Long Beach Water

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Water Supply Assessment

Prepared for:

Trammel Crow Residential
Alexan Long Beach Project

Approved by:

The City of Long Beach
Board of Water Commissioners

November 29, 2018

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Findings

The proposed Alexan Long Beach Project (Project) is exempt from the SB 221 requirement of an affirmative written verification of sufficient water supply (Government Code 66473.7) because it will be sited within an urbanized area that has been previously developed for urban uses. The Project is further exempt from SB 221 requirements because the immediate contiguous properties surrounding the Project area are, or previously have been, developed for urban uses.

However, the Project is not exempt from SB 610 requirement that a water supply assessment be completed because Project is expected to use an amount of water equivalent to, or greater than, that used by 500 dwelling units.

In Long Beach, water supply assessments (WSA) must be approved by the Board of Water Commissioners and transmitted to the project's lead agency. State law allows the WSA to be based on the most recently adopted Urban Water Management Plan, which for LBWD is the Board-adopted 2015 Urban Water Management Plan.

This water supply assessment anticipates adequate water supplies will be available during normal, single- and multiple-dry water years to meet the projected water demand associated with the Project, in addition to the existing and other planned future uses, including agricultural and manufacturing uses, of Long Beach Water Department's (LBWD) system. This finding is based on LBWD's rights to a reliable supply of groundwater, continued success with water conservation programs, expanded use of recycled water, the Metropolitan Water District of Southern California (MWD) shortage allocation plan that guarantees 100 gallons per capita per day at the retail level, and LBWD's preferential rights to water from the MWD, per Section 135 of the Metropolitan Water District Act.

What is a Water Supply Assessment?

Effective January 1, 2002, California Senate Bill 221 and Senate Bill 610 improve the link between information on water availability and certain land use decisions made by cities and counties. SB 221 and SB 610 are companion measures which seek to promote more collaborative planning between local water suppliers and cities and counties.

Both statutes require certain information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large development projects. Both statutes also require this information to be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects. Both measures recognize local control and decision making regarding the availability of water approval of the projects.

SB 221 conditions approval by a city or county of certain residential subdivisions on an affirmative written verification of sufficient water supply.

SB 610 requires a water supply assessment to be furnished to local governments for inclusion in any environmental documentation for certain projects (as defined in Water Code 10912(a)) subject to the California Environmental Quality Act (Water Code 10910(a)).

Under SB 610 and Water Code section 10911(b), the assessment must be completed prior to the issuance of a draft Environmental Impact Report or proposed Negative Declaration.

LBWD has SB 221 and SB 610 responsibilities under the City Charter. Long Beach City Charter, Section 1400, states:

> *There is hereby created a Water Department which shall be under the exclusive jurisdiction and control of five commissioners who shall be known as the Board of Water Commissioners. Said Water Department shall have full and complete jurisdiction over all water works necessary and incidental to the use, sale and distribution of water owned and controlled by the City.*

Furthermore, per California Water Code 10910(b), LBWD is responsible for performing the SB 610 assessment because LBWD is a public water system of over 3,000 service connections and will provide domestic water to the site.

Alexan Long Beach Project

The Alexan Long Beach Project (Project) is a mixed-use development project proposed at 600 W. Broadway. Phase One of the proposed Project is estimated to be complete in 2022 and consists of four residential buildings totaling approximately 552 unit and one parking structure. Phase Two is estimated to be complete in 2026 and consists of two residential towers containing approximately 204 units and 3,000 square feet of commercial space. The Project will have a total of 756 residential units.

SB 221 Verification of a Sufficient Water Supply is Not Required

The Project is exempt from the SB 221 requirement of an affirmative written verification of sufficient water supply (Government Code 66473.7) because it will be sited within an urbanized area that has been previously developed for urban uses. The Project is further exempt from SB 221 requirements because the immediate contiguous properties surrounding the proposed site are, or previously have been, developed for urban uses.

SB 610 Water Supply Assessment is Required

Water Code 10912(a) and (b) and SB 610 require that a water supply assessment be adopted if the development is expected to demand an amount of water equivalent to or greater than the amount of water needed for 500 dwelling units. The Project triggers the need for a SB 610 assessment because the 756 dwelling units alone exceeds the 500 dwelling unit threshold.

Deadline for Approval of WSA

The governing body of the public water system in this case is the City of Long Beach Board of Water Commissioners (Board). Because the Alexan Long Beach Project is a "project" as defined by SB 610, the Board must approve the WSA and deliver it to the lead agency within 90 days after that agency requests the assessment (per Water Code section 10910(g)(1)).

Trammel Crow Residential submitted a request to LBWD on November 6, 2018 to conduct the WSA for the Project. Therefore, the Board must approve the WSA and transmit that assessment to the lead agency no later than February 4, 2019.

Estimating the Project's Demand for Water

According to the conventional assumptions for the amount of water use per household from the Department of Water Resources "Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001", one dwelling unit typically consumes 0.3 to 0.5 acre-feet of water per year "depending upon several factors". This works out to about 150-250 acre-feet per year for 500 dwelling units.

In calendar year 2015, 500 dwelling units in Long Beach multi-family settings (apartments and condominiums) averaged 78 acre-feet of water use, 500 dwelling units in duplex settings used 96 acre-feet, and 500 single family homes used 130 acre-feet. The 130 acre-feet for 500 single family homes is close to the low end of DWR's estimate of 150 acre-feet.

California's Water Code 10912(a) (i.e., SB 610) defines a "project" as a development that meets or exceeds any one of a number of thresholds, not just the "500 dwelling units" trigger; see Table 2. These comparable thresholds also create a tool for us to estimate the water needs of different elements of a mixed-use project.

Table 2 - SB 610 Threshold for requiring WSA

Type of Development	Equivalency		
1. SFR or MFR		500	dwelling units
2. Shopping center or business	or	1,000	employees
	or	500,000	sf of floor space
3. Commercial office building:		1,000	employees
	or	250,000	sf of floor space
3. Hotel or motel		500	rooms
4. Industrial, manufacturing, or processing plant, or industrial park			
		1,000	employees
	or	650,000	sf of floor space
	or	40	acres of land
5. A mixed-use project that includes one or more of the projects specified above			
6. A project that would demand an amount of water equivalent to, or greater than the amount of water required by a 500 dwelling unit project.			

Using these equivalencies, the following estimates that the Project will result in an additional water demand of 198.1 acre-feet per year once it is fully built out (see Table 3). This assumption is based on the conservative estimate that each new dwelling unit will use an amount of water equal to that of a typical Long Beach single family home; therefore, each 500 new additional dwelling units will result in an increase demand of 130 acre-feet per year.

Table 3 – Expected Increase in Water Demand resulting from the Project

SB 610 Threshold				Expected Water Use in Long Beach	
Water Use per year per 500 Single Family homes				130	AF per Year
EQUIVILANCIES			**Project's Net Increase**	**Net Increase in Water Use**	
SFR or MFR	500	dwelling units	756	196.6	AF per Year
Commercial office building:					
	250,000	sf of floor space	3,000	1.6	AF per Year
Hotel or motel	500	rooms	-	-	AF per Year
TOTAL				**198.1**	**AF per Year**

Summary of Water Supply Reliability

If the projected water demand associated with a project had been accounted for in a water supplier's most recently adopted Urban Water Management Plan (UWMP), the water supplier may rely on information from that plan in preparing certain elements of the WSA.

LBWD's most recently adopted urban water management plan, its 2015 UWMP, as adopted by the Board in 2016, hereafter referred to as the 2015 UWMP, did not articulate specific development projects. Rather, it took into consideration the expected demand of these projects by projecting increases in factors influencing demand, such as increases in housing, population, and employment.

The Project's expected water demand falls within the expected increase in employment and population used in the 2015 UWMP.

The Project's expected water demand is within LBWD's total projected water supplies available during normal, single dry, and multiple dry water years for the next 20 years; supplies that will be adequate to meet the projected water demand associated with the Project in addition to the existing and other planned future uses of LBWD's system.

MWD's shortage allocation plan guarantees a minimum amount of water to each member agency such that no member agency will be required to reduce retail demand to below 100 gallons per capita per day (GPCD). Because retail demand in LBWD's service area in FY 2015 essentially equaled 100 GPCD (100.25 GPCD), LBWD has nearly 100-percent reliability even during shortage conditions.

What has not materially changed from the water supply assumptions in the 2015 UWMP are the reliability of LBWD's groundwater and the Long Beach preferential rights to MWD supplies. Therefore, for the purposes of this WSA, the 2015 UWMP as it pertains to groundwater and preferential rights is an appropriate reference. The 2015 UWMP can be found at: http://www.lbwater.org/sites/default/files/documents/LBWD2015UWMP.pdf.

Imported Water Supply

LBWD purchases imported water from MWD to meet demand in excess of what can be satisfied through conservation and recycled water and LBWD's groundwater supplies. Imported water has historically accounted for approximately 40 to 50-percent of the LBWD water supply. The amount of imported water LBWD purchases from MWD fluctuates from year to year, but the fluctuations have been due primarily to resource management decisions and LBWD's total demand for water, rather than fluctuations in groundwater supply availability.

A. Preferential Rights to MWD Supplies

By virtue of certain capital investment in MWD since the early 1930's, Long Beach is entitled to a right to MWD's water. This entitlement is embedded in State law and comes in the form of a preferential right to MWD supplies. Section 135 of California's Metropolitan Water District Act states:

> *Each member public agency shall have a preferential right to purchase from the district for distribution by such agency, or any public utility therein empowered by such agency for the purposes, for domestic and municipal uses within the agency a portion of the water served by the district which shall, from time to time, bear the same ratio to all of the water supply of the district as the total accumulation of amounts paid by such agency to the district on tax assessments and otherwise, excepting purchase of water, toward the capital cost and operating expense of the district's works shall bear to the total payments received by the district on account of tax assessments and otherwise, excepting purchase of water, toward such capital cost and operating expense.*

A copy of the Metropolitan Water District Act can be found online at:
http://mwdh2o.com/PDF_Who_We_Are/1.2_MWD_Act.pdf.

MWD has validated LBWD's preferential rights on many occasions, including the correspondence shown in Attachment A, third page. The letter reaffirms LBWD's Preferential Rights, stating:

> *Section 135 of the Metropolitan Water District Act does not relate to pricing but to amounts of water that can be purchased for domestic and municipal uses within a member agency service area. As such, any member agency is permitted to purchase supplies consistent with the Metropolitan Water District Act, including Section 135.*

MWD recalculates each of its member agency's preferential rights on an annual basis. Preferential rights are expressed as a percent of MWD's available supplies.

At the time of the adoption of the 2015 UWMP, LBWD had a preferential right to 2.34% of MWD supplies. Based on a conservative estimate that MWD will have a supply of 1.5 million acre-feet in multiple dry years, this 2.34% preferential right means that LBWD will have access to a supply of at least 35,100 acre-feet of imported water.

It is highly unlikely that MWD will have less than 1.5 million acre-feet of water. MWD's 2015 Regional UWMP assumes during multiple dry years that supplies will be more than 2 million acre-feet. Even the 1.75 million acre-feet MWD budgeted to sell in 2015 after multiple historically dry years was still more than 1.5 million acre-feet.

