EXHIBIT JJJ-6

Issue #15: Modify the Peaking Factor Methodology Used in the Water Cost of Service Model				
	Change? (Yes or No)	If Yes, Option for Change	Modify the Peaking Factor Methodology Used in the Water Cost of Service Model (Option for Change)	
Issue			Pros	Cons
Representatives of large industrial customers have stated that the current method used by Austin Water to estimate customer class maximum day and maximum hour peaking factors does not adequately reflect the nuances of large industrial customer water use and results in an overstatement of the industrial class revenue requirement. **Status Quo: Maintain the peaking factor methodology currently used in the water model.**		Modify the peaking factor methodology currently used in the water model to reflect data provided by the industrial customers.	1 The current peaking factor methodology used in the water model does not reflect the actual daily or hourly water consumption of any customer in any retail customer class. To the extent customer-specific data is available it should be used; this would allow for customer-specific peaking factor determinations	1. Austin Water uses an industry standard methodology to estimate customer maximum day and maximum hour peaking factors This methodology is recommended in AWWA Manual M1, Principles of Water Rates, Fees, and Charges. This industry standard methodology is used for all retail and wholesale customer classes. 2. Unless and until Austin Water installs advanced metering technology that records individual customer water consumption on an hourly basis, the peaking factor methodology used by Austin Water is a fair and equitable method for assessing customer class water consumption characteristics and allocating costs between customer classes. 3. Modifying the current methodology to estimate peaking factors would inappropriately benefit large industrial customers by shifting costs to other retail and wholesale customer classes. In order to maintain fairness, the same peaking factor methodology should be used for all customer classes.
PIC Meeting Dates:	PIC Meeting #6 December 13, 2016 / PIC Meeting #8 January 17, 2017 / PIC Meeting #11 March 6, 2017			
WIC Meeting Dates.	WIC Meeting #5 December 13, 2016 / WIC Meeting #7 January 17, 2017 / WIC Meeting #10 March 6, 2017			
Consultant Recommendation:	Continue to use the industry standard peaking factor methodology currently employed by Austin Water (do not modify the current methodology to estimate customer class peaking factors)			
PIC & WIC Comments.	**Howard Hagemann (WIC-Wells Branch MUD):** The solution seems to be a better metering process, to continue with the status quo. Debating this issue is essentially moot as we don't have enough information to gauge against. **Jay Joyce (WIC-Wells Branch MUD):** The method Austin Water is following is not in the AWWA Manual; the Manual doesn't endorse a rote mechanical method We'll present at the PUCT and their engineers will say it's not the right way to do it. I recommend the methodology be modified to be in conformation with the AWWA Manual and appendix. **Gary Rose (WIC-Southwest Water Co.):** I appreciate the 3-year smoothing for peaking **Don Conklin (WIC-North Austin MUD #1):** I appreciate that Austin Water is working with unusual circumstances. If the issue is specific to large volume, each major stakeholder having separate smart meters will help Each major stakeholder should have a separate peaking factor like their separate rates. If data and evidence show large volume aren't contributing to peaking and retail rates will increase because large volume pays less, that's legitimate and fair. I favor tweaking the methodology as it applies to large volume customers and think we can all together come up with that. I make the argument that we alone should be excluded from peaking factors altogether because we had storage but traded with the city of Austin for consideration of a lift station. We have overpaid our share of the bonds by paying for storage we never got **Randall Raemon (WIC-Marsha WSC):** How many meters are we talking about for wholesale and large volume customers to get more accurate data? **Dan Wilcox (PIC-Industrial/Large Volume):** The method doesn't actually follow the AWWA Manual exactly and doesn't represent actuals. If the data on meters are available and would be helpful, customers can provide it. Each class should have its own metering/rate/method. **Todd Davey (PIC-Industrial/Large Volume):** The application isn't consistent with the AWWA Manual Our consumption patterns are more consistent and predictable. Use available data and allocate accordingly **Grant Rabon (PIC-Residential Rate Advocate):** Any data should be collected by Austin Water and not supplied by customers Until we're at the point data is readily available, treat all classes the same. **Chuck Loy (PIC-Multifamily):** Do you have any data available at this point? Wait until everyone can use data. I recommend modification. **Todd Davey (PIC-Industrial/Large Volume)/ Dan Wilcox (PIC-Industrial/Large Volume):** We recommend the methodology be modified **Marcia Stokes (PIC-Multifamily):** This is an opportunity because most peaking is due to irrigation during the summer, and large volume and residential usage drive it. Compare peak days to what class is allowed to water on those days. It's worth looking at modifying the methodology Up to what size meter will be changed out? **Chuck Loy (PIC-Multifamily):** If you change the methodology, how will it work? Will wholesale and large volume provide hourly, daily data, etc ? This would probably need a demand study. **Chuck Loy (PIC-Multifamily):** I'm concerned this could really swing costs **Dan Wilcox (PIC-Industrial/Large Volume):** Look at targeting the largest 6-7 industrials with meters first to begin to get an idea of what the data will show. **Grant Rabon (PIC-Residential Rate Advocate):** If there are going to be winners and losers, I would like to be assessed with the same method/rules for all. **Chuck Loy (PIC-Multifamily):** I could support large volume having a different hourly/daily peaking if the data is available, but generally I agree with Grant			

	3/6/2017 **Dan Wilcox (PIC-Industrial/Large Volume):** Is Austin Water incorporating the AMI data from customers at the same time? What about customers that already have the smart meters? Could some accommodation in the model be made to include the data? If the residential customer class is 95% of the accounts, it seems like it will take a lot longer than 5-7 years. Will the residential customer volume be looked at individually? What are other cities doing? **Lanetta Cooper (PIC-Residential/Low Income):** Once they put smart meters online, there is going to be a time period to determine if they actually work It's a brand new technology, and water meters have not been as good as electric smart meters **Karen Keese (PIC-Residential):** I have several clients that have fully gone AMI, and it's a big shakeout You have to work the bugs out **Howard Hagemann (WIC-Wells Branch MUD):** When you bring in the peaking factor, is this going to be a fixed costs? Is it going to vary based on the volume of water used? There's a certain capacity that has to be reserved, and that capacity is not always used In your formula, you use the system average day and system maximum month What is the difference between the max day and max month by customer? When you do a 3-year average, do you use all variables by customer? That could create some disparity in the relationship between the customer and system. **Andrew Hunt (WIC-North Austin MUD #1):** Have you identified the 3-years you are going to use?
Executive Team Decision	**Decision: AW will continue current use of AWWA methodology guidelines for peaking factor calculation.** **Rationale: Austin Water currently uses AWWA guidelines for non-coincident peaking factor calculation. Use of AWWA guidelines is appropriate for calculation of peaking factors. Austin Water provides further benefit to customers in the calculation of the peaking factors by using a 3-year rolling average for each customer class which smooths any adverse impacts of single year peaking factors. Additionally, Austin Water uses a 5-day average of water system peak day peaking factors to smooth any adverse impacts of single day system peak day factors used in estimated peak day and peak hour factors from monthly billing data.**

EXHIBIT JJJ-6

Issue #16: Inflow/Infiltration cost determination and allocation to customer classes				
Issue	**Change? (Yes or No)**	**If Yes, Option for Change**	**Pros**	**Cons**
Austin Water currently allocates I/I to customer classes based on 100% volume in wastewater COS model **Status Quo: Allocate I/I flows to customer classes based on 100% volume**			1. I/I is a flow related cost. Allocation of costs to customer class flow provides the appropriate link for cost causation.	1. Charging I/I by 100% flow allocation reduces costs for the residential class.
PIC Meeting Dates:	PIC Meeting #9 January 31, 2017 / PIC Meeting #11 March 6, 2017			
WIC Meeting Dates:	WIC Meeting #8 January 31, 2017 / WIC Meeting #10 March 6, 2017			
Consultant Recommendation.	I/I is essentially a hydraulic cost, most directly linked to volumetric flow, and thus it is appropriate to recover 100% by volume.			
PIC & WIC Comments:	**Lanetta Cooper (Residential):** I see the change, but it would make a difference. Some wholesale customers could be double counted for I&I (with flow meters) **Shirley Ross (WIC-Wells Branch MUD):** In addition to TVing our lines, we inspect our manholes It would be nice to consider giving a credit to wholesale customers who maintain their wastewater lines **Clay Collins (WIC-Sunset Valley):** Right now the 10.5% is being allocated based on contributed flow It's really just a mathematical calculation for allocation. **Andrew Hunt (WIC-North Austin MUD #1):** North Austin TVs their lines yet we don't get any credit from the city for reducing the Inflow & Infiltration **Karyn Keese (PIC-Residential):** Recommend maintaining the status quo. In San Diego Wholesale customers are metered to give an incentive to tighten up their system. Austin needs to meter WW flows. **Todd Davey (PIC-Industrial/Large Volume):** People should be rewarded for taking care of their issues Agree with the current system. **Marcia Stokes (PIC-Multifamily):** We have a private water line and private sewer line We get charged 100% of our water usage regardless if it's going into the sewer system Allocate costs based upon system usage **Dave Schneider (Industrial/Large Volume):** You're allocating on the same percentage, regardless of I&I contributed flow by class. If there are holes in the wholesale system, you are assuming their Inflow & Infiltration is consistent. 3/6/2017 **Robert Wood (WIC-City of Westlake Hills):** Does that effectively raise everyone's flows by 10.5%? You assume that everyone's influent is actual flows plus 10 5% and then raise the billed flows? If the flow was 100k gallons, then you are going to raise it by 10 5%, right?			
Executive Team Decision	**Decision: AW will continue to determine the amount of I/I which results in I/I being 10.5% of the resulting Total Flows into our wastewater system. This is achieved by applying an 11.7% to the customer class contributed flow. In addition, AW will continue to allocate estimated I/I costs based on contributed flow volume by customer class.** **Rationale: This methodology is consistent with the current practice used within the 2008 cost of service rate study. While a specific I/I study has not been done recently, the 10.5% seems reasonable considering a study in 1999 identified approximately 15%. The reduction was decided in a cost of service rate study following AW's Austin Clean Water Program which addressed wastewater system overflows partially caused by I/I.**			

EXHIBIT JJJ-6

Issue #17: Adding additional wastewater strength parameters				
Issue	**Change? (Yes or No)**	**If Yes, Option for Change**	**Pros**	**Cons**
AW wastewater COS model assumes that most customer classes have the discharge strengths. **Status Quo: AW BOD of 200 mg/L and TSS of 200 mg/L**			Adding strength parameters would identify costs associated with higher strength wastewater dischargers and appropriately allocate costs to those customers.	Adding strength parameters would require sampling and setting standard limits for typical customer flow. It would also increase complexity in the cost of service cost allocation process. Treatment costs related specifically to the treatment of the additional strength parameters would need to be identified and segregated in the process.
PIC Meeting Dates:	PIC Meeting #9 January 31, 2017 / PIC Meeting #11 March 6, 2017			
WIC Meeting Dates:	WIC Meeting #8 January 31, 2017 / WIC Meeting #10 March 6, 2017			
Consultant Recommendation:	AW should not incorporate any additional strength parameters until there is cost causation, such as inclusion in enhanced permit requirements			
PIC & WIC Comments:	**Lanetta Cooper (PIC-Residential):** If the TCEQ increases the treatment requirements, we are already treating these Should we add additional cost allocation parameters? Then yes **Dave Schneider (PIC-Industrial/Large Volume):** Stay with status quo **Gary Rose (WIC-Southwest Water Co.):** Overall, wastewater ammonia loads are coming out much stronger at our facilities **Shirley Ross (WIC-Wells Branch MUD):** In the future, it makes since if the TCEQ requires lower levels of ammonia that you would charge. **Andrew Hunt (WIC-North Austin MUD):** Where would you sample MUDs, at plants? 3/6/2017 **Grant Rabon (PIC-Residential Rate Advocate):** Are you currently charging any customer for these new items? How are you deciding who/when to sample? Large customers are getting sampled annually. How do you decide who/when gets sampled?			
Executive Team Decision	**Decision: AW will not add any additional wastewater strength parameters in its cost of service methodologies. However, high levels of ammonia strengths for some customers will be considered using the current Industrial Waste Surcharge mechanism.** **Rationale: AW currently uses industry standards of BOD and TSS as strength parameters. While some systems add phosphorus, nitrogen or ammonia, AW does not plan to use these parameters for all customer classes.**			

EXHIBIT JJJ-6

Issue #18: Allocation of Drainage Fees to Wholesale Customers				
	Change? (Yes or No)	If Yes, Option for Change	Allocate a Portion of Wastewater Treatment Plant No. 4 Costs to Wholesale Customers (Option for Change)	
Issue			Pros	Cons
The PUCT disallowed Austin Water's allocation of a portion of drainage fees to wholesale customers. Should Austin Water seek to include the cost of "green power" in the wholesale customer revenue requirement in the next rate case? **Status Quo: Continue to exclude the drainage fees from the wholesale customer revenue requirement.**		Allocate a portion of drainage fees to the wholesale customer revenue requirement.	1. The drainage charge is calculated individually for Austin Water's facilities, based on the amount and percent of impervious cover to address flooding, erosion and water pollution within the City of Austin Austin Water is charged at the same rates as other properties within the City.	1. Wholesale customers do not receive any direct benefits from the City of Austin drainage utility. These costs should only be borne by retail customers located within the jurisdictional boundaries of the City of Austin.
PIC Meeting Dates:	PIC Meeting #2 on November 5, 2016 / PIC Meeting #5 on November 29, 2016 / PIC Meeting #10 February 21, 2017 / PIC Meeting #11 March 6, 2017			
WIC Meeting Dates:	WIC Meeting #2 on November 5, 2016 / WIC Meeting #4 on November 29, 2016 / WIC Meeting #9 February 21, 2017 / WIC Meeting #10 March 6, 2017			
Consultant Recommendation.	Drainage fees charged to Austin Water are a cost of doing business and is a valid operating cost required to be recovered from all AW customers.			
PIC & WIC Comments·	**Jay Joyce (WIC-Wells Branch):** Is the drainage fee charged to other government entities? **Katy Phillips (WIC-Sunset Valley):** How are drainage fees allocated to Wholesale? **Howard Hagemann (WIC-Wellsbranch):** PUC has disallowed it, so it should continue to be excluded **Lanetta Cooper (PIC-Residential):** Are drainage fees addressed by the Texas Legislature? This is cost allocation as opposed to the City has the right to charge for these fees. You should charge these fees because it is a cost of doing business.			
Executive Team Decision	**Decision: AW will allocate drainage fees to all customer classes including wholesale customers.** **Rationale: Drainage fees are similar to other utility fees such as electric and gas. All properties within the City of Austin are assessed drainage fees based on a consistent formula related to their impervious cover. As AW owns property within the City, we are assessed drainage fees. This cost is a cost of doing business in Austin, and should be allocated to all customer classes.**			

EXHIBIT JJJ-6

Issue #19: CAP Customer Costs, Allocation to Classes, and Recovery Method (Community Benefit Charge)				
Issue	**Change? (Yes or No)**	**If Yes, Option for Change**	**Pros**	**Cons**
Austin Water's Customer Assistance Program currently provides discounted rates for eligible customers **Status Quo: Maintain current level of CAP discount and do not implement CBC.**		Add volumetric discount for wastewater service and/or implement Community Benefit Charge to fund program.	1. Provides funding for low-income, most vulnerable customers who need assistance to pay water and wastewater bills. 2. Provides a discount on water services including waivers of fixed fees and discounted volumetric rates for water.	Costs of CAP program must be allocated to all other retail customer classes.
PIC Meeting Dates:	PIC Meeting #9 January 31, 2017 / PIC Meeting #11 March 6, 2017			
WIC Meeting Dates:	WIC Meeting #8 January 31, 2017 / WIC Meeting #10 March 6, 2017			
Consultant Recommendation:	The implementation of a Community Benefit Charge (CBC) would more closely align the messaging/customer assistance mechanism provided by AW with Austin Energy's CBC; resulting in a more effective/transparent customer assistance program. We also support the expansion of the assistance to include a discount on the wastewater volumetric rate.			
PIC & WIC Comments:	**Gary Rose (WIC-Southwest Co.):** I am a supporter of the customer assistance program, but the PUCT has told us that we cannot push these types of costs to all customers, so it was taken out of the rate of return. It should only be borne by the retail customer class and not by the wholesale class **Jay Joyce (WIC-Wells Branch MUD):** During the rate proceeding at the PUCT, this was not an issue. It seems like we are intertwining the water conservation with low income and they are not the same. I really agree with Mr Rose, I don't know how that's going to flow into the wholesale rates On the water conservation in the rate case, we received a list of instances where low flow devices had been provided to the wholesale customers. **Katy Phillips (WIC-Sunset Valley):** I think the CBC idea makes sense for the retail classes, but for the wholesale class it needs to be transparent what portion is for water conservation **Howard Hagemann (WIC-Wells Branch):** I don't think we have a customer assistance program, so we would want to be a part of the program. **Karyn Keese (PIC-Residential):** Are you looking at the rate structure for the CAP program? My feeling is that the CAP rates get a discount on the 4th tier, but not the 5th tier This is not fair because there should be some price signal just like the rest of us Water conservation should be promoted in this program as well **Todd Davey (PIC-Industrial/Large Volume):** We also have no issue with CAP program and I have no concerns with reviewing the rate tiers. Some issues came up on the AE side regarding the administration of the program with auto-enrollment. That's an AE issue I don't believe this an issue that can be resolved here. We think it's a good idea to have a discount program. I think the CBC is the most transparent and it's consistent with how AE displays on the bill **Lanetta Cooper (PIC-Residential):** I know that AE thinks it's transparent, but the three tariffs administered by AE does not improve customer understanding I don't have a formal decision. I don't know if it's necessary I don't think you're going to get a lot more benefit for the cost incurred. I have concern with high CAP users I have not received a CAP bill frequencies yet. We don't have the data yet to analyze what the effect would be to CAP customers I had a tenant CAP participant who had a leak, but the owner did not repair it. The tenant received a high water bill Other public policy changes that we might want to look at and not harm customers who cannot fix the leak **Grant Rabon (PIC-Residential Rate Advocate)** You can also have old fixtures for water and it can happen on the water side as well. If the outside city customers are paying into the fund, it makes sense that they can receive the benefits. **Marcia Stokes (PIC-Multifamily)**· Table 57 from the COS water model shows several large meters (2", 3/4") Is the CBC pure volume based and not based on the fixed charge? The more you use, the more you contribute. 3/6/2017 **Karyn Keese (PIC-Residential):** What about outside city retail customers, will they receive this benefit?			
Executive Team Decision	**Decision: AW will recommend creation of a Community Benefit Charge (CBC) to recover costs associated with the CAP program. Also, AW will recommend an increase in the wastewater discount to include a volumetric rate discount. No costs associated with the CAP Program will be allocated to wholesale customers.** **Rationale: By creating a CBC, the costs associated with the CAP program will be transparently identified and detailed on our customers' monthly bills. This is consistent with how Austin Energy manages their CAP program through their CBC. This will also allow for participation in CAP program initiatives, such as the arrearage management program. These funds will be segregated from other utility funds which will provide better reporting and transparency.**			

EXHIBIT JJJ-6

Issue #20: Modification of Fire Demand Meter Fixed Charges				
Issue	Change? (Yes or No)	If Yes, Option for Change	Modify the Fire Demand Meter Fixed Charge Rate Design	
			Pros	Cons
Retail small multi-family customers must currently pay fixed charges that contain a potentially high allocation of public fire protection costs. **Status Quo: Maintain the current small multi-family fixed charge rate design.**		Modify the current small multi-family fixed charge rate design.	Fix unintended consequences of some low-volume customers with large fire demand meters having significantly higher fixed charge portions of their monthly bill.	Will require extensive research on approximately 500-600 fire demand meters to determine appropriate domestic use Reduced fixed revenue from these customers that will be made up on volumetric charges
PIC Meeting Dates:	PIC Meeting #11 March 6, 2017			
WIC Meeting Dates:	WIC Meeting #9 February 21, 2017			
Consultant Recommendation:	Multifamily customers should not be charged based on fire meter size. Instead, they should be assessed a fixed charge for a meter size as determined by that customer's typical monthly use.			
PIC & WIC Comments:	**Gary Rose (WIC-Southwest Co.):** Fixed charges should be based off smaller meter and read volume for both. Only charge higher fixed charge if they use a larger meter. **Howard Hagemann (WIC-Southwest Co.):** How are peaking factors impacted? **Karyn Keese (PIC-Residential):** I think that basing the fixed charge on the smaller meter size is the best option If you base it on the volume, you can open another can of worms. **Grant Rabon (PIC-Residential Rate Advocate)** Is this specific solution only targeting the Multifamily customer class? You might have some customers that are using the larger meter size. Has Austin Energy advised if this will be a difficult re-programming process? **Todd Davey (PIC-Industrial/Large Volume):** This is a portion of a larger rate design issue and should be discussed during rate discussion **Marcia Stokes (PIC-Multifamily):** I have already submitted comments on how to fix this. This is an issue that not only affects Multifamily but all classes with fire demand meters			
Executive Team Decision	**Decision: AW will modify the fixed charges for fire demand meter charges by basing the fixed meter charge on the smaller meter size rather than the larger meter size.** **Rationale: Analysis of the fire demand meters showed virtually no consumption being used through the larger meter size. All of the fire demand customers generally only use the larger size meter during annual required testing. For low monthly volume customers with fire demand meters, the current practice of charging on the larger size meter was causing some to have fixed charges as high as 90% of their total monthly bill. This unintended consequence of AW's increased fixed charge goals, will be corrected by this change in methodology.**			

EXHIBIT JJJ-6

Issue #21: Fire Protection Costs and Allocation to Customer Classes				
Issue	Change? (Yes or No)	If Yes, Option for Change	Fire Protection Cost Allocation	
			Pros	Cons
Fire protection costs *must be allocated to* customer classes based on fire demand. **Status Quo: Maintain the current fire protection cost identification and allocation as developed in 2008 COS study.**		Modify the *current fire* demand cost determination and allocations to customer classes.	Provides equitable allocation of fire protection costs associated with ensuring water system has sufficient capacities at all times Differences in fire protection needs between customer classes can be addressed through allocation	Fire protection is a standby service and most customers rarely use
PIC Meeting Dates:	PIC Meeting #11 March 6, 2017			
WIC Meeting Dates:	WIC Meeting #9 February 21, 2017			
Consultant Recommendation:				
PIC & WIC Comments:	**Grant Rabon (PIC-Residential Rate Advocate):** The minimum fixed charge column, the meter charge is based on the AWWA standard. When you say AWWA equivalency, I am expecting that to mean that you have looked up the max flow rate in the tables and done the math to determine the 5/8" versus the 3/4"? When I look at the tables, I get slightly different numbers than what you have chosen. **Karyn Keese (PIC-Residential):** Some of the meter allocations have changed over the years. **Marcia Stokes (PIC-Multifamily):** Meeting 6, slide 31 shows the table Austin Water is using. The customer charge is the same as the meter charge is the table, but the fire charge is higher. Those ratios are different. My concern has been, you have this model and the numbers get changed. The stuff on the left should be the AWWA standard and the stuff on the right should adjust The fire protection charge should be based on the AWWA standards. The last COS study showed the least effective way was to use the usage by meter size to allocate fire protection charges. Private fire hydrants are only an administrative function that Austin Water has We pay a contractor to test our fire hydrants, and then we pay the city $28/month to put it into a database. According to the model, you only allocate 1.7% to the fire protection category as a credit back. We are not even getting full credit in that category Not only am I paying for a private hydrant to get tested and on top of that I am paying for all fire hydrants to get tested, and I'm not even getting the credit. In your model, why don't you credit 100% of that credit to those who are collected? 75% of the hydrants are allocated to the fire protection category, but we get less credit back 1 7% to that category. 27% of fire hydrants are private. Do you require the city fire hydrants to be maintained annually, are they in the same database? If there really are 10k private hydrants, you model said you only collected $58k **Lanetta Cooper (PIC-Residential):** These costs include the customer charge, if we were to exclude the customer charges ($4.83) how would these fixed costs compare? **Marcia Stokes (PIC-Multifamily):** How do we transition from one model to another? That rate model has the AWWA ratios for meters, but when you get over to the rate sheet it's something different. Is there some council action that said the 5/8" meter charge had to stay at that amount ($7 10)? **Karyn Keese (PIC-Residential):** Are you going to unbundle that (fixed charges)? So keeping it at $7.10 will go away? I think we would like to see it unbundle based on current data with AWWA standards **Lanetta Cooper (PIC-Residential):** Rate design is a different issue than COS allocation. The inverted block rate and conservation It is premature to make an argument that the fixed fees are driving the subsidy There would be a subsidy between the classes based on cost allocation and not the rate design. **Marcia Stokes (PIC-Multifamily):** Wholesale does not pay fire protection charges. What about outside city retail customers? **Lanetta Cooper (PIC-Residential):** Don't we oversize the mains due to fire protection? Why don't we charge wholesale for fire protection needs? **Marcia Stokes (PIC-Multifamily):** In the model, under hydrants 25% of those costs are allocated to joint (wholesale and retail)			
Executive Team Decision	**Decision: AW will modify the fire protection allocation using revised meter equivalencies based on hydraulic capacity by meter type as identified in AWWA M6, Water Meters - Selection, Installation, Testing, and Maintenance.** **Rationale: Source for current meter equivalencies was undetermined and had some overrides for associated fixed charge rate design. This methodology will ensure a specific source is identified for each meter equivalency.**			

