

EXECUTIVE SUMMARY

WATER PLAN: 2000-2050

INTRODUCTION

Water Plan: 2000-2050 was developed to initiate a dialogue between Tucson Water and the community about the water-resource challenges that must be addressed in the coming years. To meet future demand for water, Tucson Water's currently available supplies must be fully utilized and additional more expensive supplies must be acquired and developed. Various opportunities and constraints that will impact the Utility's ability to provide adequate supply are discussed. *Water Plan: 2000-2050* identifies several critical decisions that must be made by the community and decision makers at key points in time. This will ensure the timely implementation of desired projects and programs to guarantee long-term sustainability of water resources for the Tucson Water service area.

This document provides information to Tucson Water customers and other stakeholders concerning the Utility's resource and system plans through 2050. This report is a comprehensive revision of *Tucson Water Resources Plan 1990-2100*. The water resources considered within this assessment are the same as those identified in the original plan and consist of ground water, effluent, and imported renewable water supplies delivered through the Central Arizona Project. However, regulatory changes and agreements with other local water providers have taken place over the last fifteen years that influence Tucson Water's ability to use these water supplies. These changes and agreements have been included within the assessment and are reflected in the available water supplies and service commitments of the Utility. To ensure that *Water Plan: 2000-2050* can accommodate similar changes in the future, a scenario planning approach was utilized to develop a highly-flexible, long range water-resources plan.

The plan will be reassessed and revised as assumptions and circumstances change over time. The recommendations presented will allow the Utility to achieve all of the following planning goals while retaining maximum flexibility. While the plan lays out pathways to maximizing renewable supplies currently owned or controlled by the City, it also emphasizes the need to acquire additional supplies and to develop a more aggressive demand management program in order to sustain growth through 2050 and beyond.

THE PLANNING GOALS

Water Plan: 2000-2050 was developed with the following resource management goals:

- **Meet Projected Total Demand.** The Utility's water demand has grown significantly over the years. Current population projections indicate that demand will continue to increase in the foreseeable future.

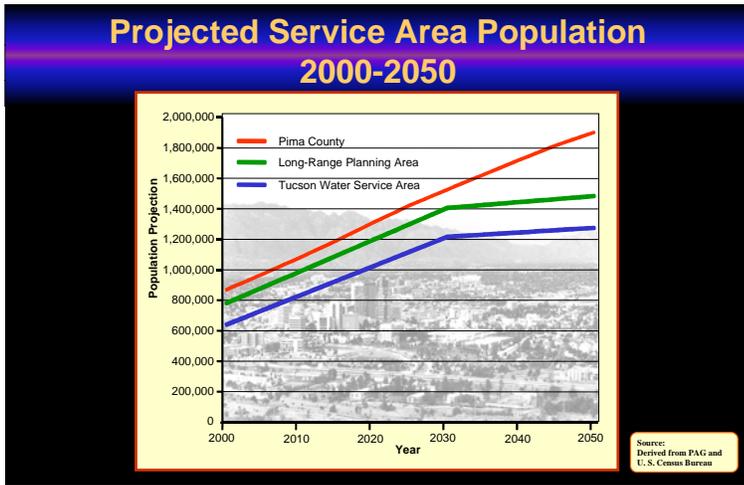
- **Utilize Renewable Resources.** In order for the community to be sustainable into the future, Tucson Water needs to shift from a historical reliance on "mined" ground water to renewable water supplies.

Colorado River water delivered via the Central Arizona Project and treated municipal wastewater effluent are two currently available renewable supplies that must be utilized to the maximum extent possible. It is also a priority to acquire additional renewable supplies as soon as possible.

- **Meet Water-Quality Targets.** In addition to complying with federal, state, and local regulations, Tucson Water must also be responsive to the water-quality expectations and preferences of its customers.
- **Achieve Sustainable Pumpage.** There is a quantifiable volume of ground water that is naturally replenished each year. Pumping ground water at or below this annual rate would be hydrologically sustainable and would not cause additional water-level declines and associated subsidence. Sustainable pumping must be consistent with state regulations that govern the legal authority to withdraw ground water.
- **Manage Costs and Rate Impacts.** Projects and programs must be cost effective to ensure that water remains affordable.
- **Comply with Assured Water Supply Program.** The Assured Water Supply (AWS) Program is the regulatory paradigm administered by the Arizona Department of Water Resources (ADWR) for water-resource management in the municipal water-use sector. The AWS Program limits the amount of ground water that the City of Tucson can legally withdraw.