Table 4 – LBWD's Preferential Rights

LBWD Preferential Rights in Multiple-Dry Years		
LBWD Preferential Right (% of MWD supplies)	2.34	%
MWD supplies in multiple dry year	1,500,000	AF
LBWD Preferential Right in multiple dry year	**35,100**	**AF**

B. 100 GPCD floor during shortage

MWD's shortage allocation plan guarantees a minimum amount of water to each member agency such that no member agency will be required to reduce retail demand to below 100 gallons per capita per day (GPCD). As explained in MWD Board Letter 8-8, dated August 17, 2010, page 3 and 4 (Attachment B):

> *"Member agencies with lower per capita water use and higher levels of demand hardening are disproportionately affected by demand reductions under WSAP allocations. As absolute per capita water use decreases beyond certain thresholds, further reductions are more likely to come from indoor residential use as opposed to outdoor landscape use… Member agencies would receive additional Metropolitan allocation for an acre-foot equivalent of GPCD below the minimum threshold."*

The actual adjustment can be found in the official MWD "Water Supply Allocation Plan", December 2014 Revision. Because retail demand in LBWD's service area in FY 2015 essentially

equaled 100 GPCD (100.25 GPCD), LBWD has nearly 100-percent reliability even during shortage conditions.

Table 5 – Gallons per Capita per Day in FY 2015 (ending Sept 30, 2015)

Potable Demand (in acre-feet)	53,098
Average Population	473,231
= Gallons per Capita per Day	100

C. Reliability of Imported Water

MWD is a wholesale water provider serving most of southern California's coastal plain, and as such, MWD's reliability is essential for the water reliability of the region. MWD supplies are imported from the Sacramento-San Joaquin Delta region through the State Water Project and from the Colorado River through the Colorado River Aqueduct. Both of these supplies are projected to be less reliable in the future than they have been in the past.

Although projected decreases in the water supply reliability of the State Water Project and the Colorado River compromise the reliability of MWD imported water supplies to the MWD service area as a whole, LBWD has reliability in imported MWD supplies as a result of its preferential rights.

Groundwater Supply and Its Reliability

A. Groundwater Supply

The Central Basin is a groundwater aquifer under 277 square miles in mostly urbanized southern Los Angeles County. The basin was seriously over-drafted by the mid-1900's. The basin was adjudicated in the Los Angeles County Superior Court in the early 1960's, strictly limiting extractions to apportioned rights, and apportioning the pumping rights to certain parties. This adjudication provides the framework for groundwater management of this basin. LBWD now has the right to pump 32,692 acre-feet per year from the Central Basin Aquifer.

A copy of the judgment is available upon request or on the LBWD website at: http://www.lbwater.org/sites/default/files/documents/CentralBasinJudgment.pdf.

LBWD also has 0.7 acre-feet of rights in the West Coast Basin, but LBWD has no active wells in the West Coast Basin and, therefore, does not pump those water rights.

B. Groundwater Reliability

Because there are strict limits on the amount of water that can legally be extracted from the basin, and because there are multiple on-going projects for replenishing the basin, and because there is sufficient storage within the basin, the Central Basin provides LBWD with a very reliable supply of groundwater, even during multiple-dry years.

The Central Basin Judgement limits the extractions from the Central Basin and guarantees adequate replenishment. Although the annual pumping rights allocated in the Central Basin judgment exceed the natural yield of the basin, the judgment charges the Water Replenishment District of Southern California (WRDSC) with the responsibility of replenishing the basin. Parties extracting water from the basin pay an assessment to WRDSC on a per acre-foot extracted basis. This assessment is used by WRDSC to purchase replenishment water and to fund other programs for the replenishment and protection of the basin. Replenishment of the basin occurs through the following:

1. *Natural replenishment*

   To the extent possible, San Gabriel River stream flows are used for replenishing the groundwater basin. This water is captured and pooled in "spreading grounds" or "percolation basins" and allowed to filter into the groundwater basin. The quantity of water from this source fluctuates with changes in weather patterns.

2. *In-lieu replenishment*

   Under certain conditions, parties with extraction rights may forgo their right to pump a certain amount of groundwater in a given year and purchase MWD water instead. In this way, the groundwater basis in replenished "in-lieu" of pumping. In these cases, the pumper would normally receive some sort of financial consideration to offset the higher cost of purchasing the MWD water.

3. *Recycled water*

   Recycled water is mixed with imported water and/or natural runoff and allowed to percolate into the groundwater basin, where the waters will be filtered through the aquifer's soil, sometimes for many decades before being extracted. This supply is reliable even during fluctuations in weather, including multiple dry years.

4. *Imported water*

   MWD's imported water is sometimes available for purchased for replenishment purposes. Depending on the prevailing MWD Board policy, replenishment water may be available at either the full imported water price or at a discounted rate.

Water Supplies During Normal, Single-Dry, and Multiple-Dry Year Conditions

The demand for domestic water in Long Beach is met with a combination of groundwater and imported water purchased from MWD. LBWD has reliable rights to both of these sources of water in quantities sufficient to meet the projected water demand of the Project in addition to LBWD's existing and planned future uses, including agricultural and manufacturing uses, during normal, single-dry and multiple-dry water years through a 20-year projection period.

Attachments

Attachment A

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

May 13, 2010

Mr. Kevin L. Wattier
General Manager
Long Beach Water Department
1800 East Wardlow Road
Long Beach, CA 90807-4994

Dear Mr. Wattier:

Request for documentation from Metropolitan Water District for a water assessment
by the Long Beach Water Department for a proposed development in the City of Long Beach

Your letter dated April 2, 2010, on the above subject, requested two items from The Metropolitan Water District of Southern California (Metropolitan):

1. The most current 20-year forecast of the reliability of Metropolitan's domestic and municipal supplies for its service area in five-year increments, under the three hydrologic conditions specified by SB 221 and SB 610.

2. The expected Metropolitan differential rate, and/or any other fees or charges, for water purchases exceeding a Water Supply Allocation Plan (WSAP) amount, but less than a preferential right of the City of Long Beach.

Item 1

Attachment A contains the comparison of Metropolitan's supply capabilities and projected demands under the three hydrologies: Single-Dry-Year (repeat of 1977), Multiple-Dry-Year (repeat of 1990-1992) and Average Year (average of 1922-2004). The key assumptions for the analysis and each of Metropolitan's resources – the Colorado River Aqueduct, State Water Project, and In-Region Storage – are also described and summarized in Attachment A.

The tables show that Metropolitan's assumed supply capabilities would be sufficient to meet expected firm demands from 2015 through 2035 under the three specified hydrologies based on the assumptions outlined in Appendix A. It must be noted that a key component to the water supply capability is the amount of water in Metropolitan's storage facilities. Storage is a major component of Metropolitan's dry-year resource management strategy, and so the assumption as to the amount of available storage is critical. Simply put, if Metropolitan storage resources are empty at the time of the given hydrologic events, Metropolitan would likely not have adequate supply capability to meet projected demands without implementing the WSAP. For the purposes of constructing the tables attached to this letter, the assumption used is a simulated median storage level going into each five-year increment, based on the balances of supplies and demands

consistent with the overall assumptions shown in Attachment A. In practical terms, for each condition provided, there is an estimated 50 percent probability that storage levels would be higher than the assumption used, and a 50 percent probability that storage levels would be lower than the assumption used. All storage capability figures shown in the tables reflect actual storage program conveyance constraints. It is important to note that under some conditions, Metropolitan may choose to implement the WSAP in order to preserve storage reserves for a future year, instead of using the full supply capability. This can result in impacts at the retail level even under conditions where there may be adequate supply capabilities to meet firm demands.

The analyses included represent the most current available planning projections on supply and demands. Metropolitan is also in the processes of completing its Integrated Resources Adaptive Management Plan (IRAMP) and the 2010 Regional Urban Water Management Plan. Some of the assumptions may change as a result of those processes. For example, the retail demands included in this analysis incorporate an estimate of an additional 200,000 AF of water conservation. This savings amount represents a preliminary estimate resulting from retail water purveyors implementing minimal compliance to the water use efficiency target of a 20 percent per capita water use reduction by 2020 established under the Delta legislation SB 7x-7. This may be a conservative estimate and will be refined as we gather additional information on how member and local water agencies plan to comply with this legislation, including Metropolitan's effort through the IRAMP.

Item 2

It would be speculative for staff to define the expected Metropolitan penalty rates for differential water purchases exceeding future WSAP amounts. Metropolitan's Board of Directors sets its water rates annually. In addition, the WSAP adopted in February 2008 established a 12 month review of the Plan after implementation. Since Metropolitan implemented the WSAP in July 2009, the process of 12-month review has begun with staff and member agencies. The review process may result in recommendations for changes to the WSAP that could affect future implementation and penalty rates. One potential adjustment under discussion would be limiting reductions for member agencies with average per capita water use of 100 gallons per day or less. While this adjustment is not final, it could provide a benefit to the City of Long Beach in the future, if implemented and if per capita demands drop below 100 gallons per day within the service area of the Long Beach Water Department.

For your reference, the current penalty-rate policy for water purchases over a WSAP allocation is: (1) two times the fully loaded Untreated Tier 2 rate for use between 100 percent and 115 percent of a WSAP allocation and (2) four times the fully loaded Untreated Tier 2 rate for use exceeding 115 percent of a WSAP allocation. There is also a consideration for agencies that exceed a WSAP allocation but do not exceed an equivalent calculation based on an agency's preferential rights percentage. Penalty rates for these agencies are reduced by one times the fully loaded Untreated Tier 2 rate. Metropolitan is adopted water rates for 2010, 2011 and 2012 are included in Attachment B.

Your letter also requested information regarding Metropolitan's policy, if any, regarding charges for water upon the exercise of preferential rights under Section 135 of the Metropolitan Water District Act. Section 135 of the Metropolitan Water District Act does not relate to pricing but to amounts of water that can be purchased for domestic and municipal uses within a member agency service boundary. The Board adopted WSAP does not prevent the delivery of water to a member agency. As such, any member agency is permitted to purchase supplies consistent with the Metropolitan Water District Act, including Section 135.

We hope that the provided information will assist you in the preparation of your water supply assessment. If you have any questions, please contact me at (213) 217- 6686 or Dupadhyay@mwdh2o.com

Very truly yours,

Deven N. Upadhyay

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Attachment A
April, 2010

Metropolitan's firm supplies for its service area under Single Dry Year, Multiple Dry Years, and Average Years

Key Assumptions:

1. Retail Municipal and Industrial water demands are derived using Southern California Association of Governments and San Diego Association of Governments 2007 demographic projections to drive the estimating equations in Metropolitan's MWD-MAIN demand forecasting model.

2. Active Conservation levels are driven by calculating water savings from all active program device-based savings installed to date.

3. Code-Based Conservation levels are driven by calculating water savings from devices covered by existing water conservation ordinances and plumbing codes, with replacement and new construction rates driven by demographic growth consistent with those used to derive retail demand.

4. Additional water savings from retail-level compliance with "20 x 2020" conservation legislation was approximated by linearly ramping up to 200,000 acre-feet of demand reduction by 2020.

