

# CITY OF PRESCOTT

# WATER

# MANAGEMENT POLICY



**2005-2010**

APPROVED BY PRESCOTT CITY COUNCIL

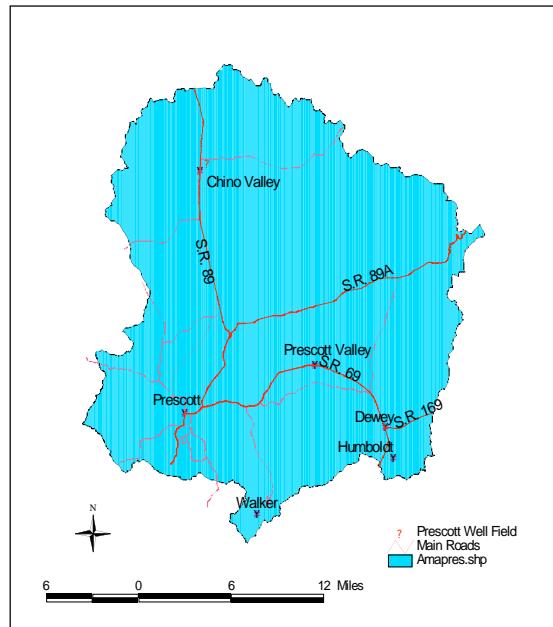
OCTOBER 25, 2005  
RESOLUTION #3712

AMENDMENT #1 MARCH 27, 2007  
RESOLUTION #3807

## INTRODUCTION AND BACKGROUND

The City of Prescott water service area is located within the Prescott Active Management Area (AMA), established under the Arizona Groundwater Code of 1980. Prescott Valley, Chino Valley, the Yavapai Prescott Indian Tribe Reservation, and some surrounding areas of unincorporated Yavapai County comprise the remainder of the Prescott AMA.

Through a series of management plans administered by the Arizona Department of Water Resources (ADWR), the 1980 Groundwater Code established a water management strategy emphasizing conservation, replacement of existing groundwater use with renewable supplies, recharge, and water quality management by all users within the AMA to help achieve the goal of safe yield by 2025. "Safe Yield" is defined by ADWR as a groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn and the annual amount of natural and artificial recharge in an active management area. The Groundwater Code also established the Assured Water Supply (AWS) program which requires each new development within an AMA to demonstrate an adequate quantity of water to meet the associated demand for a period of 100 years.



The City of Prescott water service area accounts for about 10% of the land within the Prescott AMA, and includes the city limits of Prescott, certain surrounding areas of the unincorporated part of Yavapai County, portions of Chino Valley, and the Yavapai-Prescott Indian Tribe Reservation. Because water moves throughout the entire aquifer, the Prescott water service area cannot be considered in isolation. Drawdown in other parts of the Prescott AMA can and does lower water tables in the Prescott water service area.

The City of Prescott seeks to manage its water resources in compliance with the management plans of the Prescott AMA, including contributing to reaching the AMA-wide goal of safe yield by 2025. The City considers water management to be an important tool in implementing its overall growth planning and management policies, goals and objectives; and intends to manage its water resources accordingly.

## WATER RESOURCES

In 1998 ADWR determined that the Prescott AMA was no longer in a state of safe yield, declaring it to be in a state of groundwater mining. This determination capped the amount of groundwater that could be used within the AMA as a source for new development. Since the ADWR declaration, communities within the AMA have had to develop additional (non-groundwater) resources to demonstrate a 100 year supply for new development not specifically vested by ADWR.

ADWR designated the City of Prescott as an Assured Water Supply (AWS) provider in 1999 with a water portfolio containing up to 10,800 acre-feet per year of groundwater, and 1,085 acre-feet per year of recovered effluent credits. Since 1999, the City has allocated effluent credits as

AWS for new, nonvested residential development. In addition to the recovered effluent credits, the City can pledge other supplies in its water portfolio for AWS.

