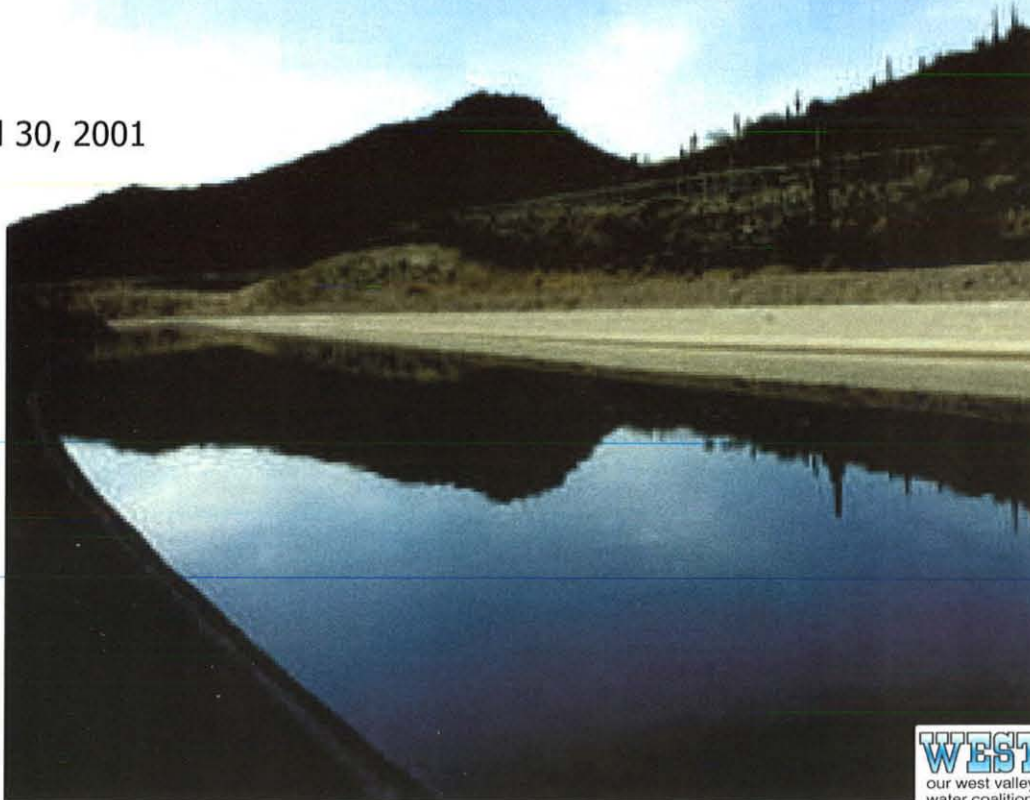


WESTCAPS

Strategic Plan
for using
Central Arizona Project Water
in the *West Salt River Valley*
2000 to 2025

Executive Summary

April 30, 2001



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Strategic Plan

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Central Arizona Project Water
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*Arizona State
Land Department*

1416 W. Adams
Phoenix, Arizona 85007



Executive Summary

WESTCAPS Water Delivery Plan



Summary

The West Valley CAP Subcontractors (WESTCAPS) are 10 Central Arizona Project (CAP) subcontractors in the West Salt River Valley (WSRV) who formed a coalition to identify and evaluate options that will allow its members to use CAP water to which they are entitled. WESTCAPS membership consists of: Arizona State Land Department, Arizona Water Company, Town of Buckeye, Citizens Water Resources, City of Glendale, City of Goodyear, City of Peoria, City of Phoenix, City of Surprise, and West Maricopa Combine. WESTCAPS was formed in July 1997 through an intergovernmental agreement among the members. WESTCAPS receives funding through membership dues (\$75,000 per year), a grant from the Arizona Department of Water Resources (\$75,000 per year), and technical assistance (\$400,000 per year) from the Bureau of Reclamation, an agency of the U.S. Department of the Interior.

The WSRV is poised for rapid urbanization that will significantly increase water demand. State law requires new development in the Phoenix metropolitan area to demonstrate a 100-year assured water supply. Full use

of CAP water is deemed critical to the continued development and prosperity of the WSRV.

A 1995 study authorized by the Arizona legislature showed that most of the WSRV has experienced significant groundwater decline, resulting in up to 17 feet of land subsidence in portions of the WSRV. Other portions of the West Valley are facing groundwater quality issues that will increase the cost of continued groundwater use. Some municipalities have made the transition and are primarily using renewable water resources; other WSRV water providers are still largely reliant on groundwater.