PROJECTED WATER DEMAND



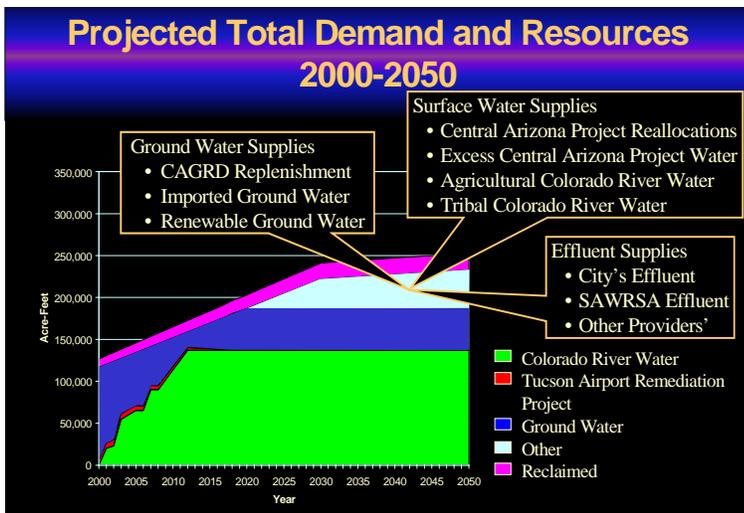
The population in the Tucson area has increased over time creating a growing need for water. Projections of future water demand were developed to ensure that the Utility can plan for sufficient water supplies to meet the needs of the community and the resource challenges that lie ahead.

In order to maintain consistency with other regional planning entities, Tucson Water used the most current population counts and projections available. Population projections were developed

from information provided by the U.S. Census Bureau, the Arizona Department of Economic Security, and the Pima Association of Governments (PAG).

To derive a projected total water demand for Tucson Water’s service area through 2050, the average amount of per capita water use was determined. Such water usage is commonly measured in gallons per capita per day (GPCD). The total GPCD for Tucson Water’s current customer base is 177 GPCD and includes water used to supply both potable and non-potable demands. By applying the total GPCD to projected populations, Tucson Water estimates that annual total demand will grow from 128,521 acre-feet in 2000 to 253,000 acre-feet in 2050. A slower increase in water demand from 2030 to 2050 reflects a shift in population growth to areas outside of Tucson Water’s projected service area. Reclaimed water is projected to meet at least eight percent of total water demand; the remaining balance is potable demand.

AVAILABLE WATER RESOURCES



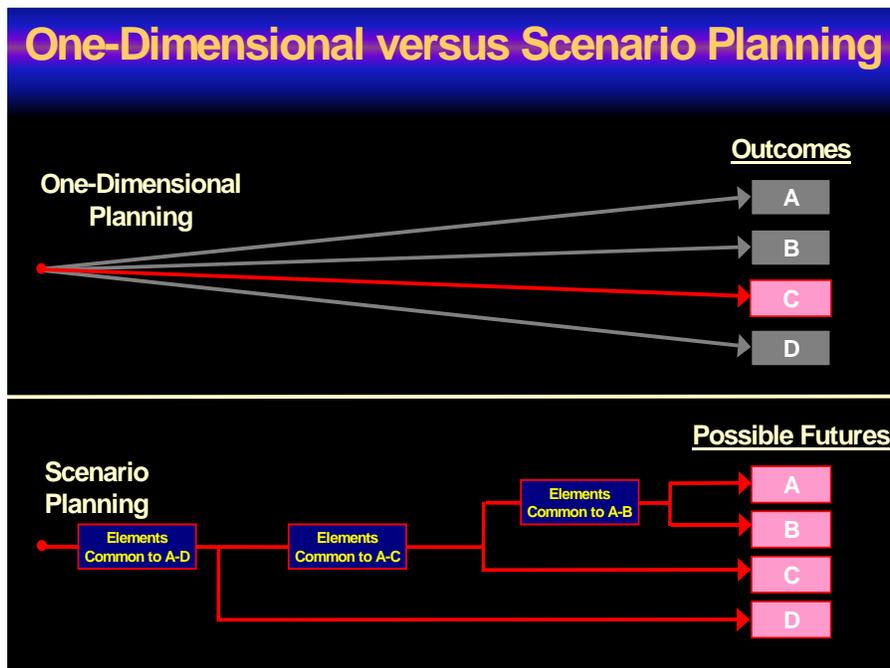
Prior to the early 1990s, the Tucson community relied almost exclusively on ground water to meet water demand. Despite implementation of demand management programs and the strong environmental ethic of Tucson residents, ground-water withdrawals in the metropolitan area continued to increase due to population growth. Rapidly declining water levels have resulted in measurable land subsidence, increased pumping costs, and the gradual loss of natural habitat along local riparian corridors.

The need to develop renewable water supplies to meet projected long-term water demand has long been recognized. *Tucson Water Resources Plan 1990-2100* concluded that Colorado River water and municipal effluent would need to be increasingly utilized to satisfy future demand. To achieve long-term sustainability and comply with regulations, the use of available water sources must be prioritized so that use of renewable supplies is maximized and the availability of ground water is extended.

THE PLANNING PROCESS

In determining how best to use available water resources to meet projected demands, a scenario planning process was used to develop *Water Plan: 2000-2050*. In order to avoid the potential pitfalls of a one-dimensional planning approach, scenario planning provides a multi-dimensional perspective that considers many possible futures as equally likely, thus allowing greater planning flexibility.

