TONTO HILLS DOMESTIC WATER IMPROVEMENT DISTRICT

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DISCUSSION OF WATER SYSTEM AND 2014 WATER RATE SCHEDULES
TONTO HILLS DOMESTIC WATER IMPROVEMENT DISTRICT

Tonto Hills Utility Company (THUC) acquired a water allocation of 71 acre-feet per year (AF/yr) from the Central Arizona Water Conservation District (CAWCD) via the Central Arizona Project (CAP) canal and brought it online in March 2004. Under an intergovernmental agreement, City of Scottsdale draws our water allocation from the CAP canal, treats it with its own CAP allocation, and delivers it to us via the Desert Mountain water distribution system. Therefore, our water is effectively Scottsdale water and includes Scottsdale well water. The water is then stored in our hillside water tank from which it is distributed by gravity to our customers via more than 6 miles of pipeline within Tonto Hills. This "surface water" supply replaced a groundwater supply that was provided by two aging THUC water wells located on nearby U.S. Forest Service property, had quality and quantity issues, and could not keep pace with the water demand. The Tonto Hills Domestic Water Improvement District (THDWID) acquired THUC's assets in December 2010, but the federal leases for the THUC well sites were not transferred to THDWID and, due to quality issues and low production from the granite aquifer, local wells are no longer a practical option for Tonto Hills. Currently, the limited CAP supply is the only feasible long-term source of water for Tonto Hills.

Our CAP water allocation is classified as Municipal and Industrial, which means that we hold a significant priority over other major users of CAP water, such as all agricultural and excess water contracts and recharge projects. In fact, only the Indian long-term contract entitlements have a higher priority on the CAP system. Arizona Department of Water Resources (ADWR) reports that the risk of our allocation being reduced due to prolonged drought conditions is low. If a prolonged drought condition required any reductions, they would be shared equally on a percentage basis among all the other municipalities and industries in our classification and that reduction would likely be small. These factors indicate that our water supply will last for the foreseeable future (our renewable CAP contract term is 100 years) and that any interruptions of the CAP system will be temporary in nature and will be due chiefly to operation and maintenance issues.

The THDWID Board is committed to providing sufficient potable water for its members within the limits of the available resource. We are preparing for unforeseen interruptions in CAP water supply by banking our unused CAP allocation at a Groundwater Savings Facility and obtaining long-term storage credits against which Scottsdale can pump groundwater in lieu of CAP water to continue meeting our needs, if necessary. In addition, we have identified water-trucking companies that could help us through short-term local interruptions in the Scottsdale water system or in our own distribution system. Other ongoing efforts include acquisition of additional CAP water supply through the phased ADWR reallocation of Non-Indian Agriculture water. The THDWID New Build/Remodel Policy was developed in 2014 to encourage design of new homes and renovation of existing homes to be

consistent with our long-term water management goals and to discourage designs that could put new members at risk of having insufficient water for full enjoyment of their homes when we approach full build-out.

The Board has also analyzed our potential water demand at full build-out of the Tonto Hills community to determine the sustainability of our current rates of use and to plan ways to keep our supply sustainable in the coming decades. It is difficult to predict exactly how many homes will be built in our subdivision because there are a few tracts that could be subdivided and there are some parcels that may not be buildable due to the terrain.

Based on our useable CAP allocation and a best estimate for the number of customers that might constitute "full build-out" (190 to 220), the Board projects that there will be sufficient water to supply about 86,000 to 100,000 gallons per year (gal/yr) to each residential/commercial customer at full build-out if everyone used the same amount of water. This amount is equal to an average monthly supply of about 7,200 to 8,300 gallons per lot. This amount is consistent with the per capita usage assumed by the ADWR for communities like ours. The bases for these projections include:

1. Only 58 AF/yr (or 82%) of our 71-AF/yr allocation is assumed to be useable due to:
    a. 5% pipeline and storage losses claimed by Scottsdale for delivering the water to us (per our Scottsdale contract for treatment and delivery of our CAP allocation)
    b. 13% losses inside the THDWID before water reaches customers (reasonable estimate based on data collected for 2011 and 2012, and consistent with the Preliminary Engineering Report for the Tonto Hills water system), including leak losses from the THDWID side of the distribution system, fire fighting use, major waterline breakages, and water losses during sampling, flushing, and freeze prevention (the Board is working to identify and mitigate causes of these losses)
2. 190 to 220 residential/commercial customer parcels are assumed at full build-out (the number of customers used for calculation-rounding purposes was 198)
3. No long-term reductions in our allocation due to drought or other causes are assumed to occur (external factors that may decrease our useable allocation include: cut backs to Municipal and Industrial CAP allocations due to drought; interruption of CAP supply due to terrorist attacks or canal maintenance/repairs; ADWR actions taken due to unsustainable population growth; etc.)