While Phoenix and Glendale have been using CAP allocations for 15 years, and more recently Peoria by its participation in the Glendale Pyramid Peak Water Treatment Plant, the majority of West Valley water providers are small municipalities and private water companies with limited financial resources and are located some distance away from the CAP canal. WESTCAPS members are concerned that CAP water may continue to be unused if regional solutions are not developed to allow for the treatment, storage, and delivery of CAP water.

WESTCAPS has developed a water delivery plan to shift the communities' reliance from groundwater to renewable water supplies by 2025. Groundwater

Executive Summary *WESTCAPS Water Delivery Plan*

supplies would be used in a peaking or reserve role. Referring to figure 4, facilities included in this plan are:

- Use of nearly 4 million gallons per day (MGD) of available capacity in the planned Phoenix Lake Pleasant Water Treatment Plant (WTP)
- Expansion of Glendale's Pyramid Peak WTP by approximately 29 MGD
- Two new WTPs with capacities of approximately 58 and 79 MGD
- Use of approximately 16 MGD of capacity in West Maricopa Combine's (WMC) recharge and recovery project

Staff analyzing these facilities envisioned them phased in over time: the first phase completed by year 2005, the second phase by year 2015, and the last phase by year 2025. Adjustments in the timing and location of these facilities are anticipated as this strategy is further developed and the ability and desire of the individual members to participate are determined.

In current dollars, the water delivery infrastructure is estimated to involve approximately \$500 million in capital costs over 25 years, with an annual operations, maintenance, and replacement (OM&R) expense of \$17 million.

Institutional and financing arrangements for funding infrastructure development were explored and are currently under discussion. Some of the institutional arrangements being considered are: joint powers of authority, simple contractual agreements, privatization, and a water authority.

WESTCAPS analyzed potential recovery mechanisms for the estimated capital costs. Estimated capital cost recovery, in current dollars, is: Impact fees at \$2,000 per new residential unit; Bond recovery at \$14 per month for each residential unit (existing and new), or \$600 per acre-foot of water delivered.

WESTCAPS estimated that approximately 104,000 ac-ft per year of additional renewable water supply would have to be secured by 2025 to implement the proposed water delivery plan. Water cost and availability information was prepared to get a sense of the membership's ability to acquire the necessary supply. It was concluded that there are sufficient renewable supplies available to implement the proposed plan.

Background

The West Valley CAP Subcontractors (10 Central Arizona Project subcontractors in the WSRV) formed a coalition to assess how they can work together to utilize their CAP allocations. WESTCAPS consists of the following agencies: Arizona State Land Department, Arizona Water Company, Town of Buckeye, Citizens Water Resources, City of Glendale, City of Goodyear, City of Peoria, City of Phoenix, City of Surprise, and West Maricopa Combine. WESTCAPS is organized as shown in figure 1.