5. Local supply estimates, which include groundwater production, Los Angeles Aqueduct deliveries, surface supplies, recycled water and brackish groundwater desalination, are based on estimates of projects and yields that are currently existing and producing water supplies, or are currently under construction.

6. Water resources included are those developed and committed to date, and are shown to grow to their estimated full yields through 2035.

7. Additional Local Resources in the amount of 16 TAF were implemented beginning in 2015, reaching a total of 46 TAF by 2025 to approximate either additional Seawater Desalination or other local recycling or groundwater recovery projects.

8. Colorado River Aqueduct supplies include existing/committed programs along with planned QSA program ramp-up.

9. Colorado River transactions are available to supply additional water up to the CRA capacity of 1.25 MAF on an as-needed basis.

10. State Water Project supplies are estimated under restrictions from current Delta smelt and Chinook salmon Biological Opinions until 2012, after which an Interim Delta Solution was implemented to lessen the impact of the Biological Opinions. A Delta Fix was implemented in 2022, improving the State Water Project to yields approximating those estimated prior to the court rulings and Biological Opinions to protect Delta smelt and Chinook salmon.

11. No access to additional SWP water transfers in addition to any existing/committed water transfers, including State Drought Bank supplies.

12. Metropolitan's existing storage portfolio of approximately 4.9 MAF of surface and groundwater storage, and any existing/committed water transfers.

13. Storage resources reflect median level projections calculated using IRPSIM resource simulation modeling. Simulation modeling is based on the key assumptions listed above and starting storage conditions current as of January 1, 2010.

Attachment A

Single Dry-Year

Supply Capability[1] and Projected Demands

Repeat of 1977 Hydrology

(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Total Supply Programs					
In-Region Storage	666,000	840,000	1,009,000	888,000	756,000
California Aqueduct[2]	1,028,000	1,084,000	1,288,000	1,235,000	1,236,000
Colorado River Aqueduct[3]	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Maximum Supply Capability	**2,944,000**	**3,174,000**	**3,547,000**	**3,373,000**	**3,242,000**
Firm Demands on Metropolitan	**2,168,000**	**2,155,000**	**2,162,000**	**2,203,000**	**2,254,000**
Remaining Shortage[4]	**0**	**0**	**0**	**0**	**0**

[1] Represents Supply Capability for resource programs under listed year type.

[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

[3] Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

[4] Represents remaining shortage based upon supply capability. Additionally, Metropolitan's Water Supply Allocation Plan can be implemented by it's Board of Directors at any time to manage resources.

Attachment A

Multiple Dry-Year
Supply Capability[1] and Projected Demands
Repeat of 1990-1992 Hydrology
(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Total Supply Programs					
In-Region Storage	248,000	345,000	433,000	396,000	352,000
California Aqueduct[2]	987,000	1,050,000	1,241,000	1,211,000	1,212,000
Colorado River Aqueduct[3]	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Maximum Supply Capability	**2,485,000**	**2,645,000**	**2,924,000**	**2,857,000**	**2,814,000**
Firm Demands on Metropolitan	**2,178,000**	**2,202,000**	**2,220,000**	**2,257,000**	**2,305,000**
Remaining Shortage[4]	**0**	**0**	**0**	**0**	**0**

[1] Represents Supply Capability for resource programs under listed year type.

[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

[3] Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

[4] Represents remaining shortage based upon supply capability. Additionally, Metropolitan's Water Supply Allocation Plan can be implemented by it's Board of Directors at any time to manage resources.

Attachment A

AverageYear

Supply Capability[1] and Projected Demands

Average of 1922-2004 Hydrologies

(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Total Supply Programs					
In-Region Storage	666,000	840,000	1,009,000	888,000	756,000
California Aqueduct[2]	1,902,000	2,007,000	2,435,000	2,401,000	2,402,000
Colorado River Aqueduct[3]	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Maximum Supply Capability	**3,818,000**	**4,097,000**	**4,694,000**	**4,539,000**	**4,408,000**
Firm Demands on Metropolitan	**1,974,000**	**1,960,000**	**1,962,000**	**2,002,000**	**2,051,000**
Remaining Shortage[4]	**0**	**0**	**0**	**0**	**0**

[1] Represents Supply Capability for resource programs under listed year type.

[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

[3] Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

[4] Represents remaining shortage based upon supply capability. Additionally, Metropolitan's Water Supply Allocation Plan can be implemented by it's Board of Directors at any time to manage resources.

Attachment A

In-Region Storage
Program Capabilities
Year 2015
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
Metropolitan Surface Storage (DVL, Mathews, Skinner)	121,000	362,000	362,000
Flexible Storage in Castaic & Perris	33,000	100,000	100,000
Groundwater Storage			
Conjunctive Use	55,000	115,000	115,000
Cyclic Storage	18,000	55,000	55,000
Subtotal of Current Programs	***227,000***	***632,000***	***632,000***
Programs Under Development			
Raymond Basin Groundwater Conjunctive Use	9,000	22,000	22,000
LADWP Groundwater Demonstration Project	12,000	12,000	12,000
Subtotal of Proposed Programs	***21,000***	***34,000***	***34,000***
Maximum Supply Capability	**248,000**	**666,000**	**666,000**

Attachment A

In-Region Storage
Program Capabilities
Year 2020
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
Metropolitan Surface Storage			
(DVL, Mathews, Skinner)	156,000	469,000	469,000
Flexible Storage in Castaic & Perris	45,000	134,000	134,000
Groundwater Storage			
Conjunctive Use	89,000	115,000	115,000
Cyclic Storage	29,000	88,000	88,000
Subtotal of Current Programs	***319,000***	***806,000***	***806,000***
Programs Under Development			
Raymond Basin Groundwater Conjunctive Use	14,000	22,000	22,000
LADWP Groundwater Demonstration Project	12,000	12,000	12,000
Subtotal of Proposed Programs	***26,000***	***34,000***	***34,000***
Maximum Supply Capability	**345,000**	**840,000**	**840,000**

Attachment A

In-Region Storage
Program Capabilities
Year 2025
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
Metropolitan Surface Storage			
(DVL, Mathews, Skinner)	191,000	574,000	574,000
Flexible Storage in Castaic & Perris	54,000	162,000	162,000
Groundwater Storage			
Conjunctive Use	115,000	115,000	115,000
Cyclic Storage	41,000	124,000	124,000
Subtotal of Current Programs	***401,000***	***975,000***	***975,000***
Programs Under Development			
Raymond Basin Groundwater Conjunctive Use	20,000	22,000	22,000
LADWP Groundwater Demonstration Project	12,000	12,000	12,000
Subtotal of Proposed Programs	***32,000***	***34,000***	***34,000***
Maximum Supply Capability	**433,000**	**1,009,000**	**1,009,000**

Attachment A

In-Region Storage
Program Capabilities
Year 2030
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
Metropolitan Surface Storage			
(DVL, Mathews, Skinner)	156,000	467,000	467,000
Flexible Storage in Castaic & Perris	45,000	135,000	135,000
Groundwater Storage			
Conjunctive Use	115,000	115,000	115,000
Cyclic Storage	46,000	137,000	137,000
Subtotal of Current Programs	***362,000***	***854,000***	***854,000***
Programs Under Development			
Raymond Basin Groundwater Conjunctive Use	22,000	22,000	22,000
LADWP Groundwater Demonstration Project	12,000	12,000	12,000
Subtotal of Proposed Programs	***34,000***	***34,000***	***34,000***
Maximum Supply Capability	**396,000**	**888,000**	**888,000**

Attachment A

In-Region Storage
Program Capabilities
Year 2035
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
Metropolitan Surface Storage (DVL, Mathews, Skinner)	120,000	360,000	360,000
Flexible Storage in Castaic & Perris	36,000	107,000	107,000
Groundwater Storage			
Conjunctive Use	115,000	115,000	115,000
Cyclic Storage	47,000	140,000	140,000
Subtotal of Current Programs	***318,000***	***722,000***	***722,000***
Programs Under Development			
Raymond Basin Groundwater Conjunctive Use	22,000	22,000	22,000
LADWP Groundwater Demonstration Project	12,000	12,000	12,000
Subtotal of Proposed Programs	***34,000***	***34,000***	***34,000***
Maximum Supply Capability	**352,000**	**756,000**	**756,000**

Attachment A

California Aqueduct
Program Capabilities
Year 2015
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
MWD Table A	567,000	534,000	1,177,000
DWCV Table A	60,000	54,000	127,000
San Luis Carryover [1]	43,000	130,000	130,000
Article 21 Supplies	0	0	3,000
San Bernardino Valley MWD Minimum Purchase	8,000	5,000	20,000
San Bernardino Valley MWD Option Purchase	11,000	13,000	20,000
Yuba River Accord Purchase	22,000	22,000	5,000
Central Valley Storage and Transfers			
Semitropic Program	41,000	39,000	60,000
Arvin Edison Program	46,000	75,000	75,000
San Bernardino Valley MWD Program	7,000	20,000	20,000
Kern Delta Program	47,000	50,000	50,000
Subtotal of Current Programs	***852,000***	***942,000***	***1,687,000***
Programs Under Development			
Delta Improvements	47,000	17,000	119,000
Mojave Groundwater Storage Program	5,000	2,000	29,000
In-Delta Transfers	8,000	8,000	8,000
Drought Water Bank / North of Delta Transfers	25,000	25,000	25,000
SBVMWD Central Feeder	5,000	5,000	5,000
Shasta Return	18,000	18,000	18,000
Semitropic Agricultural Water Reuse Demonstration	11,000	11,000	11,000
IRP SWP Target [2]	16,000	0	0
Subtotal of Proposed Programs	***135,000***	***86,000***	***215,000***
Maximum Supply Capability	**987,000**	**1,028,000**	**1,902,000**

[1] Includes DWCV carryover.

[2] Remaining supply needed to meet IRP target.

Attachment A

California Aqueduct
Program Capabilities
Year 2020
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
MWD Table A	567,000	534,000	1,177,000
DWCV Table A	60,000	54,000	127,000
San Luis Carryover [1]	58,000	175,000	175,000
Article 21 Supplies	0	0	52,000
San Bernardino Valley MWD Minimum Purchase	8,000	5,000	20,000
San Bernardino Valley MWD Option Purchase	11,000	13,000	20,000
Yuba River Accord Purchase	19,000	22,000	3,000
Central Valley Storage and Transfers			
Semitropic Program	41,000	39,000	60,000
Arvin Edison Program	63,000	75,000	75,000
San Bernardino Valley MWD Program	10,000	31,000	31,000
Kern Delta Program	47,000	50,000	50,000
Subtotal of Current Programs	***884,000***	***998,000***	***1,790,000***
Programs Under Development			
Delta Improvements	47,000	17,000	119,000
Mojave Groundwater Storage Program	5,000	2,000	31,000
In-Delta Transfers	8,000	8,000	8,000
Drought Water Bank / North of Delta Transfers	25,000	25,000	25,000
SBVMWD Central Feeder	5,000	5,000	5,000
Shasta Return	18,000	18,000	18,000
Semitropic Agricultural Water Reuse Demonstration	11,000	11,000	11,000
IRP SWP Target [2]	47,000	0	0
Subtotal of Proposed Programs	***166,000***	***86,000***	***217,000***
Maximum Supply Capability	**1,050,000**	**1,084,000**	**2,007,000**

[1] Includes DWCV carryover.