Unlike large municipalities in the valley, THDWID has a finite source of CAP water that cannot be augmented by pumping groundwater from our own wells. Therefore, the Board believes it is fair and reasonable for both current residents and unbuilt parcel owners to expect an equal share of the limited water resource if they need it, regardless of their current water demand. Otherwise, some THDWID members might not have sufficient water if others use excessive amounts of water. Using the 58 AF/yr of useable allocation described above and assuming 198 customers at full build-out, the equal per-lot-share would be **96,000 gal/yr**, which is equal to an average use of **8,000 gallons per**

month. Only 16% of the customers (20 of 127) used more than 96,000 gallons in 2012 and most of the customers used far less than this amount. Future Boards should change this threshold accordingly if the useable allocation changes or better information becomes available over time for the assumptions used in the calculations. The "equal share" threshold is intended to be the demarcation beyond which the Board can implement high-use tiers in the rate schedule and, further, can consider restrictions and levying of fines for overuse when water resource conditions are critical.

The THDWID is far from needing to institute substantive measures, unless external factors threaten our water supply, because:

1. As of October 2013, THDWID was only between 56% and 66% of projected full build-out
2. In 2011 and 2012, the average customer metered water use in the THDWID was only 83% and 72%, respectively, of the estimated 96,000 gal/yr "equal share" (see table below)
3. As a community, metered water use in 2011 and 2012 was only 53% and 46%, respectively, of the estimated 58 AF/yr useable allocation

The concern is that, in the long term, the percentage of use by each customer could change to a point that it is not sustainable as we approach build-out. At that point, substantive measures will be necessary to bring excessive water users in line with the rest of the community. The responsible approach is to inform THDWID members of the limitations of our water supply so that customers can monitor their use and work to bring it down to a sustainable level and so that new homebuilders can design features compatible with the equal share threshold of sustainable water use.

	WATER USAGE (in gallons)					
	Full Year Occupied		Total Use		Median Use	Number
Calendar Year	Lowest Use	Highest Use	Billed	Average Use	(50th percentile)	of Users
2011	12,640	455,060	10,074,090	79,953	59,020	126
2012	13,680	376,660	8,778,414	69,121	54,320	127

To address these issues and to provide a sustainable water supply for all THDWID members, the Board believed it was prudent to establish new commodity rate schedules on January 1, 2014 that can be used in conjunction with THDWID's Conservation Plan, which is required by the State of Arizona. The Board considered the pre-2014 usage characteristics and commodity rates for our community, rate structures for nearby towns and communities, and the potential impacts to water bills of current and future THDWID residents. Design of the 2014 rate schedules included numerous iterations of alternative rates using 2012 actual meter readings to arrive at a structure that:

1. Has no impact on existing/future customers that use no more than 13,000 gallons per month
2. Has no significant impact on even the highest users until Conservation Stages 3 or 4 are reached (expected to be decades into the future at current home building rates, unless external factors threaten our water supply)
3. Provides future Boards with the tools to incentivize users to conserve when required

The 2014 conservation water rate schedules retain Tiers 1 and 2 of the previous 3-tier schedule, but add three new tiers for high water use. This structure is consistent with rate schedules for many nearby municipalities, including Cave Creek, Carefree, and Scottsdale. The Conservation Plan includes restrictions on certain types of water use at various stages of threat to our water supply, as well as consumer education and counseling on water conservation. In addition to the 2014 rate schedules, the THDWID Board will be able to levy fines and impose other restrictions when necessary during Conservation Stages 3 and 4 to provide further incentives to reduce water usage to sustainable levels.

