

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

February 12, 2008 Board Meeting

8-5

Subject

Approve Water Supply Allocation Plan

Description

Background

Since July 2007, staff has been working cooperatively with the member agencies to develop a formula and implementation plan to allocate supplies to the member agencies in case of shortage. As a result of that process, staff developed a recommendation for a Water Supply Allocation Plan for consideration by the Board. The recommendation includes the specific formulas for calculating member agency supply allocations and the key implementation elements needed for administering an allocation should a shortage be declared. The staff recommendation was provided in a Board Report and discussed at the January 7, 2008 Water Planning and Stewardship Committee meeting. Based on committee discussion and further review of the report by the member agencies, refinements were incorporated into the plan for final consideration and action in February. Ultimately, this allocation plan is intended to provide the basis for the urban water shortage contingency analysis required under Water Code Section 10631 and would be incorporated into Metropolitan's Regional Urban Water Management Plan (RUWMP).

The Board has been regularly updated with progress reports on the development status of this Plan, with three Oral Reports in 2007 (September, October, and December), an Information Board Letter in November 2007 (with draft plan), and a Board Report in January 2008 (with staff recommendation).

The different elements of the proposed plan have been discussed at eight Member Agency Manager workgroups. These workgroups have provided an arena for in-depth discussion of the objectives, mechanics, and policy aspects of the different parts of the allocation plan. Metropolitan staff has also met with individual member agencies for detailed discussions of the elements of the recommended proposal. Fifteen member agencies have engaged staff in this process. Staff has also provided presentations and feedback to a number of member agency caucuses, working groups and governing boards and in doing so have introduced the elements of the proposal to many nonmember retail agencies that are in the Metropolitan service area. The discussions, suggestions, and comments expressed by the member agencies during this process have contributed significantly to the recommended staff proposal in this report.

Guiding Principles

The 1999 Water Surplus and Drought Management Plan did not include a Water Supply Allocation Plan or implementation approach. It did include a set of principles and considerations for staff to address when developing a specific plan. The WSDM Plan included a guiding principle to be followed in developing any future allocation scheme. As stated in the WSDM plan:

*“Metropolitan will encourage storage of water during periods of surplus and *work jointly with its Member Agencies to minimize the impacts of water shortages on the region's retail consumers and economy during periods of shortage.*”¹*

This principle reflects a central desire for allocation schemes that are both equitable and which minimize regional hardship.

¹ WSDM Plan, p. 1. Emphasis added.

The specific considerations postulated by the WSDM Plan to accomplish an equitable regional allocation of Metropolitan supplies during times of shortage included the following:²

- The impact on retail customers and the economy
- Allowance for population and growth
- Change and/or loss of local supply
- Reclamation/Recycling
- Conservation
- Investment in local resources
- Participation in Metropolitan's non-firm (interruptible) programs
- Investment in Metropolitan's facilities

Supply Allocation Formula and Implementation Elements

The key elements and methodology for calculating a supply allocation have been fully described and documented in a January 2008 Board Report titled "Staff Recommendation for a Water Supply Allocation Plan". A revised version of the attachment to that report is provided as the proposed plan in [Attachment 1](#). In general, the methodology follows these steps:

1. Determine an agency's need for wholesale water supplies by using a historical Base Period and adjusting for growth and changes in local supplies.
2. Provide an across-the-board allocation of wholesale supplies based on the declared regional shortage of water.
3. Provide an additional allocation of supplies based on the agency's dependence on Metropolitan supplies to account for disparate retail level impacts (only in shortages greater than 10 percent).
4. Provide an additional credit reflective of the amount of conservation savings established within the member agency and on the estimated retail level shortage being experienced by the member agency.

Once the allocations are set for each agency for a given year, the following implementation elements would apply:

1. A supply allocation level would be declared by a board action through the Water Planning and Stewardship Committee at the April Board meeting.
2. The supply allocation level would be in place for a twelve month period from July through the following June.
3. A penalty will be used to enforce the allocations, with all accrued penalties collected at the end of the allocation year under the water rate schedules in effect at that time.

Staff has prepared estimated impacts to each Member Agency under three scenarios of Regional Shortage Levels. These estimated impacts were distributed to the Member Agencies and to the Board of Directors following the Member Agency Managers' Meeting held on January 11, 2008. A refined analysis was distributed to member agencies on January 23, 2008 at a water supply allocation meeting. These scenarios are provided with this letter as [Attachment 2](#).

As a result of input from the Water Planning and Stewardship Committee and from two subsequent Member Agency meetings, the attached plan would be implemented in the following manner:

1. There will be a formal revisit of the Water Supply Allocation Plan commencing in the third year following Board approval. In the January 2008 Staff Recommendation, this was referred to as a "sunset clause", but the intent is not to set an expiration date for the plan, but to re-evaluate the plan and recommend appropriate changes to the Board by a date certain.

² WSDM Plan, p. 2.

2. Reflecting comments at the January 2008 Water Planning and Stewardship Committee meeting, the price for water provided under the Interim Agricultural Water Program (IAWP) would not be addressed as part of this Water Supply Allocation Plan. The committee requested that a comprehensive review of the IAWP program and pricing components be brought back at a later date for a complete discussion of the future of that program.
3. The Allocation Year is set for 12 months, from July through June. This is to account for the preparations that agencies will need to make following the potential declaration of a shortage at an April Board meeting.
4. The Appeal Process is clarified to allow Member Agencies who are denied appeals at the Metropolitan staff level to request forwarding of that appeal to the Board for a final determination.
5. Loss of Local Supply submittals will be requested from the Member Agencies by April 1. This is to facilitate the determination of the appropriate Regional Shortage Level.

Conclusion

The recommended Water Supply Allocation Plan and implementation elements have been developed through a six-month process in cooperation with the member agencies. The proposal addresses the Principles and Considerations for Allocation approved by the Board through the 1999 WSDM Plan, and is intended as an equitable approach for allocating supplies and minimizing regional impacts should the need arise.

Policy

By Minute Item 45841, dated July 13, 2004, the Board adopted the Integrated Water Resources Program Update.

By Minute Item 43514, dated April 13, 1999, the Board adopted the Water Surplus and Drought Management Plan.

By Minute Item 44005, dated June 17, 2000, the General Manager has the authority to reduce Interim Agriculture Water Program deliveries up to 30 percent prior to imposing any mandatory allocation under the Water Surplus and Drought Management Plan.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed actions are categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves a water allocation plan related to existing public facilities involving negligible or no expansion of use and no possibility of significantly impacting the physical environment. Furthermore, the plan is intended to promote conservation during periods of water shortage and therefore is consistent with Metropolitan's responsibilities and authorities under Section 130.5 of the MWD Act and Section 375 of the Water Code. Accordingly, the proposed actions qualify under Class 1, Class 7, and Class 8 Categorical Exemptions (Sections 15301, 15307 and 15308 of the State CEQA Guidelines). In addition, to the extent this allocation plan serves as the basis for the urban water shortage contingency analysis required under Water Code Section 10631 and is incorporated into Metropolitan's RUWMP, its preparation adoption and implementation are statutorily exempt from CEQA, as set forth in Water Code Section 10652. Finally, the fiscal aspects of the plan are not subject to CEQA because they involve other government fiscal activities, which do not involve any commitment to any specific project, which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines). Any specific programs/projects implemented in response to this allocation plan would require separate CEQA review.

The CEQA determination is: Determine that pursuant to CEQA, the proposed actions qualify under three Categorical Exemptions (Class 1, Section 15301; Class 7, Section 15307; and Class 8, Section 15308 of the State CEQA Guidelines). In addition, the plan is statutorily exempt from CEQA, as set forth in Water Code Section 10652. Finally the fiscal aspect of the plan is not subject to CEQA (Section 15378(b)(4) of the State CEQA Guidelines).

Board Options

Option #1

Adopt the CEQA determination and approve the proposed Water Supply Allocation Plan and implementation elements with a review date of February 1, 2010.

Fiscal Impact: None directly related to adoption or implementation of plan

Business Analysis: Metropolitan must have a plan in place for responding to likely future water shortages due to drought and new Bay-Delta pumping restrictions.

Option #2

Do not approve the proposed Water Supply Allocation Plan and implementation elements and direct staff to develop an alternative proposal.

Fiscal Impact: None

Business Analysis: Possible delays in Metropolitan’s ability to respond adequately to potential water shortages in 2008

Option #3

Do not adopt the Water Supply Allocation Plan.

Fiscal Impact: None

Business Analysis: Inability to respond adequately to future water shortages

Staff Recommendation

Option #1



Stephen N. Arakawa
Manager, Water Resource Management

1/31/2008

Date



Jeffrey Hightlinger
General Manager

1/31/2008

Date

Attachment 1 – Water Supply Allocation Plan: Formula

Attachment 2 – 2008 Supply Allocation Plan Scenarios

Water Supply Allocation Plan: Formula

This attachment provides a detailed overview of the elements that are needed to calculate a member agency's allocation under the recommended Supply Allocation Plan. Following the overview, a detailed example is provided showing how these key objectives are implemented in calculating an allocation.

Base Period Calculations

The first phase in estimating retail demands and wholesale water needs in the allocation year is to establish a historical base period with established water supply and delivery data. The base period for each of the different categories of demands and supplies is calculated using data from the three most recent non-shortage years; exceptions to this methodology are noted in the following descriptions of base period calculations.

Base Period Wholesale Demands: Firm demands on Metropolitan for the base period are calculated using a three-year average of full-service, seawater barrier, seasonal shift, and surface storage operating agreement demands.

Base Period Local Supplies: Local supplies for the base period are calculated using a three-year average of groundwater production, groundwater recovery, Los Angeles Aqueduct supply, surface-water production, and other imported supplies. Non-potable recycling production is not included in this calculation. (This is to address the impact of demand hardening due to recycled water use).

Base Period Retail Demands: Total retail municipal and industrial (M&I) demands for the base period are calculated by adding the Base Period Demands on Metropolitan, and the Base Period Local Supplies.

Base Period In-lieu Deliveries: Base period in-lieu deliveries to member agency storage are calculated using a three-year average of in-lieu deliveries to long-term groundwater replenishment, conjunctive use, cyclic, and supplemental storage programs.

Base Period IAWP Deliveries: Through discussions with the member agencies, fiscal year 2003/04 was established as the base period for IAWP deliveries. This baseline will remain in place for the period in which the IAWP reduction is in effect, and for droughts continuing into successive years.

Base Period Conservation: Conservation savings for the base period are calculated using modeled estimates of the most recent year's savings from active, passive, and system losses. Note that this is different than other Base Period calculations, which used three-year averages. This is because, for demand hardening purposes, it is preferable to use the most recent estimate of installed water savings as opposed to a three-year average. Modeled estimates are generated using device-based savings and decay rates provided by California Urban Water Conservation Council and other recognized sources. These estimates currently include savings accumulated from Metropolitan funded programs. Agencies with verified conservation device installations from conservation efforts funded without Metropolitan assistance can be added through an appeals process.

Retail Water Rate Conservation: An additional consideration will be given to agencies whose retail use is subject to a qualifying conserving water rates structure. The qualifying rate structure is defined as one with at least two tiers of volumetric rates, with a price differential between the bottom and top tiers of at least 10 percent. Agencies will be allowed to submit a report of the percentage of their total service area retail demand that is covered by a qualifying water rate. Upon verification of the report, the agency will be given a credit of .5 percent of covered Base Period Retail Demand to be added to the Base Period Conservation estimate listed above.

Allocation Year Calculations

The next phase in estimating water needs in the allocation year is to adjust the base period estimates of retail demand for population or economic growth, and to adjust for changes in local supplies.

Allocation Year Retail Demands: Total retail M&I demands for the allocation year are calculated by adjusting the Base Period Retail Demands for growth.

Growth Adjustment: The growth adjustment is calculated using the average annual rate of population growth over the three-year base period. The population growth rate is calculated using county level data generated by the California Department of Finance. On an appeals basis, Member Agencies may request that their adjustment be calculated using a weighted combination of population and employment growth rates.

Allocation Year Local Supplies: Allocation year local supplies are estimated using the base year local supplies plus Base Period In-Lieu Deliveries. In-lieu deliveries are added to reflect the corresponding reduction in base year local production that was required to take in-lieu deliveries. Adjustments are also made for gains and losses of local supply, and extraordinary increases in production over the base year. These adjustments are made to give a more accurate estimate of actual supplies in the allocation year, and in turn more accurately reflect an agency's demand for Metropolitan supplies.

Gain of Local Supply Adjustment: This adjustment accounts for planned or scheduled gains in local supply production above the base period, which are not due to extraordinary actions to increase water supply in the allocation year. These previously scheduled increases in supply programs or local production are added to the base period local supplies.

