

## Water and Sewer Cost of Service Study Follow-ups

I have both questions and requests for data – let's start with the data requests.

### Data Requests

- I. **Cost allocations to customer groups** - slide #10 of the presentation showed the revenues and costs for the four customer classifications (residential, multi-family, non-residential, water only). The total costs for the four groups is \$47.5M. Could you please provide the schedules/spreadsheets supporting that slide that show the line item cost detail for the \$47.5M and the allocation amount of each cost element to each group. If not shown or explained on the schedules/spreadsheets, please also provide the allocation methodology and rationale for each cost allocation.

\$47.5M is the combined revenue requirement for both water and sewer service inclusive of offsetting revenues, cash funded capital and use of fund balances. The \$47.5M is inclusive of all Council Approved FY18 Operating and Maintenance Budget as well as the Capital Budgets. The attached spreadsheets allocate the costs of: Water Budget for FY18 (\$32.727 Mil), plus the Sewer System Budget (\$29.229 Mil), less the offsetting Revenues (\$14.476 Mil). Offsetting revenues includes miscellaneous revenues in addition to the use of fund balance. Figure 1 below illustrates how the costs are allocated. The attached spreadsheets shows the line item detail for the cost element to each function. As illustrated in figure 2, those functions were then allocated to the individual customer type on the basis of a) accounts for the customer charge and b) for the commodity (or volumetric) price, the peaking factor was the ratio by which costs were allocated for the daily and hourly peaking factors (daily and hourly were associated with different cost components). As an example, the green part of the stacked bar chart represents the customer charge, those costs are on a per meter basis; the costs allocated to the residential class is directly proportional to number of meters. Whereas, the commercial class consumption data showed that they are the primary contributor to the maximum day demand, therefore they had proportionally more max day costs allocated to that class to recover from revenues.

Stantec is in the process of completing a detailed report inclusive of all details, steps and allocations metrics. The report will show the line item detail for each cost element, allocation methodology and rationale for each cost allocation. Once finalized with staff the report will be available as a public document.

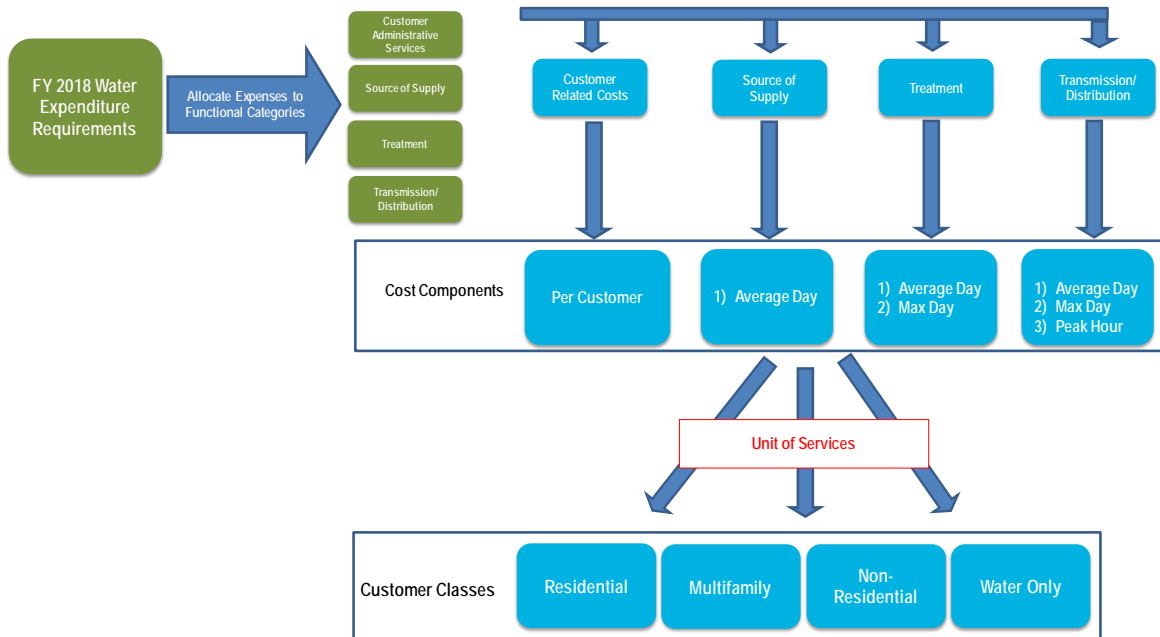


Figure 1: Basis for functionalization and cost allocation for the cost of service study.

