

APPROVED  
by the Board of Directors of  
The Metropolitan Water District  
of Southern California 8-13  
at its meeting held

**MWD**

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

JUN 13 1995

*Debra C. Man*  
EXECUTIVE SECRETARY

May 30, 1995

**To:** Board of Directors (Water Planning and Resources Committee--Action)  
(Executive Committee--Action)

**From:** General Manager

**Subject:** Integrated Resources Plan - Reliability Goal, Water Management and  
Conservation Guidelines, and the Preferred Resource Mix

RECOMMENDATIONS:

It is recommended that the Board of Directors:

- 1) Affirm Metropolitan's reliability goal,
- 2) Approve the guidelines for the development and restructuring of water management and conservation programs, and
- 3) Approve the approach of the Preferred Resource Mix to meet the reliability goal with diverse investments in demand-side management programs, water resources and the necessary supporting infrastructure.

John R. Wodraska  
General Manager

Submitted by:

*Debra C. Man*

Debra C. Man, Chief  
Planning and Resources

Concur:

*John R. Wodraska*  
John R. Wodraska  
General Manager

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**EXECUTIVE SUMMARY:**

Over the past two years Metropolitan, its member agencies, and other members of the water community have been engaged in an integrated Resource Planning (IRP) effort. This effort has considered the Board of Directors' reliability goal and debated the appropriate manner to meet that goal in a cost-effective manner. Through three American Assemblies, principles that can guide the structuring or re-structuring of Metropolitan's water management and conservation programs were considered and proposed in the Strategic Assembly statements. The last Strategic Assembly Statement included principles that could serve as guidelines for Metropolitan as it develops these program changes. The Goals and Objectives Committee recommended that the various policy issues arising from the IRP be forwarded to the responsible standing committees for further consideration and action. There are several important policy considerations associated with IRP, including consideration of the basic guidelines that support the modification of Metropolitan's water management and conservation programs and the implementation of the IRP. These policy elements will help guide the Board as it evaluates changes in incentives, financing mechanisms and alternatives, and even the manner in which Metropolitan sets its rates and charges. These guidelines are attached as Table 1 and Table 2.

In addition, the IRP process has affirmed Metropolitan's reliability goal as appropriate and that the Preferred Resource Mix was an effective way to achieve that goal. The Board's adopted reliability goal as supported in the recent Assembly Statement is:

"Metropolitan will meet 100% of full service wholesale water demands 90% of the time, and never provide less than 80% of full service wholesale demands."

The Preferred Resource Mix is a regional approach of diversified investments in demand-side management programs, water resources, and the necessary supporting infrastructure. The demand-side management strategy involves reducing water demands through the full implementation of water conservation Best Management Practices (BMP). Water resources investments include augmenting and firming of Metropolitan's traditional supply sources, Colorado River and State Water Project, as well as encouraging the development of such local resources as groundwater recovery and desalination, groundwater conjunctive use storage, and reclamation. Water transfers will play an important role as a "swing" supply to meet demands and storage needs. Critical infrastructure is needed to support these conservation and supply development efforts. These projects include Metropolitan's Domenigoni Valley Reservoir Project, Inland Feeder and groundwater conjunctive use facilities for storage that assures regional emergency supplies and coordinated groundwater replenishment. In addition, water treatment and transmission facilities are required to meet water supply reliability requirements in terms of drinking water quality and deliveries. The estimated cost of this least-cost regional plan will result in average increases in the wholesale cost of water of about 4.5% annually over the next ten years, including inflation, followed annually for the next five years. It should be noted, however, that the increases in the next five years will be higher in order to fund Metropolitan's Capital Improvement Program and initial investments in local and regional resources. It should also be noted that the ten-year Capital Improvement has been reduced by \$1.2 billion, compared to last year's estimate, through the Preferred Resource Mix. But, the majority of the \$4.7 billion ten-year capital program will be funded over the next five years, leading to slightly higher average cost increases.