The process involves building pathways to each possible future; however, the objective is to identify the common elements that lie on these different pathways. These elements are the programs and projects that are common to each of the identified futures. By following the path of common elements, capital investments are directed toward projects that apply to multiple futures providing confidence that the decisions made today will remain viable.



PATHS TO THE FUTURE

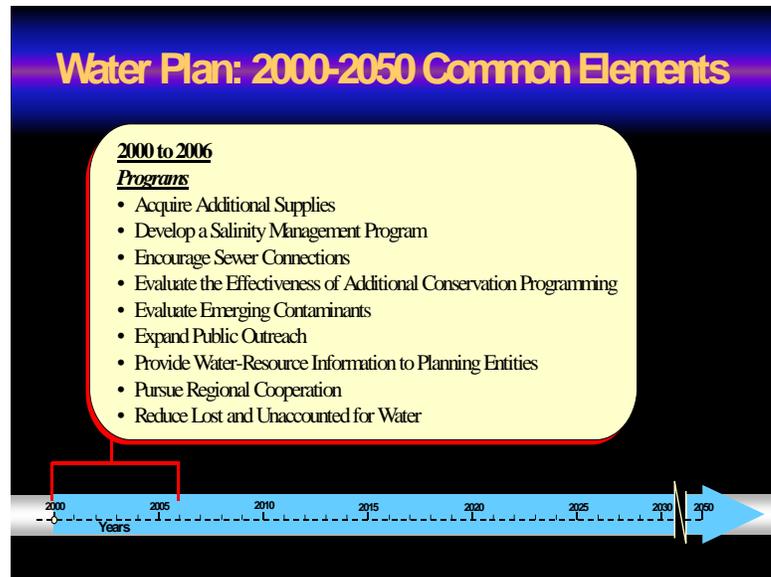
The Plan consists of a series of key decision points and sets of common elements that would be implemented in response to each decision. There are a number of elements common to all of the pathways that lead to each of the futures. Implementing these common elements will maintain flexibility as subsequent decision points are approached and as conditions change in the future. The Recommended Plan will be implemented by following the route of common elements.

Common Elements

Programs: 2000-2006

The following programs either have already been or will be implemented during the period 2000 to 2006 and will be continued as required throughout the 50-year planning period.

- **Acquire Additional Supplies.** Additional potential sources of supply will be pursued under all scenarios. This can include obtaining additional Colorado River water, effluent, ground water, and any other water resources that may become available over time. Acquiring additional supplies will be a priority throughout the 50-year planning period.
- **Develop a Salinity Management Program.** An increase in the mineral content of the Utility's blended potable water supply will gradually occur over time as Colorado River water and effluent are utilized. Tucson Water will pursue a program to manage potential increases in salinity in watersheds located within its projected service area. The Utility will continue to participate in research on potential salinity impacts, and methods of treatment, reclamation, and/or disposal of the brine waste stream generated during treatment.
- **Encourage Sewer Connections.** To provide a greater volume of municipal wastewater effluent for potential reuse, changes in ordinance and/or code should be considered to encourage sewer connections to reduce the number of septic tank systems installed within Tucson Water's projected service area.
- **Evaluate the Effectiveness of Additional Conservation Programming.** A more aggressive conservation program designed to reduce overall per capita usage will be evaluated. This program will address all sectors of potable water use including residential, commercial, and industrial customers.
- **Evaluate Emerging Contaminants.** Addressing the presence of emerging contaminants in current and future water supplies must be further researched. This research will be increasingly important as the availability of water-resources becomes more constrained over time.
- **Expand Public Outreach.** Tucson Water's outreach program will be expanded to provide information and to obtain input from the public on a range of water-resource issues.
- **Provide Water-Resource Information to Planning Entities.** Tucson Water will provide information regarding water-resource availability to governmental entities that plan for the



future of the community. These efforts will allow those entities to take into account the Utility's ability to provide water service within the context of their planning decisions.

- **Pursue Regional Cooperation.** Tucson Water will seek additional opportunities to work cooperatively with other water providers. These efforts may include acquiring additional sources of supply, implementing an integrated regional salinity control program, and making arrangements to distribute renewable resources within the region.
- **Reduce Lost and Unaccounted for Water.** Tucson Water will strengthen its efforts to reduce its percentage of lost and unaccounted for water.