The City of Prescott has proven the physical availability of up to 11,200 acre-feet per year of groundwater withdrawal within the Prescott AMA, and has a current legal groundwater withdrawal availability of 10,269 acre-feet per year. In addition, Prescott, in conjunction with the Federal Government, has the legal right to import up to 14,000 acre-feet per year from the Big Chino sub-basin (ARS §45-555E), and purchased a portion of the JWK Ranch in 2004 to exercise that right in the future. Although the Statute identifies 14,000 acre-feet per year as the amount of water Prescott and the Federal Government have the right to import, ADWR issued an advisory letter setting the City's portion at 8,717 acre-feet per year, which will be shared with the Town of Prescott Valley.

In 2004 the City submitted an application to ADWR for modification of its AWS designation, to increase the amount of resources pledged for assured water supply. The application, which requested an AWS increase of 3,318 acre-feet per year, was approved in September 2005 for a total of 2,682 acre-feet per year. The application pledged effluent credits and surface water recharge from Watson and Willow Lakes.

In addition to these now-pledged sources, the City has surface water rights for Banning Creek (Goldwater Lake), Hassayampa River, and Del Rio Springs that total approximately 3,269 acre-feet, but has no current plans to assert those rights for AWS purposes. Prescott also has a Type II water right for 3,169 acre-feet per year, but this right is limited to non-residential uses. The City is retaining this Type II water right in its portfolio for possible future use on behalf of the Yavapai-Prescott Indian Tribe (YPIT) which is served by Prescott.

Other water resources for the future include the block of effluent credits currently transferred to the Chino Valley Irrigation District (CVID) each year under the Intergovernmental Agreement between Prescott and CVID. As provided in that agreement, CVID has the one-time right to a total block of 33,000 acre-feet of effluent credits from Prescott, to be made available at up to 1,500 acre-feet per year. When this block of credits is exhausted, Prescott will have an additional 1,500 acre-feet per year of effluent credits, which could be pledged for assured water supply or other purposes. Yet another source of future water supplies comes under A.R.S. §45-555A and B. In that statute, any city or town in the Prescott AMA, can retire agricultural land in the Big Chino basin at a ratio of 3 acre-feet of water for every 1 acre of land retired. This applies to the Big Chino Water Ranch lands, and other areas within the Big Chino basin.

## **WATER DEMAND**

The Prescott General Plan, approved by voters in 2004, forecasts an annual growth rate in population between 2.0-2.5% for the next twenty years. By 2020, the unincorporated areas of Yavapai County are predicted to grow by 53%, while the Town of Chino Valley has a growth projection of 38% during this period. While the growth rate has been as high as 4-5% in the past few years, the historical average for Prescott has been 2.0-2.5%.

In 2004 Carollo Engineers created a water model for the City to identify the infrastructure capacity needed to accommodate future demand. Using the Land Development Code and General Plan land uses, Carollo developed population projections and corresponding water demands through build-out for the Prescott water service area. The water demand was calculated using actual water use trends of the City. The following table illustrates the projections through Year 2010. Note that the Population and Water Demand in the table are for

the City's entire water service area, which extends well outside the City limits. No distinction is made in these estimates between groundwater and other resources.

<b>City of Prescott Water Service Area Population Growth and Water Demand Estimates (1)</b>		
<b>Year</b>	<b>Population</b>	<b>Water Demand (acre-feet)</b>
2004	53,175	8,240
2005	54,399	9,209
2010	60,525	10,483

(1) Carollo Engineers 2004

In contrast with the Carollo projections, a second set of estimates was prepared using the Gallons Per Capita Per Day (GPCD) criterion of ADWR's Third Management Plan. The GPCD is calculated using the population of the Prescott water service area and includes both residential and non-residential consumption. The average GPCD requirement 2000-2004 was 156, but will incrementally decrease throughout the remainder of the planning period. The average actual GPCD for Prescott's water service area during 2000-2004 was 156, which met the Third Management Plan requirement.

Using a target of 150 GPCD, as set forth in ADWR's Third Management Plan for the Prescott AMA, demand through Year 2010 would be as set forth by the following table. Note again that the Population and Water Demand in the table are for the City's entire water service area, which extends well outside the City limits, and no distinction is made between groundwater and other resources.