2013 WATER RATE SCHEDULE AND 2014 CONSERVATION RATE SCHEDULES
COMMODITY RATES PER 1,000 GALLONS PER MONTH

(Zero Gallons Included in $40 base rate)		2013	2014 (Stages 1 & 2)	Stage 3	Stage 4
1st Tier: 0 – 4,000 Gallons	$	6.80	6.80	6.80	6.80
2nd Tier: 4,001 – 13,000 Gallons	$	10.20	10.20	10.20	10.20
3rd Tier: 13,001 – 20,000 Gallons	$	12.30	12.30	15.00	20.00
4th Tier: 20,001 – 30,000 Gallons	$	12.30	12.42	20.00	40.00
5th Tier: 30,001 – total usage	$	12.30	12.55	30.00	70.00

The THDWID Conservation Plan gives detailed descriptions of the conservation measures to be taken in four stages, based on water supply conditions. The Conservation Rate Schedules for Stages 3 and 4 would become effective when the following conditions occur:

Stage 3: Any combination of build-out, water use, and adjustments to useable allocation causes **80% or more of the total useable allocation** to be used

Stage 4: Any combination of build-out, water use, and adjustments to useable allocation causes **90% or more of the total useable allocation** to be used

Note that adjustments to useable allocation could be caused by internal factors (differences in the assumed 13% unmetered water loss) or external factors (reduction in CAP or local water supply).

It is the Board's intent to make decisions annually regarding implementation of the Conservation Rate Schedules at the February THDWID Board meeting so that an announcement can be made at the Annual General Meeting in late March. Decisions are based on the usage data for the previous year. If implemented, the Stage 3 or 4 Conservation Rate Schedules would be applied beginning with invoices for the following April use and would continue until a different conservation stage is declared. The Board may implement Stage 3 or 4 rates at other times based on the then-current water supply conditions and intends to provide ample advance notice to the THDWID customers to allow them to alter their use patterns to avoid the high-use rates and potential fines.

Comparisons of the rate schedules based on 2012 metered water use data are tabulated on the following pages

RATE COMPARISON: 2013 vs. 2014 (Conservation Stages 1 and 2)
TONTO HILLS DOMESTIC WATER IMPROVEMENT DISTRICT

	WATER USAGE (in gallons)					
	Full Year Occupied		Total Use		Median Use	Number
Calendar Year	Lowest Use	Highest Use	Billed	Average Use	(50th percentile)	of Users
2011	12,640	455,060	10,074,090	79,953	59,020	126
2012	13,680	376,660	8,778,414	69,121	54,320	127

	2012 WATER USAGE (in gallons)				
User Class	Low Month	High Month	Average Month	2012 Total	
Lowest User	830	2,180	1,140	13,680	
Median User (50%)	2,670	5,910	4,524	54,290	
60th Percentile	4,270	8,240	5,374	64,490	
Average User	4,353	7,893	5,760	69,121	(avg low month is January; avg high month is June)
70th Percentile	2,280	10,370	6,463	77,560	
80th Percentile	4,390	10,390	7,554	90,650	(108 users used < 96,000-gallon annual "equal share")
90th Percentile	8,560	23,560	11,378	136,530	(14 users were at 90th percentile or more)
3rd Highest User	7,970	40,080	21,380	256,560	3 highest use residential lots
2nd Highest User	12,530	40,830	26,728	320,730	
Highest User	15,450	50,500	31,388	376,660	

2013 Tiers	
Gallons	Dollars/Gallon
0-4,000	0.00680
4,001-13,000	0.01020
>13,000	0.01230

	2014 Tiers (Stages 1 & 2)		
	Gallons	Dollars/Gallon	
Tier 1	0-4,000	0.00680	
Tier 2	4,001-13,000	0.01020	8,000 is current estimated "equal share"
Tier 3	13,001-20,000	0.01230	same rate as current Tier 3
Tier 4	20,001-30,000	0.01242	1% > current Tier 3
Tier 5	>30,000	0.01255	2% > current Tier 3

		COST OF WATER USAGE: 2013 vs. 2014 Rates			Increase in Water Bill from 2012 Usage			
Rate Schedule	User Class	Low Month	High Month	Average Month	Low Month	High Month	Average Month	
2013	Lowest User	$46	$55	$48				
2014	Lowest User	46	55	48	$0	$0	$0	
2013	Median User (50%)	58	87	73				
2014	Median User (50%)	58	87	73	0	0	0	
2013	Average User	71	107	85				
2014	Average User	71	107	85	0	0	0	
2013	60th Percentile	70	110	81				
2014	60th Percentile	70	110	81	0	0	0	
2013	70th Percentile	56	132	92				
2014	70th Percentile	56	132	92	0	0	0	
2013	80th Percentile	71	132	103				
2014	80th Percentile	71	132	103	0	0	0	
2013	90th Percentile	114	289	142				
2014	90th Percentile	114	289	142	0	0	0	
2013	3rd Highest User	108	492	262				14 users at or above 90th percentile
2014	3rd Highest User	108	496	262	0	$4 or 0.8%	0	
2013	2nd Highest User	154	501	328				
2014	2nd Highest User	154	505	329	0	$4 or 0.8%	$1 or 0.3%	
2013	Highest User	189	620	385				
2014	Highest User	189	627	387	0	$7 or 1.1%	$2 or 0.5%	