Loss of Local Supply Adjustment: This adjustment accounts for losses of local supply production from the base period. Losses of local supply, due to such things as hydrology or water quality, are subtracted from the Base Period Local Supplies. Losses of local supply that are not covered by this adjustment include groundwater losses that are less than or equal to base period replenishment deliveries (for a two year period following interruptions of replenishment deliveries) and supplies that were used to cover IAWP shortages, and are no longer available to meet firm demands.

Extraordinary Increased Production Adjustment: This adjustment accounts for extraordinary increases in local supplies above the base period. Extraordinary increases in production include such efforts as purchasing transfers or mining of groundwater basins. In order not to discourage such extraordinary efforts, only a percentage of the yield from these supplies are added back to Allocation Year Local Supplies. This has the effect of "setting aside" the majority of the yield for the agency who procured the supply. The following table shows the percentages of the Extraordinary Increases in Local Supply that are counted in each level of supply allocation.

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

Allocation Year Wholesale Demands: Demands on Metropolitan for the allocation year are calculated by subtracting the Allocation Year Local Supplies from the Allocation Year Retail Demands.

Allocation Formula and Accounting

The following table contains the elements of the allocation formula that are used in the allocation formula that is equitable on the wholesale level, while helping to minimize hardships experienced by individuals and by the regional economy at the retail level.

(1) Regional Shortage Level	(2) Regional Shortage Percentage	(3) Wholesale Minimum Allocation	(4) Retail Impact Adjustment Maximum	(5) Extraordinary Increase Percentage	(6) IAWP Reduction
1	5%	92.5%	0.0%	0%	30%
2	10%	85.0%	0.0%	0%	30%
3	15%	77.5%	7.5%	15%	40%
4	20%	70.0%	10.0%	20%	50%
5	25%	62.5%	12.5%	25%	75%
6	30%	55.0%	15.0%	30%	90%
7	35%	47.5%	17.5%	35%	100%
8	40%	40.0%	20.0%	40%	100%
9	45%	32.5%	22.5%	45%	100%
10	50%	25.0%	25.0%	50%	100%

Shortage Levels: The formula allocates shortages of Metropolitan supplies over ten levels: from 5 to 50 percent, in 5 percent increments.

Shortage Percentage: The maximum total regional shortage percentage of Metropolitan's available supplies when compared to the sum of the demands in the allocation year.

Wholesale Minimum Allocation: The Wholesale Minimum Allocation is established to ensure a minimum level of wholesale water service (Metropolitan supplies) at the member agency level, and sets the target for recognizing a member agency's ongoing investment in Metropolitan's system. The Wholesale Minimum Allocation ensures that Member Agencies will not experience shortages on the wholesale level that are greater than one-and-a-half times the percentage shortage of Metropolitan regional water supplies. The Wholesale Minimum Allocation is equal to 100 percent minus one-and-a-half times the shortage level.

Retail Impact Adjustment Maximum: The Retail Impact Adjustment Maximum is the factor used to address major differences in retail level shortages associated with across-the-board cuts. The purpose of this adjustment is to ensure that agencies with a high level of dependence on Metropolitan do not experience highly disparate shortages compared to other agencies when faced with a reduction in wholesale water supplies. The Retail Impact Adjustment Maximum factor is calculated as the difference between the Regional Shortage Percentage and the Wholesale Minimum Allocation. The amount of the adjustment each member agency receives is prorated on a linear scale, based on its dependence on Metropolitan at the retail level. The prorated amount of allocation is referred to as the Retail Impact Adjustment Allocation. For agencies that are 100 percent dependent on Metropolitan, this method will result in an allocation of Metropolitan supplies that, at the retail level, will result in a shortage equal to the Regional Shortage Percentage. In other words, through this allocation, no agency will experience a greater percentage shortage than the regional shortage percentage. This adjustment is only applied when Metropolitan shortage levels are three or greater.

Conservation Demand Hardening Credit: The Conservation Demand Hardening Credit is used to address the increased difficulty in achieving additional water savings at the retail level that comes as a result of successful implementation of water conserving devices. The credit is calculated by multiplying an agency's quantified conservation savings (in acre-feet) by its estimated retail shortage percentage prior to applying the credit.

M&I Allocation: The allocation of Metropolitan supplies to an agency for its Municipal and Industrial retail demand is the sum of the Wholesale Minimum Allocation, the Retail Impact Adjustment, and the Conservation Demand Hardening Credit.

IAWP Allocation: The IAWP allocation is calculated by decreasing the base year IAWP deliveries by the percent IAWP reduction.

Total Allocation: The total allocation of Metropolitan supplies to an agency is calculated by adding together the M&I Allocation and the IAWP Allocation.

Allocation Example – Calculating Base Period Information to Determine Allocation Year Needs

The following example gives a step-by-step description of how the recommended formula would be used to calculate an allocation of Metropolitan supplies for a hypothetical member agency.

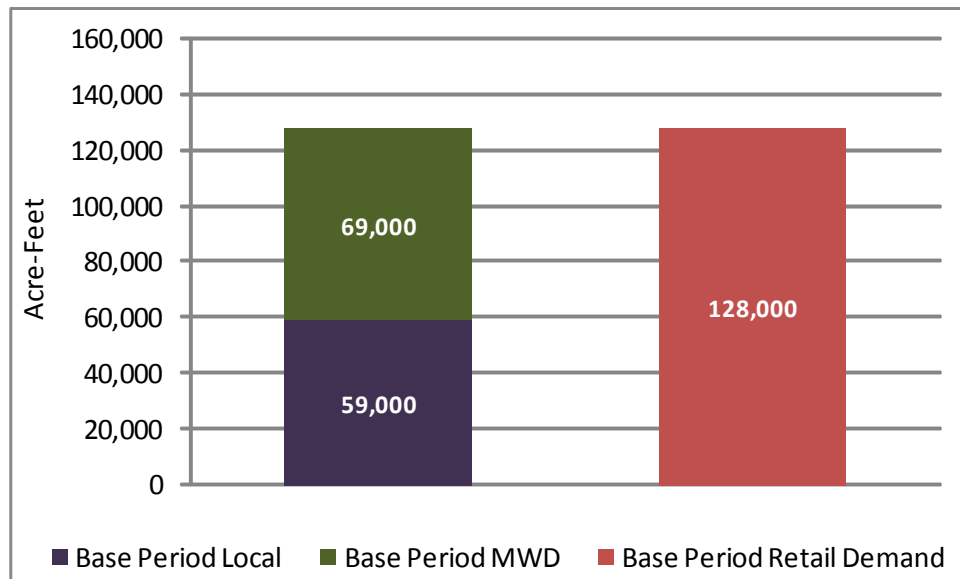
Step 1: Calculate Base Period Retail Demand

The first step in developing an agency’s allocation is to estimate the agency’s retail level water needs. Two pieces of information are required to calculate retail level water needs: (1) The amount of local supplies that were produced in the base period, and (2) The amount of MWD demands in the base period.

Base Period Local Supplies are calculated using a three-year average of groundwater, groundwater recovery, Los Angeles Aqueduct supply, surface water, and other non-Metropolitan imported supplies. For the example, this agency had an average local supply in the Base Period of 59,000 acre-feet.

Base Period Wholesale Demands on Metropolitan are calculated using the same three-year time period as the Base Period Local Supplies. The Base Period Wholesale Demands on Metropolitan include full-service, seawater barrier, seasonal shift, and surface storage operating agreement. For the example, this agency had a combined average wholesale demand on Metropolitan of 69,000 acre-feet.

Base Period Retail Demand can be calculated once the information described above has been calculated. The sum of the Base Period Local Supplies and the Base Period Wholesale Demands equals the Base Period Retail Demand. For the example, this agency had a Base Period Retail Demand of $59,000 + 69,000 = 128,000$.

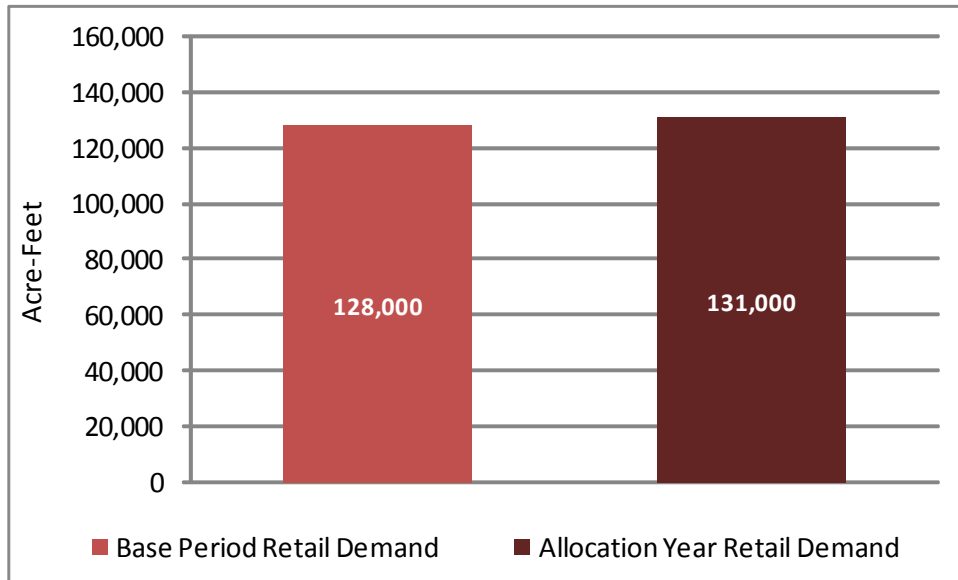


Step 2: Adjust Base Period Retail Demand for Growth

The second step in developing an agency’s allocation is to adjust the Base Period Retail Demand for growth that occurred since the Base Period. The growth adjustment is calculated using the average annual rate of county-level

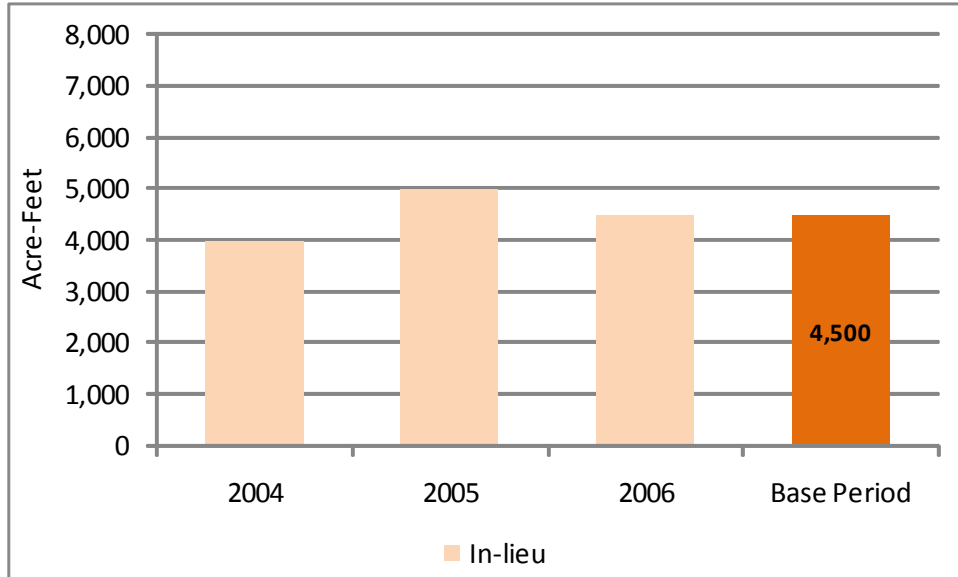
population growth over the three-year base period, or using a weighted combination of population and employment growth rates if an agency so requests through the appeals process.

Allocation Year Retail Demand is the result of applying the growth adjustment to the Base Period Retail Demand. It represents a reasonable estimate of the total amount of firm water that an agency needs at the retail level in the year of allocation. In the chart below, the Base Period Retail Demand is adjusted upwards by 3,000 acre-feet based on average annual growth rates, resulting in an Allocation Year Retail Demand of 131,000 acre-feet.