<b>Estimated Water Demand- Prescott Water Service Area</b>		
<b>Year</b>	<b>Population</b>	<b>Demand (AF)</b>
2004	53,175	8,935
2005	54,399	9,140
2010	60,525	10,170

In order to achieve and maintain the GPCD required in the Third Management Plan, Prescott must continue to focus efforts on water conservation and recharge, and fully utilize all available effluent supplies.

Initial analysis by Carollo of the tracts of vacant land within the city water service area estimated that 6,838 potential dwelling units were not presently served. The potential demand associated with these dwelling units would equal 2,393 acre-feet if all the properties were to develop according to the underlying zoning. This analysis was further refined in 2006 as explained in the Budget for Allocation of Assured Water Supply section which follows.

## DROUGHT

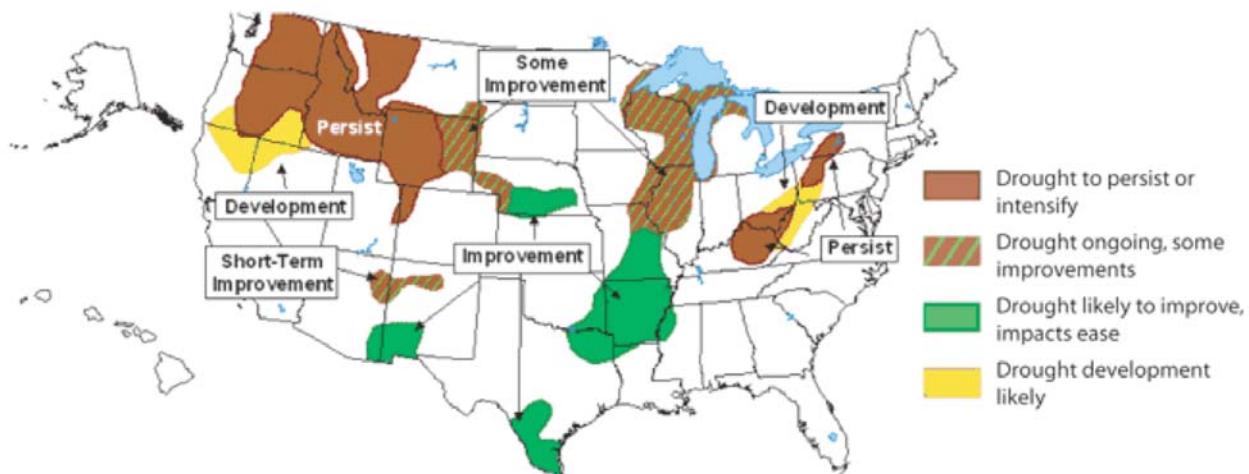
The Prescott AMA has been affected by drought conditions during most of the last decade, with 2002 being the driest year on record. It is not known at this time whether drought conditions will

abate in the short term, or whether this is a prolonged, multi-decade sequence as has occurred in the historical past.

On March 20, 2003, Governor Janet Napolitano issued Executive Order 2003-12, establishing the Governor's Drought Task Force, to address drought issues facing all Arizonans, and further directing ADWR to provide leadership in this effort. The Task Force has issued a Drought Preparedness Plan for the state and the Governor has requested each water provider to develop its own Drought Plan. The Task Force may mandate additional programs which could require that this 2005-2009 policy be amended.

Less severe conditions are forecast in 2005, but the drought is expected to continue.

**Figure 11.** Seasonal drought outlook through November 2005 (release date August 18, 2005).



## CONSERVATION

Water conservation can play an important role in reducing overall water consumption. To this end, the Mayor appointed a Water Conservation Committee to review the City's water conservation program and provide recommended revisions. The Committee is reviewing conservation regulations, enforcement, and water rate strategies, as well as developing a public information campaign. When a conservation program is adopted, it will be incorporated into this 2005-2009 policy.

## SAFE YIELD

The issue of reaching safe yield in the AMA and Prescott's contribution to meeting this goal will be addressed in a separate Long Term Water Management Policy. It is anticipated that drafting of the Long Term Policy will commence in 2005. Following adoption of this 2005-2009 policy, it may be amended to incorporate long term strategies for reaching safe yield.

