by Metropolitan for all its member agencies. Additionally, the production of purified water within Metropolitan's service area would reduce the use of, and increase capacity in, the integrated conveyance system that delivers water into Metropolitan's service area.

By increasing the options to meet demands in any particular area throughout the District service area, the RRWP adds flexibility to Metropolitan's system by ensuring full utilization of Metropolitan's water resource portfolio. Since Metropolitan's system is interconnected, Metropolitan can address constraints in one area of the system for the benefit of the entire system as a whole. Deliveries of RRWP purified water can be coordinated with imported water to optimize system operation. In the future, the fully expanded RRWP system or water previously used for IPR could be routed to potable water treatment plants for DPR, which would allow this water to be served to multiple agencies just like imported water, providing a regional benefit.

The RRWP would therefore, enhance Metropolitan's resources, system flexibility, system and reliability to benefit all Metropolitan member agencies. If direct recipients paid 100% of the RRWP, they would also pay for the system reliability and flexibility provided by the RRWP to the entire Metropolitan system. If the objective and planned operations of the program change significantly, then a different cost-recovery approach may be more reasonable. However, under the current objectives, planned operations, and purpose of the Program, an integrated cost-recovery approach is considered a reasonable cost-recovery approach for the RRWP.

The RRWP would also benefit the service area in the event of a catastrophic earthquake by increasing the seismic resilience in the service area for all member agencies. By providing a reliable, local supply of high-quality water for groundwater replenishment and for raw water augmentation throughout a seismic emergency, the RRWP would provide insurance for all member agencies. Purified water from the RRWP would be available to keep water flowing in Weymouth and Diemer treatment plants even if imported supplies were cut off by the earthquake event. This would allow Metropolitan to continue to meet member agency demands throughout the emergency.

The RRWP would also benefit all member agencies by increasing the resilience to climate change. Recycled water is largely independent of long-term weather and climate change impacts. Therefore, protections against drought and climate change introduce a water security benefit not available with other Metropolitan sources.

Summary. In summary, the following factors are relevant for evaluating this approach:

- Direct recipients would pay the integrated full-service rate for replenishment water as they currently pay, as deliveries would replace current imported supplies for deliveries.
- Other agencies not directly receiving the purified water would receive benefits and all member agencies would pay for all benefits.
- Firm commitment would still be required from direct recipients for water not used for DPR, but the integrated rate structure could account for the mutual benefits of the arrangement.
- The improved water quality from RRWP water provided to direct recipients in balanced by the use restrictions and commitments associated with receiving that water.
- Captures the role of the RRWP, which adds to the flexibility and reliability of Metropolitan's services, sources, and system.
- This approach would apply to both the IPR portion and the DPR portion and would be fully integrated into the current rate structure.

Therefore, based on the purpose and anticipated benefits of the Program, the Integrated Approach is considered a reasonable approach at this stage of development.

4.5 Approach: Hybrid of Different Cost-Recovery Approaches

The hybrid cost-recovery approach refers to one in which a portion of the costs are recovered from member agencies directly receiving purified water and the rest of the costs are integrated into

Metropolitan's costs, recovered through the integrated rate structure applicable to all member agencies. This section does not discuss a specific hybrid proposal with identified percentages for splitting the RRWP costs between direct recipients and Metropolitan's integrated rate structure. Instead, it provides general information for the Board to evaluate whether to pursue a hybrid approach. The following factors are relevant for evaluating this approach and may be used by staff in conducting a cost-of-service study.

The benefits of the RRWP for direct recipients and other member agencies are not mutually exclusive. Metropolitan operates its system to ensure reliability at each service connection. It achieves that reliability using the flexibility built into its system. For example, even though one member agency may regularly receive water only from one of Metropolitan's water sources, Metropolitan designs and operates its system so that it may be ready to serve water from a different source when necessary. This system integration and flexibility is essential to Metropolitan's operations. Therefore, it makes it unrealistic and potentially unfair to attempt to separate the costs of providing benefits to any particular agency or service connection if the RRWP is integrated into Metropolitan's operations and planning, directly or indirectly.

Costs related to benefits that are specific to the delivery of purified water to direct recipients and severable from other costs may potentially be addressed through an integrated rate structure instead. If there are quantifiable and severable costs that may be attributable solely to the delivery of water to direct recipients, those may potentially be captured through a rate or charge component in Metropolitan's integrated rate structure. A cost-of-service study is necessary to evaluate this potential option.

Rather than split RRWP costs by percentage attributable only to direct recipients and to the integrated service, the costs of particular functions associated with delivery of purified water may serve to develop rate or charge component within the integrated structure. For example, Metropolitan's capacity charge and Readiness-to-Serve charges reflect particular functions within Metropolitan's integrated rate structure; they are not a separate hybrid cost-recovery approach that separates Metropolitan's service by user, water source, or location. For the RRWP, Metropolitan may consider direct recipients' firm commitments, water quality, restricted use, the effect of the RRWP on the reliability of all of Metropolitan's service, and other factors to be determined through a cost-of-service analysis.

Therefore, the development of a rate or charge component to capture the unique functions associated with the RRWP is favored over attempting to split the purpose and costs of the RRWP between direct recipients and Metropolitan's integrated service. The costs attributable to providing regional benefits would be difficult to quantify. The benefits to all member agencies of added system flexibility, resource flexibility, increased reliability, water quality, shortage reductions, and others are not separately quantifiable for an integrated system. Thus, because not all costs attributable to providing benefits can be segregated between direct recipients and all other member agencies, a separate charge to member agencies could likely not capture all the shared benefits. A hybrid approach in which costs are split between direct recipients and Metropolitan's integrated service might be more feasible if those recipients were not member agencies already sharing in the benefits of the existing integrated system.

The hybrid approach is incompatible with DPR. DPR is developing into a significant objective of the Program, which would physically integrate the Program to the rest of Metropolitan's system. DPR would allow flexibility between deliveries to groundwater basins and to Metropolitan's treatment plants. It would also add direct resource flexibility for all the member agencies. Additionally, the extent of the role of DPR in the Program is unknown at this time. It is impractical to separate costs of the Program

dedicated to DPR from the costs of providing benefits to direct recipients. Therefore, quantifying direct benefits to direct recipients is challenging under Metropolitan's integrated wholesale water system and service. It would likely be impractical to implement a hybrid cost-recovery approach that may properly reflect the RRWP's role in Metropolitan's service.

Summary: In summary, the following factors are considered in evaluating this approach:

- The benefits of the RRWP accrue to all member agencies.
- Costs related to benefits that are specific to the delivery of purified water to direct recipients and severable from other costs may potentially be addressed in an integrated rate structure through an integrated rate structure instead.
- The hybrid approach is incompatible with the intended DPR objective of the Program.

Therefore, a hybrid approach in which the costs are attempted to be split between direct recipients and Metropolitan's integrated service may be unreasonable given the purpose and role the RRWP would have in Metropolitan's integrated system. Instead, it may be possible to capture appropriate additional costs of benefits attributable solely to the delivery of water to direct recipients through a rate or charge component added to the integrated rate structure. However, a cost-of-service study should be conducted to determine if any such component is appropriate.

4.6 Summary of Potential Cost-Recovery Approaches

Table 4 provides a summary of the cost-recovery approaches introduced in this Paper.

Table 4: Summary of Significant Factors for Cost-Recovery Approaches

Factor	Direct Recipients Pay 100%	Integrated Approach	Hybrid Approach
Cost Impact to meet same replenishment demands	Significant increase in cost to direct recipients	No significant increase in cost because cost recovery is through current rate structure	The cost impact is unclear and depends on the hybrid selected
Cost recovery accounts for regional benefits	No	Yes	Depends upon how hybrid approach is implemented
Firm commitments from direct recipients would be mandatory	Yes	Yes	Yes
Reasonable	No	Yes	Unlikely

The current evaluations and financial program planning assume that the RRWP is integrated into Metropolitan's operations and service, based on currently available information. The overview of cost-recovery approaches is provided to seek guidance from the Board regarding the cost-recovery approaches

under which it is interested in pursuing the Program. To the extent the Board envisioned a cost-recovery approach that is inconsistent with the objective and benefits of the Program, as reviewed here, the information in this White Paper may be helpful for Board discussion.

5.0 AGREEMENTS AND ARRANGEMENTS

5.1 Purchase Commitments for Water Deliveries

Metropolitan must have assurances that member agencies taking purified water are able and willing to do so and are committed to meet their purchase obligations. The flow of purified water is expected to be up to 150 MGD about 85% of the time. Disruptions in deliveries have the potential of impacting the Sanitation Districts' wastewater treatment plant processes, increasing AWT Facility O&M, and creating operational issues at the AWT Facility and along the conveyance/recharge systems. While Metropolitan is considering the future regulations for DPR in the RRWP planning, initial implementation of the RRWP may be dependent on groundwater replenishment deliveries. And even if RRWP purified water could be delivered for DPR, deliveries to groundwater basins would still be necessary to accommodate capacity or operational constraints that may arise at Metropolitan's water treatment plants.

Thus, the successful operation of the RRWP will require agreements between Metropolitan and future direct recipients of purified water, committing them to receive contracted deliveries and to pay for such deliveries. The specific terms of any purchase agreement between Metropolitan and direct recipients will depend, in part, on the finalization of details of the Program through environmental and engineering planning, the capacity of the recharge facilities and groundwater basins, a cost-of service study, and the cost-recovery approach directed by the Metropolitan Board of Directors.

Potential direct recipients of the Program are member agencies overlying four groundwater basins within Metropolitan's service area. As summarized in Chapter 6 of the Feasibility Study and also Chapter 6 of the Conceptual Planning Studies Report, Metropolitan staff has worked with staff from each of those member agencies which could take RRWP water to determine their capacity to take purified water from the Program in-lieu of Metropolitan's untreated water. However, purchase agreements, or even terms for a purchase agreement, are not likely to be developed until a cost-recovery approach is determined, and from that, the price term is known or estimated. These items would be informed by the upcoming environmental and engineering planning process.

Metropolitan has already entered into letters of intent (LOIs) with several of the parties. Prior to developing a formal purchase agreement with member agencies, Metropolitan's Board may also consider whether to enter into an interim memorandum of understanding (MOU) or some other documentation of the parties' intent to develop future purchase agreements. Discussions with the potential member agencies concerning the preparation of LOIs and MOUs are continuing discussed in Section 6. Copies of the LOIs are included in Appendix A.

5.2 Arrangements for Introduction of Purified Water into Groundwater Basins

Metropolitan does not currently operate groundwater facilities and there is no plan for Metropolitan to do so in connection with the RRWP. Metropolitan aims to deliver purified water to member agencies along the planned conveyance system to either existing service connections or to new service connections. Metropolitan may cooperate with member agencies in the construction of any new service connections, recharge ponds, or injection wells necessary to introduce water into groundwater basins. However, the

intent is for ownership of purified water to transfer to the member agency at the service connection in accordance with the Metropolitan Administrative Code, in the same manner as Metropolitan currently delivers water for replenishment.

Even though Metropolitan does not intend to operate groundwater recharge facilities in connection with the RRWP, it is necessary to generally understand the institutional arrangements that may be required in each groundwater basin for the successful use of RRWP water. Success of the RRWP depends on the receipt and storage of purified water into the intended groundwater basins.

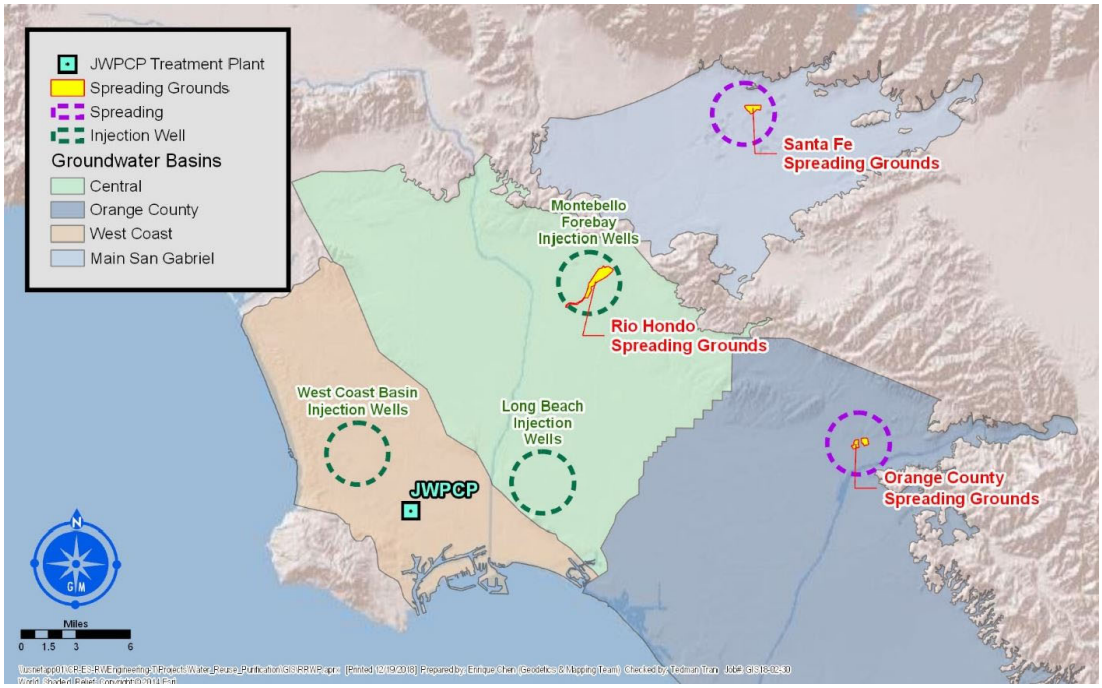
Metropolitan currently delivers water to the following agencies for replenishment within the groundwater basins in their service areas: Central Basin Municipal Water District (MWD), West Basin MWD, City of Torrance, City of Long Beach, Upper San Gabriel Valley MWD, Three Valleys MWD, and the Municipal Water District of Orange County (MWDOC). Purified water for replenishment in those basins would require many of the same institutional arrangements already in place between the member agencies and the basin managers for existing deliveries. To the extent that those groundwater basin managers require additional approval processes specifically for the introduction of purified water into the basins, Metropolitan will cooperate with the member agencies to seek such approval. In addition to replenishment, purified water may be stored by the member agencies or others in the basins for extraction at a later date. Storage in each basin is governed by a different process. Metropolitan will cooperate with member agencies to assist with those processes.

Figure 9 shows the intended groundwater basins with specific management information for each of the groundwater basins provided below.

Central and West Coast Basins. The Central Basin and West Coast Basins are governed by two separate court judgments. Implementation of those judgments is administered and governed by a Watermaster, which includes storage panels made up of representatives of water rights holders and the Board of Directors of the Water Replenishment District. Approval from the storage panels is necessary to store water in the Central and West Coast Basins. Unless Metropolitan intends to store its water directly into the basins, which is not currently proposed as noted above, it is not anticipated that the storage framework will apply differently. Deliveries of purified water for groundwater replenishment are anticipated to be treated in the same manner as current Metropolitan deliveries. New regulatory requirements may, however, be applicable for introduction specifically of the new type of water, which will be coordinated with the State Division of Drinking Water, the Los Angeles Regional Water Quality Board, the Watermaster, and other applicable regulatory agencies.

Main San Gabriel Basin. The Main San Gabriel Basin is also governed by a court judgment, administered by a Watermaster. Introduction of any water into the Main San Gabriel Basin, including current Metropolitan deliveries, is governed by the judgment. The Watermaster Rules require a cyclic storage agreement for any introduction of water. It is anticipated that deliveries of purified water to this basin will be subject to the same requirements currently in place for existing replenishment deliveries. However, new regulatory requirements specific to purified water may also apply that will involve coordination with the Watermaster and the applicable regulatory agencies.

Figure 9: Intended Groundwater Basin Participants



Orange County Basin. In the Orange County Basin, the Orange County Water District (OCWD) governs groundwater management through its statutory authority. To the extent member agencies overlying the Orange County Basin wish to store water in the basin for later extraction, it must obtain approval from OCWD. Metropolitan will work with its member agencies to the extent the introduction of purified water into the Orange County Basin is subject to different rules under the applicable rules and regulations. Metropolitan will also work with those parties to obtain all required permits from the applicable regulatory agencies. As of the date of this report, Metropolitan is not actively pursuing a Letter of Intent with the Orange County Basin parties. Deliveries to the Orange County Basin remain an option for the RRWP, which can be further considered as the environmental and engineering planning work is completed.

Table 5 highlights some of the potential arrangements required for introduction of the purified water into the groundwater basins.

6.0 POTENTIAL COLLABORATION AND FUNDING OPPORTUNITIES

6.1 Opportunities for Collaboration and Current Partnerships with Other Agencies

Metropolitan welcomes the possibility of partnering with other agencies to ensure the success of the RRWP. It is envisioned that Metropolitan will continue to be the owner and operator of the RRWP and conveyance system for the benefit of its member agencies and as an integrated part of Metropolitan's services to its agencies. This approach is consistent with Metropolitan's long-term planning, its needs, and its mission. However, Metropolitan is exploring partnership opportunities that provide funding sources for construction and operations costs, thereby reducing the estimated $1,800 per AF costs. A summary of current and potential partnerships with other agencies is provided in Table 6.

Table 5 – Arrangements for Introduction of Purified Water into Groundwater Basins

Topic	Description
Multiple Agencies Potentially Involved in the Process	Watermaster organizations, groundwater basin managers, Los Angeles County Department of Public Works, State Water Resources Control Board, Regional Water Quality Control Board (RWQCB), cities in which new facilities are built for introduction of water into basins.
MWD Service Connection Points	New connections are intended to be treated in the same manner as existing connections. Service connection agreements would be required for new connections.
Facility Requirements	Facility requirements would vary by installation, but could include pipelines, meter structures, well relocations, pump stations, discharge structures, injection wells. Maximum design discharge flows of the delivery facilities would be defined.
Delivery Schedule	The schedule for deliveries of RRWP purified water would be mutually agreed by member agencies and basin managers, and must be consistent with Purchase Agreements between member agencies and Metropolitan.
Water Quality Specifications	Purified water will meet the Water Quality Control Plan (Basin Plans) objectives for specific constituents as established by the applicable RWQCB. Detailed water quality specifications will be finalized between basin managers, any applicable regulatory agency, and the member agencies. Metropolitan will be involved as required to ensure its water quality specifications meet those required in the basins.
Groundwater Modeling	Metropolitan may provide monitoring wells to meet the regulatory travel time requirements as required by the regulations.
Ownership of the Water	Member agencies will own all delivered purified water received and accepted at the service connection, in the same manner as current Metropolitan deliveries.

Table 6 – Current Partnerships with Other Agencies

Agency	Role in Partnership	Notes
Los Angeles County Sanitation District	• Source water from JWPCP • In-kind services • New facilities and operation requirements, if Secondary MBR selected • Land, power and technical support for the demo plant	• In partnership since 2010 Demonstration plant and Term sheet for full-scale AWT Agreement in 2015 • Ongoing coordination meetings • Investigating secondary MBR impacts to the JWPCP • Amendment to 2015 Agreement proposed for November 2020 Board approval • Future full-scale AWT agreement needed
Southern Nevada Water Authority	• Potential transfers or exchanges of Colorado River or State Water Project supplies in return for investment in the RRWP	• Letter of Intent from SNWA signed and included in Appendix A • Agreement for Environmental Phase Services collaboration proposed for November 2020 Board approval

Metropolitan and the Sanitation Districts have been in partnership to develop the RRWP since 2010. As the provider of the water for the RRWP, the Sanitation Districts are integral to the success of the RRWP. They recognize that operation of the RRWP would assist in meeting the Sanitation Districts' recycled water goals. The Sanitation Districts have already provided in-kind services toward the project, and to date, have provided land, lab services, and an evaluation of source control. Importantly, Metropolitan and the Sanitation Districts will also explore the possibility of constructing new basins or converting one of the existing basins to provide secondary MBR treatment before delivery of the effluent to the AWT, which could reduce Metropolitan's overall cost for the RRWP

Metropolitan may also consider partnerships including transfers or exchanges of Metropolitan's Colorado River or SWP supplies in return for a financial investment in the RRWP. For example, there may be opportunities to transfer storage in Lake Mead in exchange for participation in the RRWP. Metropolitan and Southern Nevada Water Authority (SNWA) has recently signed a letter of intent to work cooperatively together to develop the RRWP and potential future Colorado River exchanges. SNWA is a Nevada joint powers authority and a political subdivision of the State of Nevada. Metropolitan has also received a similar joint letter of intent from the Central Arizona Project and the Arizona Department of Water Resources.

6.2 Opportunities for Collaboration and Status of Letters of Intent with Other Potential Partners

Agreements between Metropolitan and other agencies would be a two-step process, beginning with a non-binding LOI followed by a formal Memorandum of Understanding (MOU). The provisions of the LOI represent a statement of the Parties' general intent to continue collaboration discussions with the goal of developing a future agreement or MOU. The future agreement, if approved by both parties, would be binding and could include requirements for such parameters as capacities, cost, delivery schedule, and water quality. Metropolitan has already entered into LOIs will several of the parties. Table 7 summarizes the collaboration opportunities and current status of LOIs with the partners as of July 2020. Copies of completed LOIs are included in an Appendix A to this White Paper. Potential opportunities with other agencies may nor may not include financial participation. Metropolitan has already been in discussions with a number of local agencies to collaborate and maximize recycled water use within the region.

LADWP is pursuing a 150 mgd recycled water program to recycle all of the water from the Hyperion Wastewater Treatment Plant. The proposed program is called Operation NEXT. The program would convert the Hyperion Plant to a MBR facility, add advanced treatment, and deliver the water to various points in the City for potable reuse, including a connection to the RRWP's backbone pipeline for treatment at the Weymouth WTP. MWD and LADWP staff are meeting regularly and coordinating the synergy between the two programs.

6.3 Grant and Low Interest Loan Programs

Potential grant and loan funding opportunities are available from multiple sources including the federal government and state government, as well as from local agency partnering such as the Sanitation Districts and other agencies. There are also some limited opportunities for funding through non-profit research funds and public-private partnerships. Grant and loan funding is an attractive source of supplemental funding for the RRWP, but has various eligibility, timeline, and reporting requirements. Summary of grants and loans available to Metropolitan is provided in Table 8.

Table 7 – Opportunities for Collaboration and Status of LOIs with Other Potential Partners

Agency	Collaboration Opportunities	Notes
City of Los Angeles • **LADWP** • **LA Bureau of Sanitation**	• Meet demands at two South Bay refineries (up to 10 mgd included in Approach 3) • Connection to the RRWP Backbone Pipeline to supply recycled water into the RRWP (up to 50 mgd for RWA at Weymouth WTP) as part of Operation NEXT • Connection to the Jensen WTP to supply recycled water (50 mgd RWA source) as part of Operation NEXT • Source control and purified water quality	• LOI signed and included in Appendix A • Regular coordination meetings to discuss water quality, technical issues, enhanced source control, demo plant testing • Continuing demand for IPR even if RWA is implemented • Agreement to take purified water from Operation NEXT would be needed
• **USGVMWD** • **Three Valleys MWD** • **MSGB Watermaster**	• Main San Gabriel GW Basin • Raymond Basin/Six Basins demand transfer • RRWP Backbone Pipeline to supply replenishment water to the Santa Fe Dam area (potential 38 mgd up to 72 mgd)	• LOI signed and included in Appendix A • Ongoing collaboration meetings • Continuing demand for IPR even if RWA is implemented • Agreement to take purified water needed
• **LBWD** • **TORRANCE** • **WRD**	• West Coast and Central GW Basins • Regional Brackish Water Reclamation Program • Groundwater augmentation (potential up to 4 mgd) in West Coast Basin • Replenishment water (potential 9 mgd up to 20 mgd) in Central Basin	• LOI signed and included in Appendix A • Ongoing collaboration meetings • Continuing demand for IPR even if RWA is implemented • Agreement to take purified water needed
• **LACFCD**	• Shared recharge basins at Santa Fe Dam	• LOI signed and included in Appendix A • Ongoing collaboration meetings
• **CAP** • **ADWR**	• Reliability and resiliency of the Colorado River water supply • Collaboration on regulatory issues • Potential exchanges of Colorado River water supplies	• Joint LOI from the Central Arizona Project and Arizona Department of Water Resources signed and included in Appendix A.
• **CBMWD** • **WRD**	• Central GW Basin Groundwater augmentation (potential up to 9 mgd)	• LOI under consideration • Coordination with LADWP's Operation NEXT • Agreement to take purified water needed
• **WBMWD**	• West Coast GW Basin	• LOI in development • Ongoing collaborative meetings
• **MWDOC** • **OCWD**	• Orange County GW Basin • Groundwater augmentation (potential up to 46 mgd, if included in a future phase)	• Coordination with existing GW augmentation & future seawater desalination • Agreement to use spreading grounds would be needed • Demands may be impacted by proposed seawater desalination project • LOI not being pursued at this time

Table 8 - Summary of Grants and Loans Available to Metropolitan

Program	Amount	Notes
Grants		
USBR Title XVI Reuse Research Grant	$750,000	• Awarded $750,000 grant to study pathogen removal with alternative treatment technology • Requires 75% match • No feasibility study required
California Water Recycling Funding Program (WRFP) & State Prop 1 /68 WRFP	Up to $5 million	• Awarded $1,000,000 Pilot Project grant for Demonstration Plant research. • Received approximately $300,000 from four groundwater planning grants. • High demand for funding. Majority of remaining funding already allocated. Full scale RRWP should be submitted as soon as approved to be eligible for remaining funding
USBR Title XVI	Up to $20 million	• Received approval of feasibility study on 4/6/20 and our now eligible to apply for future funding under the Title XVI WIIN Program. • High demand for funding. Project funding typically occurs over multiple funding cycles.
Low Interest Loans		
USEPA Water Infrastructure Finance and Innovation Act (WIFIA) program	Up to 49% of eligible project costs	• WIFIA loans provided at the current US Treasury rate (~2-3%) with repayment terms up to 35 years. Minimum project: $20M for large communities. NEPA, Davis-Bacon, American Iron and Steel, and all other federal provisions apply.
California Clean Water State Revolving Fund (CWSRF)	Up to 50% of eligible costs	• High demand for funding. Current significant backlog & reduced future funding estimate. • Support from other agencies and political leaders may facilitate receiving funding.

Notes:

1. The Maximum amount of State Proposition 1 and Proposition 68 funding is proposed to be reduced from $15 million to $5 million in the proposed WRFP guidelines.

Staff recommends prioritizing grant opportunities, followed by funding requests through the Clean Water State Revolving Fund (CWSRF) low-interest loan program because the project eligibility is more in alignment with the proposed RRWP, the size of the loan is up to 50 percent of the project cost, the interest rate is half the general obligation bond rate (~2 percent), and repayment is up to 30 years. There are some significant concerns with the CWSRF loans requirements regarding lien parity, limitations on future bond issuances, and mandatory bond reserve funds that will need to be negotiated before an agreement should be accepted. A more detailed discussion of the grant and loan opportunities are provided in Chapter10 of the Feasibility Study.

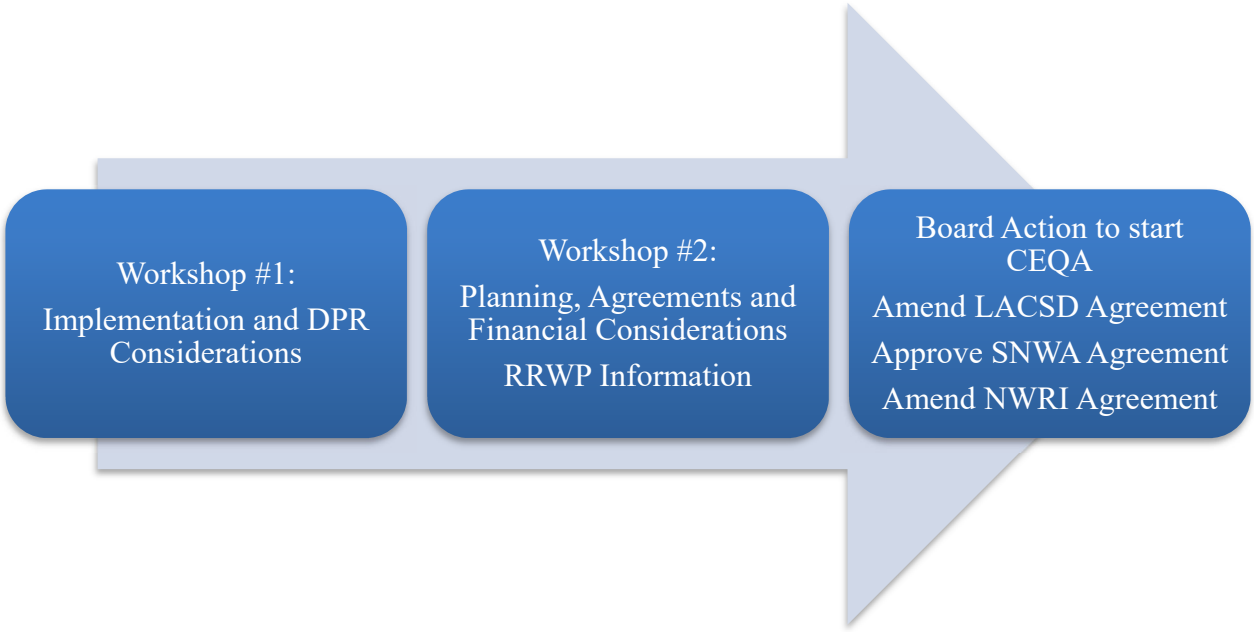
7.0 NEXT STEPS

The purpose of White Papers No. 1 and No. 2 is to provide the Board with background on the RRWP facilities that are required, how much the facilities will cost, options for how to pay for the facilities, and a

summary of the agreements that must be obtained to support the Program. Estimated costs are based on the Conceptual Study and will be updated as part of the PEIR. Figure 10 below shows the proposed next steps for the RRWP. Workshop No. 1 was held on July 17, 2019 to discuss White Paper No. 1. As with White Paper No. 1, a Board Workshop will be held at the E&O Committee meeting on October 12, 2020 to discuss White Paper No. 2. These workshops are to provide information and a forum to discuss the details of the Program, not to approve the Program.

As described above in the summary of White Paper No. 1, three approaches were proposed to implement the environmental and engineering planning for the RRWP. As part of the fiscal years 2020/21 and 2021/22 biennial budgeting process, Metropolitan's Board approved a budget for Approach 1, development of a Program Environmental Report (PEIR) and associated engineering support. In November, staff will bring an action item to the Board for consideration of beginning Approach 1. It is anticipated that if additional effort to implement Approaches 2 or 3 is desired by the Board, that additional direction would be given to staff. The biennial budget included $30 million for these efforts.

Figure 10 – Proposed Next Steps for the RRWP



As shown in this white paper, the RRWP will provide multiple benefits to Metropolitan's entire service area. Therefore, staff recommends continuing to move forward with the RRWP. After Workshop No. 2, the Board will consider whether to move forward with the next step in the implementation of the RRWP, beginning the PEIR. The November action item will include detailed information regarding the cost and scope of the PEIR and associated engineering support and an amended agreement with LACSD in support of this next phase of work. During the approximately 2 ½ years it would take to complete this phase of work, staff would also work with the Board to develop a cost-recovery approach for the project, should the Board choose to proceed once environmental and engineering planning is complete

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Appendix A

Letters of Intent (LOI)

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THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Pure Water Southern California

Addendum to White Paper No. 2

Planning, Financial Considerations, and Agreements

September 19, 2023

Introduction

This Addendum updates White Paper No. 2 (Planning, Financial Considerations, and Agreements) for the Pure Water Southern California Program (Program).

Purpose

The purpose of this Addendum is to update White Paper No. 2 to address:

- Changed conditions and updates to the Program description since White Paper No. 2 was published
- Updated Program needs assessment based on scenario planning in the 2020 Integrated Resources Plan (IRP) Needs Assessment.
- Enhanced regional benefits evaluation based on scenario planning in the 2020 IRP update

Summary of White Paper No. 2

White Paper No. 2 provided an update regarding Pure Water Southern California's role in Metropolitan's regional resource planning and included information regarding certain financial and other considerations related to the Program. It was intended that the information provided in it would assist the Board in decision-making—whether to move forward with environmental review and associated work on the Program.

White Paper No. 2 included the following topics:

- Analysis of the Program's role in regional resource planning from the 2015 IRP
- Documentation of the regional benefits of the Program
- Identification of cost recovery approaches for the Program
- Evaluation of institutional arrangements and agreements that would be required from Program participants

This Addendum was discussed at an Engineering & Operations Committee workshop on October 12, 2020.