WESTCAPS Water Delivery Plan Executive Summary

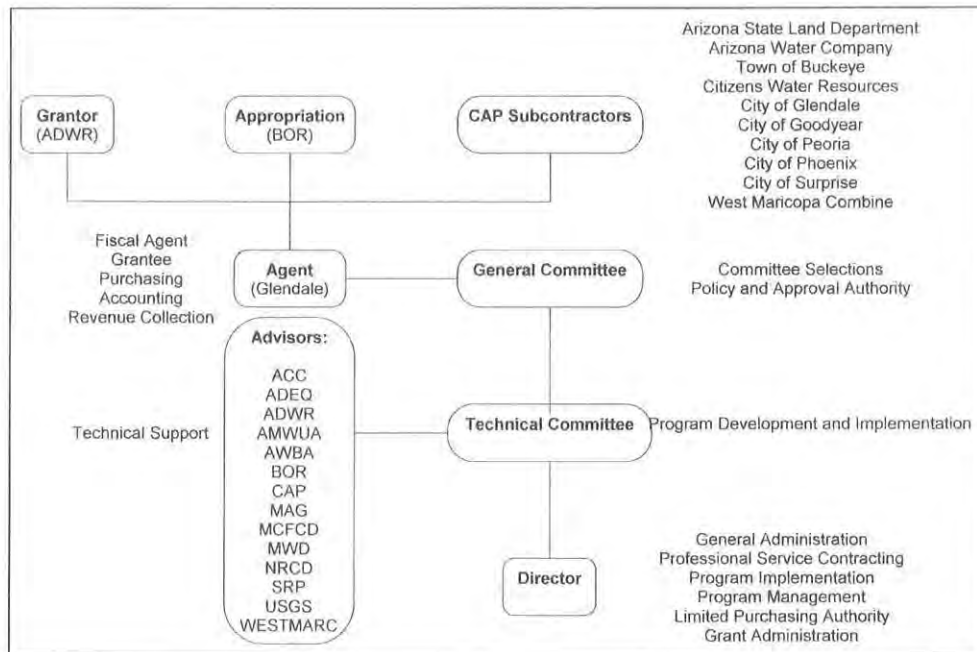


Figure 1.
West Valley CAP
Subcontractors

The study area shown in figure 2 represents the geographic boundaries of the WESTCAPS water study area and includes both present and proposed WESTCAPS members' year 2025 service areas.

Problem Statement

Each water provider in the WSRV conducts its own water resources planning and management without much consideration for the plans and actions of neighboring communities. The WSRV communities all share the groundwater aquifer and local surface water supply systems. Water providers in the WSRV must work together to protect, preserve, and develop these shared resources and to respond to issues of increasing regulatory pressure, CAP water utilization, declining groundwater levels, groundwater quality, land subsidence, and managing costs.

If no workable solution is implemented, the WSRV, as a whole, unable to obtain a designation of "Assured Water Supply," as defined by the State of Arizona. Growth and development in the area will become limited. As the aquifer is drawn down, the cost to pump groundwater will increase, water quality will degrade, land subsidence problems will worsen, and the area will not have enough supply to meet future demands.

WESTCAPS Mission and Goals

The following mission and goals were adopted by the WESTCAPS General Committee at its meeting on November 7, 1997.