Notes: All costs are raw water rates only, and exclude all taxes.
Low, high, and average values in each row may represent different parcels.

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RATE COMPARISON: 2014 vs. CONSERVATION STAGES 3 AND 4
TONTO HILLS DOMESTIC WATER IMPROVEMENT DISTRICT

	WATER USAGE (in gallons)					
	Full Year Occupied		Total Use		Median Use	Number
Calendar Year	Lowest Use	Highest Use	Billed	Average Use	(50th percentile)	of Users
2011	12,640	455,060	10,074,090	79,953	59,020	126
2012	13,680	376,660	8,778,414	69,121	54,320	127

	2012 WATER USAGE (in gallons)				
User Class	Low Month	High Month	Average Month	2012 Total	
Lowest User	830	2,180	1,140	13,680	
Median User (50%)	2,670	5,910	4,524	54,290	
Average User	4,353	7,893	5,760	69,121	(avg low month is January; avg high month is June)
80th Percentile	4,390	10,390	7,554	90,650	(108 users used < 96,000-gallon annual "equal share")
90th Percentile	8,560	23,560	11,378	136,530	(14 users were at 90th percentile or more)
3rd Highest User	7,970	40,080	21,380	256,560	3 highest use residential lots
2nd Highest User	12,530	40,830	26,728	320,730	
Highest User	15,450	50,500	31,388	376,660	

		RATE SCHEDULES (in dollars/gallon)			
Tiers	Gallons	2014 (Stages 1 & 2)	STAGE 3	STAGE 4	
1	0-4,000	0.00680	0.00680	0.00680	same rates across schedules (8,000 gallons is current
2	4,001-13,000	0.01020	0.01020	0.01020	estimated "equal share")
3	13,001-20,000	0.01230	0.01500	0.02000	
4	20,001-30,000	0.01242	0.02000	0.04000	
5	>30,000	0.01255	0.03000	0.07000	

		COST OF WATER USAGE: 2014 vs. Stages 3 & 4			Increase in Water Bill from 2014		
Rate Schedule	User Class	Low Month	High Month	Average Month	Low Month	High Month	Average Month
2014	Lowest User	$46	$55	$48			
Stage 3	Lowest User	46	55	48	$0	$0	$0
Stage 4	Lowest User	46	55	48	0	0	0
2014	Median User (50%)	58	87	73			
Stage 3	Median User (50%)	58	87	73	0	0	0
Stage 4	Median User (50%)	58	87	73	0	0	0
2014	Average User	71	107	85			
Stage 3	Average User	71	107	85	0	0	0
Stage 4	Average User	71	107	85	0	0	0
2014	80th Percentile	71	132	103			
Stage 3	80th Percentile	71	132	103	0	0	0
Stage 4	80th Percentile	71	132	103	0	0	0
2014	90th Percentile	114	289	142			
Stage 3	90th Percentile	114	335	142	0	$46 or 16%	0
Stage 4	90th Percentile	114	441	142	0	$152 or 53%	0
2014	3rd Highest User	108	496	262			
Stage 3	3rd Highest User	108	766	292	0	$270 or 54%	$30 or 11%
Stage 4	3rd Highest User	108	1,405	354	0	$909 or 183%	$92 or 35%
2014	2nd Highest User	154	505	329			
Stage 3	2nd Highest User	154	789	399	0	$284 or 56%	$70 or 21%
Stage 4	2nd Highest User	154	1,457	568	0	$952 or 189%	$239 or 73%
2014	Highest User	189	627	387			
Stage 3	Highest User	196	1,079	506	$7 or 4%	$452 or 72%	$119 or 31%
Stage 4	Highest User	208	2,134	796	$19 or 10%	$1,507 or 240%	$409 or 106%

14 users at or above 90th percentile

Notes: All costs are raw water rates only, and exclude all taxes.
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