Overview of Pure Water Southern California

Pure Water Southern California will produce 150 million gallons per day (mgd) or approximately 155,000 acre-feet per year (AFY) of purified water from a new advanced water purification (AWP) facility located at the Sanitation Districts of Los Angeles County (LACSD or Sanitation Districts) Joint Water Pollution Control Plant (JWPCP) site. In Phase 1, the Pure Water Southern California Program will also feature a new regional conveyance system that would deliver a reliable source of water for non-potable needs (NPR) and to recharge four regional groundwater basins for indirect potable reuse or IPR: Central, West Coast, Main San Gabriel, and Orange County. It will also include up to 25 mgd of purified water for direct potable reuse (DPR), through raw water augmentation (RWA) at Metropolitan's Weymouth and Diemer Water Treatment Plants (WTPs) for a total of 115 mgd in Phase 1. In Phase 2, an additional 35 mgd of purified water from the AWP plant will also be conveyed to the Weymouth and Diemer WTPs for RWA. The purified water would then be blended with raw water from the State Water Project (SWP) or the Colorado River Aqueduct (CRA) and undergo additional treatment before entry into

Metropolitan's treated drinking water distribution system. As the Weymouth and Diemer WTPs are two of the three treatment plants that supply treated water to the majority of Los Angeles and Orange Counties, introduction of the purified water to these two treatment plants would augment a significant portion (approximately 2/3 of the area) of Metropolitan's treated water distribution system, further enhancing water supply reliability and system flexibility for Metropolitan's service area.

The amount of purified water that can be used for RWA will depend on the DPR regulations, which will be finalized by 2023. The blend ratio of purified water to surface water will likely be in the range of 10 to 25 percent based on the regulations and the anticipated water qualities.

With a service area spanning 5,200 square miles in six counties, the current annual total retail demand within Metropolitan's service area is projected to range from 3.4 to 4.8 million AFY. Total retail demand includes:

- Municipal and industrial (M&I) demand (post conservation),
- Agricultural demand,
- Seawater barrier demand, and
- Replenishment demand.

At a production rate and delivery rate of approximately 155,000 AFY, Pure Water Southern California will provide 3.2 to 4.6 percent of the total retail demand within the service area through 2045.

A summary of demands in Metropolitan's Service Area is shown in **Table 1**.

Table 1: Summary of Demands in Metropolitan's Service Area Served by Pure Water

Type	2045
Total Retail Demand in Metropolitan service area	3.4-4.8 MAFY
Pure Water Southern California Planned Production and Delivery	0.155 MAFY
Percent of Total Retail Demand in Metropolitan Service Area Served by Pure Water Southern California	3.2-4.6%

Changed Conditions Since 2020

Many things have changed since publishing White Paper No. 2 in 2020. Higher temperatures in the Southwest have led to a dramatic reduction in Colorado River runoff. Variable weather in Northern California and stressed ecosystems have resulted in unprecedented low imports from the SWP. Due to drought conditions on both the SWP and the Colorado River in recent years, member agencies have had to face changes in how they receive water from Metropolitan. Likewise, in Southern California, less stormwater is percolating into groundwater basins, from too much rain at times or not enough rain at others. In 2023, hydrologic conditions have improved, but the need for climate resilience remains the same. Preparation now for the next drought cycle is imperative. Therefore, the Program is more important than ever as the region struggles with the impacts of climate change and declining storage.

Since White Paper No. 2 was published, other significant changes to the Program include:

- Board adoption of the Regional Needs Assessment of the 2020 IRP,
- Development of the Climate Adaptation Master Plan for Water (CAMP4Water)
- the State Water Board's Division of Drinking Water (DDW) has progressed in the development of criteria for direct potable reuse (DPR),
- the Colorado River partners (Southern Nevada Water Authority, Central Arizona Project (CAP), Arizona Department of Water Resources) as well as SWP contractor San Gabriel Valley MWD (SGVMWD) have expressed interest in the Program and formalized Letters of Intent (LOIs), and
- enhancements to the project including refining the member agency demands, evaluating opportunities to start the Program earlier, eliminating the direct to Orange County line, and updates to the treatment process and nitrogen limits.

The impacts to the Program from each of these changes are discussed below.

2020 IRP Regional Needs Assessment

The One Water approach to water supply reliability and resilience brings together all Southern California's interests in managing finite water resources for community and ecosystem needs. It goes beyond identifying the region's future water portfolio and embraces collaboration, diverse communities, and a unified approach to problem-solving. This 2020 IRP looks at multiple futures and builds a One Water foundation by understanding the potential needs of Southern California in the next quarter-century. Metropolitan's stated goal is 100 percent reliability for all its member agencies. The first step toward achieving this goal is identifying potential shortcomings, which speaks to the wisdom of analyzing different plausible futures.

The 2020 IRP is divided into the Regional Needs Assessment and the Implementation phase. The CAMP4Water addresses the Implementation phase. The Regional Needs Assessment was adopted by the Board in April 2022. The One Water Implementation phase is expected to be completed in 2024.

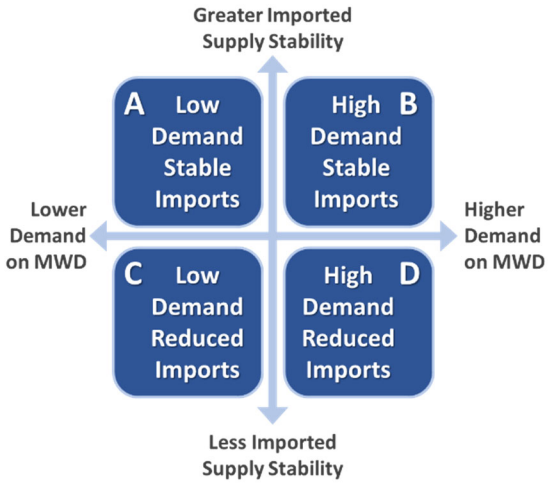
The 2020 IRP Regional Needs Assessment was an extensive process that identified and quantified vulnerabilities to water supply reliability in Metropolitan's service area. Working with its Board, member agencies, expert consultants and public stakeholders, Metropolitan identified future uncertainty in major drivers such as demographic and economic change, water use efficiency ethic and regulation, climate change, regulatory environment, and local supply development. The Regional Needs Assessment employed scenario planning to explore the water supply reliability outcomes under different planning scenarios each of which quantified the impacts of projected outcomes for water supply reliability.

The 2020 IRP Regional Needs Assessment also provided a high-level evaluation of the types of resource development that would improve water supply reliability in four scenarios (Scenarios A, B, C, and D): Each of the four scenarios is characterized by different assumptions related to imported supply stability and water demands on Metropolitan as shown in **Figure 1** and discussed below:

- **Scenario A:** This scenario is driven by a combination of plentiful regional and local supplies, a struggling economy, low population growth, and a continuing water use ethic across the state
- **Scenario B:** This scenario reflects increasing retail demands across the region resulting from population growth and a strong economy. Fortunately, climate change impacts have been manageable and imported supplies have remained stable. Increased reliance on Metropolitan resulting from groundwater contamination, has also increased demand for imported water.

- **Scenario C:** This scenario combines slow population growth and a weak economy with successful efforts among member agencies to manage water use behavior and drought-proof their local supplies. It couples a struggling economy with the rapid onset of climate change impacts that have affected imported supplies more drastically than less-vulnerable local system.
- **Scenario D:** This scenario is driven by severe climate change impacts to both imported and local supplies during a period of population and economic growth. Demands on Metropolitan are increasing due to rapidly increasing demands and diminishing yield from local supplies. Efforts to develop new local supplies to mitigate losses underperform. Losses of regional imported supplies are equally dramatic.

Figure 1 - Scenarios Identified in the 2020 IRP Regional Needs Assessment



No scenario should be regarded as "most likely" or "preferred" as each scenario has entirely plausible outcomes relative to each other. It is important to note that current water supply conditions are like those envisioned under Scenario D. These scenarios shed light on what could happen between now and 2045. They also signal the need for future "signposts" to indicate emerging needs that may require the re-prioritization of future investments and other adaptive actions. The IRP Regional Needs Assessment identifies significant threats facing Southern California's water supply reliability through successive qualitative and quantitative analysis steps. The assessment sizes up the scope of reliability challenges and the management solutions that could be in store for the region by the year 2045 under a wide range of conditions.

Completing this assessment launched the CAMP4Water, which will involve extensive collaboration among Metropolitan's Board, member agencies, and other interested parties to develop an adaptive management strategy. It will also establish a process for monitoring key reliability indicators and find joint approaches to the regional problems and resource needs identified in this assessment. The Board will decide on policy direction for future resource development (i.e., local vs. imported supply development) and on specific projects or implementation programs.

CAMP4Water

On February 13 and 14, 2023, the Board held a retreat to discuss the impacts of climate change on Metropolitan's water resources. From that retreat, Metropolitan developed the framework for the

Climate Adaptation Master plan for Water (CAMP4Water). Metropolitan's CAMP4Water integrates current climate, water resources, hazard mitigation, and financial planning efforts to prepare the region for the extremes of climate change. In collaboration with the member agencies, the Board, and members of the community, the CAMP4Water will address Metropolitan's future concerning resilience, reliability, affordability, and financial sustainability. The CAMP4Water process is expected to be completed by the end of 2023. Because Pure Water is a climate-resilient project, it will be integral to the success of the CAMP4Water process.

Program Description Enhancements

Program description enhancements include:

- Inclusion of DPR into the Program
- refinement of the member agency demands,
- elimination of the direct to Orange County pipeline
- evaluation of opportunities to make early deliveries from the Program, and
- Colorado River partners and SWP agreements.

Each topic is discussed below.

Updated Member Agency Demands

Pure Water Southern California would produce and deliver up to 150 mgd of purified water to serve industrial users, groundwater replenishment, and RWA. **Table 2** summarizes the average expected demands by use type in Phase 1 and Phase 2.

Table 2: Pure Water Southern California – Average Demand by Phase

Demand	Type	Average Demand (mgd)	Phase
Harbor Area	Non-Potable Reuse	24	Phase 1
West Coast Basin	Groundwater Replenishment	2	
Central Basin	Groundwater Replenishment	9	
Main San Gabriel	Groundwater Replenishment	55	
DPR	RWA	25	
DPR	RWA	35	Phase 2
Total	--	**150**	--

The most significant change in the Program description is including DPR in the first phase. Previously, the Program only included IPR uses for the water. Because DDW has progressed in developing criteria for DPR, Metropolitan decided to include RWA at 25 mgd (see Table 2) in Phase 1. This would allow Metropolitan to serve most of Los Angeles and Orange counties with the program.

Note that Table 2 no longer includes deliveries directly to Orange County. If Orange County decides to take deliveries from the Program, they could take delivery via the existing Yorba Linda Feeder and the Orange County Feeder No. 1. Because direct Orange County replenishment was removed from the

Program, the 3.5 mg/L nitrate (as N) Basin Plan Objective for Orange County Basin was no longer a target for the AWP. An updated target would be a maximum of 4 mg/L nitrate (as N) for Phase 1.

It is not anticipated that Senate Bill 1157 (Hertzberg), which lowers indoor water use standards to 47 gallons per person per day (gpcd) starting in 2025 and 42 gpcd in 2030, would impact the ability of the project to serve demands. Currently, the JWPCP produces about 260 mgd. It is projected that, by 2030, the JWPCP flows could be as low as 180 mgd even with stagnant population growth of Scenarios A and C. Despite this reduction, Pure Water could still produce 150 mgd.

Metropolitan is also exploring how the Pure Water Program can integrate with other Metropolitan efforts to enhance Metropolitan's system and improve water supply resilience across the entire service area, including:

- A Pure Water connection to the Los Angeles Department of Water and Power's (LADWP) Operation Next,
- An extension of Pure Water to the east to serve Inland Empire Utilities Agency (IEUA) and Three Valleys Municipal Water District (Three Valleys) to help with SWP-dependent areas on the east side of Metropolitan's system, and
- A conceptual plan to connect Metropolitan's Weymouth WTP to the Jensen WTP via a new east-west conveyance to help the SWP dependent areas on the west side of Metropolitan's system, which could extend the reach of Pure Water supplies.

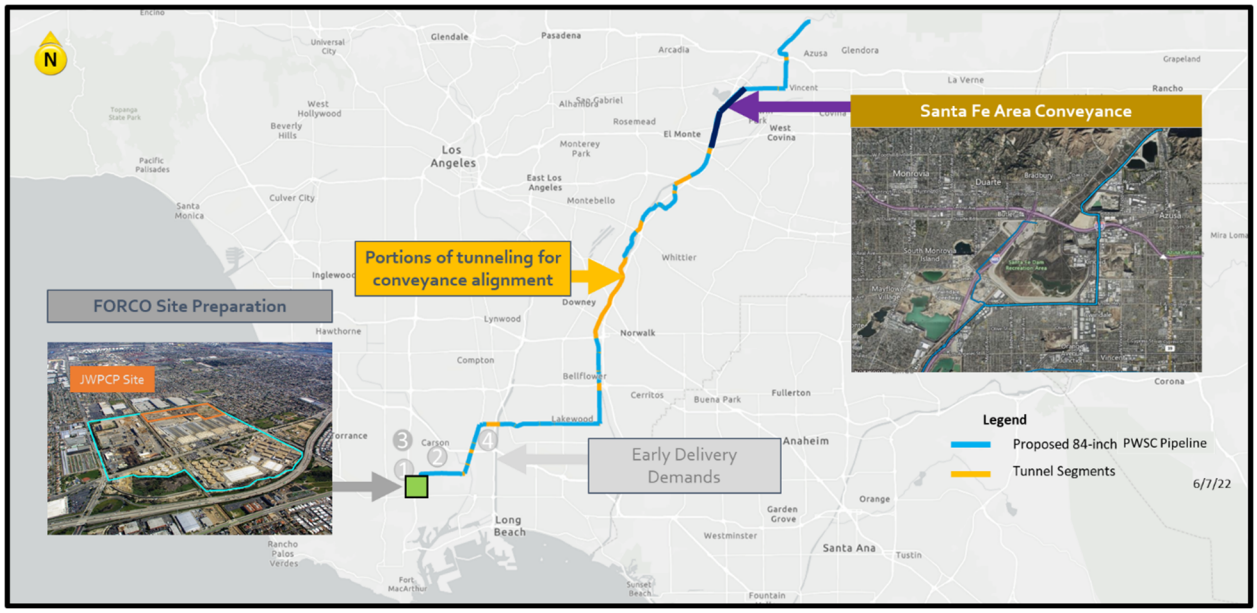
Potential to Make Deliveries Early

Since White Paper No. 2 was initially published, Metropolitan has begun consideration of ways to start the Program before the full program is implemented. The following aspects of the program may be completed potentially as early as 2030.

- Up to 30 mgd AWP treatment and associated facilities
- Up to 6.5 miles of the backbone conveyance system through the City of Carson (Reach 1 of the conveyance pipeline)
- Early delivery service connections in the West Coast Basin and harbor area (see **Table 2**). The service connections would include connections to the Sanitation Districts, Los Angeles Department of Water and Power (LADWP), West Basin MWD, and the Water Replenishment District of Southern California (WRD) through Metropolitan member agencies in WRD's service area
- Early start of preliminary design for preparation of the future AWP site, the tunneling sections of the conveyance pipeline, and areas near the Santa Fe Dam that will require additional time due to coordination with the Army Corps of Engineers. Preliminary design began on Reaches 1 and 2 (from the JWPCP through the City of Lakewood) of the conveyance pipeline in 2023.

A map showing the locations of early potential portions of the conveyance pipeline that would need to start early is provided in **Figure 2**. Again, the early start projects should not be considered a separate phase but may achieve some early milestones for the Program.

Figure 2 - Early Start Phase Map



Colorado River and SWP partner agreements

Since White Paper No. 2 was originally published, Metropolitan executed LOI (LOIs) with

- Southern Nevada Water Authority (SNWA),
- Central Arizona Project (CAP), Arizona Department of Water Resources (AZDWR), and
- San Gabriel Valley Municipal Water District (SGVMWD)

These agreements allow Pure Water Southern California to coordinate with our partners on the Colorado River and on the SWP. Benefits of these LOIs have included:

- **Sharing of experience:** SNWA and Metropolitan have worked together on collaborative delivery**.** SNWA has extensive design-build/collaborative delivery experience **–** they have been able to work with Metropolitan staff during the development of the Program.
- **Sharing of facilities** SGVMWD and Metropolitan have worked together to evaluate the feasibility of using the Azusa Pipeline for DPR deliveries to Weymouth.
- **Coordination on Colorado River agreements**: SNWA, CAP, AZDWR, and Metropolitan have worked together on the development of a long-term strategy on the Colorado River. The partnership developed in the Program has helped agencies work better together.
- **Financial contributions**: SNWA, CAP, and AZDWR provided Metropolitan with $12 million for the environmental planning phase of the Program.

The significance of these additional partnerships demonstrates that Pure Water Southern California is more important than ever as climate change continues its grip on the Southwest. These relationships will be even more critical as this Program progresses.

Need for Pure Water Southern California

Pure Water Southern California is needed to help the region achieve 100 percent reliability by shoring up core supplies and reducing chances of shortage in the future. Specifically, the Program will help address the following threats to Metropolitan's water supply:

- Risk of shortage, especially in the SWP-dependent areas (shown in **Figure 3**) and SWP-fed reservoirs such as Diamond Valley Lake (DVL)
- Risk of regional storage below 1 million AF that could result in significant reliability issues for the region
- Potential loss of groundwater production capabilities
- Potential inability to meet local supply targets

During wet years in which imported supplies are available in quantities over and above what is needed for regional demands and groundwater replenishment, surplus water supplies are stored in Metropolitan storage programs. Conversely, in dry years where available imported supplies are below what is needed for regional demands and groundwater recharge, water supplies must be withdrawn from Metropolitan storage programs to meet those demands. If conditions are severe enough that water supply is insufficient from both imported sources and Metropolitan storage programs, then replenishment water cannot be delivered to the local agency groundwater basins and those basins may reach levels that result in the reduction of groundwater pumping available to meet regional demands. These challenging supply conditions are also likely to coincide with years of lower natural groundwater replenishment from precipitation, further affecting local agency groundwater basin levels.

For those cases in which supplies are inadequate to meet demands, additional water must be withdrawn from Metropolitan's storage programs. As these programs are depleted, the risk of shortages and unreliability for the entire region increases.

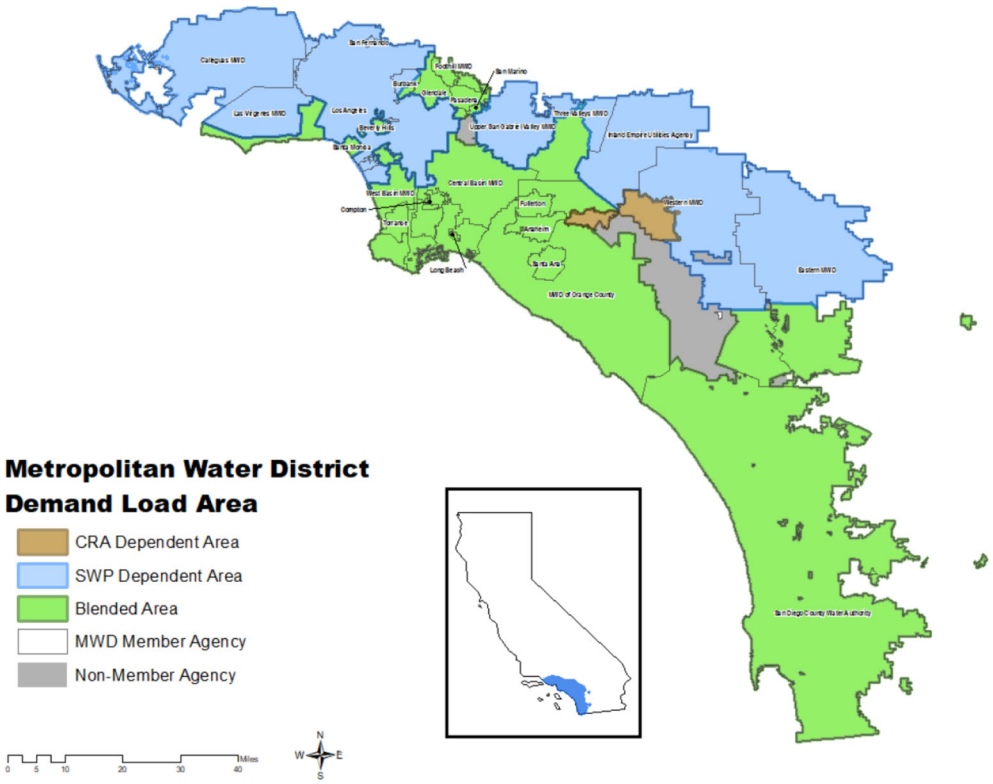
Projected Risk of Shortages up to 1.22 MAF

The Program is one alternative that would help achieve 100 percent reliability by shoring up core supplies and reducing the chances of future shortages. The figures below show the magnitude and frequency of forecasted shortages, the frequency and timing of net shortages, how much additional supply is needed, and a summary of the needs for each of the four IRP scenarios

Figure 4 shows the magnitude and frequency of a net shortage in the forecast year 2045 based on Regional Needs Assessment of the 2020 IRP under each of the four scenarios. A net shortage occurs anytime that demands exceed supplies. Storage programs and regional storage may be available. As shown in this figure, a net shortage may occur up to 66 percent of the time with a maximum magnitude of 1.22 MAF.

Figure 5 shows the frequency and timing of net shortage conditions (blue) and all other conditions (orange). Net shortages are defined when all available supplies, including accessible storage, are depleted and there remains an unmet demand. All other conditions are defined when storage is withdrawn to satisfy a demand, and/or when water is available and stored to manage supplies not needed to meet a demand. The frequency of net shortage would be up to 66 percent of the time (Scenario D).

Figure 3: Demand Load Areas



The 2020 IRP identified three categories of resource management actions:

- **Core Supplies.** Resource management actions that augment supply or reduce Metropolitan demand and remain available each year. Because Pure Water Southern California would be integrated into Metropolitan's system like the SWP and CRA, it would be considered a core supply.
- **Flexible Supplies**. resource management actions that produce on an as needed basis
- **Storage.** resource management actions that have the capability to save water supply to meet demands later.

Figure 6 shows how much additional annual core supply would be needed under each of the scenarios in 2045.

Under Scenario A, no water is needed. For Scenarios B, C, and D, from 100 TAF to 650 TAF will be needed. The needs for Scenarios B and C are primarily in SWP-dependent areas and needs for Scenario D are also in the Colorado River dependent areas.

Figure 7 provides a summary of the needs for each of the four scenarios developed in the Regional Needs Assessment of 2020 IRP. As shown below, up to 650 TAFY of new annual core supply would be needed. If the new core supply is not developed, through projects such as Pure Water Southern California, regional reliability targets for the region would not be met, which would increase pressure on imported water supplies and increase the likelihood on future net shortages.

Figure 4: Maximum Magnitude and Frequency of a Net Shortage in Forecast Year 2045

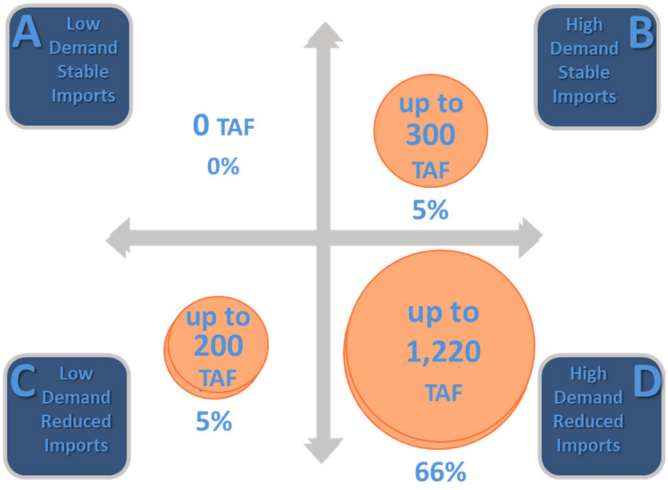
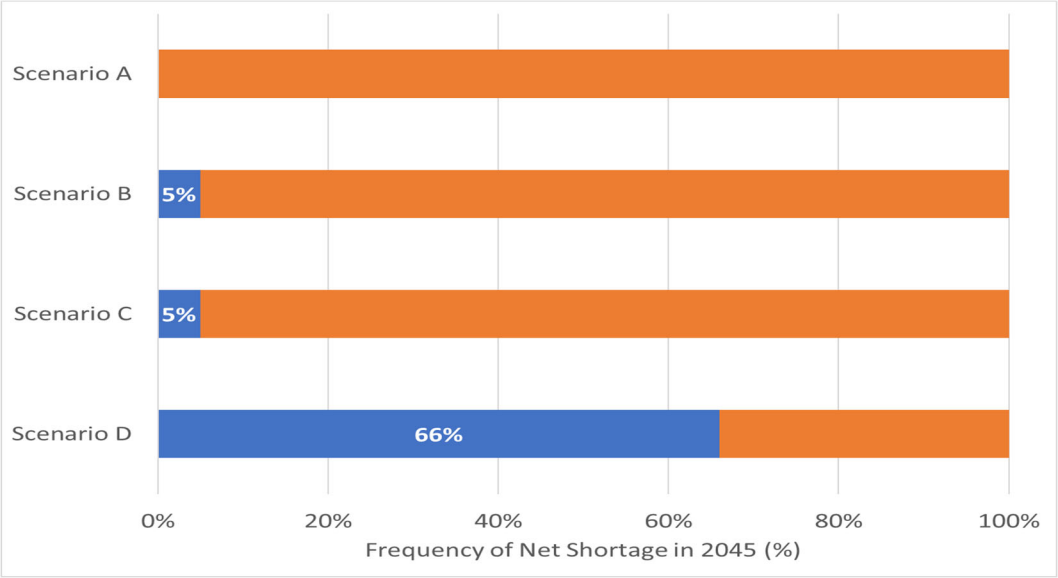


Figure 5: Frequency of Net Shortage by 2045



Projected Risk of Regional Storage Levels falling below 1 million Acre-feet

Metropolitan regional storage levels of less than 1 million AF are assumed to be a threshold level for the significant impacts to regional reliability. Based upon the results of Regional Needs Assessment of the 2020 IRP, there is up to a 2 percent chance that storage would go below 1 million AF as shown in **Figure 8**. Even a 2 percent chance (shown in blue in **Figure 8**) of low regional storage does not meet Metropolitan's reliability goals. The orange bars on **Figure 8** indicate conditions above the 1 million AF threshold in regional storage.

Low storage levels during a drought or emergency would significantly impact Metropolitan's member agencies and overall reliability of the region. In addition, these challenging supply conditions are also

likely to coincide with years of lower natural groundwater replenishment from precipitation, further affecting local agency groundwater basin levels. For those cases in which supplies are inadequate to meet demands, additional water must be withdrawn from Metropolitan storage programs. As these programs are depleted, the risk of net shortages and unreliability for the entire region increases.

It is also important to note that significant reliability issues are not limited to conditions when the storage levels are low. As stated above, there is a net shortage up to 66 percent of the time. There can be reliability issues even when regional storage reserves are full. There may be operational or contractual limits on how much of the regional storage portfolio can be available to meet demands. Examples include: SWP or CRA limitations, groundwater storage contract annual extraction limits, or constraints within Metropolitan's system.

Figure 6: Additional Annual Core Supply Needed in 2045

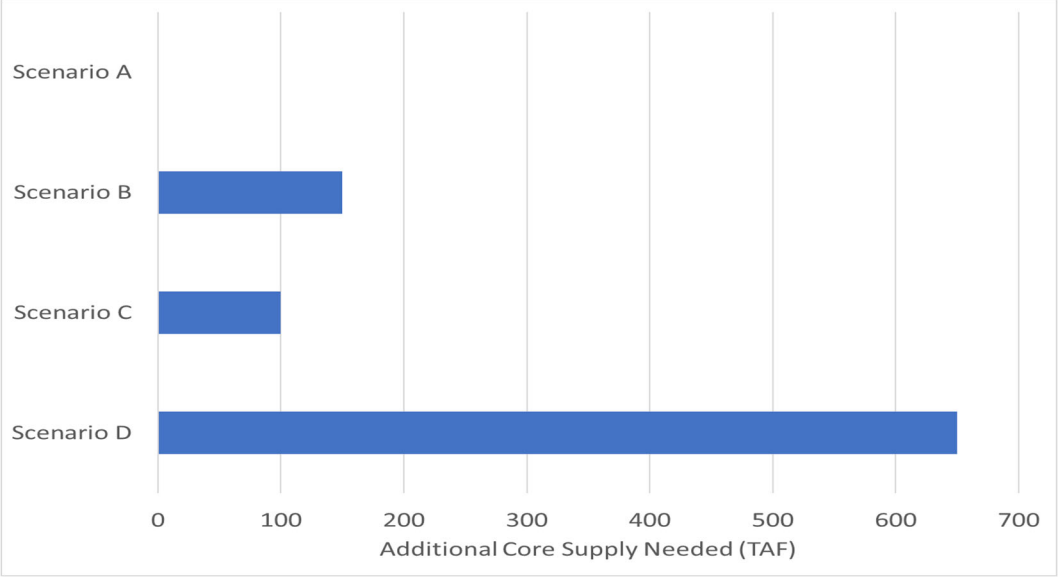
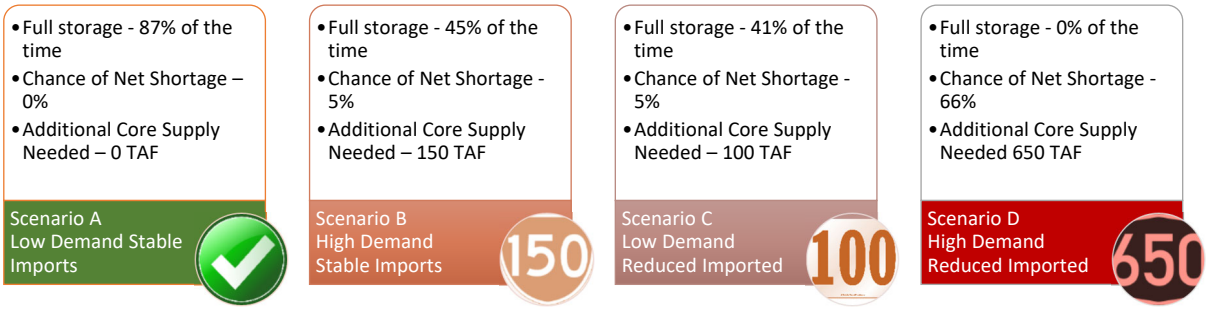
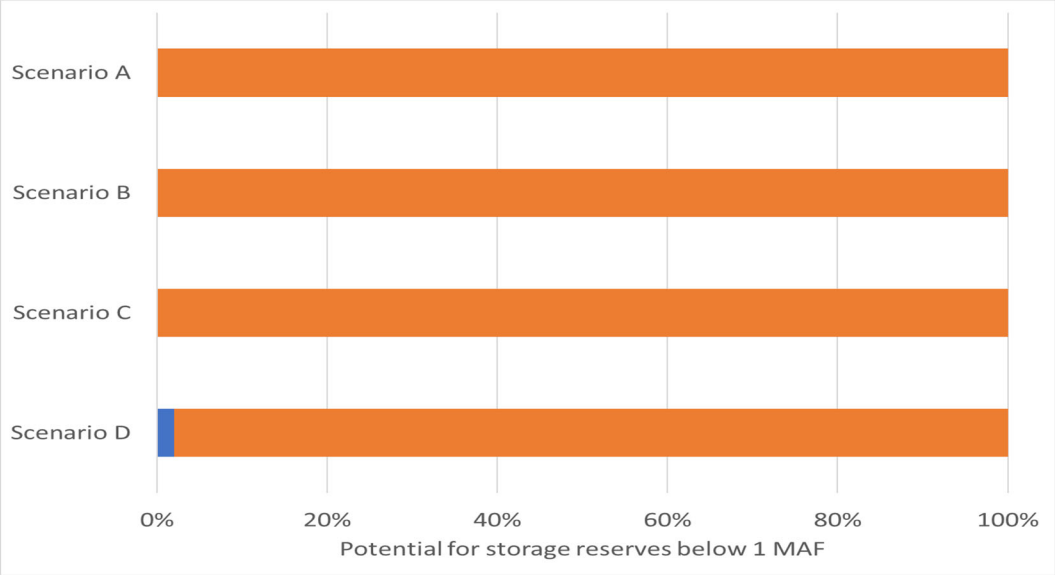


Figure 7: Additional Annual Supply Needed and Frequency of Net Shortage in 2045



For example, at the beginning of 2023, 2.3 MAF of regional storage (above the 1 MAF threshold) is theoretically available to meet demands. However, only 830 TAF (about 36 percent) of that regional storage is operationally available this year, potentially creating a significant reliability issue even though storage levels are above the 1 MAF threshold.