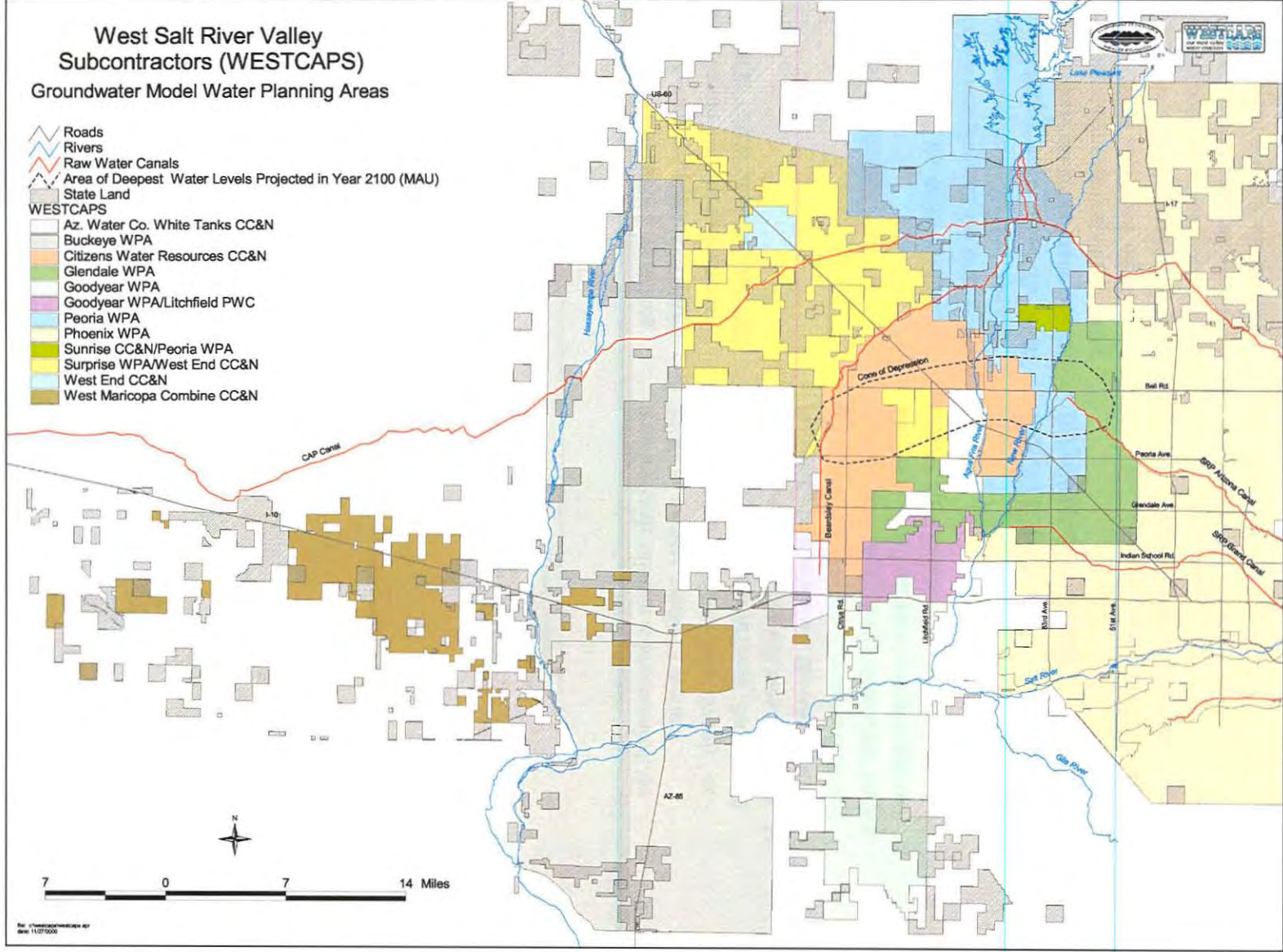


Figure 2. WESTCAPS water supply study area.

WESTCAPS Water Delivery Plan Executive Summary

“WESTCAPS is a coalition of CAP subcontractors most of whom serve drinking water to communities in the west SRV. WESTCAPS’ mission is to develop workable alternatives for its members to provide their customers with a cost effective, sustainable, reliable, and high quality water supply through partnerships and cooperative efforts in regional water resource planning and management, emphasizing CAP utilization.”

The primary goal of the planning process is to increase the efficient use of CAP water by WSRV entities possessing municipal and industrial subcontracts. In addition to this goal, WESTCAPS members expressed desired outcomes for both the planning process and what the process implementation. They are:

- Develop a plan that each WESTCAPS member can support
- Develop a common base of understanding of the issues and options
- Develop a mission statement and define the tenets for member involvement
- Protect, preserve, and enhance CAP allocations
- Maximize efficient use of CAP and other renewable resources available to the west SRV
- Understand and influence water policy in Arizona related to water and wastewater management in the WSRV (Arizona Department of Environmental Quality [ADEQ], Arizona Department of Water Resources, Central Arizona Water Conservation District, and the Arizona Corporation Commission)

- Develop long-term, sustainable regional water resource management, infrastructure, and implementation strategies

Originally, the planning process was expected to take 4 to 5 years to complete. WESTCAPS now expects to complete the planning process within 4 years.

Strategic Research

The intent of the Strategic Research phase of the planning process is to identify and describe the factors that drive change by assessing the current situation facing water providers in the WSRV, considering potential future outcomes, and summarizing the key strategic issues.

For this planning effort, a strategic issue is a driving factor for change that will, or may, influence WESTCAPS’ ability to use its CAP allocations. Strategic research helped WESTCAPS members develop a common understanding of the existing situation for each member and the region as a whole. The outcome from doing strategic research was: (1) a common basis for understanding, (2) an identification of key strategic issues, and (3) development of strategic priorities.

After the strategic research was completed and consensus was developed on the strategic issues, the next step of the planning process was for WESTCAPS to review the list of strategic issues and identify the issues of highest priority. This reduced list of strategic issues then became WESTCAPS’ strategic priorities. WESTCAPS strategic priorities are:

Executive Summary *WESTCAPS Water Delivery Plan*

1. Insufficient water infrastructure
2. Lack of financing capability
3. Insufficient renewable resources
4. Opportunity to promote recharge in the WSRV
5. Arizona Corporation Commission policy and direction

From this point forward in the planning process, WESTCAPS work efforts were focused on addressing these five strategic priorities.

Strategic Modeling

WESTCAPS identified all of its available options for using CAP and other renewable water supplies in the west Salt River Valley. From these options, WESTCAPS developed six potential infrastructure strategies. A groundwater model analysis was completed for each strategy. In addition, a present worth analysis was also developed for each strategy. It was the intent of WESTCAPS to select one of these strategies as its collective vision of the water infrastructure that should be in place by 2025 to meet projected water demands.

On June 30, 2000, the WESTCAPS General Committee met to consider a recommendation proposed by its Technical Committee to adopt a direct delivery strategy, known as the “WESTCAPS strategy,” as the best plan to fulfill WESTCAPS goals (see figure 3).