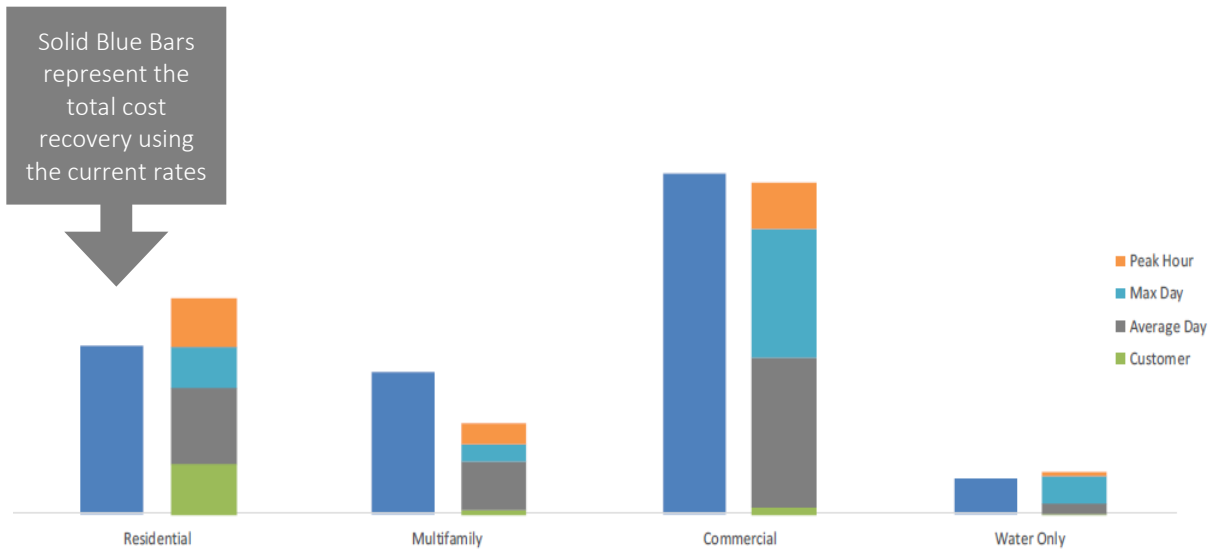


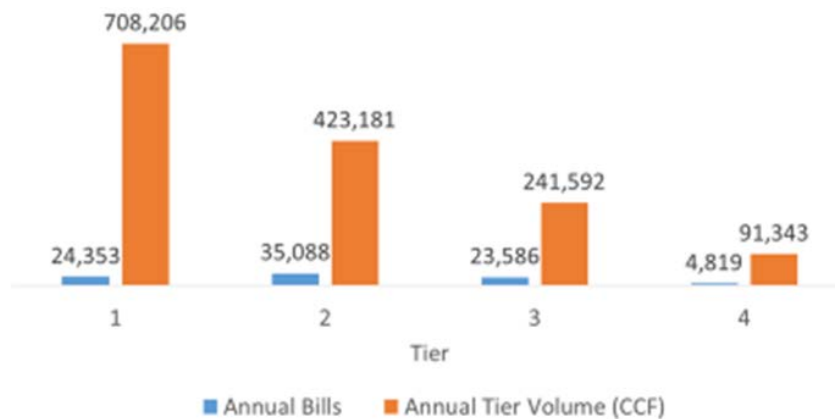
Figure 2: Basis for cost allocation for the water system

The costs necessary for peak day and peak hour services are treatment and transmission/distribution. On the data sheets with water system costs, those costs are in the two center columns, and their totals are on the last page, at the bottom of the columns on the right. Transmission/distribution costs are 39.3% of total costs, and treatment costs are 44.5% of total costs. The costs to provide treatment and transmission/distribution services increase during peak days and hours. For example, a system (pipes and plant) is built to handle not the average day demand, but rather the maximum, so it can provide reliable water service year round, including during peak usage times. Treatment and transmission/distribution costs are also the largest portion of total costs. Therefore, when rates are calculated for peak days and hours, the rates necessarily reflect those higher costs.