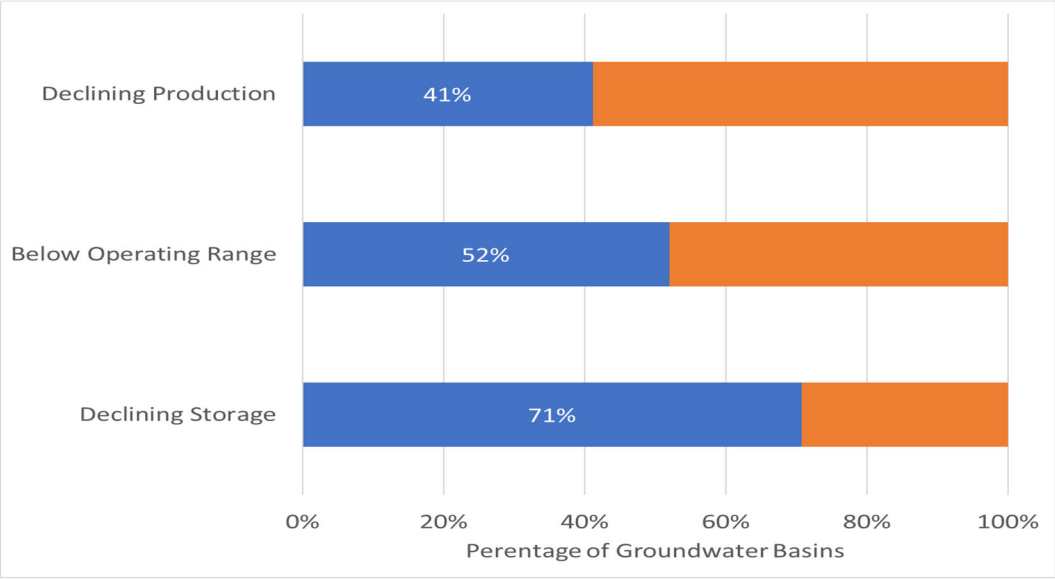
Figure 8: Potential for Storage Levels Less than 1 MAF



Projected Loss of Groundwater Production Capability

More than 1/3 of Metropolitan's regional demand is met by groundwater pumped from local groundwater basins in Metropolitan's service area. Current groundwater production is about 1.1 million AF (excluding groundwater recovery). As shown in **Figure 9,** more than 70 percent of groundwater basins are experiencing declines in storage and approximately 52 percent are below their established operating ranges.

Figure 9: Current Groundwater Conditions



Maintaining groundwater storage levels within the basin's operating range is key to sustainability of our groundwater supplies and preventing loss of groundwater pumping capability. Figure 8 also shows that 41 percent of the groundwater basins in the service area have already seen declining production since

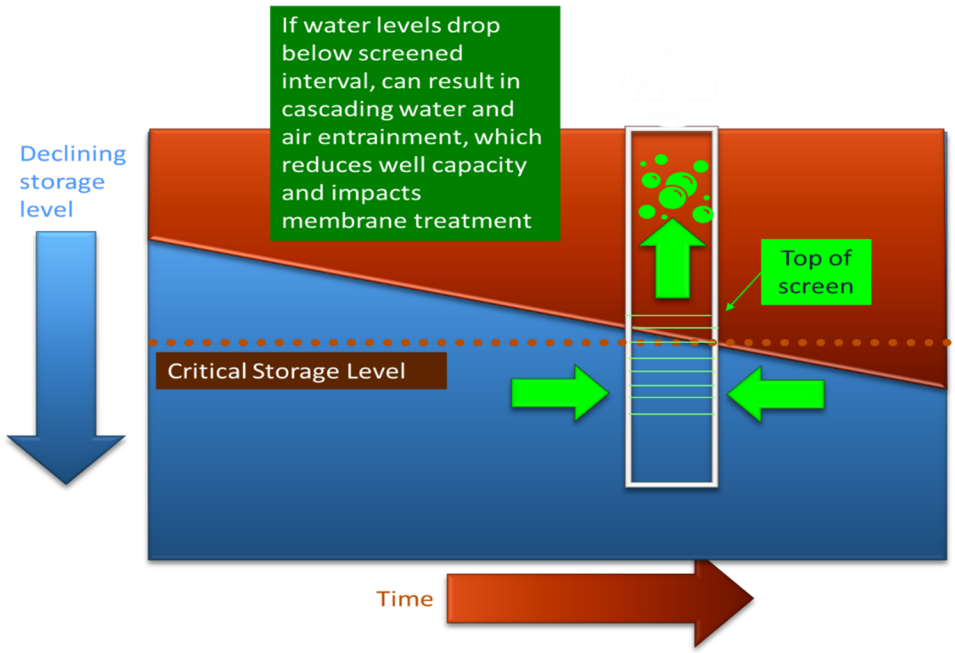
2000 resulting from the declining aquifer levels and storage volumes. By 2045, groundwater production is expected to range from 1 million AF to 1.3 million AF. Increasing groundwater production will only put additional pressure on the groundwater basins and Metropolitan's imported system to provide replenishment water to support production.

If water levels drop too low (to a critical storage level), then drinking water production capability from local groundwater aquifers may be impacted. As shown in **Figure 10**, if storage level drops below the critical storage level, then the well begins to experience turbulent flow, which reduces the capacity of the well. Reduced well capacity because of declining groundwater levels results in member agencies increasing their demand on Metropolitan's regional service. This increase in demand on Metropolitan's service may impact Metropolitan's reliability as well, especially during times of drought and allocations when additional groundwater production is needed the most.

Need for Additional Local Supply Development

Metropolitan's IRP strategy relies on maintaining local supply production into the future, the development of additional local supplies for future demands, and protection against reduction of imported water.

Figure 10: Critical Storage Level Reduces Production Capacity



The average local supply production over the past 10 years has been about 2.0 million acre-feet per year (AFY). These sources constitute about 42 percent of the total supplies needed to balance regional demands for water supply. Local supply forecasts in 2045 for each of the four scenarios analyzed in the 2020 IRP Regional Needs Assessment ranged from 2.1 to 2.7 million AFY. Metropolitan would need to develop an additional 0.1 to 0.6 million AFY of new supply to meet those forecasts. If additional supplies do not develop, the deficit would increase imported water demands on Metropolitan's member agencies.

The 2015 IRP target for local supplies was 2.4 million AFY by 2040. Currently, there is a 400,000 AFY shortfall from the 2040 target. The local supply target will be reevaluated through the CAMP4W process.

Regional Benefits of Pure Water Southern California

White Paper No. 2 discussed regional benefits to all member agencies. This section now provides a more detailed discussion of the relationship of the Pure Water Southern California Program to Metropolitan's regional service.

Pure Water Southern California offers potential significant regional benefits for Metropolitan and its service area. The production of up to 150 mgd of purified water would:

- Help to maintain local groundwater supplies to improve resilience to climate change;
- Prevent a strain on regional water supply reserves;
- Complement other Metropolitan initiatives, such as the Delta Conveyance Project; and
- Be integrated into the existing regional system and become part of Metropolitan's network of facilities.

Pure Water Southern California will provide these regional benefits to all member agencies, not just those directly receiving the purified water. While Pure Water Southern California would provide water directly to certain member agencies for industrial uses and groundwater replenishment through IPR, these deliveries would replace portions of current and future imported deliveries and increase Metropolitan's storage, increasing reliability for everyone. In addition, because deliveries to Weymouth WTP and Diemer WTP via DPR would deliver Pure Water to most Los Angeles and Orange Counties, there is also a benefit to everyone. These benefits can be grouped into three categories:

1. Supporting sustainable groundwater production and improving resilience to climate change
2. Reducing reliance on imported water
3. Improving regional reliability in the service area

Each of these benefits are described below.

Maintaining Local Supplies and Improving Resilience to Climate Change

The Pure Water Southern California Program would provide direct benefits to all Metropolitan member agencies by supporting sustainable groundwater production and improving resilience to climate change, both of which would alleviate pressure on Metropolitan's existing water supplies and facilities.

Support Sustainable Groundwater Production

Pure Water Southern California will help support groundwater aquifers in Los Angeles and Orange counties by sustaining groundwater levels, maintaining groundwater as a significant local source of potable water, and reducing the pressure on Metropolitan's service due to declining groundwater production.

Over the past 30 years, Metropolitan has delivered an average of 213,000 AFY of imported water for groundwater replenishment. Unfortunately, replenishment deliveries into the groundwater basins have not been sufficient to maintain the groundwater levels. Several factors have contributed to this deficit, including inadequate water supply availability due to drought, regulatory restrictions, and replenishment purchase patterns. Due to drought conditions in the service area, groundwater demand

has increased, groundwater replenishment has decreased, and groundwater storage has dropped by about 1.5 million AF since 2000. More than 72 percent of the groundwater basins in the service area are in decline.

Without continued replenishment of the groundwater basins, groundwater storage is expected to continue to decline due to increased demand and limitations on other sources for natural and incidental recharge. For the basins to continue providing benefits for regional reliability, they require reliable water deliveries for replenishment. The Program can provide stable year-to-year deliveries of a new supply for groundwater replenishment to improve the supply reliability conditions for the region by reducing demand for imported water. With Pure Water Southern California, imported supplies from the SWP and CRA that would have gone toward meeting local agency groundwater recharge demands would instead be available to meet other regional and environmental demands or go into Metropolitan storage programs.

One of the main drivers to implement Pure Water Southern California is to provide purified water for groundwater augmentation to sustain groundwater production, consistent with the legislative findings and directive codified at Section 130.5 of the MWD Act. Table 2 above summarizes the Program flows identified up 90 mgd of potential industrial and replenishment flows, including the following specifically for groundwater augmentation:

- An average of 5 mgd for replenishment in the West Coast Basin for WRD;
- 10 mgd in the Central Basin for the City of Long Beach, WRD, and the Central Basin MWD; and,
- approximately 55 mgd for the San Gabriel agencies including the USGVMWD, Three Valleys MWD and the San Gabriel Valley MWD

Because of this replenishment, additional agencies in the West Coast Basin will begin to use groundwater instead of surface water while storage in the Main San Gabriel Basin is projected to increase by over 50 feet, increasing basin and Metropolitan sustainability and ensuring a long-term supply of groundwater and reducing the risk of Metropolitan having to supply imported water for replenishment.

Improve Resilience to Climate Change and Drought

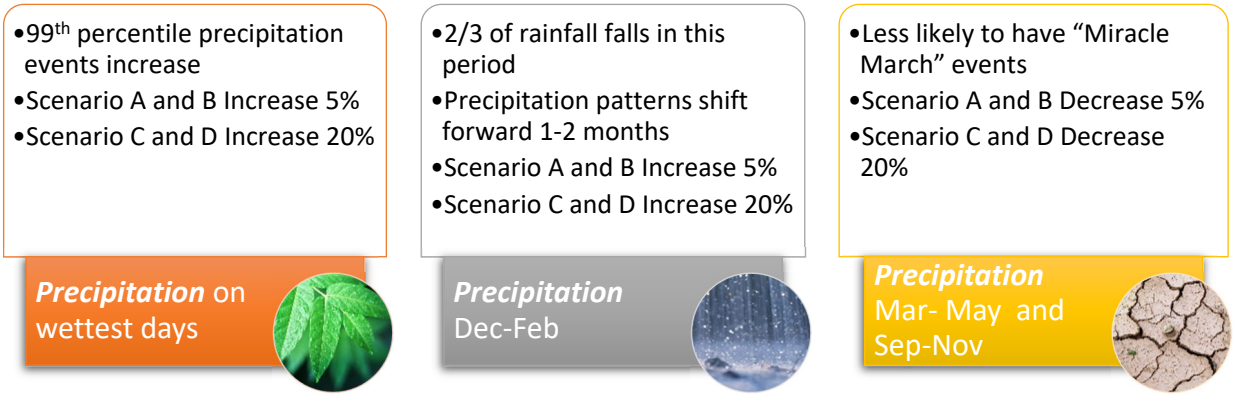
Climate change forecasts prepared for the 2020 IRP include a gradual climate change scenario (based upon RCP 4.5 for IRP Scenarios A and B) and an extreme climate change scenario (based upon RCP 8.5 for IRP Scenarios C and D) by 2100. **Figure 11** illustrates the climate change assumptions for precipitation used in the 2020 IRP.

Based upon the climate change assumptions presented in **Figure 11**, annual precipitation in the Metropolitan service area is forecasted to increase from 5 to 13 percent by the end of the century due to climate change. Other changes because of climate change include:

- Evapotranspiration (ET) will increase due to higher temperatures. The recently observed declines in runoff efficiency would continue for the Colorado River and the SWP;
- Stormwater flows are forecasted to change based upon changes in precipitation
    - Storm flows are expected to be flashier due to climate change. However, stormwater recharge would not increase during wet precipitation days as storm flows currently bypass the spreading grounds on those days and are predicted to continue to do so.

- As with precipitation, stormwater recharge is expected to increase up to 20 percent in December to February, decrease up to 20 percent from March to May and September to November.
- Therefore, stormwater recharge in our service area is predicted to decline from 3 to 8 percent by 2100, leading to total groundwater recharge declines by as much as 1.1 percent by the end of the century. Long-term-drought may occur more often, leading to reliability issues in our service area.

Figure 11: Description of Climate Change Assumptions by 2100



Compared to alternative supplies such as stormwater or imported water, the Program is more drought-resilient because it is not dependent upon rainfall runoff, nor is it at risk from changes in climate or hydrology. The new purified water supply is separate from the hydrologic cycle – therefore, the Program can deliver under all weather conditions and produce water supplies outside of critical habitat that could be adversely affected by climate change. Protections against drought and climate change introduce a water security benefit not available with other Metropolitan sources.

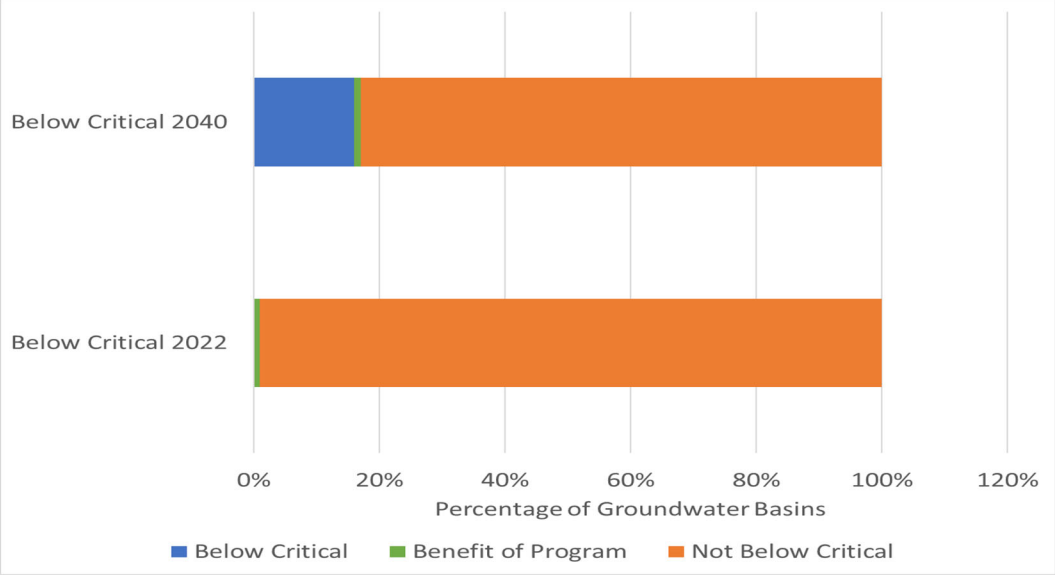
Climate change has resulted in higher temperatures in the Southwest that have led to a dramatic reduction in Colorado River runoff this century. Variable weather in Northern California and stressed ecosystems have resulted in unprecedented low imports from the SWP. Likewise, in Southern California itself, less stormwater is percolating into groundwater basins, both from too much rain at times or not enough. Groundwater basin levels in Southern California and reservoir levels in Northern California and in the Colorado River basin are at historic lows and conditions are only going to get worse. See the next section for a discussion of climate change impacts on reservoir levels and imported water deliveries.

As shown in **Figure 12**, about 1 percent of the groundwater basins in Southern California are currently below the critical level (the point at which production capability drops due to declining water levels).

By 2040, the percentage of groundwater basins below the critical level could exceed 17 percent. About 700,000 people currently live in a basin that is below the critical level. By 2040, more than 5 million people (or about 25 percent of the entire population of Metropolitan's service area) could be relying on a basin that is below critical levels. Pure Water Southern California would reduce the risk of the groundwater basins reaching critical levels by providing a drought-resilient supply to recharge the four

groundwater basins. The Program would reduce the number of people impacted by declining water levels by as much as 2 million people

Figure 12: Current and Projected Critical Level Conditions in Southern California Groundwater Basins

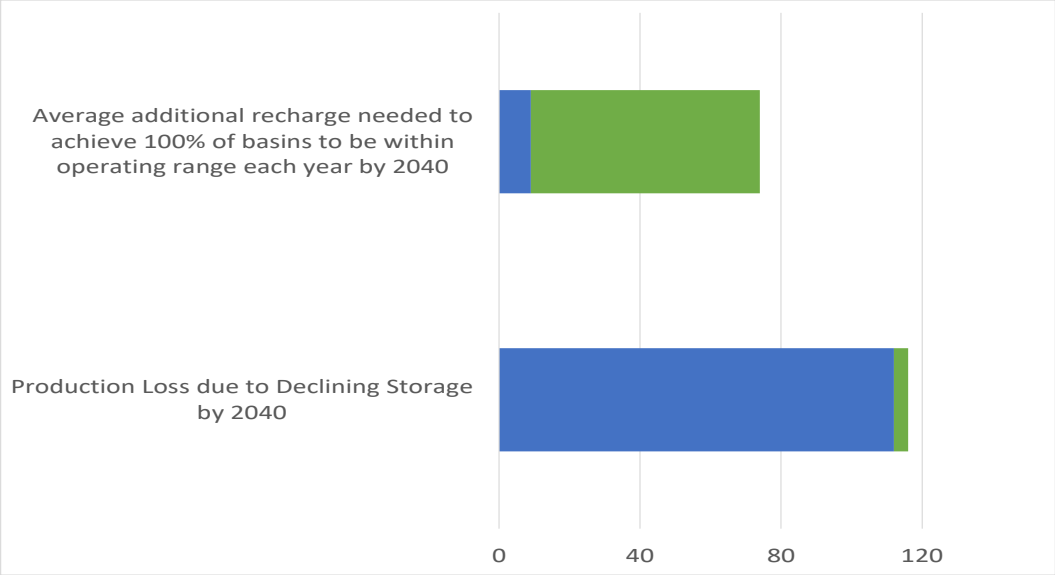


As shown in **Figure 13**, Pure Water Southern California would also reduce the need for additional recharge supplies from Metropolitan's integrated system. About 74 TAF would be needed each year to achieve the target of 100 percent of the groundwater basins in Southern California within their established operating ranges. Pure Water Southern California would help basins reach this goal and prevent future basins from reaching the critical level.

By 2040, groundwater production could decline by as much as 116 TAF (about 10 percent of current groundwater levels). As shown in Figure 14, this Program will reduce the risk of groundwater agencies increasing their Metropolitan demand, which puts pressure on Metropolitan's integrated system, in the future by stabilizing groundwater basin levels in the service area.

The changing climate has impacted the use of groundwater by reducing the amount of natural recharge as well as impacting the availability of imported replenishment water. These two circumstances combine to increase the risk of the groundwater basins falling below the critical level, reducing storage and resulting in production loss. A purified water supply is drought resilient because its source is wastewater, and the climate doesn't influence the wastewater influent flows. Because Pure Water Southern California flows won't be reduced because of drought or climate change, the Program will benefit all of the service area by maintaining local groundwater production and reducing the risk of groundwater agencies increasing their Metropolitan demand and the integrated system as the climate changes.

Figure 13: Recharge Benefits of Pure Water Southern California



Reducing Reliance Upon Imported Water

Metropolitan currently provides wholesale water services to its 26 member agencies, relying on a combination of water resources from the Colorado River and State Water Project, reduction in demand through local resources and conservation, and an integrated conveyance and distribution system. Metropolitan faces many challenges to meet the anticipated demands of its member agencies, including long-term drought in both the Northern California and Colorado River watersheds, climate change, regulatory and environmental restrictions, changing hydrological and biological conditions in the Bay-Delta, and unresolved issues with the development of a Delta Conveyance initiative. These challenges can result in variable and severe water delivery restrictions.

Pure Water Southern California will help ensure a reliable water supply in the face of these ongoing and increasing uncertainties because it will be part of Metropolitan's integrated core supply in the same way that SWP and CRA are part of Metropolitan's service. Therefore, the Program offers significant regional benefits for Metropolitan and all the Southwest. While the production of purified water can help to maintain groundwater production as detailed above, it can help to prevent a strain on regional water supply reserves as well as complementing other Metropolitan initiatives such as the Delta Conveyance Project by providing reliable replenishment supplies that free up imported water for the environment or to be placed in storage as a drought buffer. Metropolitan leverages non-purified water supplies such as imported water supplies by storing available water for use when it is scarce. Imported supplies historically provide water for the region's storage portfolio and reliable imported supplies maximize regional investments in Metropolitan's storage capabilities. The Pure Water Southern California Program would give Metropolitan the added flexibility for capturing more available water during wet years. It would allow Metropolitan's existing systems to import water for additional storage both within and outside of Metropolitan's service area.

Figure 14 shows how Metropolitan's infrastructure uniquely connects two of the most critical watersheds in the Western U.S.: the Colorado River watershed fed by the Rocky Mountains and the Sacramento-San Joaquin River watershed fed by the Western Sierra Nevada Mountains. Pure Water

Southern California has emerged as a template for this next generation of water management solutions. Because Metropolitan's existing infrastructure connects the watersheds of the Colorado River and the Delta, large-scale recycling in Southern California can return benefits to both watersheds. Recycling water in Southern California can advance water supply reliability locally and in far-away communities such as Las Vegas, Phoenix, and Tucson through partnerships and exchanges. Full implementation of Pure Water Southern California would free up to 150 mgd of capacity in the existing conveyance and distribution systems. It would allow Metropolitan the flexibility to capture additional opportunities for imported water from the Colorado River and the SWP, either through transfers, exchanges, or other agreements.

Figure 14: Metropolitan's Conveyance System and the Regional Purified Water Program Connect Two Critical Watersheds

Pure Water Southern California will also help Metropolitan reduce its reliance upon imported water by alleviating pressure on Metropolitan's existing water supplies and facilities while also becoming a new source of potable water through DPR. The Program will be integrated into the existing regional system and become part of Metropolitan's network of facilities. Using the purified water to supplement Metropolitan's existing supply of imported water will free up capacity in Metropolitan's existing facilities to meet demands by member agencies and allow more flexibility on directing the water to where it is needed the most. It will also help Metropolitan reduce its reliance upon imported water by alleviating pressure on Metropolitan's existing water supplies and facilities while also becoming a new source of potable water through DPR.

The paragraphs below describe how the Pure Water Southern California Program reduces reliance on the Colorado River and the SWP, as well as detailing the specific benefits achieved by incorporating DPR into Metropolitan's water portfolio.

Reduced Reliance on the Colorado River

Metropolitan's entitlement to Colorado River water and its partnerships with California's other rights holders gives Southern California a strong, long-term, and reliable source of supply. The Pure Water Southern California Program will reduce Metropolitan's and Southern California's reliance on the Colorado River. Metropolitan currently receives about 20 percent of its supply from the Colorado River through the CRA. About 60 mgd (62,000 AFY) of purified water from the Pure Water Southern California Program (about 40% of the total Program's yield) will reduce reliance on the CRA supply by up to 13 percent as shown in **Table 3**.

Table 3: Summary of CRA and SWP Offsets due to Pure Water

Source of Offsets	% Of the 150 mgd that reduces the demand	Total offset (mgd)	Total offset (AFY)
CRA Offset	40%	60	62,000
SWP Dependent Area Offsets	43%	65	67,000
SWP Offset (not in dependent area)	17%	25	26,000
Total	**100.0%**	**150**	**155,000**

The partnership for this Program with Southern Nevada (Southern Nevada Water Authority/SNWA) and Arizona (Central Arizona Project, Arizona Department of Water Resources/Arizona Parties) provides a much-needed incentive for all Lower Basin partners to find common ground and make historically tough choices to continue managing the Colorado River in a future with less available water. For the current Environmental Planning Phase, both SNWA and the Arizona Parties have agreed to contribute funds to help cover the Program up to a total of $6M each. The agencies also help facilitate technical issues, such as SNWA sharing their experience with Project Labor Agreements and implementing projects using alternative delivery methods that are being pursued by Metropolitan. Coordination with the agencies will also help with future negotiations on the use of Colorado River water.

Through existing and new agreements on the Colorado River, the three states can improve their reliability through a single project. As Southern Nevada and Arizona invest in a portion of Metropolitan's recycling program, Metropolitan can leave that amount of its own Colorado supply in Lake Mead behind Hoover Dam. From there, Southern Nevada and Arizona could withdraw a similar amount for their use. With this exchange, the two states do not have to build lengthy new pipelines or infrastructure to access Southern California's purified water. Therefore, the implementation of this Program helps all seven states in the United States that depend on the Colorado River, as well as two states within the Republic of Mexico.

Reduced Reliance on the State Water Project

Like the Colorado River, the Pure Water Southern California Program can help manage climate and drought risks to the region in the Sacramento-San Joaquin River watersheds as well. The Program will reduce Southern California's reliance on the SWP and make Metropolitan's regional storage portfolio more resilient. About 60 percent, or about 90 mgd of the 150 mgd total Program yield will reduce demands from the SWP (see **Table 3**), most of which supports the SWP-constrained areas. Metropolitan

currently receives about 30 percent of its supply from the SWP, Pure Water Southern California could replace up to 12 percent of the total SWP supply. The Program will also help maintain a healthier ecosystem in the Delta and make more water available for all Californians.

The Program would initially help communities in Southern California that rely heavily on imported supplies from Northern California and the Delta via the SWP. Pure Water Southern California would directly augment the groundwater supply in areas of the San Gabriel Valley which are heavily dependent on the SWP supply. Once Pure Water Southern California is developed, the reliance on SWP deliveries will immediately be reduced, allowing those SWP supplies to be used in other areas. This includes potential supply exchanges with other contractors on the SWP system. The imported water could also be freed up to go into storage for future emergency or drought needs for Southern California. Advancing this recycling program in Southern California has a direct positive impact on our ability to successfully manage the Delta moving forward and to reduce the region's reliance on that source.

Portions of Metropolitan's service area are more susceptible to reductions in SWP supplies. This is a risk to the region's reliability. Whenever shortages occur, they often involve the "SWP Dependent Areas." For example, the Main San Gabriel Basin, a partner in the Program, relies entirely on the SWP for supplemental water and is susceptible to reliability issues. SGVMWD, an SWP contractor, has executed an LOI to collaborate with Metropolitan on Pure Water Southern California and may share some of their existing facilities to reduce the new construction required to implement the Program. The Program will help Metropolitan's service to this area become more resilient and sustainable in the future by providing a steady source for groundwater replenishment.

Benefit of DPR via Raw Water Augmentation

Pure Water Southern California would also deliver water to Metropolitan's Weymouth and Diemer plants via raw water augmentation for DPR. This DPR approach would directly serve many member agencies as treated water from Weymouth and Diemer is delivered to most of Los Angeles and Orange Counties. As an increased source within Metropolitan's distribution system, other imported sources can be made available for use in the rest of Metropolitan's service areas and for additional storage.

Up to 155,000 AF of annual deliveries of purified water to groundwater basins for IPR (groundwater augmentation/groundwater replenishment) and to Metropolitan's treatment plants for DPR would make an equivalent amount of Metropolitan's imported water supplies available for Metropolitan's regional wholesale water service to all its 26 member agencies. The imported water freed up because of Pure Water Southern California would also be available for dry-year and emergency storage for use by Metropolitan for all its member agencies. Additionally, the production of purified water within Metropolitan's service area would reduce the use of, and increase capacity in, the integrated conveyance system that delivers water into Metropolitan's service area. This additional supply could be used for exchanges with SNWA, the Arizona Parties, or other partners.

The location of two of Metropolitan's water treatment plants to the proposed Pure Water Southern California facilities allows purified water to supplement raw water supplies to a drinking water treatment plant. The combined median daily average flow at the Diemer and Weymouth treatment plants over 10 years (2011 through 2020) ranged from 265 to 536 mgd. As the Weymouth and Diemer plants are two of the three treatment plants that supply treated water to a large part of the service area, the introduction of purified water to these two treatment plants would augment a significant

portion of Metropolitan's treated water distribution system, further enhancing water supply reliability and system flexibility for Metropolitan's service area.

Raw water augmentation could replace deliveries of imported supplies and allow for additional storage of those supplies in groundwater basins or Metropolitan reservoirs. In addition, as described previously, Metropolitan is also exploring how the Pure Water Program can integrate with other Metropolitan efforts to enhance Metropolitan's system and improve water supply resilience across the entire service area, including a connection to Operation Next, an extension of Pure Water eastward to Three Valleys and IEUA, and a conceptual east-west conveyance to connect Weymouth and Jensen plants. These alternatives extend the potential reach of Pure Water to provide additional water supply reliability for the SWP-dependent areas and improve system flexibility of Metropolitan's entire service area.

If for any reason, the full amount of purified water cannot be delivered to the groundwater basins for IPR, it may also be possible to deliver this extra purified water for raw water augmentation instead, allowing the AWP to operate most efficiently in continuous production. Considering rapid developments related to the promulgation of DPR regulations, DPR is a primary objective of Pure Water Southern California. **Figure 15** shows a schematic of the proposed Pure Water Southern California facilities for the DPR option.

Figure 15: Proposed Regional Purified Water Program DPR Options

As appropriate regulations are codified, and DPR through raw water augmentation is permitted, purified water could be added to Metropolitan's treated water supplies as is imported surface water, available to deliver to all member agencies. The benefits for Metropolitan and the member agencies, when raw water augmentation becomes available, include:

- increasing the number of available raw water sources,
- increased drought resilience as purified water is largely independent of rainfall,
- the ability to serve purified water to additional member agencies,

- ability to transfer existing imported supplies from northern California to SWP only areas as other areas are supplemented with purified water, and
- improved water quality from lower TDS concentrations as compared to Colorado River water.

Improving Regional Reliability in the Service Area

Improved reliability is the cornerstone of Pure Water Southern California's benefit to the region. The following section discusses how Pure Water Southern California improves reliability for all member agencies. Topics include:

- Lower risk of a net shortage,
- Increased reliability during a seismic event, and
- Operational Flexibility

Lower Risk of a Net Shortage

Pure Water Southern California will reduce the frequency of net shortages as shown in **Figure 16.** The orange bars indicate a situation with no projected net shortage, the green bars indicate the reduced frequency of net shortages, and the blue bars indicate a net shortage risk even after the Program is implemented. In Scenario A from the 2020 IRP Regional Needs Assessment, no net shortage is projected. In Scenarios B and C, the Pure Water Southern California Program would eliminate the net shortage entirely. In Scenario D, Pure Water Southern California would reduce the frequency of net shortages – some increase in core supplies or storage would still be required to meet reliability goals.

In **Figure 17**, the green bars indicate the reduced need for additional annual core supply because of the Program, and the blue bars indicate additional annual core supply needed after the program's implementation. Except for Scenario D, the Pure Water Southern California Program would also reduce or eliminate the need for additional core supplies as shown in **Figure 17**.

Without Pure Water Southern California, Scenarios A, B, and C do not result in storage below 1 MAF. The orange bars indicate no risk of storage below 1 MAF, the green bars indicate the benefit of the Program, and the blue bars are the remaining storage risk below 1 MAF even after the Program was implemented. Pure Water Southern California would reduce the risk of going below 1 MAF of total storage under Scenario D, as shown in **Figure 18.**

Pure Water Southern California will eliminate or reduce the risk of regional net shortage, especially in the SWP-dependent area (Scenarios B and C), eliminate or reduce the need for additional core supplies or storage to meet long-term demands (especially in Scenarios B and C), and reduce the probability of a region-wide storage below 1 MAF under Scenario D.

After analyzing these futures, a potential for net shortages emerged. The planning revealed that a large portion of Metropolitan's service area is vulnerable to Northern California drought and regulatory restrictions. Metropolitan has limited capacity to move Colorado River water to the northern portions of the district's service area served by the SWP. Additionally, the Colorado River is also facing unprecedented drought conditions. Pure Water Southern California plays an important role in Metropolitan's future, response to a net shortage, and integration into Metropolitan's regional system.

Increased Reliability during Seismic Event

Pure Water Southern California would also benefit the Metropolitan service area in the event of a catastrophic earthquake by increasing the opportunities to ensure that supplies are maintained within the region. As result of a strong earthquake (e.g., M 7.8 ShakeOut Scenario) on the southern San Andreas Fault system, the CRA, the SWP, and the Los Angeles Aqueduct (LAA) which cross the San Andreas Fault could be severely damaged. The extent of damage from this type of event could potentially cause protracted outages of the facilities halting the flow of imported water. These outages could range from several months to extended periods of time on one or more of the aqueducts.