The proposed WESTCAPS strategy is that by the year 2025, WESTCAPS members would rely on renewable supplies to meet customer demands. Surface WTPs and related infrastructure would be in place by 2025 to meet projected demands, and groundwater supplies would be used in a

peaking or reserve role. Buckeye and WMC would rely on recharge and recovery projects. Facilities included in this strategy are:

- Use of 13.21 MGD of available capacity in the planned Phoenix Lake Pleasant WTP
- Expansion of Glendale’s Pyramid Peak WTP by 29.45 MGD
- Two new WTPs, located on Maricopa Water District’s Beardsley Canal, with capacities of 53.52 and 77.17 MGD
- Use of 15.84 MGD of capacity in WMC’s Pipeline to The Future

Staff analyzing these facilities envisioned them implemented in two phases. The first phase by 2010 and the second phase by 2020. Adjustments in the timing and location of these facilities are anticipated as this strategy is further developed and the ability and desire of the individual members to participate are determined.

The interim strategy for CAP utilization would be for each WESTCAPS member, either individually or cooperatively with others, to consider the following options:

- Existing water treatment plants
- Recharge and recovery in existing and future groundwater savings facilities
- Recharge and recovery in existing and future underground storage and recovery projects

In addition, the Central Arizona Groundwater Replenishment District and Arizona Water Banking Authority should be encouraged to recharge as much water as possible in the