- II. **Residential Customer Distribution** - the three residential scenario slides (slides 19-21) are helpful, but I'm interested in seeing the actual data/counts on residential customers. Could you please provide the number of residential customers served and the actual distribution of those customers by amount of water volume usage.

Annual quarterly bills issued in 2017 are shown in the chart below. Customer usage changes throughout the year. Figure 3 is a bar chart demonstrating residential volume and bill distribution. The blue columns represent the highest tier for which a customer received a bill. So, as an example, 4,819 out of 87,846 total bills sent in 2017 had any consumption in tier 4. Whereas 24,353 of 87,846 customers ever had consumption that surpassed tier 1.

## Residential Volume and Bill Distribution



- III. **Advisory Committee** - slide #4 identified an Advisory Committee that was a cross-section of community sectors and neighborhoods. I certainly agree having a balance on the committee is important, but I've been told the makeup of the Committee was largely staff and consultants with few (5 or so of 30) citizen representatives and of those representing residential groups, most were multi-family. I was also told one staff member even identified himself as a citizen rep. Can you please speak to those "balance" concerns and please provide the list of Committee members and their sector / neighborhood affiliation.

One of the first steps in the study was to complete the Citizen Engagement Toolkit and to actively recruit membership to the Public Advisory Committee. An invitation e-mail was sent to every neighborhood association e-mail on record as well as invitations to specific large customers and community organizations based on the toolkit's sector identification. The City Staff was there to provide expertise and information as rates are based on technical engineering and financial information. After concerns that staff presence at the table was not appreciated by PAC members, City Staff sat in the back of the room to allow open conversational dialogue between Stantec and PAC members.

<b>Name</b>	<b>Representative</b>
Susan Hutton	Environmental Commission/Resident
Christopher Graham	East Aberdeen Drive Association
Jack Cederquist	Orchard Hills/Maplewood Homeowners
Marios Demetriou	Ann Arbor Public Schools
Jim Adams	U of M
Joan Doughty	Community Action Network
Janice Beecher	Michigan State University – Utility Scholar
Lou Glorie	Brooks Street Neighborhood Association
Dr. Carol Miller	Thurston Neighborhood
Patricia Byrd	Arrowwood Hills Co-op
Garrett Scott	Iroquois/East Stadium Neighborhood Association
Darren McKinnon	First Martin
Bill Rosemurgy	Broadway Area Neighborhood Association
Jennifer Hall	Ann Arbor Housing Commission

### Questions

**Q1.** Although not in the work session presentation March 12<sup>th</sup>, there was a slide in the December 20, 2017 Advisory Committee meeting titled "Key Issue: Level of Fixed Charges". The slide emphasized the importance of a relatively higher fixed cost component (vs. variable component) in the water and sewer charges. The slide indicated that rating agencies "focus on fixed charges" and that "a strong system will recover >=30% of revenue in fixed charges." I have a couple of questions on this fixed vs. variable recovery aspect:

**Q1A.** That particular slide showed that Ann Arbor was very low in terms of the fixed component of cost recovery (15% vs average of 35%) and slides later in that presentation suggested the fixed component would be getting larger as a percent of the total charges, but would still be below the average and what is recommended. What are the water and sewer fixed and variable component revenue percentages under the proposal reviewed at the work session?

Water Fixed Revenue Recovery: 13%  
 Water Variable Revenue Recovery: 87%  
 Sewer Fixed Revenue Recovery: 14%  
 Sewer Variable Revenue Recovery: 86%

**Q1B.** If 35% fixed is the average and at least 30% is recommended by rating agencies and if there is to be a major re-structuring of rates, why wouldn't we utilize the re-structuring to move to at least those levels?