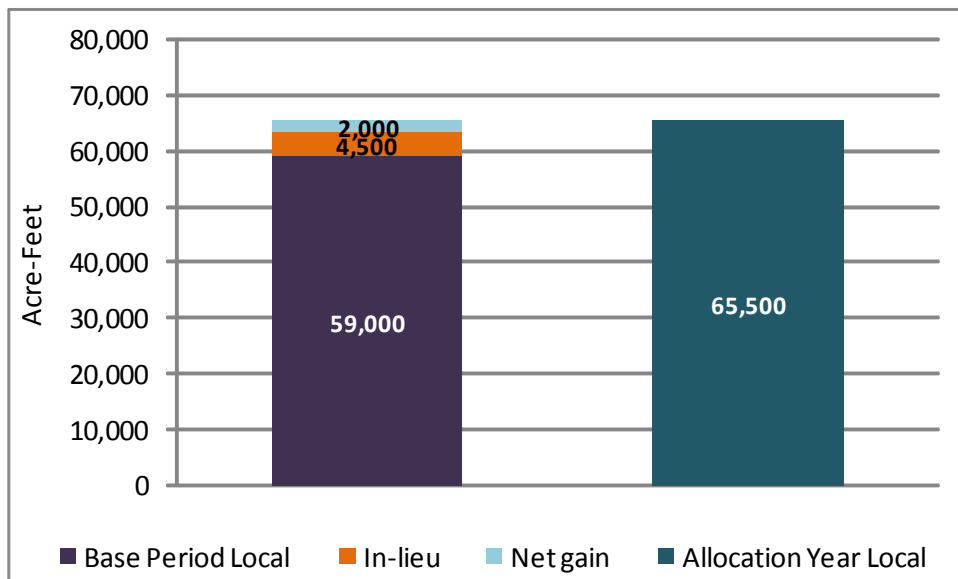
Step 3: Adjustment for changes in local supply from the Base Period

The third step in calculating this agency’s allocation is to calculate the agency’s local supply production in the year of the allocation. This is done by using Base Period Local Supplies that were calculated in Step One as a base estimate, and adding back base period in-lieu deliveries and any gains or losses. Base Period In-Lieu Deliveries are calculated by averaging in-lieu deliveries from the same three-year period that was used to calculate the Base Period Local Supplies and Demands. This step is important because, in order to have certified in-lieu deliveries in the Base Period, an agency had to have reduced its available local supplies. Missing this step would underestimate the amount of local supplies that an agency should be expected to produce.



In addition to adding in base period in-lieu deliveries, the Base Period Local Supplies are adjusted for gains and/or losses of supply that are occurring in the allocation year. If this agency had undertaken extraordinary efforts to secure alternative supplies, this Extraordinary Increase in Local Supplies would also be added here.

Allocation Year Local Supplies are the result from adjusting the Base Period Local Supply for all of the changes listed above. The following chart shows how Base Year Local Supplies, Base Year In-Lieu Deliveries, and adjustments for gains or losses of supply are added together to produce an estimate of the Allocation Year Local Supplies. The chart below shows that an agency that had 59,000 acre-feet of Base Year Local Supplies, 4,500 acre-feet of Base Year In-Lieu Deliveries, and 2,000 acre-feet of net gains in local supply would have Allocation Year Local Supplies of 65,500 acre-feet.

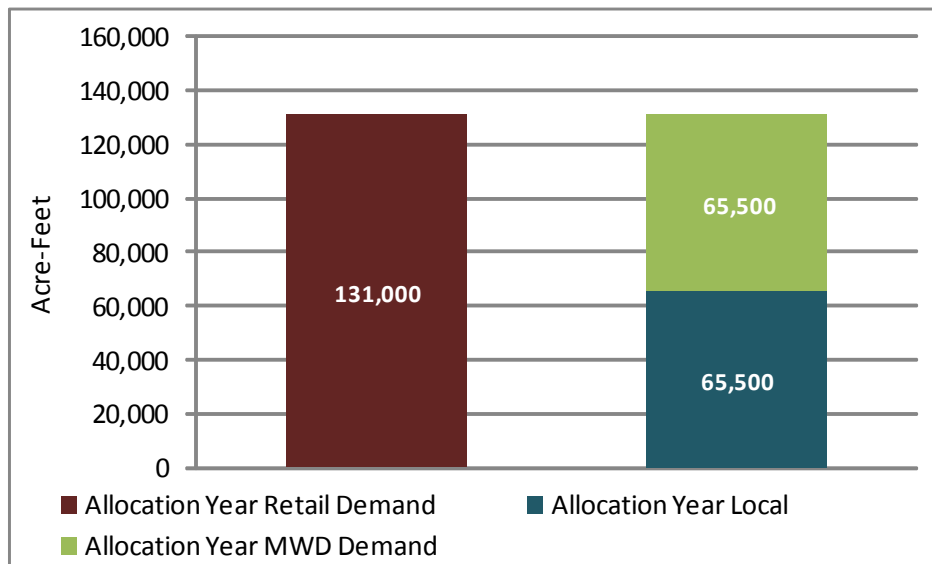


Step 4: Calculate Wholesale Water Needs in the Allocation Year

Now that both the Allocation Year Retail Demands and the Allocation Year Local Supplies have been estimated, the agency’s Allocation Year Wholesale Demand can be calculated.

Allocation Year Wholesale Demands on Metropolitan are calculated by subtracting the Allocation Year Local Supplies from the Allocation Year Retail Demands. Any demand that is remaining after the agency’s local supplies are accounted for represents demand for wholesale supplies from Metropolitan. For the example, the agency has an Allocation Year Retail Demand of 131,000 acre-feet and an Allocation Year Local Supply of 65,500 acre-feet. Subtracting these two figures provides Allocation Year Wholesale Demands of 65,500 acre-feet.

Dependence on MWD is calculated as the percentage of an agency’s retail need that is met by Metropolitan wholesale supplies. This example shows that 50 percent of this hypothetical agency’s Allocation Year Retail Demands will be met by local supplies and 50 percent by wholesale Metropolitan deliveries, resulting in a Dependence on MWD of 50 percent.



Step 4: Calculate Base Period Conservation Savings

Estimating conservation savings is a key step in calculating the appropriate size of the Conservation Demand Hardening Credit. The premise of the credit is to provide additional allocation to an agency based on estimates of conservation savings. Successful implementation of conservation saving devices make it more difficult for retail level consumers to achieve additional reductions in water use compared to those consumers who have not installed water savings devices.

Base Period Conservation is calculated using a tool developed by Metropolitan staff. This tool uses as inputs the total amount of conservation savings devices and programs installed by each member agency, and standardized water savings factors provided by the CUWCC and other recognized bodies. In addition, agencies that have retail use that is covered by a qualifying conserving water rates structure would be able to add .5 percent of their covered Base Period Retail Demand to the Base Period Conservation. For the example, the agency is estimated to have 14,500 acre-feet of quantified conservation savings.

Allocation Example – Calculating Supply Allocation in Regional Shortage Levels 1 & 2

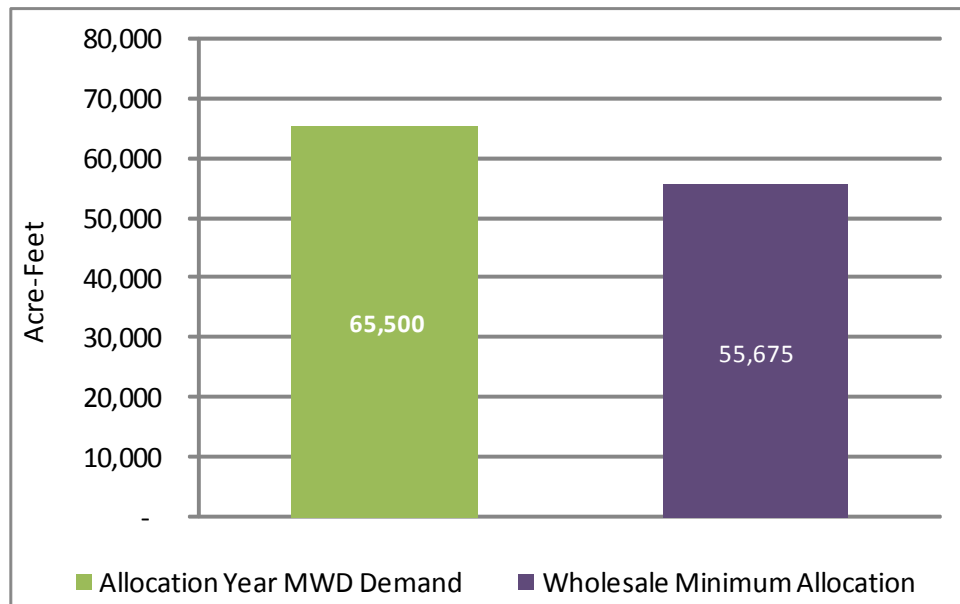
For shallow regional shortages, which are defined as being 10 percent or less, the allocation is essentially an across-the-board reduction in the wholesale supplies to all agencies, with adjustments for conservation demand hardening. The across the board reduction will be set by providing a Wholesale Minimum Allocation and a Conservation Demand Hardening Credit. There is no adjustment to address disparate retail level shortages in Shortage Levels 1 & 2. This example will follow the allocation formula accounting, through a Regional Shortage Level-2

(10 percent). The table below shows the essential elements of the allocation formula under a Regional Shortage Level-2.

(1) Regional Shortage Level	(2) Regional Shortage Percentage	(3) Wholesale Minimum Allocation	(4) Retail Impact Adjustment Maximum	(5) Extraordinary Increase Percentage	(6) IAWP Reduction
2	10%	85.0%	0.0%	0%	30%

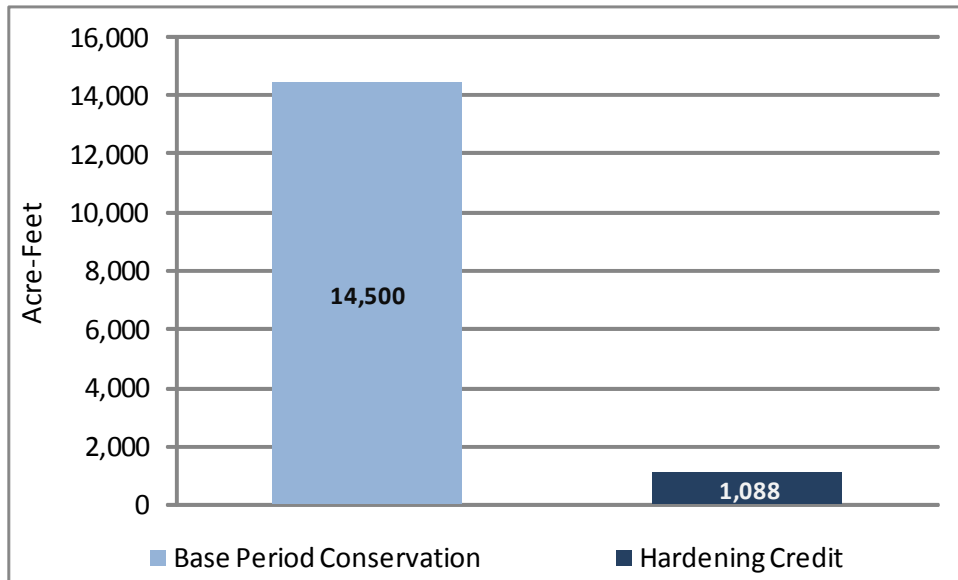
Step 1: Calculate Wholesale Minimum Allocation

The Wholesale Minimum Allocation is calculated by multiplying the agency’s Allocation Year Wholesale Demand by the Wholesale Minimum Allocation percentage from the allocation table. The following chart illustrates this calculation. The agency has an Allocation Year Wholesale Demand of 65,500 acre-feet, and the allocation table provides a factor of 85 percent in a Regional Shortage Level-2. Based on this, the agency would receive a Wholesale Minimum Allocation of $.85 \times 65,500 = 55,675$ acre-feet.



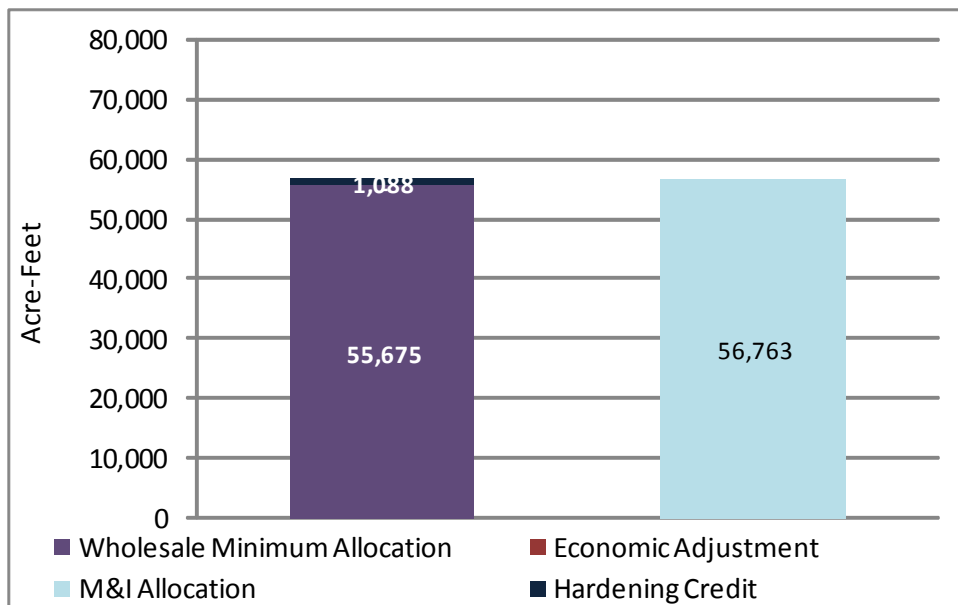
Step 2: Calculate Conservation Hardening Credit

The Conservation Hardening Credit is calculated by multiplying the agency’s Base Year Conservation savings by the estimated retail level shortage for the agency. From the steps above, this agency has a Wholesale Minimum Allocation of 55,675 acre-feet, Allocation Year Local Supplies of 65,500 acre-feet, and Allocation Year Retail Demands of 131,000 acre-feet. To calculate the estimated retail level shortage prior to receiving the Conservation Hardening Credit, add the Wholesale Minimum Allocation, the Retail Impact Adjustment Allocation, and the Allocation Year Local Supplies, divide by the Allocation Year Retail Demand, and subtract the result from 100%. Doing so results in an estimated retail level shortage of $100\% - ((55,675 + 65,500) / 131,000) = 100\% - 92.5\% = 7.5\%$. Multiplying this agency’s Base Period Conservation savings of 14,500 acre-feet by 7.5% of estimated retail level shortage provides the Conservation Hardening Credit of 1,087.5 acre-feet.



