

WATER RESOURCES TOWARD BUILD-OUT

Chandler has enough water for now and in the future, but not enough to waste. An ample supply of safe and reliable water is a prerequisite for any vibrant community. Chandler's water resource portfolio, consisting of both potable and reclaimed water, represents stewardship to sustain and support quality living with continued economic progress.

The Water Resources Element coordinates closely with the Integrated Water, Wastewater and Reclaimed Water Master Plan Update (Water Plan Update), occurring concurrently with the General Plan process.

Chandler has secured water resources to meet its build-out demands. Residents and businesses take pride in the community's appearance which is made possible through creative deployment of its water resources.

GOAL: MAINTAIN ADEQUATE WATER RESOURCE, SUPPLY, TREATMENT AND DELIVERY.

Objective: Assure sufficient water resources and wet infrastructure are available to provide residential, commercial, industrial and public use build-out water demands.

Objective: Comply with Arizona's Assured Water Supply and 1980 Groundwater Management Act requirements.

Objective: Keep water/sewer and reclaimed water rates affordable.

GOAL: CONTINUE PROGRESSIVE WATER CONSERVATION EFFORTS.

Objective: Promote water conservation through: public education, ordinances, incentives, low water use fixtures, xeriscape and careful summertime use.

Objective: Use constructed wetlands to recharge the aquifer as well as to add aesthetics and recreational opportunities.

Objective: Continue use of reclaimed water for parks, common areas and lakes.

GOAL: ENSURE HIGHEST POSSIBLE WATER QUALITY.

Objective: Continue to meet or surpass Arizona Department of Environmental Quality (ADEQ) standards for acceptable contaminant levels.

Objective: Adopt rigorous performance and testing criteria to maintain clean potable water.

Objective: Enforce compliance with NEPA stormwater runoff regulations.

Existing Conditions

Chandler's municipal water system serves more than 75,000 commercial, residential and institutional customers. Chandler delivered more than 20 billion gallons of water to its customers in calendar year 2006 of which over 8 billion gallons of reclaimed water were treated and reused. Residential water consumption is about 130 gallons per person per day. Total Citywide consumption, including residents, businesses, industry and City parks, equates to about 225 gallons per person per day.

Chandler gets its water resources from: 1) the Salt and Verde Rivers (delivered by Salt River Project and Roosevelt Water Conservation District); 2) the Colorado River (delivered through the Central Arizona Project); 3) wells pumping groundwater; and

4) reclaimed (recycled) water. Current water source proportions are: 61% SRP, 14% storage (e.g., Roosevelt Dam), 19% CAP and 6% groundwater pumping. At build-out, projections are: 65% SRP, 2% storage, 27% CAP and 6% groundwater.

Water and wastewater facilities have expanded to keep pace with the increased demand during the City's rapid growth period. Forward planning has sized system capacities in many parts of the community to accommodate build-out demands.

Assets. The City has adequate water resources for the foreseeable future. Infrastructure upgrades and service extensions from the Water Plan Update identify system upgrades needed to stay ahead of future development. The water distribution system delivers water from the Surface Water Treatment Plant at Pecos Road east of McQueen Road; CAP water treated by the City of Mesa's Brown Road Water Treatment Plant delivered to north Chandler and water (including recovered recharge water) from wells located throughout the City. Chandler and the Town of Gilbert jointly are constructing a Water Treatment Plant to treat CAP water. This plant will be operational in 2009. It will treat both Chandler and Gilbert CAP water, delivering water to each City's distribution system.

Chandler has demonstrated to the Arizona Department of Water Resources (ADWR) it has the water supplies, the water infrastructure and the financial capability to provide its customers with water for the next 100 years.

Challenges/Issues. Chandler has sufficient water supplies to meet its build-out demands as currently envisioned. Projections and development policy indicate residential construction will continue to slow. Commercial and industrial water demands are expected to increase. Typically, commercial operations consume less water per acre than residential; however, water use from industrial activities varies greatly. It is essential to compare projected water demands with actual usage. If water consumption increases more than projected, Chandler may need to take more stringent conservation actions or secure additional supplies.

The City's wet utilities systems also must deal with expanding existing or constructing new water and wastewater treatment facilities. For example, the wastewater plant lease with the Gila River Indian Community expires in 2017 and Chandler will need to renegotiate the lease with the Community (See Public Services and Facilities Element) or construct a facility that will replace the capacity in Chandler.

Citizens participating in the plan updating process strongly endorsed the continuation of Chandler's policy that attempts to balance water use with quality of life and aesthetics. Chandler's water conservation program has been active since 1990, applying a combination of financial incentives, free services, public education, ordinances and reclaimed water use.

Members of the public suggested more extensive use of reclaimed water in parks and HOA common areas. The City's Water Plan Update provides a strategy to use all future reclaimed water. The recycled resource is projected to meet the demands of all City parks, golf courses and large HOA common areas south of the SanTan/Loop 202 Freeway.

