



## ● **White Paper on the Purpose of the Integrated Resources Plan**

### **Summary**

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Metropolitan published its first Integrated Water Resources Plan (IRP) in 1996, culminating a collaborative planning approach to regional water management. Since that time, Metropolitan periodically updated and revised the plan based on the best information available and using a single projection of the region's needs with considerations for variable weather. This White Paper seeks to provide the Board a common understanding of the purpose, benefit, and uses of the 2020 IRP and to provide a basis for further discussion.

### **Purpose**

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Informational

### **Attachments**

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ATTACHMENT 1 – Purpose of the Integrated Resource Plan

### **Detailed Report**

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Detailed White Paper is provided with this report as **Attachment 1**.

## **Metropolitan Water Planning – Past, Present, and Future: How the IRP Informs Board Decisions**

When the Metropolitan Water District of Southern California published its first Integrated Water Resources Plan (IRP) in March 1996, it marked the culmination of a historic regional collaborative planning approach to water management.

Since 1996, Metropolitan has kept its promise to periodically revisit the IRP to “measure our progress and adjust our plans.” (1996 IRP, Forward, p. 1) As the report predicted, “We expect that adjustments to this plan will be necessary. In fact, the only certainty with long-range planning is that the future is often unpredictable and never exactly what was projected.” (1996 IRP, Forward, p. 2)

**The future proved to be more unpredictable than it appeared to be in 1996—making the 2020 IRP more relevant than ever as the region strives to wisely manage its water and financial resources**

The future proved to be more unpredictable than it appeared to be in 1996—making the 2020 IRP more relevant than ever as the region strives to wisely manage its water and financial resources.

As Metropolitan develops the 2020 IRP, this white paper seeks to address some fundamental questions that have emerged that can help frame the coming discussion: What is the purpose of the IRP? Where are we now in terms of achieving the most recent goals and targets? Why do today’s circumstances justify a broad scenario planning process?

After 25 years of long-range water supply planning, Metropolitan has never been more reliable. Regional municipal and industrial demands are far lower than expected, thanks in large part to Southern Californians achieving and maintaining an intense water-saving ethic since the last drought cycle. And more imported water is stored in reserve for drought or other emergencies than at any time in the District’s history.

But the region’s imported supplies face extraordinary long-range threats due to increasing climate variability and regulatory uncertainty at regional, state and national levels that may advance or deter progress. The circumstances of today, in light of future uncertainties, speak to the wisdom of making the most of this moment to chart our future in an adaptable way.

## **The Purpose of the IRP – “A Process and a Plan”**

Since the mid 1990’s, achieving Metropolitan’s reliability goals has depended on coordinated actions and investments at the local, Member Agency, and regional levels. Importantly, the reliability goals established in the IRP equate to stability and certainty for the Member Agencies: a plan that reduces the chances of Metropolitan declaring shortage reductions in the future effectively improves Metropolitan’s reliability for its member agencies.

Two essential factors in meeting Metropolitan’s goals are to understand current and future retail demands and to ascertain the extent to which Member Agencies expect to meet those needs through the provision of local water resources. Metropolitan’s role via the IRP is to ensure that the resulting “gap” between regional demands and local supplies is closed with a combination of imported supplies and regional programs, combined with additional local actions.

Closing the gap defines “reliability” and the purpose of the IRP is to provide a base of information and a roadmap that informs the Board’s actions to achieve reliability. Metropolitan must prepare for the unexpected. Total retail demands will change. So will the availability of local resources to its Member Agencies within its service area.