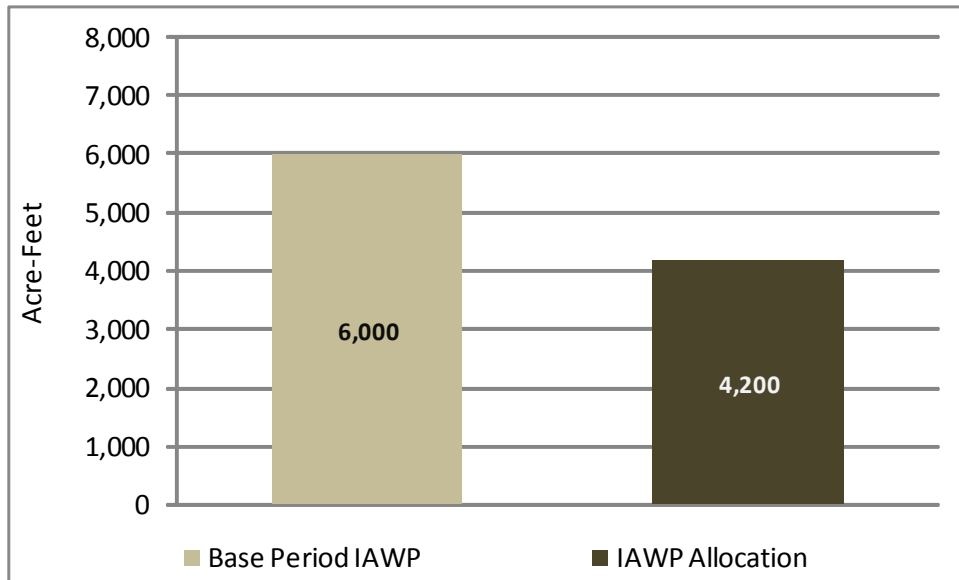
Step 3: Add the Wholesale Minimum Allocation and the Conservation Hardening Credit to get the final M&I agency allocation

The chart below shows how the Wholesale Minimum Allocation of 55,675 acre-feet and the Conservation Hardening Credit of 1,087.5 acre-feet are added together to total the final M&I allocation of 56,762.5 acre-feet.



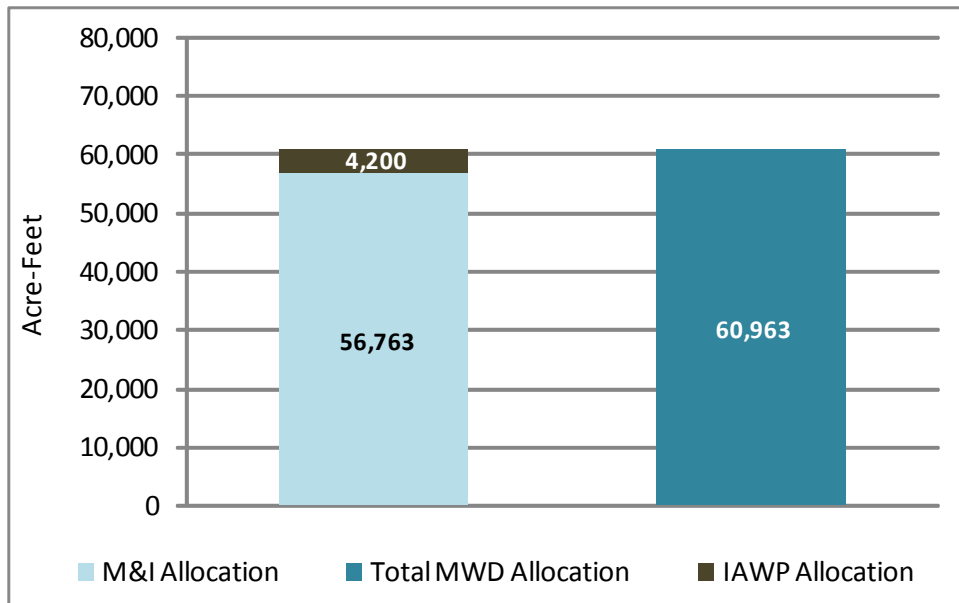
IAWP Allocation

The IAWP allocation for this agency is calculated by reducing the Base Year IAWP deliveries by the percent IAWP reduction. Under a Regional Shortage Level-2 (10 percent) this agency would see a 30 percent reduction in IAWP deliveries in the allocation year. For this agency, this would result in an IAWP Allocation of $6,000 \times .7 = 4,200$ acre-feet. The following chart illustrates this calculation.



Total Allocation

The final step in calculating this agency’s allocation of Metropolitan supplies is to sum up all of the elements of the allocation formula that were calculated above. In this example, the agency would receive 56,762.5 acre-feet of M&I Allocation, plus 4,200 acre-feet of IAWP Allocation, for a Total Allocation of 60,962.5 acre-feet.



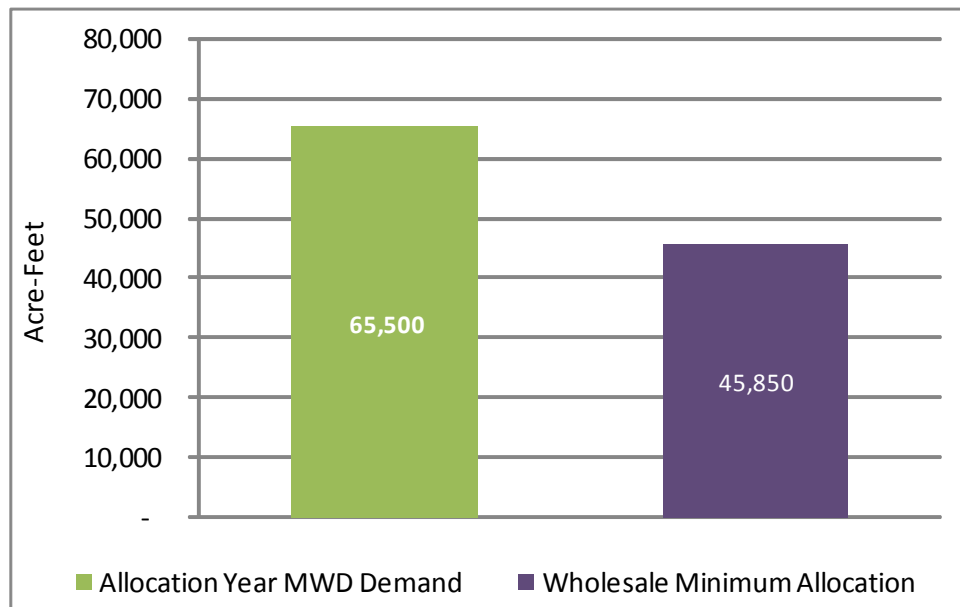
Allocation Example – Calculating Supply Allocation in Regional Shortage Levels 3 and Above

For deeper regional shortages, which are defined as being greater than 10 percent, the formula includes a Retail Impact Adjustment Allocation to address disparate retail level shortages. This example will follow the allocation formula accounting, through a Regional Shortage Level-4 (20 percent). The table below shows the essential elements of the allocation formula under a Regional Shortage Level-4.

(1) Regional Shortage Level	(2) Regional Shortage Percentage	(3) Wholesale Minimum Allocation	(4) Retail Impact Adjustment Maximum	(5) Extraordinary Increase Percentage	(6) IAWP Reduction
4	20%	70.0%	10.0%	20%	50%

Step 1: Calculate Wholesale Minimum Allocation

The Wholesale Minimum Allocation is calculated by multiplying the agency’s Allocation Year Wholesale Demand by the Wholesale Minimum Allocation percentage from the allocation table. The following chart illustrates this calculation. The agency has an Allocation Year Wholesale Demand of 65,500 acre-feet, and the allocation table provides a factor of 70 percent in a Regional Shortage Level-4. Based on this, the agency would receive a Wholesale Minimum Allocation of $.70 \times 65,500 = 45,850$ acre-feet.

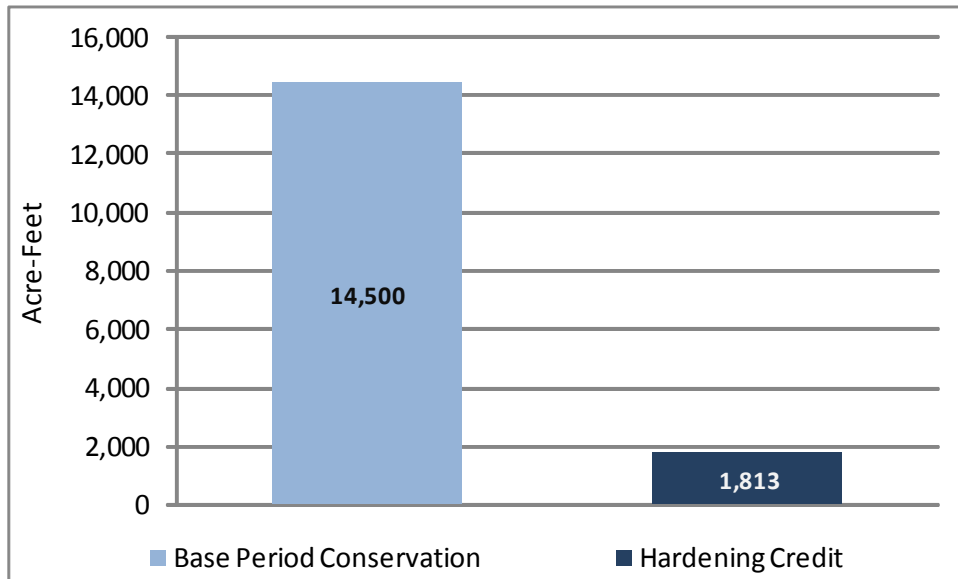


Step 2: Calculate Retail Impact Adjustment Allocation

The next step in determining this agency’s allocation is to calculate the Retail Impact Adjustment Allocation. Recall from the allocation table, the Retail Impact Adjustment Maximum factor is the difference between the Wholesale Minimum Allocation and the Regional Shortage Percentage. Under a Regional Shortage Level-4 (20 percent), the Retail Impact Adjustment Maximum factor available to any agency is 10 percent. In a previous step, this agency was calculated as having a 50 percent Dependence on MWD. Under this example the agency would receive 50 percent of the 10 percent Retail Impact Adjustment Maximum factor, equaling an additional 5 percent allocation. This 5 percent is multiplied by the agency’s wholesale demands on Metropolitan of 65,500 acre-feet, giving a total Retail Impact Adjustment Allocation of 3,275 acre-feet.