Figure 16: Benefit of Pure Water Southern California to Frequency of Net Shortage in 2045

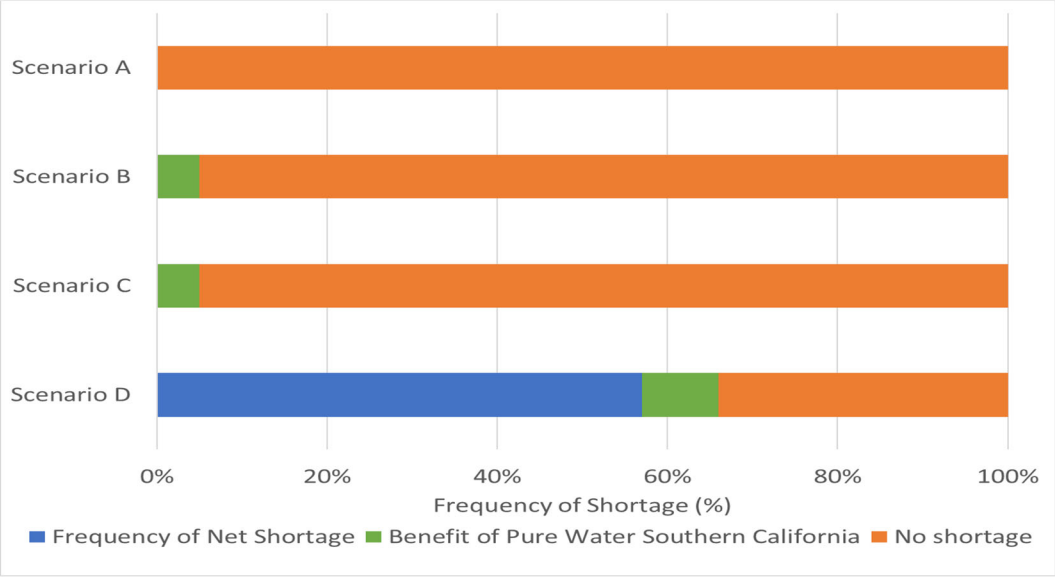


Figure 17: Benefit of Pure Water Southern California to Amount of Core Supply Needed

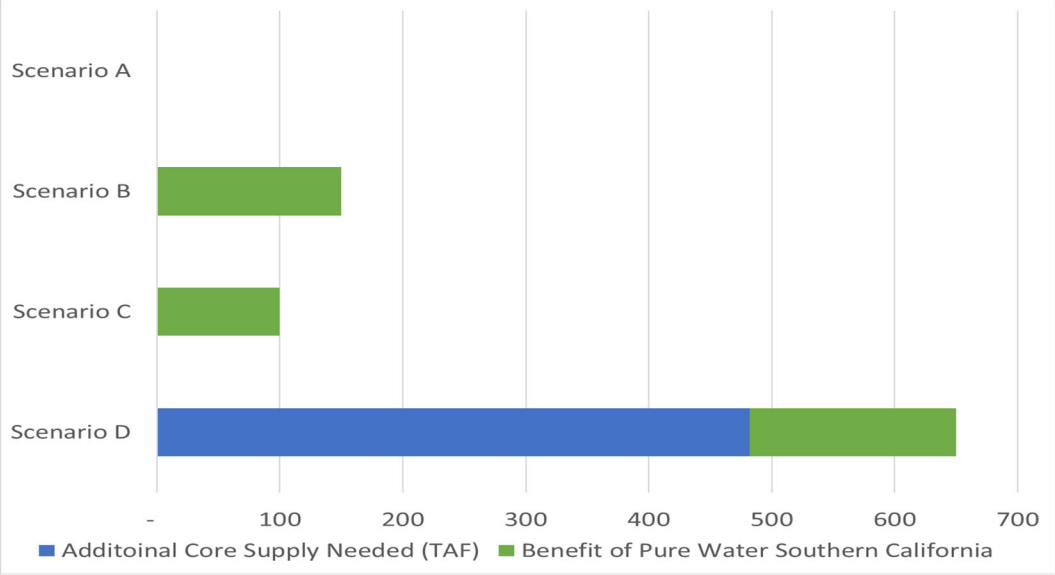
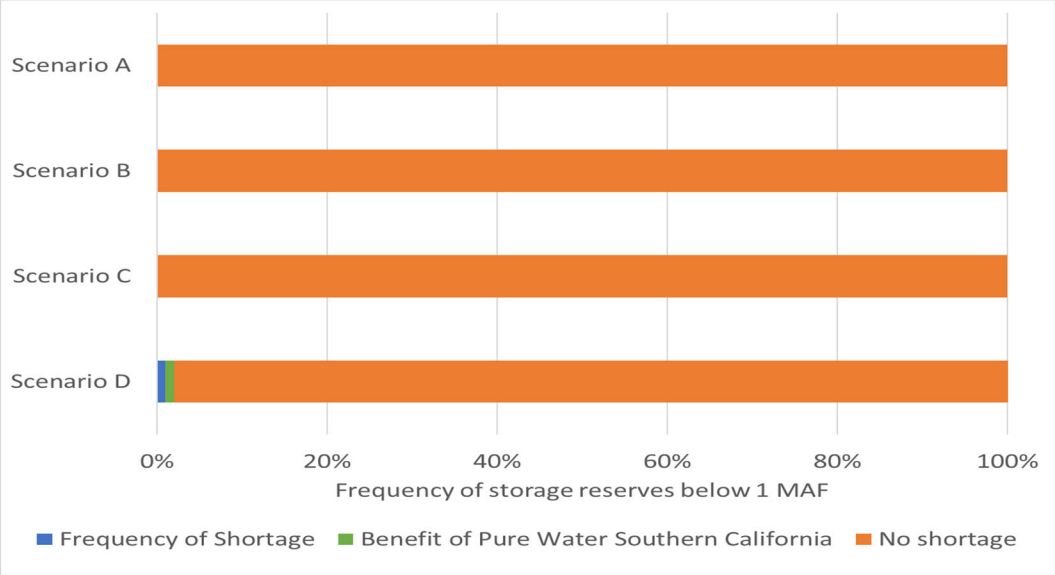


Figure 18: Benefit of Pure Water Southern California to Potential for Net Shortage Below 1 MAF



In the aftermath of such an event, the region would need to rely entirely on local supplies such as Pure Water Southern California, surface storage, and groundwater production while repairs are being made to the aqueducts. As shown in **Figure 19,** Pure Water Southern California is located on the coastal side of the San Andreas Fault with the nearest facilities more than 20 miles away from the fault, which could make the water produced from Pure Water Southern California available during an earthquake emergency, and significantly improve the seismic resilience of the region. Purified water would be available to keep water flowing in Weymouth and Diemer treatment plants even if imported supplies were cut off by the earthquake event. This would allow Metropolitan to continue to meet member agency demands throughout the emergency.

Under the catastrophic loss of water supply the following actions will be implemented, which serve as the criteria for determining Metropolitan's Emergency Storage:

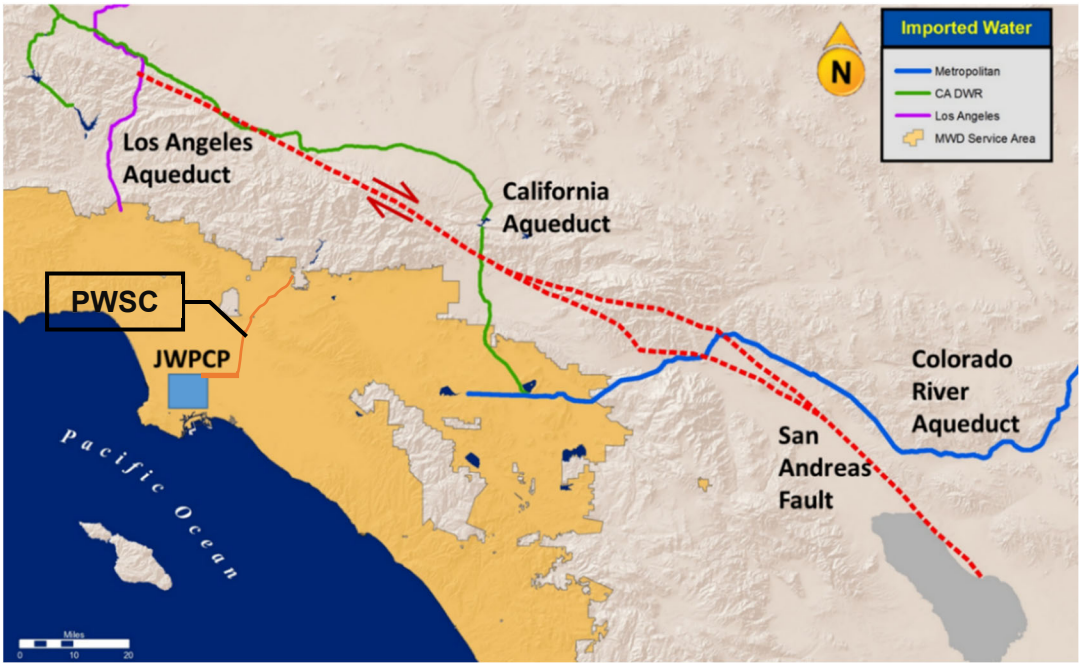
- Suspend any existing interruptible water deliveries;
- Restrict firm supplies by a mandatory cutback of 25 percent from normal-year retail demand levels.
- water stored in the surface reservoirs and groundwater basins under Metropolitan's interruptible program would be made available.
- full local groundwater production, recycled water, and local surface emergency storage reserve production would be sustained; and
- Metropolitan would draw on its emergency storage as well as other available storage.

Based upon a study of emergency storage prepared in 2019 (Board Letter 9-3, May 14, 2019), the outage due to a seismic event on any one of our source supplies would range from a few months to as long as five years as shown below:

- Colorado River Aqueduct: 2 to 6 months (recovery of 80% CRA capacity) or 3 to 5 years (recovery of 100% CRA capacity)
- California Aqueduct East Branch 12 to 24 months

- California Aqueduct: West Branch 6 to 12 months
- Los Angeles Aqueduct: 18 months

Figure 19: Location of Pure Water Southern California Relative to the San Andreas Fault



Adequate local supply available during a seismic outage was estimated in this study to range from 1 to 1.2 MAF. Since recycled water projects such as Pure Water Southern California are assumed to be 100 percent available during a seismic outage, Pure Water could increase local supplies by up to 15 percent during a seismic emergency. Increasing the effective local supply available during the emergency could reduce pressure on Metropolitan's emergency storage reserves.

Pure Water Southern California could also improve the seismic resilience of the region by enhancing and maintaining the storage level in groundwater basins before a major seismic event, and by providing a reliable, local supply of high-quality water for groundwater replenishment and for raw water augmentation throughout the emergency. As noted above, during an emergency, the region would rely heavily on groundwater production, which Pure Water Southern California supports.

Purified water from Pure Water Southern California would be available to keep water flowing as replenishment water to the groundwater basins to maintain production throughout the emergency. Using additional local groundwater and raw water augmentation during an emergency would allow Metropolitan to move what imported water is available to the areas where it is needed most.

Operational Flexibility

With a service area spanning 5,200 square miles in six counties, Metropolitan has built an integrated conveyance and distribution system to ensure consistent supplies, reliability, and flexibility throughout the region. The interconnected nature of the system means that Metropolitan can address constraints in one area of the system for the benefit of the entire system. For example, at any time, one area could be

served exclusively from one supply source, while another area could be served a blend of water sources. The need to change the water sources may arise either from the unavailability of a water resource, a water quality issue related to a resource, or other reasons. The integration of its water resources and system flexibility is fundamental to Metropolitan's wholesale water service. The benefits of Pure Water to operational flexibility are described qualitatively below.

Flexibility to Meet Demands. Adding Pure Water Southern California as an additional water source benefits Metropolitan's overall system flexibility by increasing the options available to meet demands throughout its service area. The additional imported water resulting from demands replaced by Pure Water Southern California purified water deliveries would increase Metropolitan's overall water resource portfolio. Also, the Program will help create additional flexibility to address drought. Because purified water from the Program is a drought-resilient supply, it would be available during periods of drought and emergency.

Flexibility to Add Additional Storage. In addition to freeing up capacity in the existing facilities to meet demands by member agencies or DPR, the freed-up capacity could also be used to import water for additional storage within and outside of Metropolitan's service area. Full implementation of Pure Water Southern California would free up 150 mgd of capacity in the existing conveyance and distribution system. This would allow Metropolitan to capture additional imported water through transfers, exchanges, or other agreements. In addition, Metropolitan would have added flexibility for capturing more available water during wet years.

Flexibility to Meet Specific Demands. Adding Pure Water Southern California as an additional water source benefits Metropolitan's overall system flexibility by increasing the options available to meet demands throughout the service area. Any additional imported water resulting from demands replaced by Pure Water Southern California purified water deliveries would increase Metropolitan's overall water resource portfolio. Full implementation of Pure Water Southern California would free up 155,000 AF of capacity in the existing conveyance and distribution system. This would allow the flexibility to move additional water through transfers, exchanges, or other agreements. In addition, Metropolitan would have added flexibility for capturing and transporting more available water during extreme rain events.

Summary

Pure Water will treat and convey up to 150 mgd for industrial needs, groundwater recharge, and raw water augmentation upstream of Weymouth and Diemer WTP. From Weymouth and Diemer, water can be conveyed through Metropolitan's existing integrated system to the majority of Los Angeles and Orange Counties.

The purpose of this Addendum is to update White Paper No. 2 to address:

- Changed conditions and updates to the Program description since White Paper No. 2 was published
- Updated Program needs based on the 2020 IRP Needs Assessment
- Improved regional benefits evaluation based on the 2020 IRP Needs Assessment
- Integration with the Climate Adaptation Master Plan for Water

Changed Conditions Since White Paper No. 2 was Published

Many things have changed since White Paper No. 2 was published in 2020. Higher temperatures in the Southwest have led to a dramatic reduction in Colorado River runoff. Variable weather in Northern California and stressed ecosystems have resulted in unprecedented low imports from the SWP. Despite good hydrologic conditions in water year 2023, 48 percent of the groundwater basins in Metropolitan's service area remain below their established operating ranges. Therefore, the Program is more important than ever as the region struggles with the impacts of climate change and declining storage.

Since White Paper No. 2 was published, other significant changes to the Program include:

- **Adoption of the 2020 IRP**. The Board unanimously adopted the Regional Needs Assessment of the 2020 IRP in April 2022

- **Climate Adaptation Plan**. Metropolitan's CAMP4Water now integrates current climate, water resources, hazard mitigation, and financial planning efforts to prepare the region for the extremes of climate change.

- **DPR Regulations.** The SWRCB proposed criteria for direct potable reuse.

- **Colorado River partnerships**. Colorado River partners (SNWA, CAP, AZDWR) and a SWP contractor (SGVMWD) have each expressed interest in the Program and formalized Letters of Intent (LOIs) to collaborate on critical issues, and

- **Project Description**. Additional enhancements to the Program:
    - RWA is Phase 1 of the program and eliminated the direct-to-Orange County Pipeline
    - Developing an Early start and early delivery process to kick-start the Program
    - Updating the treatment process and nitrogen limits based on DDW requirements.

These changes have helped the Program team to refine the project elements and move the program forward. Pure Water Southern California is more important than ever as climate change continues its grip on the Southwest will be even more important as this Program progresses.

Need for Pure Water Southern California

Pure Water Southern California is one alternative that would help achieve 100 percent reliability by shoring up core supplies and reducing the chances of a net shortage in the future. Updated data from the 2020 IRP were used to update the needs assessment in this Addendum. Specifically, the Program would help address the following threats to Metropolitan's water supply:

- **Net Shortage.** Risk of net shortages, especially in the SWP dependent areas up to 66 percent of the time by 2045. An additional 650,000 AF of new annual supply is needed to prevent the risk of a net shortage.

- **Low Regional Storage**. Risk of regional storage below 1 million AF that could result in significant reliability issues for the region. Based upon the 2020 IRP analysis, this could occur up to 2 percent of the time

- **Declining Groundwater**. Potential loss of groundwater production capabilities due to the continuation of declining water levels, which could reduce production by up to 10 percent by 2040

- **Slow Development of Local Supplies**. Potential shortfall in local supplies development of approximately 400,000 AF.

The planning revealed that a large portion of Metropolitan's service area is vulnerable to Northern California drought and regulatory restrictions. Metropolitan has limited capacity to move Colorado River water to the northern portions of the district's service area served by the SWP. Additionally, the Colorado River is facing unprecedented drought conditions. Pure Water Southern California plays an important role in Metropolitan's future, response to a net shortage, and integration into Metropolitan's regional system.

When the 100 percent reliability goal is not met by developing new supplies, the deficit can result in significant increased imported water demands on Metropolitan's member agencies and the regional system. Pure Water Southern California would help the region reduce net shortages, declining groundwater, and stagnant local supply development to improve the region's resilience to climate change, reliability for all member agencies, and the integrated system.

Regional Benefits

For Metropolitan and all Southern California, Pure Water Southern California offers significant benefits to all of Metropolitans member agencies. The production of up to 150 mgd of purified water can help to maintain groundwater production, prevent a strain on regional water supply reserves and it can complement other Metropolitan initiatives such as Delta Conveyance by providing reliable replenishment supplies that free up imported water. Pure Water Southern California can be integrated into the existing regional system and become part of Metropolitan's network of facilities.

Pure Water Southern California provides regional benefits to more agencies than just the member agencies that would directly receive the purified water. While Pure Water Southern California would provide water directly to certain member agencies for groundwater replenishment through IPR, and potentially to some industrial users, these deliveries would replace current and future imported deliveries and increase Metropolitan's storage, increasing reliability for everyone. Pure Water Southern California would also deliver water through DPR via raw water augmentation to Metropolitan's Weymouth and Diemer plants. This DPR approach would directly serve many member agencies as treated water from Weymouth and Diemer is delivered to most of Metropolitan's service area. This would include member agencies throughout Los Angeles and Orange Counties. Additional conceptual planning efforts to extend the reach of Pure Water throughout the service area. As an increased source within Metropolitan's distribution system, other imported sources are made available for use in the rest of the service area and for storage.

Improved Regional Resilience due to Pure Water Southern California

Pure Water Southern California plays an important role in Metropolitan's future. As shown in this addendum, Pure Water Southern California improves regional resilience of Metropolitan's service area and integrated system in the following areas:

- **Reduces Chances of a Net Shortage.** The Program reduces the risk of net shortages, especially in the SWP dependent areas by reducing the chance of a net shortage from 66 percent to 57 percent of the time by 2045. The Program also reduces the need for new annual supply from 650,000 AFY to 495,000 AFY.
- **Improves Chances of Low Regional Storage**. The Program reduces the risk of regional storage below 1 million AF. Based upon the 2020 IRP analysis, the Program would reduce the occurrence of regional storage below 1 million AF by 50 percent.
- **Improves Groundwater Sustainability**. The Program would prevent potential loss of groundwater production capabilities due to the continuation of declining water levels in the four groundwater basins.
- **Improves Development of Local Supplies**. The Program would increase local supplies by 155,000 AFY, improving the local supply portfolio.

Pure Water Southern California will help improve the reliability and resilience of Southern California and Metropolitan's integrated system.

Conclusion

Pure Water Southern California plays a vital role in Metropolitan's future. This addendum shows that Pure Water Southern California is needed to address forecasted net shortage conditions within Metropolitan's integrated system. It also will provide multiple benefits to Metropolitan's entire service area, as shown below in **Table 4**.

The next phase of this Program will be to initiate the cost-of-service analysis for this Program, including an update of the Program capital and O&M costs and a rate study to study the Program's impact on Metropolitan's water costs. Additionally, Staff will work with the Board over the next several months to develop a cost-recovery approach for the Program.

In recent months, Metropolitan's Board has accepted an $80 million grant from the State Water Resources Control Board for the program and approved the procurement of a Program Manager Consultant. The next steps include developing Term Sheets to confirm agency demands and beginning some preliminary design for identified early start/early delivery projects that will allow early delivery of water around the JWPCP in Carson and reduce the schedule risk for the entire Program. This CIP work is needed to meet the Program completion target of 2035.

Table 4: Summary of Needs and Benefits of Pure Water Southern California

Topic	Issues	How Pure Water Southern California Addresses Issues
Net Shortage and Drought	• Risk of a net shortage up to 66 percent of the time • Need for up to 650,000 TAFY of new core supply • Risk of storage below 1 MAF up to 2 percent of the time	• Reduces risk of net shortage by 9 percent • Reduces need for additional supply to 495,000 TAFY • Reduces risk of storage below 1 MAF by 50 percent
Groundwater Sustainability	• Projected 17 percent of the groundwater basins would be unsustainable • Risk of loss of groundwater production by up to 10 percent	• Prevents a portion of the loss of groundwater production in Main San Gabriel, West Coast, Central, and Orange County Basins. • Reduces percent of unsustainable basins from 17 percent to 15 percent.
Local Supply Development	• Stagnant growth in local supply development	• Increases local supply by 155 TAFY
Seismic Event	• Significant loss of imported supply capacity for up to 24 months due to catastrophic seismic event	• Increases the effective local supply during a seismic emergency by up to 15 percent • DPR could help maintain flow at treatment plants
Operational Flexibility	• Operational flexibility may be limited during times of emergency or drought	• Improves flexibility to meet demands and maintain regional storage

The Metropolitan Water District of Southern California

Pure Water Southern California Conceptual Cost Recovery Alternatives

REPORT / October 3, 2023

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RAFTELIS

October 3, 2023

Arnout Van den Berg
Revenue and Budget Section Manager
The Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, CA 90012-2944

Subject: Pure Water Southern California Conceptual Cost Recovery Alternatives Report

Dear Mr. Van den Berg:

On behalf of Raftelis, I am pleased to provide our report detailing the Pure Water Southern California ("PWSC") program cost recovery alternatives for consideration by the Board of the Metropolitan Water District of Southern California ("Metropolitan"). This report documents our development of alternative rate and charge approaches for the recovery of PWSC program costs. Some of these alternatives are consistent with the current Metropolitan cost-of-service methodology in some respects but others offer alternatives that are different from the current cost-of-service methodology while still being consistent with industry guidelines.

It has been a pleasure to work with you and others at Metropolitan on this project and we look forward to future opportunities. Please direct any questions regarding this report to me at: 518.391.8944 or by email at jmastracchio@raftelis.com.

Sincerely,

John M. Mastracchio

John M. Mastracchio, CFA
Executive Vice President

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List of Acronyms

AF	Acre-feet
AFY	Acre-Feet per year
AWP	Advanced Water Purification
AWT	Advanced Water Treatment
Board	Metropolitan Board of Directors
cfs	cubic feet per second
CRA	Colorado River Aqueduct
DPR	Direct Potable Reuse
GWRS	Orange County Groundwater Replenishment System
IPR	Indirect Potable Reuse
IRP	Integrated Water Resource Plan
Metropolitan	Metropolitan Water District of Southern California
MGD	Million Gallons Per Day
MGD	Million Gallons Per Day
O&M	Operation and Maintenance
OCSD	Orange County Sanitation District
OCWD	Orange County Water District
PWSC	Pure Warter Southern California
RTS	Readiness-To- Serve
Sanitation District	Sanitation District of Los Angeles County
SAR	System Access Rate
SAWS	San Antonio Water System
SDCWA	San Diego County Water Authority
SPR	System Power Rate
SWP	State Water Project
WRD	Water Replenishment District of Southern California
WTP	Water Treatment Plants

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1. Introduction

1.1. Background

The Pure Water Southern California ("PWSC") program will produce up to 150 million gallons per day ("MGD") of purified water from a new advanced water purification ("AWP") facility located at the Sanitation Districts of Los Angeles County ("Sanitation Districts") Joint Water Pollution Control Plant ("JWPCP") site. In Phase 1, the PWSC program will also feature a new regional conveyance system that will deliver a reliable source of water for non-potable needs and recharge four regional groundwater basins for indirect potable reuse ("IPR"): Central, West Coast, Main San Gabriel, and Orange County. It will also include up to 25 MGD of purified water for direct potable reuse ("DPR") through raw water augmentation at Metropolitan's Weymouth and Diemer Water Treatment Plants ("WTPs") for a total of 115 MGD in Phase 1. In Phase 2, an additional 35 MGD of purified water from the AWP facility will also be conveyed to the Weymouth and Diemer WTPs for raw water augmentation. The purified water will then be blended with raw water from the State Water Project ("SWP") or the Colorado River Aqueduct ("CRA") and undergo additional treatment before entry into Metropolitan's treated drinking water distribution system.

1.2. Purpose

The Metropolitan Board requested that staff complete an evaluation of conceptual cost recovery alternatives for the PWSC program. The purpose of the evaluation is to identify and assess potential alternatives for the allocation and recovery of PWSC program costs in a manner consistent with Metropolitan's Rate Structure Framework, common industry practices and cost-of-service principles. Metropolitan retained Raftelis to complete the evaluation and study in October 2022. Key among the specific tasks assigned to Raftelis were to:

- Analyze and recommend different cost recovery alternatives that reflect the benefits provided by PWSC and the potential usage of PWSC.
- Complete a conceptual functionalization and allocation of revenue requirement to cost components based on cost recovery alternatives.

This PWSC Conceptual Cost Recovery Alternatives Report summarizes several recommended alternative cost recovery mechanisms for Metropolitan consideration.

2. Description of PWSC and Benefits

2.1. Introduction

Metropolitan has conducted extensive analyses of the feasibility of the PWSC program and provided the following documents to Raftelis for review:

- Report No. 1530 (Feasibility Study), November 2016
- Report No. 1618 (Conceptual Planning Study), February 2018
- White Paper No. 1 (Alternative Implementation Approaches), July 2019
- Water Paper No. 2, (Planning, Financial Considerations, and Agreements), October 12, 2020
- Addendum to White Paper No. 2 (Planning, Financial Considerations, and Agreements), September 19, 2023

These reports document analyses that conclude that PWSC will serve as an additional source of water supply for the Metropolitan system to supplement SWP and CRA water and provide significant systemwide benefits to all member agencies. Based on Raftelis' review of these documents, we find it reasonable that the PWSC program would be integrated into Metropolitan's system, be considered a core supply like the SWP and CRA, and become part of Metropolitan's network of facilities.

2.2. Project Objectives

The PWSC program is being developed to achieve the following objectives:

- Provide a new local source of reliable, high quality, and climate-change resilient water to meet the demands on Metropolitan.
- Provide an additional local resource to reduce the risk of disruption from significant seismic events on the San Andreas or other major faults.
- Diversify water sources for the region and enhance operational reliability and flexibility.
- Increase regional water reserves and contribute to the water quality of groundwater basis, which are an important source for member agencies during emergencies and shortages of imported water.

The objective of this cost recovery alternatives report is to identify, analyze and present different cost recovery alternatives that are aligned with industry-accepted cost recovery principles, common industry practices, and Metropolitan's pricing objectives, including Metropolitan's Rate Structure Framework, that are identified herein.

2.3. Benefits of Implementing the PWSC Project

Metropolitan, in its analysis of the feasibility of the PWSC program, has concluded that the PWSC program will provide regional benefits to all member agencies, not just the agencies that would directly receive the purified water. PWSC will result in an increase in the reliability of Metropolitan's entire integrated water

system for the benefit of member agencies. Specific regional benefits of the PWSC program are summarized below.[1,2]

1. Reduced Risk of Net Water Shortages
2. Improved Resiliency of the Water Supply to Climate Change
3. Enhanced Reliability and Flexibility of the Water Supply
4. Ability to Complement Other Metropolitan Initiatives to Provide Environmental Benefits

Reduced Risk of Net Shortages

- The IPR component of the program could offset imported water supplies and provide reliable water for industrial use and to recharge four regional groundwater basis: the Central, West Coast, Main San Gabriel, and Orange County basins.
- The DPR component of the program could directly serve many member agencies and also offset imported water supplies as treated water from the Weymouth and Diemer WTPs is delivered to the majority of Los Angeles and Orange Counties.
- The program could reduce the frequency of net shortages in the system for all member agencies, reducing the risk of net regional storage going below one million acre-feet of total storage, which could result in significant reliability issues for the region.
- The program could reduce the need for additional recharge supplies from Metropolitan's integrated system. The use of this water by groundwater agencies reduces the risk of increasing their Metropolitan demand for water, which would put pressure on Metropolitan's integrated system.

Improved Resiliency of the Water Supply to Climate Change

- Direct water deliveries through IPR and DPR could replace portions of the current and future imported deliveries, as well as increase Metropolitan's water storage, increasing reliability for everyone. The program could help support groundwater aquifers in Los Angeles and Orange Counties by sustaining groundwater levels and reducing the pressure on Metropolitan's service due to declining groundwater production.
- The imported water that is freed up because of the program could also be available for dry-year and emergency storage for use by Metropolitan for its member agencies.
- As an increased source of water within Metropolitan's distribution system, other imported sources could be made available for use in the rest of Metropolitan's service areas and for additional storage. This would help reduce the chances of shortages of water in the future.
- The program would improve resilience to climate change and drought because, compared to alternative water supplies, such as stormwater or imported water, the program is more drought-resilient because it is not dependent upon rainfall runoff, nor is it at risk from changes in climate or hydrology. Protection against drought and climate change is a water security benefit that is not available with Metropolitan's other water sources.

[1]Regional Recycled Water Program: Institutional and Financial Considerations – Whitepaper #2 prepared by Metropolitan staff and provided to the Metropolitan Board of Directors on October 13, 2020.
[2]Addendum to White Paper No. 2 – Planning, Financial Considerations, and Agreements, September 19, 2023.

Enhanced Reliability and Flexibility of the Water Supply

- Full implementation of the PWSC program would free up 150 MGD of capacity in the existing conveyance and distribution systems and would allow Metropolitan the flexibility to capture additional opportunities for imported water from the SWP and CRA, either through transfers, exchanges, or other agreements. In addition, with the freeing up of conveyance and distribution system capacity, Metropolitan would have added flexibility for capturing and transporting more available water during extreme rain events.
- The program would help Metropolitan reduce its reliance on imported water by alleviating pressure on Metropolitan's existing water supplies and facilities while also creating a new source of potable water through DPR. The use of purified PWSC water to meet the demands of member agencies would allow more flexibility to direct water to where it is needed most.
- PWSC would benefit the Metropolitan service area in the event of a catastrophic earthquake by increasing the opportunities to ensure that water supplies are maintained within the region. PWSC could also improve the seismic resilience of the region by enhancing and maintaining the storage level in groundwater basins prior to a major seismic event, and by providing a reliable, local supply of high-quality water for groundwater replenishment and for raw water augmentation throughout an emergency.
- While the production of purified water can help maintain groundwater production, it can also help prevent a strain on regional water supply reserves, as well as complement other Metropolitan initiatives, such as the Delta Conveyance Project, by providing reliable replenishment supplies that free up imported water for the environment or to be placed in storage as a drought buffer.

Ability to Complement Other Metropolitan Initiatives to Provide Environmental Benefits

- The program would help provide stable year-to-year deliveries of new water supply for groundwater replenishment to reduce demand on imported water. Imported supplies from the SWP and CRA that would have gone toward meeting local agency groundwater recharge demands could instead be available to meet other regional and environmental needs or go into Metropolitan storage programs.

3. Cost Recovery Alternatives

3.1. Introduction

In this Section, several potential cost recovery alternatives for the PWSC program are presented. The alternatives were identified considering the regional benefits of the PWSC program to all member agencies, that the PWSC program would be integrated into Metropolitan's system, be considered a core supply like the SWP and CRA and become part of Metropolitan's network of facilities. The alternatives were also identified in consideration of water sector cost allocation standards and common industry practices. The primary and authoritative reference source for such standards and practices that we relied upon in our analysis was the American Water Works Association publication entitled *Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices M1*.[3] This manual provides an overview of industry practices that are commonly used by water utility service providers for water rate setting. The manual does not provide a specific formula or recipe for setting water rates, but rather provides an overview of the generally accepted principles and a compilation of common industry practices that can be considered in establishing water rates. It is up to each individual water utility to identify and apply the practices that align best with the water utility's specific circumstances and unique pricing objectives.

Water rates and associated cost recovery methods are generally considered to be fair and equitable when the methodologies result in cost-based rates that generate revenue from customers in proportion to the benefits received and the cost to serve them. This does not mean that only those that directly receive PWSC purified water should exclusively pay for the program costs. Given the regional benefits of the PWSC program, it is reasonable that Metropolitan member agencies share in a portion of the PWSC program costs regardless of whether or not they directly receive PWSC purified water.

While recovery of costs in a fair and equitable manner is a key objective of water utility cost-of-service ratemaking, it is often not the only objective. Other typical objectives in establishing cost-based rates include the following:[4]

1. Effectiveness in yielding total revenue requirements
2. Revenue stability and predictability
3. Stability and predictability of the rates themselves, with a minimum of unexpected changes causing adverse impacts to rate payers and with a sense of historical continuity
4. Promotion of efficient resource use (conservation and efficient use)
5. Reflection of all of the present and future private and social costs and benefits occasioned by a service's provision
6. Fairness in the apportionment of total costs of service among different rate payers so as to avoid arbitrariness and capriciousness and to obtain equity
7. Avoidance of undue discrimination within the rates

[3] Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices M1, American Water Works Association, Seventh Edition.
[4] Principles of Public Utility Rates, James C. Bonbright, Albert L. Danielsen, David R. Kamerschen, Public Utilities Reports, Inc., 2nd Edition, 1988, p.383-384.

8. Dynamic efficiency in responding to supply and demand patterns
9. Simplicity, certainty, convenience of payment, economy in collection, understandability, public acceptability, and feasibility of application
10. Freedom from controversies as to proper interpretation

One or more of these objectives are often balanced with the objective of rates that reflect cost-of-service and the benefits received, resulting in a cost recovery approach and rate structure that is a reasonable fit for the utility. As there are many reasonable alternatives that Metropolitan could consider recovering the costs of the PWSC program, the selection of the alternative that is the best fit for Metropolitan should be based on Metropolitan Board preferences.