**The IRP provides a base of information to inform the Board’s subsequent actions to achieve reliability**

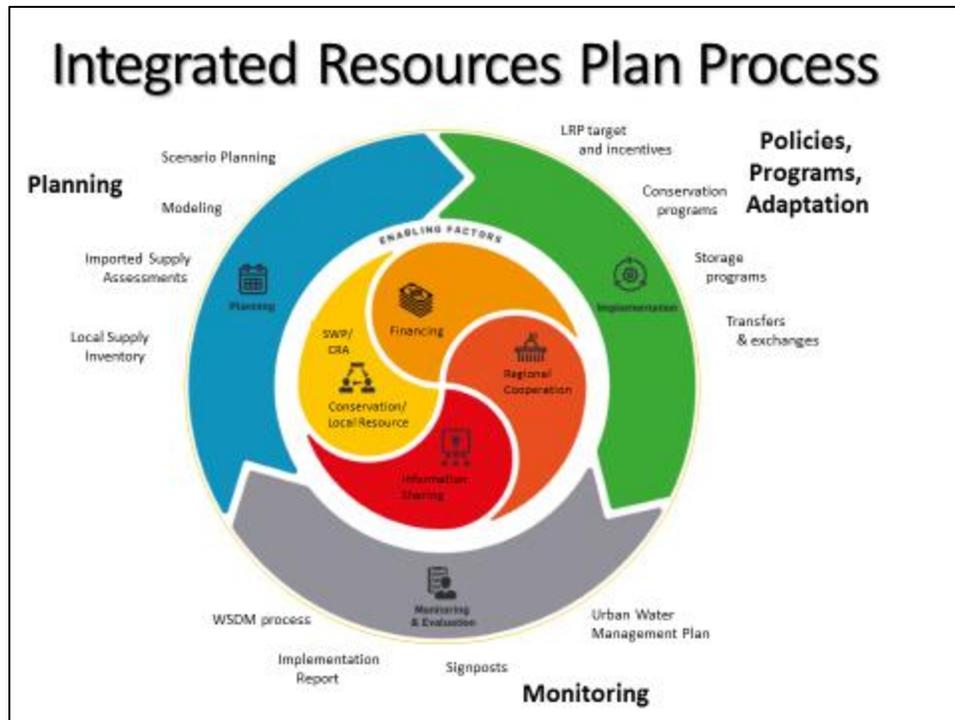
The interdependency of Metropolitan and its Member Agencies in planning for the uncertainties in future retail demands, local supply availability, and imported supply availability led to the establishment of a long-range “integrated” resources planning effort that has supported decision-making for the last quarter century.

As the inaugural document stated in 1996, “the IRP represents both a process and a plan.” (1996 IRP, Forward, p. 1)

### **The IRP as a Process**

As a process, the IRP embodies Metropolitan’s partnership with its Member Agencies in achieving water supply reliability (see the figure below). It establishes the communication and coordination needed to achieve regional reliability in the future. Based on input and information from the Member Agencies, each update reviews the most current data, updates modeling tools, and adapts to changing circumstances and needs. The IRP also builds on Board policies established over the decades. A synopsis of the pertinent policy directives is provided in Table 1 at the end of the report.

**The IRP builds on Board policies established over the decades.**



Successful IRP processes create intentional and strategic links between regional and local planning and implementation. Establishing and maintaining these regional–local links ensures that local realities are reflected in the IRP process and, similarly, that the regional-level process enables adaptation at local or Member Agency levels.

Importantly, the IRP does not predict the future. It provides the context within which both Metropolitan and its Member Agencies can make informed decisions together regarding the preferred strategy for addressing future uncertainties. It can guide investments by both Metropolitan and local agencies in a way that increases the cost effectiveness of actions and avoids stranded or under-utilized assets.

### The IRP as a Plan

The IRP is referred to by Metropolitan as “a planning guideline to be used for resources and capital facility investments.” (1996 IRP, Forward, p. 2) It does not pre-determine future decisions of the Board of Directors. It serves as an important reference point for assessing progress, understanding changing needs, and determining how individual actions can cost-effectively address them. It provides Metropolitan and Member Agencies a common basis for evaluating a variety of portfolio actions, such as local supply targets, to help maintain supply reliability.

For example, the first iteration of the IRP published in 1996 provided the Metropolitan Board with an understanding of the regional value of a multibillion dollar investment in Diamond

**The IRP provides a reference point to understand changing needs, integrate potential actions, and understand the financial implications of those actions.**

Valley Lake, Southern California’s largest reservoir. It evaluated the benefits to local groundwater basins, emergency regional supplies, and management of variable allocations on the State Water Project.

The Local Resources Program (LRP) is another example of where the IRP provided important information regarding Metropolitan’s role in helping Member Agencies achieve their plans for additional local supplies and increased diversification. Analysis through the IRP shows how achieving local resource development goals improves reliability for the region. Similarly, the analysis done in the IRP shows how imported resource strategies on the Colorado River and State Water Project benefit regional reliability. These analyses then in turn support and inform Board deliberations on specific projects or investments.

## **The IRP Looking Forward**

Looking forward, Metropolitan and its Member Agencies face a variety of decisions to shape the region’s future water portfolio. One will be whether Metropolitan should develop local supply in partnership with the Sanitation Districts of Los Angeles County. Another will be whether Metropolitan should continue to financially assist in Member Agency local supply development. Yet another will be whether we should invest in modernization of the State Water Project in the Sacramento-San Joaquin Delta.

In each of these decisions, the IRP will assist the Board in evaluating the potential benefits of these actions under a range of future conditions. It gives the Board a sound sense of the potential benefits and consequences of decisions.