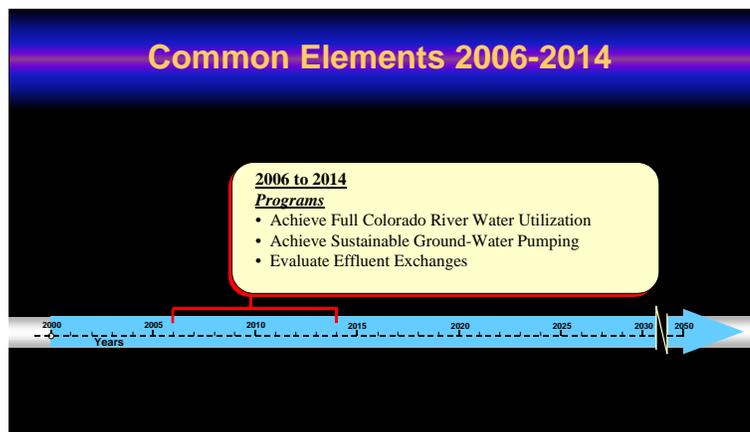
Projects: 2000-2006

Most of the projects already initiated during this period have been implemented under the Clearwater Program. The program was developed in the late 1990s to utilize Colorado River water by blending with ground water through recharge and recovery facilities. The first major facility developed under this program was the Central Avra Valley Storage and Recovery Project (CAVSARP). A second storage and recovery facility, the Southern Avra Valley Storage and Recovery Project (SAVSARP), is currently under design. Between them, Tucson Water will be able to fully utilize the City of Tucson's current annual Central Arizona Project entitlement and provide capacity for recharging additional water supplies.

Programs: 2006-2014

In addition to the programs initiated by 2006, a second set of programs should be initiated between 2006 and 2014. These programs include the following:

- **Achieve Full Colorado River Water Utilization.** Regardless of what final projects are selected, Tucson Water will achieve full utilization of its current Central Arizona Project allocation by 2012.
- **Achieve Sustainable Ground-Water Pumping.** As the City of Tucson brings its Central Arizona Project allocation into full utilization, its reliance on ground water will decrease. The Utility will seek to reduce its ground-water pumping to a hydrologically sustainable rate within the near-term.
- **Evaluate Effluent Exchanges.** Tucson Water will pursue opportunities to market unused effluent supplies for lease or exchange with other water users within the Tucson AMA.



Projects: 2006-2014

The Avra Valley Transmission Main Augmentation project in conjunction with the Spencer Interconnect Pipeline project will be implemented during this period to provide additional system capacity to convey renewable water supplies from Avra Valley to the Tucson basin. The added capacity will also provide increased redundancy to ensure potable system reliability. In addition, the capabilities of the reclaimed water system will also be expanded in order to meet future reclaimed demand.

Critical Decisions

Decision Point: 2006

In 2006, two critical resource management decisions must be made regarding the use of Colorado River water:

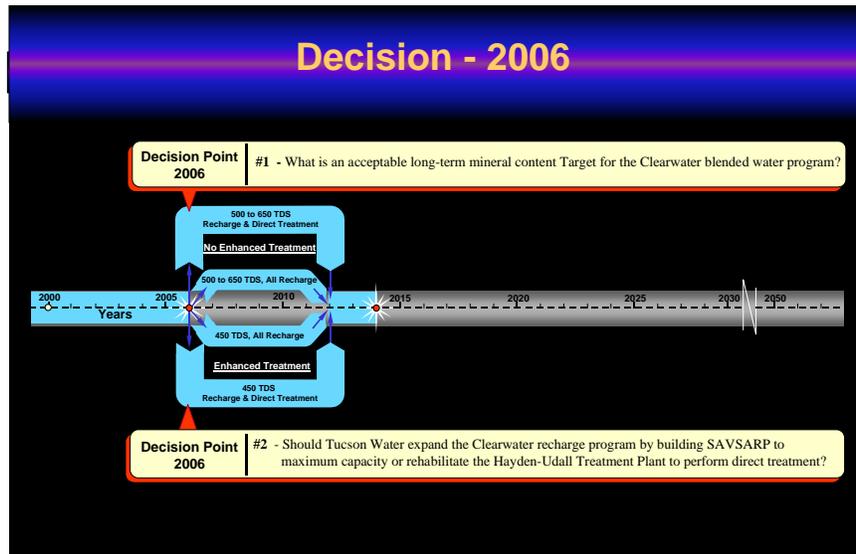
Decision #1 - What is an acceptable long-term mineral content target for the Clearwater blended water program?

Decision #2 - Should Tucson Water expand the Clearwater recharge program by building SAVSARP to maximum capacity or rehabilitate the Hayden-Udall Treatment Plant to perform direct treatment?

Decisions #1 and #2 must be made by 2006. The choices will determine which decision-dependent elements will be subsequently implemented. In addition, these decisions will significantly impact the overall cost of providing water service. The new elements associated with each critical decision are described below.

Decision #1 will determine the level of Total Dissolved Solids (TDS) in the Clearwater blend. The water recovered from the CAVSARP Well Field will maintain a mineral content at or below the currently targeted TDS concentration of 450 mg/L through approximately 2009. Tucson Water has

access to sufficient ground water in Avra Valley to blend with the water recovered from CAVSARP to maintain this TDS target for many years. However, as additional Colorado River water is utilized over time either through direct treatment or expansion of the recharge program (Decision #2), the ability to maintain this TDS target through ground-water blending cannot be sustained and enhanced treatment will eventually be required. TDS