[2] Remaining supply needed to meet IRP target.

Attachment A

California Aqueduct
Program Capabilities
Year 2025
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
MWD Table A	567,000	534,000	1,177,000
DWCV Table A	77,000	60,000	155,000
San Luis Carryover [1]	71,000	212,000	212,000
Article 21 Supplies	0	0	52,000
San Bernardino Valley MWD Minimum Purchase	12,000	8,000	20,000
San Bernardino Valley MWD Option Purchase	12,000	11,000	29,000
Yuba River Accord Purchase	19,000	22,000	3,000
Central Valley Storage and Transfers			
Semitropic Program	46,000	41,000	69,000
Arvin Edison Program	63,000	75,000	75,000
San Bernardino Valley MWD Program	15,000	44,000	44,000
Kern Delta Program	47,000	50,000	50,000
Subtotal of Current Programs	***929,000***	***1,057,000***	***1,886,000***
Programs Under Development			
Delta Improvements	234,000	159,000	439,000
Mojave Groundwater Storage Program	11,000	5,000	43,000
In-Delta Transfers	8,000	8,000	8,000
Drought Water Bank / North of Delta Transfers	25,000	25,000	25,000
SBVMWD Central Feeder	5,000	5,000	5,000
Shasta Return	18,000	18,000	18,000
Semitropic Agricultural Water Reuse Demonstration	11,000	11,000	11,000
IRP SWP Target [2]	0	0	0
Subtotal of Proposed Programs	***312,000***	***231,000***	***549,000***
Maximum Supply Capability	**1,241,000**	**1,288,000**	**2,435,000**

[1] Includes DWCV carryover.

[2] Remaining supply needed to meet IRP target.

Attachment A

California Aqueduct
Program Capabilities
Year 2030
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
MWD Table A	567,000	534,000	1,177,000
DWCV Table A	77,000	60,000	155,000
San Luis Carryover [1]	59,000	176,000	176,000
Article 21 Supplies	0	0	52,000
San Bernardino Valley MWD Minimum Purchase	12,000	8,000	20,000
San Bernardino Valley MWD Option Purchase	12,000	11,000	29,000
Yuba River Accord Purchase	0	0	0
Central Valley Storage and Transfers			
Semitropic Program	46,000	41,000	69,000
Arvin Edison Program	63,000	75,000	75,000
San Bernardino Valley MWD Program	16,000	49,000	49,000
Kern Delta Program	47,000	50,000	50,000
Subtotal of Current Programs	***899,000***	***1,004,000***	***1,852,000***
Programs Under Development			
Delta Improvements	234,000	159,000	439,000
Mojave Groundwater Storage Program	11,000	5,000	43,000
In-Delta Transfers	8,000	8,000	8,000
Drought Water Bank / North of Delta Transfers	25,000	25,000	25,000
SBVMWD Central Feeder	5,000	5,000	5,000
Shasta Return	18,000	18,000	18,000
Semitropic Agricultural Water Reuse Demonstration	11,000	11,000	11,000
IRP SWP Target [2]	0	0	0
Subtotal of Proposed Programs	***312,000***	***231,000***	***549,000***
Maximum Supply Capability	**1,211,000**	**1,235,000**	**2,401,000**

[1] Includes DWCV carryover.

[2] Remaining supply needed to meet IRP target.

Attachment A

California Aqueduct
Program Capabilities
Year 2035
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
MWD Table A	567,000	534,000	1,177,000
DWCV Table A	77,000	60,000	155,000
San Luis Carryover [1]	59,000	176,000	176,000
Article 21 Supplies	0	0	52,000
San Bernardino Valley MWD Minimum Purchase	12,000	8,000	20,000
San Bernardino Valley MWD Option Purchase	12,000	11,000	29,000
Yuba River Accord Purchase	0	0	0
Central Valley Storage and Transfers			
Semitropic Program	46,000	41,000	69,000
Arvin Edison Program	63,000	75,000	75,000
San Bernardino Valley MWD Program	17,000	50,000	50,000
Kern Delta Program	47,000	50,000	50,000
Subtotal of Current Programs	***900,000***	***1,005,000***	***1,853,000***
Programs Under Development			
Delta Improvements	234,000	159,000	439,000
Mojave Groundwater Storage Program	11,000	5,000	43,000
In-Delta Transfers	8,000	8,000	8,000
Drought Water Bank / North Of Delta Transfers	25,000	25,000	25,000
SBVMWD Central Feeder	5,000	5,000	5,000
Shasta Return	18,000	18,000	18,000
Semitropic Agricultural Water Reuse Demonstration	11,000	11,000	11,000
IRP SWP Target [2]	0	0	0
Subtotal of Proposed Programs	***312,000***	***231,000***	***549,000***
Maximum Supply Capability	**1,212,000**	**1,236,000**	**2,402,000**

[1] Includes DWCV carryover.

[2] Remaining supply needed to meet IRP target.

Attachment A

Colorado River Aqueduct
Program Capabilities
Year 2015
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
Basic Apportionment – Priority 4	550,000	550,000	550,000
IID/MWD Conservation Program	85,000	85,000	85,000
Priority 5 Apportionment (Surplus)	0	0	91,000
PVID Land Management, Crop Rotation, and Water Supply Program	133,000	133,000	133,000
Lower Colorado Water Supply Project	6,000	6,000	6,000
Lake Mead Storage Program	306,000	400,000	400,000
Quechan Settlement Agreement Supply	13,000	13,000	13,000
Forbearance for Present Perfected Rights	(42,000)	(47,000)	(47,000)
CVWD SWP/QSA Transfer Obligation	(35,000)	(35,000)	(35,000)
DWCV SWP Table A Obligation	(60,000)	(54,000)	(127,000)
DWCV SWP Table A Transfer Callback	32,000	29,000	67,000
DWCV Advance Delivery Account	28,000	25,000	60,000
Drop 2 Reservoir Funding	22,000	66,000	66,000
SNWA Agreement	40,000	40,000	40,000
Subtotal of Current Programs	***1,078,000***	***1,211,000***	***1,302,000***
Programs Under Development			
Additional PVID Transfers (Crop Stressing/Fallowing)	66,000	66,000	66,000
Arizona Programs - CAP	50,000	50,000	50,000
California Indians / Other Ag	10,000	10,000	10,000
ICS Exchange	25,000	25,000	25,000
Expand SNWA Agreement	15,000	15,000	15,000
Agreements with CVWD	35,000	35,000	35,000
Hayfield Groundwater Extraction Project	5,000	5,000	5,000
Subtotal of Proposed Programs	***206,000***	***206,000***	***206,000***
Additional Non-Metropolitan CRA Supplies			
SDCWA/IID Transfer	100,000	100,000	100,000
Coachella & All-American Canal Lining			
To SDCWA	80,000	80,000	80,000
To San Luis Rey Settlement Parties[1]	16,000	16,000	16,000
Subtotal of Non-Metropolitan Supplies	***196,000***	***196,000***	***196,000***
Maximum CRA Supply Capability[2]	**1,480,000**	**1,613,000**	**1,704,000**
Less CRA Capacity Constraint (amount above 1.25 MAF)	*(230,000)*	*(363,000)*	*(454,000)*
Maximum Expected CRA Deliveries[3]	**1,250,000**	**1,250,000**	**1,250,000**
Less Non-Metropolitan Supplies[4]	*(196,000)*	*(196,000)*	*(196,000)*
Maximum Metropolitan Supply Capability[5]	**1,054,000**	**1,054,000**	**1,054,000**

[1] Subject to satisfaction of conditions specified in agreement among Metropolitan, the United States, and the San Luis Rey Settlement Parties

[2] Total amount of supplies available without taking into consideration CRA capacity constraint.

[3] The Colorado River Aqueduct delivery capacity is 1.250 MAF annually.

[4] Exchange obligation for the SDCWA-IID transfer and the Coachella and All American Canal Lining projects.

[5] The amount of CRA water available to Metropolitan after meeting its exchange obligations.

Attachment A

Colorado River Aqueduct
Program Capabilities
Year 2020
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
Basic Apportionment – Priority 4	550,000	550,000	550,000
IID/MWD Conservation Program	85,000	85,000	85,000
Priority 5 Apportionment (Surplus)	500,000	356,000	61,000
PVID Land Management, Crop Rotation, and Water Supply Program	133,000	133,000	133,000
Lower Colorado Water Supply Project	6,000	6,000	6,000
Lake Mead Storage Program	400,000	400,000	400,000
Quechan Settlement Agreement Supply	13,000	13,000	13,000
Forbearance for Present Perfected Rights	(47,000)	(47,000)	(47,000)
CVWD SWP/QSA Transfer Obligation	(35,000)	(35,000)	(35,000)
DWCV SWP Table A Obligation	(60,000)	(54,000)	(127,000)
DWCV SWP Table A Transfer Callback	32,000	29,000	67,000
DWCV Advance Delivery Account	28,000	25,000	60,000
Drop 2 Reservoir Funding	22,000	25,000	25,000
SNWA Agreement	40,000	40,000	40,000
Subtotal of Current Programs	***1,667,000***	***1,526,000***	***1,231,000***
Programs Under Development			
Additional PVID Transfers (Crop Stressing/Fallowing)	66,000	66,000	66,000
Arizona Programs - CAP	50,000	50,000	50,000
California Indians / Other Ag	10,000	10,000	10,000
ICS Exchange	25,000	25,000	25,000
Expand SNWA Agreement	15,000	15,000	15,000
Agreements with CVWD	35,000	35,000	35,000
Hayfield Groundwater Extraction Project	5,000	5,000	5,000
Subtotal of Proposed Programs	***206,000***	***206,000***	***206,000***
Additional Non-Metropolitan CRA Supplies			
SDCWA/IID Transfer	161,000	193,000	193,000
Coachella & All-American Canal Lining			
To SDCWA	80,000	80,000	80,000
To San Luis Rey Settlement Parties[1]	16,000	16,000	16,000
Subtotal of Non-Metropolitan Supplies	***257,000***	***289,000***	***289,000***
Maximum CRA Supply Capability[2]	**2,130,000**	**2,021,000**	**1,726,000**
Less CRA Capacity Constraint (amount above 1.25 MAF)	*(880,000)*	*(771,000)*	*(476,000)*
Maximum Expected CRA Deliveries[3]	**1,250,000**	**1,250,000**	**1,250,000**
Less Non-Metropolitan Supplies[4]	*(257,000)*	*(289,000)*	*(289,000)*
Maximum Metropolitan Supply Capability[5]	**993,000**	**961,000**	**961,000**

[1] Subject to satisfaction of conditions specified in agreement among Metropolitan, the United States, and the San Luis Rey Settlement Parties

[2] Total amount of supplies available without taking into consideration CRA capacity constraint.

[3] The Colorado River Aqueduct delivery capacity is 1.250 MAF annually.