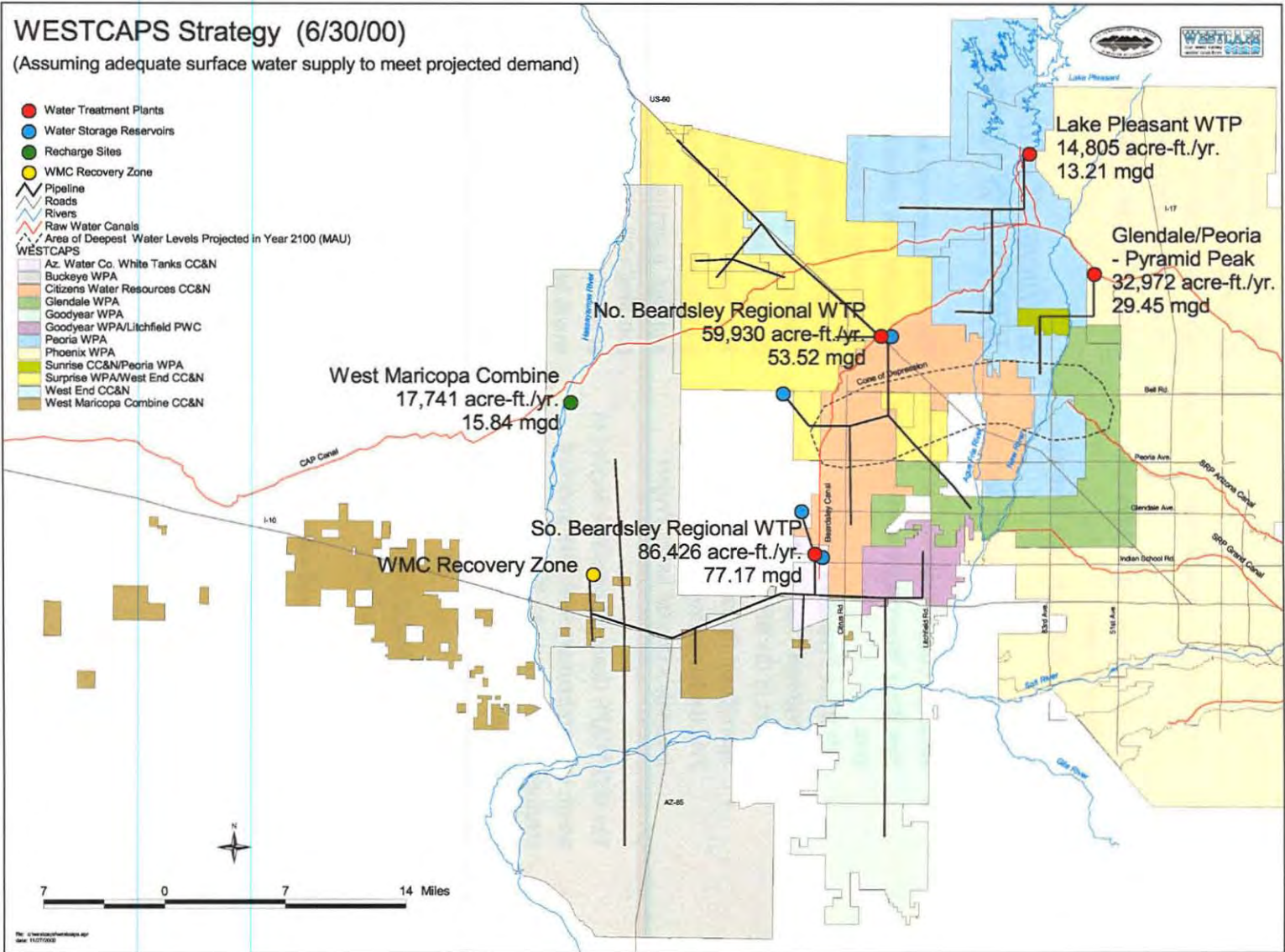


Figure 3. WESTCAPS Strategy, adopted June 30, 2000.

Executive Summary *WESTCAPS Water Delivery Plan*

WSRV. Existing and future underground storage and recovery projects include:

- West Maricopa Combine Pipeline to The Future
- Central Arizona Project Agua Fria Recharge Project
- Surprise's McMicken Dam Recharge Project
- Goodyear's Beardsley Canal Recharge Project
- Maricopa County Flood Control District New River Watercourse master planned area
- Salt River Project's Proposed Underground Storage and Recovery Project in the WSRV
- Subregional Operating Group's Agua Fria Recharge Project
- Avondale's Crystal Lakes Project

The WESTCAPS General Committee decided to adopt, on a preliminary basis, the proposed strategy, but requested the Technical Committee make additional refinements to the strategy in the following areas:

- Evaluate potential institutional and financial mechanisms
- Develop regional and subregional alternative plant configurations including transmission and distribution infrastructure

Gap Analysis

The final phase of WESTCAPS planning process, the Gap Analysis, addressed: (1) possible refinements to the WESTCAPS

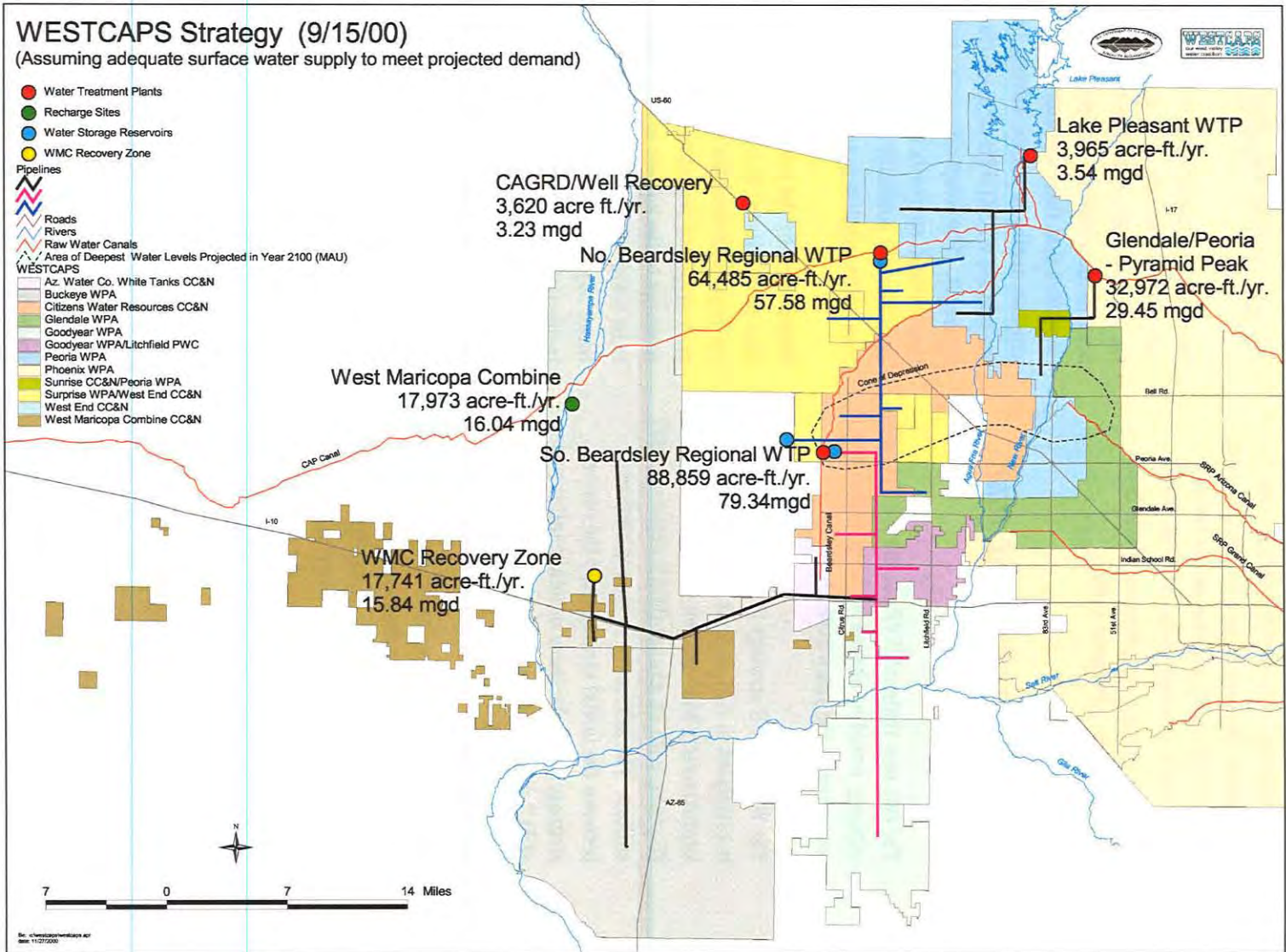
infrastructure strategy selected on June 30, 2000, (2) cost estimates and cashflow for financing the WESTCAPS strategy, (3) potential institutional and financing arrangements, and (4) sources of additional renewable water supply to meet projected supply deficits.