EXHIBIT JJJ-6

Issue #22: Elimination of Commercial and Large Volume Subsidy of Residential Water Customers				
	Change? (Yes or No)	If Yes, Option for Change	Subsidy Elimination	
Issue			Pros	Cons
Residential rates currently subsidized by commercial and large volume customers. **Status Quo: Maintain current level of rate subsidy.**		Eliminate residential rates subsidy.	All customer classes would be charged rates that would recover their identified cost of service. All customers treated consistently with rates at their cost of service.	Customer impact to residential class.
PIC Meeting Dates:	PIC Meeting #11 March 6, 2017			
WIC Meeting Dates:	WIC Meeting #9 February 21, 2017			
Consultant Recommendation:	RFC recommends the elimination of the interclass subsidy. Depending on the magnitude of the updated cost of service, this may be phased in over a short-term period, such as 3 years.			
PIC & WIC Comments:	**Karyn Keese (PIC-Residential):** What would it take to get residential to 100%? Subsidy are one of my pet peeves. Affordability is a priority, and making sure everyone is at their cost of service is the goal. The elimination of the subsidy would depend on the results of the cost of service study We are very concerned about affordability **Marcia Stokes (PIC-Multifamily):** The goal of the last COS study was to eliminate the subsidy in 5-7 years, but it is still not there.			
Executive Team Decision	**Decision: AW will recommend to eliminate the current commercial and large volume subsidy of residential water customers. However, based on levels of impacts to residential customers, AW will likely recommend a short-term transition of this subsidy.** **Rationale: AW's goal is to have rates for each customer class cover their identified cost of service, with no subsidy of any one class.**			

EXHIBIT JJJ-6

Issue #23: Test Year for Revenue Requirements (Not a Specific PIC/WIC Meeting Topic)				
	Change? (Yes or No)	If Yes, Option for Change	Actual Test Year	
Issue			Pros	Cons
Test year that will be used to determine total revenue requirements. **Status Quo: Use the proposed budget as the revenue requirement test year.**		Historical actual expenses with possible adjustments for known and measurable changes.	Actual expenses in a historical test year is a good representation of costs needed to operate the water and wastewater systems. Adjustments for known and measurable provides transparent justifications.	Not consistent with budgeting process of municipality. Could result in a lower revenue requirement than cash flow needs
PIC Meeting Dates:	PIC Meeting #10 February 21, 2017			
WIC Meeting Dates:	WIC Meeting #9 February 21, 2017			
Consultant Recommendation:				
PIC & WIC Comments:	**Jay Joyce (WIC-Wells Branch):** Are we going to discuss known and measurable changes as a group? Labor costs, the PUC likes to use the latest payroll runs and keeps a running total. If the actual data is ending in September 2016, then we are adjusting for known and measurable for September 2017 which we already know when the hearings examiner process begins (same month). Are you going to lose a year? The City of Ft. Worth used a similar process. **Todd Davey (PIC-Industrial/Large Volume):** What's the timeline for delivery? When do you expect for the model to be complete? **Lanetta Cooper (PIC-Residential/Low Income):** My only concern is that not all of the known and measurable changes associated with revenue and costs are accounted for. PUC requires most recent data			
Executive Team Decision	**Decision: AW will use a historical actual test year adjusted for known and measurable changes.** **Rationale: Actual expenses from a prior fiscal year provides justification of what it takes to operate and maintain our systems. Adjusting for known and measurable changes provides further justification of requirements to meet cash needs. Actual expenses adjusted for known and measureable changes provides transparency of our costs and justifications of any expected changes. It ensures the cash flow needs of the utility can be met.**			

EXHIBIT JJJ-6

Issue #24: Creation of Outside City Retail Customer Classes and Rates (Not a Specific PIC/WIC Meeting Topic)				
	Change? (Yes or No)	If Yes, Option for Change	Create Outside City Retail Customer Classes	
Issue			Pros	Cons
Whether to create outside city retail customer classes for residential, multifamily, and commercial. **Status Quo: Austin Water does not have outside city retail customer classes.**		Create the outside city customer classes and develop cost of service rates for each.	Identifies cost of service and associated rates for these customers. Provides cost of service justification for those customers that have jurisdiction with the PUC for rate challenges	Different rates for customers who live just beyond the city limits as compared to city customers that might be in similar proximity Possibly have lower rates than inside city rates due to the consumption patterns generally being higher than inside city rates.
PIC Meeting Dates:	N/A			
WIC Meeting Dates:	N/A			
Consultant Recommendation:				
PIC & WIC Comments:	**Lanetta Cooper (PIC-Residential/Low Income):** Why would we create a separate outside city retail customer class? Throughout this process, we have been told these costs are intermingled. How would you calculate an outside city rate? The PUCT uses a system wide cost of service. It would add administrative costs It doesn't seem like it's worth the money. I can't think why you would need an outside city customer class. Would you charge them more if their COS requirements were higher? **Grant Rabon (PIC-Residential Rate Advocate):** There is a natural breakpoint you go with this COS, are you going to have different peaking ratios for each (Inside City/Outside City)? I am suspicious that your O&M and Capital costs capture the difference between the two classes? Will they have different peaking factors? You are limited by the detail of your assets tracking.			
Executive Team Decision	**Decision: AW will create outside city retail customer classes and rates.** **Rationale: The creation of outside city retail customer classes and rates provides for specific identification of cost of service revenue requirements for each class. These outside city classes have PUC jurisdiction for their rates, so this specific identification of revenue requirements and rates is necessary for any future PUC rate challenge. Additionally, the specific customer class information and transparency might help to mitigate any future PUC rate challenges.**			

strategic financial planning or revenue-adequacy standpoint, projections beyond 10 years tend to be quite speculative and are of questionable value. Accordingly, a projection period of about five years is generally considered adequate for near-term financial planning purposes. This time frame provides a reasonable forecast of anticipated future revenue needs, thereby assisting management, policymakers, and the public to foresee potential revenue shortfalls under existing rates and to avoid surprises when future changes in rate levels are requested or announced. Additionally, many utilities have capital improvement plans that use a comparable five-year time frame. When a utility adequately plans ahead, the projections in a five-year planning horizon are typically sufficient to satisfy investors, bond-rating agencies, and other interested parties. These projections are indicative of the security of potential investment in the utility system. The other advantage of projecting revenue requirements over a five-year planning horizon is that it may allow the utility to better anticipate any major changes in rates, and take action immediately to help mitigate or lessen those projected changes in rate levels.

Regardless of the projection period used, the utility should review its projections at least annually to incorporate changed conditions. A financial projection model should be considered a living document subject to change as conditions change. The projection period used in this chapter is assumed to be the utility's next five fiscal years. However, the principles discussed apply to any projection period appropriate for the particular circumstances. In making projections for more than one year, measures of revenue adequacy (i.e., indicated annual deficiencies) do not necessarily imply that an immediate rate change sufficient to cover deficiencies for the entire projection period (e.g., five-year period) is required or recommended. Rate changes for only a portion of the projection period may be appropriate. At the same time, implementation of smooth rate transitions is generally preferable to large one-time rate adjustments.

Other Adequacy Studies

The adequacy of water revenues is measured and studied to aid the process of rate-making for future service. Studies can be made for other purposes, including

- input for overall financial planning and budgeting;
- support for (and often part of) documentation for issuance of debt securities to be financed from utility revenues; and
- measurement or evaluation of the adequacy of revenues in the past or future as a part of contractual, litigation, rate-proceeding, bond covenant compliance, or other requirements.

Rate-making and planning require projections of future revenue needs. The issuance of debt securities and contractual, litigation, or rate-proceeding requirements may necessitate both evaluation of past performance and projections of future adequacy.

APPROACHES TO PROJECTING REVENUE REQUIREMENTS

The two generally accepted and practiced approaches to projecting total revenue requirements of a water utility are the cash-needs approach and the utility-basis approach. Each has a proper place in utility practice, and each, when properly used, can provide for sound utility financial strategies. A broad overview of the elements of revenue requirements to be considered under each of these two accepted approaches is presented in the following section. These approaches are discussed further in section VI, with regard to consideration

Table II.1-1 Normalization factors

Factors Affecting Revenues	Factors Affecting Revenue Requirements
Number of customers served	Number of customers served
Customers' water-use trends	Customers' water-use trends
Rate changes	Non-recurring sales
Non-recurring sales	Weather
Weather	Conservation
Conservation	Use restrictions
Use restrictions	Inflation
Price elasticity	Interest rates
Wholesale contractual terms	Wholesale contractual terms
	Capital finance needs
	Changes to tax laws
	Other changes in operating and economic conditions

of retail and wholesale rates applicable to customers located outside the jurisdictional boundaries of the owner utility.

General Techniques

Utilities should realize that it is acceptable to measure total revenue requirements using one approach and, subsequently, allocate those costs among customer classes using another approach (e.g., use a cash-needs approach for revenue requirements and then convert it to a utility basis for purposes of the cost-of-service analysis). Historical data must be normalized or adjusted to reflect conditions that may not continue into the future. Such factors include, but are not limited to, those listed in Table II.1-1. Each of these factors as well as other appropriate factors must be considered when projecting revenues and revenue requirements.

Actual performance will generally vary from projected performance. The projections are intended to forecast, as nearly as practicable, the future levels of revenue and revenue requirements so that the utility may make adequate, but not excessive, adjustments in rate and other revenue sources in a timely manner.

TEST YEAR

An important starting point for establishing a utility's revenue requirements is determining the test year or test period to be reviewed. The test year may represent a specific 12-month period of time or it may be an annualization of a rate-design period of more or less than one year.

Test-year periods are usually of three general types: historical, projected (future), or pro forma. A historical test-year period is defined as a prior 12-month period for which actual costs and data are available. The advantage of the historical test year is the use of actual costs and data. The disadvantage is that the costs and data may actually lag behind the utility's current costs. In contrast to a historical test year, a projected test period is a future time period in which all of the costs and data are projected, except perhaps fixed costs such as existing debt-service schedules. The advantage of a projected test year is that the rates to be developed for the test year will likely match up to the utility's budget or anticipated costs. The disadvantage of this approach is that it may be difficult to project costs, and it lacks the certainty of a historical test year. Finally, a pro forma test year is a

combination of the historical and projected test year. A pro forma test period begins with historical data and costs and then adjusts only for those "known and measurable" costs or changes. An example of a known and measurable change would be a labor agreement that specifies a certain percentage adjustment to labor rates. Simple inflation is not considered a known and measurable change in costs. The disadvantage of the pro forma test year is that it may not fully capture changes in costs, but the advantage is that it has adjusted for only those costs that can clearly be documented as needing adjustment in the test year.

Generally, government-owned utilities are free to set their own policies regarding test-year periods. However, investor-owned utilities and those government-owned utilities that are under the jurisdiction of utility commissions are subject to particular legislative and regulatory practices that must be followed. These practices vary from jurisdiction to jurisdiction.

Methods of Accumulating Costs

Once the test year or time period for establishing the revenue requirements has been determined, the next decision is the method that will be used to accumulate costs within the revenue requirement analysis. The two generally accepted methods of accumulating costs for the revenue requirements are the *cash-needs approach* and the *utility-basis approach*. Each of these methods and the component costs contained within each method is discussed in more detail in the following sections.

Cash-Needs Approach

The objective of the cash-needs approach for developing revenue requirements is to provide revenues sufficient to recover total cash requirements for a given time period. Generally, the cash-needs approach is used by government-owned utilities (except in those jurisdictions where regulation requires the use of the utility-basis approach). In this manual, the term *cash needs*, as it applies to measuring revenue requirements of a utility, should not be confused with accounting terminology of the *cash-basis* accounting method of revenue and expense recognition. From a rate-making perspective, *cash needs* refers to the total revenues required by the utility to meet its annual cash expenditures, whereas the accounting term *cash basis* refers to revenues being recognized as earned when cash is received and expenses charged when cash is disbursed. The cash-needs approach to measuring revenue requirements of a utility may be evaluated on the cash, accrual, or modified accrual basis of accounting.

Generally, revenue requirement studies using the cash-needs approach are more straightforward to calculate than revenue requirement studies using the utility-basis approach. Many utilities budget in a format that may be very similar to the cash-needs approach.

Revenue requirement components. Basic revenue requirement components of the cash-needs approach include O&M expenses, taxes or transfer payments, debt-service payments, contributions to specified reserves, and the cost of capital expenditures that are not debt financed or contributed (i.e., capital improvements funded directly from rate revenues). Depreciation expense is not included within the cash-needs revenue requirement.

Operation and maintenance expenses. Depending on the test year selected, the O&M expense component can be projected based on actual expenditures and adjusted to reflect anticipated changes in expenditures during the projected test-year period. Adjustments to historical O&M expenses are determined by incorporating known and measurable changes to recorded expenses, and by using well-considered estimates of future expenses.

Generally O&M expenses include salaries and wages, fringe benefits, purchased power, purchased water, other purchased services, rent, chemicals, other materials and

supplies, small equipment that does not extend the useful life of major facilities, and general overhead expenses. For a government-owned utility, other elements of O&M expense might also include the costs of support services rendered by the municipality to the utility, such as the use of computer facilities, assistance in collecting water bills, procurement activities, human resources administration, fleet management, and other support services.

Taxes or transfer payments. A utility may be required to pay certain taxes as part of their normal operations (e.g., a state utility tax on gross revenues). A utility may have several tax payments for their locality. In contrast to a tax payment, a transfer payment may be for items such as a payment in lieu of taxes (PILOT). AWWA's policy statement on Financing, Accounting, and Rates states that "Water and wastewater utility funds should not be diverted to uses unrelated to water and wastewater utility services. Reasonable taxes, payments in lieu of taxes, and/or payments for services rendered to the water utility by a local government or other divisions of the owning entity may be included in the utility's revenue requirements after taking into account the contribution for fire protection and other services furnished by the utility to the local government or to other divisions of the owning entity" (AWWA 2015). Accordingly, payments made to a municipality's general fund should reimburse the general fund for the necessary cost of goods and/or services required by the water utility to provide water service. Transfers from the water fund to a municipal general fund, in addition to those specifically identified above, may be applicable to unique local situations and should be considered in conjunction with legal requirements and in conformance with the previously referenced AWWA policy statement.

Debt-service payments and specified reserves. The debt-service component of the cash-needs approach usually consists of principal and interest payments on bonds or other outstanding debt instruments. It may also include debt-service reserve requirements as established by the indenture or covenant. Other reserves are often required to provide for operating working capital, emergency repairs and replacements, as well as for routine replacements and extensions. In addition to debt service and payments to reserve fund accounts, many utilities are required to provide net revenues sufficient to cover the bonded debt, particularly if revenue bonds are involved. Typically, debt-service coverage requirements specify that revenues be sufficient to meet O&M expenses and taxes and, at a minimum, to equal or exceed a stated percentage of the annual debt-service payments. Coverage requirements are a test of the adequacy of utility revenues and do not necessarily represent a specific cash requirement, unless debt-service coverage is the controlling factor in terms of the overall annual revenue needs of the utility, which may be the case in a particular year. The coverage requirements are intended to provide a measure of security for bondholders. As such, coverage requirements must also be considered in determining the total annual revenue needed to comply with the utility's debt covenant agreements.

Rate-funded capital expenditures. This component of the cash-needs approach is not all capital expenditures, but rather, only that portion of the capital expenditures to be paid during the test year from current rate revenues. Capital expenditures may be classified into three broad categories: normal annual (routine) replacement of existing facilities, normal annual extensions and improvements, and major capital replacements and improvements. A utility should periodically review and update its needs in each of these areas to recognize changing conditions. Projections for such needs are essential in developing overall revenue requirement projections. These projections of total capital needs should be accompanied by estimates of contributions received from developers or customers, government grants, and other nonutility sources.

Government-owned utilities commonly use current revenues to finance

- normal annual replacements,
- extensions, and

- improvements (such as meters, services, vehicles, smaller mains, valves, hydrants, and similar items that occur regularly each year).

Major capital projects are typically financed with a combination of long-term debt and equity or cash generated from annual utility revenues. Capital costs are distributed over the term of the bonds by repaying the debt over several years and using equity. An advantage of using long-term debt to fund major capital expenditures is that it results in a better matching of customers' charges with the use of the facilities so that existing customers will not be paying 100 percent of the initial cost of facilities that will be used for many years. Debt-service coverage compliance may result in the generation of annual revenues that may be available for funding of a portion of major capital improvements from annual revenues.

Utility-Basis Approach

The utility-basis approach to measuring revenue requirements is typically mandated for investor-owned water utilities. It is mandated or permitted for government-owned utilities in jurisdictions where the utility is regulated by a utility commission or other similar regulatory body.

The utility-basis approach for determining revenue requirements consists of O&M expenses, taxes or transfer payments, depreciation expense, and a "fair" return on rate base investment. While the utility-basis approach is in some ways similar to the cash-needs approach, where these two methods diverge is in how capital infrastructure is funded within the rates. The cash-needs approach uses debt-service and capital expenditures funded from rates. In contrast, the utility-basis approach uses depreciation expense and a return on rate base.

Municipal or government-owned utilities may also use the utility-basis approach for purposes of cost allocation. It is considered an appropriate method for calculating the costs of service applicable to all classes of customers, but it is particularly applicable to those customers located outside the geographical limits of a government-owned utility. When a government-owned utility provides service to customers outside its geographical limits or corporate boundary, the situation is similar to the relationship of an investor-owned utility to its customers because the owner (political subdivision) provides services to nonowner customers (customers outside its geographical limits). In this situation, the government-owned utility, like an investor-owned utility, is entitled to earn a reasonable return from nonowner customers based on the value of its plant investment required to serve those customers. Some jurisdictions have laws or guidelines to regulate the rates that government-owned utilities charge customers located outside their limits. Section VI discusses the considerations in using the utility-basis approach for determining rates for outside-city retail and wholesale customers.

Utility-Basis Projections for Government-Owned Utilities

For a government-owned utility, the total level of annual revenue required may be similar under either the cash-needs approach or the utility-basis approach. The O&M expense component of total revenue requirements is usually the same under both approaches. Under the utility-basis approach, the annual requirement for capital-related costs consists of two components: depreciation expense and return on rate base. Using the cash-needs approach, capital infrastructure-related costs are recovered through total debt service (principal and interest), cash financed capital additions and extensions, and debt-service coverage considerations.

EXHIBIT JJJ-8

2016 Cost of Service Rate Study
Response to Questions from Website

QUESTION NUMBER: 947

REQUESTED BY: Lanetta Cooper

DATE REQUESTED: 12/22/2016

QUESTION:
You in these questions refer to Austin W/WW and its employees including the general manager, officers and consultants. "PIC" means Public Involvement Committee. "COS" means cost of service How do you derive your level of budgeted revenues for purposes of setting water and wastewater rates for the FY budget year? (In other words, what calculations, assumptions, formulas, and such other methods do you rely upon in deriving the amount of revenues you estimate will be realized during the budget FY). In your explanation, please address how the calculated revenues are normalized, if at all, for weather.

RESPONSE:

Austin Water (AW) analyzes several factors when projecting the level of budgeted water and wastewater revenue Historical monthly usage patterns of water consumption and wastewater flows by customer class are examined in order to weather-normalize the future demand projections. Adjustments are made to the demand projections to account for water conservation policy changes affecting customer behavior. Monthly growth trends by customer class are analyzed and adjustments are made to account for any known and measurable changes (i.e. new account growth, annexations, commercial or industrial expansion projects, etc.) for the upcoming budget fiscal year. The demand and growth assumptions associated with the projected volumes are reviewed by the Systems Planning and Water Conservation divisions before the financial forecast with the budgeted revenue is generated

The water and wastewater budgeted revenue includes both fixed and volumetric revenue at existing rates. The budgeted fixed revenue is calculated based upon the projected number of accounts by customer class multiplied by the applicable meter equivalent, tired fixed fee (Water only), and minimum monthly fixed charges. The budgeted volumetric revenue is calculated by using a monthly average gallon per account by customer class. The monthly average gallon per account figure is multiplied by the projected number of accounts in order to determine the aggregate volume. For the Residential customer class, the monthly average gallon per account figure is applied to a bill frequency distribution in order to determine the projected demand percentage by tier. The projected monthly volume is multiplied by the applicable rate per thousand gallons to yield the budgeted volumetric revenue.

Residential customers enrolled in the Customer Assistance Program receive a waiver of the monthly fixed charges and lower volumetric rates.

EXHIBIT JJJ-9

	Budget	Estimated	Projected	Projected	Projected	Projected	Projected
Retail Customers							
Single Family	$ 118,248,621	$ 124,900,840	$ 120,721,150	$ 122,199,397	$ 124,326,747	$ 126,043,497	$ 127,586,196
Multifamily	64,226,238	58,718,237	58,942,025	59,383,395	59,814,870	60,245,509	60,682,438
Commercial	79,783,565	78,473,574	73,366,612	74,082,367	74,801,642	75,531,322	76,259,436
Large Volume	20,409,383	22,883,165	21,916,531	21,916,531	21,916,531	21,916,531	21,916,531
Subtotal Retail	$ 282,667,807	$ 284,975,816	$ 274,946,318	$ 277,581,690	$ 280,859,790	$ 283,736,859	$ 286,444,601
Wholesale Customers							
Creedmoor- Maha WSC	$ 324,926	$ 300,429	$ 302,835	$ 302,835	$ 302,835	$ 302,835	$ 302,835
High Valley	28,468	25,218	28,606	28,606	28,606	28,606	28,606
Lost Creek MUD	-	-	-	-	-	-	-
Manor, City of	432	387	432	432	432	432	432
Manville WSC	-	-	-	-	-	-	-
Marsha WSC	52,354	59,422	53,255	53,255	53,255	53,255	53,255
Mid-Tex Utilities	92,945	215,289	156,049	156,049	156,049	156,049	156,049
Morningside WSC	11,129	11,922	10,853	10,853	10,853	10,853	10,853
Night Hawk WSC	53,904	60,524	55,033	55,033	55,033	55,033	55,033
North Austin MUD #1	817,323	1,099,949	1,096,137	1,096,137	1,096,137	1,096,137	1,096,137
Northtown MUD	665,470	903,356	875,835	875,835	875,835	875,835	875,835
Rivercrest WSC	558,176	651,752	570,652	570,652	570,652	570,652	570,652
Rollingwood, City of	592,521	691,066	611,387	611,387	611,387	611,387	611,387
Shady Hollow MUD	786,818	1,004,292	1,207,162	1,215,132	317,114	-	-
Sunset Valley, City of	502,125	475,461	503,233	503,233	503,233	503,233	503,233
Travis Co WCID #10	1,893,601	2,741,792	2,544,983	2,544,983	2,544,983	2,544,983	2,544,983
Village of San Leanna	20,814	21,529	20,805	20,805	20,805	20,805	20,805
Wells Branch MUD	1,108,784	1,504,939	1,478,474	1,478,474	1,478,474	1,478,474	1,478,474
Southwest Water	20,688	6,334	14,860	14,860	14,860	14,860	14,860
Subtotal Wholesale	$ 7,530,478	$ 9,773,661	$ 9,530,591	$ 9,538,561	$ 8,640,543	$ 8,323,429	$ 8,323,429
Total All Customers	$ 290,198,285	$ 294,749,477	$ 284,476,909	$ 287,120,251	$ 289,500,332	$ 292,060,288	$ 294,768,030
5020-2200-9010							
A/R Adjustments	$ -	$ (188,642)	$ -	$ -	$ -	$ -	$ -
Grand Total	$ 290,198,285	$ 294,560,835	$ 284,476,909	$ 287,120,251	$ 289,500,332	$ 292,060,288	$ 294,768,030
CBC Revenue			5,894,291.0	5,948,322 0	6,013,749 0	6,072,175 0	6,127,550.0