[4] Exchange obligation for the SDCWA-IID transfer and the Coachella and All American Canal Lining projects.

[5] The amount of CRA water available to Metropolitan after meeting its exchange obligations.

Attachment A

Colorado River Aqueduct
Program Capabilities
Year 2025
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
Basic Apportionment – Priority 4	550,000	550,000	550,000
IID/MWD Conservation Program	85,000	85,000	85,000
Priority 5 Apportionment (Surplus)	0	250,000	53,000
PVID Land Management, Crop Rotation, and Water Supply Program	133,000	133,000	133,000
Lower Colorado Water Supply Project	6,000	5,000	5,000
Lake Mead Storage Program	400,000	400,000	400,000
Quechan Settlement Agreement Supply	13,000	13,000	13,000
Forbearance for Present Perfected Rights	(47,000)	(47,000)	(47,000)
CVWD SWP/QSA Transfer Obligation	(35,000)	(35,000)	(35,000)
DWCV SWP Table A Obligation	(77,000)	(60,000)	(155,000)
DWCV SWP Table A Transfer Callback	41,000	32,000	82,000
DWCV Advance Delivery Account	36,000	28,000	73,000
Drop 2 Reservoir Funding	22,000	25,000	25,000
SNWA Agreement	0	0	0
Subtotal of Current Programs	***1,127,000***	***1,379,000***	***1,182,000***
Programs Under Development			
Additional PVID Transfers (Crop Stressing/Fallowing)	66,000	66,000	66,000
Arizona Programs - CAP	50,000	50,000	50,000
California Indians / Other Ag	10,000	10,000	10,000
ICS Exchange	25,000	25,000	25,000
Expand SNWA Agreement	0	0	0
Agreements with CVWD	35,000	35,000	35,000
Hayfield Groundwater Extraction Project	5,000	5,000	5,000
Subtotal of Proposed Programs	***191,000***	***191,000***	***191,000***
Additional Non-Metropolitan CRA Supplies			
SDCWA/IID Transfer	200,000	200,000	200,000
Coachella & All-American Canal Lining			
To SDCWA	80,000	80,000	80,000
To San Luis Rey Settlement Parties[1]	16,000	16,000	16,000
Subtotal of Non-Metropolitan Supplies	***296,000***	***296,000***	***296,000***
Maximum CRA Supply Capability[2]	**1,614,000**	**1,866,000**	**1,669,000**
Less CRA Capacity Constraint (amount above 1.25 MAF)	*(364,000)*	*(616,000)*	*(419,000)*
Maximum Expected CRA Deliveries[3]	**1,250,000**	**1,250,000**	**1,250,000**
Less Non-Metropolitan Supplies[4]	*(296,000)*	*(296,000)*	*(296,000)*
Maximum Metropolitan Supply Capability[5]	**954,000**	**954,000**	**954,000**

[1] Subject to satisfaction of conditions specified in agreement among Metropolitan, the United States, and the San Luis Rey Settlement Parties

[2] Total amount of supplies available without taking into consideration CRA capacity constraint.

[3] The Colorado River Aqueduct delivery capacity is 1.250 MAF annually.

[4] Exchange obligation for the SDCWA-IID transfer and the Coachella and All American Canal Lining projects.

[5] The amount of CRA water available to Metropolitan after meeting its exchange obligations.

Attachment A

Colorado River Aqueduct
Program Capabilities
Year 2030
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
Basic Apportionment – Priority 4	550,000	550,000	550,000
IID/MWD Conservation Program	85,000	85,000	85,000
Priority 5 Apportionment (Surplus)	0	0	13,000
PVID Land Management, Crop Rotation, and Water Supply Program	133,000	133,000	133,000
Lower Colorado Water Supply Project	5,000	5,000	5,000
Lake Mead Storage Program	400,000	400,000	400,000
Quechan Settlement Agreement Supply	13,000	13,000	13,000
Forbearance for Present Perfected Rights	(47,000)	(47,000)	(47,000)
CVWD SWP/QSA Transfer Obligation	(35,000)	(35,000)	(35,000)
DWCV SWP Table A Obligation	(77,000)	(60,000)	(155,000)
DWCV SWP Table A Transfer Callback	41,000	32,000	82,000
DWCV Advance Delivery Account	36,000	28,000	73,000
Drop 2 Reservoir Funding	22,000	25,000	25,000
SNWA Agreement	0	0	0
Subtotal of Current Programs	***1,126,000***	***1,129,000***	***1,142,000***
Programs Under Development			
Additional PVID Transfers (Crop Stressing/Fallowing)	66,000	66,000	66,000
Arizona Programs - CAP	50,000	50,000	50,000
California Indians / Other Ag	10,000	10,000	10,000
ICS Exchange	25,000	25,000	25,000
Expand SNWA Agreement	0	0	0
Agreements with CVWD	35,000	35,000	35,000
Hayfield Groundwater Extraction Project	0	0	0
Subtotal of Proposed Programs	***186,000***	***186,000***	***186,000***
Additional Non-Metropolitan CRA Supplies			
SDCWA/IID Transfer	200,000	200,000	200,000
Coachella & All-American Canal Lining			
To SDCWA	80,000	80,000	80,000
To San Luis Rey Settlement Parties[1]	16,000	16,000	16,000
Subtotal of Non-Metropolitan Supplies	***296,000***	***296,000***	***296,000***
Maximum CRA Supply Capability[2]	**1,608,000**	**1,611,000**	**1,624,000**
Less CRA Capacity Constraint (amount above 1.25 MAF)	*(358,000)*	*(361,000)*	*(374,000)*
Maximum Expected CRA Deliveries[3]	**1,250,000**	**1,250,000**	**1,250,000**
Less Non-Metropolitan Supplies[4]	*(296,000)*	*(296,000)*	*(296,000)*
Maximum Metropolitan Supply Capability[5]	**954,000**	**954,000**	**954,000**

[1] Subject to satisfaction of conditions specified in agreement among Metropolitan, the United States, and the San Luis Rey Settlement Parties

[2] Total amount of supplies available without taking into consideration CRA capacity constraint.

[3] The Colorado River Aqueduct delivery capacity is 1.250 MAF annually.

[4] Exchange obligation for the SDCWA-IID transfer and the Coachella and All American Canal Lining projects.

[5] The amount of CRA water available to Metropolitan after meeting its exchange obligations.

Attachment A

Colorado River Aqueduct
Program Capabilities
Year 2035
(acre-feet per year)

Hydrology	Multiple Dry Years (1990-92)	Single Dry Year (1977)	Average Year (1922-2004)
Current Programs			
Basic Apportionment – Priority 4	550,000	550,000	550,000
IID/MWD Conservation Program	85,000	85,000	85,000
Priority 5 Apportionment (Surplus)	0	0	10,000
PVID Land Management, Crop Rotation, and Water Supply Program	133,000	133,000	133,000
Lower Colorado Water Supply Project	5,000	5,000	5,000
Lake Mead Storage Program	332,000	400,000	400,000
Quechan Settlement Agreement Supply	13,000	13,000	13,000
Forbearance for Present Perfected Rights	(47,000)	(47,000)	(47,000)
CVWD SWP/QSA Transfer Obligation	(35,000)	(35,000)	(35,000)
DWCV SWP Table A Obligation	(77,000)	(60,000)	(155,000)
DWCV SWP Table A Transfer Callback	41,000	32,000	82,000
DWCV Advance Delivery Account	36,000	28,000	73,000
Drop 2 Reservoir Funding	22,000	25,000	25,000
SNWA Agreement	0	0	0
Subtotal of Current Programs	***1,058,000***	***1,129,000***	***1,139,000***
Programs Under Development			
Additional PVID Transfers (Crop Stressing/Fallowing)	66,000	66,000	66,000
Arizona Programs - CAP	50,000	50,000	50,000
California Indians / Other Ag	10,000	10,000	10,000
ICS Exchange	25,000	25,000	25,000
Expand SNWA Agreement	0	0	0
Agreements with CVWD	35,000	35,000	35,000
Hayfield Groundwater Extraction Project	0	0	0
Subtotal of Proposed Programs	***186,000***	***186,000***	***186,000***
Additional Non-Metropolitan CRA Supplies			
SDCWA/IID Transfer	200,000	200,000	200,000
Coachella & All-American Canal Lining			
To SDCWA	80,000	80,000	80,000
To San Luis Rey Settlement Parties[1]	16,000	16,000	16,000
Subtotal of Non-Metropolitan Supplies	***296,000***	***296,000***	***296,000***
Maximum CRA Supply Capability[2]	**1,540,000**	**1,611,000**	**1,621,000**
Less CRA Capacity Constraint (amount above 1.25 MAF)	*(290,000)*	*(361,000)*	*(371,000)*
Maximum Expected CRA Deliveries[3]	**1,250,000**	**1,250,000**	**1,250,000**
Less Non-Metropolitan Supplies[4]	*(296,000)*	*(296,000)*	*(296,000)*
Maximum Metropolitan Supply Capability[5]	**954,000**	**954,000**	**954,000**

[1] Subject to satisfaction of conditions specified in agreement among Metropolitan, the United States, and the San Luis Rey Settlement Parties

[2] Total amount of supplies available without taking into consideration CRA capacity constraint.

[3] The Colorado River Aqueduct delivery capacity is 1.250 MAF annually.

[4] Exchange obligation for the SDCWA-IID transfer and the Coachella and All American Canal Lining projects.

[5] The amount of CRA water available to Metropolitan after meeting its exchange obligations.

Attachment B

Metropolitan Water District of Southern California
Water Rates and Charges

	Effective 1/1/2010	Effective 1/1/2011	Effective 1/1/2012
Tier 1 Supply Rate (dollars per acre-foot)	$101	$104	$106
Delta Supply Surcharge (dollars per acre-foot)	$69	$51	$58
Tier 2 Supply Rate (dollars per acre-foot)	$280	$280	$290
System Access Rate (dollars per acre-foot)	$154	$204	$217
Water Stewardship Rate (dollars per acre-foot)	$41	$41	$43
System Power Rate (dollars per acre-foot)	$119	$127	$136
Full Service Untreated Volumetric Cost ($/AF)			
Tier 1	$484	$527	$560
Tier 2	$594	$652	$686
Replenishment Water Rate: untreated (dollars per acre-foot)	$366	$409	$442
Interim Agricultural Water Program: untreated (dollars per acre-foot)	$416	$482	$537
Treatment Surcharge (dollars per acre-foot)	$217	$217	$234
Full Service Treated Volumetric Cost ($/AF)			
Tier 1	$701	$744	$794
Tier 2	$811	$869	$920
Treated Replenishment Water Rate (treated dollars per acre-foot)	$558	$601	$651
Treated Interim Agricultural Water Program (dollars per acre-foot)	$615	$687	$765
Readiness-to-serve Charge (millions of dollars)	$114	$125	$146
Capacity Charge (dollars per cubic foot second)	$7,200	$7,200	$7,400

Definitions

Tier 1 Supply Rate - recovers the majority of the supply costs.

Tier 2 Supply Rate - a higher block rate that reflects Metropolitan's cost of developing additional supply applied to annual purchase of water above baseline.