**DETAILED REPORT:**

Over the past two years Metropolitan, its member agencies, and other members of the water community have been engaged in an Integrated Resource Planning (IRP) effort. This effort has considered the Board of Directors' reliability goal and debated the appropriate manner to meet that goal in a cost-effective manner. Through three American Assemblies, principles that can guide the structuring or re-structuring of Metropolitan's water management and conservation programs were considered and proposed in the Strategic Assembly statements. The last Strategic Assembly Statement included principles that could serve as guidelines for Metropolitan as it develops these program changes. The Goals and Objectives Committee recommended that the various policy issues arising from the IRP be forwarded to the responsible standing committees for further consideration and action. There are several important policy considerations associated with these changes, including consideration of the basic elements or guidelines that support the modification of Metropolitan's water management and conservation programs and the implementation of the IRP. These policy guidelines will help frame issues as the Board evaluates changes in incentives, financing mechanisms and alternatives, and even the manner in which Metropolitan sets its rates and charges. These guidelines provide the basis for evaluating programs and include important measures to be used to evaluate the success of programs in meeting the region's reliability goals in a cost-effective manner. In addition, these guidelines will help Metropolitan structure programs in a way to ensure its financial integrity, but not at the expense of its member agencies. Policy considerations embedded in the IRP include the reliability goal, the water management and financial guidelines supporting the water management and conservation programs, and the implications of a regional plan for meeting the needs of Metropolitan's service area.

**Reliability Goal**

Metropolitan's wholesale reliability goal is the foundation of the IRP and the Preferred Resource Mix. Metropolitan's reliability goal was supported through the IRP and assembly process, although it was recommended that Metropolitan evaluate the cost of providing different levels of reliability. Further, the last assembly recommended that Metropolitan facilitate achieving a higher level of reliability when requested to do so by a member agency.

Metropolitan's reliability goal states that Metropolitan will provide 100% of full service wholesale water demands 90% of the time, and will never provide less than 80% of full service wholesale water demands. This means that even in a drought such as the one experienced in 1991, Metropolitan will supply over 80% of the wholesale demands. Such an event is expected to occur about 2% of the time. By affirming the wholesale reliability goal, your Board will confirm that the goal adopted in November 1993 as part of the Board's Goals and Objectives is still appropriate.

**Preferred Resource Mix**

The IRP process has resulted in a regional guide for resource development that will meet the water reliability and quality needs of Metropolitan's service area in a cost-effective manner. This can be achieved through a combination of conservation and desalination of imported supplies and locally developed resources including reclamation, groundwater recovery, and groundwater conjunctive use storage. Further, the effective use of groundwater basins to store imported water during wet periods for use during times of shortage is an important component of this plan. The "Preferred Resource Mix" includes a diverse mix of

imported and local supplies, and is based on a twenty-five year planning horizon. The resource mix is an approach to meeting the water service needs in Metropolitan's service area, and the following targets are only a starting point. The IRP is a dynamic planning process, and it is expected that the resource targets outlined below will change as more is learned about future costs, demands, demographics and supply conditions. The Preferred Mix includes targets for different resources:

**Conservation.** By year 2020, an approximate 15% reduction in regional demand (or around 800,000 acre-feet) is expected. Of this, an additional 600,000 acre-feet of new conservation savings is needed regionally. It should be noted that a good portion of these new savings (about 40%) are expected to result from compliance with existing building codes and ordinances.

**Reclamation.** By the year 2020, about 280,00 acre-feet of additional annual yield would come from new reclamation projects. This is a 165% increase over existing levels.

**Groundwater/Conjunctive Use.** About 1.0 million acre-feet of groundwater storage capacity, delivering up to 300,000 acre-feet during dry years would be developed over the next ten years.

**Colorado River Aqueduct.** About 450,000 acre-feet of additional firm Colorado supplies need to be developed to ensure a full Colorado River Aqueduct over the planning period. The Colorado river remains Metropolitan's most cost-effective supply resource.

**State Water Project.** The Preferred Resource Mix includes an additional 650,000 acre-feet of firm, dry year supplies from Metropolitan's State Water Project entitlement. This additional supply source would result in a total dry year supply of 1.3 million acre-feet for Metropolitan in the year 2020. This is significantly less than Metropolitan's full State Water Project entitlement of 2.01 million acre-feet.