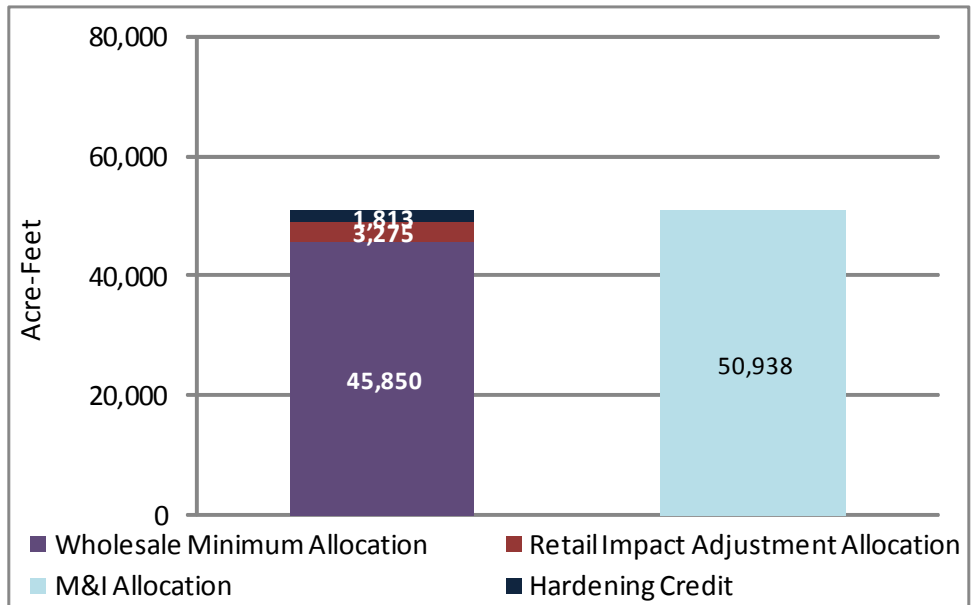
Step 3: Calculate Conservation Hardening Credit

The Conservation Hardening Credit is calculated by multiplying the agency’s Base Year Conservation savings by the estimated retail level shortage for the agency. From the steps above, this agency has a Wholesale Minimum Allocation of 45,850 acre-feet, a Retail Impact Adjustment Allocation of 3,275 acre-feet, Allocation Year Local Supplies of 65,500 acre-feet, and Allocation Year Retail Demands of 131,000 acre-feet. To calculate the estimated retail level shortage prior to receiving the Conservation Hardening Credit, add the Wholesale Minimum Allocation, the Retail Impact Adjustment Allocation, and the Allocation Year Local Supplies, divide by the Allocation Year Retail Demand, and subtract the result from 100%. Doing so results in an estimated retail level shortage of $100\% - ((45,850 + 3,275 + 65,500) / 131,000) = 100\% - 87.5\% = 12.5\%$. Multiplying this agency’s Base Period Conservation savings of 14,500 acre-feet by 12.5% of estimated retail level shortage provides the Conservation Hardening Credit of 1,812.5 acre-feet.



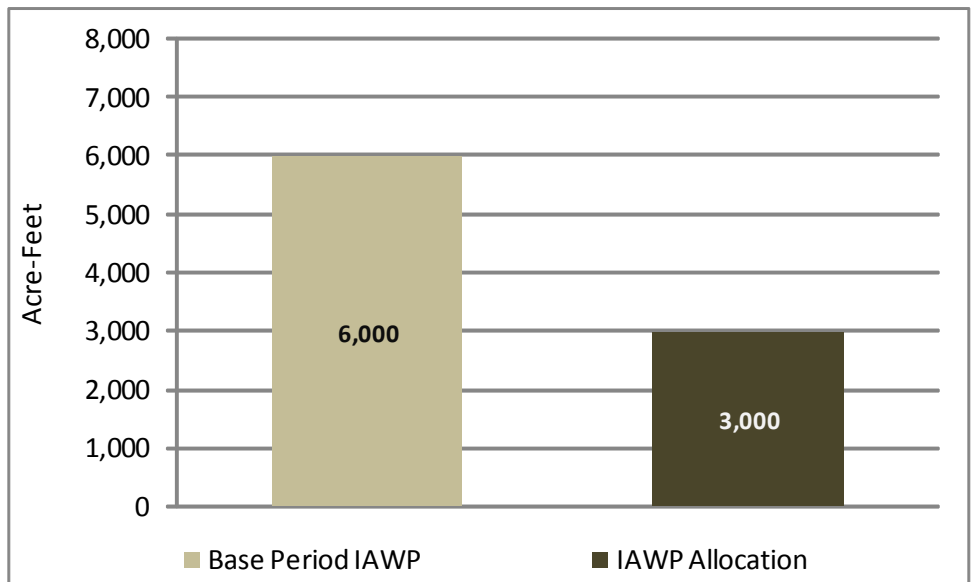
Step 4: Add the Wholesale Minimum Allocation, the Retail Impact Adjustment Allocation, and the Conservation Hardening Credit to get the final M&I agency allocation

The chart below shows how the Wholesale Minimum Allocation of 45,850 acre-feet, the Retail Impact Adjustment Allocation of 3,275 acre-feet, and the Conservation Hardening Credit of 1,812.5 acre-feet are added together to total to the final M&I allocation of 50,937.5 acre-feet.



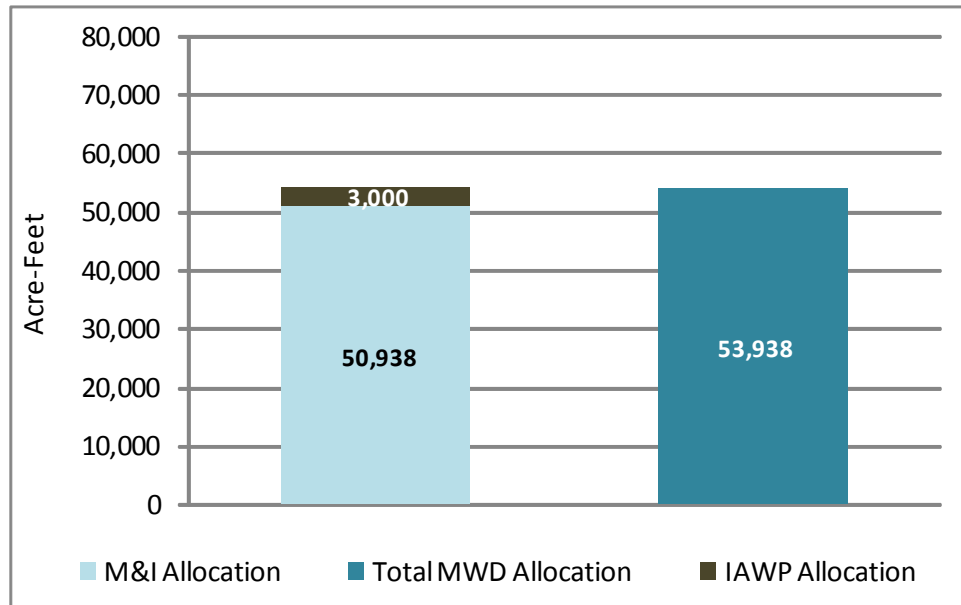
IAWP Allocation

The IAWP allocation for this agency is calculated by reducing the Base Year IAWP deliveries by the percent IAWP reduction. Under a Regional Shortage Level-4 (20 percent) this agency would see a 50 percent reduction in IAWP deliveries in the allocation year. For this agency, this would result in an IAWP Allocation of $6,000 \times .5 = 3,000$ acre-feet. The following chart illustrates this calculation.



Total Allocation

The final step in calculating this agency’s allocation of Metropolitan supplies is to sum up all of the elements of the allocation formula that were calculated above. In this example, the agency would receive 50,937.5 acre-feet of M&I Allocation, plus 3,000 acre-feet of IAWP Allocation, for a Total Allocation of 53,937.5 acre-feet.



Water Supply Allocation Plan: Implementation Elements

The following are the implementation elements that are necessary for administering an allocation plan during a time of shortage. These elements cover the processes needed to declare a shortage level as well as providing a penalty rate structure for enforcing each agency's allocation.

Allocation Period

The recommended allocation period covers twelve consecutive months, from July of a given year through the following June. This period was selected so as to minimize the impacts of varying SWP allocations. It was also selected to provide member agencies with sufficient time to implement their outreach strategies and rate modifications. Since this period is six months following the beginning of the year, Base Period calculations will be adjusted accordingly to account for growth in a member agency.

Setting the Regional Shortage Level

Metropolitan staff shall be responsible for recommending a Regional Shortage Level for Board consideration. The final recommendation shall be based on water supply availability and Metropolitan water supply management actions, storage, and transfer operations that are consistent with those outlined in the WSDM Plan adopted by the Board in 1999, and the monthly status reports provided to the Water Planning and Stewardship Committee. Metropolitan's Board, through the Water Planning and Stewardship Committee, shall be responsible for approving the final Regional Shortage Level at its April meeting. By the April meeting, the majority of the winter snowfall accumulation period will have passed, and will allow staff to make an allocation based on a stable supply picture. Barring unforeseen large-scale circumstances, the shortage level will be put in place for the entire allocation period without change. This will allow a stable planning platform for the agencies.

Allocation Appeals Process

An appeals process will be necessary for the administration of any changes or corrections to an agency's allocation. Metropolitan shall designate an Appeals Liaison as the official point of contact for all information and inquiries regarding appeals. Basis for appeals claims can include but are not limited to:

- Adjusting erroneous historical data used in base year calculations
- Adjusting for unforeseen loss or gain in local supply
- Adjusting for extraordinary increases in local supply

Small appeals, defined as those that would change an agency allocation by a threshold of less than 10 percent and less than 5,000 acre-feet, shall be evaluated and approved or denied by Metropolitan staff determination. For process transparency, Metropolitan staff shall provide a report to the Board of Directors on all submitted appeals, including the basis for determination of the outcome of the appeal. Member Agencies may request to forward appeals that are denied by Metropolitan staff to the Board of Directors through the Water Planning and Stewardship Committee for final resolution. For large appeals, defined as those that would change an agency allocation by a threshold of 10 percent and at least 5,000 acre-feet, Metropolitan staff shall refer the appeal to the Board of Directors through the Water Planning and Stewardship Committee for approval.

Allocation Penalty Rates

Member agency allocations shall be enforced through a penalty rate structure. The recommended penalty rate structure is an ascending block structure. This structure provides a lower penalty for minor overuse of allocations, and a higher penalty for major overuse of allocations. The structure and applicable rates are listed in the table below.

Use Up to and Including:	Base Water Rate	Penalty Rate	Total Rate
100% of Allocation	Tier 1*	0	Tier 1*
100% < Use <= 110%	Tier 1*	3 x Tier 2	Tier 1* + (3 x Tier 2)
Use > 110%	Tier 1*	5 x Tier 2	Tier 1* + (5 x Tier 2)

*The base water rate shall be the applicable water rate for the water being purchased. In most cases, it will be the Tier 1 rate (plus Treatment Surcharge for treated water deliveries). However, it is possible that the water being purchased would be in the amount that would put an agency beyond its Tier 1 limit. In that case, the base water rate will be the Tier 2 rate (plus Treatment Surcharge for treated water deliveries).

The penalty rates shall be based on the official Metropolitan water rates in effect the last day in June of the twelve-month allocation period. Metropolitan staff will produce monthly reports of each member agency's water use compared to allocations, based on monthly delivery patterns to be submitted by the member agency. These reports and comparisons are to be used for the purposes of tracking and communicating potential underage/overage of an agency's annual allocations. No billing or assessment of penalty rates shall take place until the end of the twelve-month allocation period. Penalty rates and charges shall only be assessed to the extent that an agency's total annual usage exceeds its total annual allocation.

Penalty Rates in Recognition of Section 135 of the MWD Act

Section 135 of the Metropolitan Water District Act declares that a member agency has the right to invoke its preferential right to water. Each year, Metropolitan calculates each agency's percentage of preferential rights based on a formula of collected cumulative revenues. A table of the percentages of preferential rights, as of July 2007, follows.

Member Agency	Percent of Total Preferential Right
City of Beverly Hills	1.01%
City of Burbank	0.95%
Central Basin MWD	7.62%
City of Compton	0.26%
Foothill MWD	0.68%
City of Glendale	1.28%
Las Virgenes MWD	0.78%
City of Long Beach	2.57%
City of Los Angeles	21.16%
City of Pasadena	1.08%
City of San Fernando	0.10%
City of San Marino	0.20%
City of Santa Monica	0.89%
Three Valleys MWD	2.59%
City of Torrance	1.18%
Upper San Gabriel MWD	3.81%
West Basin MWD	8.19%
City of Anaheim	0.95%
City of Fullerton	0.59%
MWD of Orange County	14.00%
City of Santa Ana	0.77%
Eastern MWD	3.05%
Western MWD	3.58%
Inland Empire Utilities Agency	2.45%
San Diego CWA	16.46%
Calleguas MWD	3.80%

There is a discounted penalty rate schedule in recognition of these preferential rights. As part of the determination of a Regional Shortage Level, Metropolitan staff shall also calculate an allocation of a like amount of water supply to each member agency based on its most recently adopted percent of total preferential rights. Member agencies exceeding their allocations under the Water Supply Allocation Plan formula but not exceeding an equivalent calculation using preferential rights shall be subject to the penalty rate schedule below:

Use Up to and Including:	Base Water Rate	Penalty Rate	Total Rate
100% of Allocation	Tier 1*	0	Tier 1*
100% < Use <= 110%	Tier 1*	2 x Tier 2	Tier 1* + (2 x Tier 2)
Use > 110%	Tier 1*	4 x Tier 2	Tier 1* + (4 x Tier 2)

*The base water rate shall be the applicable water rate for the water being purchased. In most cases, it will be the Tier 1 rate (plus Treatment Surcharge for treated water deliveries). However, it is possible that the water being purchased would be in the amount that would put an agency beyond its Tier 1 limit. In that case, the base water rate will be the Tier 2 rate (plus Treatment Surcharge for treated water deliveries).