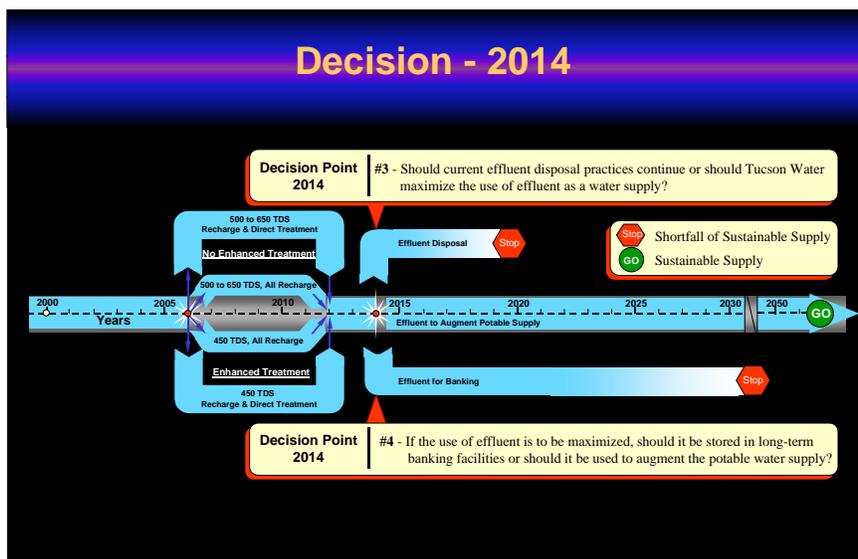


levels are not regulated as a public health issue; rather, TDS concentration can affect the aesthetic quality of the water such as hardness, taste, and mineral deposits. The higher mineral content of Colorado River water was not the cause of the pipeline problems experienced with direct delivery in the early 1990s.

The choice under Decision #2 is to either expand SAVSARP to maximum capacity or to rehabilitate the Hayden-Udall Treatment Plant for direct treatment of Colorado River water. Either option would allow for TDS management to be conducted pursuant to the choice made under Decision #1. By 2012, Tucson Water plans to achieve full utilization of its current Central Arizona Project allocation. This is the first critical step toward attaining water-resource sustainability for the community.

Decision Point: 2014

Additional critical decisions must be made by 2014 concerning the long-term utilization of effluent. If other water supplies are acquired and/or if per capita water demand is significantly reduced, the



timeframe in which to maximize effluent use may be delayed. Nonetheless, effluent will continue to be used to meet reclaimed water (non-potable) demands which are estimated to be at least eight percent of projected total demand. This leaves a large volume of effluent potentially available to augment the potable supply. Two critical decisions must be made regarding the future use of effluent:

Decision #3 – Should current effluent disposal practices continue or should Tucson Water maximize the use of effluent as a water supply?

Decision #4 - If the use of effluent is to be maximized, should it be stored in long-term banking facilities or should it be used to augment the potable water supply?

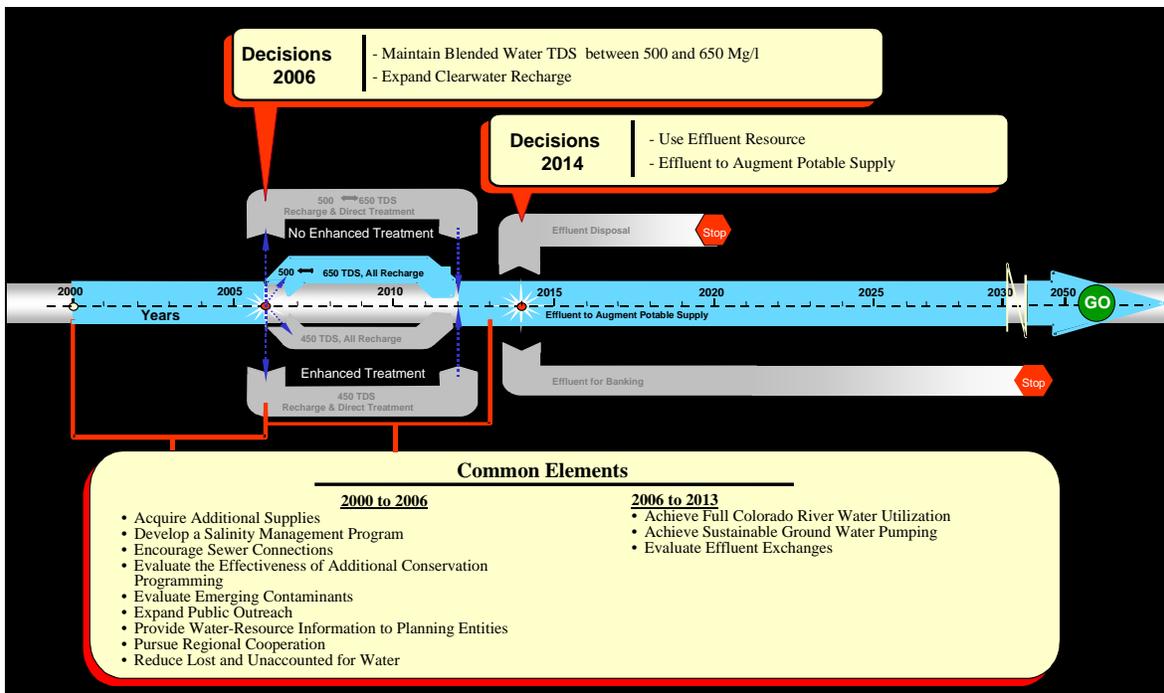
Decision #3 presents the opportunity to provide water supply for the growing community. Tucson Water currently has only a limited amount of available ground water and Colorado River water to meet future potable demand. Without the expanded use of effluent, the successful acquisition of additional water resources, and/or the initiation of a more aggressive demand management program to reduce per capita water use, the Utility will not be able to meet future water demand and could have a shortfall sustainable in supply before 2020. Decision #3 should be made by 2014 to allow sufficient time to maximize the use of effluent by 2020.