**Central Valley Water Transfers.** About 400,000 acre-feet of voluntary water transfers are anticipated through the development of water markets and option agreements. Water transfers would be required during dry years, which occur about 20% of the time.

The last Assembly considered the approach defined by the Preferred Mix and noted that there were a number of strengths associated with the mix. It is a diverse combination, helping to reduce the risk of any one resource increasing in cost or diminishing in reliability or quality. It balances cost and environmental factors, as well as water quality considerations. Most importantly, this resource mix integrates the region's water supply resources and recognizes the need for a cooperative effort to meet the region's resource requirements. The present value of the regional benefits of the Preferred Resource Mix are estimated to be \$2.2 billion when compared to a base case resource mix relying totally on Metropolitan supply. The total costs (including capital and operating and maintenance costs) over the next twenty-five years in inflated dollars will be over \$100 billion. Given Metropolitan's regional demand forecast, and the estimated annual costs, the average cost of water is expected to increase at an annual rate of around 4%, just slightly higher than inflation. Over the next ten years, the average monthly cost of water in Metropolitan's service area is expected to increase by seven dollars. This is significantly lower than estimates of customers willingness to pay to avoid shortages of 10% every five years (the California Urban

Water Association has estimated this willingness to pay at about \$11 per month for the average residential user in Metropolitan's service territory.)

The Preferred Resource Mix is an approach to meeting the region's reliability goals and explicitly recognizes the need to coordinate local supply development with imported supply alternatives. The targets outlined above provide guidelines for measuring progress and must be reviewed and revised on a regular basis. The implementation of the Preferred Resource Mix also recognizes the coordination role that Metropolitan plays in helping to ensure that regional goals are met. Metropolitan's existing groundwater, reclamation, and conservation programs reflect the intent of the IRP, but must also be reviewed to adjust for changed conditions since their inception.

#### Water Management Program and Conservation Implementation Guidelines

The Assembly considered many implications of the Preferred Resource Mix, noting that there must be a strong regional partnership in the development of local water supplies. It was recommended that regional benefits be linked to regional investments, and that this linkage must be adapted to reflect two additional circumstances: (1) The price of surplus water must relate to the regional value produced and the need to protect the integrity of revenues and (2) The degree to which each member agency is dependent on Metropolitan should be taken into account. Limitations on access to regional supplies and the ability to rely on local resources (particularly groundwater basins) during dry years affect each agency differently.

Given these considerations, the Assembly participants and the IRP Workgroup (consisting of staff from the member agencies) proposed guidelines (Tables 1 and 2) to assist Metropolitan as it restructured its water management and conservation programs in light of the results from the IRP. These policy guidelines help ensure that these programs meet the need for regional equity, while protecting each member agency's regional investments. These guidelines are not program parameters, but rather, measures upon which to judge whether particular programs meet Metropolitan's policy objectives.

It is recommended that your Board approve these guidelines for developing policies as Metropolitan and its member agencies revise Metropolitan's Seasonal Storage Program, Local Projects Program (LPP), Groundwater Recovery Program (GRP), and Conservation Credits Program over the next several months (see attached schedule). This working schedule is attached for your review as presented at the May Executive Committee and is pending further Board policy discussions and feed-back from Member Agencies. Over the next three months, Metropolitan will be conducting workshops with member agencies, subagencies, and other local agencies to develop necessary improvements to these programs. These guidelines will assist participants as program alternatives are evaluated and ultimately presented to your Board for consideration.

### Table 1. Water Management Implementation Guidelines

1. Regional benefits of both local storage and local projects programs should be measured by: (1) the reduction in capital investments due to deferral and/or down-sizing of regional infrastructure; (2) the reduction in O & M expenditures needed for treatment and distribution of imported water; and (3) the reduction in expenditures associated with developing alternative regional supplies.
2. Metropolitan's investments for local storage and local projects programs should not exceed the regional benefits over the life of the project(s).
3. Metropolitan's investments for local storage and local projects programs should be sufficient to encourage the implementation of projects identified in the Preferred Resource Mix. Such investments and their associated payment schedules should also be flexible enough to meet the needs of each project.
4. Metropolitan's participation in local storage and local projects programs should not cause large fluctuations in Metropolitan's water rates.
5. Local storage must increase regional supplies during time of need. Specifically, water placed in local storage programs must be utilized during time of need without displacing dependable local supplies. The amount of water involved should be agreed to in advance when each storage and local projects program is established.
6. Local projects programs must increase regional supplies and provide measurable regional benefits.
7. Performance of local storage and local projects programs should be verifiable (e.g., deliveries into and withdrawals out of local storage should be accounted for by either direct measurement or by incorporation into a shortage management plan).