As previously stated, the penalty rates shall be based on the official Metropolitan water rates in effect the last day in June of the twelve-month allocation period. Metropolitan staff will include equivalent preferential rights calculations in monthly reports of each member agency’s water use compared to allocations.

Interim Agricultural Water Program Reductions and Rates

Column 6 in the following table shows the relationship of interruptions in the Interim Agricultural Water Program to allocations of supply to firm demands. This relationship is consistent with the last board approved allocation plan (1995 Drought Management Plan).

(1) Regional Shortage Level	(2) Regional Shortage Percentage	(3) Wholesale Minimum Allocation	(4) Retail Impact Adjustment Maximum	(5) Extraordinary Increase Percentage	(6) IAWP Reduction
1	5%	92.5%	0.0%	0%	30%
2	10%	85.0%	0.0%	0%	30%
3	15%	77.5%	7.5%	15%	40%
4	20%	70.0%	10.0%	20%	50%
5	25%	62.5%	12.5%	25%	75%
6	30%	55.0%	15.0%	30%	90%
7	35%	47.5%	17.5%	35%	100%
8	40%	40.0%	20.0%	40%	100%
9	45%	32.5%	22.5%	45%	100%
10	50%	25.0%	25.0%	50%	100%

Certified IAWP use will pay the approved discounted rate for water taken in accordance with this reduction schedule. Penalty rates for noncompliance with this reduction schedule shall be consistent the rates described for with Administrative Code Section 4907.

2008 Supply Allocation Scenarios - January 22, 2008

Sample Scenarios: The following three supply allocation scenarios show individual Member Agency allocations under the proposed formula, at 10%, 20%, and 40% regional shortages. Each scenario provides a comparison of the proposed allocation to the preferential rights allocation, and an equivalent across the board allocation. These scenarios include adjustments for demand growth from the base period, but do not include adjustments for gains and/or losses of local supply, or adjustments for extraordinary increases in supply.

1. Level 2 Regional Shortage

- Shallow shortage example
- No retail impact adjustment
- No sharing of extraordinary increases in supply

Regional Shortage Level	Regional Shortage Percentage	Wholesale Minimum Allocation	Retail Impact Adjustment Maximum	Extraordinary Increase Percentage	IAWP Reduction
2	10%	85.0%	0.0%	0%	30%

2. Level 4 Regional Shortage

- Moderate shortage example
- Includes retail impact adjustment
- Includes sharing of extraordinary increases in supply

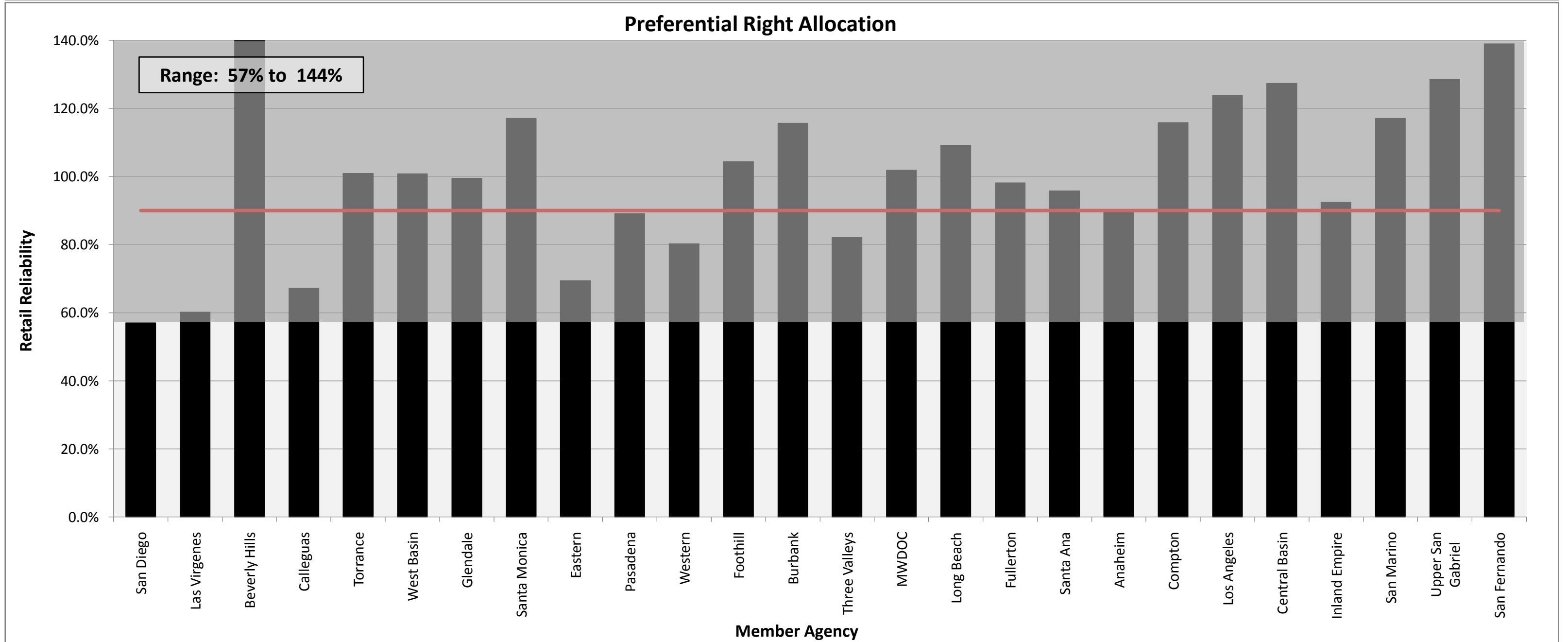
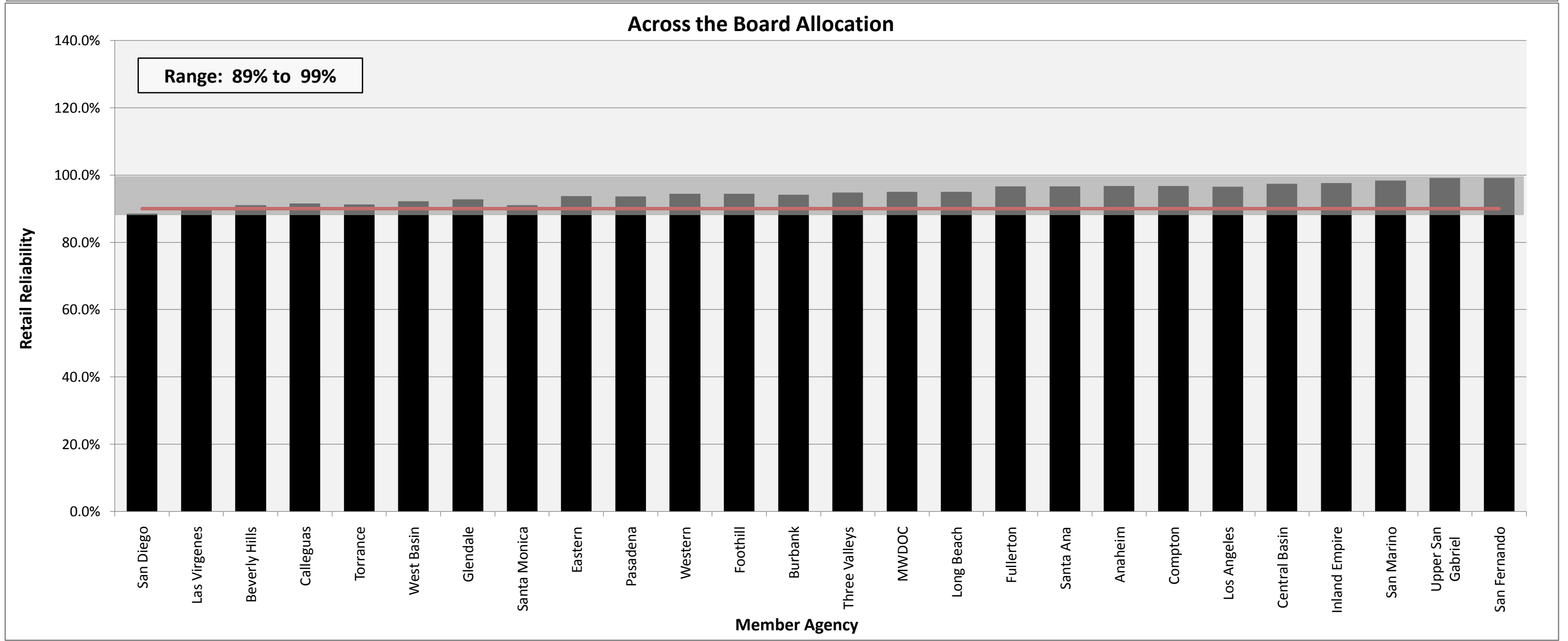
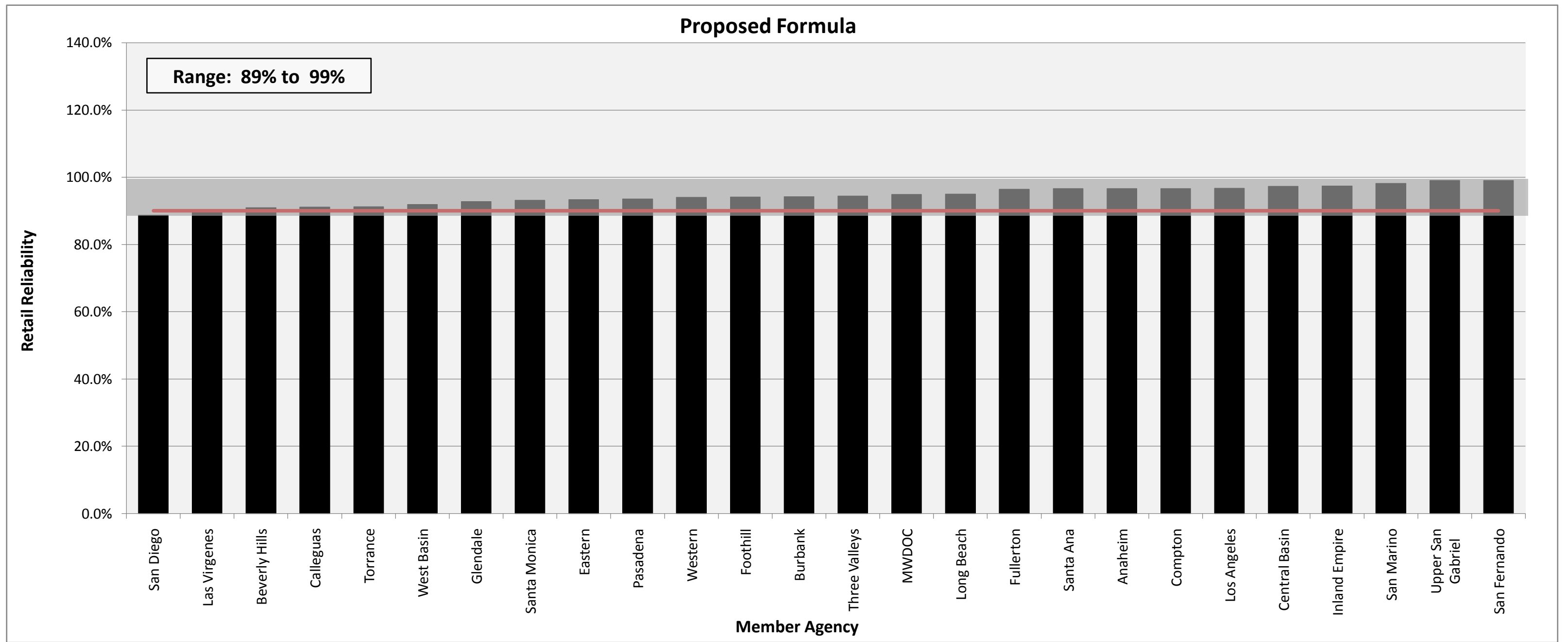
Regional Shortage Level	Regional Shortage Percentage	Wholesale Minimum Allocation	Retail Impact Adjustment Maximum	Extraordinary Increase Percentage	IAWP Reduction
4	20%	70.0%	10.0%	20%	50%

3. Level 8 Regional Shortage

- Deeper shortage example
- Includes retail impact adjustment
- Includes sharing of extraordinary increases in supply
- Illustrates 100% IAWP reduction

Regional Shortage Level	Regional Shortage Percentage	Wholesale Minimum Allocation	Retail Impact Adjustment Maximum	Extraordinary Increase Percentage	IAWP Reduction
8	40%	40.0%	20.0%	40%	100%