It is important to note that the IRP is not a line-item list of actions like the district’s Capital Investment Plan. Instead, the IRP takes a long-range view of potential future needs in order to better evaluate the benefits and risks of investment decisions. It does not pre-decide specific issues to subsequently come before the Board. The 2020 IRP will evaluate current circumstances and actions in the context of more than one assumed future, hence the use of scenario planning tools in the process. It will also identify the “signposts” that will signal the need to take or avoid certain actions as conditions become more clear.

Over the past 25 years, the IRP and its periodic updates have brought together regional and local portfolio targets and actions as a policy reference point for key decisions by the Metropolitan Board of Directors and Member Agency Boards as well. As both a process and a plan, the IRP plays an indispensable role in ensuring water supply reliability at an urban regional scale unmatched anywhere in the nation.

## **Past, Present, Future: Short-Term Reliability, Long-Term Uncertainty (Where We Are Today)**

The 2015 IRP Update adopted a set of targets that lead to a reliable water supply picture for Metropolitan's region. Since its adoption, Southern California's water supply reliability has improved. The 2015 IRP Update defined goals in two categories: those that reduce demand for Metropolitan deliveries (conservation and local supply targets) and those that improve the availability of Metropolitan supplies (State Water Project and Colorado River targets). We are only four years into the 25-year planning horizon set in 2015; however, from 2016 through 2019 the net effect of actual conditions has led to performance that exceeded the targets on both categories.

Demands for water supply have decreased across Southern California in recent years, which supports the IRP goal of reducing demand on Metropolitan. Metropolitan's annual deliveries were contemplated to range from a low of 1.36 million acre-feet (MAF) to a high of 2.28 MAF by 2020. The average projection for 2020 was 1.86 MAF. Recent Metropolitan annual deliveries from calendar years 2016 through 2019 have actually ranged from 1.33 MAF to 1.66 MAF. The average over this period has been 1.50 MAF. These demands are below the average projection and at the lower end of the range that was contemplated in the 2015 IRP Update.

At the same time, the availability of Metropolitan's supplies has recently increased, which supports Metropolitan's goal of increasing the reliability of imported water. The yield of the State Water Project varies widely from year-to-year based on hydrologic and operational circumstances.

The 2015 IRP Update assumed that the average reliability of the SWP, as reported by DWR, would degrade to an effective allocation of 45% by the year 2020 due to increasingly severe operating restrictions. The IRP target for the SWP assumed this degradation in yield would continue until a conveyance solution in the Delta was completed. However, DWR has recently released its draft 2019 SWP reliability analysis, which shows an average SWP reliability of 59%, significantly higher than the degraded yield that was assumed for 2020. While much work must continue to meet the long-term targets related to conveyance on the Delta, the near-term target for SWP reliability in 2020 has been exceeded.

The 2015 IRP Update also set a target for Colorado River availability of 0.9 MAF in normal years with the ability to flex up to a full Colorado River Aqueduct (CRA) of approximately 1.2 MAF in dry years. As of 2020, the base supplies available to Metropolitan on the Colorado River exceed 1.0 MAF per year and Metropolitan maintains storage and flexible programs that can provide a full CRA, when needed. Metropolitan has stored more than 1 MAF in Intentionally Created Surplus (ICS) credits in Lake Mead to provide insurance for Metropolitan, much more than what had been projected. With base supplies that are higher than targeted in the 2015 IRP Update, along with enhanced flexibility to use ICS credits to provide a full CRA, the near-term target for the Colorado River in 2020 has also been exceeded.

The net effect of these near-term factors has been more water supply reliability in Metropolitan’s service area than projected in 2015. Since the adoption of the 2015 IRP Update, Metropolitan has increased regional storage reserves from 0.9 MAF to 3.1 MAF. Staff is preparing a more comprehensive retrospective report that will share data in many areas of Southern California’s water supply and demand picture since the 2015 IRP Update was adopted. The recent major trends have been positive and the key metrics from 2015 indicate a high degree of near-term reliability for the region.

**Key indicators from the 2015 IRP indicate a high degree of near-term reliability.**

## **Conclusion – “Breathing Room” to Look Ahead (Scenario Planning for the Future)**

The favorable short-term conditions for the region do not necessarily indicate that the long-term future is secure. Comparisons between current conditions and previous forecasts can serve as a helpful reference point for gauging how much circumstances have changed and what uncertainties have proven to be the most influential. The goal of the scenario planning in this IRP is to better evaluate the range of future uncertainties in order to make more informed decisions as we take next steps in portfolio development.

All of the previous iterations of the IRP conducted scenario planning with a probability analysis based on hydrological cycles. While these analyses showed ranges of outcomes, those ranges revolved primarily around variability in weather, while other major variables such as demographics, climate change (apart from simple weather variation), and regulatory impacts were folded into a single scenario.