**Table 2. Conservation Implementation Guidelines**

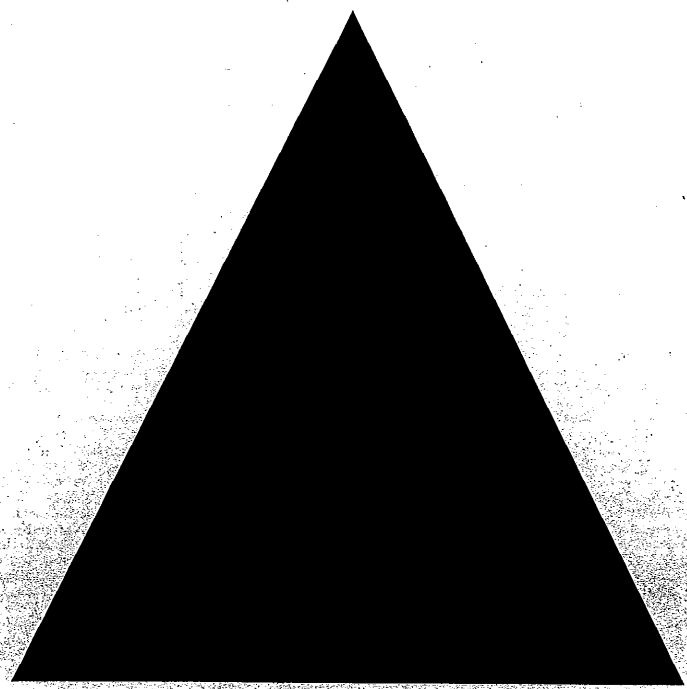
1. Conservation projects should be designed to meet the IRP goals on a regional basis.
2. Recognizing that conservation occurs at the consumer level, the local water purveyor should sponsor the implementation of conservation measures. Metropolitan and the member agencies should work together to provide information, guidance, ideas and incentives.
3. Metropolitan's pricing, financial incentives, and drought allocation methodologies should encourage the achievement of regional conservation goals, and any future water shortage allocations must recognize the demand hardening result of conservation programs.
4. Regional benefits of conservation projects should be measured by: (1) the reduction in capital investments due to deferral and/or down-sizing of regional infrastructure; (2) the reduction in O & M expenditures needed for treatment and distribution of imported water; (3) the reduction in expenditures associated with developing alternative regional supplies; and (4) environmental benefits from reduced demands on the ecosystem.
5. Metropolitan's average level of investment for conservation projects should not exceed the regional benefits measured over the life of the project(s).
6. Conservation project savings must be verifiable and consistent in order to qualify for continuing Metropolitan investment. In partnership with member agencies and subagencies, Metropolitan will commit to pursuing evaluation studies of new or innovative conservation practices.
7. The region must devote a portion of the conservation investment to develop locally-implemented education programs. These programs need to be rigorously evaluated.
8. Metropolitan's investment in conservation projects should reflect equity among the member agencies. Agencies that conserved early should not be penalized for their initiative.
9. Metropolitan's participation in conservation incentives should not cause large fluctuations in Metropolitan's water rates. Metropolitan's involvement should be based on multi-year agreements for conservation.
10. Public and private partnerships to achieve conservation goals, implemented in cooperation with member agencies, should be included among conservation program measures. However, partnerships with the private sector should be based on a competitive system. Pay should be linked to performance.

These guidelines combine the need for equity and fairness, with a recognition that benefits must be consistently measured with reference to regional costs. They include a method for valuing water management programs (in relation to the program's impact on Metropolitan's capital and operating costs.) Finally, the guidelines seek to put limits on investments that the region would make in various programs, with the caveat that investments would be made with a long-term view, but not to the point where the regional costs exceed the regional benefits.



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