2008 Supply Allocation Scenarios: Level 2 Regional Shortage (10%)
January 22, 2008



2008 Supply Allocation Scenarios: Level 2 Regional Shortage (10%)

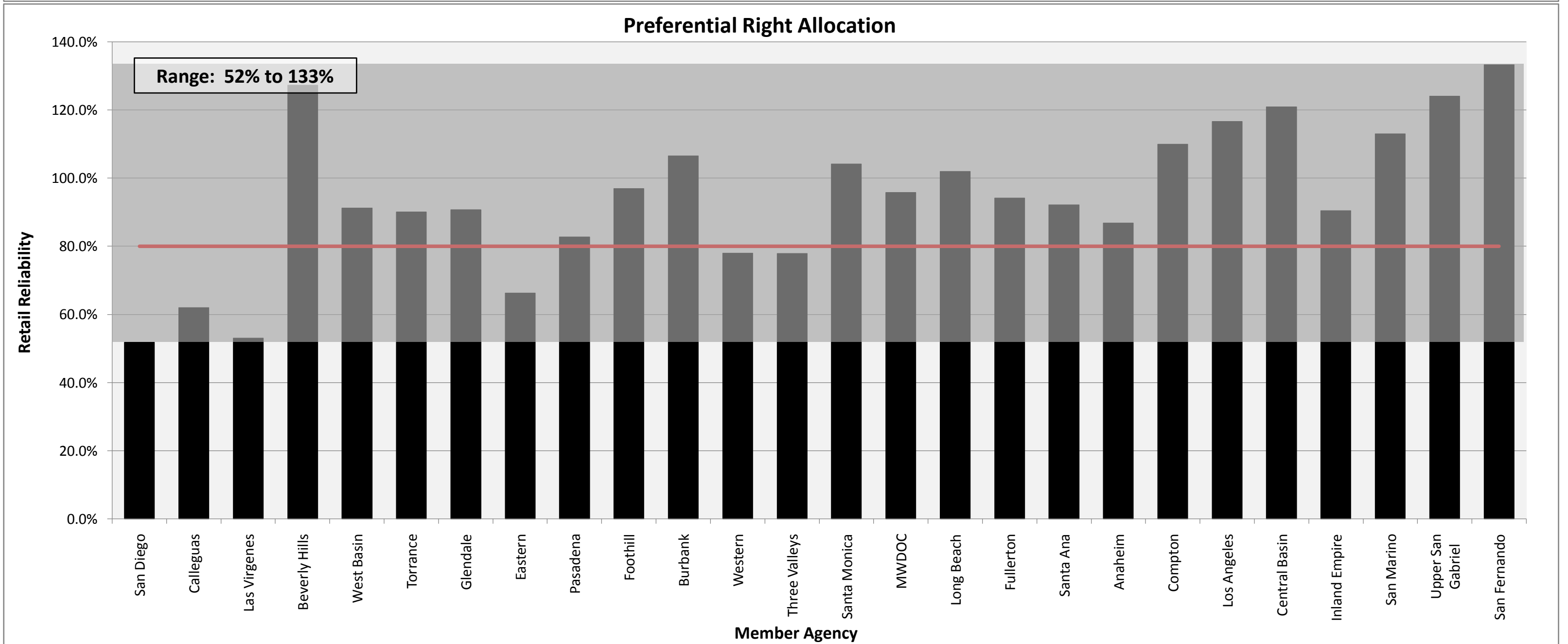
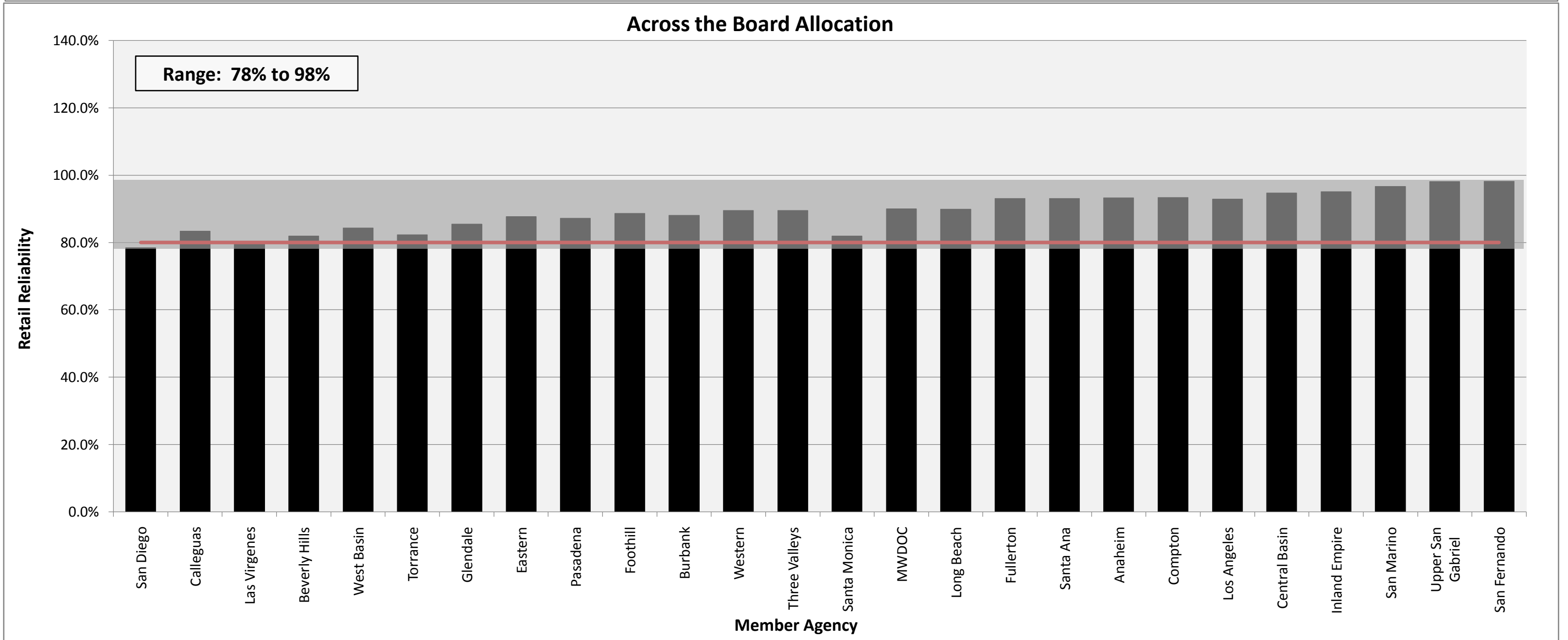
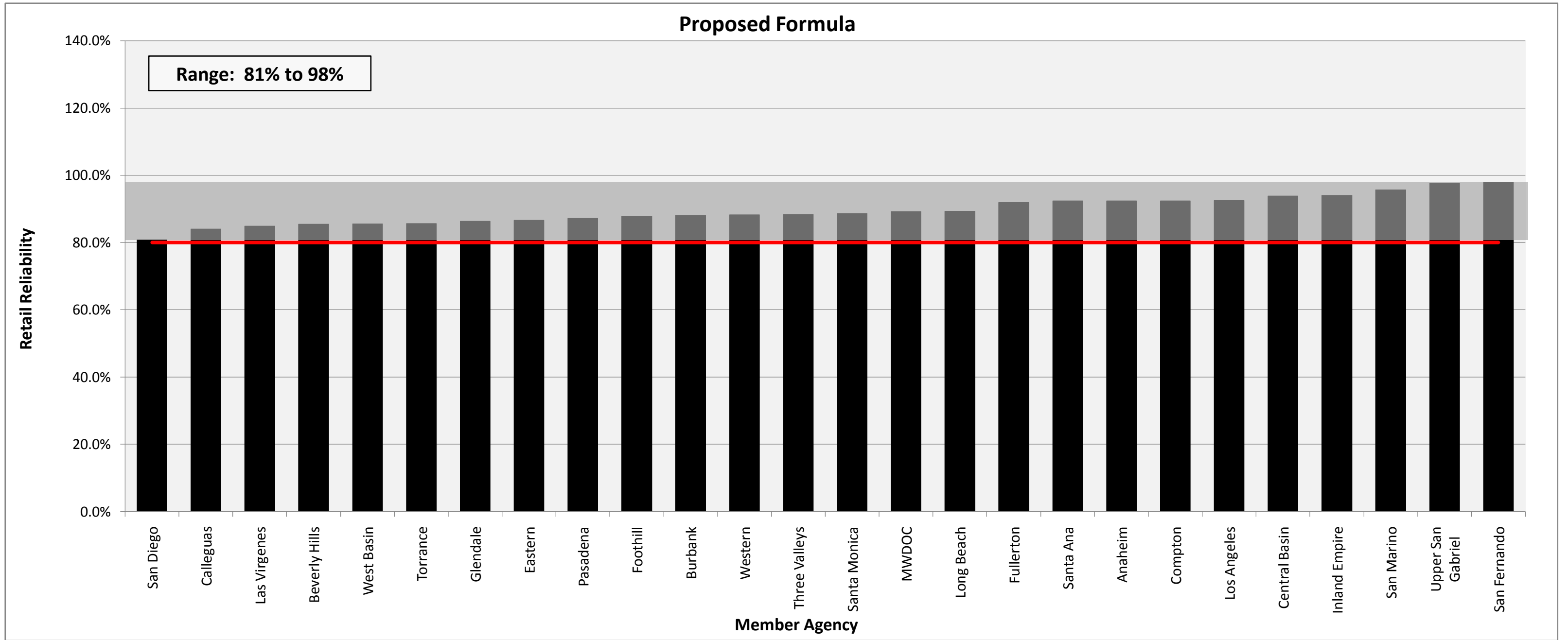
January 22, 2008

Allocation Comparison

Chart Data - Ranked by Retail Reliability Under the Proposed Formula

Member Agency	Percent Conservation	Dependence on MWD	Proposed Formula	Across the Board	Preferential Rights
San Diego	12.1%	83.8%	88.7%	88.5%	57.1%
Las Virgenes	7.6%	98.6%	89.6%	90.0%	60.2%
Beverly Hills	9.8%	90.4%	90.9%	91.0%	143.5%
Calleguas	7.4%	75.2%	91.2%	91.5%	67.3%
Torrance	10.6%	88.4%	91.2%	91.2%	101.0%
West Basin	8.1%	78.3%	91.9%	92.2%	100.9%
Glendale	10.2%	72.7%	92.7%	92.7%	99.6%
Santa Monica	25.9%	90.2%	93.1%	91.0%	117.2%
Eastern	5.8%	55.1%	93.4%	93.7%	69.5%
Pasadena	9.4%	63.7%	93.6%	93.6%	89.2%
Western	4.7%	32.1%	94.1%	94.3%	80.3%
Foothill	7.8%	56.8%	94.1%	94.3%	104.4%
Burbank	11.8%	59.7%	94.2%	94.0%	115.7%
Three Valleys	6.2%	52.3%	94.5%	94.8%	82.1%
MWDOC	10.0%	47.8%	94.9%	94.9%	101.9%
Long Beach	10.5%	50.4%	95.0%	95.0%	109.3%
Fullerton	7.7%	34.6%	96.4%	96.5%	98.3%
Santa Ana	11.7%	34.5%	96.6%	96.6%	95.9%
Anaheim	10.2%	33.4%	96.7%	96.7%	89.7%
Compton	9.4%	33.0%	96.7%	96.7%	116.0%
Los Angeles	15.0%	35.6%	96.7%	96.4%	123.9%
Central Basin	8.2%	26.1%	97.3%	97.4%	127.5%
Inland Empire	5.0%	24.1%	97.4%	97.6%	92.5%
San Marino	1.6%	16.5%	98.1%	98.3%	117.2%
Upper San Gabriel	6.7%	9.3%	99.0%	99.1%	128.7%
San Fernando	7.7%	8.8%	99.1%	99.1%	139.1%