## ALLOCATION OF ASSURED WATER SUPPLY

Effective December 31, 1998, all residential development within the City's water service area desiring to utilize the City's water system, and not having a 100 year Assured Water Supply certification, must obtain an alternate water allocation through an agreement approved by the

City of Prescott. Each such agreement is required as part of the approval of a preliminary subdivision plat, or amendment of a previously approved preliminary or final subdivision plat when the amendment increases the previously approved number of residential lots or residential units. An agreement is also required prior to the issuance of any building permit for multiple family housing (defined as two or more residential units), mobile home parks, residential development on lot splits, residential subdivisions approved by other governmental jurisdictions, or any other residential development not subject to the City of Prescott's preliminary and final subdivision platting approval process.

In the case of the conversion of a property which has a grandfathered groundwater entitlement to a new use for which a new plat is required, an alternate water allocation agreement will be necessary for the total demand associated with said new plat. In addition to the new plat and water service agreement, the development shall be subject to applicable water system and resource development fees as provided by the City Code.

All water demand, both residential and non-residential, must be supported by the City's physical and legal availability. To ensure that the physical and legal availability are not exceeded, the City will require water service agreements for all non-residential project requests over five acre-feet per year to be approved by Council. The demand associated with such project requests will be debited from the City's available AWS.

Allocations for AWS shall only be made by agreement approved by the Prescott City Council. Such agreements may set forth the terms and conditions of water allocation including, but not limited to: volume of approved water; time periods to use or lose the water allocation; third party approval requirements; City sewer use and effluent ownership and use rights; any special fees or assessments; and stipulations and requirements regarding the use of the property to be developed as set forth in a development plan.

Agreements for the allocation of water shall be approved only within the approved Prescott Water Budget, provided, however, that the Prescott City Council may from time to time amend the Water Budget.

Approval of agreements for the allocation of water shall require that development plans comply with all applicable City development regulations; are consistent with and conform to the City's adopted General Plan; and are consistent with and conform to any and all adopted and applicable City: (A) Specific Area Plan; (B) Neighborhood Plan; (C) Local Historic District Plan; (D) Circulation Management Plan; (E) Open Space, Trail, Park or Recreation Plan; (F) Growth Planning or Growth Management Plan; (G) Capital Improvement Plan; (H) Redevelopment Plan; and or (I) other adopted, applicable City Plan or Policy. In determining whether a development plan is consistent with and conforms to the General Plan and any of the identified other applicable and adopted plans or policies, the overall intent and goals of the applicable plan or policy shall be considered, and the development plan shall also be evaluated as to whether it furthers the implementation of, and is not contrary to, the policies, goals, objectives, strategies and applicable elements of the City.

## BUDGET FOR ALLOCATION OF ASSURED WATER SUPPLY

Following the AWS designation in 1999, Prescott established a five-year Alternate Water Policy and Budget for allocating 1,000 acre-feet of the 1,085 acre-feet of effluent credits identified by the ADWR designation order. Prior to the 1998 declaration of groundwater mining in the Prescott AMA, all subdivision development could be served from groundwater. Subdivisions developed after the declaration, and not identified and vested by ADWR, must be served from

non-groundwater sources. The five-year Policy required a water service agreement for any new residential development, but neither an agreement for, nor accounting of, water for non-residential development, since each residential allocation includes an additional increment for non-residential demand. At the end of the five years covered by the City's 1999 policy, approximately 200 acre-feet remained unallocated.

One of the goals of the 1999 policy was to not exceed 8,000 acre-feet of net groundwater withdrawal each year. The City exceeded that goal in 2002, due to extreme drought, the bark beetle infestation, and lower than usual surface water recharge. With the utilization of all water resources through the next five year period, this goal of 8,000 acre-feet/year is achievable.

In 1998, the City entered into an Intergovernmental Agreement (IGA) with the Chino Valley Irrigation District (CVID) according to which water service is provided to the selling owners of the CVID at the rate of 0.25 acre-feet per acre. The City also has commitments for water agreements approved in the 1960's and 1970's that are not yet built out. These reservations are reflected in the available water budget.