Retail Customers							
Single Family	14,674,455,700	14,502,484,400	14,831,333,200	15,012,911,100	15,271,676,800	15,482,357,800	15,671,848,500
Multifamily	10,112,559,700	9,737,965,000	9,854,257,300	9,928,054,400	10,000,194,400	10,072,200,300	10,145,247,800
Commercial	10,641,666,700	10,928,522,900	10,741,372,300	10,846,188,100	10,951,472,300	11,058,294,800	11,164,925,500
Large Volume	3,111,400,000	3,743,100,600	3,868,317,300	3,868,317,300	3,868,317,300	3,868,317,300	3,868,317,300
Subtotal Retail	38,540,082,100	38,912,072,900	39,295,280,100	39,655,470,900	40,091,660,800	40,481,170,200	40,850,339,100
Wholesale Customers							
Creedmoor- Maha WSC	74,635,100	68,337,400	68,956,300	68,956,300	68,956,300	68,956,300	68,956,300
High Valley	6,522,000	5,682,200	6,557,900	6,557,900	6,557,900	6,557,900	6,557,900
Lost Creek MUD	-	-	-	-	-	-	-
Manor, City of	12,000	3,000	12,000	12,000	12,000	12,000	12,000
Manville WSC	-	-	-	-	-	-	-
Marsha WSC	11,920,000	13,722,900	12,149,700	12,149,700	12,149,700	12,149,700	12,149,700
Mid-Tex Utilities	22,285,700	52,126,000	37,677,400	37,677,400	37,677,400	37,677,400	37,677,400
Morningside WSC	1,964,600	2,120,500	1,910,800	1,910,800	1,910,800	1,910,800	1,910,800
Night Hawk WSC	12,341,600	14,039,100	12,631,100	12,631,100	12,631,100	12,631,100	12,631,100
North Austin MUD #1	298,399,600	326,506,368	325,932,100	325,932,100	325,932,100	325,932,100	325,932,100
Northtown MUD	279,487,700	291,779,192	281,153,300	281,153,300	281,153,300	281,153,300	281,153,300
Rivercrest WSC	114,876,100	136,388,000	117,744,200	117,744,200	117,744,200	117,744,200	117,744,200
Rollingwood, City of	113,870,500	135,062,800	117,927,400	117,927,400	117,927,400	117,927,400	117,927,400
Shady Hollow MUD	156,135,300	171,871,800	185,157,626	186,164,726	49,227,354	-	-
Sunset Valley, City of	105,009,900	98,722,000	105,271,800	105,271,800	105,271,800	105,271,800	105,271,800
Travis Co. WCID #10	739,187,800	827,352,816	756,963,600	756,963,600	756,963,600	756,963,600	756,963,600
Village of San Leanna	4,443,800	4,620,000	4,441,200	4,441,200	4,441,200	4,441,200	4,441,200
Wells Branch MUD	435,418,200	481,285,700	471,107,200	471,107,200	471,107,200	471,107,200	471,107,200
Southwest Water	4,800,000	1,299,000	3,378,400	3,378,400	3,378,400	3,378,400	3,378,400
Subtotal Wholesale	2,381,309,900	2,630,918,776	2,508,972,026	2,509,979,126	2,373,041,754	2,323,814,400	2,323,814,400
All Customers	40,921,392,000	41,542,991,676	41,804,252,126	42,165,450,026	42,464,702,554	42,804,984,600	43,174,153,500

Retail Customers							
Single Family	208,623	210,856	213,436	216,051	220,112	222,805	225,533
Multifamily	6,586	6,404	6,452	6,499	6,546	6,593	6,641
Commercial	17,871	17,838	18,012	18,186	18,364	18,542	18,720
Large Volume	6	26	26	26	26	26	26
Subtotal Retail	233,086	235,124	237,926	240,762	245,048	247,966	250,920
Wholesale Customers	17	17	50	50	50	50	50
Total Customers	233,103	235,141	237,976	240,812	245,098	248,016	250,970

EXHIBIT JJJ-10
SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' SEVENTH RFI

DISTRICTS 7-109: Please refer to Attachment 1 (AW 2-1, Attachment 109-FY 2018-19 WRF thru 0918_Adjusted.xls) of Austin Water's Response to Districts' Second Request for Information, DISTRICTS 2-1:

a. Please explain how this attachment is associated with the development of the Application.
b. What RFP schedule(s) in the Application does this attachment support? If none, please so state.
c. What Table(s) in the AW Water COS Model Docket 49189.xlxm or AW Wastewater COS Model Docket 49189.xlsm does this attachment support? If none, please so state.
d. Please confirm that David Anders is AW's only witness who supports this attachment; if this attachment's sponsoring witness needs to be modified in AW's response, please do so
e. If this is an Excel document:
    i. Identify each Tab (worksheet) in this workbook, and state the purpose of each tab.
    ii. If this file links to other spreadsheets (click Data/Edit Links for list of linked files),
        1. provide these linked files
        2. explain why these files were not included in AW's attachments to its response to Districts 2-1
        3. State the purpose of each linked file
    iii. Identify any worksheets and/or data in the attachment and linked file(s) that is superfluous to the Application
    iv. Only for worksheets and/or data not identified as superfluous: For each cell in this workbook that is hard-coded, please "provide the source of information for the hard-coded data in narrative format by including detailed explanatory information in 'comments' within the cells" as required by the RFP Requirements.

If the source is external to the City of Austin, identify specifically the source of that data, and state the relationship of the source to the City (e.g., vendor, volunteer, customer, etc.).

RESPONSE:

a. This document is the source document for providing actual and projected revenue, actual and projected usage, and actual and projected number of customer accounts by class, which Austin Water provided in response to Districts' RFI No. 2-1.[110] This data is utilized for the COS Model.
b. This document supports Austin Water's Application, Schedule II – G, "Historic Operating Revenues-Summary."
c. This document supports the "AW FY 18 User Characteristics.xls," which in turn was used in the AW Water COS Model Docket 49189.xlxm.

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[110] *Id.*

d. Joseph Gonzales and David Anders are AW's witnesses who support this attachment.

e. If this is an Excel document:

i. Identify each Tab/Worksheet

Tab Name	Tab Description
Model Export	Summary tab to export data from WRF file to the financial forecast model
Summary	Water summary of all tabs for customer consumption and revenue
CBC	Community Benefit Charge summary page not incorporated into Water Forecast; retail only charge
Residential	Revenue, consumption, and number of accounts data for residential customers
SH -COS Inputs	Shady Hollow combined revenue, consumption, and number accounts
SH - ID	Shady Hollow data for In-District revenue, consumption, and number accounts
SH - OD	Shady Hollow data Out of District revenue, consumption, and number accounts
SH - AISD	Shady Hollow data for AISD revenue and consumption
SH -HOA	Shady Hollow data for Homeowner's Association revenue and consumption
Res BF Data	Residential bill frequency data for consumption per account and consumption percentage by block
Res Tier Data	Residential bill tier data using number of accounts and consumption by block intervals
Multifamily	Revenue, consumption, and number of accounts data for multifamily customers
Commercial	Revenue, consumption, and number of accounts data for commercial customers
Large Volume	Revenue, consumption, and number of accounts data for large volume customers
Wholesale	Revenue, consumption, and number of accounts data for wholesale customers
Accts By Size	Minimum monthly charge and accounts by meter size for retail accounts
Bud Allot	Monthly forecast budget allotments by customer class and by individual customer for large volume and wholesale

ii. This file has no additional links in it.

EXHIBIT JJJ-10

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' SEVENTH RFI

iii. As best as can be determined, all documents provided in Austin Water's responses to Districts' RFI No. 2-1 are non-superfluous to Austin Water's Application. Austin Water interprets "superfluous" in this question as being responsive to the discovery request.

iv. The Commission does not have a Rate Filing Package (RFP) for Municipally Owned Utilities (MOU), and therefore, not all of the Commission's RFP requirements for Investor Owned Utilities (IOU) apply to Austin Water's Application. The source information has been provided in response to the referenced discovery request. The majority of this information comes from the City's financial system.

Prepared by: Robert Rowan
Sponsored by: David Anders and Joseph Gonzales

CITY OF AUSTIN, TEXAS
AUSTIN WATER UTILITY

EXHIBIT JJJ-11

Projected Wastewater Flows
FY 2017-18 through FY 2022-23

Customer Class	CYE FY 2017-18	Projected FY 2018-19	Projected FY 2019-20	Projected FY 2020-21	Projected FY 2021-22
Retail Customers					
Inside City					
Single Family	9,122,474,751	9,291,778,200	9,509,920,500	9,853,095,600	9,876,976,200
Multifamily	7,755,332,100	7,755,333,000	7,487,389,700	8,019,094,100	8,166,643,600
Commercial	6,769,261,411	6,769,257,900	6,647,418,800	7,049,386,600	7,080,546,700
Large Volume	2,854,746,700	2,854,746,700	2,854,746,700	2,854,746,700	2,854,746,700
Total Retail Customers	26,501,814,962	26,671,115,800	26,499,475,700	27,776,323,000	27,978,913,200
Large Volume					
Wholesale Customers					
Manor, City of	86,651,100	91,990,000	91,990,000	91,990,000	91,990,000
North Austin MUD	235,433,600	233,200,000	233,200,000	233,200,000	233,200,000
Northtown MUD	246,079,600	242,000,000	242,000,000	242,000,000	242,000,000
Rollingwood, City of	43,878,000	40,353,037	40,353,037	40,353,037	40,353,037
Sunset Valley, City of	65,835,500	68,400,000	68,400,000	68,400,000	68,400,000
WCID-17 Comanche Canyon	7,895,950	7,622,900	7,622,900	7,622,900	7,622,900
WCID-17 Steiner Ranch	156,452,000	105,912,000	105,912,000	105,912,000	105,912,000
Wells Branch MUD	385,427,900	365,700,000	365,700,000	365,700,000	365,700,000
Westlake Hills, City of	55,754,950	51,245,524	51,245,524	51,245,524	51,245,524
Mid-Tex Utilities (Avana Sub)	22,814,400	16,700,000	16,700,000	16,700,000	16,700,000
Total Wholesale	1,306,223,000	1,223,123,461	1,223,123,461	1,223,123,461	1,223,123,461
Total All Customers	27,808,037,962	27,894,239,261	27,722,599,161	28,999,446,461	29,202,036,661

EXHIBIT JJJ-12

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' SEVENTH RFI

DISTRICTS 7-91: Please refer to Attachment 1 (AW 2-1, Attachment 91-2018-19 WWRF thru 0918 COS Submittal.xlsx) of Austin Water's Response to Districts' Second Request for Information, DISTRICTS 2-1:

a. Please explain how this attachment is associated with the development of the Application.
b. What RFP schedule(s) in the Application does this attachment support? If none, please so state.
c. What Table(s) in the AW Water COS Model Docket 49189.xlxm or AW Wastewater COS Model Docket 49189.xlsm does this attachment support? If none, please so state.
d. Please confirm that David Anders is AW's only witness who supports this attachment; if this attachment's sponsoring witness needs to be modified in AW's response, please do so
e. If this is an Excel document:
    i. Identify each Tab (worksheet) in this workbook, and state the purpose of each tab.
    ii. If this file links to other spreadsheets (click Data/Edit Links for list of linked files),
        1. provide these linked files
        2. explain why these files were not included in AW's attachments to its response to Districts 2-1
        3. State the purpose of each linked file
    iii. Identify any worksheets and/or data in the attachment and linked file(s) that is superfluous to the Application
    iv. Only for worksheets and/or data not identified as superfluous: For each cell in this workbook that is hard-coded, please "provide the source of information for the hard-coded data in narrative format by including detailed explanatory information in 'comments' within the cells" as required by the RFP Requirements.

If the source is external to the City of Austin, identify specifically the source of that data, and state the relationship of the source to the City (e.g., vendor, volunteer, customer, etc.).

RESPONSE:

a. This document is the source document for providing actual and projected revenue, actual and projected usage, and the number of customer accounts by class, which Austin Water provided in response to Districts' RFI No. 2-1.[92] This data is utilized for the COS Model.
b. This document supports Austin Water's Application, Schedule II-G, "Historic Operating Revenues-Summary.".
c. This document supports the "AW FY 18 User Characteristics. xls".

ustAW witnesses David Anders and Joseph Gonzales support this attachment.

e. See below

---

[92] *Id.*

EXHIBIT JJJ-12

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' SEVENTH RFI

i. Identify Each Tab/Worksheet

Tab Name	Tab Description
Model Export	Summary tab to export data from WWRF file to the financial forecast model
Summary	Wastewater summary of all tabs for customer consumption and revenue
RevSum	Current and projected wastewater revenues
Residential	Revenue, consumption, and number of accounts data for residential customers
SumFlow	Summary of current and projected wastewater flows.
SumAcct	Average number of Wastewater Accounts
Multifamily	Revenue, consumption, and number of accounts data for multifamily customers
Commercial	Revenue, consumption, and number of accounts data for commercial customers
Large Volume	Revenue, consumption, and number of accounts data for large volume customers
Wholesale	Revenue, consumption, and number of accounts data for wholesale customers

ii. If this file links to other spreadsheets,
   1. This file contains links to FY 18 User Characteristics prepared by Austin Water.
   2. Not applicable; this file was provided in response to Districts' RFI No. 2-1.
   3. The purpose of FY 18 User Characteristics is to provide actual revenue, actual consumption, and the number of customer accounts by class.

iii. As best as can be determined, all documents provided in Austin Water's responses to Districts' RFI No. 2-1 are non-superfluous to Austin Water's Application. Austin Water interprets "superfluous" in this question as being responsive to the discovery request.

iv. The Commission does not have a Rate Filing Package (RFP) for Municipally Owned Utilities (MOU), and therefore, not all of the Commission's RFP requirements for Investor Owned Utilities (IOU) apply to Austin Water's Application. The source information has been provided in response to the referenced discovery request. The majority of this information comes from the City's financial system.

Prepared by: Robert Rowan
Sponsored by: David Anders and Joseph Gonzales

EXHIBIT JJJ-13

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO
DISTRICTS' NINTH RFI, QUESTIONS 9-9 THROUGH 9-20

DISTRICTS 9-20: Please describe in detail the differences between the Raftelis Cost of Service Models referenced in Request 9-6 and the AW Water COS Model Docket 49189.xlxm or AW Wastewater COS Model Docket 49189.xlsm.

RESPONSE: Major changes between the 2017 COS models and the 2018 COS models include the following:

1. Costs in the 2017 COS models were 2017 budget. The COS models in Austin Water's Errata were updated to the 2018 test year actual costs plus known and measurables;
2. Non-rate revenues were updated from the 2017 budget to the 2018 test year;
3. Peaking factors – extra 2 years of actuals included in the 2018 models;
4. Existing rate updates from 2017 to 2018;
5. Austin Water's Errata filing that included the 2018 water model updates transmission and distribution allocation using an inch-feet based method. This update identifies transmission as 24" or larger, and identifies distribution as below 24";
6. 2017 models included general fund transfers and capital improvement program (CIP) transfers. The 2018 models eliminated these transfers and included the debt service coverage calculation;
7. Austin Water's Errata filing that included the 2018 COS models (Tab 94 in the water model and Tab 83 in the wastewater model) includes a debt service coverage calculation to adjust revenue requirements; and
8. New units or cost centers added since 2017 were included in the 2018 COS models.

Prepared by: Richard Giardina
Sponsored by: Richard Giardina

EXHIBIT JJJ-14

City of Austin, Texas
Austin Water Utility
CRF Collections

Docket No. 49189

DISTRICTS 9-28: Please provide the CRF Collections report for water and wastewater showing FY 2014, FY 2015, FY 2016, FY 2017 and FY 2018 actual data, and budgeted and estimated/projected amounts for FY 2019, FY 2020, and FY 2021 in substantially the same format as shown in Bates Nos. Austin RPD-4824 through Austin RPD-4826 from Docket No. 42857 Austin's Response to Petitioners' Second Request for Production No 2-118 (attached as Attachment 2)

DESCRIPTION	2013-2014 ACTUAL	2014-2015 ACTUAL	2015-2016 ACTUAL	2016-2017 ACTUAL	2017-2018 ACTUAL	2018-2019 PROJECTED	2019-2020 PROJECTED	2020-2021 PROJECTED
COMBINED SUMMARY								
Beginning Balance	$ 6,896,036	$ 7,395,312	$ 16,943,172	$ 16,943,172	$ 23,993,660	$ 32,004,106	$ 38,185,217	$ 43,673,954
Sources of Funds								
Combined Collections	$ 10,095,919	$ 18,831,755	$ 25,149,781	$ 25,149,781	$ 30,380,921	$ 39,115,858	$ 39,975,597	$ 40,718,338
Interest Earnings	3,357	16,105	100,706	203,356	496,425	387,907	397,140	406,393
Total Sources of Funds	$ 10,099,276	$ 18,847,860	$ 25,250,487	$ 25,353,137	$ 30,877,346	$ 39,503,765	$ 40,372,737	$ 41,124,731
Uses of Funds								
Revenue Bond Defeasance	0	0	18,200,000	22,000,000	30,000,000	34,200,000	34,884,000	35,582,000
Transfer to CIP	9,600,000	9,300,000	0	0	0	0	0	0
Total Uses of Funds	$ 9,600,000	$ 9,300,000	$ 18,200,000	$ 22,000,000	$ 30,000,000	$ 34,200,000	$ 34,884,000	$ 35,582,000
Ending Balance	$ 7,395,312	$ 16,943,172	$ 23,993,660	$ 20,296,310	$ 24,871,006	$ 37,307,871	$ 43,673,954	$ 49,216,685
							1.02	For 2019
							1.02	For 2020
WATER IMPACT FEE					Increase 1.99% over same period		1.02	For 2021
Beginning Balance	$ 4,277,193	$ 6,101,120	$ 12,175,258	$ 19,542,716	$ 23,864,956	$ 26,143,216	$ 29,686,942	$ 32,814,893
Collections								
Inside City Limits	$ 0	$ 0	$ 0	$ 0	$ 0		$ 0	$ 0
Outside City Limits	0	0	0	0	0		0	0
Wholesale Customers	325,600	37,700	136,250	76,500	288,150	76,500	76,500	76,500
DWPZ ETJ	286,100	405,400	307,950	42,050	57,750	42,050	42,050	42,050
DWPZ Inside	937,450	1,414,732	1,299,800	1,639,400	1,621,950	3,289,404	3,303,052	3,329,718
DDZ ETJ	802,650	2,603,700	3,881,350	3,620,030	4,266,032	3,538,886	3,557,583	3,589,438
DDZ Inside	3,477,417	5,820,040	9,638,223	11,783,872	13,134,418	11,950,946	12,047,575	12,181,582
Urban	792,983	2,400,688	2,786,664	4,255,604	2,428,541	8,891,233	8,833,252	8,728,999
CURE	193,900	686,125	162,275	166,800	112,750	166,800	166,800	166,800
Transfer In and Adjustments	5,600	(5,600)	0	0	0	0	0	0
Total Net Collections	$ 6,821,700	$ 13,362,784	$ 18,212,511	$ 21,584,256	$ 21,909,592	$ 27,955,819	$ 28,026,812	$ 28,116,087
Interest Earnings	2,227	11,354	76,295	156,555	378,668	387,907	397,140	406,393.05
Total Sources of Funds	$ 6,823,927	$ 13,374,138	$ 18,288,806	$ 21,740,811	$ 22,288,260	$ 28,343,726	$ 28,423,951	$ 28,521,480
Uses of Funds								
Revenue Bond Defeasance		0	10,921,349	17,428,571	20,000,000	24,800,000	25,296,000	25,802,000
Transfer to Debt Services	6,000,000	6,300,000	0	0	0	0	0	0
Total Uses of Funds	$ 6,000,000	$ 6,300,000	$ 10,921,349	$ 17,428,571	$ 20,000,000	$ 24,800,000	$ 25,296,000	$ 25,802,000
Ending Balance	$ 5,101,120	$ 12,175,258	$ 19,542,716	$ 23,854,956	$ 26,143,216	$ 29,686,942	$ 32,814,893	$ 35,534,373
Collection Increase from prior year	26%	96%	36%	19%	2%	28%	0%	0%
3 Year Average Increase	34%	51%	53%	50%	19%	16%	12%	7%
5 Year Average Increase	23%	49%	47%	41%	36%	36%	17%	10%
Total Average Increase from Inception	11%	14%	15%	15%	15%	34%	29%	26%
Percent of Ending Balance Transferred to Debt Service/Bond Defeasance	117.6%	51.7%	55.9%	73.1%	76.5%	0.0%	0.0%	0.0%
Estimated monthly collections	$ 568,475	$ 1,113,565	$ 1,517,709	$ 1,798,688	$ 1,825,799	$ 2,329,652	$ 2,335,568	$ 2,342,924

WASTEWATER IMPACT FEE						Increase 19.4% over same period		
Beginning Balance	$ 2,618,843	$ 2,294,192	$ 4,767,914	$ 4,460,944	$ 8,149,160	$ 6,738,236	$ 8,488,275	$ 10,859,081
Collections								
CIP Genneral Revenue	$ 0		0					
Inside City Limits	0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Outside City Limits	0	(18,750)	0	0	0	0	0	0
Wholesale Customers	325,900	283,700	330,900	23,900	169,000	23,900	23,900	23,900
DWPZ ETJ	99,933	153,550	118,850	14,950	19,800	14,950	14,950	14,950
DWPZ Inside	521,986	609,900	456,700	661,500	668,000	1,344,814	1,437,771	1,517,976
DDZ ETJ	358,760	1,027,540	1,446,900	1,295,500	1,574,300	1,322,571	1,424,191	1,511,134
DDZ Inside	1,428,900	2,174,500	3,440,033	4,441,634	4,892,267	4,844,582	5,272,502	5,635,006
Urban	438,090	931,119	1,072,563	1,708,150	1,077,513	3,532,021	3,698,272	3,823,085
CURE	97,450	291,863	71,325	77,200	70,450	77,200	77,200	77,200
Transfers In and Adjustments	3,200	15,550			0	0	0	0
Total Net Collections	$ 3,274,219	$ 5,468,971	$ 6,937,270	$ 8,222,834	$ 8,471,329	$ 11,160,039	$ 11,948,786	$ 12,603,251
Interest Earnings	1,130	4,751	24,411	46,801	117,757	0	0	0
Total Sources of Funds	$ 3,275,349	$ 5,473,722	$ 6,961,681	$ 8,269,636	$ 8,589,086	$ 11,160,039	$ 11,948,786	$ 12,603,251
Uses of Funds								

EXHIBIT JJJ-14

Revenue Bond Defeasance	0	0	7,278,661	4,571,429	10,000,000	9,400,000	9,688,000	9,780,000
Transfer to Debt Service	3,600,000	3,000,000	0	0	0	0	0	0
Total Uses of Funds	$ 3,600,000	$ 3,000,000	$ 7,278,661	$ 4,571,429	$ 10,000,000	$ 9,400,000	$ 9,688,000	$ 9,780,000
Ending Balance	$ 2,294,192	$ 4,767,914	$ 4,460,944	$ 8,149,160	$ 6,738,236	$ 8,488,275	$ 10,859,081	$ 13,682,312
Collection Increase from prior year	12%	67%	27%	19%	3%	32%	7%	5%
3 Year Average Increase	19%	35%	35%	37%	16%	18%	14%	15%
5 Year Average Increase	14%	35%	30%	30%	26%	29%	18%	13%
Total Average Increase from inception	10%	12%	13%	13%	12%	27%	24%	22%
Percent of Ending Balance Transferred to Debt Service/Bond Defeasance	157%	63%	164%	56%	148%	110.6%	88.3%	71.5%
Estimated monthly collections	$ 272,852	$ 455,748	$ 578,106	$ 685,236	$ 705,944	$ 930,003	$ 995,732	$ 1,050,271

EXHIBIT JJJ-15

Austin Water Forecast

Austin Water receives approximately 98% of its non-transfer revenue from sales of water and wastewater services to retail and wholesale customers. Of this, water service revenue generally accounts for about 50% of total non-transfer revenue, wastewater service revenue accounts for 46%, and reclaimed service revenue and other revenue accounts for the remaining 4%. The projected number of accounts, total billed water consumption during a billing period, total billed wastewater flows during a billing period, and the appropriate rates drive service revenue.

The FY 2017-18 total revenue current-year estimate includes the system-wide water and wastewater rate reduction budget amendment approved by Austin City Council on March 8, 2018, which became effective on May 1, 2018. As a result of the approved rate reduction, FY 2018-19 operating revenue is declining by $5.9 million, or 1.0%, as compared to the FY 2017-18 estimated rate. This reduction is the result of the 18-month 2016 Cost of Service Rate Study, which included significant stakeholder participation in the review of Austin Water's cost-of-service methodologies. Future years also project revenue with the assumption that the rate reduction remains in place until the next-planned rate increase in FY 2020-21.