If the decision is to maximize effluent usage, then Decision #4 addresses whether to bank effluent in long-term recharge facilities or augment potable supply through the subsequent recovery of recharged effluent. The decision to bank effluent provides the opportunity to preserve the wet water (recharged effluent) for use beyond 2050. This decision would also allow for the accrued paper-water effluent credits to be pumped from the aquifer in areas other than where the water was physically recharged. Even though paper-water credits can be legally recovered this way, it would eventually result in a resumption of ground-water mining. By 2040, this would more than double the hydrologically sustainable rate of pumping from some areas of the aquifer and would cause additional water-level declines and subsidence. The choice to reuse effluent for indirect potable supply provides Tucson Water with the highest potential to meet projected demand through 2050 and offers the greatest opportunity for long-term sustainability. Decision #4 should also be made by 2014.

As Decisions #3 and #4 are made, the Utility will further develop additional options to increase effluent reuse while seeking to acquire additional water supplies. The construction of effluent transmission pipelines would depend on the eventual end use of this water resource. Effluent may be taken to new or existing facilities in Avra Valley and/or to the Tucson basin for recharge. Such facilities could be used for long-term storage and/or to augment potable supply. Regardless of the effluent reuse options selected, some level of additional treatment will be required.

TUCSON WATER'S RECOMMENDED PLAN

The Recommended Plan consists of sets of common elements that are determined by decisions made at specified points in time. The choices made at each critical decision point will determine the range of possible futures from that point in time. Implementing the Recommended Plan means following the route of common elements with the key decision points providing choices and direction along the way. As the planning environment changes over time, the scenario planning



process is revisited to establish a new baseline of data and assumptions that will again be used to reassess and develop a new range of possible futures.

In order to initiate a dialogue with customers and to facilitate discussion, Tucson Water offers ten recommendations, many of which address the critical decision points identified. Tucson Water believes that implementing these recommendations will allow the Utility to achieve all of the specified planning goals while retaining maximum flexibility. The conclusions and recommendations summarized below are based on Tucson Water's best professional judgment regarding the most effective ways to meet the projected potable and non-potable needs of the community. These recommendations form the basis for a public discussion on *Water Plan: 2000-2050*. The City of Tucson's Mayor and Council, in concert with Tucson Water's customers, will make the critical decisions that provide direction to Tucson Water for plan implementation.

1. Emphasize Physical Water Management Strategies

Conclusion: The best approach to maintain a sustainable future for the community is to ensure the physical availability of renewable water supplies. The community's sustainable future ultimately depends on maintaining a physical link between renewable water sources and the infrastructure needed to convey those waters to customers within the projected service area. A paper-water management approach that is not hydrologically constrained can not be sustained in the long term.

Recommendation: The programs and projects called out in the Recommended Plan emphasize the physical availability of water supplies. These elements should be implemented in as timely a manner as possible to ensure that renewable water supplies will be available to Tucson Water's customers in the long term.

2. Utilize Renewable Ground Water

Conclusion: From a hydrologic perspective, a limited but quantifiable amount of ground water is naturally recharged each year from precipitation and surface-water runoff. Ground-water withdrawals that do not exceed these replenishment processes should be considered hydrologically sustainable ground-water pumping. Tucson Water plans to limit its ground water withdrawals to this sustainable level in order to ensure the long-term viability of the aquifer and protect remaining riparian zones within the Utility's service area. This concept was identified as a long-term source of water supply in *Tucson Water Resource Plan 1990-2100*. Under the State's AWS Program, all ground-water pumping is counted against the City's ground-water storage accounts. Currently, no legal mechanism is in place to obtain paper-water credits for natural aquifer recharge.

Recommendation: The amount of natural recharge that annually occurs represents a hydrologically renewable ground-water supply that is not legally available. Tucson Water recommends that regulatory recognition of renewable ground water be incorporated into the AWS Program. This supply could then be available as an annual renewable water resource that would not be debited against any long-term storage account. This would require changes in the AWS rules and/or a change in legislation.