Fixed revenue recovery is only one component of the cost of service study and must be viewed in tandem with other utility dynamics. Fixed cost recovery by its nature is meant to stabilize the revenue stream that a utility gets from its customers base, when revenue volatility is a concern. In Ann Arbor's case revenue volatility has not been a concern of the utility. Additionally, given the legal environment in Michigan fixed charges are constructed to recover specific cost components. For the water utility the fixed charge fundamentally recover administrative and customer service costs, meter replacement costs and public fire protection costs. The sewer fixed charge recovers meter replacement cost as well as administrative and customer service costs.

**Q1C.** The fixed component for sewer was particularly low in Ann Arbor. Is there any particular reason for that? Also, is there a fixed and variable component to stormwater charges, and if so, how does it work?

Sewer fixed charge recovers the cost of meter programs as well as administrative and customer service costs. The fixed charges are directly attributable to cost incurred by the sewer system in administration and customer charges.

Stormwater fees are calculated based on an administrative component which is the same for each parcel and a fee based on the amount of impervious area a parcel specific has.

**Q1D.** Are there particular costs the fixed components of the water and sewer rates are intended to cover, and if so, what are they and does the revenue generated from the proposed fixed components cover them?

Yes, the proposed fixed charges are constructed to recover specific cost components. For the water utility the fixed charge fundamentally recovers administrative and customer service costs, meter replacement cost and public fire protection costs. The sewer fixed charge recovers meter replacement cost as well as administrative and customer service costs.

**Q1E.** What are the specific fixed charge amounts (water, sewer and storm water) for each customer class (existing and proposed)?

#### Current Quarterly Water and Sewer Fixed Charges

##### Water Commercial Customer Charge per Quarter:

5/8" meter	\$12.90
3/4" meter	19.00
1" meter	30.30
1 1/2" meter	62.00
2" meter	97.00
3" meter	195.00
4" meter	308.00
6" meter	613.00
8" meter	1225.00
10" meter	1960.00

Water Residential Customer Charge per Quarter:

5/8" meter	\$11.25
3/4" meter	16.55
1" meter	30.30
1 1/2" meter	62.00
2" meter	97.00
3" meter	195.00
4" meter	308.00
6" meter	613.00
8" meter	1225.00

Sewer Customer Charge Per Quarter:

5/8 "	\$11.25
3/4" meter	16.55
1" meter	30.30
1½" meter	62.00
2" meter	97.00
3" meter	195.00
4" meter	308.00
6" meter	613.00
8" meter	1,225.00
10" meter	1,225.00

Current Quarterly Stormwater Fixed Charges

Customer Charge. Each property shall be billed a customer charge of \$3.91 per quarter

### Quarterly Proposed Sewer Fixed Charges

5/8" meter	\$13.09
3/4" meter	13.47
1" meter	13.98
1 1/2" meter	16.01
2" meter	17.84
3" meter	45.86
4" meter	51.98
6" meter	55.22
8" meter	66.07
10" meter	70.74

### Quarterly Proposed Water Fixed Charges

5/8 " meter	\$20.89
3/4" meter	22.43
1" meter	25.26
1 1/2" meter	33.09
2" meter	41.90
3" meter	88.47
4" meter	115.48
6" meter	176.75
8" meter	257.21
10" meter	343.11

### Proposed Quarterly Stormwater Fixed Charges

Customer Charge. Each property shall be billed a customer charge of \$3.99 per quarter.

**Q2.** Slide #20 of the presentation indicates that revenue requirements grow by 6% annually for water and 7% annually for sewer over the next several years. Assuming those revenue requirements are met through rate increases (not volume), coupled with the potential, proposed cost of service-related rate increases for residential customers (ranging from 10% to 22% in the three scenarios on slides 19-21), by my calculation, residential customers water/sewer bills will be at least 50% higher in five years' time than they are today (roughly 4 to 5 times expected inflation). Is that accurate or am I missing something? Is it also accurate that under these assumptions, the scenario 2 residential customer's total water utility bill in five years' time will be about \$300 more a year than it is today and for the scenario 3 customer, about \$600 more?