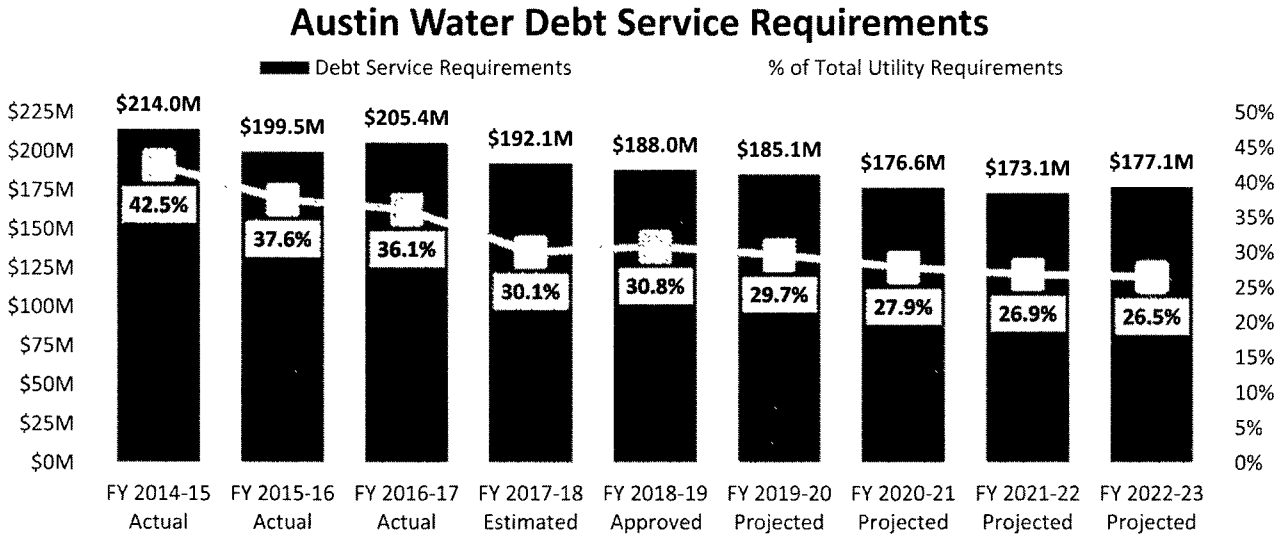
Additionally, Council approved another substantial operating budget amendment on May 10, 2018, that was in direct relation with the previous amendment that reduced rates. This May 10 amendment increased the transfers in from capital recovery fees and reclaimed CIP by $2.4 million and $4.0 million, respectively. The amendment also increased the operating transfer out for debt defeasance by $26.9 million, allowing Austin Water to pay off certain maturities and remove $68.0 million of debt from its books, which improved debt service coverage and reduced scheduled debt service payments over the next five years. Austin Water's total requirements are decreasing by $38.9 million in FY 2018-19, largely because no operating transfer out for debt defeasance is planned. Overall, Austin Water's continued debt management efforts are a key factor in slowing the growth in retail rates through FY 2022-23.

The chart on the next page shows the impact of Austin Water's debt management efforts, exemplified by the March 8 and May 10 budget amendments. Austin Water's debt service requirements (represented by the blue bars) have declined from an actual $214.0 million in FY 2014-15 to $188.0 million in FY 2018-19 and a projected $177.1 million in FY 2022-23. Over the same period, debt service requirements as a percentage of the utility's total requirements (represented by the orange line) are projected to decrease considerably, from an actual 42.5% in FY 2014-15 to 30.8% in FY 2018-19 and a projected 26.5% in FY 2022-23.

Austin Water's major expenditure categories include operating and maintenance costs, debt service payments, and transfers to other City funds, including the General Fund, utility billing support, and administrative support transfers. Expenditure assumptions for FY 2018-19 through FY 2022-23 include:

- A $4.1 million decrease in debt service requirements from FY 2017-18 current-year estimates to FY 2018-19, and another $10.9 million decrease from FY 2018-19 to FY 2022-23, all attributable to Austin Water's ongoing debt management efforts;
- A stable General Fund transfer throughout the five-year period, ranging from $47.6 million in FY 2018-19 to $48.0 million in FY 2022-23; and

- A modest staffing increase throughout the five-year period, adding 16.0 positions in FY 2018-19 and 9.0 positions in FY 2019-20.



Fund Summary (in millions)

	FY18 Estimated	FY19	FY20	FY21	FY22	FY23
Beginning Fund Balance	$214.8	$191.7	$195.5	$194.2	$202.3	$209.3
Revenue & Transfers In	$615.7	$613.1	$622.4	$641.2	$650.4	$670.3
Expenditures & Transfers Out	$638.8	$609.4	$623.6	$633.1	$643.5	$668.0
Change in Fund Balance	($23.0)	$3.7	($1.2)	$8.0	$7.0	$2.3
Ending Fund Balance	$191.7	$195.5	$194.2	$202.3	$209.3	$211.5
Average Monthly Bill (Typical Rate Payer)*	$80.91	$80.79	$80.79	$82.37	$82.37	$83.98
FTEs	1,185.00	1,201.00	1,210.00	1,210.00	1,210.00	1,210.00

**The Average Monthly Bill includes the Reserve Fund Surcharge and Community Benefit Charge.*

Austin Water's five-year CIP spend plan balances renewal and replacement of critical infrastructure and investments in new technology, including smart meter technology and system expansion, and is focused on capital investments to build and improve water and wastewater treatment facilities and wastewater collection facilities. Total planned spending from FY 2018-19 through FY 2022-23 is $912.6 million, with $194.9 million planned for FY 2018-19. Noteworthy projects for water and wastewater treatment facility improvements are the Treated Water Discharge System and Power Distribution Upgrade for the Davis Water Treatment Plant, Trains A&B Blower Replacement and Tertiary Filter Improvements for the South Austin Regional Wastewater Treatment Plant, and the Tertiary Filter Rehabilitation for the Walnut Creek Wastewater Treatment Plant. Additionally, the Parmer Lane Interceptor project will focus on constructing new wastewater infrastructure. All of these projects are currently in the construction phase.

AUSTIN WATER

Expenditures by Strategic Outcome					
Culture and Lifelong Learning	0	0	64,984	64,984	66,858
Economic Opportunity and Affordability	0	0	3,166,153	3,334,485	3,599,759
Government that Works	0	0	131,690,628	132,684,049	138,653,958
Health and Environment	0	0	41,646,507	40,489,937	38,183,793
Mobility	0	0	91,760	88,819	124,856
Safety	0	0	55,517,095	54,648,576	57,328,101
Transfers and Debt Service	0	0	406,614,495	416,954,990	371,443,629
Total by Strategic Outcome	**0**	**0**	**638,791,621**	**648,265,839**	**609,400,953**
Expenditure by Program					
Engineering Services	10,028,053	12,002,492	12,904,615	12,943,002	13,089,466
Environmental Affairs & Conservation	10,984,079	10,297,731	11,988,840	12,392,708	12,395,666
One Stop Shop	592,963	729,773	0	0	0
Operations	0	0	138,467,326	134,746,425	140,449,135
Other Utility Program Requirements	8,128,722	9,167,507	7,137,412	11,184,618	9,487,966
Pipeline Operations	40,883,390	45,793,322	0	0	0
Reclaimed Water Services	369,690	328,429	600,494	591,699	571,388
Support Services	23,367,847	26,409,333	29,908,745	29,271,114	31,117,783
Transfers, Debt Service, and Other Requirements	353,303,446	377,473,337	428,917,689	438,006,933	392,918,993
Treatment	75,770,286	78,325,219	0	0	0
Water Resources Management	7,957,741	7,851,932	8,866,500	9,129,340	9,370,556
Total by Program	**531,386,216**	**568,379,076**	**638,791,621**	**648,265,839**	**609,400,953**
Revenue by Source					
Charges for Services/Goods	557,048,420	592,042,004	558,982,586	564,239,558	553,975,431
Fines, Forfeitures, Penalties	745,750	706,700	577,675	616,800	589,200
Franchise Fees	294,045	502,391	65,592	93,000	66,800
Licenses, Permits, Inspections	617,184	1,975,016	1,969,496	1,899,500	2,008,900
Other Revenue	5,926,732	5,621,753	4,802,081	6,043,360	4,926,280
Transfers In	21,900,582	36,654,835	44,437,447	44,604,427	47,686,239
Use of Money & Property	1,349,560	2,795,369	4,911,796	1,351,580	3,883,668
Total Revenue	**587,882,273**	**640,298,067**	**615,746,673**	**618,848,225**	**613,136,518**
Civilian FTEs	1,148.50	1,170.00	1,185.00	1,185.00	1,201.00

AUSTIN WATER

[redacted]

Projects by Strategic Outcome					
Economic Opportunity and Affordability	53,275,614	0	53,275,614	32,098,251	2,532,230
Government that Works	1,162,121,814	17,200,000	1,179,321,814	289,111,144	65,912,612
Health and Environment	290,447,813	6,000,000	296,447,813	120,055,131	57,587,785
Mobility	41,810,801	0	41,810,801	32,102,406	3,513,041
Safety	512,566,623	0	512,566,623	424,640,260	65,375,983
Total by Strategic Outcome	**2,060,222,665**	**23,200,000**	**2,083,422,665**	**898,007,191**	**194,921,651**
Projects by Category					
Buildings and Improvements	1,988,018	0	1,988,018	642,440	3,280,226
Information Technology	15,680,886	0	15,680,886	12,844,639	3,470,000
Lift Station	12,074,211	0	12,074,211	8,293,287	3,885,100
Other	866,217,031	17,200,000	883,417,031	5,423,248	600,000
Planning/Studies	2,617,234	0	2,617,234	1,936,912	0
Pump Station	23,573,381	0	23,573,381	18,948,567	5,110,979
Reclaimed Water Network	44,263,036	6,000,000	50,263,036	27,665,047	10,762,233
Reservoir	14,761,245	0	14,761,245	12,917,424	6,201,959
Vehicles and Equipment	50,646,685	0	50,646,685	46,014,876	2,835,554
Wastewater Pipe Network	174,500,314	0	174,500,314	100,996,657	36,972,792
Wastewater Treatment Plant	187,952,814	0	187,952,814	96,616,765	56,104,174
Water Pipe Network	143,712,962	0	143,712,962	111,775,519	23,153,069
Water Treatment Plant	522,234,848	0	522,234,848	453,931,811	42,545,565
Total by Category	**2,060,222,665**	**23,200,000**	**2,083,422,665**	**898,007,191**	**194,921,651**
Funding by Source					
Commercial Paper	1,262,714,799	0	1,262,714,799	594,995,489	112,129,748
Current Revenue	697,268,993	20,000,000	717,268,993	204,911,224	82,791,903
Non-Voter Approved General Obligation Debt	42,679,577	3,200,000	45,879,577	40,571,968	0
Revenue Bonds	57,559,296	0	57,559,296	57,528,511	0
Total by Funding Source	**2,060,222,665**	**23,200,000**	**2,083,422,665**	**898,007,191**	**194,921,651**

EXHIBIT JJJ-15A AUSTIN WATER

[redacted]

Expenditures by Strategic Outcome					
Culture and Lifelong Learning	0	66,584	66,935	66,858	0
Economic Opportunity and Affordability	0	3,040,994	3,353,574	3,599,759	1,567,042
Government that Works	0	125,047,584	138,071,037	138,846,279	101,740,830
Health and Environment	0	39,745,257	38,328,593	37,952,797	80,434,696
Mobility	0	68,354	125,093	124,856	0
Safety	0	52,362,611	57,600,937	57,366,776	60,585,075
Transfers and Debt Service	0	406,349,316	377,475,001	382,443,629	371,194,889
Total by Strategic Outcome	**0**	**626,680,701**	**615,021,169**	**620,400,953**	**615,522,532**
Expenditure by Program					
Engineering Services	12,002,492	12,452,254	12,920,970	13,089,466	13,680,169
Environmental Affairs & Conservation	10,297,731	11,134,431	11,824,744	12,187,709	12,476,913
One Stop Shop	729,773	0	0	0	0
Operations	0	131,831,912	141,622,656	140,646,769	144,851,520
Other Utility Program Requirements	9,167,507	6,708,942	9,307,162	9,432,966	7,511,930
Pipeline Operations	45,793,322	0	0	0	0
Reclaimed Water Services	328,429	529,554	567,688	571,388	578,612
Support Services	26,409,333	28,252,117	31,091,377	31,183,106	32,862,168
Transfers, Debt Service, and Other Requirements	377,473,337	427,326,381	398,254,324	403,918,993	393,604,384
Treatment	78,325,219	0	0	0	0
Water Resources Management	7,851,932	8,445,109	9,432,248	9,370,556	9,956,836
Total by Program	**568,379,076**	**626,680,701**	**615,021,169**	**620,400,953**	**615,522,532**
Funding Sources					
Austin Water Reclaimed Water Utility Operating Fund	4,944,520	9,384,012	6,935,679	6,897,877	7,881,610
Austin Water Wastewater Utility Operating Fund	285,769,548	285,033,962	280,630,691	283,503,113	288,614,965
Austin Water Water Utility Operating Fund	349,583,999	329,659,896	309,581,365	323,735,528	328,063,104
Total Revenue	**640,298,067**	**624,077,871**	**597,147,735**	**614,136,518**	**624,559,679**
Civilian FTEs	1,170.00	1,185.00	1,201.00	1,201.00	1,218.00

CITY OF AUSTIN, TEXAS
AUSTIN WATER

EXHIBIT JJJ-16

FY 2019-28 DRAFT

Forecast Option #01

Water Operating Budget
Fund Summary

	Amended Budget 2017-18	Estimated 2017-18	1 Projected 2018-19	2 Projected 2019-20	3 Projected 2020-21	4 Projected 2021-22	5 Projected 2022-23
BEGINNING BALANCE	$98,407,343	$111,644,872	$103,908,130	$107,953,693	$101,982,975	$104,331,996	$112,893,297
REVENUES							
Water Services/Wastewater Revenue	$304,594,932	$296,133,646	$286,898,573	$289,765,765	$298,087,784	$300,965,763	$309,663,032
Other Revenue	3,316,412	2,034,308	2,098,712	2,164,412	2,231,512	2,299,912	2,369,812
Public Health Licenses, Permits, Inspec	46,400	51,053	52,100	53,100	54,200	55,300	56,400
Miscellaneous Franchise Fees	76,300	57,225	58,400	59,600	60,800	62,000	63,200
Interest	305,258	895,500	492,028	289,300	383,600	488,700	620,200
Building Rental/Lease	57,500	58,209	58,200	58,200	58,200	58,200	58,200
Land & Infrastructure Rental/Lease	67,000	61,250	61,200	61,200	61,200	61,200	61,200
Scrap Sales	27,200	25,888	26,400	26,900	27,400	27,900	28,500
Development Fees	0	1,251,802	1,276,800	1,302,300	1,328,300	1,354,900	1,382,000
Other Fines	616,800	516,075	526,400	536,900	547,600	558,600	569,800
TOTAL REVENUES	$309,107,802	$301,084,956	$291,548,813	$294,317,677	$302,840,596	$305,932,475	$314,872,344
TRANSFERS IN:							
CIP	17,428,571	22,174,800	22,618,000	23,070,000	23,531,000	24,002,000	24,482,000
Support Services/Infrastructure Funds	150,291	150,291	150,291	150,291	150,291	150,291	150,291
Austin Water CBC	4,048,009	3,993,469	5,301,739	5,350,307	5,461,914	5,511,933	5,562,398
TOTAL TRANSFERS IN	$21,626,871	$26,318,560	$28,070,030	$28,570,598	$29,143,205	$29,664,224	$30,194,689
TOTAL AVAILABLE FUNDS.	$330,734,673	$327,403,516	$319,618,843	$322,888,275	$331,983,801	$335,596,699	$345,067,033
DEPARTMENT REQUIREMENTS							
Operations and Maintenance							
Treatment	$40,914,205	$40,914,205	$42,452,849	$43,937,488	$45,498,570	$46,809,812	$48,172,538
Pipeline Operations	30,609,224	30,609,224	31,270,373	29,056,660	30,581,029	32,429,067	34,616,040
Engineering Services	5,050,457	5,050,457	5,159,992	5,359,452	5,546,165	5,676,309	5,809,648
Water Resources Management	4,273,293	4,273,293	4,401,005	4,749,206	5,104,135	5,216,123	5,330,821
Environmental Affairs & Conservation	9,055,473	9,055,473	9,174,709	9,504,335	9,808,685	10,044,315	10,285,726
Support Services	14,781,305	14,781,305	15,319,662	16,024,882	16,579,616	16,969,145	17,368,149
Other Utility Program Requirements	5,828,252	5,828,252	6,445,220	7,516,875	8,706,373	10,025,828	11,488,265
Total Department Requirements	$110,512,209	$110,512,209	$114,223,810	$116,148,898	$121,824,573	$127,170,599	$133,071,187
(%RR)	34.7%	33.0%	36.2%	35.3%	37.0%	38.9%	38.5%
Other Requirements.							
Accrued Payroll	$151,150	$151,150	$340,088	$408,106	$489,727	$587,672	$705,206
Services-PID contract expense	37,500	37,500	37,500	37,500	37,500	37,500	37,500
Utility Billing System Support	12,953,273	12,953,273	12,953,273	14,248,600	15,530,974	16,773,452	17,947,594
Compensation Adjustment	0	0	1,335,101	1,150,010	1,178,760	1,208,229	1,238,435
Interdepartmental Charges	56,380	56,380	57,790	59,235	60,716	62,234	63,790
Total Other Requirements	$13,198,303	$13,198,303	$14,723,752	$15,903,451	$17,297,677	$18,669,087	$19,992,525
TOTAL OPERATING REQUIREMENTS	$123,710,512	$123,710,512	$128,947,562	$132,052,349	$139,122,250	$145,839,686	$153,063,712
(%RR)	38.9%	36.9%	40.9%	40.2%	42.2%	44.6%	44.3%
DEBT SERVICE							
Trf to Utility D/S Separate Lien	$72,226,776	$72,201,855	$65,628,034	$80,704,799	$79,956,648	$76,113,524	$81,487,843
Trf to Utility D/S Sub Lien	5,075,700	5,075,700	5,227,410	5,551,217	1,838,812	2,570,793	2,444,624
Trf to GO Debt Service	1,327,427	1,327,427	910,446	785,405	598,100	426,307	253,862
Trf to D/S Prior Lien	27,248,800	27,248,800	13,140,928	0	0	0	0
Trf to Util D/S Tax/Rev Bonds	239,965	504,340	408,212	244,836	247,825	245,589	246,657
Commercial Paper Interest	138,030	104,517	126,069	877,664	660,420	1,281,475	863,605
TOTAL DEBT SERVICE:	$106,256,698	$106,462,639	$85,441,099	$88,163,921	$83,301,805	$80,637,687	$85,296,591
(%RR)	33.4%	31.8%	27.1%	26.8%	25.3%	24.7%	24.7%
TRANSFERS OUT							
Trf to General Fund	$24,538,645	$24,538,645	$24,538,645	$25,100,384	$24,243,340	$24,291,327	$24,684,480
Trf to Wastewater CIP Fund							
Trf to Water CIP Fund	22,000,000	22,000,000	30,000,000	28,000,000	28,000,000	28,000,000	23,000,000
Administrative Support	6,926,977	6,926,977	9,697,768	10,061,434	10,443,284	10,844,226	11,265,215
Trf to Water Revenue Stability Reserve	9,295,119	5,876,816	2,761,881	2,134,943	2,149,915	2,164,706	2,179,527
CTM Support	2,032,486	2,032,486	2,235,735	2,459,309	2,705,240	2,975,764	3,273,340
Trf CRF to Debt Defeasance	17,428,571	17,428,571	24,259,000	23,070,000	23,531,000	24,002,000	24,482,000
Trf Operating to Debt Defeasance	0	20,000,000	0	10,000,000	8,000,000	0	10,000,000
Trf to Reclaimed Water Fund	2,550,000	2,550,000	4,000,000	4,000,000	4,200,000	4,200,000	4,000,000
Trf to Economic Development	1,710,432	1,710,432	1,710,432	1,756,039	1,790,422	1,837,390	1,872,653
Trf to Reclaimed Water CIP Fund							
Workers' Compensation	627,283	627,283	690,011	759,012	834,913	918,404	1,010,244
Regional Radio System	146,609	146,609	161,270	171,077	181,374	192,186	203,539
Trf to CTECC Fund	5,887	5,887	6,476	7,124	7,836	8,620	9,482
Trf to Capital Projects Mgmt Fund	1,123,401	1,123,401	1,123,401	1,123,401	1,123,401	1,123,401	1,123,401
TOTAL TRANSFERS OUT	$88,385,410	$104,967,107	$101,184,619	$108,642,723	$107,210,725	$100,558,024	$107,103,881
(%RR)	27.8%	31.3%	32.1%	33.0%	32.5%	30.7%	31.0%
TOTAL REQUIREMENTS.	$318,352,620	$335,140,258	$315,573,281	$328,858,993	$329,634,780	$327,035,397	$345,464,184
EXCESS / (DEFICIENCY) OF TOTAL AVAILABLE FUNDS OVER TOTAL REQUIREMENTS	$12,382,053	($7,736,742)	$4,045,563	($5,970,718)	$2,349,021	$8,561,301	($397,151)
ADJUSTMENT TO GAAP	$0	$0	$0	$0	$0	$0	$0
ENDING BALANCE	$110,789,396	$103,908,130	$107,953,693	$101,982,975	$104,331,996	$112,893,297	$112,496,147
Water Rate Increases	0.0%	4.8%	0.0%	0.0%	2.0%	0.0%	2.0%
Debt Service Coverage Ratio	1.71	1.79	1.85	1.79	1.90	1.91	1.81