Refinement of the WESTCAPS Strategy

The current proposal before the General Committee is to revise the WESTCAPS strategy by relocating the proposed new WTPs on the Maricopa Water District is Beardsley Canal as follows: (1) move the north Beardsley WTP to the CAP Canal and (2) move the south Beardsley WTP north to a location on the Beardsley Canal (somewhere between Cactus and Bell Road). In addition, a portion of the City of Surprise water planning area would remain on wells, and some of the City of Peoria's projected water demand would be shifted from the planned Phoenix Lake Pleasant WTP to the proposed CAP WTP. The resulting WESTCAPS strategy, revised on September 15, 2000, is shown in figure 4. On a regional basis, there is no significant difference in capital cost between the two strategies. However, there is a significant OM&R savings. By relocating the plants, the elevation will increase between the WTPs and the respective water service areas. The increased elevation, or head, will allow for the pipelines to be adequately pressurized without booster pumps and will result in a power savings. In addition, by locating the new WTPs on two different canal systems, and by interconnecting the distribution systems from the plants, overall system reliability is improved.

A groundwater model analysis, comparing the projected hydrological impacts between the initial WESTCAPS strategy (June 30, 2000)

Figure 4. Revised WESTCAPS strategy, dated September 15, 2000.



Executive Summary *WESTCAPS Water Delivery Plan*

and the revised WESTCAPS strategy showed no significant difference between the two strategies. However, long-term groundwater drawdown projections showed the revised WESTCAPS strategy (September 15, 2000) markedly reduces the projected water level declines in the northwest valley.

Project Phasing, Cost, and Financing

The two new regional WTPs in the WESTCAPS strategy would be phased in three increments, occurring in the years 2005, 2015, and 2025.

The WESTCAPS strategy (September 15, 2000) is estimated to cost, in year 2000 dollars, approximately \$500 million in capital costs over 25 years, with an annual OM&R expense of \$17 million. The difference in the regional cost between the initial strategy and the revised strategy was a decrease in total capital costs of \$1.7 million and an annual OM&R cost reduction of \$2.5 million.

Institutional and financial arrangements for funding infrastructure development were explored and are currently under discussion. Some of the institutional arrangements considered are: joint powers of authority, simple contractual agreements, privatization, and a water authority.

WESTCAPS analyzed potential recovery mechanisms for the estimated capital costs. Estimated capital cost recovery, in the year 2000 dollars, is: Impact fees at \$2,000 per new residential unit, or Bond recovery at \$14 per month for each residential unit (existing and new), or \$600 per acre-foot of water delivered.

Sources of Additional Renewable Supply

Water availability to meet the 2025 demand and cost information were gathered to ascertain the membership's opportunity and ability to acquire the necessary supply. WESTCAPS concluded that there are sufficient renewable supplies available within Arizona to implement the revised WESTCAPS strategy (the proposed strategy). The renewable water supply requirement, currently available surface water supplies, and potential sources for additional renewable supplies are shown in Figure 5.