The presentation highlights the current trajectory of rates, which are subject to revisions based on the on updated financial information and the underlying performance of the utility enterprise funds. Staff intends to review this information on an annual basis by utilizing the FAMS XL revenue sufficiency models delivered in the cost of services study. If rates do get adjusted in alignment with current projections, it is expected that bills will be higher in the future and at similar magnitudes as alluded to in the question. The Water and Sewerage Maintenance Series, a sub set of the consumer price index that measures changes in water and sewer bills at a constant usage, has increased at approximately 5%-6% per year over the last 30 years. Utility inflation is being driven by declining demands, operational cost inflation, increasing construction cost, aging infrastructure and changing regulatory requirements. The drivers that have been present in the past are expected to be ongoing in the near term, continuing to push water and sewer rate adjustments at a rate greater than general inflation.

**Q3.** I can understand the need for higher-than-inflation rate/revenue increases for a few years to provide the revenue stream to fund re-investment, but once that higher revenue is built in the base, one would expect future increases beyond that point would be more in line with inflation. When do we anticipate that water utility rate increases will begin to approximate inflation?

Headline inflation as measured by the Bureau of Labor and Statistics has averaged approximately 1.7% over the last 10 years. In contrast the Water and Sewerage Maintenance Series, a sub set of the consumer price index that measures changes in water and sewer bills at a constant usage, has increased at approximately 5%-6% per year over the last 10 years. Utility inflation is being driven by declining demands, operational cost inflation, increasing construction cost, aging infrastructure and changing regulatory requirements. The drivers that have been present in the past are expected to be ongoing for the next 10 years, continuing to push water and sewer rate adjustments at a rate greater than general inflation.

**Q4.** Slide #9 of the presentation shows the system peak vs system minimum usage by month and that seasonal difference was indicated as a primary driver of the cost of service and rationale for adding a fourth tier to residential. The actual numbers are not on the slide, but graphically it appears the commercial customer seasonal increment (peak vs. minimum) is about 25,000 gallons while the residential seasonal increment (peak vs. minimum) is less than 10,000 gallons. Given that commercial (and water only) are actually the largest contributors to the seasonal system peak incremental requirements, why would residential customers have volume-based tiers, but not commercial? If it is equitable and appropriate to charge residential users higher rates per CCF for incremental/seasonal usage, why would it not be equitable to price commercial the same way?

Under the proposed rate structure each rate class residential, commercial, multi-family and water only are paying for their proportional usage of the system and specifically the large investments that are made in the system to meet peak demands. Peak demands are not looked in comparison to minimum demands, but rather in comparison to average demand. Those differences, comparing tiers 1 and 2 to tiers 3 and 4, are more visible on slide #13 of the presentation. Based on cost of service analyses, inclining block rate structures are often appropriate for and applied to single-family residential accounts. However, cost of service data generally do not support inclining block rates that rate structure is almost never appropriate for or applied to commercial or other non-residential accounts. Commercial accounts often have water only meters for their outdoor landscaping; the higher rates for water only use reflects seasonal use.

**Q5.** Also on volume-based tiers, can you please explain/provide the data that demonstrates the cost to serve a residential customer for the 37<sup>th</sup> CCF is almost 8 times the cost to serve a residential customer's first 9 CCF?

The rates calculated for each tier reflect the allocation of system cost associated with providing the capacity that is required to serve the demand/billed volumes in each respective tier. This cost of service study uses empirical data, industry accepted methodologies and best practices to properly develop the cost to serve each tier for residential customers. A rate structure is necessarily aggregated to allow the construction of implementable tiers, and can not necessarily be decomposed to specific levels of consumption comparisons.

**Q6.** On slide 26, it states that the study “identified neighborhoods and individual customers with affordability challenges” and “understood their key customer characteristics” and “incorporated that understanding into the cost of service and rate design”. Can you please explain what “incorporating that understanding into the cost of service and rate design” actually means? How would the proposed rate design be different than what is proposed if affordability had not been a consideration at all?