CITY OF AUSTIN, TEXAS
AUSTIN WATER

EXHIBIT JJJ-16

FY 2019-28 ··· DRAFT ···

Forecast Option #01

Wastewater Operating Budget
Fund Summary

	Amended Budget 2017-18	Estimated 2017-18	1 Projected 2018-19	2 Projected 2019-20	3 Projected 2020-21	4 Projected 2021-22	5 Projected 2022-23
BEGINNING BALANCE	$100,522,211	$108,509,273	$102,389,226	$103,811,296	$101,791,726	$105,433,323	$111,628,407
REVENUES							
Water Services/Wastewater Revenue	269,302,437	262,313,962	266,910,100	269,225,747	278,829,182	283,445,058	291,521,367
Other Revenue	2,860,548	2,776,573	2,829,068	2,926,368	2,937,168	2,992,568	2,980,668
Public Health Licenses, Permits, Inspec	595,300	650,097	663,100	676,400	689,900	703,700	717,700
Miscellaneous Franchise Fees	16,700	12,525	12,500	12,500	12,500	12,500	12,500
Interest	346,402	1,057,333	618,454	316,429	402,329	498,229	605,829
Building Rental/Lease	57,000	57,834	57,800	57,800	57,800	57,800	57,800
Land & Infrastructure Rental/Lease	0	0	0	0	0	0	0
Property Sales	0	0	0	0	0	0	0
Scrap Sales	15,500	17,113	17,500	17,900	18,300	18,700	19,100
Development Fees	0	4,019	4,100	4,100	4,100	4,100	4,100
Other Fines							
TOTAL REVENUES	$273,193,887	$266,889,456	$271,112,622	$273,237,244	$282,951,279	$287,732,655	$295,919,064
TRANSFERS IN							
CIP	$4,571,429	$8,435,400	$8,604,000	$8,776,000	$8,952,000	$9,131,000	$9,314,000
Austin Water	0	0	0	0	0	0	0
Support Services/Infrastructure Funds	150,291	150,291	150,291	150,291	150,291	150,291	150,291
Austin Resource Recovery Fund	53,334	53,334	53,334	53,334	53,334	53,334	53,334
Austin Water CBC	2,802,502	2,690,062	$3,840,483	$3,866,460	$3,922,121	$3,943,563	$3,973,746
TOTAL TRANSFERS IN	$7,577,556	$11,329,087	$12,648,108	$12,846,085	$13,077,746	$13,278,188	$13,491,371
TOTAL AVAILABLE FUNDS	$280,771,443	$278,218,543	$283,760,731	$286,083,329	$296,029,025	$301,010,843	$309,410,435
PROGRAM REQUIREMENTS							
Operations and Maintenance							
Treatment	$42,594,761	$42,594,761	$46,068,978	$47,985,913	$50,385,080	$52,045,558	$53,756,705
Pipeline Operations	20,628,235	20,628,235	21,235,392	21,098,190	22,703,265	24,638,753	26,920,328
Engineering Services	7,892,545	7,892,545	8,074,157	8,450,839	8,803,725	9,106,509	9,417,985
Water Resources Management	4,856,047	4,856,047	5,069,321	5,546,784	6,013,824	6,240,699	6,473,640
Environmental Affairs & Conservation	3,337,235	3,337,235	3,416,962	3,657,138	3,872,485	4,016,851	4,165,238
Support Services	14,459,809	14,459,809	15,110,831	16,057,795	16,822,257	17,428,298	18,051,390
Reclaimed Water Services	0	0	0	0	0	0	0
One Stop Shop	0	0	0	0	0	0	0
Other Utility Program Requirements	5,358,190	5,358,190	5,896,667	6,893,250	7,999,664	9,227,203	10,588,015
Staffing Estimates	0	0	0	0	0	0	0
Total Operations & Maintenance	$99,126,822	$99,126,822	$104,872,308	$109,689,909	$116,600,300	$122,703,871	$129,373,301
(%RR)	36 3%	34 9%	37 1%	38 1%	39 8%	41 6%	42 0%
Other Requirements							
Accrued Payroll	$145,040	$145,040	$145,040	$145,040	$145,040	$145,040	$145,040
27th Pay Period Expense	0	0	0	0	0	0	0
27th Pay Period Expense Refund	0	0	0	0	0	0	0
Services-PID contract expense	37,500	37,500	37,500	37,500	37,500	37,500	37,500
Utility Billing System Support	7,613,674	7,613,674	7,994,358	8,633,907	9,324,620	10,070,590	10,775,531
Market Study Adjustment	0	0	0	0	0	0	0
Compensation Adjustment	0	0	2,611,525	2,249,879	2,304,096	2,361,699	2,420,741
Interdepartmental Charges	56,380	56,380	57,790	59,235	60,716	62,234	63,790
Total Other Requirements	$7,852,594	$7,852,594	$10,846,213	$11,125,561	$11,871,972	$12,677,063	$13,442,602
TOTAL OPERATING REQUIREMENTS	$106,979,416	$106,979,416	$115,718,521	$120,815,470	$128,472,272	$135,380,934	$142,815,903
(%RR)	39 2%	37 6%	41 0%	41 9%	43 9%	45 9%	46 4%
DEBT SERVICE							
Trf to Utility D/S Separate Lien	$55,922,307	$57,241,861	71,146,483	77,575,384	76,429,826	74,460,540	74,640,755
Trf to Utility D/S Sub Lien	$4,000,400	4,000,400	4,092,898	$4,434,982	$1,963,089	$2,744,542	$2,609,846
Trf to GO Debt Service	1,541,414	1,541,414	1,132,432	909,312	690,757	456,873	253,099
Trf to D/S Prior Lien	29,409,574	29,409,574	14,894,072	0	0	0	0
Trf to Util D/S Tax/Rev Bonds	408,518	655,136	568,590	416,810	421,899	418,092	419,911
Commercial Paper Interest	115,350	103,385	87,113	985,521	729,079	1,384,756	953,589
TOTAL DEBT SERVICE	$91,397,562	$92,951,770	$91,921,588	$84,322,008	$80,234,650	$79,464,803	$78,877,200
(%RR)	33 5%	32 7%	32 6%	29 3%	27 4%	27 0%	25 6%
TRANSFERS OUT							
Trf to General Fund	$21,271,435	$21,271,435	$21,973,075	$22,261,028	$22,173,875	$22,612,898	$23,067,179
Trf to Wastewater CIP Fund	29,200,000	29,200,000	30,000,000	32,000,000	34,000,000	33,000,000	32,000,000
Trf to Water CIP Fund							
Administrative Support	5,079,783	5,079,783	7,111,696	7,822,866	8,214,009	8,624,709	9,055,950
Trf to Water Revenue Stability Reserve	0	0	0	0	0	0	0
CTM Support	1,994,262	1,994,262	2,153,804	2,261,494	2,374,569	2,493,297	2,742,627
Trf CRF to Debt Defeasance	12,571,429	12,571,429	9,741,000	8,776,000	8,952,000	9,131,000	9,314,000
Trf Operating to Debt Defeasance	0	10,000,000	0	6,000,000	4,000,000	0	6,000,000
Trf to Reclaimed Water Fund	850,000	850,000	0	0	0	0	0
Trf to Economic Development	1,509,967	1,509,967	1,710,588	1,756,201	1,791,325	1,838,317	1,873,598
Trf to Reclaimed Water CIP Fund							
Workers' Compensation	627,283	627,283	690,011	759,012	834,913	918,404	1,010,244
Liability Reserve	0	0	0	0	0	0	0
Regional Radio System	146,608	146,608	161,269	171,076	181,373	192,185	203,538
Trf to CTECC Fund	5,887	5,887	6,358	6,993	7,692	8,461	9,307
Trf to Econ Incentive Rsv Fund	0	0	0	0	0	0	0
Trf to Capital Projects Mgmt Fund	1,150,750	1,150,750	1,150,750	1,150,750	1,150,750	1,150,750	1,150,750
Trf to Environmental Remediation Fund	0	0	0	0	0	0	0
Trf to PARD CIP Fund	0	0	0	0	0	0	0
TOTAL TRANSFERS OUT	$74,407,404	$84,407,404	$74,698,551	$82,965,420	$83,680,506	$79,970,021	$86,427,193
(%RR)	27 3%	29 7%	26 5%	28 8%	28 6%	27 1%	28 0%
TOTAL REQUIREMENTS	$272,784,382	$284,338,590	$282,338,660	$288,102,898	$292,387,428	$294,815,758	$308,120,296
EXCESS / (DEFICIENCY) OF TOTAL AVAILABLE FUNDS OVER TOTAL REQUIREMENTS	$7,987,061	($6,120,047)	$1,422,071	($2,019,570)	$3,641,597	$6,195,084	$1,290,139
ADJUSTMENT TO GAAP	$0	$0	$0	$0	$0	$0	$0
ENDING BALANCE	$108,509,273	$102,389,226	$103,811,296	$101,791,726	$105,433,323	$111,628,407	$112,918,546
Wastewater Rate Increases			0 0%	0 0%	2 0%	0.0%	2 0%
Debt Service Coverage Ratio	1 77	1 77	1 65	1 77	1 87	1.87	1 87

EXHIBIT JJJ-18

FINANCIAL POLICIES

Austin Water Financial Policies

1. The term of debt generally shall not exceed the useful life of the asset, and shall not generally exceed 30 years.

2. Capitalized interest shall only be considered during the construction phase of a new facility if the construction period exceeds seven years. The time frame for capitalizing interest may be three years but not more than five years. Council approval shall be obtained before proceeding with a financing that includes capitalized interest.

3. Principal repayment delays on revenue bonds shall be one to three years, but shall not exceed five years.

4. Each utility shall maintain a fully funded debt service reserve for its existing revenue bond issues and future issues, in accordance with the Combined Utility Systems Revenue Bond Covenant.

5. Debt service coverage of at least 1.50x shall be targeted.

6. Short-term debt, including tax-exempt commercial paper, shall be used when authorized for interim financing of capital projects. The term of short-term debt shall not exceed five years. Commercial paper will be converted to refunding bonds when appropriate under economic and business conditions. Total short-term debt shall generally not exceed 20% of outstanding long-term debt.

7. Commercial paper may be used to finance new water and wastewater plants, capital expansions, and growth-related projects as well as to finance routine capital improvements required for normal business operation. Commercial paper for the necessary amount may also be used to finance improvements to comply with local, State and Federal mandates or regulations.

8. Capital improvement projects for new water and wastewater treatment plants, capital expansions, and growth-related projects that are located in the Drinking Water Protection Zone (DWPZ) will be identified and submitted, as part of the annual budget process, to the following Boards and Commissions: Water and Wastewater Commission, Resource Management Commission, Environmental Board, Planning Commission, and the Zoning and Platting Commission.

   These Boards and Commissions will review growth-related DWPZ capital projects spending plans, obtain Board and Commission and citizen input, review consistency with Imagine Austin Comprehensive Plan, review effect on growth within the DWPZ, and make recommendations on project approval for inclusion in Austin Water's five-year capital spending plan.

EXHIBIT JJJ-18

FINANCIAL POLICIES

A public hearing will be held during the City's annual budget review process to provide citizens an additional opportunity to comment on growth related projects located within the DWPZ.

9. Ongoing routine, preventive maintenance should be funded on a pay-as-you-go basis.

10. Capital projects should be financed through a combination of cash, referred to as pay-as-you-go financing (equity contributions from current revenues), and debt. An equity contribution ratio of at least 20% is desirable.

11. Austin Water shall maintain a minimum quick ratio of 1.50 (current assets less inventory divided by current liabilities). Source of information shall be the Comprehensive Annual Financial Report.

12. Austin Water shall maintain operating cash reserves equivalent to a minimum of 60 days of budgeted operations and maintenance expense.

13. Revenue generated by Austin Water from debt service coverage requirements shall be used for General Fund transfers, capital investment, or other Austin Water requirements such as working capital reserve or non-CIP capital.

14. Austin Water rates shall be designed to generate sufficient revenues to support the full cost (direct and indirect) of operations and debt, provide debt service coverage and meet other revenue bond covenants, if applicable, and ensure adequate and appropriate levels of working capital.

15. The General Fund Transfer shall not exceed 8.2% of the Austin Water three-year average revenues, calculated using the current year estimate at March 31 and the previous two years' actual revenues.

    Revenue collected from the Reserve Fund Surcharge will be included in the General Fund Transfer calculation; however, any use or transfer of the reserve fund back into the operating fund in the future due to revenue loss will not be included in the total revenues to calculate the General Fund Transfer.

16. A Water Revenue Stability Reserve Fund shall be created and established for the purpose of offsetting current year water service revenue shortfalls below budgeted revenue levels.

    The target funding level for the Reserve Fund is 120 days of the budgeted water operating requirements of Austin Water, which includes operations and maintenance and other operating transfers, but excludes debt service and other transfers. In the event that any portion of the Reserve Fund is used, the balance will be replenished to the target level within five years.

EXHIBIT JJJ-18

FINANCIAL POLICIES

Upon creation of the Reserve Fund, the goal to reach the target funding level of 120 days of budgeted water operating requirements will be no later than five years. If the fund is drawn down prior to reaching the 120 day target during the first five-year development period, the reserve fund surcharge shall not be lower than it was during the year in which the draw down occurred until such time as the fund reaches its 120 days of operating costs.

Sources of funding for the Reserve Fund may include a Reserve Fund volumetric surcharge charged to all customer classes, operating reserves in excess of 60 days of operating requirements, and any available net water service revenue after meeting all obligations of Austin Water.

The City Council must approve all Reserve Fund utilization of funds through a separate action during the year. The Reserve Fund shall only be used to offset a current year water service revenue shortfall where actual water service revenue is less than the budgeted level by 10% or more. The maximum use of the Reserve Fund in any fiscal year is 50% of the existing balance at the time of request for Council action.

When the target levels of the Reserve Fund are reached, any Reserve Fund Surcharge shall be reduced to levels sufficient to only maintain the goal of 120 days of operating requirements as may be necessitated by changes in budgeted operating costs over time.

All interest earned by the Reserve Fund account shall remain in the Reserve Fund in order to offset funding and replenishment requirements and to minimize rate impacts for water customers.

Airport Financial Policies

1. Debt service coverage shall be targeted at a minimum of 1.25x.

2. The Debt Service Reserve shall be funded at the same time long-term debt is issued (typically equal to one year's average debt service requirement).

3. The term of long-term debt shall not exceed the expected useful life of the capital asset being financed, and in no case shall the life of the debt exceed 30 years.

4. Capitalized interest during construction shall generally not exceed five years. Council approval shall be obtained before proceeding with financing that includes capitalized interest.

5. The Airport shall maintain a ratio of current assets plus operating reserve to current liabilities of at least 1.5x. Source of information shall be the Comprehensive Annual Financial Report.

6. The Aviation Fund shall maintain working capital that is equivalent to 60 days of budgeted operations and maintenance expense, in accordance with bond ordinance provisions (current assets plus operating reserve less current liabilities).

EXHIBIT JJJ-19

Austin Water
Water Utility Cost of Service Model
Fixed Revenue at Existing Rates - Meter Data Inputs
Adjusted Test Year

Table 3 - 3
Meter Equivalencies

Meter Size	Equivalent Meters	Equivalent Fire Services	Equivalent Accounts
Data Source: Meter Size Pivot Table			
5/8"	1.00	1.00	1.00
3/4"	1 67	1.67	1.00
1"	2.67	2.67	1.00
CAP	2.67	2.67	0.00
1 1/2"-P	3.33	3.33	1 00
1 1/2"-T	3.33	3.33	1.00
2"-P	6.67	6.67	1 00
2"-T	6.67	6.67	1 00
3"-C	23.33	23.33	1 00
3"-T	23.33	23 33	1 00
4"-C	40.00	40.00	1 00
4"-T	40.00	40.00	1.00
6"-C	83.33	83.33	1.00
6"-T	83.33	83 33	1.00
6"-F	83.33	83.33	1.00
8"-C	160 00	160.00	1.00
8"-T	160 00	160.00	1.00
8"-F	160.00	160.00	1.00
10"-C	253.33	253.33	1.00
10"-T	253.33	253.33	1 00
10"-F	253.33	253.33	1 00
12"-C	333.33	333.33	1 00
12"-T	333.33	333 33	1 00
12"-F	333.33	333.33	1.00

EXHIBIT JJJ-20

Table 58
Austin Water Utility
Water Cost of Service Model - Base/Extra-Capacity Method
Equivalent Meter Schedule

Fire Linked to RO Pivot Table

Meter Size	Equivalent Meters	Equivalent Fire Services	Equivalent Accounts
5/8"	1.00	1.00	1.00
3/4"	1.50	1.96	1.00
1"	2.50	2.80	1.00
CAP	0.00	0.00	0.00
1 1/2"-P	5.00	7.27	1.00
1 1/2"-T	5.00	7.27	1.00
2"-P	8.00	15.90	1.00
2"-T	8.00	15.90	1.00
3"-C	16.00	24.94	1.00
3"-T	16.00	24.94	1.00
4"-C	25.00	71.43	1.00
4"-T	25.00	71.43	1.00
6"-C	50.00	153.09	1.00
6"-T	50.00	153.09	1.00
6"-F	50.00	153.09	1.00
8"-C	80.00	800.00	1.00
8"-T	80.00	800.00	1.00
8"-F	80.00	800.00	1.00
10"-C	115.00	900.00	1.00
10"-T	115.00	900.00	1.00
10"-F	115.00	900.00	1.00
12"-C	170.00	1,000.00	1.00
12"-T	170.00	1,000.00	1.00
12"-F	170.00	1,000.00	1.00
Unused 25	0.00	0.00	0.00

Table 5-3 Test requirements for new, rebuilt, and repaired cold-water meters*

Displacement Meters (AWWA C700 and C710)

	Maximum Rate (All Meters)				Intermediate Rate (All Meters)				Minimum Rate (New and Rebuilt)				Minimum (Repaired)
Size	Flow Rate†	Test Quantity††		Accuracy Limits	Flow Rate‡‡	Test Quantity††		Accuracy Limits	Flow Rate	Test Quantity††		Accuracy Limits	Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
⅝	8	100	10	98.5–101.5	2	10	1	98.5–101.5	¼	10	1	95–101	90
⅝ × ¾	8	100	10	98.5–101.5	2	10	1	98.5–101.5	¼	10	1	95–101	90
⅝	15	100	10	98.5–101.5	2	10	1	98.5–101.5	¼	10	1	95–101	90
⅝ × ¾	15	100	10	98.5–101.5	2	10	1	98.5–101.5	¼	10	1	95–101	90
¾	25	100	10	98.5–101.5	3	10	1	98.5–101.5	½	10	1	95–101	90
1	40	100	10	98.5–101.5	4	10	1	98.5–101.5	¾	10	1	95–101	90
1½	50	100	10	98.5–101.5	8	100	10	98.5–101.5	1½	100	10	95–101	90
2	100	100	10	98.5–101.5	15	100	10	98.5–101.5	2	100	10	95–101	90

Multijet Meters (AWWA C708)

	Maximum Rate (All Meters)				Intermediate Rate (All Meters)				Minimum Rate (New and Rebuilt)				Minimum (Repaired)
Size	Flow Rate†	Test Quantity††		Accuracy Limits	Flow Rate‡‡	Test Quantity††		Accuracy Limits	Flow Rate	Test Quantity††		Accuracy Limits	Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
⅝	15	100	10	98.5–101.5	1	10	1	98.5–101.5	¼	10	1	97–103	90
⅝ × ¼	15	100	10	98.5–101.5	1	10	1	98.5–101.5	¼	10	1	97–103	90
¾	25	100	10	98.5–101.5	2	10	1	98.5–101.5	½	10	1	97–103	90
1	35	100	10	98.5–101.5	3	10	1	98.5–101.5	¾	10	1	97–103	90
1½	70	100	10	98.5–101.5	6	100	10	98.5–101.5	1½	100	10	97–103	90
2	100	100	10	98.5–101.5	8	100	10	98.5–101.5	2	100	10	97–103	90

Singlejet Meters (AWWA C712)

	Maximum Rate (All Meters)				Intermediate Rate (All Meters)				Minimum Rate (New and Rebuilt)				Minimum (Repaired)
Size	Flow Rate†	Test Quantity††		Accuracy Limits	Flow Rate‡‡	Test Quantity††		Accuracy Limits	Flow Rate	Test Quantity††		Accuracy Limits	Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
⅝	15	100	10	98.5–101.5	2	10	1	98.5–101.5	¼	10	1	95–101.5	90
⅝ × ¾	15	100	10	98.5–101.5	2	10	1	98.5–101.5	¼	10	1	95–101.5	90
¾	25	100	10	98.5–101.5	3	10	1	98.5–101.5	½	10	1	95–101.5	90
1	40	100	10	98.5–101.5	4	10	1	98.5–101.5	¾	10	1	95–101.5	90
1½	50	100	10	98.5–101.5	8	100	10	98.5–101.5	½	100	10	95–101.5	90
2	100	100	10	98.5–101.5	15	100	10	98.5–101.5	½	100	10	95–101.5	90
3	160	500	50	98.5–101.5	20	100	10	98.5–101.5	½	100	10	95–101.5	90
4	250	500	50	98.5–101.5	40	100	10	98.5–101.5	¾	100	10	95–101.5	90
6	500	1,000	100	98.5–101.5	60	100	10	98.5–101.5	1½	100	10	95–101.5	90

Fluidic-Oscillator Meters (AWWA C713)

	Maximum Rate (All Meters)				Intermediate Rate (All Meters)				Minimum Rate (New and Rebuilt)				Minimum (Repaired)
Size	Flow Rate†	Test Quantity††		Accuracy Limits	Flow Rate‡‡	Test Quantity††		Accuracy Limits	Flow Rate	Test Quantity††		Accuracy Limits	Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
½	8	100	10	98.5–101.5	2	10	1	98.5–101.5	¼	10	1	95–101	90
½ × ¾	8	100	10	98.5–101.5	2	10	1	98.5–101.5	¼	10	1	95–101	90
⅝	15	100	10	98.5–101.5	2	10	1	98.5–101.5	¼	10	1	95–101	90
⅝ × ¾	15	100	10	98.5–101.5	2	10	1	98.5–101.5	¼	10	1	95–101	90

(continued)

Table 5-3 Test requirements for new, rebuilt, and repaired cold-water meters* (continued)

Fluidic-Oscillator Meters (AWWA C713)

	Maximum Rate (All Meters)				Intermediate Rate (All Meters)				Minimum Rate (New and Rebuilt)				Minimum (Repaired)
Size	Flow Rate†	Test Quantity††		Accuracy Limits	Flow Rate**	Test Quantity††		Accuracy Limits	Flow Rate	Test Quantity††		Accuracy Limits	Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
¾	25	100	10	98.5–101.5	8	10	1	98.5–101.5	½	10	1	95–101	90
1	40	100	10	98.5–101.5	4	10	1	98.5–101.5	¾	10	1	95–101	90
1½	50	100	10	98.5–101.5	8	100	10	98.5–101.5	1½	100	10	95–101	90
2	100	100	10	98.5–101.5	16	100	10	98.5–101.5	2	100	10	95–101	90

Class I Turbine Meters, Vertical-Shaft Type (AWWA C701)

	Maximum Rate (All Meters)				Intermediate Rate (All Meters)				Minimum Rate (New and Rebuilt)				Minimum (Repaired)
Size	Flow Rate†	Test Quantity††		Accuracy Limits	Flow Rate**	Test Quantity††		Accuracy Limits	Flow Rate	Test Quantity††		Accuracy Limits	Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
¾	30	100	10	98–102	3	10	1	98–102	1½	10	1	98–102	—
1	50	100	10	98–102	5	10	1	98–102	2	10	1	98–102	—
1½	100	500	50	98–102	10	100	10	98–102	3	100	10	98–102	—
2	160	500	50	98–102	16	100	10	98–102	4	100	10	98–102	—
3	350	1,000	100	98–102	35	100	10	98–102	6	100	10	98–102	—
4	600	1,500	200	98–102	60	100	10	98–102	8	100	10	98–102	—
6	1,250	4,000	500	98–102	125	1,000	100	98–102	15	1,000	100	98–102	—

Class II Turbine Meters, In-Line (High-Velocity) Type (AWWA C701)

	Maximum Rate (All Meters)				Intermediate Rate (All Meters)				Minimum Rate (New and Rebuilt)				Minimum (Repaired)
Size	Flow Rate†	Test Quantity††		Accuracy Limits	Flow Rate**	Test Quantity††		Accuracy Limits	Flow Rate	Test Quantity††		Accuracy Limits	Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
1½	100	500	50	98.5–101.5					4	100	10	98.5–101.5	—
2	160	500	50	98.5–101.5					4	100	10	98.5–101.5	—
3	350	1,000	100	98.5–101.5					8	100	10	98.5–101.5	—
4	630	1,500	200	98.5–101.5					15	100	10	98.5–101.5	—
6	1,400	4,000	500	98.5–101.5					30	1,000	100	98.5–101.5	—
8	2,400	7,000	900	98.5–101.5					50	1,000	100	98.5–101.5	—
10	3,800	10,000	1,300	98.5–101.5					75	1,000	100	98.5–101.5	—
12	5,000	15,000	2,000	98.5–101.5					120	1,000	100	98.5–101.5	—
16	10,000	30,000	4,000	98.5–101.5					200	1,000	100	98.5–101.5	—
20	15,000	40,000	5,000	98.5–101.5					300	1,000	100	98.5–101.5	—

Propeller Meters (AWWA C704)

	Maximum Rate (All Meters)				Intermediate Rate (All Meters)				Minimum Rate (New and Rebuilt)				Minimum (Repaired)
Size	Flow Rate†	Test Quantity††		Accuracy Limits	Flow Rate**	Test Quantity††		Accuracy Limits	Flow Rate	Test Quantity††		Accuracy Limits	Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
2	100	300	40	98–102					35	200	25	98–102	90
3	250	800	100	98–102					40	200	25	98–102	90
4	500	1,500	200	98–102					50	250	30	98–102	90
6	1,200	2,500	300	98–102					90	500	60	98–102	90
8	1,500	3,000	400	98–102					100	500	60	98–102	90
10	2,000	4,000	500	98–102					125	500	60	98–102	90
12	2,800	6,000	800	98–102					150	750	100	98–102	90
14	3,750	8,000	1,000	98–102					250	1,000	130	98–102	90
16	4,750	10,000	1,300	98–102					350	1,500	200	98–102	90
18	5,625	12,000	1,600	98–102					450	2,000	250	98–102	90
20	6,875	15,000	2,000	98–102					550	2,500	300	98–102	90
24	10,000	20,000	2,500	98–102					800	4,000	500	98–102	90
30	15,000	30,000	4,000	98–102					1,200	6,000	800	98–102	90
36	20,000	40,000	5,000	98–102					1,500	7,500	1,000	98–102	90

(continued)

EXHIBIT JJJ-21

Table 5-3 Test requirements for new, rebuilt, and repaired cold-water meters* (continued)

Propeller Meters (AWWA C704)

Size	Maximum Rate (All Meters) Flow Rate†	Test Quantity††		Accuracy Limits	Change Over Point (All Meters) Flow Rate**	Test Quantity††		Accuracy Limits	Minimum Rate (New and Rebuilt) Flow Rate	Test Quantity††		Accuracy Limits	Minimum (Repaired) Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
42	28,000	40,000	5,000	98–102					2,000	10,000	1,300	98–102	90
48	35,000	50,000	6,000	98–102					2,500	12,500	1,500	98–102	90
54	45,000	60,000	8,000	98–102					3,200	16,000	2,000	98–102	90
60	60,000	70,000	9,000	98–102					4,000	20,000	2,500	98–102	90
66	75,000	80,000	11,000	98–102					4,750	25,000	3,000	98–102	90
72	90,000	90,000	12,000	98–102					5,500	28,000	3,500	98–102	90

Compound Meters (AWWA C702)§

Size	Maximum Rate (All Meters) Flow Rate†	Test Quantity††		Accuracy Limits	Change Over Point (All Meters) Flow Rate**	Test Quantity††		Accuracy Limits	Minimum Rate (New and Rebuilt) Flow Rate	Test Quantity††		Accuracy Limits	Minimum (Repaired) Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
				Class I Class II									
2	160	400	50	97–103 98.5–101.5				90–103				95–101	90
3	320	1,000	100	97–103 98.5–101.5				90–103				95–101	90
4	500	1,500	200	97–103 98.5–101.5				90–103				95–101	90
6	1,000	3,000	400	97–103 98.5–101.5				90–103				95–101	90
8	1,600	4,000	500	97–103 98.5–101.5				90–103				95–101	90
10	2,300	4,000	500	97–103 98.5–101.5				90–103				95–101	90

Fire-Service Type, Type I and Type II (AWWA C703)
(Test at intermediate rate not necessary.)§

Size	Maximum Rate (All Meters) Flow Rate†	Test Quantity††		Accuracy Limits	Change Over Point (All Meters) Flow Rate**	Test Quantity††		Accuracy Limits	Minimum Rate (New and Rebuilt) Flow Rate	Test Quantity††		Accuracy Limits	Minimum (Repaired) Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
				Type I Type II									
3	350	700	100	97–103 98.5–101.5									90
4	700	1,500	200	97–103 98.5–101.5				Not less				Not less	90
6	1,600	3,000	400	97–103 98.5–101.5				than 85%				than 95%	90
8	2,800	5,000	700	97–103 98.5–101.5									90
10	4,400	9,000	1,200	97–103 98.5–101.5									90

Fire Service Type, Type III (AWWA C703)

Size	Maximum Rate (All Meters) Flow Rate†	Test Quantity††		Accuracy Limits	Intermediate Rate (All Meters) Flow Rate**	Test Quantity††		Accuracy Limits	Minimum Rate (New and Rebuilt) Flow Rate	Test Quantity††		Accuracy Limits	Minimum (Repaired) Accuracy Limits
in.	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*gpm*	*gal*	*ft³*	*percent*	*percent (min)*
3	350	700	100	98.5–101.5	10	100	10	98.5–101.5	4	100	10	95–101.5	—
4	700	1,500	200	98.5–101.5	30	500	50	98.5–101.5	10	100	10	95–101.5	—
6	1,600	3,000	400	98.5–101.5	60	1000	100	98.5–101.5	20	1000	100	95–101.5	—
8	2,800	5,000	700	98.5–101.5	70	1000	100	98.5–101.5	30	1000	100	95–101.5	—
10	4,400	9,000	1,200	98.5–101.5	110	1000	100	98.5–101.5	35	1000	100	95–101.5	—

* A rebuilt meter is one that has had the measuring element replaced with a factory-made new unit. A repaired meter is one that has had the old measuring element cleaned and refurbished in a utility repair shop.