In 2006 all vacant, residentially-zoned parcels in the City without specific water service commitments were surveyed, and a calculation made for each of the quantity needed to serve it if developed to the maximum allowed density: 3,887 potential dwelling units with a total demand of 1,360 acre-feet. A reservation for this quantity is also made in the table below (Line i.).

The following table provides an estimate of water available for allocation, including the AWS increase approved by ADWR in September 2005.

<b>WATER AVAILABLE FOR ALLOCATION AS OF 10/11/05</b>		
	Acre-Feet	Acre-Feet
a. Initial Allocation--1999	1,000.00	
b. Total Water Allocated through 2005	868.05	
c. Remaining Allocation		<b>130.90</b>
d. Water Allocation Budget Increases		
Allocate remaining 85 acre-feet from initial designation	85.0	
2005 Assured Water Supply Increase	2,682.0	
e. Total Potential Increase in Water Allocation Budget		<b>2,767.00</b>
f. <b>Total Water Available</b>		<b>2,897.90</b>
g. Less Contractual Commitments to CVID		(534.58)
h. Less Commitments to Previously Approved Water Agreements		(58.50)
i. Less Reservation for Vacant Residential Unwatered Parcels <sup>1</sup>		(1360.35)
j. Less Water Allocated in 2006		(111.85)
<b>k. Assured Water Supply Available for Allocation As Of 1/01/2007</b>		<b>832.62</b>

<sup>1</sup>. Allocations from the yearly budget for new subdivisions and residential developments on vacant parcels within City limits would be deducted from this category.

As indicated above, 832 acre-feet are estimated to be available to the City for purposes such as: allocation to new development; contributing to offsetting groundwater mining in the AMA; and/or reservation for possible future mitigation of importing water from the Big Chino aquifer (Big Chino Water Ranch), if necessary. Even though Prescott may not have the Big Chino Water Ranch importation project in place before the end of the policy period, the credits could be reserved and pledged as a commitment to future mitigation.

During this 2005-2010 policy period, the City will make available for new residential development 1,000 acre-feet plus the remaining initial allocation from 1999 of the total Assured

Water Supply Available for Allocation indicated in the table above. For 2005, the initial allocation from 1999 remaining at the date of adoption of this policy shall be budgeted, and 200 acre-feet per year shall be budgeted for 2006-2010 (hereinafter referred to as the base allocation), with any unused balance rolling into a contingency allocation for use in any following year. If the yearly base allocation is used prior to the end of the calendar year, projects which further and enhance an adopted Council goal and provide additional benefits to the City may be considered, and an allocation may be approved over the yearly base allocation, which excess will be subtracted from the contingency allocation. A project will not be allocated more than 50% of the budgeted base allocation remaining, unless there is sufficient balance in the contingency allocation to cover a project request in excess of the 50% limit. A "project" shall be defined as the development of a parcel of property (or portion thereof). The phrase "parcel of property", as used herein, shall mean all of that real property which was contiguous and under common ownership at any time on or after November 9, 2004.

Of the total yearly base allocation available, 20% will be reserved for demonstrated workforce/affordable housing projects. Any unused balance of that base allocation for workforce/affordable housing will be rolled over into succeeding years and will only be available for allocation for workforce/affordable housing projects in any following year. "Workforce/Affordable housing" shall be defined as housing available for homebuyers earning incomes less than 120% of the median income for Prescott for a family of four as defined annually by the U. S. Department of Housing and Urban Development (HUD); provided the mortgage payments (principal and interest) for said housing will not constitute more than one-third of the homebuyer's income. The 50% per project limit shall not apply to the workforce/affordable housing category. The Water Allocation Committee will develop scoring criteria to evaluate each project for which an allocation from the Workforce category has been requested, with the objectives of encouraging a wider range of opportunities for workforce housing and providing flexibility for Council consideration of workforce housing proposals. Approval of a project will require that the developer enter into a development agreement, to include deed restrictions identifying and requiring the property to remain as workforce housing.

The word "year" as used in this Policy shall mean the calendar year beginning on January 1 and ending on December 31.