The cost of service study did use all data available to identify at-risk customers and was able to create a consumption profile based on that data. This information was used in the study in order to measure the impact of proposed rate adjustments on this specific type of user. Doing so indicates that the majority of single-family customers within this classification would find their consumption is contained in the first and second volumetric tier for the proposed structure. The first and second tier based on the cost of service study only includes small allocations of peaking cost. Using the data, the cost of service study also identified the new multi-family customer class, which has unique usage characteristics. Although multi-family accounts do not serve only at risk residents, a large proportion of at risk residents live in multi-family properties. The cost of service study used empirical data, industry accepted methodologies and best practices to identify and calculate the ongoing costs to serve each rate classification, and to develop the rates based on those costs. Neither affordability nor the income level of residents was a factor in the development of the rates.

**Q7.** Also on affordability, it appears the objective was to identify an approach that focused on a rate structure that contained costs for low-income customers and that creating a multi-family classification was the chosen mechanism (multi-family as a proxy for low-income). I was even told the committee “walked” the areas/districts where there were water shut-offs. Can you please speak to that including whether there was any consideration given to lower-income single-family residential customers? If not, what mechanism would be available to contain the costs for those lower-income single-family residential customers?

The affordability objective in this study was to identify at-risk customers and estimate the impact of any proposed changes on them. A multi-family customer class was established to reflect the usage trends of multi-family customers, which display a distinctly different profile than other customers in the commercial rate class, which is the class under which most multi-family customers are currently charged. For at risk single-family residential customers, resources outside of the enterprise fund could be utilized for the express purpose of affordability and would not conflict with cost of service principles or the current legal environment in Michigan for water rates. Staff is not aware of Areas/Districts of water shut-offs that were “walked” by committee members.

**Q8.** Regarding slide 14, the December 20, 2017 presentation version of this slide had all the same numbers, but also included the statement, “Proposed rates include revenue increase of \$1.9M to conform with cost to serve.” Is it accurate that residential customers under the re-structuring will immediately be paying \$1.9M more a year? If so, was any consideration given to phasing in the new rate structure over an extended period? I’m assuming there would not be any reason the new structure could not be phased-in over time, but can you please confirm.

The cost of service study found that the single-family residential rate class would need to recover \$1.9M more in revenue to conform to the cost to serve this rate class. Phasing is problematic due to ongoing subsidies between rate classes and revenue shortfalls.

**Q9.** One question I’ve been asked several times relates to system capacity and existing vs new customers. Specifically, given that we have adequate capacity to serve existing customers and that any pressures on capacity are from new developments (largely student apartments), how can it be fair/what is the justification to significantly raise single-family residential rates and reduce multi-family rates and are the new developments paying their fair share for the incremental demand they are generating? Can you please provide answers to those questions.



The cost of service study uses empirical data, industry accepted methodologies and best practices to properly develop the cost to serve each rate classification for ongoing cost, and not expansion related cost. New connections/developments are appropriately charged capital recovery charges in accordance with City Code, Chapter 27 & Chapter 28. The cost to serve new developments are not being borne by increased cost to single-family customers.

**Q10.** Also on new development, I was told that in response to a question regarding how much it cost to build the infrastructure to service new development, the response was there was “no impact”. Can you please elaborate on that as it doesn’t make sense. (If new development, and its incremental volume, has “no impact”, how does it then make sense to re-structure pricing by customer class based on incremental usage?)

The City has a capital recovery charge through which new growth pays for its incremental new demands placed on the system. The cost to serve residential customers is driving the increase in their revenue recovery, not growth. Through this mechanism growth pays for growth. The cost of service study uses empirical data, industry accepted methodologies and best practices to properly develop the cost to serve each rate classification for ongoing cost, and not expansion related cost.

**Q11.** Regarding multi-family customers, do we have a sense of what percentage of multi-family dwellings/apartment complexes have individually metered units and charge by usage?

The multi-family rate classification applies only when a water meter serves more than two residential units; the rate applies to the water flow measured by the meter.

**Q12.** What will be the impact of the proposed rate re-structuring on UM – will they be paying more or less and roughly how much more or less?

The University of Michigan has a multiple different service connections to Ann Arbor’s municipal water system and is treated the same as every other customer.