† These are suggested test flows and test quantities. Testing for high rates of flow can be achieved by testing the meter at 25% of the meters rating if the manufacturer's original test certificate indicates a linear curve between 25% and 100% of the rated flow range.

†† Quantity should be one or more full revolutions of the test hand but not less than 3 min running. When limited test capabilities force the use of smaller test quantities, the resultant increase in total test uncertainties and errors need to be recognized when establishing acceptance criteria tolerance.

§ The bypass meter should be tested in accordance with the appropriate test requirements for the type of meter used.

** As this rate varies according to manufacturer, it should be determined for each type of meter tested.

Metric Conversions: in. × 25.4 = mm, gal × 0.003785 = m^3, gpm × 0.2268 = m^3/h, ft^3 × 0.02831 = m^3.

Appendix B

Equivalent Meter Ratios

In the overall rate-setting process, there is often the need to establish a minimum threshold or base level of cost or demand for service against which the costs or demands of larger-volume customers can be measured. A convenient and readily available parameter for this purpose is the size of the customer's water meter. Typically the meter size, which is generally used as the *base* or *minimum*, is the smallest available. The ⅝-in. meter has traditionally been the most prevalent meter size found in many water utilities, and, until recently, has also been the size most often used for single-family residential customers. However, this is subject to local code requirements that may vary by location, with some utilities using ¾-in. meters as the minimum size for residential customers. Accordingly, care should be taken to select the meter size for the base that is most relevant to the particular utility. In the overall rate-setting process, residential user characteristics are often used as the measure of the base level of service or on which service equivalency units are measured.

There are different methodologies for measuring or computing equivalent ratios for larger meters as compared to a ⅝-in. meter or the standard base size meter as determined by the utility. The appropriate methodology depends on the use of the equivalent ratios. The two most commonly used ratios in the water rate-making industry are (1) equivalent meter-and-service cost ratios and (2) equivalent meter capacity ratios. Generally, equivalent meter-and-service cost ratios should be used when assigning elements specifically related to the initial installation cost of meters and service line connections, depreciation of meters and services, replacement of meters, and testing of meters among the various sizes of meters in the system. The allocation of many customer-related costs associated with meters in conjunction with a cost-of-service study is an example of a use of equivalent meter cost ratios.*

Meter capacity ratios, on the other hand, are most often used when estimating potential capacity or demand requirements for customers on the basis of the size of the water

* This may not include customer costs associated with meter reading, billing, and collection that are typically the same for all meter sizes and are more a function of bill frequency.

Table B-1 Example costs of meter installations

Cost Item	⅝-in.	¾-in.	1-in.	1½-in.
Service Connection	$922.32	$922.32	$988.97	$1,026.52
Meter Installation	$385.46	$463.97	$869.38	$1,302.13
Total Cost	$1,307.78	$1,386.29	$1,858.35	$2,328.65
Ratio to ⅝ in.	1.00	1.06	1.42	1.78
Ratio Used	1.0	1.1	1.4	1.8

meter. The determination of system development charges or impact fees for meters greater than the base size, where potential customer demand is assumed to be proportional to meter size, is an example of the use of meter capacity ratios. Meter capacity ratios may also be appropriate in the design of the service charge portion of the general rate schedule when such charges include some recovery of fixed-capacity-related costs or readiness-to-serve-related costs.

EQUIVALENT METER-AND-SERVICE COST RATIOS

In determining the ratio of the cost of installing various sizes of meters and related service lines relative to the cost of installing the base size meter, it is important to include all of the costs involved in such installations. This includes the direct cost of the various categories of labor involved in the installation, fringe-benefit-related overheads and other appropriate administrative overheads applicable to the labor costs, all direct materials and supplies costs, and the cost of equipment used in the installation.*

In the cost allocation examples in chapter III.2, the costs of meters and services were combined in the cost allocation procedure. This is an appropriate consideration when it is the responsibility of the utility to install both a portion of the customer service line (generally from the main in the street to the customer's property line) and the meter itself. Accordingly, the example derivation of the cost ratios shown in this appendix and used in chapter III.2 are related to the combined cost of meter-and-service installations for various sizes of connections.

Table B-1 presents an *example* of the costs of meter installations for ⅝-, ¾-, 1-, and 1½-in. meters and the related service lines. These are merely examples and not recommended for use by a specific utility unless they have been verified by the utility. Dividing the total costs of installing the meter-and-service installations of the larger meter sizes by the total cost of the ⅝-in. meter-and-service connection yields the cost ratios shown. The development of these ratios, along with the applicable ratios for larger size meters, is the basis for the tabulation shown in chapter III.2 of this manual.

EQUIVALENT METER CAPACITY RATIOS

The safe operating flow, or capacity, of a particular size of meter is essentially the limiting factor in terms of the demand that can be exerted on the water system through the meter. In establishing a schedule of system development charges based on meter size or assigning a portion of the fixed costs as part of a demand or readiness-to-serve component, the potential demand or capacity requirements placed on the water system by a new customer are generally an accepted basis for determining the level of charge applicable to the

* Where actual meter-and-service installation costs are not available due to the absence of detail in property records, current-day installation costs may be used instead.

EXHIBIT JJJ-22

customer. Accordingly, when the minimum or base system development charge is established for a single-family residential customer with a 5/8-in. meter (as is often the case), the ratio of the safe operating capacity of various sizes of meters, relative to the capacity of a 5/8-in. meter, may be used to determine appropriate charges for the larger meter sizes.

In chapter VII.2 (see Table VII.2-5), the maximum safe operating capacity for meters of various sizes are tabulated, based on AWWA's Standards for Water Meters (C700 series). The ratios of these capacities, relative to that of a 5/8-in. meter, are computed and range from 1.5 for a 3/4-in. meter up to 265 for a 12-in. turbine meter. As discussed in chapter VII.2, while capacity ratios for larger meters can be computed, the use of such ratios for larger meters may or may not provide a true indication of the potential demand requirements of the larger meters. Table B-2 displays the safe maximum operating capacity by meter size and meter type based on AWWA's Standards for Water Meters.

It is important to understand and recognize the types of costs that are to be recovered using equivalent meter ratios in order to develop the appropriate meter equivalency factors. As discussed in chapter VII.2, developing equivalent capacity ratios specific to a particular utility and its system characteristics is normally desired, as opposed to using a standardized table of meter equivalencies. For example, a water utility may have significant investment in impounded reservoir source-of-supply facilities (designed on the basis of annual average-day demands), as well as treatment plant, pumping, and transmission facilities (designed on the basis of maximum-day and/or maximum-hour demands). In this instance, the utility would need to recognize both annual usage requirements, as well as peak-demand requirements, for each of its sizes of meters in establishing relevant equivalent capacity ratios appropriate for system development charge determination.

SUMMARY

The selection of equivalent meter ratios is dependent on the purpose for which the ratios are to be used. Care should be exercised in using the correct ratio methodology for the correct purpose. It is normally desirable to develop ratios that are applicable to an individual utility's particular circumstances and facilities. The purpose of this appendix is to clarify the various types of equivalent meter ratios that may be used in rate-making and the general applicability of each of the measures of equivalency. Selection of the appropriate measures for distributing costs should be considered on an individual utility basis.

REFERENCES

AWWA (American Water Works Association). C700-09 *Standard for Cold-Water Meters—Displacement Type, Bronze Main Case.* Denver, Colo.: AWWA.

AWWA (American Water Works Association). C701-12 *Standard for Cold-Water Meters—Turbine Type, for Customer Service.* Denver, Colo.: AWWA.

AWWA (American Water Works Association). C702-10 *Standard for Cold-Water Meters—Compound Type.* Denver, Colo.: AWWA.

AWWA (American Water Works Association). C703-15 *Standard for Cold-Water Meters—Fire-Service Type.* Denver, Colo.: AWWA.

AWWA (American Water Works Association). C704-15 *Standard for Propeller-Type Meters for Waterworks Applications.* Denver, Colo.: AWWA.

EXHIBIT JJJ-22A

Table VII.2-5 Meter equivalencies based on meter capacity and establishing SDCs by meter size using the buy-in method and RCNLD valuation approach

Meter Size	Maximum-Rated Safe Operating Flow, gpm*	Meter Equivalent Ratio†	SDC
⅝-in. Displacement	20	1.0	$2,454‡
¾-in. Displacement	30	1.5	3,681
1-in. Displacement	50	2.5	6,135
1½-in. Displacement	100	5.0	12,271
2-in. Displacement	160	8.0	19,633
3-in. Singlejet	320	16.0	39,267
3-in. Compound, Class I	320	16.0	39,267
3-in. Turbine, Class I	350	17.5	42,948
4-in. Singlejet	500	25.0	61,354
4-in. Compound, Class I	500	25.0	61,354
4-in. Turbine Class I	630	31.5	77,307
6-in. Singlejet	1,000	50.0	122,709
6-in. Compound, Class I	1,000	50.0	122,709
6-in. Turbine Class I	1,300	65.0	159,521
8-in. Compound, Class I	1,600	80.0	196,334
8-in. Turbine Class II	2,800	140.0	343,585
10-in. Turbine Class II	4,200	210.0	515,377
12-in. Turbine Class II	5,300	265.0	650,357

*Source: AWWA Standards: Displacement, C700-15; Singlejet, C712-10; Turbine Classes I and II, C701-12; Compound Class I, C702-10.

†Using standard maximum meter-flow capacity ratios (e.g., 2 in. = 160 gpm, 20 gpm (⅝ in.) = 8.0:1.0 capacity ratio).

‡⅝-in. SDC based on example presented in Table VII.2-2.

The equivalent meter ratio is used as the basis for the increased SDC for larger meters. For example, the safe operating capacity of a ⅝-in. meter is 20 gpm. In contrast, a 2-in. meter has a safe operating capacity of 160 gpm. Thus, on a capacity basis, a 2-in. meter is the equivalent of eight ⅝-in. meters, and the SDC for the 2-in. meter should be set at 8 times the ⅝-in.-meter SDC.

Table VII.2-5 provides an example for the development of SDC schedules based on a ⅝-in. meter as the base meter size. In this example, the base SDC is $2,454 or the amount calculated in the buy-in example displayed in Table VII.2-2.

As shown in Table VII.2-5, for each type of meter, there is a corresponding maximum-rated safe operating flow. This provides the basis for the meter equivalency ratios. These ratios are then multiplied by the base cost SDC ($2,454) to provide a schedule of SDCs for new customers connecting to the system. For example, a customer with a 2-in. meter would be charged $19,633, since the capacity of a 2-in. meter is eight times that of a ⅝-in. meter. Stated another way, a customer with a 2-in. meter has the capacity of the equivalent of eight ⅝-in. meters. The manufacturer specifications of the actual meters used by a utility may also be used to develop meter equivalency ratios.

One of the disadvantages of the meter size approach is that for larger meters, the meter capacity may not be a reasonable indicator for the actual capacity demand of the customer. It should be remembered that the $2,454 SDC for a ⅝-in. connection reflects the usage patterns of that size meter (i.e., a residential customer with a ⅝-in. meter).

EXHIBIT JJJ-23

Austin Water
Wastewater Utility Cost of Service Model
Fixed Revenue at Existing Rates - Meter Data Inputs
Adjusted Test Year

Table 3 - 3
Meter Equivalencies

Meter Size	Equivalent Meters	Equivalent Accounts
Data Source: Meter Size Pivot Table		
5/8"	1 00	1 00
3/4"	1.50	1 00
1"	2.50	1 00
CAP	0.00	0 00
1 1/2"-P	5 00	1.00
1 1/2"-T	5.00	1.00
2"-P	8.00	1.00
2"-T	8 00	1.00
3"-C	16 00	1.00
3"-T	16.00	1 00
4"-C	25.00	1.00
4"-T	25 00	1 00
6"-C	50.00	1 00
6"-T	50.00	1.00
6"-F	50 00	1.00
8"-C	80 00	1.00
8"-T	80.00	1.00
8"-F	80.00	1 00
10"-C	115.00	1.00
10"-T	115.00	1.00
10"-F	115.00	1.00
12"-C	170.00	1.00
12"-T	170 00	1.00
12"-F	170 00	1 00
Unused	0 00	0 00

EXHIBIT JJJ-24

Table 85 - 3 Meter Equivalencies for Fixed Charge Rate Design		
Meter Size	Equivalent Accounts	Equivalent Meters
5/8"	1.00	1.00
3/4"	1.00	1 50
1"	1 00	2 50
CAP	0.00	0.00
1 1/2"-P	1.00	5.00
1 1/2"-T	1 00	5.00
2"-P	1 00	8.00
2"-T	1.00	8.00
3"-C	1.00	16.00
3"-T	1.00	16.00
4"-C	1.00	25.00
4"-T	1.00	25.00
6"-C	1.00	50 00
6"-T	1 00	50.00
6"-F	1.00	50.00
8"-C	1.00	80 00
8"-T	1.00	80.00
8"-F	1.00	80.00
10"-C	1.00	115.00
10"-T	1 00	115.00
10"-F	1.00	115.00
12"-C	1.00	170.00
12"-T	1.00	170.00
12"-F	1.00	170.00
Unused	0.00	0.00

EXHIBIT JJJ-25
Fee Schedule

[redacted]

7. Fees for lots that were platted on or after October 1, 2018. For lots platted prior to this date see previous fee schedules.

All Areas-Water	$4,700.00

Capital Recovery Fees-Calculation of Service Units: Service Units are determined on rated continuous flow of the meter purchased at sale of tap. (AWWA Standards)

Calculation of the impact fee in accordance with the Local Government Code requires the use of "Service Units" a standardized measure of consumption, use, generation, or discharge attributable to an individual unit of development.

Meter Size-Meter Type

a. 5/8" Positive Displacement 1 Service Unit

b. 3/4" Positive Displacement 1.5 Service Units

c. 1" Positive Displacement 2.5 Service Units

d. 1 1/2" Positive Displacement 5 Service Units

e. 1 1/2" Turbine 9 Service Units

f. 2" Positive Displacement 8 Service Units

g. 2" Turbine 16 Service Units

h. 3" Compound 17.5 Service Units

i. 3" Turbine 35 Service Units

j. 4" Compound 30 Service Units

k. 4" Turbine 65 Service Units

l. 6" Compound 67.5 Service Units

m. 6" Turbine 140 Service Units

n. 8" Turbine 240 Service Units

o. 10" Turbine 350 Service Units

p. 12" Turbine 440 Service Units

q. 6X2" Fire Service Based on Domestic Demand

r. 8X2" Fire Service Based on Domestic Demand

s. 10X2" Fire Service Based On Domestic Demand

C. Other Fees

Addition To System Fee

EXHIBIT JJJ-26

Austin Water
Water Utility Cost of Service Model
Cost of Service - Units of Service to Allocate Costs
Adjusted Test Year

Hyperlink to Table 25-8

Table 25 - 2
Allocation of Unaccounted For Water to Customer Class Average Day Demands

Customer Class	Unaccounted for Percentage	Estimated Water Sales (Kgal)	Estimated Unaccounted For Water (Kgal)	Estimated Annual Water Production (Kgal)	Annual Demands (MG)	Average Day Demands (MGD)
Inside City Retail						
Inside City Residential	3 0%	13,599,587	420,606	14,020,193	14,020	38 4
Inside City Multi-Family	3 0%	9,668,789	299,035	9,967,824	9,968	27.3
Inside City Commercial	3 0%	10,837,005	335,165	11,172,170	11,172	30.6
Inside City Residential CAP	3 0%	1,083,593	33,513	1,117,106	1,117	3.1
Inside City (Unused)	3 0%	0	0	0	0	0.0
Inside City Spansion	3.0%	343,591	10,627	354,218	354	1 0
Inside City NXP - Ed Bluestein Blvd	3 0%	371,977	11,504	383,481	383	1 1
Inside City NXP - W William Cannon	3 0%	238,511	7,377	245,888	246	0.7
Inside City Samsung	3 0%	2,317,298	71,669	2,388,967	2,389	6.5
Inside City Novati	3.0%	67,869	2,099	69,968	70	0 2
Inside City University of Texas	3.0%	403,854	12,490	416,345	416	1 1
Inside City Unused	3 0%	0	0	0	0	0.0
Total Inside City Retail		38,932,075	1,204,085	40,136,159	40,136	110 0
Outside City Retail						
Outside City Residential	3 0%	0	0	0	0	0.0
Outside City Multi-Family	3 0%	0	0	0	0	0.0
Outside City Commercial	3 0%	0	0	0	0	0 0
Outside City (Unused)	3 0%	0	0	0	0	0.0
Outside City (Unused)	3.0%	0	0	0	0	0.0
Total Outside City Retail		0	0	0	0	0.0
Wholesale						
Creedmore-Maha	0.0%	68,337	0	68,337	68	0.2
High Valley	0.0%	5,682	0	5,682	6	0.0
Manor, City of	0 0%	3	0	3	0	0.0
Mid Tex Utilities	0 0%	52,126	0	52,126	52	0.1
Marsha Water	0.0%	13,723	0	13,723	14	0.0
Morningside	0 0%	2,121	0	2,121	2	0 0
Nighthawk	0 0%	14,039	0	14,039	14	0.0
North Austin MUD	0 0%	326,506	0	326,506	327	0 9
Northtown MUD	0 0%	291,779	0	291,779	292	0 8
Rivercrest	0 0%	136,388	0	136,388	136	0.4
Rollingwood	0.0%	135,063	0	135,063	135	0.4
Unused	0.0%	0	0	0	0	0.0
Sunset Valley, City of	0 0%	98,722	0	98,722	99	0.3
Village of San Leanna	0 0%	4,620	0	4,620	5	0.0
Water District 10	0 0%	827,353	0	827,353	827	2 3
Wells Branch MUD	0 0%	481,286	0	481,286	481	1.3
Southwest Water	0 0%	1,299	0	1,299	1	0.0
Total Wholesale		2,459,047	0	2,459,047	2,459	6.7
Total System		41,391,121	1,204,085	42,595,206	42,595	116.7

year financial forecast, which assumes continued Stage 2 drought conditions and thus Stage 2 Drought Response watering restrictions and other Stage 2 measures. Once the drought is over, consumption is likely to increase beyond drought levels, but is not anticipated to reach previous consumption levels. Austin Water is currently analyzing these dynamics, including looking at similar situations which have occurred around the country, and will later change forecasts based on the outcome of that analysis. Also, total GPCD could go below even the five-year forecast if drought conditions should worsen and require Austin to implement Drought Response Stages 3 or 4.

Water Loss Goals

Austin Water is undertaking a comprehensive effort to reduce unaccounted-for water and to improve the quality of data in water loss estimates. It is expected that water loss percentages will fluctuate annually with weather and demand conditions, and that some fluctuation will occur as a result of improved data collection. Austin Water conducts annual Water Loss Audits according to Texas Water Development Board methodology and has made significant progress in reducing unaccounted-for water. An internal Water Accountability Committee monitors progress and makes recommendations for reducing lost water. Austin Water has dedicated one FTE specifically for addressing water loss.

Historical Water Loss

Fiscal Year	Amount (gal)	Percentage
2009	5,882,655,456	10.81
2010	4,719,352,698	10.56
2011	5,394,581,008	10.01
2012	4,069,307,067	8.45
2013	5,041,056,069	10.74

Five & Ten Year Goals for Reducing Water Loss

	Historic 5-year Average	Baseline	FY 2019 Goal	FY 2024 Goal
Water Loss (GPCD)	16.18	17.27	14.26	13.97
Water Loss (Percentage)	12.13	11.98	10.11	10.05

The five-year averages for Water Loss GPCD and Water Loss Percentage used the water loss audits from FY 2009 through FY 2013. They were calculated using the retail population and with all sales to wholesale customers subtracted out of water produced and water billed.

The projected water loss GPCD and water loss percentages were calculated using an Infrastructure Leakage Index (ILI) of 2.5. The increase in number of miles of mains and number of connections was based on the annual rate of increase since 2008. The total GPCD was multiplied by projected population to yield Total Water Production. The Unaccounted for Annual Real Loss was then calculated, and with the ILI of 2.5, was used to derive the Total Real Loss. Apparent Losses were calculated by multiplying Total Water Production by .0214 and added to Real Losses to yield Total Losses. Total Losses divided by

V-3: Budgets
Provide a copy of the utility's most recent operating and capital budgets.

V-4: Unaccounted for Water (water service only)
Provide a schedule that shows the percentage of unaccounted for water for the test year and two prior years, including total gallons pumped and/or purchased. Describe how this amount was determined and explain any steps taken to reduce unaccounted for water. If the utility reduces unaccounted for water by flushing, stolen water, or other amounts, provide a specific explanation of how these numbers are accounted for and calculated. Estimated amounts will not be allowed unless substantiated by documentation, meter readings, or other reliable evidence.

V-5: Corporate History
Provide a corporate history (include the dates of original incorporation, subsequent mergers, or acquisitions, or both). Indicate all counties and cities and other governmental subdivisions to which service is provided, including service areas outside the state, and the total population in the area served.

SECTION VI. QUALITY OF SERVICE

VI-1: Violations
Indicate whether the utility is in violation of any provision of the Texas Commission on Environmental Quality's rules, regulations or orders, or any condition of any permit.

a. Provide information indicating whether the utility is in compliance with TCEQ public water system minimum requirements. If the utility also provides sewer service, provide information indicating whether the utility is in compliance with TCEQ sewer quality discharge permit requirements. Include all of the latest public water and sewer system inspection reports for the systems included in this application.

(i) In support of good management practices and quality of service, the applicant may provide a detailed explanation of all actions taken to remedy a major violation, and to comply with the requirements prescribed by a variance or exemption. Commission staff may request the information during technical review if it is deemed necessary for analysis of quality of service and/or management practices.

(ii) State whether any fines or penalties were assessed by the Environmental Protection Agency or TCEQ, and indicate the amounts paid by the utility, if any.

b. Provide the most recent copies of all annual consumer confidence reports issued as required by TCEQ since the last rate proceeding which reflect violations of State and Federal safe drinking water requirements. Explain how these violations were resolved.

c. Provide details on any water pressure problems, lasting longer than 5 days, which had occurred since the last rate proceeding in any part of the water system. Describe any action taken on a temporary basis, and the long term solutions developed to address any water pressure problems.

WWTP, which has a 75 MGD treatment capacity and a 45 MGD average daily flow. The collection and conveyance system has a combined 2,776 miles of pipe and 134 lift stations.