Master-planned (phased) projects requiring an allocation exceeding the budgeting criteria contained herein may request a reservation of the total project amount, provided that no more than 40 acre-feet will be allocated to the project in any one year. The yearly allocations may accumulate until the total project reservation is reached, further provided, however, that the total amount reserved must be allocated to the last final plat of the project by a date certain to be specified by the Council at the time said total reservation is approved.

The Subdivision Regulations require final plat submission within one year of preliminary plat approval, unless an extension is granted by the City Council. A Water Service Agreement associated with a preliminary plat will also expire after one year of preliminary plat approval, unless the final plat is submitted or the preliminary plat is extended. If a developer proposes to build more units than the Council will allocate water for, the developer can also bring additional water rights and/or credits to the City in order to serve the additional demand.

The Mayor has appointed a Water Allocation Committee consisting of three Councilmembers to review all requests for water allocations. The Committee provides recommendations to the full Council regarding each allocation.

## EFFLUENT MANAGEMENT

The City of Prescott had an average return flow to the wastewater treatment plants of 3,791 acre-feet per year from 1993-2004, approximately 54% of potable water delivered to customers. From 1999-2004, an average of 2,186 acre-feet of effluent was recharged, which is net of 4% evaporation loss in the recharge operation, and an average of 1,614 acre-feet of effluent was delivered to customers for direct use. By prior commitments, Prescott has allocated an annual volume of effluent equal to 2,240 acre-feet. The allocation breakdown is:

<b>Contract <u>Customer</u></b>	<b>Quantity</b>
Antelope Hills Golf Course	1000 af/yr
Hassayampa Village	500 af/yr
Prescott Lakes Development	500 af/yr
Yavapai Materials, Inc.	240 af/yr

As the averages show, less than 80% of the total contract allocations are actually used annually.

In addition, the City is obligated to provide up to 1,500 acre-feet per year of effluent credits to CVID through 2020. YPIT also has a right to effluent produced on their reservation, either by treating the wastewater themselves, or building a pipeline for effluent from the City's treatment plant; and has second priority on effluent, following the Antelope Hills Golf Course, in times of shortage. YPIT has discussed selling effluent to others for irrigation purposes. All of these scenarios would reduce the amount of effluent available to the City for direct use and/or recharge.