3.2. Existing Cost Allocation Approach and Rate Structure

Metropolitan recovers its existing costs through an existing rate structure that includes the following rate design elements:

Supply Rates. The Tier 1 Supply Rate is a uniform volumetric rate charged on water sales that are within a member agency's Tier 1 maximum, and it recovers costs that are functionalized as supply.

The Tier 2 Supply Rate is a uniform volumetric rate charged to member agencies that recovers Metropolitan's cost of purchasing water transfers north of the Delta. The Tier 2 Supply Rate is charged on Metropolitan water sales that exceed a member agency's Tier 1 Maximum.

System Access Rate. The System Access Rate ("SAR") is a uniform volumetric rate charged to member agencies that recovers the costs of conveyance, distribution, and storage.

System Power Rate. The System Power Rate ("SPR") is a uniform volumetric rate charged to member agencies that recovers the cost of energy required to pump water to Southern California through the SWP and the CRA.[5]

Treatment Surcharge. The Treatment Surcharge is a uniform volumetric rate charged to member agencies that recovers the cost of providing treatment capacity and operations. The Treatment Surcharge is applied to all transactions involving treated water.

Capacity Charge. The Capacity Charge is a fixed charge assessed to member agencies that recovers the cost of peak capacity within the distribution system. The Capacity Charge is applied to each member agency's three-year trailing peak day demand measured in cubic feet per second ("cfs").

Readiness-to-Serve Charge. The Readiness-To-Serve ("RTS") Charge is a fixed charge assessed to member agencies that recovers the portion of the system that is available to provide emergency service and available capacity during outages and hydrologic variability. The RTS Charge is allocated to each member agency

[5]Administrative Code Section 4405 (b).

based on each agency's share of a ten-fiscal-year rolling average of all firm demands, which may include water exchanges and transfers that use Metropolitan system capacity.[6]

3.3. Identification of Alternatives

Metropolitan staff's primary objectives for identifying and selecting cost recovery alternatives for the PWSC program are:

- Consistency with Metropolitan's adopted Rate Structure Framework:[7]
    i. The rate structure should be fair;
    ii. It should be based on stability of Metropolitan's revenue and coverage of its costs:
    iii. It should provide certainty and predictability;
    iv. It should not place any customers at significant economic disadvantage;
    v. It should be reasonably simple and easy to understand; and
    vi. Any dry-year allocation should be based on need.
- Consideration of the benefits provided by PWSC to member agencies;
- Consistency with water utility industry cost recovery principles providing a nexus between the charges and the benefits received;
- Transparency of the benefit and cost allocation approach, understandable to the beneficiaries funding the program costs;
- Ease of implementation and administration;
- Consistent with common industry practices for recovery of water resiliency projects;
- Consideration of aligning fixed costs with fixed cost recovery; and
- Providing member agencies with at least one alternative that provides for direct investment by member agencies in the PWSC program.

Considering industry cost-of-service principles and the specific objectives of Metropolitan, the potential universe of alternatives was narrowed down to the following cost recovery alternatives that we believe best address Metropolitan staff's primary objectives:

1. Cost Recovery Consistent with the Existing Rates and Charges
2. Cost Recovery with a Functionalized Fixed Charge
3. Cost Recovery through Member Agency Subscriptions as Direct Investors

These alternatives are described and evaluated in the following subsections.

[6] The San Diego County Water Authority ("SDCWA") exchange water transactions are excluded from the calculation of the ten-year rolling average per the terms of the exchange agreement between Metropolitan and SDCWA.
[7] Rate Structure Framework as referenced in Metropolitan's Fiscal Years 2020/21 and 2021/22 Cost of Service Report, dated May 2020.

3.4. Alternative 1 – Existing Rates and Charges

3.4.1. Description

Under this alternative, PWSC program costs would be allocated and recovered consistent with Metropolitan's existing rates and charges. PWSC annual capital costs (e.g., debt service and pay-as-you-go cash funding) and operation and maintenance ("O&M") costs would be recovered in the same manner as existing supply and distribution costs are recovered under the existing rate structure.

The annual capital-related revenue requirement associated with the PWSC program would be functionalized and segregated into supply and distribution functional cost categories based on the type and nature of the actual costs incurred. It is anticipated that the functionalized annual capital-related revenue requirement would be allocated to the supply and distribution functional categories based on the proportional share of capital program costs for each function. The functionalized supply costs would then be allocated to the fixed commodity cost category and then distributed and recovered through the existing Tier 1 Supply Charge.

Metropolitan staff used the estimated program costs identified in the Regional Recycled Water Program, White Paper No. 2 – Planning, Financing Considerations, and Agreements dated October 12, 2020 to estimate the portion of capital program costs attributable to Supply and Distribution. Metropolitan staff estimated that 52% of program capital costs is primarily comprised of the Pure Water Advanced Water Treatment ("AWT") capital costs and would be allocated to the Supply functional category, and estimated that approximately 48% of the program capital costs is related to water conveyance and distribution infrastructure, and would be allocated to the Distribution (Conveyance) functional category, as shown in Figure 3-1 and Table 3-1.[8] Note that these percentages are estimates based on current information available as of the date of this report, were not prepared as part of a detailed cost-of-service study, and are subject to change. AWT costs were functionalized into the Supply category because AWT of the reclaimed water is required to create the raw water source for IPR for groundwater recharge and as influent water to Metropolitan's WTPs for DPR. The allocation of these costs to the Supply function is reasonable and is consistent with Metropolitan's functionalization of other supply-related costs. Furthermore, under the current DPR state standards, water from the AWT would be required to be blended with influent water to a potable WTP.

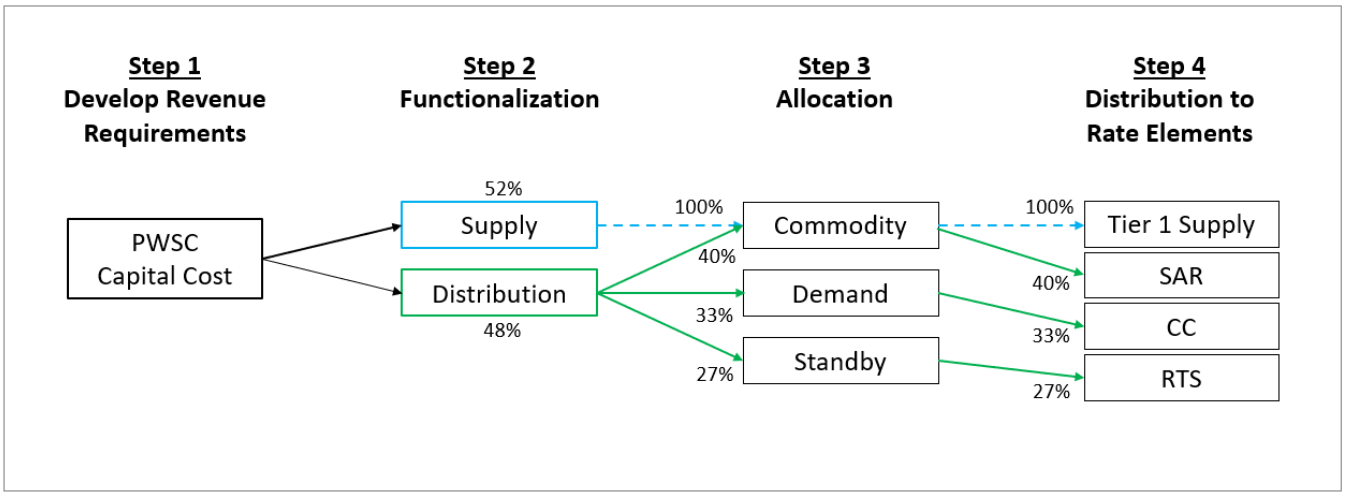
The functionalized Distribution costs would be allocated to fixed commodity, fixed demand, and fixed standby cost categories based upon the engineering factors that are currently used in Metropolitan's cost-of-service model. Based on the cost-of-service model for FY 2021 and 2022, 40% of the system distribution capacity is associated with the quantity of water delivered and, therefore, 40% of functionalized distribution costs are allocated to the fixed commodity category. Functionalized distribution costs are allocated to fixed demand in the existing cost-of-service model based on the difference between the three-year average non-coincident peak demand and the fixed commodity flows divided by the distribution system capacity. Under the existing cost-of-service model, the total amount of distribution system capacity is limited to the 20-year historical non-coincident peak day flow of all member agencies. Under this alternative, the remaining portion of the functionalized distribution costs would be allocated to the fixed standby costs. See Figure 3-1 and

[8]The allocation percentages were estimated using the full program cost from the 2020 Regional Recycled Water Program White Paper No.2 – Planning, Financial Considerations, and Agreements, dated October 12, 2020. The allocation percentages reflect the percentages estimated to be used when the project is completed and fully operational. The actual percentages will vary from year to year through the construction period and will be based on the actual project costs including grant awards and contractual contributions.

Table 3-1 for a summary description of these allocation percentages. Note that these percentages are reasonable estimates based on current information as of the date of this report but are subject to change.

Under Metropolitan's existing water rate structure, the distribution costs allocated to fixed commodity are recovered by the SAR rate element. The distribution costs allocated to fixed demand are recovered from the capacity charge rate element, and the distribution cost allocated to fixed standby are recovered from the RTS charge. Under this alternative, PWSC distribution capital costs would be recovered in the same way as shown in Figure 3-1 and summarized in Table 3-1 based on current information as of the date of this report; such percentages are subject to change.

Figure 3-1. Cost Allocation of PWSC Annual Capital Revenue Requirements – Alternative 1



SAR = System Access Rate, CC = Capacity Charge, RTS = Readiness-To-Serve

Note that customers receiving treated water from Metropolitan would also pay for the cost of treatment through the treated water surcharge. This would apply to PWSC raw water that is treated to DPR standards, as well as SWP and CRA water that is treated at one of Metropolitan's WTPs.

A summary of how PWSC program O&M costs would be allocated under this alternative is also provided in Table 3-1. Per Metropolitan's existing cost-of-service model, O&M costs associated with the AWT, such as power, labor and overhead costs would be recovered in the Tier 1 Supply Rate. O&M costs associated with distribution and conveyance of the purified water would be recovered in the SAR rate element. Note that these percentages are estimates based on current information available as of the date of this report and are subject to change.

Table 3-1. PWSC Cost Recovery Alternative 1 – Existing Rates and Charges

Annual Cost	Component	Approx. Cost Allocation %[1]	Rate or Charge	Billing Basis
Capital	Supply (AWT)	52%	T1 Supply Volumetric Rate ($/AF) calculated by dividing allocated annual costs by annual water sales.	Member Agency Water Sales
	Distribution (Conveyance)	19%	SAR Volumetric Rate ($/AF) calculated by dividing allocated annual fixed commodity costs by annual water transactions.	All Transactions
	Distribution (Conveyance)	16%	Capacity Charge ($/cfs) calculated by dividing allocated annual fixed demand costs by 3-year trailing non-Coincident peak day demands.	Member Agency 3-year Trailing Non-Coincident Peak Demands
	Distribution (Conveyance)	13%	RTS Fixed Charge ($/AF) calculated by dividing allocated annual fixed standby costs by 10-year rolling average annual demands.	Member Agency 10-yr Rolling Average Annual Demands
O&M	AWT Power, Labor, Overhead	67%	T1 Supply Volumetric Rate ($/AF)	Member Agency Water Sales
	Pumping System Power, Labor, Overhead	33%	SAR Volumetric Rate ($/AF)	All Transactions

[1]The allocation percentages were estimated using the full program cost from the 2020 Regional Recycled Water Program White Paper No.2. The allocation percentages reflect the percentages estimated to be used when the project is completed and fully operational. The actual capital allocation percentages will vary from year to year through the construction period and will be based on the actual project costs including grant awards and contractual contributions. The actual O&M cost allocation percentages will vary from year to year based on the actual project O&M cost breakdown.

3.4.2. Analysis

Incorporating cost recovery of the PWSC program into Metropolitan's existing rate structure is a reasonable alternative considering the regional benefits of the PWSC program that will accrue to member agencies, and considering that the PWSC program will be integrated into Metropolitan's system as a core supply like the SWP and CRA and become part of Metropolitan's network of facilities. In addition, this alternative reasonably conforms to several of the Metropolitan objectives cited above. The costs would be recovered from customers that could reasonably be expected to benefit from a highly reliable incremental water supply. There is a clear nexus between the rates and charges associated with this alternative and the benefits of this supplemental supply that would be received by Metropolitan member agencies, either directly or indirectly. The alternative reflects a relatively simple approach in that it does not introduce new rate elements to Metropolitan's existing cost-of-service methodology. In addition, this alternative is consistent with common industry practices for recovery of water resiliency projects. See the Appendix for examples of other agencies that use a similar approach to recover a portion of water resiliency project costs by integrating cost recovery into their existing rate structures, such as San Diego County Water Authority, the Water Replenishment District of Southern California, San Antonio Water System, and Tampa Bay Water.

3.5. Alternative 2 – Functionalized Fixed Charge

3.5.1. Description

Under this alternative, Metropolitan would recover PWSC program capital costs (e.g., debt service and pay-as-you-go cash funding) with a functionalized fixed charge, and annual O&M costs would be recovered in the same manner as how existing supply and conveyance costs are recovered under Metropolitan's existing rate structure.

The annual capital-related revenue requirement associated with the PWSC program would be functionalized and segregated into supply and distribution functional cost categories based on the type and nature of the actual costs incurred. The functionalized supply costs would be recovered based on the amount of member agencies' shares of the 10-year rolling average water sales. The functionalized distribution costs would be recovered based on the amount of member agencies' shares of the 10-year rolling average of transactions. The new fixed charge for each member agency would combine the agency's share of the supply and distribution costs. This cost recovery approach is summarized in Figure 3-2 and Table 3-2. Note that the percentages shown in Figures 3-2 and Table 3-2 are estimates based on current information available as of the date of this report, were not prepared as part of a detailed cost-of-service study for the PWSC program, and are subject to change.

Figure 3-2. Cost Allocation of PWSC Annual Capital Revenue Requirements – Alternative 2

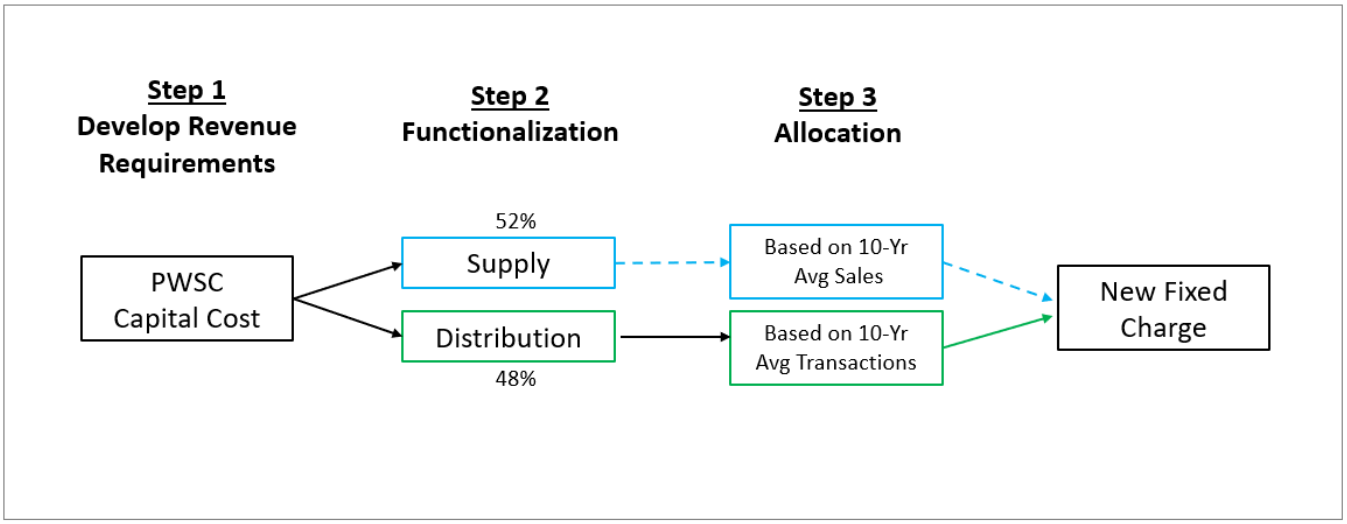


Table 3-2. PWSC Cost Recovery Alternative 2 – Functionalized Fixed Charge

Annual Cost	Component	Approx Cost Allocation %[1]	Rate or Charge	Billing Basis
Capital	Supply (AWT)	52%	Fixed Charge	This portion of the fixed charge calculated by dividing annual supply costs by 10-year average water sales.
	Distribution (Conveyance)	48%		This portion of the fixed charge calculated by dividing allocated annual distribution costs by total 10-year annual average water transactions.
O&M	AWT Power, Labor, Overhead	67%	T1 Supply Volumetric Rate ($/AF)	Member Agency Water Sales
	Pumping System Power, Labor, Overhead	33%	SAR Volumetric Rate ($/AF)	Member Agency Transactions

[1]The allocation percentages were estimated using the full program cost from the 2020 Regional Recycled Water Program White Paper No.2. The allocation percentages reflect the percentages estimated to be used when the project is completed and fully operational. The actual capital allocation percentages will vary from year to year through the construction period and will be based on the actual project costs including grant awards and contractual contributions. The actual O&M cost allocation percentages will vary from year to year based on the actual project O&M cost breakdown.

3.5.2. Analysis

This alternative reasonably conforms to several of the Metropolitan objectives cited above. The fixed charge would be paid by customers that could reasonably be expected to benefit from a highly reliable incremental water supply. There is a clear nexus between the rates and charges and the benefits of this additional supply that would be received by Metropolitan member agencies. While this alternative introduces a new rate element, a fixed charge, the alternative is relatively simple and does not add a significant level of complexity to Metropolitan's existing rate structure. This alternative would also increase the proportion of Metropolitan costs that would be recovered on a fixed basis. In addition, this alternative is consistent with common industry practices for recovery of water resiliency projects. See the Appendix for examples of other agencies that have used a similar approach of recovering a portion of similar project costs with a fixed charge, such as the San Diego County Water Authority, El Paso Water's Water Supply Replacement Charge, and the North Texas Municipal Water District.

3.6. Alternative 3 – Member Agency Subscriptions as Direct Investors

3.6.1. Description

Under Alternative 3, member agencies and third-party investors would have an opportunity to purchase shares of the PWSC program and directly subscribe to the program. The direct investors in the program do not need to be direct recipients of PWSC water and would have a role in the program separate from the current role of member agencies. For those member agencies that choose to be direct investors and purchase a share of the PWSC program, they would receive the following direct benefits from the program:

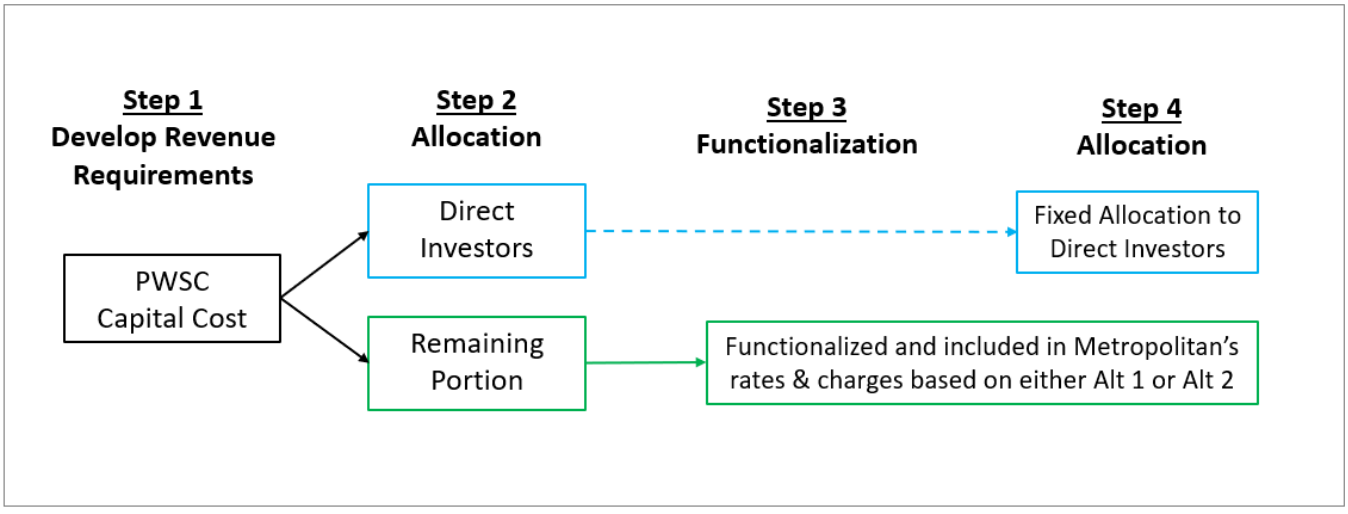
- Water supply in an amount proportional to their investment share.

- During periods of drought that require water supply allocations, direct investors of the PWSC program will receive their proportionate share of PWSC water in addition to their regional allotment.
- The PWSC water would be considered an extraordinary local supply for the purposes of the Water Supply Allocation Plan.

The cost of purchasing a share of the PWSC program would be in proportion to the percentage of the program that is subscribed to by each direct investor, and the direct investor would be required to execute a long-term take-or-pay contract with Metropolitan. For example, if the direct investor purchases 10% of the PWSC program that produces 155,000 AF of water in a given year,[9] then this investor would pay for 10% of the annual capital (e.g., debt service) and O&M costs of the program and have the right to receive 10% of the water production (or 15,500 AF of water if 155,000 AF of water is produced by the program in the given year). With the take-or-pay contract provision, the direct investor would be required to pay its 10% share of the program costs even if the investor decides to take less than its 10% share of the program water production (15,500 AF of water in this example) in the given year.

The remaining unsubscribed portion of the PWSC program (if any) would be allocated to Metropolitan's full service, after subtracting the direct investment portion, and would be recovered in Metropolitan's rates and charges consistent with either Alternative 1 or 2 as described above and illustrated in Figure 3-3. Direct investors, therefore, would pay for their contracted shares of the program and also member agencies would pay for a portion of the unsubscribed portion of the program (if any) through Metropolitan's rates and charges according to either Alternative 1 or 2.

Figure 3-3. Cost Allocation of PWSC Annual Capital Revenue Requirements – Alternative 3



During periods of drought that require water supply allocations, direct investors of the PWSC program will receive their proportionate share of PWSC water in addition to their regional allotment. For example, for a direct investor that subscribes to 10% of the PWSC program that produces 155,000 AF of water in a given year, the direct investor would receive 10% of the projected production from the PWSC program, or 15,500 AF even during drought conditions, and in addition to their regional allotment. This portion of the direct

[9]The full capacity of the PWSC program is planned to be 168,000 AF. The production of 155,000 AF of purified water assumes a 92% uptime estimate.

investor's water supply allocation would be resilient to drought conditions because it would not be subject to curtailment.

The water rate charged to the direct recipients of PWSC water will depend on the final cost-of-service and rate design alternative approved by the Board. However, it is not anticipated that the direct recipients of PWSC water will solely pay for the program. Several points support this approach:

- PWSC will provide regional benefits to member agencies, not just the agencies that directly receive the purified water. While PWSC would provide water directly to certain member agencies for groundwater replenishment through IPR, and potentially to some industrial users, these deliveries would replace current and future imported deliveries, as well as increase regional groundwater levels, increasing reliability for member agencies. PWSC will also deliver up to 25 MGD of DPR through raw water augmentation at Metropolitan's Weymouth and Diemer WTPs. This DPR approach directly serves many member agencies as treated water from the Weymouth and Diemer WTPs is delivered throughout Metropolitan's service area.
- The PWSC program requires firm commitments for water delivery because PWSC will produce water on a continuous basis. PWSC water will need to be delivered as it is produced. The direct recipients of PWSC water, therefore, are essential to the operation of the PWSC system and the benefits received by all member agencies.
- Under Cost Recovery Alternatives 1 and 2, member agencies, whether direct recipients or not, would pay for PWSC water in proportion to their historical and current year water demands. However, under Alternative 3, any member agency that directly invests in the PWSC program will pay for the PWSC water to which it subscribes. In addition, the member agencies will also pay for the unsubscribed portion through rates and charges for Metropolitan's services.

3.6.2. Analysis

This alternative reasonably conforms to several of the Metropolitan objectives cited above. The charge would be applicable to all member agencies that become direct investors of the program. These direct investors would benefit from the program during periods of mandatory water supply allocation due to drought conditions. If there is any remaining program capacity that is unsubscribed, then all member agencies would share in this portion of the costs, which would be allocated in accordance with either Cost Allocation Alternative 1 or 2. Member agencies that are not direct investors in the program would share in the remaining portion of the program costs (if any) and benefit from the highly reliable incremental water supply because the program would reduce the likelihood that, and frequency in which, Metropolitan would be required to enter mandatory water allocations due to drought conditions. Therefore, there is a clear nexus between the allocation of costs to member agencies and the benefits of this supplemental supply that would be received by Metropolitan member agencies.

This alternative provides Metropolitan and member agencies with an option for direct investment in the PWSC program. If the program becomes fully subscribed, then no additional costs would be borne by member agencies that do not desire to subscribe to the program. In this instance, member agencies that have not subscribed to the program would not benefit from it during periods of mandatory water allocation or receive any share of the project's water production.

Along with the advantages of this alternative comes added complexity. This alternative would require member agencies to decide whether they want to be direct investors in the program, and to identify the

proportion of the amount of the program that they would like to directly invest in. The alternative would require the direct investors to enter into a long-term, take-or-pay contract with Metropolitan. These contracts would need to be negotiated with each of the member agencies interested in becoming direct investors in the program.

The recovery of the cost of water supply capacity based on the purchase of shares of the project is a relatively common approach to cost recovery in the water sector. However, the combination of cost recovery through purchased shares of the project and recovery of the remaining costs through either Alternative 1 or 2 is a more novel concept that is tailored to the benefits of the project that would accrue to member agencies. This alternative, to the best of our knowledge, has not been used by other agencies for the recovery of water resiliency projects but is consistent with industry cost recovery principles providing a nexus between the charges and the benefits received.

4. Conclusions and Recommendations

There is no perfect solution for recovering the costs of the PWSC program and the selection of one reasonable alternative by the Metropolitan Board does not mean that there are no other potentially reasonable alternatives. Each alternative has its relative advantages and drawbacks. The Metropolitan Board should consider selecting the alternative that best satisfies its most important criteria. For example, if simplicity and ease of implementation are the attributes that are of highest importance to Metropolitan, then Alternatives 1 and 2 should be considered for implementation. If alignment of fixed costs with fixed cost recovery is the attribute that is of highest importance to Metropolitan, then Alternative 2 should be considered for implementation. However, if Metropolitan highly values providing member agencies with a direct program investment option, then Alternative 3 should be considered for implementation. If multiple attributes are equally important to Metropolitan, then it should select the alternative with the combination of attributes that best meets its needs. A summary of the attributes of each of the alternatives is presented in Table 4-1.

Table 4-1: Attributes of the Cost Recovery Alternatives

Metropolitan Criteria	Alternative 1	Alternative 2	Alternative 3
Consistent with Cost Recovery Principles	✓	✓	✓
Simple and Relatively Easy to Understand	✓	✓	
Ease of Implementation and Administration	✓	✓	
Consistent with Common Industry Practices	✓	✓	✓*
Aligns Fixed Costs with Fixed Revenue Recovery		✓	✓
Provides Member Agencies with a Direct Investment Option			✓

* The recovery of the cost of water supply capacity based on the purchase of shares of the project is a relatively common approach to cost recovery in the water sector. However, the combination of cost recovery through purchased shares of the project and recovery of the remaining costs through either Alternative 1 or 2 is a more novel concept that is tailored to the benefits of the project that would accrue to member agencies.

APPENDIX:

Water Supply Cost Recovery Examples and Case Studies

This Appendix presents information on how other utilities recover the cost of resilient supply projects from both retail and wholesale customers.

San Diego County Water Authority, CA
Cost Recovery for the Carlsbad Desalination Plant

The San Diego County Water Authority ("SDCWA") is a wholesale water supplier to 24 member agencies. The SDCWA satisfies its long-term water supply needs through diversification of its water supply sources. One of its newer sources of supply is desalinated water from the Carlsbad Desalination Plant. SDCWA entered into a 30-year Water Purchase Agreement to purchase up to 56,000 AF of desalinated water from Poseidon Water (Poseidon) on an annual basis. Poseidon constructed the Claude "Bud" Lewis Carlsbad Desalination Plant after the parties agreed to terms of the Water Purchase Agreement. Poseidon also constructed transmission assets to deliver the desalinated water to SDCWA's own transmission assets. In addition, SDCWA upgraded some of its transmission assets in order to receive Poseidon's water.

The methodology used to incorporate the costs of the Carlsbad Desalination Project costs into the Water Authority's water pricing structure is as follows:[10]

1. Pipeline costs connecting the desalination plant to SDCWA's system are allocated to the Transportation function. Costs associated with modifications to SDCWA's Pipeline #3 to accommodate desalination water are allocated to the Transportation function.
2. Improvements made by SDCWA for delivery of desalinated water to the Twin Oaks Valley Water Treatment Plant for blending and for redistribution of water through the aqueduct are allocated to the Transportation function.
3. The costs associated with the Desalination Plant are primarily allocated to both the Supply and Treatment functions. A portion of the cost is allocated to the Supply function because its primary function is to produce water. A portion of the cost is allocated to the Treatment function because the desalination water that is produced meets all state and federal drinking water regulations. According to a 2016 Cost of Service Study, the total cost to be recovered for desalination water was estimated to be $91.8 million. Of this amount, $91.8 million (or approximately 87%) was allocated to the Supply function, and the remaining $11.8 million (or 13%) was allocated to the Treatment function.
4. The desalination costs allocated to the Supply function is recovered through a Melded Supply Rate and a Supply Reliability Charge. The Melded Supply Rate combines the unit costs of supply from SDCWA's numerous water supply sources into a single Melded Supply Rate expressed as a rate in dollars per AF.
5. The Supply Reliability Charge was a new fixed charge that was added in 2016. This charge was designed to recover the portion of Supply functional costs associated with reliability enhancements. The revenue generated from the Supply Reliability Charge offsets the amount of revenue required to be recovered from the Melded Supply Rate. The concept of a fixed charge for supply reliability was to recognize that reliable water supplies benefit all member agencies regardless of whether the agency uses water every day or intermittently. The recovery of costs allocated to the Supply function through a combination of the Supply Reliability Charge and the Melded Supply Rate balances the impact of

[10] Cost of Service Study Report prepared for the San Diego County Water Authority for Calendar Year 2020 Rates and Charges, prepared by Carollo. Draft dated May 2019.

the fixed costs on member agencies with the recovery of costs based on a rolling average of municipal and industrial deliveries. Allocation of costs associated with long-term investments in supply reliability to member agencies are based on a five-year rolling average of Melded Municipal and Industrial deliveries.[11]

6. The Supply Reliability Charge was designed as a commodity-based fixed charge and is calculated by first determining the difference between the combined Desalination and Imperial Irrigation District ("IID") Water Transfer Costs and the like amount of water purchased at Metropolitan's Tier 1 Full Service Untreated Rate. The calculated difference is then multiplied by 25% to determine the Supply Reliability Charge. The formula for calculating the Supply Reliability Charge is as follows:

   Supply Reliability Charge = [(Desal Water Costs + IID Water Transfer Costs) – MWD Tier 1 Supply Costs] * 25%

7. The costs allocated to the Treatment function are recovered through a Melded Treatment Rate.

[11] Memorandum entitled "Review of Proposed SDCWA – Supply Reliability Charge" for the SDCWA prepared by A&N Technical Services, Inc., dated March 2, 2015.

Orange County Groundwater Replenishment System, CA

The Orange County Groundwater Replenishment System ("GWRS") is a cooperative effort between the Orange County Water District ("OCWD") and the Orange County Sanitation District ("OCSD"). The OCWD and OCSD recognized an opportunity to cooperate on a project that would provide benefits to both organizations, as well as to the region as a whole.

The GWRS takes treated wastewater from the OCSD and treats it to levels exceeding State and Federal drinking water regulations with a treatment regime of microfiltration, reverse osmosis, and ultraviolet light with hydrogen peroxide. The highly treated effluent is then pumped into a seawater barrier and recharge basin to resupply the Orange County Groundwater Basin. The primary benefit of the GWRS for the OCSD is the postponement of the need to build a second ocean outfall. The benefits for the OCWD include a local supply that protects and augments existing groundwater supplies more reliably and at a lower cost than the imported water that was being used for this purpose.[12]

The initial project agreement specified that OCSD and OCWD would split the capital costs of constructing the 130 MGD treatment facility. The OCSD provides wastewater effluent at no charge, and the OCWD operates and maintains the GWRS facility. The capital cost of the initial facility (which began operation in 2008) was approximately $485 million, which was comprised of:

- An Advanced Water Purification Plant $326 million
- GWRS Pipeline $64 million
- Barrier Injection Facilities $21 million
- Integrated Information System, wells, workshops, insurance $17 million
- Design $31 million
- Construction Management and Administration $26 million.
- Total $485 million.