Delta Supply Surcharge - recovers the additional supply costs and other costs due to the pumping restrictions on the State Water Project. The Delta Supply Surcharge replaced the Water Supply Surcharge effective with the 2009/10 rates.

System Access Rate - recovers a portion of the capital and operations maintenance costs associated with the delivery of supplies.

System Power Rate - recovers Metropolitan's power costs for pumping water to Southern California.

Water Stewardship Rate - recovers the cost of Metropolitan's financial commitment to conservation, water recycling,

groundwater clean-up and other local resource management programs.

Replenishment Water Rate - a discounted rate for surplus system supplies available for the purpose of replenishing local storage.

Treated Replenishment Water Rate - a discounted rate for surplus system supplies available for the purpose of replenishing local storage.

Interim Agricultural Water Rate - discounted rate for surplus system supplies available for agricultural use. Program is phasing out.

Treated Interim Agricultural Water Program Rate – a discounted rate for surplus system supplies available for the agricultural use. Program is phasing out.

Treatment Surcharge - recovers the costs of treating water.

Readiness-to-Serve Charge - a fixed charge that recovers the cost of the portion of system capacity that provides standby and emergency service.

Capacity Charge - a fixed charge to recover the cost of providing peak capacity within the distribution system.

Attachment B

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- **Board of Directors**
  Water Planning and Stewardship Committee

8/17/2010 Board Meeting

8-8

Subject

Approve adjustments to Metropolitan's Water Supply Allocation Plan and implement the allocation of seawater barrier supplies for the 2010/11 Allocation Year

Description

Background

Between July 2007 and February 2008, Metropolitan staff worked with the member agency managers and the Board to develop a Water Supply Allocation Plan (WSAP). The WSAP includes the specific formulas for calculating member agency supply allocations and the key implementation elements needed for administering an allocation. The WSAP formula allocates Metropolitan supplies over ten regional shortage levels. The WSAP was adopted at the February 12, 2008, board meeting. Staff was also directed to review the WSAP 12 months following implementation to ensure opportunity for Metropolitan staff and the member agencies to re-evaluate the plan and recommend appropriate changes to the Board.

In April 2009, the Board voted to implement the WSAP for the first time. The WSAP was implemented at a Level 2 allocation level, and was in effect for the period of July 1, 2009, through June 30, 2010. Since implementation of the 2009/10 WSAP began in July 2009, a number of practical issues relating to the plan were identified by staff and the member agencies for further consideration. In the interest of ensuring a comprehensive review process that could produce appropriate changes in time for the next WSAP year, the 12-month review process for the 2009/10 WSAP commenced in January 2010, six months into the WSAP year. Over the course of the six months, staff consulted with the member agency managers to discuss the WSAP and collected feedback on potential modifications.

This letter provides the Board with staff recommendations for modifications to the WSAP that would address the issues identified and discussed during the review process. This letter also provides the Board with the staff recommendation for allocation of seawater barrier demands. Any actions to modify the WSAP are intended to take effect for the 2010/11 allocation year.

Process

Metropolitan staff engaged with the member agencies in a formal review of the WSAP beginning in January 2010. The purpose of the review was to collaborate with the member agencies to identify potential modifications to the WSAP and to recommend changes, if any, for board consideration. Since the review process began in 2010, the member agency managers participated in a series of six workshops. The focus of these workshops was to facilitate in-depth discussion on WSAP-related issues and lessons learned since the WSAP was implemented in July 2009.

The main topics of discussion in the review process generally fell into the following categories:

- Groundwater basin management
- Local supply production
- Demand hardening
- Growth adjustments

To prepare for the review process, Metropolitan staff collected WSAP-related issues from several sources, including an online feedback form, WSAP appeal submittals, internal staff meetings, and interactions with member agency managers and staff. Since June 2009, Metropolitan staff has maintained an online WSAP feedback form on the member agency website. The WSAP also includes a comprehensive "Appeals Process" for managing requested changes in member agency data and subsequent supply allocations. To date, Metropolitan has received 14 appeal submittals for the 2009/10 allocation year, which revealed additional issues and topics for clarification and discussion. **Attachment 1** shows a listing of the meetings that were held as part of the formal WSAP review process.

Metropolitan staff compiled WSAP-related issues from these various sources for presentation and discussion at the WSAP review workshops. Recommendations on how to deal with these issues were subsequently developed in conjunction with the member agency managers for Board direction.

Recommended Modifications to the Water Supply Allocation Plan

Metropolitan staff consulted with the member agency managers and staff to develop these recommendations. They are intended to be effective in the 2010/11 allocation year.

1. Remove references to Gains and Losses of Local Supply – Retail demands in the WSAP are calculated using 2004/06 Base Period Local Supplies. However, WSAP allocations are determined by each member agency's current Allocation Year Local Supplies. Under the WSAP, changes in Allocation Year Local Supplies are documented through communication with member agencies and verified through a formal local supply certification process at the end of each allocation year. Corrections to historical Base Period Local Supply data are made through the formal WSAP appeals process.

   Staff recommends removing references in the WSAP to "gains and losses of local supplies" in order to better facilitate the accounting of historical base year and allocation year local supplies. This recommended change would not affect the WSAP formula or allocations.

2. Remove references to Regional Shortage Percentage – Each WSAP Regional Shortage Level currently has a defined "Regional Shortage Percentage." This percentage is a factor within the WSAP formula and does not represent a shortage amount. However, the percentage figure has led to difficulty with public outreach and communication because it can be easily misinterpreted as an indicator of the depth of shortage or as a percentage of required cutbacks or reductions.

   Staff recommends removing references to the "Regional Shortage Percentage" in the WSAP to reduce unintended confusion between calculation factors and shortage amounts. This recommended change would not affect the WSAP formula or allocations.

3. Include the Retail Impact Adjustment in Regional Shortage Level 1 and Level 2 – The purpose of the Retail Impact Adjustment in the WSAP is to help ensure that member agencies that are highly reliant upon Metropolitan do not experience disparate shortages at the retail level compared to other agencies that are less reliant on Metropolitan. It is prorated on a linear scale based on each member agency's dependence on Metropolitan at the retail level. However, it is currently only applied when the WSAP Regional Shortage Level is 3 or greater. Extending the adjustment to Level 1 and Level 2 would provide additional allocation to agencies based on their retail-level needs as well as consistency in methodology across all shortage levels.

   Staff recommends inclusion of the Retail Impact Adjustment for Regional Shortage Level 1 and Level 2. This recommended change would result in additional allocations to Metropolitan-dependent agencies under Level 1 and Level 2 regional shortages. Implementing this change would result in approximately

56,000 acre-feet of additional allocation for the upcoming 2010/11 WSAP Allocation Year. Based on the water supply and demand balance as of June 2010, staff does not anticipate that the proposed modification would affect the WSAP Regional Shortage Level. A detailed accounting showing the estimated impact to each member agency from including the Retail Impact Adjustment can be found in **Attachment 2**.

4. Revise the Accounting for Extraordinary Supplies – In June 2010, the Board adopted principles to be considered in determining Extraordinary Supplies under the WSAP. Local supply production classified as Extraordinary Supply is accounted differently than "planned" or "ordinary" Allocation Year Local Supply. Under the current formula, Extraordinary Supplies are subject to a Base Period Local Supply threshold; this means that an agency must produce as much local supply as they did in the Base Period in order for an Extraordinary Supply to be counted as Extraordinary. Also, according to the current formula Extraordinary Supplies are only partially included in the WSAP allocation formula depending on the WSAP Level. This has the effect of overstating the agency's demand for Metropolitan supplies and providing significantly more benefit to the member agency in terms of total water supply. However, Extraordinary Supplies are increasingly shared with the rest of the region on a sliding-scale as WSAP Levels increase.

   During the 12-month review process, it was recognized that the Base Period Local Supply threshold provision and the sliding-scale sharing mechanism in the formula could have punitive outcomes. These impacts are particularly severe in deeper regional shortages and unintentionally create disincentives for member agencies to develop Extraordinary Supplies.

   Staff recommends modifying the methodology for accounting of Extraordinary Supply in the WSAP formula. This would be accomplished by:

   - Removing the Base Period Local Supply threshold provision,
   - Removing the sliding-scale sharing mechanism from the formula, and
   - Including the full amount of the Extraordinary Supply in the calculation of the Retail Impact Adjustment.

   Attachment 3 provides an example of how these changes would offer more of a benefit to agencies that procure Extraordinary Supplies. There would be no change in the sliding-scale sharing because the current formula does not apply a sliding scale until Level 3. The only impacts to the 2010/11 WSAP Allocation Year supply allocations under a Level 2 would come from the changes to the Base Period Local Supply threshold and the recalculation of the Retail Impact Adjustment. Quantifying the impact is not practicable because any quantification is dependent on knowing actual amounts of Extraordinary Supply that agencies would procure and the dependence on Metropolitan of the agency procuring the Extraordinary Supply.

5. Include a Minimum Per Capita Water Use Threshold – There is significant variation in per capita water use among the member agencies. Member agencies with lower per capita water use and higher levels of demand hardening are disproportionately affected by demand reductions under WSAP allocations. As absolute per capita water use decreases beyond certain thresholds, further reductions are more likely to come from indoor residential use as opposed to outdoor landscape use.

   Staff recommends comparing member agency water use, on a gallon per capita per day (GPCD) basis, to the following minimum thresholds:

   - 100 GPCD total use or
   - 55 GPCD residential indoor use

   Staff's proposed minimum thresholds are based upon compliance guidelines established under Senate Bill X7-7 (Water Conservation Act of 2009).

Member agencies would receive additional Metropolitan allocation for an acre-foot equivalent of GPCD below the minimum threshold. Implementing this change would result in about 900 acre-feet of additional allocation for the upcoming 2010/11 WSAP Allocation Year. The estimated impact to each member agency from including a Minimum Per Capita Water Use Threshold can be found in **Attachment 4**. **Attachment 4** also shows the total acre-feet of additional allocation that would result from this change at each of the WSAP Shortage Levels.

6. Exclude Seawater Barrier Supplies from the WSAP Formula – The WSAP formula currently includes sea water barrier deliveries as local supplies. However, unlike other local demands, seawater barrier deliveries cannot be cut during an allocation year because of obligations to protect groundwater basins, including blending requirements when recycled water is used. This creates a demand hardening effect where the other customers from member agencies that supply seawater barrier deliveries must curtail their demands even more to compensate during an allocation. For this reason, seawater barrier deliveries provide an important regional benefit but also have disparate impacts to individual member agencies and their customers.

   During the 2004/06 WSAP Base Period, Metropolitan seawater barrier deliveries averaged approximately 25,000 acre-feet per year. Using the current WSAP formula an estimated 22,000 acre-feet would be allocated to seawater barrier demands in the 2010/11 WSAP Allocation Year. Removing seawater barrier demands from the allocation formula would reduce the 2010/11 WSAP allocation by a like amount. An additional and separate allocation of supplies to meet seawater barrier demands would be determined by the Board of Directors. For the purposes of setting the allocation of supplies for seawater barrier, staff will use estimates of seawater barrier demands provided by the member agencies. At the conclusion of a WSAP Allocation Year, staff would require those agencies that have seawater barrier obligations to certify the actual demands for seawater barrier that occurred in that year. **Attachment 5** shows the estimated impacts to each member agency from this proposal, as well as the total change in allocation at each WSAP Shortage Level.