Water quality concerns raised by citizens (such as suggesting a pretreatment program to remove unwanted chemicals from the waste water stream and maintain a carcinogen-free potable water supply) are addressed by municipal water system operations. All potable and reclaimed water delivered by Chandler meets the appropriate State and Federal water quality standards.

Opportunities. The City may foster conservation measures through on-going education, incentives, development policies and ordinances. Approval of certain projects might be made based on a water management plan with such techniques ranging from landscaping with low water use plants to using on-site reclaimed water for outside watering.

Remaining vacant or underutilized lands may be inventoried to determine projected impacts on Chandler's future water resources. Retiring agricultural wells, for instance, often represents a net gain when the proposed development generates a lower demand. Recharge and recycling potential could also be estimated, possibly requiring these or other water conservation practices when the property is developed.

Advance planning will be required to assure that infrastructure for water re-use is cost-effective. A balance should be maintained between the amount of treated effluent available for delivery to irrigation or recharge locations. The Water Plan Update provides a road map to use all reclaimed water produced.

Build-Out Policies

The Water Plan Update provides a strategy to meet Chandler's residential, commercial and industrial water demands at build-out. Proposed system improvements consider increasing water treatment and wastewater treatment plant capacity, lift stations, flow monitoring stations, and completing the reclaimed water distribution system. Water and sewer line sizings also have been evaluated.

Chandler's Water Plan Update considers future possibility of serving unincorporated areas, "County Islands" within Chandler. Future water demand projections, however, do not consider supplying unincorporated communities such as Sun Lakes that are outside the municipal planning area.

Likely areas that may accommodate higher intensity, more dense urban development were identified as part of this General Plan Update. Five locations, four along the Arizona Avenue and another in the Price Road Corridor, may require upgraded wet utilities. Other locations, including those earmarked for redevelopment, will likely also require wet utilities' upgrades.

Water Resource policies cited in the Water Plan Update or suggested by citizen participants in the planning process include:

- ◆ Future High Capacity Transit Corridor alignment should be considered for Water Resource emphasis as a result of attracting development intensity.
- ◆ Partnerships with neighboring communities for efficient water use may entail expanded planning for shared facilities.
- ◆ Continue to require water use plans from prospective high water users.

- ◆ Employment uses might be encouraged, also, to work within a water consumption "budget"; that is, an established demand level (e.g., gallons per acre annually).
- ◆ Water conservation practices -- information, education, xeriscape, low water use technologies -- require continued, heightened emphasis.
- ◆ Efforts to acquire additional water sources and increase reclamation are expected to stay well ahead of development demand.

Implementation Recommendations

In accord with Water Resource Goals, Objectives and Build-Out Policies and in concert with the Integrated Water, Wastewater and Reclaimed Water Master Plans, Chandler commits to a series of recommendations that will support General Plan implementation.

Water Supply. Residential development is expected to level out five to fifteen years ahead of commercial/industrial land absorption. Residential water use, in general, is more predictable than different types of businesses' varying needs. Retail, service and employment activities, developing over a longer time span, require careful planning to assure sufficient, but not over-built, infrastructure. The Water Plan Update projects residential, commercial and industrial build-out water demands.

Recommendation: Initiate conservation improvements at the earliest signs of demand possibly exceeding Chandler's available water resources. Acquiring additional water resources, a costly and lengthy process, should be undertaken only as a last resort.

Wet Infrastructure. Water and wastewater treatment plants, water distribution systems and sewer collection systems need to be constructed in a timely manner to meet future needs. New facilities design and operation would continue high quality standards and mitigate external impacts, such as odor. Careful planning is required to upgrade/increase treatment capacity prior to its need, but not so far in advance that capital funding needed elsewhere is expended prematurely. Planning over a longer term allows allocating costs among all stakeholders who benefit from the infrastructure upgrades/increases. Wet infrastructure capital improvement planning should extend to cover Chandler's projected build-out demand.

Recommendation: Closely monitor water consumption and compare predicted demands to actual usage. If necessary, future demands should be fine-tuned to reflect the new data and the extended Wet Infrastructure Capital Improvement Program should be modified.

Conservation. Conserving water relates to several General Plan Elements: Neighborhood Planning, Open Space and Recreation, Public Services and Facilities, as well as Environmental Planning. Reduction in both domestic and business use is the principal means by which water rates may be kept affordable. Cost-effective recycling allows the City's available water supply to go farther and last longer.

Recommendation: Both public and private sector should continue strongly emphasizing water stewardship. Recycled water use, mentioned by many Plan Update participants, requires detailed study to determine feasibility.

Educational materials, printed and electronic, should include conservation practices "how to" information. Up-to-date information on typical household water consumption as well as by different business types would encourage water customers to reduce usage -- and expense.

Monitoring is necessary to substantiate compliance with established conservation criteria for public sites, neighborhood programs or private projects with entitlement stipulations or bonus incentives.

Excellence in water conservation should be recognized and well-publicized.