Grant funding paid for $92 million of the capital costs, and OCWD and OCSD each contributed $195 million.[13] In 2015, the treatment facility was expanded to 100 MGD at a cost of approximately $142 million funded by OCWD.

A final expansion of the facility was completed in early 2023 that increased treatment capacity from 100 MGD to 130 MGD. This expansion included expanding the Advanced Water Treatment Facility, constructing a new pump station and two flow equalization tans, rehabilitating a pipeline and modifying OCWD's headworks to be able to segregate reclaimed and non-reclaimed flows. The expansion project cost $290 million as was funded through a variety of different sources, including an OCWD WIFIA loan and State Revolving Fund loans.[14]

OCWD derives its revenues from the District's share of the County 1% property tax (approximately 12% of revenues), Replenishment Assessments and Additional Replenishment Assessments, Basin Equity

[12] https://www.ocwd.com/gwrs/about-gwrs/
[13] Email from Tan Lo, Senior Engineer, OCWD, July 26, 2016.
[14] https://www.ocwd.com/gwrs/final-expansion/, last accessed March 14, 2023.

Assessments, and other miscellaneous revenues. Approximately 61% of revenues (in 2019) were generated by the District from Replenishment Assessments. These assessments are levied and collected from 19 municipal agencies that are groundwater producers within its service area. The assessment revenues are applied to the cost of replenishment of the groundwater supplies and for the payment of costs of District projects. Both the Replenishment Assessments and Additional Replenishment Assessments are uniform rates per acre-foot of groundwater produced. Additional Replenishment Assessments are assessed to groundwater producers other than irrigation users.

Because of a large differential in cost between the cost of treated water received by Metropolitan and water produced from the Orange County Groundwater Basin, a basin equity assessment is charged. This charge helps to eliminate the inequities between groundwater producers by charging each groundwater producer the Basin Equity Assessment for each acre-foot of groundwater produced in excess of the basis production percentage.[15]

[15] Orange County Water District, 2019 Refunding Revenue Bond Official Statement, p.24.

Water Replenishment District of Southern California, CA

The Water Replenishment District of Southern California ("WRD") is the largest groundwater management agency in the State of California, with a 420-square mile service area that encompasses 43 cities and four million residents in southern Los Angeles County. WRD manages the Central Basin and the West Coast Basin which comprise approximately 50% of the geographic area and 53% of the population of the Los Angeles-Orange County coastal plain aquifer system, part of the California Coastal Basins aquifers. Estimated pumping volumes for FY 2023/2024 are 195,000 AF.[16]

The primary components of WRD's annual costs that are recovered from rates are water purchases for groundwater replenishment and water treatment and production costs associated with recycled water and desalting projects. The key sources of water supplies used by WRD for groundwater replenishment include purchases from the Central Basis Municipal Water District, the Long Beach Water Department, and the West Basin Municipal Water District. Each of these agencies resells water to the WRD that was originally purchased from Metropolitan. As part of its groundwater replenishment activities, WRD also purchases significant amounts of recycled water from the Los Angeles Department of Water and Power, the Sanitation Districts of Los Angeles County, and the West Basin Municipal Water District.

WRD recovers its annual revenue requirement by charging a single blended uniform $/AF replenishment assessment on all water pumped from the Central Basin and the West Coast Basin groundwater basins. WRD's FY 2023/2024 net revenue requirement from rates is $84.59 million with estimated customer pumping volumes of 195,000 AF. The resulting FY 2023/2024 replenishment assessment is $446/AF.[17]

WRD's FY 2023/2024 Cost-of-Service Report contains an extensive discussion of the rationale for using a single blended uniform rate structure. Key reasons include:

- WRD manages the Central Basin and West Coast Basin as a single unitary groundwater system
- WRD's replenishment activities benefit all groundwater pumpers on both a direct and indirect basis
- Although separately adjudicated, the Central Basin and West Coast are subbasins to the larger Coastal Plain of Los Angeles Groundwater Basin

[16] Water Replenishment District, Cost of Service Report, p. 108.
[17] Ibid.

Tampa Bay Water, FL

Tampa Bay Water is a regional water supply authority that provides wholesale treated water supplies to member agencies serving approximately 2.5 million people in the Tampa Bay, FL region. Its member agencies include Hillsborough, Pasco, and Pinellas counties, as well as the cities of St. Petersburg, Tampa, and New Port Richey. In FY 2021, demand on the system averaged 184.8 MGD which is equivalent to approximately 67.452 billion gallons or 207,003 AF.[18]

Tampa Bay Water meets the demands of it member agencies from three different water supply sources: groundwater, surface water, and desalination water. The current permitted supply capacity is 270.52 MGD which consists of surface water (121.8 MGD), groundwater (119.95 MGD), and desalination water (28.75 MGD). In addition to water treatment facilities and well fields, Tampa Bay Water owns and operates a network of transmission mains, pump stations, and water storage facilities throughout its service territory. As of fiscal year-end 2022 (September 30, 2022) the depreciated value of Tampa Bay Water's capital assets was $1.475.2 billion.[19]

Despite its diverse service territory and water supply portfolio, Tampa Bay Water recovers its annual revenue requirement through a single blended uniform rate that is paid by all of its member agencies regardless of the differing costs of Tampa Bay Water's various water supply sources and regardless of the specific source of the water supplies received by each member agency. For FY 2024, this rate, which is designed to recover both fixed and variable revenue requirement components, will be $2.5989 per 1,000 gallons. It is designed to recover both fixed and variable operating costs. The calculation of this rate is as follows:

Net Revenue Requirement of $188.054 million / Water Demand of 197.70 MGD = $2.5989/1,000 gallons.

At the end of fiscal each year, there is a fixed cost true-up process which compares the level of fixed costs recovered from each member agency via the uniform rate to the actual fixed costs incurred by Tampa Bay Water.

[18] Proposed Operating Budget, Tampa Bay Water, p. 53.
[19] Tampa Bay Water, Annual Comprehensive Annual Report, Fiscal Year Ended September 2022, Table A3, page 36.

Denver Water, CO

Denver Water is a municipal agency that provides treated water service to approximately 1.295 million people across much of metropolitan Denver. Three types of customers are served by Denver Water: inside city retail customers who are located within the jurisdictional boundaries of the City and County of Denver, outside city retail customers located in suburban communities who are served by Denver Water owned and operated facilities, and wholesale customers in suburban communities, who own and operate their own distribution system facilities.

Total treated water consumption on the Denver Water system for the year ending December 31, 2022, was 68.358 billion gallons,[20] which is equivalent to approximately 187.78 MGD or 210,333 AF. The maximum day treated water demand on the Denver Water system was 372.51 MGD.[21] Approximately 49.1% of the total annual demand was from inside city retail customers, 24.2% was from outside city retail customers, and 26.6% was from wholesale customers.[22]

Denver Water relies on renewable surface water supplies from collection systems in the South Platte River Basin and the Colorado River Basin. In 2022, Denver Water diverted 286,601 AF from all of its surface water sources. Of this amount, 89,529 AF or 31.24% was diverted from the Colorado River Basin collection system.[23] Denver Water operates three water treatment facilities with a combined capacity of 560 MGD.[24]

In addition to its surface water supply sources and water treatment facilities, Denver Water also operates a recycled water plant that was constructed in 2004. This plant, which treats wastewater effluent produced by the nearby Robert W. Hite Treatment Facility operated by the Metro Wastewater Reclamation District, has a capacity of 30 MGD. The recycled water is conveyed through a separate recycled water distribution system.[25]

The recycled water produced by Denver Water is not treated to the level appropriate for human consumption. As a result, the current recycled water customer base includes parks, schools, golf courses, and industrial customers within the City and County of Denver who use recycled water for non-consumptive purposes. The largest of these customers is Xcel Energy, which uses water at an electric power generation facility. The Denver Water recycled water transmission and distribution system is located entirely within the City and County of Denver. As a result, recycled water is ***not*** available for purchase by outside city retail or wholesale customers.

Denver Water's recycled water customers are served by recycled water transmission system with a total length of approximately 75 miles that includes two recycled water pump stations. Total water sales revenue in 2021

[20] Denver Water Annual Comprehensive Financial Report for the Year Ended December 31, 2022, III-Statistical Section – Contents and Explanations, page III-3.
[21] Ibid.
[22] Derived from data presented in the Denver Water Annual Comprehensive Financial Report for the Year Ended December 31, 2022, III-Statistical Section – Contents and Explanations, page III-19.
[23] Derived from data presented in the Denver Water Annual Comprehensive Financial Report for the Year Ended December 31, 2022, III-Statistical Section – Contents and Explanations, page III-3.
[24] Denver Water Annual Comprehensive Financial Report for the Year Ended December 31, 2022, III-Statistical Section – Contents and Explanations, page III-3.
[25] Official Statement for the issuance of Series 2022A Revenue Bonds dated September 27, 2022, page 16

was $324.0 million. In 2021, only 2.1% of all water sold by Denver Water was recycled water which accounted for less than 1% of total water sales revenue.

There are two types of costs incurred by Denver Water to operate its recycled water system. The first is associated with maintaining and enhancing the capacity of the recycled treatment plant to produce water. Denver Water considers these costs to be "common-to-all" source of supply costs that are allocated to both inside and outside city customers (retail and wholesale) despite the fact that recycled water is only available for purchase by inside city customers. This allocation protocol recognizes that ***all*** customers, even those who cannot purchase recycled water on a direct basis, benefit from the incremental addition that recycled water makes to Denver Water's water resource supply portfolio. As a result, the water rates paid by wholesale customers include a proportionate share of the costs associated with the production of both treated and recycled water supply.

The second type of cost incurred to the recycled water system is associated with maintaining and enhancing the recycled water transmission and distribution system. These costs are not allocated to outside city retail or wholesale customers because recycled water is not available for purchase by these customers. Therefore, the cost of the recycled water transmission and distribution system are not included in the water rates paid by suburban outside city retail or wholesale customers. Instead, recycled water transmission and distribution costs are allocated to the revenue requirement of ***all*** inside city customers. Allocating recycled water transmission and distribution costs to all inside city customers allows recycled water to be priced much lower than would be the case if these costs were only allocated to the very limited recycled water customer base.

El Paso Water, TX – Water Supply Replacement Charge

El Paso Water Utilities serves a large population of approximately 650,000 in an arid climate with retail and wholesale water service. The utility has been aggressively planning for the future to ensure an adequate, long-term water supply, including establishing a rate structure to encourage conservation, and continuing to increase reliance on the recycling of wastewater.[26]

The City operates 153 groundwater wells, 76 reservoirs, 53 booster pump stations, two surface water treatment plants, one groundwater treatment plant, one desalination plant, three arsenic removal plants, and over 2,870 miles of pipelines. The utility also operates seven reservoirs, four pump stations, and 52 miles of pipelines comprising the reclaimed water system. Two wholesale customers, the Lower Valley Water District Authority, and the Paseo del Este Municipal Utility District, are among the ten largest customers of the utility.

The City utilizes a cost of service allocation process to establish its rates for retail and wholesale water customers. The cost of El Paso's various sources of supply, treatment, and distribution are combined and allocated to customers based on base, maximum day, and maximum hour water demands. Retail customers are charged a monthly minimum water rate that varies by meter size, a monthly water supply replacement charge that is a fixed monthly charge that varies by meter size, a franchise fee that is a fixed charge that varies by meter size to compensate for wear and tear on streets by El Paso water vehicles, and volumetric rates with three tiers that are charged to customers based on their prior year's average winter consumption.

El Paso charges customers a separate fixed charge that varies by meter size called the Water Supply Replacement Charge. Revenues from the Water Supply Replacement Charge are used to fund future water projects, including importation projects, acquiring water rights, and building or expanding water treatment plants. Wholesale customers are exempt from paying the Water Supply Replacement Charge. A separate reclaimed water rate structure applies to those customers that receive reclaimed water from the utility.[27]

Some wholesale customers of El Paso Water Utilities are charged a fixed charge per equivalent meter and a volumetric rate per one hundred cubic feet of water, whereas other wholesale customers are charge only a volumetric rate in accordance with their wholesale agreements with the utility. The volumetric rates that are charged to wholesale customers do not vary based upon the source of the water provided to the wholesale customer (i.e., there is not a different rate charged for providing surface water or desalination water to these customers).

[26] Bond Official Statement, City of El Paso Water and Sewer Revenue Improvement and Refunding Bonds, Series 2022A. August 25, 2022. P.19.
[27] Information accessed at https://www.epwater.org/customer_service/understanding_your_bill

San Antonio Water System, TX - Vista Ridge Water Supply and Pipeline

In 2014, the City of San Antonio and the San Antonio Water System ("SAWS") entered into a public-private partnership arrangement with Abengoa, a Spanish multi-national corporation to construct, operate, and maintain the Vista Ridge Regional Supply Project. The project involved the construction of water supply wells, collection pipelines, treatment facilities, tanks, pump stations, and a 142-mile transmission pipeline to deliver up to 50,000 acre-feet of water to SAWS. The cost of the project was initially estimated to be in the range of $1,950 to $2,000 per acre-foot, which was more expensive than SAWS' other sources of water, but the project provides long-term water supply benefits and drought protection.[28] The construction of the Vista Ridge project was completed in 2020.

More than 90% of the Vista Ridge Regional Supply Project is allocated to the Source of Supply functional cost category. Supply costs are defined as those costs associated with securing raw water to be used for non-potable or potable purposes. A small portion of the project cost is allocated to the Production functional cost category. This cost category is associated with the production of treated water. Production costs were then allocated to both base and maximum day demands.[29]

SAWS recovers the operating and capital costs associated with the Vista Ridge Regional Supply Project, and other water supply projects, including SAWS' direct recycled water system project and its groundwater-based Aquifer Storage Recovery facility with a separate Water Supply Fee as part of its retail water rate structure. The Water Supply Fee assists SAWS in funding expenditures for the development of new water resources and includes all operating, maintenance, research and development, and capital costs of such projects. The Water Supply Fee is a per 100 gallons fee that is charged to each customer class that is served by SAWS, including residential, general commercial, wholesale, and irrigation customer classes.[30]

[28] New and Emerging Capital Providers for Infrastructure Funding: Case Study, Project #4617, J. Mastracchio, E. Petersen, and T. Huestis, prepared for Water Research Foundation, 2016.
[29] Water and Wastewater Cost of Service Technical Memorandum, Prepared by Carollo for the San Antonio Water System, February 2022.
[30] Water Supply Fee Semiannual Report, prepared by the San Antonio Water System, January – June 2020.

North Texas Municipal Water District, TX

The North Texas Municipal Water District is a conservation and reclamation district and a political subdivision of the State of Texas that was created for the purpose of providing a source of water supply for municipal, domestic and industrial use, and for the treatment, processing, and transportation of such water to its 13 member cities and other customers located in North Central Texas.

The District provides water service to areas having an estimated population of 1.8 million people. The system serves 10 counties, covers 2,200 square miles, and includes more than 570 miles of transmission pipelines, 17 pump stations, and six treatment facilities. The average daily requirement of the District's water customers averages approximately 290 MGD, and the existing transmission system and treatment facilities have a capacity of 840 MGD. The District obtains its water supply from various sources, including Lake Lavon, located on the East Fork of the Trinity River, Lake Texoma, Lake Jim Chapman, and Lake Tawakoni. The District is actively pursuing many options for development of additional water supplies, including a project to provide up to 100 MGD of reclaimed water.[31]

District revenues are derived from payments to the District per water purchase contracts with its 13 Member Cities and other customers. The Member Cities have agreed to pay the same wholesale water rate regardless of the size, location, or proximity to the infrastructure or water sources. In addition to Member Cities, the District has other area cities, towns, water utility and supply districts who are wholesale customers and pay a slightly higher wholesale water rate. Member Cities pay an allocation of the shared regional water infrastructure and system costs based on the maximum amount of potential capacity each City needs. The terms of the contracts include a "take or pay" clause, meaning that the cities pay the fixed costs component of the wholesale water rate based on the highest year of consumption, even if in subsequent years they don't reach the same level of water usage. This ensures that the fixed system costs are covered regardless of the amount of water used. The cities and customers also receive an annual rebate for the variable costs based on each city's actual consumption for that year.[32]

[31] Bond Official Statement, North Texas Municipal Water District, Water System Revenue Refunding Bonds, Series, 2021A, October 18, 2021. P.14.
[32] Frequently Asked Questions: Wholesale Water Rates and Water Supply Contract. North Texas Municipal Water District. Rev. 01-11-17.

Finance, Audit, Insurance, and Real Property Committee

Pure Water Southern California Cost Recovery Alternatives

Item 6a
October 10, 2023

Agenda

1. Raftelis - Conceptual Cost Recovery Alternatives
2. Metropolitan – Additional Cost Recovery Alternatives

Appendix: Program Overview and Updates

Conceptual Cost Recovery Alternatives

October 10, 2023

RAFTELIS

Introductions

John M. Mastracchio, ASA, CFA, P.E.

- Executive Vice President at Raftelis
- Nearly 30 years of utility rate and finance experience
- Advisor to some of the largest water utilities across North America
- Contributor to Industry Manuals on capital financing and rate setting
- Past Chair of the AWWA Finance, Accounting, and Management Controls Committee

John Wright, CPA

- Senior Manager at Raftelis
- More than 25 years of utility rate and finance experience
- Advisor to many water utilities in California
- Extensive experience in cost of service evaluations for water supply projects
- Contributor to Industry Manuals on cost of service and rate setting

Who is Raftelis?

One of the most experienced
utility financial and management consulting practice in the nation.

Raftelis has provided financial/ organizational assistance for

1,500+

public agencies and utilities

that serve more than

25%

of the U.S. population

including the agencies serving

38/50

of the nation's 50 largest cities

Objectives of the Study

- Develop a recommendation for recovery of Pure Water Southern California (PWSC) Program capital and operating costs for MWD Board consideration
- Consider the following:
  - The benefits of PWSC on Metropolitan's system and services
  - Consistency with cost recovery principles
  - Common industry practices for recovery of water resiliency projects
  - Aligning fixed costs with fixed cost recovery
  - Providing Member Agencies with an option for project direct investment

Cost Recovery Principles

Full cost recovery in proportion to the benefits received and the cost to serve

May consider other objectives that result in a reasonable fit for the utility.

Metropolitan's Rate Structure Framework

Stability of revenue and coverage of cost	Fairness	Certainty and predictability	No significant economic disadvantage	Reasonably simple and easy to understand	Dry-year allocation should be based on need

Conceptual Cost Recovery Alternatives

1. Cost Recovery Consistent with Metropolitan's Existing Rates and Charges

2. Cost Recovery with a Functional Fixed Charge

3. Cost Recovery through Member Agency Subscriptions as Direct Investors

Cost Recovery Alternative 1 – Existing Rates and Charges

Cost	Component	Approx %(1)	Rate or Charge	Billing Basis
Capital Financing	Supply (Advanced Water Treatment (AWT))	52%	T1 Supply ($/AF)	Water Sales
	Transportation (Conveyance)	19%	SAR ($/AF)	All Transactions
		13%	RTS	Existing RTS
		16%	CC ($/CFS)	Existing CC
O&M	AWT Power, Labor, Overhead	67%	T1 Supply ($/AF)	Water Sales
	Pumping System Power, Labor, Overhead	33%	SAR ($/AF)	All Transactions

SAR = System Access Rate, RTS = Readiness to Serve, CC = Capacity Charge

- Relatively simple approach and simple to administer
- Consistent with cost recovery principles
- Common recovery approach for water resiliency projects

(1) The allocation percentages when the project is completed and fully operational were estimated using the full program cost from the 2020 Regional Recycled Water Program White Paper No. 2. The actual percentages will vary from year to year and be based on the actual project costs including grant awards and contractual contributions.

Cost Recovery Alternative 2 – Functionalized Fixed Charge

Cost	Component	Approx %(1)	Rate or Charge	Billing Basis
Capital Financing	Supply Portion (Advanced Water Treatment (AWT))	52%	New Fixed charge ($)	10-Yr Avg Sales
	Transportation Portion (Conveyance)	48%		10-Yr Avg Transactions
O&M	AWT Power, Labor, Overhead	67%	T1 Supply ($/AF)	Water Sales
	Pumping System Power, Labor, Overhead	33%	SAR ($/AF)	All Transactions

- Relatively simple approach and simple to administer
- Consistent with cost recovery principles
- Helps align fixed cost with fixed cost recovery
- Common recovery approach for water resiliency projects

(1) The allocation percentages when the project is completed and fully operational were estimated using the full program cost from the 2020 Regional Recycled Water Program White Paper No. 2. The actual percentages will vary from year to year and be based on the actual project costs including grant awards and contractual contributions.

Cost Recovery Alternative 3 – Members Subscribe as Direct Investors

Investors: Member Agencies that choose to purchase project shares

- May or may not be direct recipients of PWSC Water
- Can be member agencies or third-party investors

Cost Allocation:

- **For Investors:** Water production and project costs are allocated according to their percentage share of the project. Take-or-pay contract.
- **All Member Agencies**: Unpurchased shares are allocated among all member agencies.
- Costs ramp up over time as the project is constructed.

Benefits:

- **For Investors:** Increases supply reliability for investors during water shortage allocations - Water is considered extraordinary local supply for purposes of Water Supply Allocation Plan.
- **For MWD:** Provides new fixed funding source that increases revenue stability for MWD.

Cost Recovery Alternative 3 – Members Subscribe as Direct Investors

Project Cost Recovery Portions	Description	Cost Recovery Mechanism
Direct Investment Portion	Portion of project subscribed by direct investors.	Fixed cost recovery in proportion to each investor's share of the project. Take-or-Pay contract.
Remaining Portion	Remaining project costs allocated to Member Agencies after subtracting the Direct Investment Portion	Alternative 1 = Existing Rate Elements Alternative 2 = New Fixed Charge

- Aligns fixed cost with fixed cost recovery
- Provides Member Agencies with a direct investment option
- Consistent with cost recovery principles – Direct linkage between cost recovery and benefits received

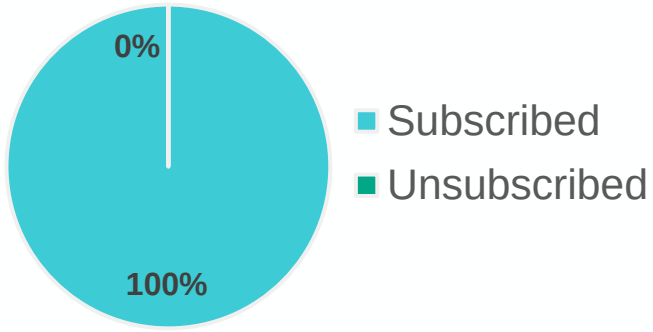
Alternative 3 – Member Agency Example

Assume that the project produces 155,000 AF and Agency A makes a 10% direct investment

- Agency A:
  - Pays annually for its direct investment under a take-or-pay contract
  - Receives 10% of projected production – 15,500 AF
  - Pays 10% of project capital financing and O&M costs
  - Pays a share of the unsubscribed project portion through Metropolitan's rates and charges according to either:
    - Alternative 1 (existing rates and charges)
    - Alternative 2 (new fixed charge)
- During periods of water supply allocation, Agency A has 15,500 AF of local supply in addition to its regional allotment

Agency A is a direct project investor and subscribes to 10% of the project or 15,500 AF

Scenario 1 – Fully Subscribed



- Agency A pays for its subscribed portion per take-or-pay contract
- Other Agencies subscribe to the project, and the project is fully subscribed
- There is no allocation of the unsubscribed portion to non-investor member agencies

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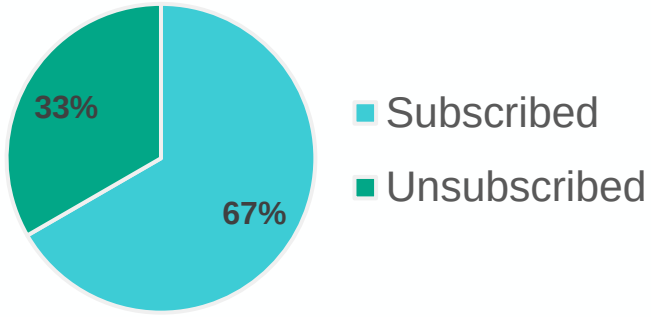
Scenario 2 – Partially Subscribed



- Agency A pays for its subscribed portion per a take-or-pay contract
- Other Agencies subscribe to the project, but the project is not fully subscribed
- Agency A and all other agencies pay for and receive a share of the unsubscribed project portion through Metropolitan's rates and charges.
- Costs of the unsubscribed portion recovered per Alternative 1 or 2.

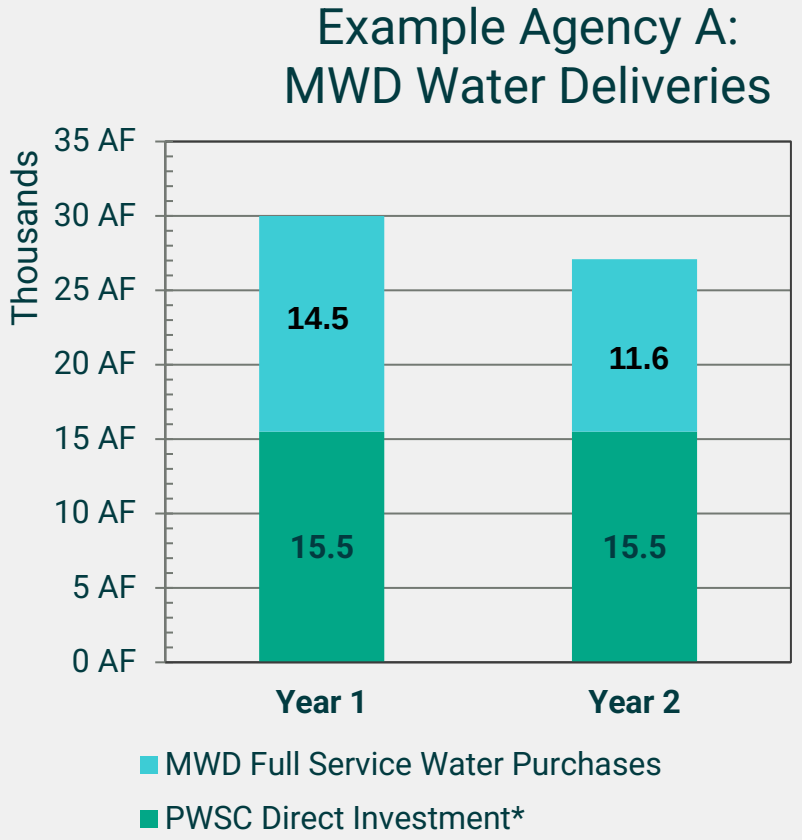
Alternative 3 – Member Agency Example (cont'd)

Year 1: Agency A purchases 30,000 AF from MWD

- Receives 15,500 AF from PWSC subscribed portion (10% of projected production)
- Pays for 14,500 AF through MWD's full-service rates

Year 2: Extreme drought causes water supply allocations

- Receives 15,500 AF from PWSC subscribed portion (10% of projected production)
- Receives and pays for regional allotment of 11,600 AF from MWD through MWD's full-service rates



** Direct investor's share of PWSC program water production is drought resilient as it will not be reduced in periods of drought.*

Attributes of the Cost Recovery Alternatives

	Alternative 1 Existing Rates and Charges	Alternative 2 New Fixed Charge	Alternative 3 Member Agency Direct Investment
Consistent with Cost Recovery Principles	✓	✓	✓
Simple – Relatively Easy to Understand	✓	✓	
Ease of Implementation and Administration	✓	✓	
Consistent with Common Industry Practices	✓	✓	✓ *
Aligns Fixed Costs with Fixed Revenue Recovery		✓	✓
Provides Member Agencies w/ Direct Investment Option			✓

* The recovery of the capacity based on the purchase of shares of the project is a relatively common approach. However, the combination of cost recovery through purchased shares and recovery of the remaining costs through either Alternative 1 or 2 is a more novel concept that is tailored to the benefits of the project that would accrue to member agencies.

Additional Cost Recovery Alternatives

Alternative 4: PWSC Surcharges

Cost	Component	Approx %(1)	Rate or Charge	Billing Basis
Capital Financing and O&M Costs	**Supply** – Advanced Water Treatment (AWT) and AWT Power, Labor, and Overhead	52%	PWSC Supply Surcharge ($/AF)	Water Sales
	Transportation – Distribution, Pumping System Power, Labor, and Overhead	48%	PWSC Transportation Surcharge ($/AF)	All Transactions

- PWSC costs are recovered on new, separate volumetric surcharges for supply and transportation

(1) The allocation percentages when the project is completed and fully operational were estimated using the full program cost from the 2020 Regional Recycled Water Program White Paper No. 2. The actual percentages will vary from year to year and be based on the actual project costs including grant awards and contractual contributions.

Alternative 5: New GO Bond Ad-Valorem Property Tax

Cost	Component	Approx %	Rate or Charge	Billing Basis
Capital Financing	Supply and Transportation	100%	New GO AV Tax	AV Tax on properties within service area
O&M	AWT Power, Labor, Overhead	67%	T1 Supply ($/AF)	Water Sales
	Pumping System Power, Labor, Overhead	33%	SAR ($/AF)	All Transactions

- Metropolitan may pursue a new property tax to cover PWSC capital costs
  - Tax collected = GO bond debt service payments for PWSC Program
    - As the project is building and GO Bonds are issued, tax will be adjusted annually to recover for GO Bond debt service payments
    - 2/3 majority vote requirement – of all voters in MWD service area
- O&M costs will be recovered T1 Supply and SAR rates ($/AF)

Summary of Alternatives Evaluated

Raftelis' Proposed Cost Recovery Alternatives

1	Existing Rates and Charges	Capital and O&M costs are recovered on existing rate elements (Tier 1 Supply, SAR, RTS, CC)
2	Functionalized Fixed Charge	Capital costs are recovered on a new fixed charge. O&M costs are recovered on T1 Supply and SAR
3	Members Subscribe as Direct Investors	Direct Investment → Participating MA Indirect portion → MET rates & charges for all MA

Additional Cost Recovery Alternatives

4	PWSC Surcharges	PWSC costs are recovered on new, separate volumetric surcharges for supply and transportation
5	New GO Bond Ad-Valorem Property Tax	New GO Bond AV Tax for capital costs O&M costs are recovered on T1 Supply and SAR

Other Considerations

- This is not an exhaustive list of PWSC cost recovery alternatives that could be considered by the Board
  - Additional alternatives may be incorporated into a new rate structure / business model through the ongoing CAMP4W planning processes
  - However, Raftelis evaluated a wide range of cost recovery alternatives and considered the project benefits, cost recovery principles, industry practices, cost alignment and providing direct investment options and recommends Alternative 1, 2 and 3 as outlined above
- Further discussion of the impacts of the PWSC cost recovery alternatives on the SDCWA-MWD Exchange Agreement payments

Future Items

- Staff will bring an update on PWSC Cost Estimates to the Pure Water Sub-Committee in November 2023, which will necessitate further discussion on project scope and cost recovery alternatives
- Funding of the PWSC planning and design activities in the next biennial budget (FY2024/25 and FY2025/26) will be funded by the $80 million State Water Resources Control Board grant

Appendix: Program Overview and Updates

Pure Water Southern California Program

Overview

- Partnership between Metropolitan and Los Angeles County Sanitation Districts
- Construction of advanced water treatment plant, conveyance pipelines, spreading facilities, and injection wells
- Creates 150 million gallons daily new supply

Benefits

- Provide new local source of reliable, high quality, climate-resilient water to meet demands on Metropolitan
- Reduce likelihood of regional net shortage
- Enhance Metropolitan's operational reliability and flexibility
- Contribute to water quality of regional groundwater basins
- Increased reliability during seismic event

Pure Water Southern California

How it works

① Used water (wastewater) from homes, businesses, and industries in LA County

② Cleaned at Sanitation Districts' Joint Water Pollution Control Plant

③ Purified at Metropolitan's advanced water purification facility

④ Conveyed through over 60 miles of pipeline to groundwater basins, industries, or Metropolitan's drinking water plants

⑤ A new climate-resilient source of water for Southern California

Infrastructure at a Glance

AWT (Supply) and Pipelines (Conveyance)

Purpose of Pure Water Southern California

With a service area spanning 5,200 square miles in six counties, Metropolitan has built an integrated conveyance and distribution system to ensure consistent supplies, reliability, and flexibility throughout the region.

How does Pure Water function as part of Metropolitan's integrated service?

Treat and convey up to 150 mgd from JWPCP to meet member agency needs

90 mgd for groundwater recharge and industrial demands

Up to 60 mgd for DPR via raw water augmentation at Weymouth and Diemer WTP that would be conveyed to MA through existing integrated system

Project serves up to 8 Member Agencies directly

West Basin MWD , Los Angeles Long Beach, Torrance, Central Basin MWD, Upper District, Three Valleys, and IEUA

DPR via Weymouth and Diemer WTP serves Central Pool, which provides water to majority of LA and Orange Counties. 60% of the project would reduce SWP deliveries while 40% would reduce CRA deliveries

Pure Water Southern California is part of Metropolitan's integrated service in the same way that SWP and CRA are part of Metropolitan's service

Pure Water Southern California

Addendum to White Paper No. 2

White Paper No. 2 was published in October 2020. Since that time, the first phase of the 2020 IRP was adopted by the Board, draft DPR regulations were released, and the Colorado River partners expressed interest in the project.