   Staff recommends excluding seawater barrier supplies from the 2004/06 Base Period and WSAP Allocation Year local supply calculations. This would allow the Board to determine allocations for seawater barrier demands separately from the WSAP. The current WSAP formula does not account for actual barrier requirements, or the changes in the use of recycled water to meet those requirements that have occurred since the Base Period. With the proposed revision, the Board would be able to consider actual barrier requirements in the Allocation Year, as well as the availability of recycled supplies for blending given current operational and regulatory constraints. Staff proposes that allocations to seawater barrier demands would be no deeper than the WSAP Wholesale Minimum Percentage implemented at that time.

Other Identified Items from the 12-Month Review

In addition to the WSAP modifications recommended in the preceding section, several other items of concern had been identified and discussed by staff and the member agencies during the WSAP 12-Month Review process. For some of these items, it was determined that they would be appropriately addressed on a case-by-case basis through the formal WSAP appeals process. For the remaining items, it was determined through discussions with the member agencies that that they did not necessitate changes in the WSAP during this review. The items are listed below:

Items to be addressed by appeal

- Losses of supply in basins used as distribution systems
- Exclude physically isolated areas from the WSAP formula
- Treatment of water quality and physical solution obligations in the WSAP formula

Other Identified Items

- Conversion of replenishment demands to firm demands
- Increase the Conserving Rate Structure Credit
- Modify how the Base Period Local Supplies are calculated
- Capacity charges should not be affected by the WSAP
- Fire suppression/maintenance water should be excluded from the WSAP
- Adjudications that require replenishment supplies
- Remove the Growth Adjustment from the WSAP formula
- WSAP Base Period selection

Of particular note is the issue of the Growth Adjustment in the WSAP formula. No change in the existing Growth Adjustment is recommended for the 2010/11 WSAP through this review process. However, staff and the member agencies are in agreement that the methodology for accounting for growth in the WSAP formula warrants continued review and discussion in the future.

Recommended Allocation of Seawater Barrier Supplies

The adjustment proposed in this letter to exclude seawater barrier supplies from the WSAP formula states that an "additional and separate allocation of supplies to meet seawater barrier demands will be determined by the Board of Directors". Separating the seawater barrier allocation from the WSAP allocation allows the Board to consider actual barrier requirements in the Allocation Year. The current WSAP formula does not account for actual barrier requirements, or the changes in the use of recycled water to meet those requirements that have occurred since the Base Period.

During the 2004/06 Base Period, Seawater Barrier purchases from Metropolitan averaged just over 25,000 acre-feet per year. Under the existing WSAP formula about 22,000 acre-feet of supplies would be allocated to meet seawater barrier demands at the current Level 2 implementation. Based on initial estimates provided by the member agencies, the total amount of Metropolitan supplies needed to meet barrier demands in the current Allocation Year is 16,000 acre-feet. The following table shows the total amount of seawater barrier demands in the Allocation Year by member agency, as well as the anticipated local recycled supplies that will be available to meet barrier demands and the resulting demands on Metropolitan.

Member Agency	Total Barrier Demand	Local Barrier Supply	Barrier Demand on Metropolitan
Long Beach	6,000	2,700	3,300
MWDOC	38,000	37,700	300
West Basin	24,800	12,400	12,400
Total	68,800	52,800	16,000

The proposal in this letter to exclude seawater barrier supplies from the WSAP formula states that the allocations to seawater barrier demands should be no deeper than the WSAP Wholesale Minimum Percentage implemented at that time. Under the current Level 2 WSAP implementation the Wholesale Minimum Percentage is 85 percent. The following table shows the amount of seawater barrier supplies that would be provided under various levels of allocation, with the minimum allocation equal to 85 percent of seawater barrier demands on Metropolitan.

Member Agency	100%	95%	90%	85%
Long Beach	3,300	3,135	2,970	2,805
MWDOC	300	285	270	255
West Basin	12,400	11,780	11,160	10,540
Total	16,000	15,200	14,400	13,600

Some key considerations in determining the allocation of seawater barrier demands are:

- the importance of the seawater barriers in protecting groundwater supplies for the region
- the demand hardening impacts associated with cutting seawater barrier supplies

In excluding seawater barrier deliveries from the WSAP allocation, Metropolitan would effectively isolate the actual demands for seawater barrier in the allocation year. Any reductions in seawater barrier deliveries would translate into real cuts to seawater barrier deliveries, or would shift supplies allocated under the WSAP away from potable customers to provide for the seawater barrier.

Given the key considerations outlined above, staff recommends that Metropolitan provide sufficient supplies to meet 100 percent of seawater barrier demands for the Allocation Year. Approving this action would reduce the WSAP allocation by just over 22,000 acre-feet, and add an additional 16,000 acre-feet of seawater barrier allocation; the net change would be a 6,000-acre-foot reduction in supplies allocated by Metropolitan. The allocation figures shown above are based on preliminary estimates provided by the member agencies; final allocations will be based on actual certified barrier demands and local supplies.

Next Steps

Changes to the WSAP as a result of board action this month are intended to be in effect for the 2010/11 WSAP Allocation Year. Metropolitan staff has communicated the process timeline to the member agencies through the 12-month review workshops and through meetings with the member agency managers.

For reference, **Attachment 6** provides a comparison of the estimated 2010/11 WSAP allocations under the current allocation formula and with all of the adjustments proposed in this letter. This comparison quantifies the cumulative impact of all of the proposed changes for each member agency.

Policy

By Minute Item 47393, dated February 12, 2008, the Board adopted the Water Supply Allocation Plan.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA because it involves continuing administrative activities, such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines). In addition, where it can be seen with certainty that there is no possibility that the proposed action in question may have a significant effect on the environment, the proposed action is not subject to CEQA (Section 15061(b)(3) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed action is not subject to CEQA pursuant to Sections 15378(b)(2) and 15061(b)(3) of the State CEQA Guidelines.

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

a. approve the proposed adjustments to Metropolitan's Water Supply Allocation Plan; and
b. approve the proposed allocation of seawater barrier supplies.

Fiscal Impact: None

Business Analysis: Approving the proposed adjustments would address the major issues identified for refinement in the 12-month review process. Specifically the proposed adjustments would help clarify data requirements and accounting, alleviate potential confusion in public messaging regarding the size of required reductions, provide consistency in methodology across all shortage levels, lessen disincentives for member agencies to develop Extraordinary Supplies, protect agencies with lower per capita water use from

disproportionately high levels of demand hardening, and allow the Board to determine appropriate allocations for seawater barrier demands separately from the WSAP.

Option #2

Do not approve the proposed adjustments to Metropolitan's Water Supply Allocation Plan, and do not approve the proposed allocation of seawater barrier supplies.

Fiscal Impact: None

Business Analysis: Not approving the proposed adjustments maintains the existing Water Supply Allocation Plan formula

Staff Recommendation

Option #1

8/2/2010
Deven N. Upadhyay *Date*
Manager, Water Resource Management

8/3/2010
Jeffrey Kightlinger *Date*
General Manager

Attachment 1 – WSAP 12-Month Review Process Meeting Summary

Attachment 2 – Proposal to Include the Retail Impact Adjustment in Regional Shortage Level 1 and Level 2

Attachment 3 – Proposal to Revise the Extraordinary Supply Methodology

Attachment 4 – Proposal to Include a Minimum Per Capita Water Use Threshold

Attachment 5 – Proposal to Exclude Seawater Barrier Supplies from the WSAP Formula

Attachment 6 – Comparison of 2010/11 WSAP Allocations with Proposed Adjustments

Ref# wrm12606248

WSAP 12-Month Review Process Meeting Summary

Meetings with Member Agencies to Discuss Issues from 2009/10 Water Supply

Date	Meeting	Description
January 13, 2010	WSAP 12-Month Review Workshop #1	First meeting of the WSAP 12-Month Review process; focused discussion of WSAP issues identified by Metropolitan staff and by member agencies since 2009/10 WSAP implementation
February 1, 2010	WSAP 12-Month Review Workshop #2	Continuation of prior workshop
February 18, 2010	WSAP 12-Month Review Workshop #3	Continuation of prior workshop
March 1, 2010	WSAP 12-Month Review Workshop #4	Continuation of prior workshop
April 8, 2010	WSAP 12-Month Review Workshop #5	WSAP 12-Month Review process: Recap of identified issues and discussion of Metropolitan staff proposals for changes to the WSAP
April 16, 2010	Member Agency Managers Meeting	Update on the WSAP 12-Month Review process
April 19, 2010	WSAP 12-Month Review Workshop #6	Discussion of WSAP issues related to replenishment
April 23, 2010	Member Agency Managers Conference Call	Clarification of WSAP definition for Extraordinary Supply
May 14, 2010	Member Agency Managers Meeting	Discussion of Extraordinary Supply proposed policy principles and WSAP Local Supply Certification process
May 21, 2010	Member Agency Managers Conference Call	Discussion of Extraordinary Supply proposed policy principles

Proposal to Include the Retail Impact Adjustment in Regional Shortage Level 1 and Level 2

Under the current WSAP formula, the Retail Impact Adjustment is not included in Regional Shortage Level 1 and Level 2. The purpose of the Retail Impact Adjustment is to provide additional allocation to agencies based upon their dependence on Metropolitan and avoid disparate retail-level impacts around the service area.

The proposed adjustment to the WSAP formula is to include the Retail Impact Adjustment in Regional Shortage Level 1 and Level 2. This change would provide additional allocation to agencies based on retail level need in Shortage Level 1 and Level 2.

In the 2010/11 WSAP Allocation Year, this adjustment would result in approximately 56,000 acre-feet of total additional allocation at the current Level 2 implementation. The following table shows the Level 2 allocation by Member Agency with and without the retail impact adjustment, as well as the net change for each agency. The allocations shown below are based on local supply estimates as of June 1, 2010, and do not include any of the other proposed adjustments.

Member Agency	Current Methodology	Proposed Methodology	Change
Anaheim	29,417	30,088	**670**
Beverly Hills	10,927	11,437	**510**
Burbank	11,296	11,595	**298**
Calleguas	102,708	106,638	**3,930**
Central Basin	68,584	69,715	**1,131**
Compton	3,206	3,268	**63**
Eastern	98,339	101,144	**2,805**
Foothill	10,270	10,580	**310**
Fullerton	13,355	13,683	**328**
Glendale	19,722	20,421	**699**
Inland Empire	68,970	70,084	**1,114**
Las Virgenes	20,853	21,947	**1,094**
Long Beach	34,505	35,443	**938**
Los Angeles	320,406	328,867	**8,461**
MWDOC	230,707	236,987	**6,280**
Pasadena	24,765	25,673	**908**
SDCWA	455,379	470,837	**15,458**
San Fernando	322	324	**2**
San Marino	1,516	1,541	**24**
Santa Ana	19,075	19,524	**448**
Santa Monica	12,316	12,769	**452**
Three Valleys	64,796	66,872	**2,076**
Torrance	19,976	20,889	**913**
Upper San Gabriel	32,499	32,839	**340**
West Basin	129,562	135,025	**5,462**
Western	105,674	107,356	**1,683**
MWD Total	1,909,147	1,965,544	**56,398**

Proposal to Revise the Extraordinary Supply Methodology

Under the current WSAP formula, a percentage of all Extraordinary Supplies are "shared' with the region based upon the Regional Shortage Level; the following table shows the Extraordinary Supply Percentage at each Shortage Level. The Extraordinary Supply Percentage is the amount of an Extraordinary Supply that is included in the WSAP formula to determine each agency's Wholesale Minimum Allocation from Metropolitan.