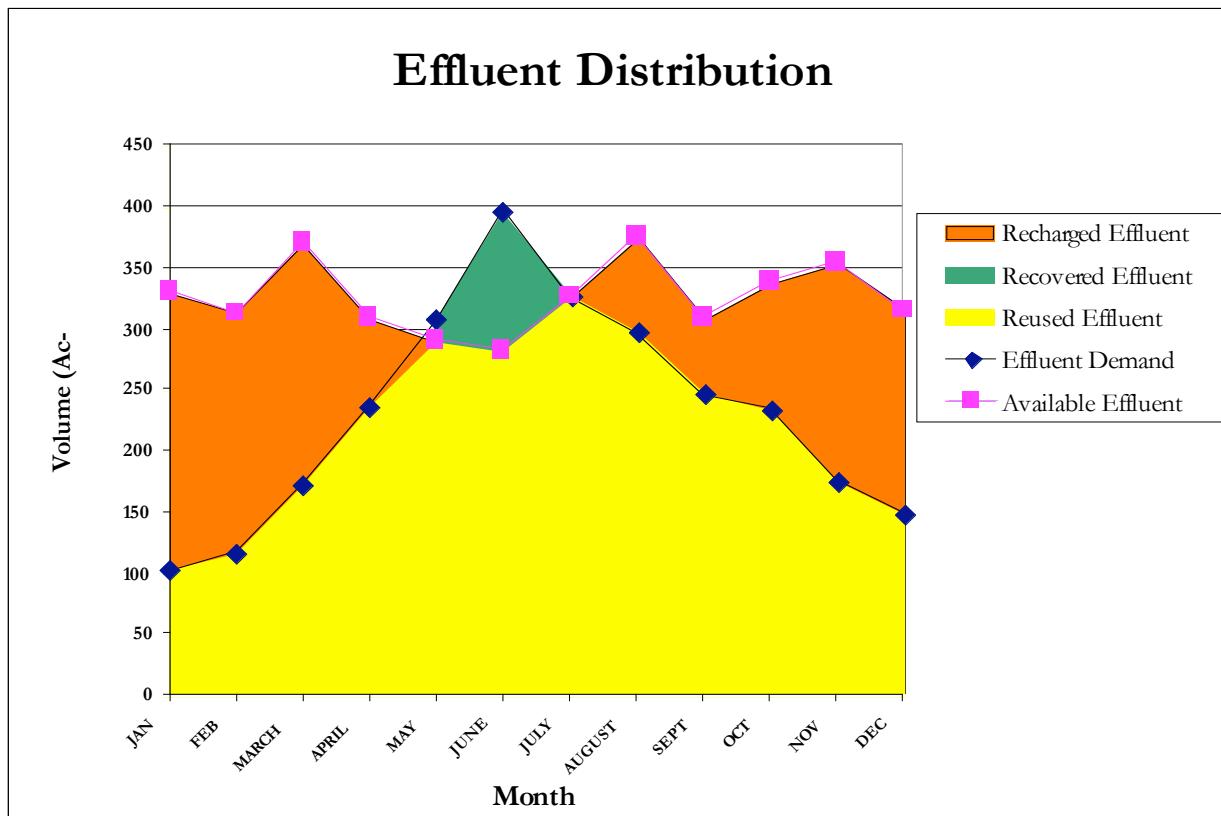
The availability of non-groundwater resources (surface water and treated effluent) exceeds the associated present day demand. Recognizing this, effluent not directly delivered to customers has been pledged as part of the City's 2004 AWS application to ADWR; any additional allocation of this resource would impact the AWS Allocation Budget. Recognizing the heavy demand of golf course irrigation, the City will not allocate any additional effluent for golf courses beyond that provided for in existing agreements, nor shall the use of potable water for irrigation of new golf courses be allowed. Potable water may only be used to irrigate municipal golf courses under temporary, emergency circumstances.

The current effluent rate structure is governed by the contracts with each customer. A minor amount of effluent is delivered annually for construction use, and is charged a higher rate than the contract customers, but less than potable water rates. This rate structure will be reviewed once the Sewer Model is completed.

### Use of Recovered Effluent for Turf and Landscaping Irrigation

One of the 1999 Water Management Policy goals was to convert irrigation of existing parks and large turf areas from potable water to effluent. This goal has not been achieved for two primary reasons: (1) inadequate available effluent in the summer, when the demand for turf irrigation is highest; and (2) the cost of infrastructure to convey effluent from wastewater treatment plants to points of demand.

The following chart shows that the highest demand for irrigation effluent (during summer months) is when the supply is lowest, and recovered effluent credits must be used to meet the contractual obligations, further impacting available supplies. One option would be to wait for the available supply of effluent to increase, and then convert large turf areas to effluent watering. With respect to the second reason, effluent must be carried in a separate pipeline from potable water, so new main lines would have to be installed from the wastewater treatment plants at considerable cost. Again, the cost feasibility will be evaluated as part of the City's Sewer Model project.



## CURRENT AND EMERGING POLICY ISSUES

### Surface Water Recharge Operating Plan

When Prescott purchased Watson and Willow Lakes, the City inherited a court-ordered stipulation between CVID and Salt River Project (SRP) which precludes recharge from the lakes prior to April 1 or after November 30 in any year, leaving a 90 day window to recharge under the current operating plan (September-November). During this policy period, the City will pursue an agreement with SRP to enable recharge between December 1 and March 31 in any year, to predetermined lake levels balancing recharge and recreational uses.

### Yavapai-Prescott Indian Tribe Water Rights

In 1995 the City participated in a water rights settlement pertaining to YPIT, by pledging to serve their water needs. Under the settlement terms, YPIT is first-in-line for water served by the City.

Current YPIT water needs are 215 acre-feet/year. Since the ultimate water demand of YPIT is uncertain, estimated quantities must be assumed at various planning horizons.