3. Reassess the Water-Quality Target for Colorado River Water

Conclusion: Colorado River water currently has an average TDS concentration of 650 mg/L. In contrast, the TDS concentration of ground water provided by Tucson Water averages 280 mg/L. Based on the results of studies and public input associated with the *At the Tap Program*, Tucson Water's customers have accepted a blend of ground water and Colorado River water with a TDS concentration of about 450 mg/L. The choice of 450 mg/L was based on a taste test that was used to establish an aesthetic preference for the blended water. There was no comparative cost analysis done as a consideration for maintaining this preference in the future. All of the planning pathways have the ability to include projects to achieve a TDS concentration of 450 mg/L in the Clearwater blend. However, maintaining this TDS concentration would eventually require some form of enhanced treatment which would be expensive to build and operate. Customers must be offered the opportunity to make an informed choice by considering both aesthetic water-quality preferences and the added incremental cost they would have to pay to maintain that level of mineral content.

Recommendation: With regard to Decision #1, Tucson Water recommends that the TDS water-quality target under the Clearwater Program be allowed to increase gradually until it reaches a balance. The ultimate TDS level would be less than 650 mg/L. It is anticipated that this would occur sometime between 2015 and 2030. This recommendation would be the most cost-effective way to provide this renewable resource to the community. It eliminates the need to build an enhanced treatment plant to control TDS concentration as part of the Clearwater Program. In addition, it would preserve more of the available Colorado River water supply by avoiding the estimated 15 percent loss in water volume associated with enhanced treatment and costs associated with brine management and disposal. Should the community decide to maintain the 450 mg/L water quality target, *Water Plan: 2000-2050* can also accommodate that choice. No matter what decision is made in the near term, the overall salinity balance of Tucson Water's potable supplies under any scenario will nonetheless require management at some point in the future.

4. Fully Utilize Colorado River Water

Conclusion: In 1999, the community initiated the move toward full utilization of Colorado River water by accepting a blended water supply under the Clearwater Program. The Clearwater Program could provide the City of Tucson the physical ability to recharge its entire annual Central Arizona Project allocation by 2010 and deliver that amount by approximately 2012. Currently, the CAVSARP project is operational and provides the capacity to use 60,000 acre-feet per year of Colorado River water. This project is being re-permitted to recharge up to 80,000 acre-feet per year. The SAVSARP Phase I project will be constructed to take delivery of approximately 45,000 acre-feet of Colorado River water per year by about 2007. In order to achieve full utilization of the City of Tucson's Central Arizona Project allocation, Tucson Water can either rehabilitate the Hayden-Udall Water Treatment Plant for direct delivery or build SAVSARP Phase II for recharge and recovery.

Recommendation: Tucson Water recommends that an annual recharge capacity of at least 45,000 acre-feet be operational at SAVSARP Phase I by 2007. Implementing SAVSARP Phase

I is identified as a common element because it provides needed drought resistance and expanded long-term storage capacity. With regard to Decision #2, Tucson Water recommends that by 2006, a design be initiated for SAVSARP Phase II to bring the project to an annual recharge and recovery capability of 80,000 to 100,000 acre-feet by 2012. With CAVSARP and SAVSARP, Tucson Water would have excess recharge capacity. This would allow the Arizona Water Banking Authority to store large volumes of surplus Colorado River water at these facilities for use when the Colorado River water supply is interrupted. Banking Colorado River water at these facilities ensures that the Utility will have wet-water supply reliability where Tucson Water has recovery capabilities.

5. Fully Utilize Effluent for Future Supply

Conclusion: Tucson Water currently uses reclaimed effluent to meet non-potable water demand. Reclaimed water use accounts for approximately eight percent of total water demand. The remaining two thirds of the effluent that is currently owned and controlled by the City of Tucson is discharged into the Santa Cruz River and passively accrues water credits at a rate of 50 percent of the total volume recharged in managed underground storage facilities. If this method of effluent use continues, this renewable water resource cannot be efficiently used to maximize long-term banking or to augment the ground-water system for eventual potable reuse. Tucson Water is projected to have a shortfall in potable water supply by 2020 unless one or more of the following initiatives are successfully implemented: acquisition of additional water supplies, a more aggressive demand management program, full utilization of effluent, and/or the resumption of ground-water mining. However, the latter would cause additional declines in water levels, increase the potential for additional subsidence, and accelerate the rate at which the Utility's allowable ground-water credits would be debited.

Recommendation: With regard to Decision #3, Tucson Water recommends that by 2014 a commitment should be made to no longer discharge the City's effluent that is not used in the reclaimed system to the Santa Cruz River. Instead, the resource-management goal would be to maximize the future use of effluent through recharge.

6. Utilize Effluent as a Wet-Water Resource

Conclusion: Recharging effluent in an area that is not hydrologically connected to where pumping occurs would provide the legal right for additional ground-water withdrawals in Tucson Water's existing well fields. However, continued pumping of ground water at rates that exceed hydrologic sustainability will eventually result in a resumption of ground-water level declines and an increase in the potential for additional land subsidence in the Tucson area. The only viable long-term approach is to physically recover the effluent where it is recharged.