What's changed since White Paper No. 2 was published?

Adoption of the 2020 IRP and CAMP4 Water

- The Board unanimously adopted the Regional Needs Assessment of the 2020 IRP in April 2022
- Metropolitan's CAMP4Water integrates current climate, water resources, hazard mitigation, and financial planning efforts to prepare for climate change.

Partnerships

- Colorado River partners (SNWA, CAP, AZDWR) and a SWP contractor (SGVMWD) have each expressed interest in the Program and formalized Letters of Intent

Project Description

- The SWRCB proposed criteria for direct potable reuse. RWA DPR now part of Phase 1
- Potential to deliver a portion of the Program early
- Updating the treatment process and nitrogen limits based on DDW requirements.

Pure Water Southern California

Need for Pure Water Southern California

Why does Metropolitan need Pure Water Southern California?

Need for Pure Water Southern California

Risk of Shortage or Allocation

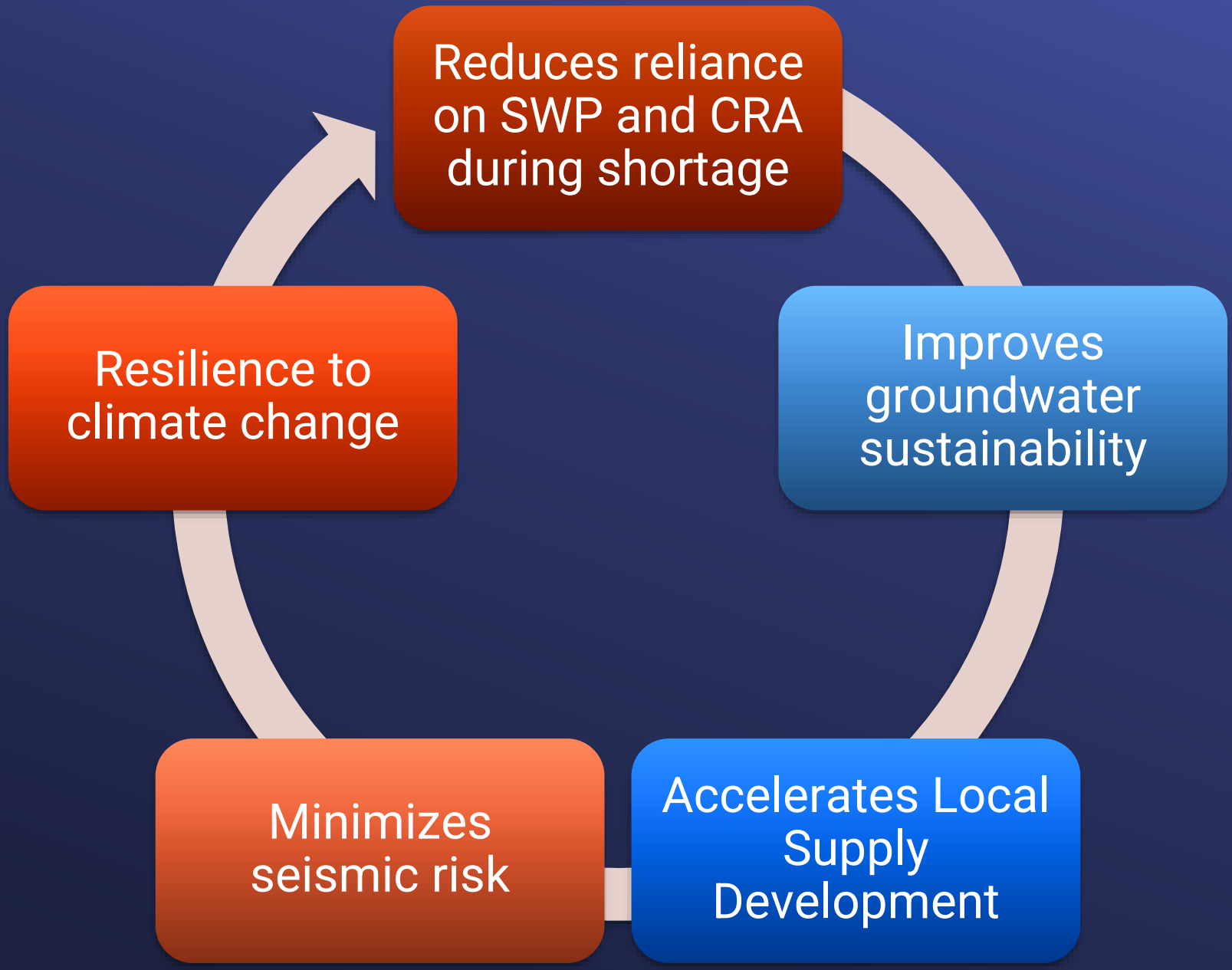
- **Up to 1.22 MAF of net shortage by 2045**
  - Would require up to 650 TAF additional core supply
  - Needs primarily in SWP-dependent areas
- **Net Shortage up to 66% of the time**
  - 2% chance that storage would go below 1 MAF

Declining Groundwater Levels

- Despite favorable hydrologic conditions this year, 48 percent of groundwater basins are still below their established operating range
- Loss of groundwater production by up to as much as 10 percent by 2040
- Cumulative additional recharge need 1.1 to 1.6 MAF by 2040

Slow Development of Local Supplies

- Despite significant investment in local supplies, the Potential shortfall in local supplies development of approximately 400,000 AF



Regional Benefits of Pure Water Southern California

Why do all member agencies benefit from Pure Water Southern California?

Summary of Needs and Regional Benefits of PWSC

Topic	Need	Benefits
Reliance on SWP and CRA during shortage	• Risk of a net shortage up to 66 percent of the time • Need for up to 650,000 TAFY of new core supply • Risk of storage below 1 MAF up to 2%	• Reduces risk of net shortage by 9 percent • Reduces need for additional supply to 495,000 TAFY • Reduces risk of storage below 1 MAF by 50%
Groundwater sustainability	• Projected up to 17 percent of the groundwater basins would be unsustainable • Risk of loss of groundwater production by up to 10 percent	• Prevents a portion of the loss of groundwater production in Main San Gabriel, West Coast, Central, and Orange County Basins. • Reduces percent of unsustainable basins from 17 percent to 15 percent.
Local Supply Development	• Stagnant growth in local supply development	• Increases local supply by 155 TAFY
Seismic Event	• Significant loss of imported supply capacity for up to 24 months due to catastrophic seismic event	• Increases the effective local supply during a seismic emergency by up to 15 percent • DPR could help maintain flow at WTPs
Operational Flexibility	• Operational flexibility may be limited during times of emergency or drought	• Improves flexibility to meet demands and maintain regional storage


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

Finance, Audit, Insurance, and Real Property Committee

Review Draft 2023 Long-Range Finance Plan Needs Assessment

Item 6b

October 10, 2023

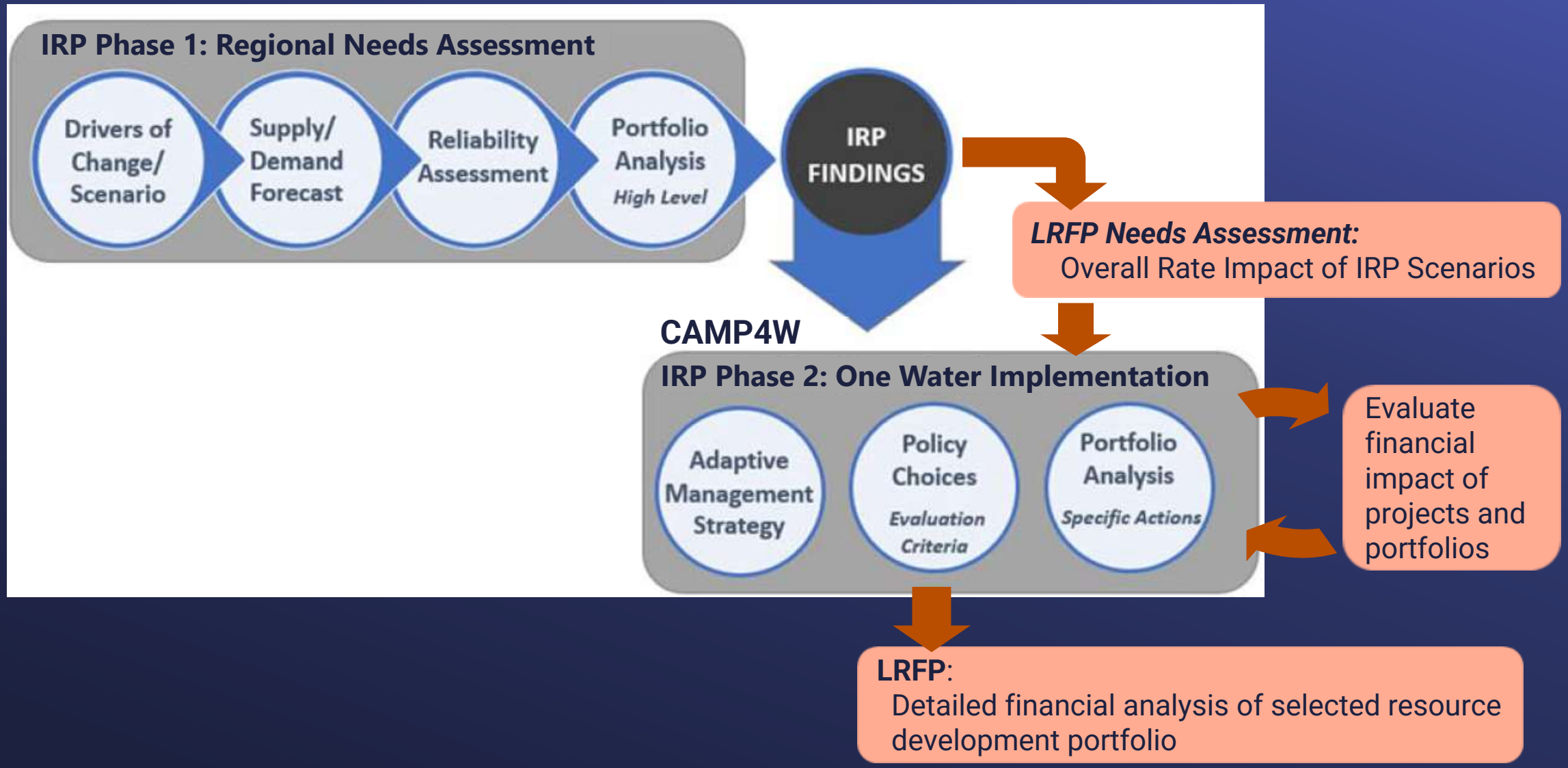
Agenda

- Overview of LRFP Process
- Rate Impact Modeling Analysis
- Capital Financing Considerations
- Conclusions & Next Steps

Long-Range Finance Plan Needs Assessment

Overview of LRFP Process

Integrated Planning Processes



Long-Range Financial Plan

LRFP Needs Assessment: Overall Rate Impact of IRP Scenarios and Capital Financing Considerations

1. Estimate the *rate impact* of various resource development scenarios identified in the IRP needs assessment
2. Discuss the primary capital financing and funding tools Metropolitan has at its disposal, describe the key finance policy considerations, and review alternative financial approaches

***Results*:** Inform the CAMP4W process and assist the Board in selecting the resource development portfolio to pursue while weighing resiliency, reliability, financial sustainability, and affordability objectives

LRFP: Detailed Long-Range Financial Plan

As specific projects are identified that meet Board-approved objectives, a more refined rate impact can be developed, including phased project financing, cost recovery methodology, and reserve requirements

Long-Range Finance Plan Needs Assessment

Rate Impact Modeling Analysis

Modeling Overview
LRFP Needs Assessment

Modeling Period

- Starts with the adopted rates for calendar year 2023 and 2024 and project overall annual rate increases to 2032
- Public agencies and water utilities commonly use 5 or 10-year financial forecasts. Beyond a 10-year horizon, forecasts become highly uncertain
- The intent of the LRFP Needs Assessment is to estimate average annual overall rate increases over the 10-year forecast period and provide an indication of the trajectory of rates in the longer-term
- The model assumes that costs are recovered exactly as anticipated, allowing the model to focus on the impacts of resource development costs without introducing additional variation from reserves, debt coverage considerations, and other items that will be incorporated into the final LRFP

Modeling Overview

LRFP Needs Assessment

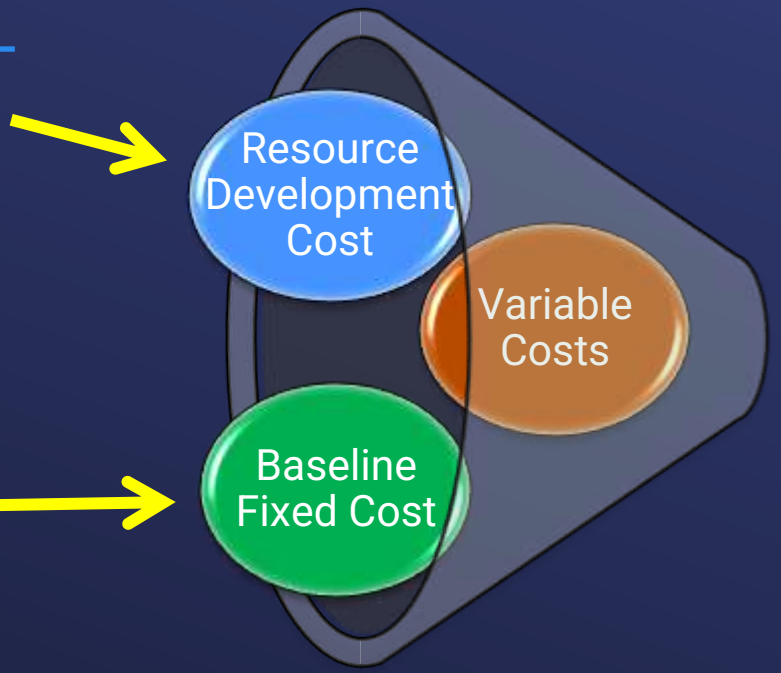
Modeling Process

For each IRP Scenario for each year:

Resource Development (AF)

× Resource Unit Cost ($/AF)

= Resource Development Cost



Revenue Requirement ($)

÷ Water Transactions ($/AF)

= Overall Rate ($/AF)

2020 IRP Needs Assessment Scenarios

Scenario Descriptions

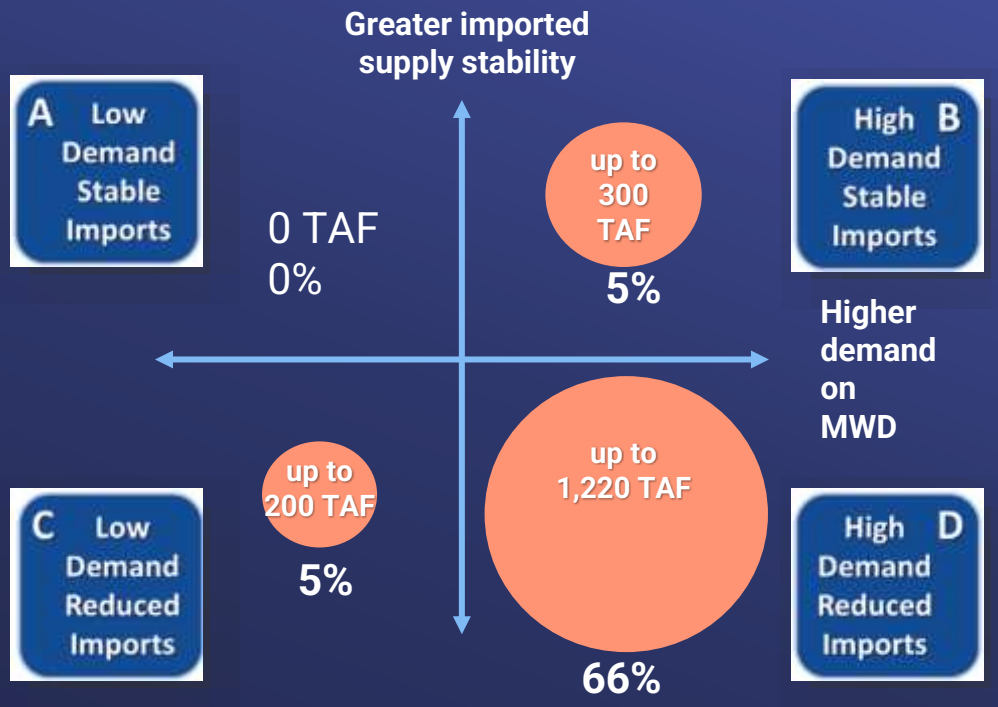
Scenario A – Low Demand/Stable Imports:
Gradual climate change impacts, low regulatory impacts, and slow economic growth.

Scenario B – High Demand/Stable Imports:
Gradual climate change impacts, low regulatory impacts, high economic growth.

Scenario C – Low Demand/Reduced Imports:
Severe climate change impacts, high regulatory impacts, slow economic growth.

Scenario D – High Demand/Reduced Imports:
Severe climate change impacts, high regulatory impacts, and high economic growth.

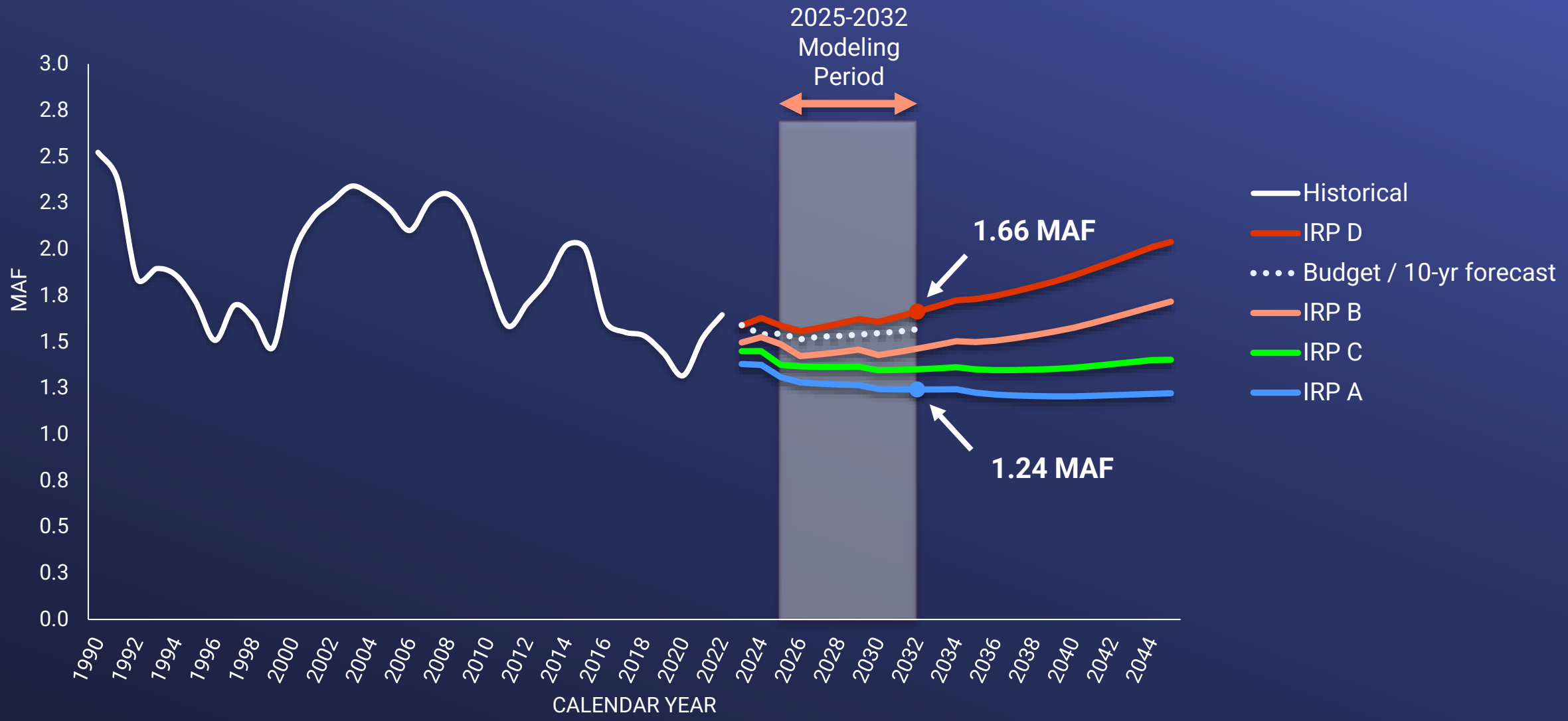
Summary Matrix of IRP Scenario Results*



**Max Magnitude of Supply Gap (TAF) and Frequency (%) of a Net Shortage in 2045*

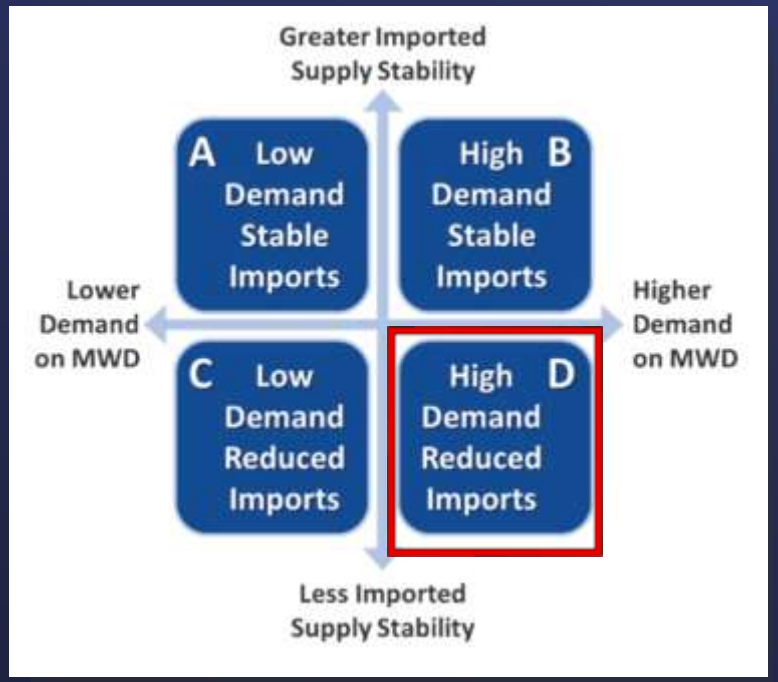
2020 IRP Needs Assessment Scenarios

Projected Water Demands



Resource Portfolios Example

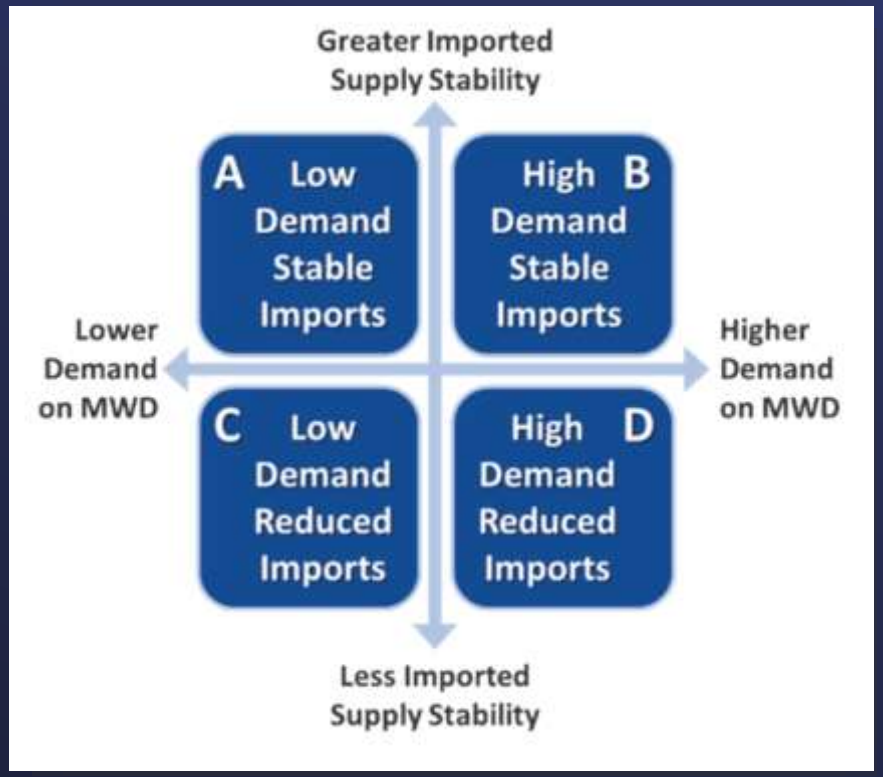
IRP Scenario D



	Additional storage: 0 AF		Additional storage: 250 TAF		Additional storage: 500 TAF	
	Storage	Core Supply	Storage	Core Supply	Storage	Core Supply
2025	0 TAF	100 TAF	23 TAF	100 TAF	45 TAF	100 TAF
2026	0 TAF	150 TAF	45 TAF	150 TAF	91 TAF	150 TAF
2027	0 TAF	150 TAF	68 TAF	150 TAF	136 TAF	150 TAF
2028	0 TAF	150 TAF	91 TAF	150 TAF	182 TAF	150 TAF
2029	0 TAF	150 TAF	114 TAF	150 TAF	227 TAF	150 TAF
2030	0 TAF	150 TAF	136 TAF	150 TAF	273 TAF	150 TAF
2031	0 TAF	300 TAF	159 TAF	200 TAF	318 TAF	200 TAF
2032	0 TAF	300 TAF	182 TAF	200 TAF	364 TAF	200 TAF
2033	0 TAF	300 TAF	205 TAF	200 TAF	409 TAF	200 TAF
2034	0 TAF	300 TAF	227 TAF	200 TAF	455 TAF	200 TAF
2035	0 TAF	300 TAF	250 TAF	200 TAF	500 TAF	200 TAF
2036	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2037	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2038	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2039	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2040	0 TAF	450 TAF	250 TAF	400 TAF	500 TAF	400 TAF
2041	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2042	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2043	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2044	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF
2045	0 TAF	650 TAF	250 TAF	550 TAF	500 TAF	500 TAF

Resource Portfolios Summary

IRP Scenarios



Core Supply Needs in 2032			
	No Storage	250 TAF Storage (182 TAF storage in 2032)	500 TAF Storage (364 TAF storage in 2032)
IRP A	0 TAF	0 TAF	0 TAF
IRP B	50 TAF	30 TAF	30 TAF
IRP C	15 TAF	15 TAF	15 TAF
IRP D	300 TAF	200 TAF	200 TAF

Resource Unit Costs

Resource	Range from sources	Modeled Unit Cost[1]
Core Supply[2]	Carlsbad Desal = $2,975/AF Santa Barbara Desal = $3,126/AF Venture Water Pure = $3,266/AF	$3,000/AF
Storage	DVL[3] = $269/AF ($3.8B @ 30yrs 4%, 800 TAF capacity) Chino Basin Storage Study[4] ~ $275-325/AF	Annual cost = $300/AF storage capacity
Flex Supply[5]	SWP Transfer = $605/AF Yuba Accord Transfer = $400/AF	$600/AF

[1] 2023 unit costs are escalated at 3% to future costs

[2] From SDCWA publication dated February 2023, Santa Barbara Recycled Water Assessment Oct 2022 Staff Report

Ventura PW cost was estimated by Metropolitan staff assuming $206 million in total capital costs, $6.7 million in annual O&M costs, and $18.2 million in grants, with the remaining capital costs funded from the EPA's WIFIA loan program at a rate of 2.5% for a 30-year term. Sources: 2019-Ventura-Water-Supply-Projects-Final-EIR (civicplus.com); 3069 (ca.gov). Prices were escalated to 2023 dollars from 2019 with 3% escalator.

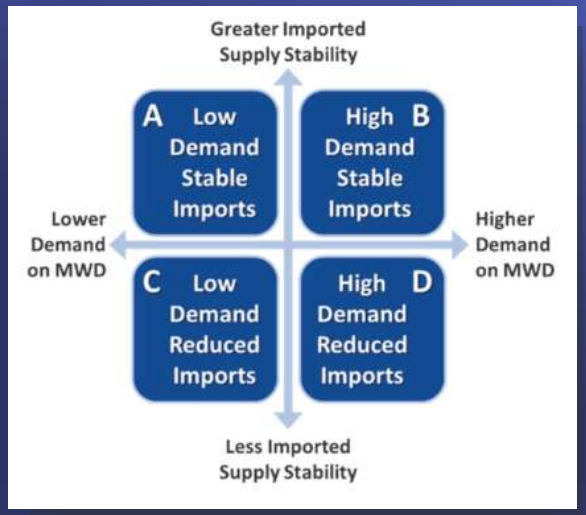
[3] Annual financing cost per AF of capacity constructed based on project cost in today's dollars of $3.8 billion. Assumes 30-year financing at 4%.

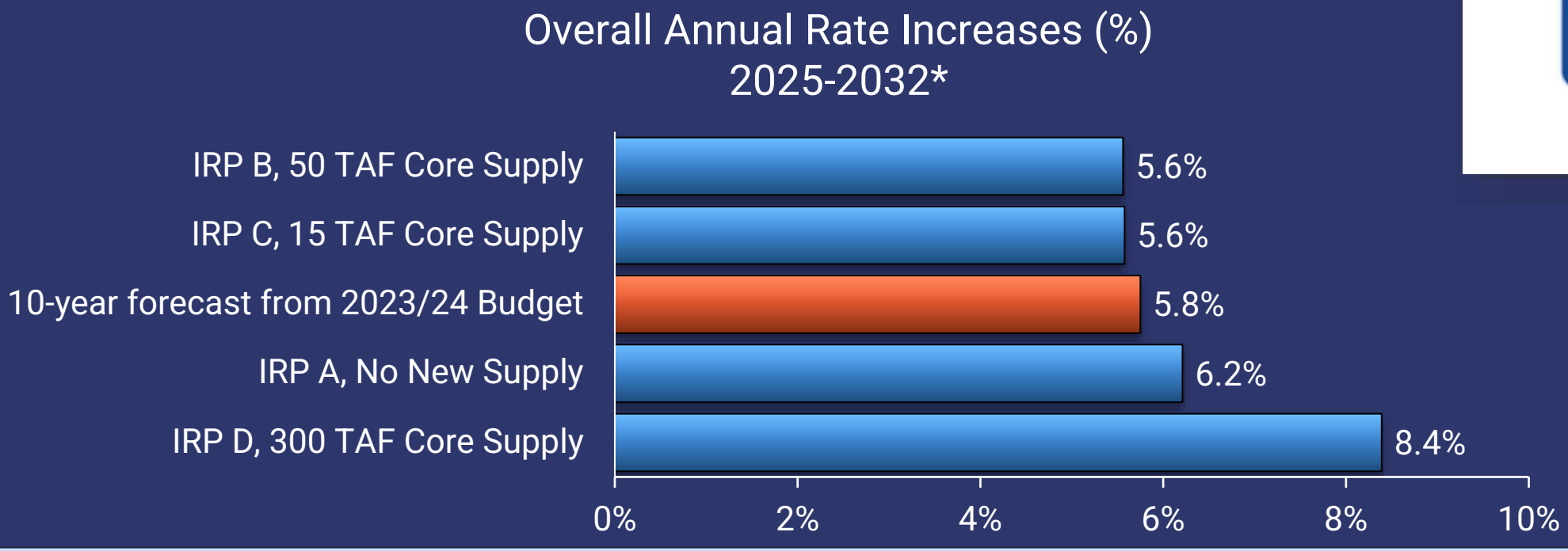
[4] Annual financing cost per AF of capacity constructed and projected annual O&M costs based on average of Chino Basin Storage Study options. Assumes 30-year financing at 4% for capital costs

[5] SWP and Yuba Accord transfers based on 2022 prices escalated to 2023 dollars.

Overall Rate Impact of IRP Scenarios

No additional storage option



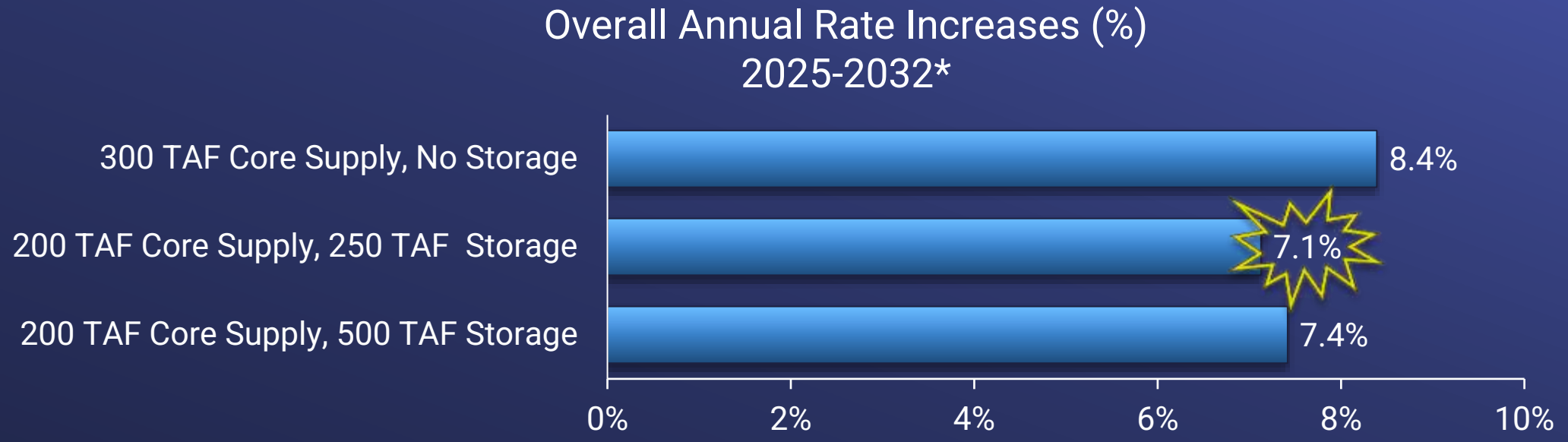


Observations:

1. Developing core supply to meet demands identified in IRP D will have the largest rate impacts.
2. The rate impact shown in IRP A results from lower water sales.