Additionally, the Hornsby Bend Biosolids Management Plant (Hornsby Bend) was established in the 1950s as a series of stabilization ponds used to treat wastewater sludge. This plant receives biosolids from both wastewater treatment plants, and has become a nationally recognized biosolids recycling facility, which serves as a model for innovative approaches for reducing waste, producing compost, and protecting ecosystems. "Dillo Dirt," compost has been produced at Hornsby Bend since 1989, and has been donated to landscape public places and sold to commercial vendors.

2.2.3 RECLAIMED WATER SYSTEM

Reclaimed water is recycled from wastewater, and treated for almost any use that does not require high-quality drinking water, including irrigation, cooling towers, some industrial uses, and toilet flushing. The City's reclaimed water system is one of the largest in the United States, with estimated drinking water savings of more than 1.3 billion gallons per year.

The City began its reclaimed water system in the 1970s for golf course irrigation, with construction and reclaimed water use increasing substantially in the late 2000s when City Officials were forced to weigh the necessity of constructing a new water treatment plant. The reclaimed water distribution system currently consists of more than 50 miles of distribution mains. In 2013, the City announced its plan to add 20 miles of reclaimed mains by 2020, and its 25-year plan to increase the system to 168.1 miles of mains. In addition to piping, the reclaimed system includes 3 reservoirs and 3 pump stations.

2.3 OVERVIEW OF CUSTOMER DEMAND CHARACTERISTICS

AW meets 100% of its customer demands with supplies from the Colorado River system, i.e., surface water. AW has water rights to 325,000 acre feet of water through multiple contracts with the Lower Colorado River Authority (LCRA). Of this supply, in 2015, AW pumped approximately 133,438 acre feet, or 43.48 billion gallons. Of this total pumpage, AW recorded water sales of 37.74 billion gallons. The difference in water produced to water billed is likely water loss in the system. **Table 2.2** shows the *breakdown of water sales and the number of accounts by customer class.*

Table 2.2 also presents the total wastewater volume billed of 26.25 billion gallons in contrast to the water sold. While AW billed this level of volume, AW treated 38.48 million gallons at its two wastewater treatment facilities. This difference is due in part to inflow and infiltration, but also due to AW's rate structure that bills wastewater volume upon water usage during the wastewater averaging period, or monthly consumption, whichever is lower. Therefore, there is a disconnect between billed volume and treated volume. This disconnect is a common occurrence in the wastewater industry.

EXHIBIT JJJ-30

Austin Water
Docket No. 49189
Test Year Ending 9/30/2018
Schedule V-4 Unaccounted for Water
Witness: Joseph Gonzales

Line No	(a)	(b) CY 2015	(c) CY 2016	(d) CY 2017
1	Total gallons produced	42,191,680,040	43,120,955,690	45,525,408,861
2	Total authorized consumption	35,478,755,849	37,147,534,153	38,061,499,414
3	Total Water Loss	6,712,924,191	5,973,421,537	7,463,909,447
4	Infrastructure Leakage Index (ILI)	3.88	3.31	4.21
5	Percentage Loss*	15.91%	13.85%	16.40%
6				
7				
8	*Austin Water has chosen to provide the ILI in addition to percentage losses. Percentage losses is a poor			
9	performance measurement, as it is driven by total consumption more than losses, and therefore can provide trends			
10	that are misleading when considering water loss. The Infrastructure Leakage Index is calculated according to TWDB			
11	methodology and accounts for length of mains, number of connections, and system operating pressure and is			
12	considered a superior performance measure by the AWWA M36 Water Loss Control manual.			
13				
14	Water loss calculations for CY 2018 will be finalized by the May 1, 2019 TWDB reporting deadline.			
15				

Austin Water provides water services to a variety of retail and wholesale customers spanning over 540 square miles to a service population of over one million customers. AW draws water from the Colorado River into three regional water treatment plants that have a combined maximum capacity of 335 million gallons per day. Drinking water is pumped from the plants into Austin's water distribution system, which has a total reservoir storage capacity of approximately 170 million gallons.

Austin Water performs a system water loss audit annually, using the Texas Water Development Board methodology. Non-revenue water is calculated, and quantified as real losses, apparent losses, and unbilled consumed water. Austin Water has comprehensive and aggressive programs to reduce non-revenue water, including active leak detection on both transmission and distribution mains, a meter replacement program and a meter accuracy study, the Renewing Austin initiative to replace and upgrade aging water lines, and multiple agreements to track unmetered water use for water withdrawn by City departments through hydrants. All customer connections supplied by Austin Water are metered. Water used for flushing and distribution system maintenance by Austin Water crews is calculated using flow durations, aperture size, and pressure, and is reported through the work order system. Water flushed by third parties for construction of new water mains is reported through meter reads required to close out construction permits. Theft is estimated according to TWDB methodology, and as a component of apparent losses is not used to reduce non-revenue water estimates. The Austin Water water loss audits from 2011-2017 have been reviewed for accuracy and validity by third party professionals under the AWWA Water Audit Data Initiative.

The annual water loss report and water loss audit submissions to the TWDB are prepared by a Project Manager II at Austin Water. The Project Manager II is primarily responsible for collecting data for the audit, ensuring that all uses of water are properly and accurately tracked, performing data validity reviews, and compiling the water loss audit according to TWDB standards.

Austin Water
Docket No. 49189
Test Year Ending 9/30/2018
Schedule V-4 (1) Unaccounted for Water - Narrative
Witness: Joseph Gonzales

Unaccounted for Water - Narrative

Austin Water provides water services to a variety of retail and wholesale customers spanning over 540 square miles to a service population of over one million customers. AW draws water from the Colorado River into three regional water treatment plants that have a combined maximum capacity of 335 million gallons per day. Drinking water is pumped from the plants into Austin's water distribution system, which has a total reservoir storage capacity of approximately 170 million gallons.

Austin Water performs a system water loss audit annually, using the Texas Water Development Board methodology. Non-revenue water is calculated, and quantified as real losses, apparent losses, and unbilled consumed water. Austin Water has comprehensive and aggressive programs to reduce non-revenue water, including active leak detection on both transmission and distribution mains, a meter replacement program and a meter accuracy study, the Renewing Austin initiative to replace and upgrade aging water lines, and multiple agreements to track unmetered water use for water withdrawn by City departments through hydrants. All customer connections supplied by Austin Water are metered. Water used for flushing and distribution system maintenance by Austin Water crews is calculated using flow durations, aperture size, and pressure, and is reported through the work order system. Water flushed by third parties for construction of new water mains is reported through meter reads required to close out construction permits. Theft is estimated according to TWDB methodology, and as a component of apparent losses is not used to reduce non-revenue water estimates. The Austin Water water loss audits from 2011-2017 have been reviewed for accuracy and validity by third party professionals under the AWWA Water Audit Data Initiative.

The annual water loss report and water loss audit submissions to the TWDB are prepared by a Project Manager II at Austin Water. The Project Manager II is primarily responsible for collecting data for the audit, ensuring that all uses of water are properly and accurately tracked, performing data validity reviews, and compiling the water loss audit according to TWDB standards.

EXHIBIT JJJ-30

EXHIBIT JJJ-31

AW Districts 10-14, Attachment 1

TEXAS WATER DEVELOPMENT BOARD
P.O. BOX 13231, CAPITOL STATION
AUSTIN, TX 78711-3231

2014 Water Audit Report

A. Water Utility General Information

1. Water Utility Name: City of Austin Water & Wastewater
2. Contact:
   - 2a. Name: Dan Strub
   - 2b. Telephone #: (512) 972-0349
   - 2c. Email Address: dan.strub@austintexas.gov
3. Reporting Period: From 1/1/2014 To 12/31/2014
4. Source Water Utilization, percentage: Surface Water 100 % Ground Water 0 %
5. Population Served:
   - 5a. Retail Population Served: 896,363
   - 5b. Wholesale Population Served: 54,966

		Assessment Scale
6. Utility's Length of Main Lines, miles	3,793.00	5
7. Number of Wholesale Connections Served	50	
8. Total Retail Metered Connections	218,198	
9. Service Connection Density (Number of retail service connections / miles of main lines)	57.53	
10. Average Yearly System Operating Pressure (psi)	77.3	5
11. Volume Units of Measure:	Gallons	

B. System Input Volume

			Assessment Scale
12. Produced Water	29,148,336,469	gallons	4
13. Production Meter Accuracy (enter percentage)	100.00	%	4
14. Corrected Input Volume	29,148,336,469	gallons	
15. Total Water Purchased	15,443,172,848	gallons	4
16. Total Wholesale Water Sales	2,579,530,487	gallons	5
17. Total System Input Volume	42,011,978,830	gallons	

EXHIBIT JJJ-31

(Corrected input volume, plus imported water, minus exported water)

AW Districts 10-14, Attachment 1

			Assessment Scale
C. Authorized Consumption			
18. Billed Metered	36,171,058,100	gallons	3
19. Billed Unmetered	3,339,880	gallons	4
20. Unbilled Metered	52,411,165	gallons	2
21. Unbilled Unmetered	148,700,040	gallons	4
22. Total Authorized Consumption	36,375,509,185	gallons	
D. Water Losses			
23. Water Losses (Line 17 minus Line 22)	5,636,469,645	gallons	
E. Apparent Losses			
24. Average Customer Meter Accuracy (Enter percentage)	97.90	%	3
25. Customer Meter Accuracy Loss	775,885,822	gallons	
26. Systematic Data Handling Discrepancy	0	gallons	4
27. Unauthorized Consumption	105,029,947	gallons	4
28. Total Apparent Losses	880,915,769	gallons	
F. Real Losses			
29. Reported Breaks and Leaks (Estimated volume of leaks & breaks repaired during the audit period)	34,257,090	gallons	5
30. Unreported Loss (Includes all unknown water loss)	4,721,296,786	gallons	3
31. Total Real Losses	4,755,553,876	gallons	

(Line 29, plus Line 30)

5,636,469,645 gallons

32. Water Losses (Apparent + Real)
(Line 28 plus Line 31) = Line 23

5,837,580,850 gallons

33. Non-revenue Water
(Water Losses + Unbilled Authorized Consumption)
(Line 32, plus Line 20, plus Line 21)

G. Technical Performance Indicator for Apparent Loss

11 gallons

34. Apparent Losses Normalized
(Apparent Loss Volume / # of Retail Service Connections/365)

H. Technical Performance Indicators for Real Loss

gallons

4,755,553,876

35. Real Loss Volume (Line 31)

1,501,347,153

gallons

36. Unavoidable Annual Real Losses, volume (calculated)

3.16750

37. Infrastructure Leakage Index (calculated)
(Equals real loss volume divided by unavoidable annual real losses)

38. Real Losses Normalized
(Real Loss Volume / # of Service Connections / 365)
(This indicator applies if service connection density is greater than or equal to 32 / mile)

60 gallons

0 gallons

39. Real Losses Normalized
(Real Loss Volume/Miles of Main Lines/365)
(This indicator applies if service connection density is less than 32/mile)

Assessment Scale

I. Financial Performance Indicators

880,915,769 gallons

40. Total Apparent Losses (Line 28)

$0.00560

41. Retail Price of Water

5

$4,933,128.31

42. Cost of Apparent Losses
(Apparent loss volume multiplied by retail cost of water, Line 40 x Line 41)

4,755,553,875.56

43. Total Real Losses (Line 31)

$0.00040

44. Variable Production Cost of Water*

4

(*Note: in case of water shortage, real losses might be valued at the retail price of water instead of the variable production cost.)

45. Cost of Real Losses

$1,911,732.66

(Real Loss multiplied by variable production cost of water, Line 43 x Line 44)

46. Total Assessment Scale	
47. Total Cost Impact of Apparent and Real Losses	$6,844,860.97
48. Comments	Since system input volume is no longer water produced by treatment plants, but instead, raw water withdrawn from sources, the production meter accuracy is set to 100% to conform with raw water withdrawals, and water used in treatment process is included in unbilled unmetered water total
	%
49. Total Water Loss %	13.42
50. GPCD (Gallons Per Capita Per Day) Input	128.41
51. GPCD (Gallons Per Capita Per Day) Loss	17.23

EXHIBIT JJJ-31

TEXAS WATER DEVELOPMENT BOARD

P.O. BOX 13231, CAPITOL STATION

AUSTIN, TX 78711-3231

2015 WATER AUDIT REPORT

A. Water Utility General Information

1. Water Utility Name: CITY OF AUSTIN WATER & WASTEWATER

1a. Regional Water Planning Area: K

1b. Address: PO BOX 1088
AUSTIN, TX 78767-1088

2. Contact Information

2a. Name: Dan Strub

2b. Telephone Number: (512) 972-0349

2c. Email Address: dan.strub@austintexas.gov

3. Reporting Period

3a. Start Date: 01/01/2015

3b. End Date: 12/31/2015

4. Source Water Utilization

		%
4a. Surface Water	100	
4b. Ground Water	0	%

5. Population Served

		Assessment Scale
5a. Retail Population Served	926,624	
5b. Wholesale Population Served	56,822	

6. Utility's Length of Main Lines

	miles	
	3,760.00	5

7. Total Retail Metered Connections - Active and Inactive

221,040	5

8. Number of Wholesale Connections Served	51		
9. Service Connection Density	58.79	connections per mile	
10. Average Yearly System Operating Pressure	77.3	psi	5
11. Volume Units of Measure	Gallons		

B. System Input Volume

12. Volume of Water Intake	31,837,585,749	gallons	
13. Produced Water	43,982,995,733	gallons	4.5
13a. Production Meter Accuracy	98.3	%	4.5
13b. Corrected Input Volume	44,743,637,572	gallons	
14. Total Treated Purchased Water	880,000	gallons	4.5
14a. Treated Purchased Water Meter Accuracy	100.0	%	2
14b. Corrected Treated Purchased Water Volume	880,000	gallons	
	2,538,933,179	gallons	4.5

15. Total Treated Wholesale Water Sales

		%
		5
15a. Treated Wholesale Water Meter Accuracy	100.0	
15b. Corrected Treated Wholesale Water Sales Volume	2,538,933,179	gallons

16. Total System Input Volume

Line 13b + Line 14b - Line 15b	42,205,584,393	gallons

C. Authorized Consumption

		Assessment Scale
17. Billed Metered	35,375,189,200	gallons 3.5
18. Billed Unmetered	3,211,226	gallons 4
19. Unbilled Metered	58,760,178	gallons 2
20. Unbilled Unmetered	41,595,245	gallons 4
21. Total Authorized Consumption	35,478,755,849	gallons

D. Water Losses

22. Water Losses		
Line 16 - Line 21	6,726,828,544	gallons

E. Apparent Losses

23. Average Customer Meter Accuracy	97.90	%	3
24. Customer Meter Accuracy Loss	758,814,069	gallons	
25. Systematic Data Handling Discrepancy	1	gallons	4
26. Unauthorized Consumption	105,513,961	gallons	4
27. Total Apparent Losses	864,328,031	gallons	

F. Real Losses

28. Reported Breaks and Leaks	61,222,350	gallons	5
29. Unreported Loss	5,801,278,163	gallons	3
30. Total Real Losses Line 28 + Line 29	5,862,500,513	gallons	
31. Total Water Losses Line 27 + Line 30	6,726,828,544	gallons	
32. Non-Revenue Water Line 31 + Line 19 + Line 20	6,827,183,967	gallons	

G. Technical Performance Indicator for Apparent Loss

33. Apparent Losses Normalized Line 27 / Line 7 / 365	10.71	gallons lost per connection per day

H. Technical Performance Indicators for Real Loss

34. Real Loss Volume Line 30	5,862,500,513	gallons
35. Unavoidable Annual Real Losses Volume (5.41 * Line 6 + (Line 7 * 0.15)) * 365 * Line 10	1,509,408,035	gallons
36. Infrastructure Leakage Index Line 34 / Line 35	3.88	I.L.I
37. Real Losses Normalized - Service Connections Line 34 / Line 7 / 365	72.66	gallons lost per connection per day
38. Real Losses Normalized - Main Lines Line 34 / Line 6 / 365	0.00	gallons lost per mile per day

I. Financial Performance Indicators

		Assessment Scale
39. Total Apparent Losses Line 27	864,328,031	gallons
40. Retail Price of Water	0.00562	$/gallons 5
41. Cost of Apparent Losses Line 39 x Line 40	$4,857,523.53	
42. Total Real Losses Line 30	5,862,500,513	gallons

43. Variable Production Cost of Water		$/gallons	
	0.00040		3
44. Cost of Real Losses			
	$2,356,725.21		
Line 42 x Line 43			
45. Total Cost Impact of Apparent and Real Losses			
	$7,214,248.74		
Line 41 + Line 44			
46. Total Assessment Score			
	80.5		

J. System Losses and Gallons Per Capita per Day (GPCD)

47. Total Water Loss - Percentage		
	15.94	%
48. GPCD Input		
	125	
Line 16 / Line 5a / 365		
49. GPCD Loss		
	20	
Line 31 / Line 5a / 365		

K. Wholesale Factor Adjustments

	100.00	
50. Percent of Treated Wholesale Water Traveling through General Distribution System		%
51. Volume of Treated Wholesale Water Traveling through General Distribution System	2,538,933,179	gallons
(Line 50/100) * Line 15b		
52. Wholesale Factor		
	0.06	
Line 15b / (Line 13b + Line 14b)		
	5,510,750,482	
53. Adjusted Real Loss Volume		gallons
((1 - Line 52) x (Line 30 * Line 50 / 100)) +		
	$2,215,321.70	
54. Adjusted Cost of Real Losses		
((1 - Line 52) x (Line 44 * Line 50 / 100)) +		

EXHIBIT JJJ-31

AW Districts 10-14, Attachment 2

55. Adjusted Total Water Loss Volume

((1 - Line 52) x (Line 31 * Line 50 / 100)) +

6,323,218,831 gallons

56. Adjusted Total Cost Impact of Apparent and Real Losses

((1 - Line 52) x (Line 45 * Line 50 / 100)) +

$6,781,393.82

57. Adjusted Real Loss Per Connection

((1 - Line 52) x (Line 37 * Line 50 / 100)) +
(Line 37 - (Line 37 * Line 50/100))

68.3 gallons lost per connection per day

58. Adjusted Real Loss Per Mile

((1 - Line 52) x (Line 38 * Line 50 / 100)) +
(Line 38 - (Line 38 * Line 50/100))

0 gallons lost per mile per day

59. Adjusted Infrastructure Leakage Index

((1 - Line 52) x (Line 36 * Line 50 / 100)) +

3.65 I.L.I

60. Adjusted Total Water Loss - Percentage

((1 - Line 52) x (Line 47 * Line 50 / 100)) +

14.98 %

61. Adjusted GPCD Loss

((1 - Line 52) x (Line 49 * Line 50 / 100)) +

19

Comments

EXHIBIT JJJ-31

AW Districts 10-14, Attachment 3

TEXAS WATER DEVELOPMENT BOARD

P.O. BOX 13231, CAPITOL STATION

AUSTIN, TX 78711-3231

2016 WATER AUDIT REPORT

A. Water Utility General Information

1. Water Utility Name: CITY OF AUSTIN WATER & WASTEWATER

1a. Regional Water Planning Area: K

1b. Address: PO BOX 1088
AUSTIN, TX 78767-1088

2. Contact Information

2a. Name: Dan Strub

2b. Telephone Number: (512) 972-0349

2c. Email Address: dan.strub@austintexas.gov

3. Reporting Period

3a. Start Date: 01/01/2016

3b. End Date: 12/31/2016

4. Source Water Utilization

		%
4a. Surface Water	100	
4b. Ground Water	0	%

5. Population Served

		Assessment Scale
5a. Retail Population Served	954,648	
5b. Wholesale Population Served	58,540	

6. Utility's Length of Main Lines

		miles	
	3,837.00		5

7. Total Retail Metered Connections - Active and Inactive

225,070	5

8. Number of Wholesale Connections Served	50		
9. Service Connection Density	58.66	connections per mile	
10. Average Yearly System Operating Pressure	77.3	psi	5
11. Volume Units of Measure	Gallons		
B. System Input Volume			
12. Volume of Water Intake	46,383,425,801	gallons	
13. Produced Water	44,923,142,000	gallons	4.5
13a. Production Meter Accuracy	98.4	%	4.5
13b. Corrected Input Volume	45,653,599,594	gallons	
14. Total Treated Purchased Water	1,494,000	gallons	4.5
14a. Treated Purchased Water Meter Accuracy	100.0	%	2
14b. Corrected Treated Purchased Water Volume	1,494,000	gallons	
	2,527,643,397	gallons	2

15. Total Treated Wholesale Water Sales

	%	
	100.0	5
15a. Treated Wholesale Water Meter Accuracy		
	gallons	
15b. Corrected Treated Wholesale Water Sales Volume	2,527,643,397	

16. Total System Input Volume

	gallons	
Line 13b + Line 14b - Line 15b	43,127,450,197	

		Assessment Scale
C. Authorized Consumption		
	gallons	
17. Billed Metered	36,909,267,600	3.5
	gallons	4
18. Billed Unmetered	100,906,542	
	gallons	2
19. Unbilled Metered	59,103,870	
20. Unbilled Unmetered		
	gallons	4
	78,256,141	
21. Total Authorized Consumption		
	gallons	
	37,147,534,153	
D. Water Losses		
22. Water Losses		
	gallons	
Line 16 - Line 21	5,979,916,044	

E. Apparent Losses

23. Average Customer Meter Accuracy	97.90	%	3
24. Customer Meter Accuracy Loss	791,720,755	gallons	
25. Systematic Data Handling Discrepancy	0	gallons	4
26. Unauthorized Consumption	107,818,625	gallons	4
27. Total Apparent Losses	899,539,381	gallons	

F. Real Losses

28. Reported Breaks and Leaks	42,984,350	gallons	5
29. Unreported Loss	5,037,392,313	gallons	3
30. Total Real Losses Line 28 + Line 29	5,080,376,663	gallons	
31. Total Water Losses Line 27 + Line 30	5,979,916,044	gallons	
32. Non-Revenue Water Line 31 + Line 19 + Line 20	6,117,276,055	gallons	

G. Technical Performance Indicator for Apparent Loss

33. Apparent Losses Normalized Line 27 / Line 7 / 365	10.95	gallons lost per connection per day

H. Technical Performance Indicators for Real Loss

34. Real Loss Volume Line 30	5,080,376,663	gallons
35. Unavoidable Annual Real Losses Volume (5.41 * Line 6 + (Line 7 * 0.15)) * 365 * Line 10	1,538,217,015	gallons
36. Infrastructure Leakage Index Line 34 / Line 35	3.30	I.L.I
37. Real Losses Normalized - Service Connections Line 34 / Line 7 / 365	61.84	gallons lost per connection per day
38. Real Losses Normalized - Main Lines Line 34 / Line 6 / 365	0.00	gallons lost per mile per day

I. Financial Performance Indicators

		Assessment Scale
39. Total Apparent Losses Line 27	899,539,381	gallons
40. Retail Price of Water	0.00565	$/gallons 5
41. Cost of Apparent Losses Line 39 x Line 40	$5,082,397.50	
42. Total Real Losses Line 30	5,080,376,663	gallons

43. Variable Production Cost of Water	$/gallons	
	0.00046	4
44. Cost of Real Losses	$2,331,892.89	
Line 42 x Line 43		
45. Total Cost Impact of Apparent and Real Losses	$7,414,290.39	
Line 41 + Line 44		
46. Total Assessment Score	79	

J. System Losses and Gallons Per Capita per Day (GPCD)

47. Total Water Loss - Percentage	%	
	13.87	
48. GPCD Input	124	
Line 16 / Line 5a / 365		
49. GPCD Loss	17	
Line 31 / Line 5a / 365		

K. Wholesale Factor Adjustments

	100.00	
50. Percent of Treated Wholesale Water Traveling through General Distribution System	%	
51. Volume of Treated Wholesale Water Traveling through General Distribution System	2,527,643,397 gallons	
(Line 50/100) * Line 15b		
52. Wholesale Factor	0.06	
Line 15b / (Line 13b + Line 14b)		
	4,775,554,063	
53. Adjusted Real Loss Volume	gallons	
((1 - Line 52) x (Line 30 * Line 50 / 100)) +		
	$2,191,979.32	
54. Adjusted Cost of Real Losses		
((1 - Line 52) x (Line 44 * Line 50 / 100)) +		

EXHIBIT JJJ-31

AW Districts 10-14, Attachment 3

55. Adjusted Total Water Loss Volume

((1 - Line 52) x (Line 31 * Line 50 / 100)) +

5,621,121,081 gallons

56. Adjusted Total Cost Impact of Apparent and Real Losses

((1 - Line 52) x (Line 45 * Line 50 / 100)) +

$6,969,432.97

57. Adjusted Real Loss Per Connection

((1 - Line 52) x (Line 37 * Line 50 / 100)) +
(Line 37 - (Line 37 * Line 50/100))

58.13 gallons lost per connection per day

58. Adjusted Real Loss Per Mile

((1 - Line 52) x (Line 38 * Line 50 / 100)) +
(Line 38 - (Line 38 * Line 50/100))