The City's water portfolio also contains a Type II groundwater withdrawal right of 3,169 acre-feet/year granted by the 1980 Groundwater Management Act. The City has not pledged this water right for any purpose, and it is not reflected in the Assured Water Supply Designation by the Arizona Department of Water Resources as being "physically available". The two Airport area production wells added to the capital improvement program in January 2005 will allow the City to demonstrate an increased physical availability. The City is retaining this Type II water right in its portfolio for possible future use on behalf of the Yavapai-Prescott Indian Tribe (YPIT) which is served by Prescott

### Importation from the Big Chino Basin

In December 2004, the City acquired a portion of the JWK Ranch, encompassing 4,500 acres of private land and 924 acres of State Leased Land, now known as the Big Chino Water Ranch. The property, approximately 45 miles north of the City in the Big Chino basin, has been used for farming and cattle ranching.

Pursuant to A.R.S. §45-555E the City and the Federal Government are allowed to transport up to 14,000 acre-feet of water from the Big Chino basin. An advisory letter from ADWR has set the City's portion at 8,717 acre-feet per year. The City plans to bring the water from the Big Chino basin into the Prescott AMA to bolster its long term water supply.

The City and Town of Prescott Valley have entered into an intergovernmental agreement to share water to be imported from the Big Chino basin, and associated capital and operating costs. The target for delivery of water from the Big Chino Water Ranch into the Prescott AMA is 2009. During this 2005-2010 policy period, water from the Big Chino Water Ranch is not anticipated to be available. The subsequent water management policy (post-2010) will reflect this new resource.

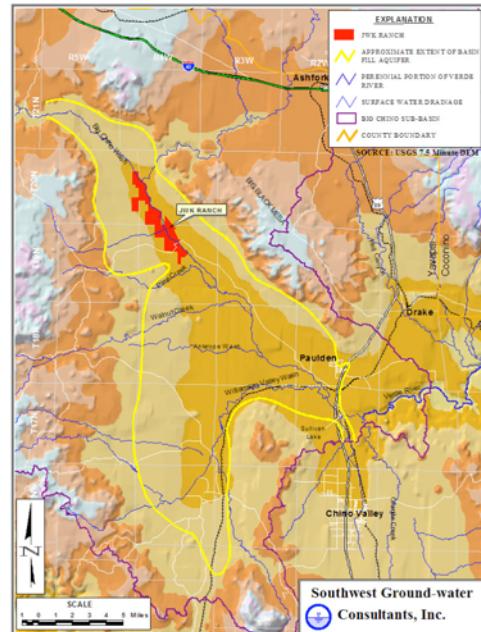
### Aging and Deficient Water System Infrastructure

In December 2004 Carollo Engineers completed a supply and demand hydraulic model of the City's water system, from the present through build-out (full development within the existing City limits, plus lands to be annexed as set forth by the General Plan). The model identified numerous system deficiencies (flow and pressure) that must be addressed in order to ensure a reliable and sufficient supply for residential and non-residential uses, including fire protection.

Additionally, parts of the City's system are as much as 100 years old. Replacement, rehabilitation, and upgrading of water infrastructure will need to be addressed in short and long term capital improvement programs.

### Cost of Water and Rates

Full utilization of the City's available water resources in accordance with state regulations and adopted City policies, and participation in effective regional water management strategies, will



require expenditures from various funding sources. The City has established a Water Development Impact Fee applicable to all future residential development, to ensure such development pays a fair, proportionate share of water resource and system infrastructure costs. The City will periodically review all water rates and fees to ensure adequate cost recovery and consistency with adopted goals and plans.

The cost of future water will be considerably higher than it is today, because of development and operational costs for the Big Chino Water Ranch, offsetting overdrafting in the Little Chino aquifer, arsenic and other treatment required by federal and state regulations, and Big Chino basin monitoring and possible mitigation responsibilities. The Water Conservation Committee is also exploring water rate structures which would promote water conservation, and will provide their recommendations to the City Council. This conservation strategy would be one of several inputs to water rate setting, which includes energy, maintenance, and operational costs, infrastructure rehabilitation and other system upgrades.

To the extent that certain prospective programs such as workforce/affordable housing are implemented with financial incentives to be provided by the Water Fund, the cost of water may be further affected.