Demand.—By the year 2025, it is projected that an additional 211,874 acre-feet per year (ac-ft/yr) of renewable supply will be needed to meet projected demands. However, incidental recharge to the aquifer in that year is expected to be 8,475 ac-ft/yr. The projected net regional water supply demand, after adjustment for incidental recharge, is 203,399 ac-ft/yr.

Supply.—Available renewable water supplies in the year 2025 are expected to come from the following water supplies:

- Unused CAP water allocations
- Reallocated CAP water
- Maricopa Water District surface water supplies
- Gila River Indian Community (GRIC) long-term water leases

The total estimated available renewable water supply is 99,487 ac-ft/yr.

Deficit.—The estimated water supply deficit in the year 2025 regional water budget is 103,912 ac-ft/yr. Potential water supplies that could be considered to offset the projected year 2025 groundwater pumping include:

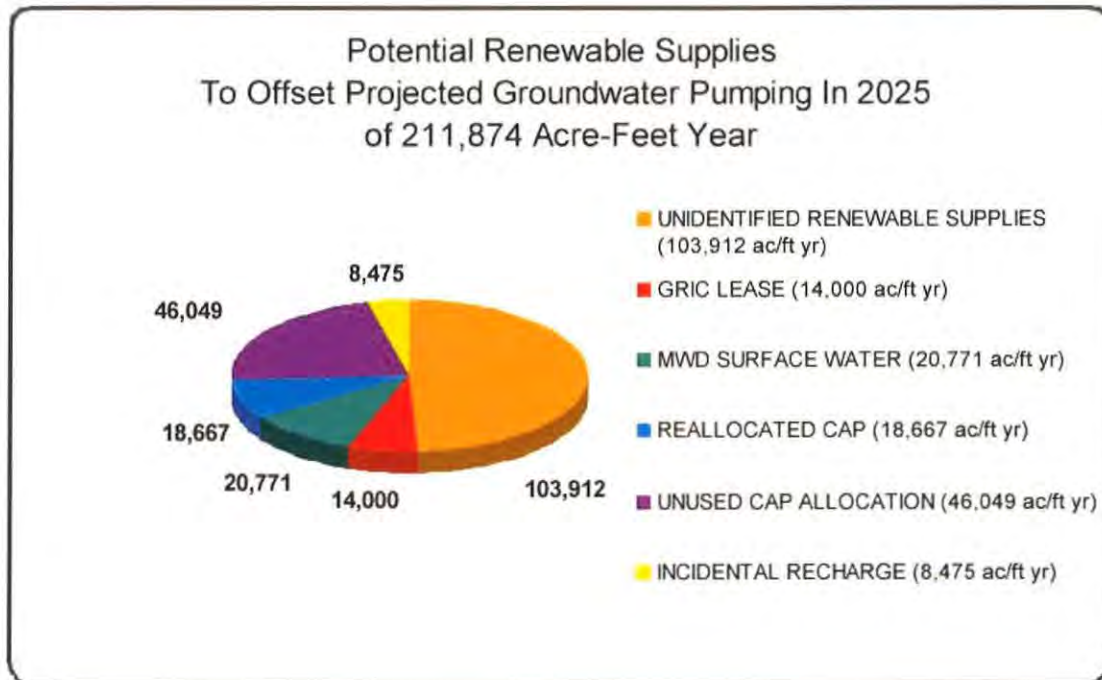


Figure 5. Potential renewable supplies.

- Potential Indian water leases from GRIC, Colorado Indian Tribes, Ak-Chin Indian Community, Ft. McDowell Indian Community, and San Carlos Apache Tribe
- CAP agriculture priority water
- Groundwater from waterlogged areas
- Reclaimed water
- Butler Valley groundwater

in the WSRV. On a regional basis, the proposed WESTCAPS strategy would provide the following benefits:

- Be less costly than if each of the WESTCAPS members sought to plan and manage their water resource needs alone
- Mitigate groundwater decline in the northwest Salt River Valley
- Improve water system reliability
- Enable water providers to more easily address current and future water quality regulations

Recommended Next Steps

WESTCAPS has determined that the proposed WESTCAPS strategy has enough technical merit to warrant the development of regional facilities and to initiate discussion with policymakers

Therefore, the next step in the planning process is to discuss the proposed WESTCAPS strategy with decision makers in the WSRV to determine the most acceptable arrangement for its implementation and financing.