Recommendation: With regard to Decision #4, Tucson Water recommends that effluent be used to support the reclaimed water system, for banking, and/or for eventual indirect potable use. Unless additional water supplies are acquired in the near term, an enhanced treatment plant and an effluent pipeline to convey the highly-treated effluent to Tucson Water recharge facilities should be constructed and operational by 2017. The effluent would be treated to

remove a wide range of constituents and would allow for managing the mineral content of the water before it is recharged and blended with other source waters for eventual potable use. Decision #4 must be preceded by an intensive outreach effort to inform the public of the water-resource challenge that will soon be facing the community and hence the need to indirectly reuse effluent for potable supply to ensure long-term sustainability. Review of demand projections indicates that without the acquisition of additional supply, the indirect reuse of effluent for potable use may need to be initiated by 2025 to avoid a supply shortfall within Tucson Water's service area before 2040.

7. Acquire Additional Water Supplies

Conclusion: Other metropolitan areas in Arizona have recently been active in acquiring additional long-term water supplies. As a result, the City of Tucson needs to implement an aggressive program to pursue potentially available supplies even though it has a substantial Central Arizona Project allocation and ground-water portfolio. Water resources will become increasingly limited both locally and statewide. Municipal water providers as well as other water users will be competing to acquire additional water resources. The limited availability of potential sources of supply could make the acquisition of additional resources both expensive and uncertain. Potential supply sources might include additional Central Arizona Project allocations, leased or purchased Colorado River water, local and imported sources of ground water, and locally available effluent.

Recommendation: Tucson Water recommends that an aggressive program of identifying and pursuing the acquisition of additional water sources be undertaken in the near term. This program needs to be continued throughout the 50-year planning period.

8. Manage Water Demand

Conclusion: Tucson Water is currently pursuing a number of avenues to manage demand including conservation programming, reducing lost and unaccounted for water, encouraging the practice of water harvesting, and providing public information programs. Additional demand management efforts should be evaluated to further reduce per capita water use. An extended period of monitoring and evaluation of these programs will be needed to demonstrate actual water savings.

Recommendation: Tucson Water should strengthen its efforts to reduce the annual volume of lost and unaccounted for water in its potable systems. The Utility will also continue an ongoing historical review of the conservation program to assess its effectiveness in reducing potable and total per capita water usage rates. In addition, an assessment will be conducted to evaluate the potential to further reduce potable and total per capita water usage rates by implementing more aggressive conservation programs.

9. Implement a Water-Resource Impact Fee

Conclusion: The cost of growth is to be paid through a combination of impact fees and rate increases. The cost to expand the system and develop additional water supplies to meet future growth should continue to be shifted from existing to future customers as they become part of the system.

Recommendation: Tucson Water will develop a financial plan that continues to shift the cost burden of growth to new customers as they are added to the system. The Utility has implemented a system equity fee as an important step in this continuing process. This fee requires new customers to pay for the existing excess system capacity that exists today; this is the financial vehicle used to recover the costs already expended to provide the capacity needed to meet the water demands they bring as new customers. As a result, the system equity fee is referred to as a backward-looking fee. As Tucson Water looks to the future, a forward-looking impact fee should be developed to cover the development of additional water resources and system expansions required to meet future growth.

10. Expand Regional Cooperation

Conclusion: Other metropolitan areas in Arizona have recently been active in acquiring additional long-term water supplies. Many of Tucson Water's current uncertainties and challenges are similar to those of other water providers in the region. A mix of short-term actions and long-term planning will be needed to address current issues as well as new ones that will arise over time. Such issues can be most effectively addressed if cooperation can be achieved among local water providers in eastern Pima County. If a cooperative structure can be established in the near term, Tucson Water would coordinate its efforts with the other members to work collectively in acquiring additional sources of supply, implementing an integrated regional salinity control program, and making arrangements to distribute renewable resources within the region.

Recommendation: Steps should be taken toward establishing a regional cooperative with other water providers in eastern Pima County. The cooperative should focus on setting guidelines for members to act in a unified and cooperative manner. If a cooperative structure can be established in the near term, Tucson Water would coordinate its efforts with the other members to address regional water issues.

CONCLUSIONS

Tucson Water developed *Water Plan: 2000-2050* to initiate a dialogue with the community to address the water-resource challenges which lie ahead. The Plan will be reassessed as assumptions and circumstances change over time. In order to sustain growth through 2050 and beyond, Tucson Water must take full advantage of all renewable resources currently available, seek to acquire additional sources of supply, and develop a more aggressive demand management program to reduce per capita water usage.

The evaluation of available water resources, current water usage patterns, and projected growth indicate that Tucson Water is well positioned to support its water needs through the planning period if current water supplies of Colorado River Water, effluent, and ground water are used to their fullest potential. However, in order to support any growth beyond 2050 and to remain compliant with state regulations, additional renewable water resources will have to be acquired. Even if the Utility's customers can reduce their water usage below current levels and the community supports the indirect use of a highly treated effluent through ground-water recharge, additional water supplies will still be needed.

The recommendations presented in this evaluation clearly support the following conclusions to:

- Maximize the use of available renewable water supplies.
- Aggressively pursue acquisition of additional water supplies.
- Reduce water usage through demand management programs.

Each of the three initiatives has its own opportunities for success. Tucson Water must aggressively pursue all three in order to ensure a sustainable water future for the Utility's customers.