0 gallons lost per mile per day

59. Adjusted Infrastructure Leakage Index

((1 - Line 52) x (Line 36 * Line 50 / 100)) +

3.1 I.L.I

60. Adjusted Total Water Loss - Percentage

((1 - Line 52) x (Line 47 * Line 50 / 100)) +

13.04 %

61. Adjusted GPCD Loss

((1 - Line 52) x (Line 49 * Line 50 / 100)) +

16

Comments

EXHIBIT JJJ-31

TEXAS WATER DEVELOPMENT BOARD

P.O. BOX 13231, CAPITOL STATION

AUSTIN, TX 78711-3231

2017 WATER AUDIT REPORT

A. Water Utility General Information

1. Water Utility Name: CITY OF AUSTIN WATER & WASTEWATER

1a. Regional Water Planning Area: K

1b. Address: PO BOX 1088
AUSTIN, TX 78767-1088

2. Contact Information

2a. Name: Dan Strub

2b. Telephone Number: (512) 972-0349

2c. Email Address: dan.strub@austintexas.gov

3. Reporting Period

3a. Start Date: 01/01/2017

3b. End Date: 12/31/2017

4. Source Water Utilization

		%
4a. Surface Water	100	
4b. Ground Water	0	%

5. Population Served

		Assessment Scale
5a. Retail Population Served	975,086	
5b. Wholesale Population Served	64,055	

6. Utility's Length of Main Lines

	miles	
	3,848.00	5

7. Total Retail Metered Connections - Active and Inactive

229,071	5

8. Number of Wholesale Connections Served	50		
9. Service Connection Density	59.53	connections per mile	
10. Average Yearly System Operating Pressure	77.3	psi	5
11. Volume Units of Measure	Gallons		

B. System Input Volume

12. Volume of Water Intake	48,455,640,371	gallons	
13. Produced Water	47,592,529,787	gallons	4.5
13a. Production Meter Accuracy	98.4	%	4.5
13b. Corrected Input Volume	48,366,392,060	gallons	
14. Total Treated Purchased Water	689,000	gallons	4.5
14a. Treated Purchased Water Meter Accuracy	100.0	%	2
14b. Corrected Treated Purchased Water Volume	689,000	gallons	
	2,829,946,400	gallons	2

15. Total Treated Wholesale Water Sales

		%	
			5
15a. Treated Wholesale Water Meter Accuracy	100.0		
15b. Corrected Treated Wholesale Water Sales Volume	2,829,946,400	gallons	

16. Total System Input Volume

		gallons	
Line 13b + Line 14b - Line 15b	45,537,134,660		

C. Authorized Consumption

			Assessment Scale
		gallons	
17. Billed Metered	37,909,491,100		3.5
18. Billed Unmetered	4,595,913	gallons	4
19. Unbilled Metered	54,684,090	gallons	2
20. Unbilled Unmetered	92,728,311	gallons	4

21. Total Authorized Consumption

	gallons	
	38,061,499,414	

D. Water Losses

22. Water Losses

	gallons	
Line 16 - Line 21	7,475,635,246	

E. Apparent Losses

23. Average Customer Meter Accuracy	97.90	%	3
24. Customer Meter Accuracy Loss	813,176,009	gallons	
25. Systematic Data Handling Discrepancy	1	gallons	4
26. Unauthorized Consumption	113,813,522	gallons	4
27. Total Apparent Losses	926,989,532	gallons	

F. Real Losses

28. Reported Breaks and Leaks	77,863,939	gallons	5
29. Unreported Loss	6,470,781,775	gallons	3
30. Total Real Losses Line 28 + Line 29	6,548,645,714	gallons	
31. Total Water Losses Line 27 + Line 30	7,475,635,246	gallons	
32. Non-Revenue Water Line 31 + Line 19 + Line 20	7,623,047,647	gallons	

G. Technical Performance Indicator for Apparent Loss

33. Apparent Losses Normalized Line 27 / Line 7 / 365	11.09	gallons lost per connection per day

H. Technical Performance Indicators for Real Loss

34. Real Loss Volume Line 30	6,548,645,714	gallons
35. Unavoidable Annual Real Losses Volume (5.41 * Line 6 + (Line 7 * 0.15)) * 365 * Line 10	1,556,828,992	gallons
36. Infrastructure Leakage Index Line 34 / Line 35	4.21	I.L.I
37. Real Losses Normalized - Service Connections Line 34 / Line 7 / 365	78.32	gallons lost per connection per day
38. Real Losses Normalized - Main Lines Line 34 / Line 6 / 365	0.00	gallons lost per mile per day

I. Financial Performance Indicators

		Assessment Scale
39. Total Apparent Losses Line 27	926,989,532	gallons
40. Retail Price of Water	0.00584	$/gallons 5
41. Cost of Apparent Losses Line 39 x Line 40	$5,413,618.87	
42. Total Real Losses Line 30	6,548,645,714	gallons

43. Variable Production Cost of Water		$/gallons	
	0.00037		4
44. Cost of Real Losses			
	$2,422,998.91		
Line 42 x Line 43			
45. Total Cost Impact of Apparent and Real Losses			
	$7,836,617.78		
Line 41 + Line 44			
46. Total Assessment Score			
	79		
J. System Losses and Gallons Per Capita per Day (GPCD)			
47. Total Water Loss - Percentage			
	16.42	%	
48. GPCD Input			
	128		
Line 16 / Line 5a / 365			
49. GPCD Loss			
	21		
Line 31 / Line 5a / 365			
K. Wholesale Factor Adjustments			
	100.00		
50. Percent of Treated Wholesale Water Traveling through General Distribution System		%	
51. Volume of Treated Wholesale Water Traveling through General Distribution System	2,829,946,400	gallons	
(Line 50/100) * Line 15b			
52. Wholesale Factor			
	0.06		
Line 15b / (Line 13b + Line 14b)			
	6,155,726,971		
53. Adjusted Real Loss Volume		gallons	
((1 - Line 52) x (Line 30 * Line 50 / 100)) +			
	$2,277,618.98		
54. Adjusted Cost of Real Losses			
((1 - Line 52) x (Line 44 * Line 50 / 100)) +			

EXHIBIT JJJ-31

AW Districts 10-14, Attachment 4

55. Adjusted Total Water Loss Volume

((1 - Line 52) x (Line 31 * Line 50 / 100)) +

7,027,097,131 gallons

56. Adjusted Total Cost Impact of Apparent and Real Losses

((1 - Line 52) x (Line 45 * Line 50 / 100)) +

$7,366,420.71

57. Adjusted Real Loss Per Connection

((1 - Line 52) x (Line 37 * Line 50 / 100)) +
(Line 37 - (Line 37 * Line 50/100))

73.62 gallons lost per connection per day

58. Adjusted Real Loss Per Mile

((1 - Line 52) x (Line 38 * Line 50 / 100)) +
(Line 38 - (Line 38 * Line 50/100))

0 gallons lost per mile per day

59. Adjusted Infrastructure Leakage Index

((1 - Line 52) x (Line 36 * Line 50 / 100)) +

3.95 I.L.I

60. Adjusted Total Water Loss - Percentage

((1 - Line 52) x (Line 47 * Line 50 / 100)) +

15.43 %

61. Adjusted GPCD Loss

((1 - Line 52) x (Line 49 * Line 50 / 100)) +

20

Comments

EXHIBIT JJJ-31

TEXAS WATER DEVELOPMENT BOARD

P.O. BOX 13231, CAPITOL STATION

AUSTIN, TX 78711-3231

2018 WATER AUDIT REPORT

A. Water Utility General Information

1. Water Utility Name: CITY OF AUSTIN WATER & WASTEWATER

1a. Regional Water Planning Area: K

1b. Address: PO BOX 1088

AUSTIN, TX 78767-1088

2. Contact Information

2a. Name: dan strub

Have you completed Water Loss Auditor Training?

2b. Telephone Number: (512) 972-0349 — (●) Yes

2c. Email Address: dan.strub@ci.austin.tx.us — ( ) No

3. Reporting Period

3a. Start Date: 01/01/2018

3b. End Date: 12/31/2018

4. Source Water Utilization

	%
4a. Surface Water	100
4b. Ground Water	0

5. Population Served

5a. Retail Population Served: 999,960

			Assessment Scale
5b. Wholesale Population Served	61,319		
6. Utility's Length of Main Lines	3,929.78	miles	4.5
7. Total Retail Metered Connections - Active and Inactive	235,382		5
8. Number of Wholesale Connections Served	49		
9. Service Connection Density	59.90	connections per mile	
10. Average Yearly System Operating Pressure	77.3	psi	4.5
11. Volume Units of Measure	Gallons		

B. System Input Volume

12. Volume of Water Intake	48,426,059,616	gallons	
13. Produced Water	47,231,243,268	gallons	3.5
13a. Production Meter Accuracy	98.4	%	3.5
13b. Corrected Input Volume	47,999,230,963	gallons	
14. Total Treated Purchased Water	940,000	gallons	2.5
14a. Treated Purchased Water Meter Accuracy	100.0	%	

			0.5
14b. Corrected Treated Purchased Water Volume	940,000	gallons	
15. Total Treated Wholesale Water Sales	2,385,015,400	gallons	4
		%	0.5
15a. Treated Wholesale Water Meter Accuracy	100.0		
15b. Corrected Treated Wholesale Water Sales Volume	2,385,015,400	gallons	
16. Total System Input Volume		gallons	
Line 13b + Line 14b - Line 15b	45,615,155,563		
			Assessment Scale
C. Authorized Consumption			
17. Billed Metered	38,442,953,800	gallons	3.5
18. Billed Unmetered	2,687,789	gallons	5
19. Unbilled Metered	59,572,555	gallons	5
20. Unbilled Unmetered			

		gallons	5
	45,179,594		
21. Total Authorized Consumption			
		gallons	
	38,550,393,738		
D. Water Losses			
22. Water Losses			
		gallons	
	7,064,761,825		
Line 16 - Line 21			
E. Apparent Losses			
23. Average Customer Meter Accuracy			
		%	
	97.90		4
24. Customer Meter Accuracy Loss			
		gallons	
	824,619,029		
25. Systematic Data Handling Discrepancy			
		gallons	
	1		2.5
26. Unauthorized Consumption			
		gallons	
	114,037,889		2.5
27. Total Apparent Losses			
		gallons	
	938,656,919		
F. Real Losses			
		gallons	
28. Reported Breaks and Leaks			
	89,113,730		5
29. Unreported Loss			
		gallons	4
	6,036,991,176		
30. Total Real Losses			
		gallons	
	6,126,104,906		
Line 28 + Line 29			
31. Total Water Losses			
		gallons	
Line 27 + Line 30	7,064,761,825		

32. Non-Revenue Water

		gallons
Line 31 + Line 19 + Line 20	7,169,513,974	

G. Technical Performance Indicator for Apparent Loss

33. Apparent Losses Normalized

	10.93	
Line 27 / Line 7 / 365		gallons lost per connection per day

H. Technical Performance Indicators for Real Loss

		gallons
34. Real Loss Volume Line 30	6,126,104,906	

35. Unavoidable Annual Real Losses Volume

		gallons
(5.41 * Line 6 + (Line 7 * 0.15)) * 365 * Line 10	1,596,021,184	

36. Infrastructure Leakage Index		I.L.I
Line 34 / Line 35	3.84	

37. Real Losses Normalized - Service Connections

	71.30	
Line 34 / Line 7 / 365		gallons lost per connection per day

38. Real Losses Normalized - Main Lines

	0.00	
Line 34 / Line 6 / 365		gallons lost per mile per day

I. Financial Performance Indicators

Assessment Scale

39. Total Apparent Losses		gallons
Line 27	938,656,919	

40. Retail Price of Water

		$/gallons	
			4.5
	0.00558		
41. Cost of Apparent Losses			
Line 39 x Line 40	$5,237,705.61		
42. Total Real Losses		gallons	
Line 30	6,126,104,906		
43. Variable Production Cost of Water		$/gallons	
	0.00039		2.5
44. Cost of Real Losses			
Line 42 x Line 43	$2,364,676.49		
45. Total Cost Impact of Apparent and Real Losses			
Line 41 + Line 44	$7,602,382.10		
46. Total Assessment Score	72		

J. System Losses and Gallons Per Capita per Day (GPCD)

47. Total Water Loss - Percentage		%
	15.49	
48. GPCD Input	125	
Line 16 / Line 5a / 365		
49. GPCD Loss	19	
Line 31 / Line 5a / 365		

K. Wholesale Factor Adjustments

	100.00	
50. Percent of Treated Wholesale Water Traveling through General Distribution System		%
51. Volume of Treated Wholesale Water Traveling through General Distribution System	2,385,015,400	gallons
(Line 50/100) * Line 15b		
52. Wholesale Factor	0.05	

Line 15b / (Line 13b + Line 14b)

5,819,799,661

53. Adjusted Real Loss Volume — gallons

((1 - Line 52) x (Line 30 * Line 50 / 100)) +

$2,246,442.67

54. Adjusted Cost of Real Losses

((1 - Line 52) x (Line 44 * Line 50 / 100)) +

6,711,523,734

55. Adjusted Total Water Loss Volume — gallons

((1 - Line 52) x (Line 31 * Line 50 / 100)) +

$7,222,263.00

56. Adjusted Total Cost Impact of Apparent and Real Losses

((1 - Line 52) x (Line 45 * Line 50 / 100)) +

67.74

57. Adjusted Real Loss Per Connection — gallons lost per connection per day

((1 - Line 52) x (Line 37 * Line 50 / 100)) +
(Line 37 - (Line 37 * Line 50/100))

0

58. Adjusted Real Loss Per Mile — gallons lost per mile per day

((1 - Line 52) x (Line 38 * Line 50 / 100)) +
(Line 38 - (Line 38 * Line 50/100))

3.65 I.L.I

59. Adjusted Infrastructure Leakage Index

((1 - Line 52) x (Line 36 * Line 50 / 100)) +

%

14.72

60. Adjusted Total Water Loss - Percentage

((1 - Line 52) x (Line 47 * Line 50 / 100)) +

18

61. Adjusted GPCD Loss

((1 - Line 52) x (Line 49 * Line 50 / 100)) +

Comments

EXHIBIT JJJ-32

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' EIGHTH RFI

DISTRICTS 8-1: Please identify and describe in detail all changed circumstances from February 26, 2015 (the end of the hearings in Docket No. 42857) to April 15, 2019 (the filing date of AW's application in Docket No. 49189) that would justify a reversal of the Commission's position to exclude the costs of the Direct Transfer to the Reclaimed Water Fund (see Gonzales Direct at p. 29, line 22). If the response includes references to the Docket No. 49189 rate application, please provide the Bates numbers (and line numbers if applicable) of the references. Provide any other responsive documents that are not included in the Application.

RESPONSE: The Public Utility Commission's (Commission) Order on Rehearing in Docket No. 42857, Finding of Fact No. 52, stated that reclaimed water system costs (capital and Operations and Maintenance (O&M) costs) were disallowed because "the [C]ity failed to prove that these revenue requirements are reasonable and necessary costs of providing water and wastewater services to the petitioners."[1] The Direct Transfer to the Reclaimed Water Fund, referenced in Districts' RFI No. 8-1, covers the costs for the reclaimed capital and O&M costs referred to in the Commission's Order on Rehearing. Since the Commission stated that the City failed to prove these costs were reasonable and necessary costs for the Districts, Austin Water has provided additional evidence in this case to prove reclaimed costs are reasonable and necessary to provide water and wastewater service to the Districts.

David Anders' direct testimony in Austin Water's Application[2] in Docket No. 49189, Section "VI. Review of Docket No. 42857 and Relationship to This Case" (Section VI), provides a list of the items disallowed by the Commission and items AW has presented for consideration in this case.[3]

David Anders' direct testimony, Section "XI. Overview of Items Disallowed by Commission in Docket No. 42857 Included Within Wholesale Revenue Requirements By Austin Water" (Section XI), Subsection "B. Reclaimed Water Capital Costs and Expenses" (Subsection B), provides additional evidence describing the benefits of the reclaimed water system to all customer classes.[4]

Richard Giardina's direct testimony provides additional evidence describing the benefits of the reclaimed water system to all customer classes.[5]

Additionally, Steve Coonan's direct testimony and attachments provide evidence regarding: (1) how reclaimed water is a water supply resource; (2) how Austin Water is required

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[1] *Petition of North Austin Municipal Utility District No. 1, Northtown Municipal Utility District, Travis County Water Control and Improvement District No. 10 and Wells Branch Municipal Utility District from the Ratemaking Actions of the City of Austin and Request for Interim Rates in Williamson and Travis* Counties, Docket No. 42857, Finding of Fact No. 52 (Jan. 14, 2016).

[2] Application of the City of Austin d/b/a Austin Water for Authority to Change Water and Wastewater Rates (Apr. 15, 2019) (Application).

[3] *Id.* at 27-29.

[4] *Id.* at 39-41.

[5] *Id.* at 241-242.

by state law to include reclaimed water in its regional water planning process; (3) how reclaimed water can reduce the cost of purchasing raw water from the Lower Colorado River Authority (LCRA); and (4) how the wholesale customers benefit from the reclaimed water system.[6]

Prepared by: David Anders
Sponsored by: David Anders and Joseph Gonzales

[6] *Id.* at 346-381.

EXHIBIT JJJ-32

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' EIGHTH RFI

DISTRICTS 8-2: If AW cannot identify any changed circumstances from the hearings in Docket No. 42857 to the filing of AW's application in Docket No. 49189 that would justify a reversal of the Commission's position to exclude the costs of the Direct Transfer to the Reclaimed Water Fund, please identify and explain AW's arguments and theories for requesting inclusion of these costs in the current application.

RESPONSE: Please see Austin Water's response to Districts' RFI No. 8-1.

Prepared by: David Anders
Sponsored by: David Anders and Joseph Gonzales

EXHIBIT JJJ-32

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' EIGHTH RFI

DISTRICTS 8-3: Please identify which of the arguments and/or theories presented in Docket No. 49189 for inclusion of the costs of the Direct Transfer to the Reclaimed Water Fund are substantially the same arguments and/or theories presented in Docket No. 42857. If the current arguments are different, please explain why AW did not raise these arguments in Docket No. 42857.

RESPONSE: In Docket No. 42857, Austin Water identified the reclaimed water system as a water supply for all water customers, and disagreed with the Petitioners' (the Districts in Docket No. 49189) recommendation to disallow the reclaimed water costs. The Commission's Order on Rehearing in Docket No. 42857, Finding of Fact No. 52, stated that reclaimed water system costs (capital and O&M costs) were disallowed because "the [C]ity failed to prove that these revenue requirements are reasonable and necessary costs of providing water and wastewater services to the petitioners."[7]

In Docket No. 49189, Austin Water has provided additional evidence of the benefits of the reclaimed water system to all customer classes.

Prepared by: David Anders
Sponsored by: David Anders and Joseph Gonzales

[7] Docket No. 42857, Order on Rehearing, Finding of Fact No. 52.

EXHIBIT JJJ-32

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' EIGHTH RFI

DISTRICTS 8-4: Please identify which of the arguments and/or theories presented in Docket No. 49189 for inclusion of the costs of the Direct Transfer to the Reclaimed Water Fund are substantially different from the arguments and/or theories presented in Docket No. 42857. Please explain why AW did not raise these arguments in Docket No. 42857.

RESPONSE: The additional evidence on the reclaimed water system provided in this case provides a more comprehensive argument of the benefits of the system to all customer classes. During Docket No. 42857, Austin Water raised arguments it expected to be sufficient for the Commission to find that the reclaimed costs were reasonable and necessary to provide water and wastewater service to the Petitioners. However, after the Commission found that AW failed to prove that costs associated with the reclaimed water program were reasonable and necessary for providing service, AW provided additional relevant evidence in Docket No. 49189 for the Commission to consider.

Prepared by: David Anders
Sponsored by: David Anders and Joseph Gonzales

EXHIBIT JJJ-32

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' EIGHTH RFI

DISTRICTS 8-5: Please identify and describe in detail all changed circumstances from February 26, 2015 (the end of the hearings in Docket No. 42857) to April 15, 2019 (the filing date of AW's application in Docket No. 49189) that would justify a reversal of the Commission's position to exclude the costs of Reclaimed Water System Capital Costs and Expenses (Anders Direct at p. 26, line 13). If the response includes references to the Docket No. 49189 rate application, please provide the Bates numbers (and line numbers if applicable) of the references. Provide any other responsive documents that are not included in the Application.

RESPONSE: The Commission's Order on Rehearing in Docket No. 42857, Finding of Fact No. 52, stated that reclaimed water system costs (capital and O&M costs) were disallowed because "the [C]ity failed to prove that these revenue requirements are reasonable and necessary costs of providing water and wastewater services to the petitioners."[8] Since the Commission stated that the City failed to prove these costs were reasonable and necessary costs for the Districts, Austin Water has provided additional evidence in this case to prove reclaimed costs are reasonable and necessary to provide water and wastewater service to the Districts.

David Anders' direct testimony, Section VI, provides a list of the items disallowed by the Commission and items AW has presented for consideration in this case.[9]

David Anders' direct testimony, Section XI, Subsection B, provides the additional evidence describing the benefits of the reclaimed water system to all customer classes.[10]

Richard Giardina's direct testimony provides the additional evidence describing the benefits of the reclaimed water system to all customer classes.[11]

Additionally, Steve Coonan's direct testimony and attachments provide evidence regarding: (1) how reclaimed water is a water supply resource; (2) how Austin Water is required by state law to include reclaimed water in its regional water planning process; (3) how reclaimed water can reduce the cost of purchasing raw water from the LCRA; and (4) how the wholesale customers benefit from the reclaimed system.[12]

Prepared by: David Anders
Sponsored by: David Anders and Joseph Gonzales

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[8] *Id.*

[9] Application at 27-29.

[10] *Id.* at 39-41.

[11] *Id.* at 241-242.

[12] *Id.* at 346-381.

EXHIBIT JJJ-32

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' EIGHTH RFI

DISTRICTS 8-6: If AW cannot identify any changed circumstances from the hearings in Docket No. 42857 to the filing of AW's application in Docket No. 49189 that would justify a reversal of the Commission's position to exclude the costs of Reclaimed Water System Capital Costs and Expenses (Anders Direct at p. 26, line 13), please identify and explain AW's arguments and theories for requesting inclusion of these costs in the current application.

RESPONSE: Please see Austin Water's response to Districts' RFI No. 8-5.

Prepared by: David Anders
Sponsored by: David Anders and Joseph Gonzales

EXHIBIT JJJ-32

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' EIGHTH RFI

DISTRICTS 8-7: Please identify which of the arguments and/or theories presented in Docket No. 49189 for inclusion of the costs of Reclaimed Water System Capital Costs and Expenses (Anders Direct at p. 26, line 13) are substantially the same arguments and/or theories presented in Docket No. 42857. If the current arguments are different, please explain why AW did not raise these arguments in Docket No. 42857.

RESPONSE: In Docket No. 42857, Austin Water identified the reclaimed water system as a water supply for all water customers and disagreed with the Petitioners' recommendation to disallow the reclaimed water costs. The Commission's Order on Rehearing in Docket No. 42857, Finding of Fact No. 52, stated that reclaimed water system costs (capital and O&M costs) were disallowed because "the [C]ity failed to prove that these revenue requirements are reasonable and necessary costs of providing water and wastewater services to the petitioners."[13]

In Docket No. 49189, Austin Water has provided additional evidence of the benefits of the reclaimed water system to all customer classes.

Prepared by: David Anders
Sponsored by: David Anders and Joseph Gonzales

[13] Docket No. 42857, Order on Rehearing, Finding of Fact No. 52.

EXHIBIT JJJ-32

SOAH DOCKET NO. 473-19-6297.WS
PUC DOCKET NO. 49189

AUSTIN WATER'S RESPONSE TO DISTRICTS' EIGHTH RFI

DISTRICTS 8-8: Please identify which of the arguments and/or theories presented in Docket No. 49189 for inclusion of the costs of Reclaimed Water System Capital Costs and Expenses (Anders Direct at p. 26, line 13) are substantially different from the arguments and/or theories presented in Docket No. 42857. Please explain why AW did not raise these arguments in Docket No. 42857.

RESPONSE: The additional evidence on the reclaimed water system, provided by Austin Water in Docket No. 49189, provides a more comprehensive argument of the benefits of the system to all customer classes. During Docket No. 42857, Austin Water raised arguments it thought were sufficient for the Commission to find that the reclaimed costs were reasonable and necessary to provide water and wastewater service to the Petitioners. However, after the Commission found that AW failed to prove that the reclaimed water program was reasonable and necessary for providing service, AW provided additional relevant evidence in Docket No. 49189 for the Commission to consider.

Prepared by: David Anders
Sponsored by: David Anders and Joseph Gonzales