Regional Shortage Level	Extraordinary Supply Percentage
1	0%
2	0%
3	15%
4	20%
5	25%
6	30%
7	35%
8	40%
9	45%
10	50%

The proposed adjustment to the WSAP removes the Extraordinary Supply Percentage from the allocation formula. Under this proposal, Extraordinary Supplies would no longer be used in calculating an agency's Wholesale Minimum Allocation from Metropolitan. In other words, Extraordinary Supplies would no longer be "shared" with the region at any of the Regional Shortage Levels.

The proposed adjustment would also revise the current formula to include the full amount of Extraordinary Supplies in the calculation of an agency's Allocation Year Dependence on Metropolitan. This adjustment serves to more accurately reflect an agency's true need for Metropolitan supplies in the Retail Impact Adjustment.

Another aspect of the proposed adjustment is to remove the Base Period Local Supply threshold provision from the WSAP formula. Under the current WSAP formula, agencies must produce as much local supplies in the Allocation Year as they did in the Base Period in order for Extraordinary Supplies to be accounted in the formula as Extraordinary.

The table below shows the net gain that an agency would receive from procuring 10,000 acre-feet of Extraordinary Supply at each of the Regional Shortage Levels. The value of the 10,000 acre-feet is shown under both the current and proposed formulas; the net change between the two methodologies is shown in the far right column. This analysis assumes that the agency in this example meets the Base Period Local Supply threshold provision under the current methodology, and that the entire 10,000 acre-feet qualify as Extraordinary Supply. This example is based on an agency that has 100,000 acre-feet of Allocation Year Retail Demand and is 50 percent dependent on Metropolitan. The results shown below do not include any of the other proposed adjustments.

Regional Shortage Level	Current Methodology	Proposed Methodology	Change
1	10,000	10,000	**0**
2	10,000	10,000	**0**
3	8,727	9,625	**898**
4	8,404	9,500	**1,096**
5	8,133	9,375	**1,242**
6	7,914	9,250	**1,337**
7	7,746	9,125	**1,379**
8	7,632	9,000	**1,368**
9	7,571	8,875	**1,304**
10	7,563	8,750	**1,188**

Proposal to Include a Minimum Per Capita Water-Use Threshold

Under the current WSAP formula, there is no mechanism to adjust WSAP Allocations for Member Agencies with low per capita water use.

The proposed adjustment would create a minimum per capita water use threshold. Member agencies' retail-level water use under the WSAP formula would be compared to two different thresholds. The proposed minimum thresholds are based upon compliance guidelines established under Senate Bill X7-7

- 100 GPCD total water use
- 55 GPCD residential water use

Agencies that fall below either threshold under the WSAP would receive additional allocation from Metropolitan to bring them up to the minimum GPCD water use level. If an agency qualified under both thresholds, the one resulting in the maximum allocation adjustment would be given.

This adjustment would result in almost 900 acre-feet of total additional allocation at the current Level 2 implementation. The table below shows the Level 2 allocation by member agency with and without the Minimum Per Capita Water Use Adjustment, as well as the net change for each agency.

Member Agency	Current Methodology	Proposed Methodology	Change
Anaheim	29,417	29,417	0
Beverly Hills	10,927	10,927	0
Burbank	11,296	11,296	0
Calleguas	102,708	102,708	0
Central Basin	68,584	68,584	0
Compton	3,206	4,075	869
Eastern	98,339	98,339	0
Foothill	10,270	10,270	0
Fullerton	13,355	13,355	0
Glendale	19,722	19,722	0
Inland Empire	68,970	68,970	0
Las Virgenes	20,853	20,853	0
Long Beach	34,505	34,505	0
Los Angeles	320,406	320,406	0
MWDOC	230,707	230,707	0
Pasadena	24,765	24,765	0
SDCWA	455,379	455,379	0
San Fernando	322	322	0
San Marino	1,516	1,516	0
Santa Ana	19,075	19,075	0
Santa Monica	12,316	12,316	0
Three Valleys	64,796	64,796	0
Torrance	19,976	19,976	0
Upper San Gabriel	32,499	32,499	0
West Basin	129,562	129,562	0
Western	105,674	105,674	0
MWD Total	1,909,147	1,910,016	869

The following table shows the total impact of including a minimum per capita water use threshold under each Regional Shortage Level. The maximum credit that would be given under the proposal would be just over 12,000 acre-feet in a Regional Shortage Level 10. The allocations shown in this analysis are based on local supply estimates as of June 1, 2010, and do not include any of the other proposed adjustments.

Regional Shortage Level	Current Methodology	Proposed Methodology	Change
1	0	621	**621**
2	0	869	**869**
3	0	1,024	**1,024**
4	0	1,241	**1,241**
5	0	1,458	**1,458**
6	0	1,675	**1,675**
7	0	2,764	**2,764**
8	0	4,205	**4,205**
9	0	7,564	**7,564**
10	0	12,419	**12,419**

Proposal to Exclude Seawater Barrier Supplies from the WSAP Formula

Under the current WSAP formula, seawater barrier purchases from Metropolitan are included in the calculation of Base Period Local Supplies.

This proposal would remove seawater barrier purchases from the Base Period calculation and create a separate allocation for seawater barrier demands. This change would allow the Board to determine allocation of barrier demands separately from WSAP.

Seawater Barrier purchases from Metropolitan averaged just over 25,000 acre-feet per year during the 2004/06 Base Period. The following table shows the averages for the three agencies that purchased seawater barrier supplies from Metropolitan during the base period.

Member Agency	Base Period Average
Long Beach	3,456
MWDOC	8,461
West Basin	13,195
MWD Total	**25,111**

In the 2010/11 WSAP Allocation Year, this adjustment would result in a 22,000-acre-foot reduction in the total allocation at the current Level 2 implementation. The following table compares the Level 2 allocation by member agency under the current formula with what it would be with the proposed exclusion of seawater barrier supplies, and shows the net change for each agency in the far-right column. Because the proposal includes a provision that seawater barrier demands be allocated separately, the figures shown below may not represent an actual reduction in demands on Metropolitan. Ultimately, the net impact on Metropolitan will depend upon how the Board chooses to allocate supplies to seawater barrier demands.

Member Agency	Current Methodology	Proposed Methodology	Change
Anaheim	29,417	29,417	0
Beverly Hills	10,927	10,927	0
Burbank	11,296	11,296	0
Calleguas	102,708	102,708	0
Central Basin	68,584	68,584	0
Compton	3,206	3,206	0
Eastern	98,339	98,339	0
Foothill	10,270	10,270	0
Fullerton	13,355	13,355	0
Glendale	19,722	19,722	0
Inland Empire	68,970	68,970	0
Las Virgenes	20,853	20,853	0
Long Beach	34,505	31,453	(3,052)
Los Angeles	320,406	320,406	0
MWDOC	230,707	223,148	(7,559)
Pasadena	24,765	24,765	0
SDCWA	455,379	455,379	0
San Fernando	322	322	0
San Marino	1,516	1,516	0
Santa Ana	19,075	19,075	0
Santa Monica	12,316	12,316	0

Three Valleys	64,796	64,796	**0**
Torrance	19,976	19,976	**0**
Upper San Gabriel	32,499	32,499	**0**
West Basin	129,562	117,997	**(11,565)**
Western	105,674	105,674	**0**
MWD Total	1,909,147	1,886,970	**(22,177)**

The following table shows the total impact of removing seawater barrier purchases from the WSAP formula at each Regional Shortage Level. The maximum impact of this proposal would be just over 24,000 acre-feet in a Regional Shortage Level 1. The allocations shown in this analysis are based on local supply estimates as of June 1, 2010, and do not include any of the other proposed adjustments.

Regional Shortage Level	Current Methodology	Proposed Methodology	Change
1	24,046	0	**(24,046)**
2	22,177	0	**(22,177)**
3	21,916	0	**(21,916)**
4	20,583	0	**(20,583)**
5	19,251	0	**(19,251)**
6	17,918	0	**(17,918)**
7	16,585	0	**(16,585)**
8	15,253	0	**(15,253)**
9	13,920	0	**(13,920)**
10	12,587	0	**(12,587)**

Comparison of 2010/11 WSAP Allocations with Proposed Adjustments

This attachment summarizes the net impact that would result from implementing all of the proposed adjustments to the WSAP:

- Include the Retail Impact Adjustment in Regional Shortage Level 1 and Level 2
- Revise the Extraordinary Supply Methodology
- Include a Minimum Per Capita Water Use Threshold
- Exclude Seawater Barrier Deliveries from the WSAP Formula
- Allocate supplies to meet 100 percent of estimated seawater barrier demands on Metropolitan for the 2010/11 allocation year

For the 2010/11 WSAP Allocation Year, the impact of all of the proposed adjustments would be an increase of approximately 34,000 acre-feet in the total amount of water allocated under the current Level 2 implementation. Providing an allocation of Metropolitan supplies sufficient to meet 100 percent of the estimated seawater barrier demands would add an additional 16,000 acre-feet; for a net increase of nearly 50,000 acre-feet. The following table shows the Level 2 allocation by member agency under the current formula and with all of the proposed adjustments. The net change for each agency is shown in the far-right column. The allocations shown below are based on local supply estimates as of June 1, 2010.

Member Agency	Current Methodology	Proposed Methodology	Change
Anaheim	29,417	30,088	671
Beverly Hills	10,927	11,437	510
Burbank	11,296	11,595	299
Calleguas	102,708	106,638	3,930
Central Basin	68,584	69,715	1,131
Compton	3,206	4,075	869
Eastern	98,339	101,144	2,805
Foothill	10,270	10,580	310
Fullerton	13,355	13,683	328
Glendale	19,722	20,421	699
Inland Empire	68,970	70,084	1,114
Las Virgenes	20,853	21,947	1,094
Long Beach	34,505	35,564	1,059
Los Angeles	320,406	328,867	8,461
MWDOC	230,707	229,410	-1,297
Pasadena	24,765	25,673	908
SDCWA	455,379	470,837	15,458
San Fernando	322	324	2
San Marino	1,516	1,541	24
Santa Ana	19,075	19,524	448
Santa Monica	12,316	12,769	452
Three Valleys	64,796	66,872	2,076
Torrance	19,976	20,889	913
Upper San Gabriel	32,499	32,839	340
West Basin	129,562	135,231	5,669
Western	105,674	107,356	1,683
MWD Total	**1,909,147**	**1,959,103**	**49,956**