It is clear that making single assumptions about regulatory restrictions, climate change, growth projections, or other driving factors does not lead to a robust vision of the future that is ideal for planning purposes. Scenario planning, using the same core analytical framework as before, will allow Metropolitan’s Board to consider a wider range of challenges to Metropolitan’s future reliability along with the actions necessary to mitigate those impacts.

**Scenario planning allows the Board to consider a wide range of challenges to future reliability.**

A case in point is the role of political leadership. In our survey of the Board of Directors about drivers of change, political leadership on the Colorado River ended up ranked as one of the most important uncertainties to consider in planning. The recent changes in State and Federal administrations brought subsequent changes to planning and operations in the Sacramento-San Joaquin Delta, as one additional example. With scenario planning, an IRP can anticipate future moments (“signposts”) when changed conditions, such as political shifts, may trigger a necessary action or re-evaluation of strategy.

Another case in point is the extraordinary variability in California weather since 2015. No plan can predict the future weather in any given year. Yet lessons can be learned from changing

weather conditions. As an example, the yield of groundwater basins in Southern California has proven to be lower than forecasts. A string of “average” rain years tends to result in greater groundwater levels than the wild swings between wet and dry conditions the region has recently experienced. It is not surprising that weather variability rose to be a top “driver” of concern with both the Board and Member Agencies when surveyed.

With our imported supplies, recent average-year allocations on the State Water Project have proven to be greater than expected, as significant new regulatory restrictions did not materialize. Likewise, available supplies on the Colorado River from our resource programs—and thanks to the weather—were slightly greater than projections. This is welcome short-term news. It is not a trend to assume for the next 25 years or evidence that the original forecast was in error. Both watersheds are vulnerable to dramatic supply shifts due to changes in hydrologic, environmental, and political conditions.

With healthy reserves in hand and reliability not an immediate, pressing concern, it is a timely moment to look both to Metropolitan’s past, and the future, to create a 2020 IRP with an adaptable long-term strategy and fresh portfolio targets. The IRP has proven to be an invaluable process for Metropolitan to work with its Member Agencies to plan ahead for the future. The 2020 IRP will provide the Board with the best possible assessment of our uncertain future and help support sound decision-making as it unfolds.

Table 1. Summary of Selected Major Policy Items

Year	Policy	Summary of Major Policy Item
1952	<a href="#">Laguna Declaration</a>	When and as additional water resources are required to meet increasing needs for domestic, industrial and municipal water, Metropolitan will be prepared to deliver such supplies.
1992	<a href="#">Revised mission statement</a>	Revised the mission statement to include “reliable” in addition to “adequate.” The mission of The Metropolitan Water District of Southern California is to provide its service area with adequate <b>and reliable</b> supplies of high quality water to meet present and future needs in an environmentally and economically responsible way.
1999	<a href="#">Strategic Plan Policy Principles</a>	Regional Provider: Metropolitan is a regional provider of water for its service area. Financial Integrity: Metropolitan’s Board will take all necessary steps to assure the financial integrity of the agency in all aspects of its operations. Local Resources Development. Metropolitan supports local resource development in partnership with its member agencies and by providing its member agencies with financial incentives for conservation and local projects.
2011	<a href="#">Long-term Conservation plan and revised policy principles on water conservation</a>	Support urban retrofit actions and permanent behavior changes that effectively reduce water use Support equitable wholesale and retail agency responsibilities in reducing per capita potable water use Support legislation, regulations and voluntary programs that promote improved water use efficiency Support the use of water efficient landscapes and encourage local conservation efforts of member and retail agencies
2015	<a href="#">Adopted IRP</a>	The 2015 IRP Update identified the following reliability targets <ul style="list-style-type: none"> <li>• State Water Project: 1.2 MAF available to Metropolitan on average starting in 2030 when a long-term Delta conveyance solution is in place</li> <li>• Colorado River Aqueduct (CRA), 0.90 MAF available to Metropolitan when needed and to ensure access to 1.2 million AF in dry years</li> <li>• Local water supplies: 2.4 MAF total available to the service area by 2040, and an increase of up to 0.46 MAF</li> <li>• Conservation: 0.485 MAF of new water savings in the service area by 2040.</li> </ul>
2017	<a href="#">Policy Principles for Local resource development and conservation</a>	Take an active role in identifying and evaluating local resource and conservation opportunities within its service area. Evaluate the feasibility and effectiveness of direct investment and development of regionally beneficial local resources and conservation where appropriate. Include the consideration of sustaining and/or recovering production from existing projects and programs in its approaches to assisting member agencies develop local resources and conservation State and federal mandates should not impact Metropolitan’s participation in local resource and conservation development provided that the effect of the mandate is consistent with regional IRP targets