2008 Supply Allocation Scenarios: Level 4 Regional Shortage (20%)
 January 22, 2008



2008 Supply Allocation Scenarios: Level 4 Regional Shortage (20%)

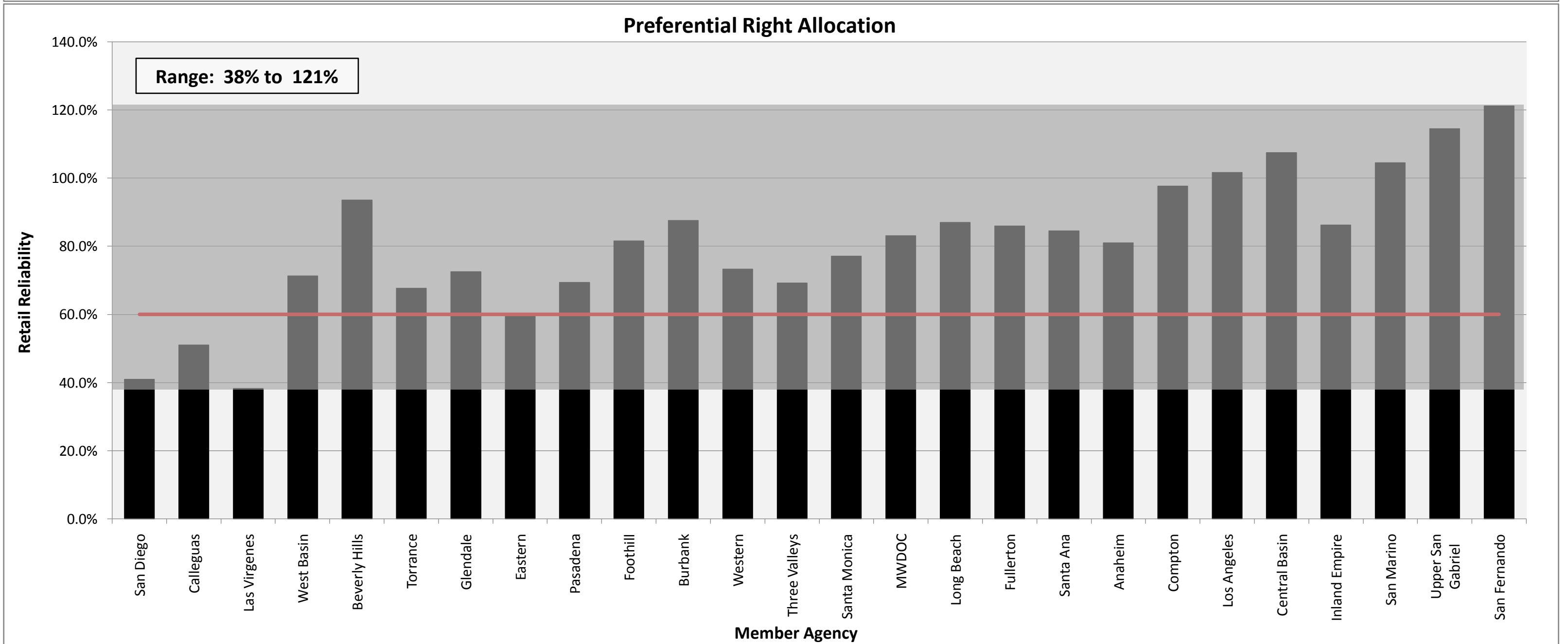
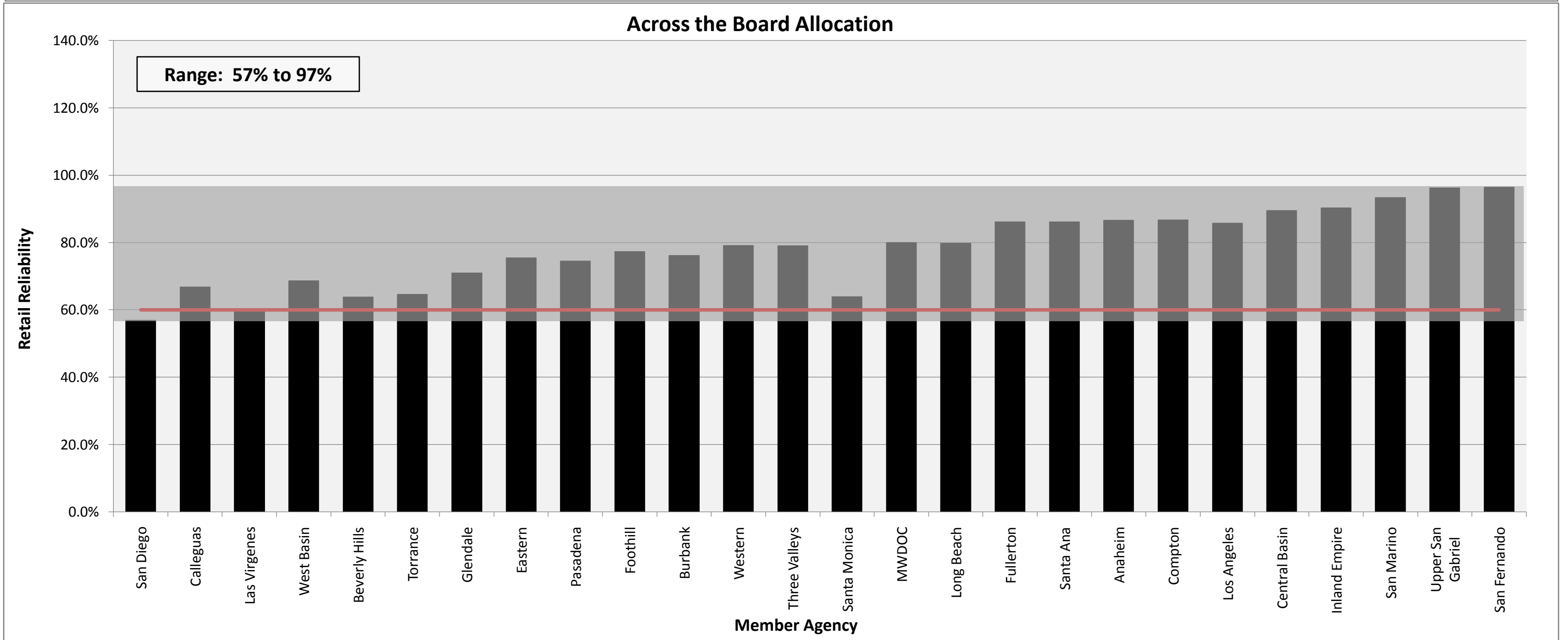
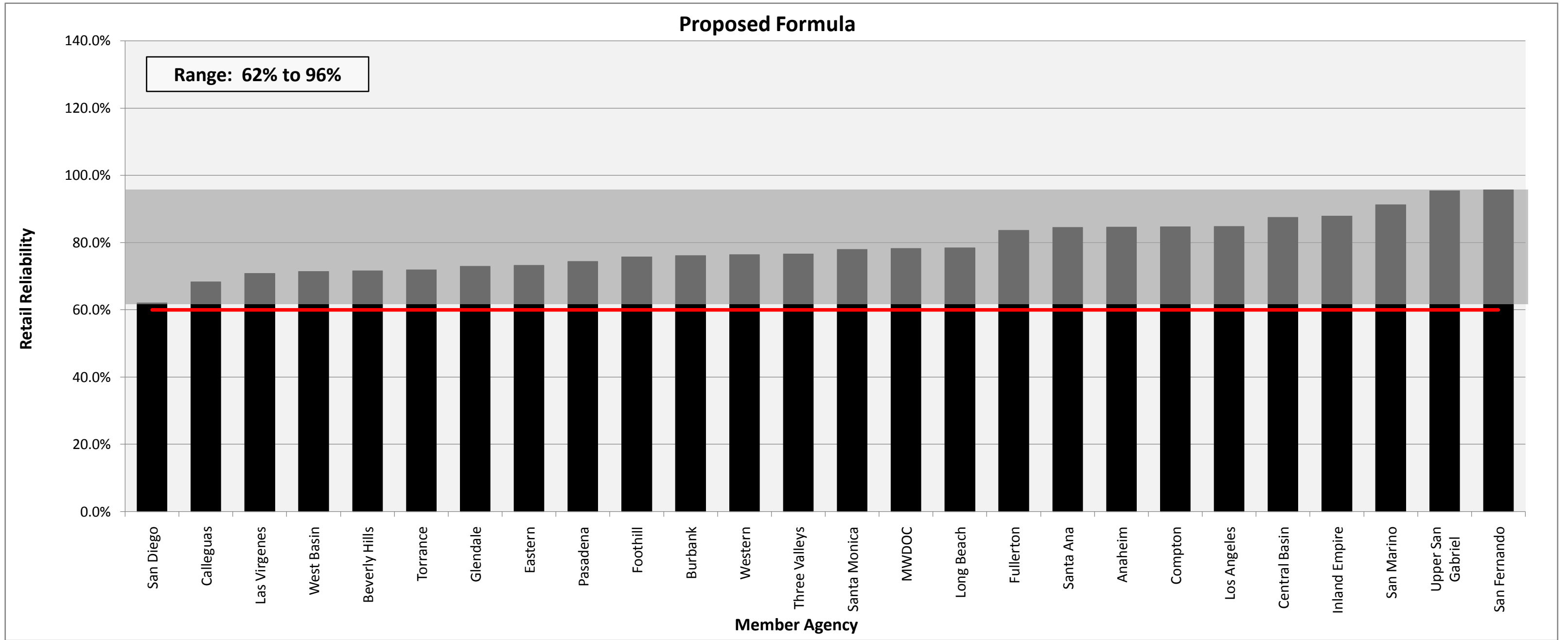
January 22, 2008

Allocation Comparison

Chart Data - Ranked by Retail Reliability Under the Proposed Formula

Member Agency	Percent Conservation	Dependence on MWD	Proposed Formula	Across the Board	Preferential Rights
San Diego	12.1%	83.8%	80.8%	78.4%	51.9%
Calleguas	7.4%	75.2%	84.0%	83.4%	62.0%
Las Virgenes	7.6%	98.6%	84.9%	80.0%	53.1%
Beverly Hills	9.8%	90.4%	85.4%	81.9%	127.3%
West Basin	8.1%	78.3%	85.6%	84.3%	91.3%
Torrance	10.6%	88.4%	85.6%	82.3%	90.2%
Glendale	10.2%	72.7%	86.4%	85.5%	90.8%
Eastern	5.8%	55.1%	86.7%	87.8%	66.3%
Pasadena	9.4%	63.7%	87.2%	87.3%	82.8%
Foothill	7.8%	56.8%	87.9%	88.6%	97.0%
Burbank	11.8%	59.7%	88.1%	88.1%	106.6%
Western	4.7%	32.1%	88.3%	89.6%	78.0%
Three Valleys	6.2%	52.3%	88.3%	89.5%	78.0%
Santa Monica	25.9%	90.2%	88.6%	82.0%	104.2%
MWDOC	10.0%	47.8%	89.2%	90.0%	95.8%
Long Beach	10.5%	50.4%	89.3%	89.9%	102.0%
Fullerton	7.7%	34.6%	91.9%	93.1%	94.3%
Santa Ana	11.7%	34.5%	92.4%	93.1%	92.2%
Anaheim	10.2%	33.4%	92.4%	93.3%	86.9%
Compton	9.4%	33.0%	92.4%	93.4%	110.0%
Los Angeles	15.0%	35.6%	92.5%	92.9%	116.7%
Central Basin	8.2%	26.1%	93.8%	94.8%	121.0%
Inland Empire	5.0%	24.1%	94.0%	95.2%	90.5%
San Marino	1.6%	16.5%	95.7%	96.7%	113.1%
Upper San Gabriel	6.7%	9.3%	97.7%	98.1%	124.1%
San Fernando	7.7%	8.8%	97.8%	98.2%	133.3%

2008 Supply Allocation Scenarios: Level 8 Regional Shortage (40%)
 January 22, 2008



2008 Supply Allocation Scenarios: Level 8 Regional Shortage (40%)

January 22, 2008

Allocation Comparison

Chart Data - Ranked by Retail Reliability Under the Proposed Formula

Member Agency	Percent Conservation	Dependence on MWD	Proposed Formula	Across the Board	Preferential Rights
San Diego	12.1%	83.8%	62.1%	56.9%	41.0%
Calleguas	7.4%	75.2%	68.3%	66.8%	51.1%
Las Virgenes	7.6%	98.6%	70.8%	60.1%	38.3%
West Basin	8.1%	78.3%	71.4%	68.7%	71.4%
Beverly Hills	9.8%	90.4%	71.6%	63.9%	93.7%
Torrance	10.6%	88.4%	71.9%	64.6%	67.7%
Glendale	10.2%	72.7%	72.9%	70.9%	72.7%
Eastern	5.8%	55.1%	73.2%	75.5%	59.8%
Pasadena	9.4%	63.7%	74.4%	74.5%	69.5%
Foothill	7.8%	56.8%	75.7%	77.3%	81.6%
Burbank	11.8%	59.7%	76.1%	76.1%	87.7%
Western	4.7%	32.1%	76.4%	79.1%	73.3%
Three Valleys	6.2%	52.3%	76.6%	79.0%	69.3%
Santa Monica	25.9%	90.2%	77.9%	63.9%	77.2%
MWDOC	10.0%	47.8%	78.3%	80.0%	83.2%
Long Beach	10.5%	50.4%	78.4%	79.8%	87.0%
Fullerton	7.7%	34.6%	83.7%	86.1%	86.0%
Santa Ana	11.7%	34.5%	84.5%	86.2%	84.6%
Anaheim	10.2%	33.4%	84.6%	86.6%	81.1%
Compton	9.4%	33.0%	84.7%	86.8%	97.7%
Los Angeles	15.0%	35.6%	84.7%	85.8%	101.8%
Central Basin	8.2%	26.1%	87.5%	89.5%	107.5%
Inland Empire	5.0%	24.1%	87.9%	90.3%	86.3%
San Marino	1.6%	16.5%	91.3%	93.4%	104.6%
Upper San Gabriel	6.7%	9.3%	95.3%	96.3%	114.6%
San Fernando	7.7%	8.8%	95.6%	96.5%	121.3%