*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Effect of Adding Storage for IRP D Scenario



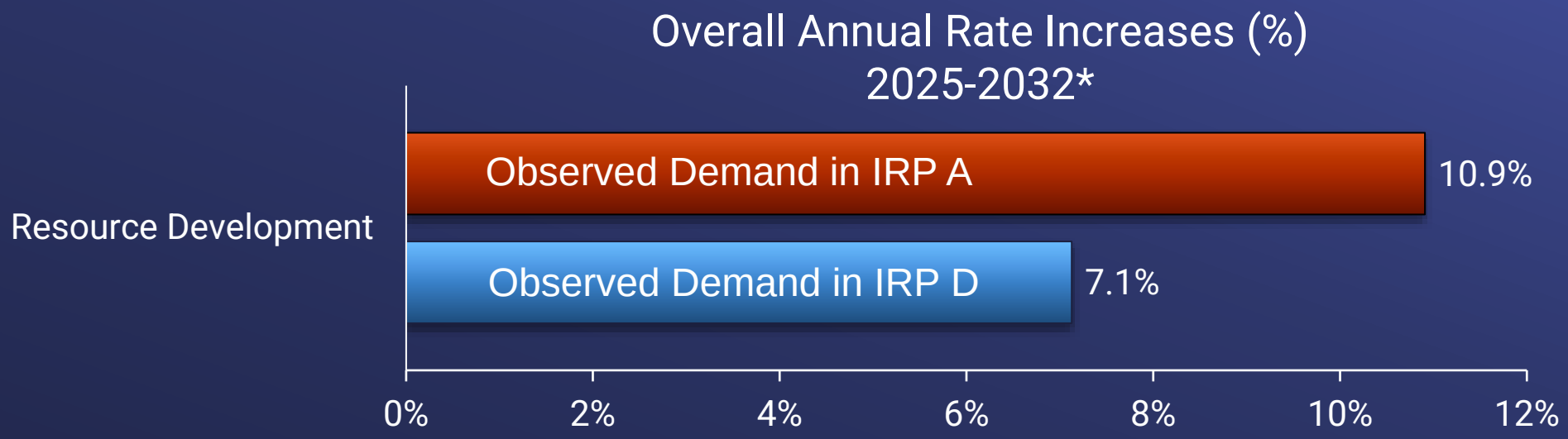
Observations:

To meet the projected water demand in IRP D, development of 200 TAF of core supply and 250 TAF of storage capacity has lower rate impacts (7.1%) than the no storage and 500 TAF storage options.

*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Sensitivity Analysis for Lower Demand

Plan for IRP D Resource Needs with 250 TAF Storage but realize the lower water demands from IRP A



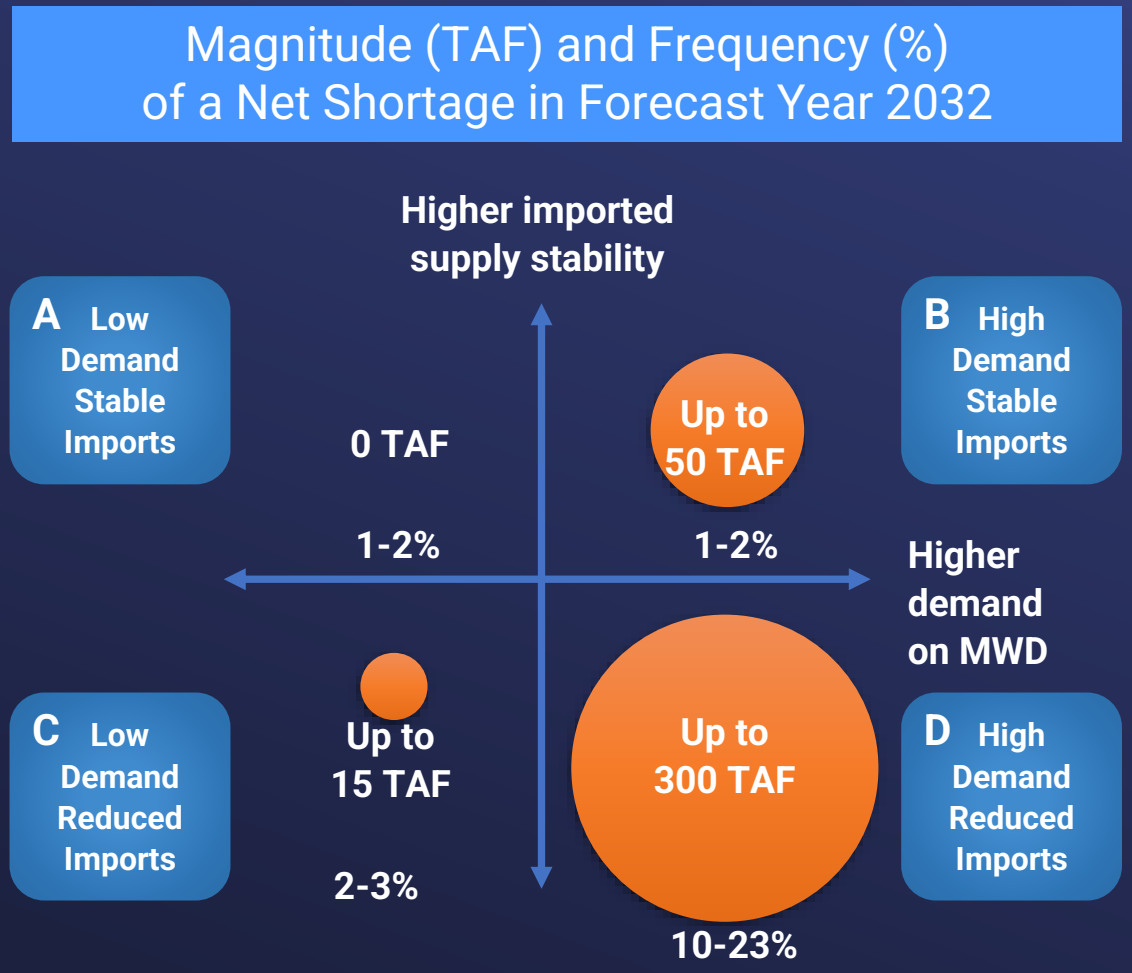
Observations:

If water demand does not materialize as projected in IRP D and instead occurs as projected in IRP A, development of core supply and storage to meet projected demand in IRP D could result in substantially higher rates.

*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Net Shortage Assessment in 2020 IRP

Plan for IRP A (no additional resources developed) but experience the higher demands from IRP D.



1. Water supply shortages will incur economic costs
2. What level of resource development does the Board want to pursue in light of reliability, resilience, and affordability objectives?

Estimated Capital Investment
Examples for IRP D Scenario by 2032

Resource Development		Estimated Capital *
Core Supply	Storage Capacity	
200 TAF	250 TAF **	$5.5 Billion – $6.0 Billion

Engineering challenge

- 1.5x PWSC completed by 2032
- ~1/3 of Diamond Valley Lake completed by 2032

Financial challenge

- Available revenue bond capacity
- Cashflow constraints for debt coverage

* Assumptions: $3,000/AF for core supply (2023 $), 50% costs from O&M
$300/AF for storage capacity (2023 $), 0-50% costs from O&M
Capital financing @ 4%, 30-yr, 2% debt issuance cost

** 182 TAF in 2032

CAMP4W process
Example of projects to consider

- Pure Water of Southern California Project
- Delta Conveyance Project
- Sites Reservoir
- PVID Land Purchases

Can we meet the additional supply needs in IRP D with conservation?

Current Conservation Initiatives

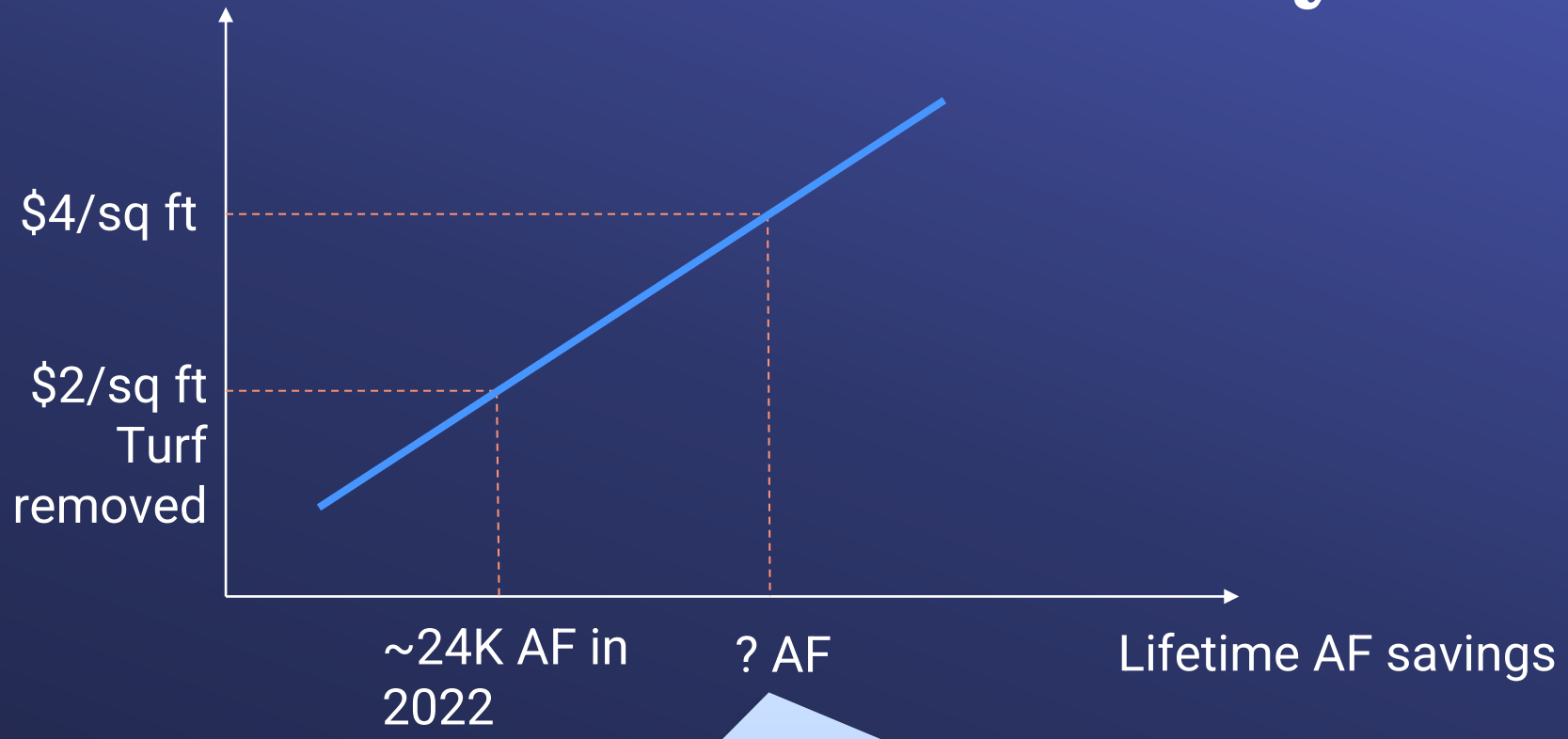
Most Utilized in 2022

Devices	Water Savings (GPD)	Life (Yrs)	Life AF Savings	Rebate	Rate ($/AF)	2022 Quantity (Units)	Total Lifetime AF Savings	Total $
	A	B	C = A x B / 892.74*	D	E = D / C	F	G = C x F	H = D x F
High Efficiency Nozzles	2.36	5	0.0132	$2	$152	22,312	295 AF	**$44,624**
High Efficiency Washer	29.32	14	0.4598	$85	$185	11,762	5,408 AF	**$999,770**
High Efficiency Toilets	9.37	20	0.2100	$40	$190	22,625	4,752 AF	**$905,000**
Showerheads	3.76	5	0.0211	$12	$570	5,029	106 AF	**$60,348**
Flow Control	7.50	10	0.0840	$5	$60	5,223	439 AF	**$26,115**
Weather Based Irrigation Controller	36.99	10	0.4143	$80	$193	9,337	3,869 AF	**$746,960**
Weather Based Controller by Station	15.98	10	0.1790	$35	$196	19,264	3,448 AF	**$674,240**
Commercial Turf Replacement	0.12	30	0.0041	$2	$494	2,933,030	11,883 AF	**$5,866,060**
Residential Turf Replacement	0.09	30	0.0032	$2	$631	3,814,405	12,081 AF	**$7,628,810**
Rain Barrel	1.70	5	0.0095	$35	$3,676	2,452	23 AF	**$85,820**
Total / Weighted Average					**$403 / AF**		**42,301**	**$17,037,747**

* 892.74 is conversion factor for GPD to AFY

Conservation Price Elasticity

How much conservation is available and at what price?



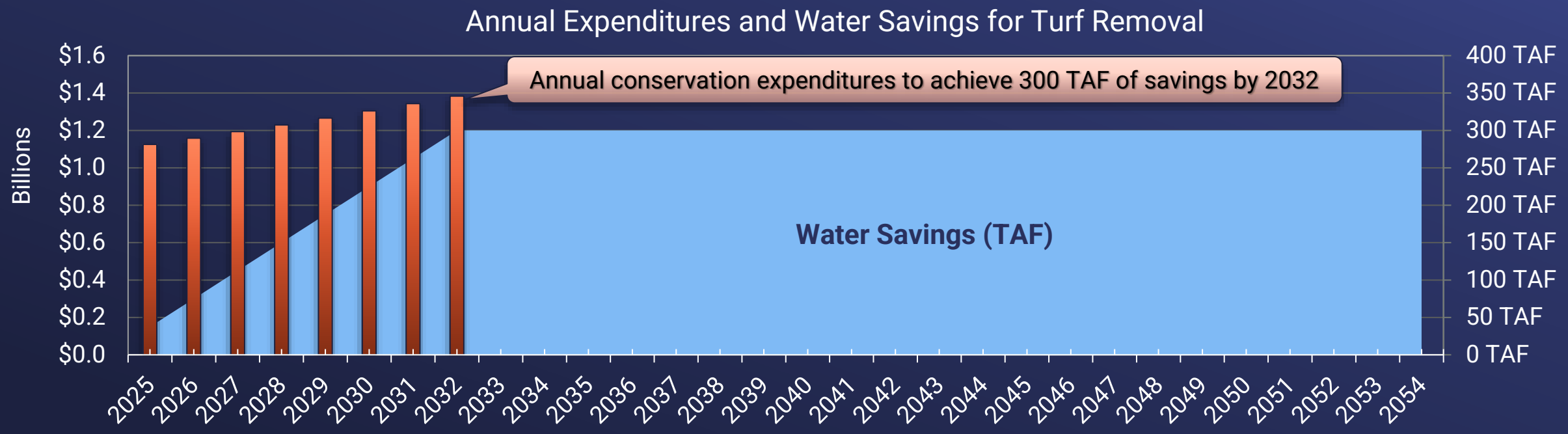
- Insufficient data on availability of additional conservation and at what price.
- Further study needed to identify the available capacity and price elasticity of conservation.

Nature of Conservation Investment

Front-loaded expenditures for water savings over the lifetime

Example: Meeting IRP D core supply needs (300 TAF) with turf removal

- Assumes 300 TAF of conservation is available at $4/sq ft (or ~$1,000/AF of lifetime savings)
- Cumulative savings must grow by 37,500 AF/yr from 2025 - 2032 to meet 2032 target of 300 TAF
- $1,000 saves 1 AF of water over the next 30 years, or 0.033 AF/year. $30,000 saves 1 AF/yr for the next 30 yrs.
- To achieve 300 TAF of annual water savings by 2032, annual conservation expenditure would be ~$1.1B/yr through 2032

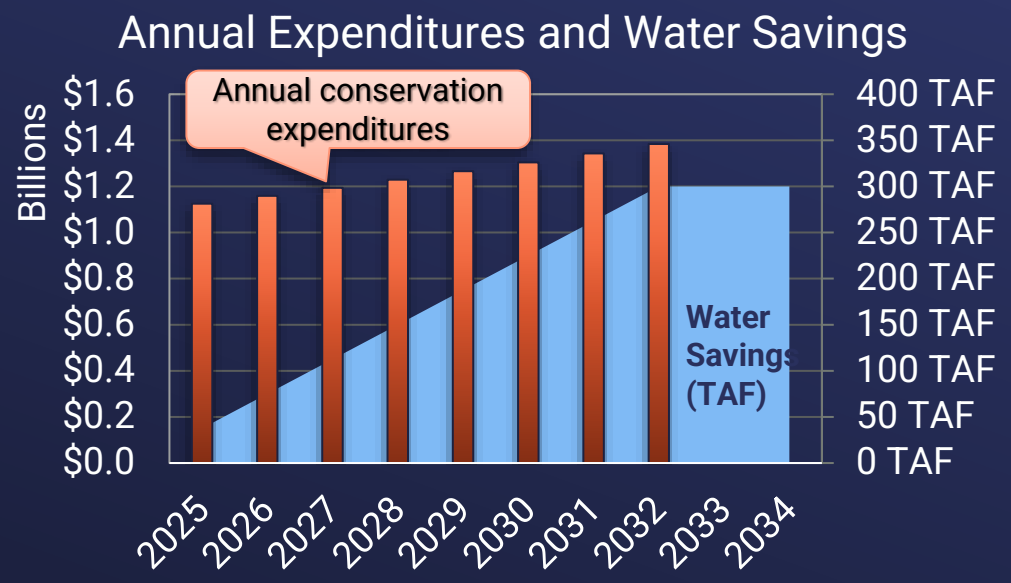


Nature of Conservation Investment …cont.

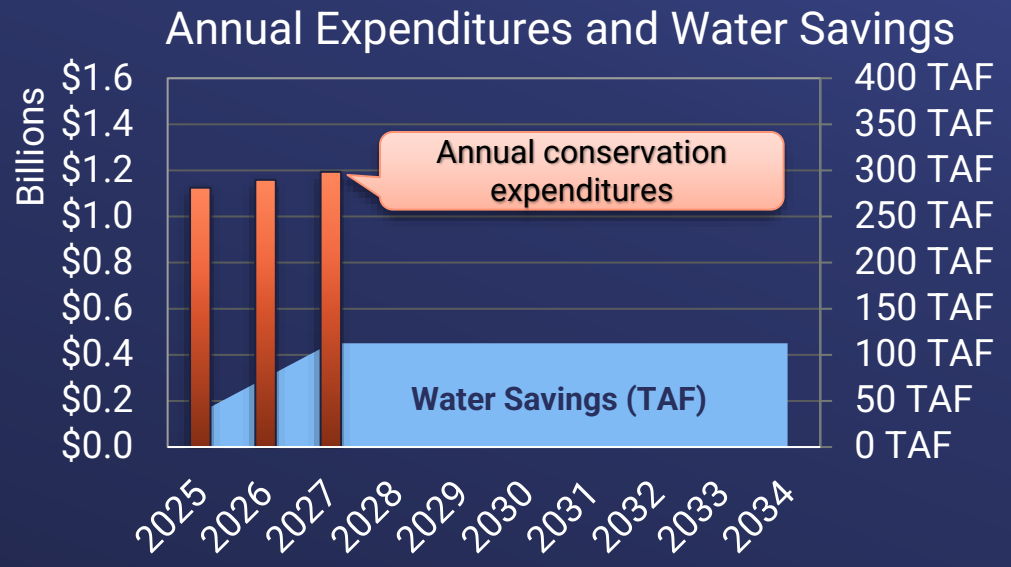
Front-loaded expenditures for water savings over the lifetime

If the water demand are lower than the projected, or the water supply situation improves, MWD can adjust or remove the conservation program along the way.

ORIGINAL CONSERVATION PLAN



ADJUSTED CONSERVATION PLAN

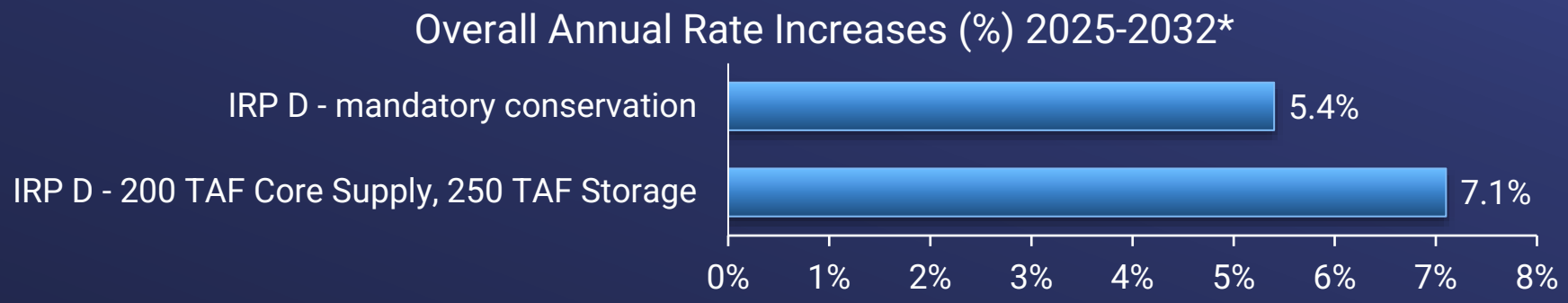


Mandatory Conservation Scenario

Mandatory conservation in response to long-term structural imbalance between supply and demand

Scenario Assumptions

- Assumes regulatory action mandating conservation
- No new resource development – new supply or incentivized conservation
- Mandatory conservation is no cost to Metropolitan ($0/AF in the model)
- Begin with projected demand in IRP D and reduce gradually to meet 2032 resource development goal - 300 TAF



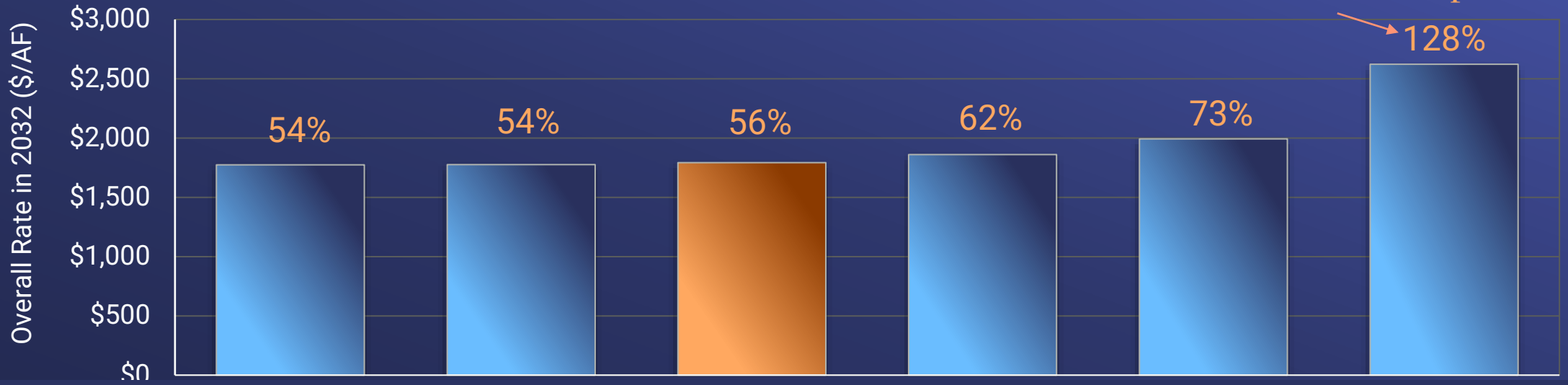
Observations:

1. Lowest rate impact as there is no financial cost to Metropolitan for mandatory conservation. However, member agencies and subagencies will incur compliance and enforcement costs.
2. What are the implications of mandatory conservation on economic growth and quality of life for region?

*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Projected 2032 Overall Rate by IRP Scenario

Cumulative overall rate increase from 2024 adopted rate



	IRP B, No Storage	IRP C, No Storage	10-year forecast from 2023/24 Budget	IRP A, No Storage	IRP D, 250 TAF Storage	Plan for IRP D, Observed IRP A Demand
Core Supply	30 TAF	15 TAF	N/A	0	200 TAF	200 TAF
Storage	0	0	N/A	0	182 TAF	182 TAF
Water Demand	IRP B 1.46 MAF	IRP C 1.35 MAF	Budget 1.58 MAF	IRP A 1.24 MAF	IRP D 1.66 MAF	IRP A 1.24 MAF

*Increases in different rate elements may vary as a result of the cost-of-service allocation and cost recovery approach for each project. Impacts on a member agency will depend on how and when they take water. For example, the more a project is allocated to supply then the full-service water rate will increase higher than the price for SDCWA exchange agreement deliveries.

Long-Range Finance Plan Needs Assessment

Capital Financing Considerations

Development of Financial Plans

- A financial plan needs to consider all of Metropolitan's key financial tenets for success:
  - Affordability
  - Flexibility
  - Compliance with financial policies
  - Financial sustainability
- Feasibility of financial plans is determined by:
  - Fully-funding Metropolitan's CIP
  - Maintenance of minimum credit rating levels
  - Meeting debt service coverage ratio targets
  - Meeting liquidity / reserve targets

Primary means of funding capital

	Benefits	Considerations
Grant Funding	• "Free" money -- often the cheapest form of funding	• Typically paid on a reimbursement basis • Often contain a local-match requirement • Federal grants may "federalize" the project receiving grant funds
PAYGO Funding	• Flexible • Avoids bond interest expense; but has an opportunity cost of investment earnings • No contractual obligations with lenders • Lowers rates over time	• Project costs borne entirely by existing or past customers • Project delivery delays may occur if insufficient PAYGO funding exists
Debt Funding	• Allows acceleration of future funds for project capital funding • Intergenerational equity	• Cost of borrowing is interest • Contractual obligations to lenders • Reduced future flexibility

Debt Financing Overview

Metropolitan has or can issue several types of debt:

- Revenue Bonds (primary means of debt financing)
- General Obligation Bonds (historically issued for SWP costs)
- Certificates of Participation (JPA financings and/or if Revenue Bond capacity is unavailable)

When issuing debt, Metropolitan takes into consideration several factors:

- Timing of when debt is needed
- Impact on credit ratings
- Current market interest rates
- Compliance with rate covenants and additional bonds tests
- Overall Metropolitan debt capacity

Rating Agency Considerations

- Rating are perhaps the single-most important element of determining borrowing costs
- With strong credit ratings, MWD borrows at cost- effective interest rates
- Ratings are assigned by independent Rating Agencies that analyze the fundamentals of a debt issuance representing the likelihood of timely repayment of debt service
- Each Rating Agency has its own specific criteria to measure creditworthiness

MWD's Credit Ratings			
	S&P	Moody's	Fitch
Senior Lien	AAA	Aal	AA+
Subordinate Lien	AA+	-	AA+
GO Bonds	AAA	Aaa	-

S&P's Water Utility Scorecard			
Enterprise Risk Profile (50% of Final Rating)		Financial Risk Profile (50% of Final Rating)	
Factor	Weight	Factor	Weight
Economic Fundamentals	45%	All-in Coverage	40%
Industry Risk	20%	Liquidity & Reserves	40%
Market Position	25%	Debt & Liabilities	10%
Operational Management	10%	Financial Management	10%

Debt Service Coverage

Debt service coverage is important to ratings, compliance with legal covenants, and financial health

- Debt service coverage is an important calculation measuring the robustness of Metropolitan's ability to repay debt
  - Debt service coverage is calculated as $\frac{Net\ Operating\ Revenues}{Debt\ Service}$
  - Fixed charge coverage is calculated as $\frac{Net\ Operating\ Revenues}{All\ Debt\ Service+SWP\ Capital\ Payments}$
  - Metropolitan targets debt service coverage of 2.0x and fixed charge coverage of 1.2x to support maintenance of strong credit ratings
- Additional Bonds Test ("ABT")
  - In order to issue new money debt, Metropolitan must demonstrate that it will at least meet certain minimum debt service coverage ratios post-issuance

Metropolitan Existing Debt Portfolio

Other Funding Options & Approaches

	Description
Federal and State Grants	• Metropolitan has identified up to $6 billion in grant funding opportunities through the federal Bipartisan Infrastructure Law (BIL) and Infrastructure and Investment Jobs Act (IIJA). The opportunities can support a wide array of projects and programs that include water storage, aging infrastructure, water recycling, Colorado River drought contingency planning and WaterSMART grants. • $400 million proposal submitted to USBR (Bucket 2 Funding) • $16 Billion in DOE funding available for clean energy generation, energy efficiency and storage, zero-emission vehicle replacements, funded by BIL and IRA • Justice40 Initiative (40% allocation to disadvantaged communities, collaboration with CBOs/Tribes/State and Local governments) • Cross-collaboration of funding to create program efficiency and income capacity through energy savings to offset higher rates associated with climate adaptation investments for water reliability and resilience
Federal and State Loans	• WIFIA funding provides low-cost, flexible funding for eligible projects • State loans such as SRF and IEDB loans can provide low-cost funding • Benefits and considerations should be weighed carefully
Voter Approved General Obligation Bonds	• Voter-approved general obligation bond would provide property tax secured debt to fund capital projects • Alleviate future pressure on rates
Set MWD Property Tax Rate to Fund a Higher Targeted Amount of SWP Costs	• MWD is authorized to levy a property tax to fund State Water Contract (SWC) obligations • Current rate of 0.0035% is the lowest tax rate ever levied but only fund 30% of MWD's SWC expenditures • MWD can explore options of funding more SWC costs with property taxes, as originally intended and approved by voters

Long-Range Finance Plan Needs Assessment

Conclusions & Next Steps

LRFP Needs Assessment

Conclusions

- Developing additional core supply and storage to meet higher supply reliability identified in Scenario D will result in higher rate increases than the adopted FY 2022/23 and FY 2023/24 budget 10-year forecast
- Underdevelopment of water supply resources while experiencing high water demand will result in water supply shortages
  - Up to 300 TAF with 10-23% probability of shortage in Scenario D
  - Water supply shortages will incur economic costs
- Development of core supply and storage to meet projected demand could result in substantially higher rates if future water demand does not materialize

LRFP Needs Assessment

Conclusions… cont.

- A preliminary estimate places annual conservation costs at greater than $1 billion per year through 2032 to be 100% reliable under IRP D scenario
  - Metropolitan's ability to fund this level of conservation is questionable, given financing limitations and potential rate burdens
  - Moreover, it is not clear if the amount of conservation required can be realized at the incentive level assumed
- Investing in conservation also locks in lower water demands that will increase water rates
- However, unlike the construction of additional resources conservation spending does not create a new fixed cost so if Metropolitan observes a natural reduction in demands conservation spending can be reduced
- Mandatory conservation would result in the lowest average rate impacts for IRP D scenario, but member agencies would incur compliance and enforcement costs

LRFP Needs Assessment

Conclusions… cont.

- In contrast, capital project investments for core supply and storage can:
  (1) take many years to complete
  (2) have significant upfront costs (although typically can be bond financed to spread these costs over time)
  (3) often have ongoing O&M expenses
  (4) Incur refurbishment and replacement costs over time
- However, capital project investments typically offer predictable supply reliability enhancement opportunities that can be indispensable in periods of protracted drought

Next Steps for CAMP4W Process

- Determine what level of resource development the Board wants to pursue in light of resiliency, reliability, financial sustainability, affordability and equity objectives
- Further detailed study is recommended to understand capacity and price elasticity for conservation
- Evaluate rate impacts for specific projects and portfolios of projects to meet the board-approved reliability objectives

LRFP Needs Assessment

Updated LRFP Timeline

- August 2023
  - Draft LRFP Needs Assessment introduced at FAIRP
- September 2023
  - Member Agency / Caucus Workshops
  - FAIRP: Draft LRFP Needs Assessment
  - Member Agency Manager CAMP Workshop (9/21)
  - CAMP4W workshop on LRFP & business model (9/26)
- October 2023
  - FAIRP: Draft LRFP Needs Assessment
- November 2023 & beyond
  - FAIRP: Draft LRFP Needs Assessment
  - Continued feedback loop with CAMP4W & finalize LRFP in FY 2024/25


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA