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STATE OF MICHIGAN
WAYNE COUNTY CIRCUIT COURT

AJAX METAL PROCESSING, INC.,
a Michigan corporation, individually
and as representative of a class of
similarly situated persons and entities,

Plaintiff,

v.

CITY OF DETROIT,
a municipal corporation,

Defendant.

Case No. 23-015314-CB
Hon. Annette J. Berry

Hearing Date:
September 18, 2025 at 11 a.m.

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PLAINTIFF'S BRIEF IN OPPOSITION TO DEFENDANT'S MOTION FOR SUMMARY DISPOSITION PURSUANT TO MCR 2.116(C)(10)

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I. INTRODUCTION

This is a certified class action challenging the "Inclining Block Water Rates" (the "Block Rates") imposed by the City of Detroit (the "City"), on customers who have received tap water from the City since August 2022. The Block Rates are based upon the volume of water used by customers and are determined by reference to how many "MCF" (a thousand cubic feet, or about 7,480 gallons) is used by each water customer each month. The City charges customers one rate (initially $25.04 per MCF) for the first 0.6 MCF (about 4,500 gallons) they use per month and a significantly higher rate (initially $44.92 per MCF) for all monthly usage in excess of 0.6 MCF. For the sake of clarity, Plaintiff will refer to these rates as the "Tier 1" and "Tier 2" rates.

This is a "rate discrimination" case. The City's use of the Block Rates results in high-volume water users (the "Significant Users," as defined below), being charged amounts far in excess of the amount the City actually incurs to service those users (the "Block Rate Overcharges"). The Block Rate Overcharges allow the City to charge low volume water customers much less than the amount the City actually incurs to service those users, even though there is no meaningful per-gallon difference in the cost of servicing each class of users. The Significant Users subsidize these costs through the higher Tier 2 Rates they are forced to pay.

The two "tiers" adopted by the City bear no reasonable relationship to a difference in costs associated with servicing the two "tiers," but instead have been carefully crafted to move the financial burden of paying the City's costs of providing water service off of most residential customers and on to commercial and industrial users. Notably, nonresidential users comprise over 75% of the usage volume in Tier 2. Further, **95% of the total usage of commercial customers and 99% of the total usage of industrial customers falls within Tier 2**. *See* Ex. 21 hereto.

Plaintiff seeks a refund of the City's Block Rate Overcharges under two legal theories: (1) as applied to Significant Users, the City's Rates violate City Charter § 7-1202, which mandates that the

City "establish equitable rates to be paid" for water service (Count II) and (2) as applied to Significant Users, the Block Rates are arbitrary, capricious, and unreasonable (Count IV). The Court has certified a class of approximately 39,000 Significant Users.

This case is not suitable for summary disposition in favor of either party. Under Michigan law "**[t]he determination of 'reasonableness' [of municipal utility rates] is generally considered by courts to be a question of fact.**" *Trahey v. City of Inkster*, 311 Mich. App. 582, 595; 876 N.W.2d 582 (2015) (emphasis added). The same is true for the determination of whether the City's Rates are "equitable," as required by the Charter. *Attorney General v. Ankersen*, 148 Mich. App. 524, 553, 385 N.W.2d 658 (1986) (equitable means "[just], fair, and right, in consideration of the facts and circumstances of the individual case."). Moreover, this case involves a classic "battle of the experts" in municipal utility ratemaking. Where, as here, two qualified experts render conflicting opinions, the resolution of the experts' disagreement is for the fact-finder. *See* discussion, *infra*, of *People v. Unger*, 278 Mich. App. 210, 230, 749 N.W.2d 272 (2008) and other authorities.

Nonetheless, the City has brought a motion for summary disposition pursuant to MCR 2.116(C)(10) asking the Court to rule **as a matter of law** that its Block Rates are both reasonable and equitable. For the reasons set forth below, however, the Court should deny the City's Motion.

II. FACTUAL AND PROCEDURAL BACKGROUND

Plaintiff is an industrial water customer of the City and has paid the Block Rates. Plaintiff is a "Significant User," which definition includes all City water customers who/which per their water meters consume an average of at least 1 MCF of treated water per month from the City.[1]

A. MUNICIPAL WATER RATES 101

Plaintiff's expert, John Damico' provides a detailed tutorial regarding how City establishes its

[1] Plaintiff's expert, John Damico, has determined that, at an average usage of 1.0 MCF per month, a user pays more under the Block Rate structure than they would pay under a "uniform" rate structure. *See* Ex. 4, Opinions, pp. 3-5.

Water and Sewer Rates—including an explanation of the three steps needed (Revenue Requirement, Cost of Service Study, and Rate Design Analysis) to establish these Rates. *See* Ex. 3 hereto, Affidavit of John Damico ¶¶ 1-14. Plaintiff relies upon and incorporates the facts stated in Mr. Damico's affidavit in support of this response.

B. THE CITY'S INCLINING BLOCK RATE STRUCTURE

Prior to August 2022, the City's volumetric water rates were **uniform**, meaning the City charged "a constant unit price for all metered volumetric units of water consumed on a year-round basis." M1 Manual at p. 109. "Uniform rates are usually considered equitable because all customers pay the same unit price for general water service. ... With uniform rates across all customer classes, the appearance of large-volume customers subsidizing small-volume customers, or vis versa, is avoided." *Id* at p. 111.

Beginning in August 2022, the City implemented the Block Rates. "Increasing block rates … charge increasing volumetric rates for increasing consumption." *Id.* at p. 123. Under this structure, each customer's **per gallon** cost of water can be different based upon the total volume of water consumed by each customer.

The Stantec Rate Study sets a base rate for each user of $25.04 per MCF for the first 0.6 MCF per month (4,488 gallons) and $44.92 per MCF for all water use above 0.6 MCF per month. Stantec stated that "[t]he water system incurs additional costs to meet peak demands; therefore, allocating peak costs to tiers in this way shifts peak costs to the customers who contribute to increasing peak demands." Stantec Report (Ex. 2) at pp. 10.-11

III. THE GOVERNING LAW

We begin with a recitation of the legal principles which govern Plaintiff's claims.

A. MUNICIPAL UTILITY RATES MUST BE "REASONABLE."

First, Michigan courts enforce the common law requirement that municipal utility charges be

"reasonable." *Mapleview Estates v. City of Brown City*, 258 Mich. App. 412 (2003). As an initial matter, "Michigan courts have long recognized the principle that municipal utility rates are presumptively reasonable." *Trahey v. Inkster*, 311 Mich. App. 582, 594, 876 N.W.2d 582 (2015). "Yet, this presumption is just that—a presumption—and it can be overcome by the plaintiff with a showing of sufficient **evidence** to the contrary." *Shaw v. City of Dearborn*, 329 Mich. App. 640, 655; 944 N.W.2d 153 (2019) (emphasis added).

More recently, in *Youmans v Charter Twp of Bloomfield,* 336 Mich App 161; 969 NW2d 570 (2021) the Court clarified the standard a plaintiff must meet in order to demonstrate that a municipal utility's rates and charges have been unreasonable. In *Youmans*, the Court of Appeals considered claims which alleged, among other things, that Bloomfield Township's water and sewer rates were unreasonable because they included improper cost components. Although the Court of Appeals reversed the circuit court's judgment in favor of plaintiff, it did so in a way that confirms the validity of Plaintiff's claims here:

> Whether the Township would receive an unjust "benefit" from retaining the disputed rate charges in this case depends on whether the water and sewer rates, viewed as a whole, were unreasonable inasmuch as they were "excessive," … . [*Youmans*, 336 Mich. App. at 219 (emphasis added).]

A court must bear in mind that "**[t]he determination of 'reasonableness' [of municipal utility rates] is generally considered by courts to be a question of fact.**" *Trahey,* 311 Mich. App. at 595 (emphasis added). In *Trahey*, the COA held a court may disregard the presumption that a rate is reasonable if a plaintiff challenging municipal water rates provides "clear evidence of illegal or improper expenses included in a municipal utility's rates."

B. THE CITY'S CHARTER REQUIRES THAT ITS RATES BE "EQUITABLE," WHICH IS A SELF-IMPOSED LIMITATION THAT IS INDEPENDENT OF COMMON LAW REQUIREMENTS.

The City's Charter, § 7-1202 (Ex. 5 hereto) provides that the City must "establish equitable rates to be paid" for all water services. *See also* Charter § 9-508(2) ("Except as provided by section 7-

1202, the City shall, by ordinance, fix just and reasonable rates and such other charges as may be necessary for supplying city utility services to the residents of the City and others"). These are limitations on Water Rates imposed by the citizens of the City, which are binding on the City.

A city may not take an action "that contradicts limitations expressly provided in the city's charter." *Bivens v. City of Grand Rapids*, 443 Mich. 391, 399, 505 N.W.2d 239 (1994).

The term "equitable" means "[just], fair, and right, **in consideration of the facts and circumstances of the individual case.**" *Attorney General v. Ankersen*, 148 Mich. App. 524, 553, 385 N.W.2d 658 (1986) (emphasis added). The City's expert, Mr. Rothstein, concedes that an "equitable" rate is one that is "fair, impartial, reasonable, and non-discriminatory." *See* Ex. 20 at p. 5. Thus, Rates can be "inequitable" even if they are not unreasonable under the common-law.

C. INCLINING BLOCK RATES WILL ONLY BE SUSTAINED IF THEY ARE "COST-BASED" – I.E., THE RATES MUST REFLECT THE DIFFERENCE IN COSTS ASSOCIATED WITH SERVICING EACH TIER.

Michigan courts have not meaningfully addressed the propriety of inclining block rate structures, but federal courts and the courts of other states have prescribed the limitations on the use of such structures.[2] These court decisions confirm that inclining block rate structures like the City's Block Rates are not fair and equitable unless the tiers correspond to the difference in a utility's cost of providing service for each tier. *See e.g. Southern Natural Gas Co. v. FERC*, 877 F.2d 1066 (D.C. Cir. 1989). The difference in Rates between tiers must be "cost-justified." *Id.* at 1073. *See also Capistrano Taxpayers Ass'n, Inc. v. City of San Juan Capistrano*, 235 Cal. App. 4th 1493, 186 Cal. Rptr.

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[2] In *Mackinaw Area Tourist Bureau, Inc. v. Village of Mackinaw City*, COA Case No. 361625 (2024) (Ex. 6 hereto), the principal issue was whether the Village could impose increased water rates to fund new infrastructure improvements. In reaching its decision, the COA briefly addressed the Village's inclining block water rates. The Village implemented inclining block rates because, as a summer vacation destination, the summer peak usage was much higher than the usage at other times of the year. Notably, the COA did not hold that inclining block water rates are always lawful. Instead, the COA held that the plaintiffs in that case did not prove that the rate structure was unreasonable. *See Id.* at p. 17 ("The mere fact that the Village used a tiered rate structure is not per se evidence that the rate is disproportionate. Plaintiffs must offer evidence to support their position, and they failed to do so."). In contrast, Plaintiff has adduced overwhelming evidence that the City's Block Rates are unreasonable.

362 (Cal. 4th Dist. 2015) (Ex. 7 hereto) (holding that inclining block rate structures must reflect the difference in costs associated with servicing each tier); *Patz v. City of San Diego*, 2025 Cal. App. LEXIS 489 (2025) (Ex. 8 hereto). This is not a controversial point, as even Stantec concedes that tiered rates must be "based on the cost to serve." *See* Ex. 2 hereto at p. 2; Ex. 18 at pp. 162-162.

IV. THE CITY'S MOTION FAILS TO ADDRESS THE SIGNIFICANT EVIDENCE ADDUCED BY PLAINTIFF THAT COULD CAUSE A REASONABLE FACT-FINDER TO CONCLUDE THAT THE RATES ARE UNREASONABLE AND/OR INEQUITABLE AND THEREFORE RESULTED IN OVERCHARGES TO SIGNIFICANT USERS.

As an initial matter, there is a glaring omission in the City's Motion: it does not meaningfully address the impact of the ample evidence, including the admissions of Andrew Burnham of Stantec (who developed the City's Rates) and Eric Rothstein (the City's expert), which create genuine issues of material fact as to whether the City's Block Water Rates are reasonable and equitable. Indeed, that evidence – which the Court must view in the light most favorable to Plaintiff pursuant to MCR 2.116(C)(10) – highlights at least three fatal flaws in the Block Rate structure, which cause demonstrable Overcharges to Significant Users.

A. Fatal Flaw No. 1 – The City's Inclining Block Rates Are Applied On A System-Wide Basis To All Customer Classes, In Derogation Of Well-Established Rate-Making Principles Repeatedly Acknowledged By Burnham and Rothstein.

First, the M1 Manual warns that inclining block rate structures cannot equitably be applied system-wide to all customer classes. Before this case, Burnham and Rothstein readily agreed.

1. The Applicable Guidance From The M1 Manual[3]

The M1 Manual clearly states that, "[u]nless used with a small, highly homogeneous customer base, system-wide application of a single increasing block rate structure is likely to result in

[3] The M1 Manual clearly is the "bible" of water ratemaking. Burnham testified that the M1 Manual "is devoted to the development and guidance of practices for rates which includes rate structures." Burnham Dep. (Ex. 18 hereto) p. 10. He agreed it provides guidance to ratemaking professionals concerning water rates, and "in many instances" it is

cost-of-service inequities, especially to commercial and industrial customers with relatively uniform consumption patterns (low peak demands but high total usage"). M1 Manual (Ex. 1 hereto) at p. 124. The M1 Manual explains why system-wide inclining block rates should not be implemented:

> These larger-volume customers may not impose costs on a water system proportional to the unit costs implied by increasing block rates. ... A single system-wide increasing block rate design applied to a customer base with diverse consumption patterns is more difficult to justify on a cost-of-service basis than increasing block rates designed for specific customer classes within which there are relatively homogeneous consumption patterns. [*Id.*]

The whole rationale for an inclining block rate structure is that a water utility incurs higher costs **per gallon or other unit of measure** to provide water at higher volumes and therefore the rates can be set in recognition of this cost differential. To defend its rate structure, Stantec claims that high usage volumes cause "peaking," and therefore has set rates to recover the purported "peaking" costs in the Tier 2 rates. However, the M1 Manual warns that, as applied particularly to nonresidential users, that is not necessarily the case because of the "diverse consumption patterns" of that class of users. In other words, large volume users do not necessarily cause system "peaks," yet they are forced to pay for virtually all of the City's "peaking costs."

Remarkably, the Stantec Rate Study explicitly states that it relied on the M1 Manual—while at the same time disregarding its guidance. *See, e.g.*, Stantec Rate Study at p. 18; Burnham Aff. (Ex. 10 hereto at ¶ 5 (stating the Rate Study relied upon the M1 Manual). And Burnham has observed that nonresidential customers in the City actually exhibit the type of "diverse consumption patterns" that render system-wide inclining block rates inequitable. *See* Stantec Rate Study at p. 11 (fn. 12) ("Sewer caps are appropriate for residential customers that have relatively homogenous usage profiles, **compared to the wide variability of usage in commercial customers** that can make sewer caps problematic.") (emphasis added).

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deemed authoritative and routinely relied upon. *Id.*, p. 9.

2. Burnham Repeatedly Has Contended That System-Wide Inclining Block Rates (i.e., Block Rates Applied To All Customer Classes) Are Inequitable

Consistent with M1 Guidance, Burnham has cautioned at least two other municipal water utilities against imposing system-wide inclining block rates because, as applied to nonresidential customer classes, such rates are unfair and inequitable. For example, in a 2018 rate study for the City of Ann Arbor (Ex. 11 hereto), Burnham recommended an inclining block rate structure just for the residential class, and a uniform rate structure for all other classes, including non-residential users. *Id.* This is what Burnham said to justify the distinct rate structures:

> **As a class, it is well established and supported by data (as is the case here) that Residential customers use water differently than Non-Residential, Multifamily, and Water Only customers. However, for customers within a class, such as different types of Non-Residential customers, there needs to be a rationale, data and a system for developing a structure that is fair and based on the cost to serve. Within the Non-Residential class, there is a wide variety of business types with different levels of water usage requirements and metering configurations, such that charging a tiered volumetric rate for this customer class would not be fair. …**
>
> Because Non-Residential customers have no standard activity to determine a fair way to allocate the cost of service in the pricing structure, a flat rate is the most equitable in the absence of the data, system and resources to establish and maintain individualized customer-specific tiers. [Ex. 11 hereto p. 36 (emphasis added)].

In another study authored by Burnham on behalf of Stantec for the James City Service Authority (Ex. 12 hereto), Mr. Burnham again confirmed the inequity of a system-wide Block Rate Structure, expressly recommending and opining:

> Continue to apply a single water usage rate to all use for multi-family residential and non - residential customers based upon the portion of revenue required to be recovered in usage-based rates divided by total volume. A single usage rate is the best practice for this customer class given the significant difference in demand drivers from one customer to the next. For example, a car wash, restaurant and office are all contained in the non-residential customer class but have significantly different demands that they place on the utility system. **Using a tiered structure, such as what's applied to single family customers, would create large inequalities between customers who are efficient in meeting their demands but happen to require more water and have no ability to curtail usage.** [*See* Ex. 12 hereto, Stantec Water and Sewer Rate Study – Final Report for James City Services Authority.]

Burnham's recommendations to Ann Arbor and James City are fully consistent with M1 guidance. Even though they are equally applicable to the City of Detroit, Stantec disregarded them.

3. Before Being Retained In This Case, Rothstein Repeatedly Agreed With Stantec's Position That System-Wide Inclining Block Rates Are Inequitable As Applied To Non-Residential Customers

Burnham is not alone. Outside of this case, the City's expert, Eric Rothstein wholeheartedly agreed that that system-wide inclining block rates are inequitable. In an article he authored titled "Building Better Water Rates for an Uncertain World" (Ex. 13 hereto), Rothstein observed that "system-wide inclining block rates often have the effect of penalizing often (sic) relatively efficient large users simply for being large." *Id.* at p. 44. Rothstein warned that "[p]oorly designed inclining block rates can be less effective in promoting efficiency than well-conceived declining or uniform volume rates, and **they can impose profound inequities**." *Id.* (emphasis added). Rothstein observed that, if "higher volume" customers "do not exhibit higher peak demands" they "may be no more expensive to serve" than lower volume users. *Id.* p. 42. Yet, Stantec's Block Rate structure assumes (wrongly) that higher volume customers necessarily "exhibit higher peak demands," justifying the recovery of almost all of the peaking costs through the Tier 2 Rates.

Specific to this case, Rothstein acknowledged that the profound inequities he forecasted in his article would occur if the City implemented a system-wide block rate structure. In 2016, the City convened a "Blue Ribbon Panel on Affordability" (the "Panel"), which was designed to explore the "options that may be implemented by DWSD to address low-income customer needs." *See* Ex. 14 hereto (excerpts). Rothstein was the chair of the Panel and signed its ultimate report. In that report, Rothstein recognized that the proposed differentiated Block Rates had to be based upon the City's costs. Rothstein stated that the "increasing block rate structures" should "be based on cost-of-service principles." *Id.* at p. 2. And, like Stantec, Rothstein acknowledged that "[r]ate blocks

appropriate for residential use are unlikely to be appropriate for industrial accounts." *Id.* at p. 17, n. 24. Yet, Rothstein now defends the City's system-wide inclining block rates.

B. FATAL FLAW NO. 2 – THE CITY'S BLOCK RATE STRUCTURE IS BASED ON THE UNFOUNDED ASSUMPTION THAT HIGH WATER USAGE CAUSES PEAKING AND THE ASSOCIATED PEAKING COSTS

Stantec justifies its inclining block rate structure as follows:

> The water system incurs additional costs to meet peak demands; therefore, **allocating peak costs to tiers in this way shifts peak costs to the customers who contribute to increasing peak demands**. [Stantec Report at p. 10 (emphasis added)].

Based on this rationale, Stantec allocated virtually all of the City's purported "Max Day" and Max Hour" costs to the Tier 2 rates. Because the entire rationale for the rates in Tier 2 is to recover peaking costs "from customers who contribute to increasing peak demands," customers who do **not** "contribute to increasing peak demands" shouldn't have to pay Tier 2 rates.

1. Rothstein Has Destroyed The City's Defense Because He Concedes That The City's Rate Structure Does Not Allocate Peaking Costs Based On Customer Usage Patterns.

In his report (Ex. 20 hereto), Rothstein obliterates the City's stated justification for the tiers by the following truth he acknowledges at p. 29-30:

> "**Detroit charges the same rates for large volume users with high and with low peaking factors and the same rates for low volume users with high and with low peaking factors. Detroit charges the same rates for residential, commercial and industrial customers irrespective of their relative peaking factors**." [Emphasis added].

In short, the City's expert has concluded that the rate scheme that Stantec designed to "shift[] peak costs to the customers who contribute to increasing peak demands" does not actually achieve that objective. Moreover, Rothstein acknowledges that – contrary to Stantec's assumptions – low volume users can have high peaking factors and high volume users can have low peaking factors. **These concessions alone should compel the Court to deny the Motion.**

2. The M1 Manual Obliterates The City's Simplistic Assumption That High Water Use Alone Causes Peaking Costs.

The M1 Manual further destroys the City's baseless assumption that high volume water users contribute more to peaking costs than low volume water users. In addressing "peaking" costs,[4] the M1 Manual confirms two important facts: (1) residential users exhibit higher peak demand requirements than nonresidential users, and (2) high volume users in all classes actually have lower peaking "factors" than lower volume users.

First, at page 73, the M1 Manual addresses the relative peak demands of the various customer classes as follows:

> Demand patterns of various customers differ, depending on their maximum-day and maximum hour rates of demand relative to average demands. For example, **the residential customer class, placing summer lawn irrigation loads on the system, typically has a much higher peak-demand requirement, relative to average demand, than does a large manufacturing facility, which may require water on a relatively uniform basis throughout the year.** These differences in demand can create differences in the cost to serve those customers. [emphasis added].

See also M1 Manual at P. 117 (stating that residential and small commercial customers usually have greater peaking capacity (capacity or demand) factors than large commercial or industrial customers). Stantec's system-wide rate design does not take this into account. Stantec did not attempt to calculate the peaking factors of any customer class but instead relied upon GLWA's peaking factors (purportedly supported by a "Black & Veatch Phase 1 Report," which are developed on a system-wide basis. *See* Stantec Report at p. 98.

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4 "[T]he base extra capacity method uses the difference between class contribution to average demand and peak demand." M1 Manual at p. 84. In the base extra capacity approach, peak rates of use are usually designated by maximum day and maximum hour rates of use. M1 Manual at pp. 75-76. Extra capacity costs for maximum day and maximum hour service are incurred in providing facilities to furnish water at varying rates above the average. *Id.* at p. 81.

Maximum rates of use may be expressed in terms of a peaking factor, that is, a percentage relationship of the estimated class maximum rate of use to average annual rate of use. *Id.* at p. 76. The acknowledged objective of inclining block rates is to push the costs of meeting peak water demands to those individual customers contributing the most to the peaks. *Id.* at p. 97.

Second, the M1 Manual also acknowledges that a high use customer in any customer class does not necessarily contribute to peaking simply because it uses a lot of water.

> Generally, large-volume users, as a class, have a lower peak-to-average peaking factor (i.e., relationship of peak use to average use) with correspondingly lower extra-capacity requirements and related costs than do smaller-volume users as a class. [M1 Manual, at p. 117].

In derogation of this guidance, Stantec's rate study wrongly assumes that high-volume users have higher peaking contributions than low-volume users.

C. FATAL FLAW NO. 3 – THE CITY'S INCLINING BLOCK RATES ARE INEQUITABLE AND UNREASONABLE BECAUSE THE TIERED RATES DO NOT REASONABLY REFLECT THE CITY'S COSTS OF SERVICING EACH TIER

Stantec admits that rates should be based on the cost of service. Burnham Dep. at pp. 15-16. But Rothstein admits that "system-wide inclining/declining block rates" "ignore cost-causation." Rothstein article (Ex. 13) at p. 43.

The Block Rates ultimately devised by Stantec are not based upon "cost-of-service principles." The Stantec "break" between Tier 1 and Tier 2 is pure fantasy, and was admittedly established to reflect a predetermined amount of water usage that Stantec determined was "estimated indoor residential water usage" by four people per household. Stantec Report at p. 9. The City's water customers "consume" about 2.5 million MCF per year. Based on Stantec's rate study, the City claims that delivering the first 854,602 MCF costs the City only $21 million, but delivering the remaining 1,733,183 MCF (slightly more than twice the Tier 1 volume) costs the City almost four times as much ($77 million).

In *Patz v. City of San Diego*, 2025 Cal. App. LEXIS 489 (2025) (Ex. 8 hereto), the Court invalidated the inclining block rate structure imposed by the City of San Diego on the grounds that it violated a provision of the California Constitution which, like Michigan's common law, required

that municipal water rates not exceed the proportional cost of the service to each property owner.[5] The *Patz* Court recognized that tier breakpoints arbitrarily based upon the "assumed use of water" by single-family residential users are **not** based on costs (2025 Cal. App. LEXIS 489 at *36).

Moreover, Stantec states in its Report (p. 16) that the Tier 1 rate should be applied to water use that is consistent throughout the year" and that it should allocate peaking costs to Tier 1 and Tier 2 "in proportion to the contribution to the peak demands on the system from use in each tier." However, the City's Block Rate structure created by Stantec does neither. First, spreadsheets recently produced by the City show that the monthly water usage of all customers is never less than 190,000 MCF. *See* Ex. 21 hereto (showing lowest use of 190,000 MCF in February). This translates into annual "consistent" usage of at least 2,280,000 MCF. Yet, the City applies its Tier 1 rate only to 854,602 MCF.

Second, the City does not "allocate peaking costs" to Tier 1 and Tier 2 "in proportion to the contribution to peak demands on the system from use in each tier." Stantec did not even purport to properly calculate the cause of the actual peak demands on the system, but instead merely measured the "peaking" by calculating the volume of usage and assuming, in derogation of M1 guidance, that the volume of use correlates to peak use. In *Patz*, however, the Court observed that "peak use" "depends on when the water is used, not on the overall volume used in a monthly or bi-monthly period." *Id.* at *36.

Finally, the City's explicit policy goals further confirm that the tiers are not cost-based. In its Motion, the City explicitly argues that the Tier 1 rates are designed to "cover essential water usage." City Brief at p. 4. The City's admission confirms that the Tiers were not designed to be "cost-

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[5] Notably, San Diego applied its inclining block rate structure only to single-family residential customers. Non-residential water users were charged a uniform rate because those users "vary greatly in both size and the nature of their operations," while the single family residential class is "relatively homogenous." *Id.* at *15. The City acknowledged that, if applied to non-residential customers, an inclining block rate structure "would be inequitable because the larger sized

based." Instead, Stantec simply asked: what level of usage will allow customers to "cover" their "essential water usage" and then arbitrarily determined the purported costs the City incurs to provide "essential water usage." The profundity of the City's admission appears lost on the City.

V. PLAINTIFF'S PURPORTED FAILURE TO PRESENT A "COST OF SERVICE" STUDY CANNOT JUSTIFY A GRANT OF SUMMARY DISPOSITION IN FAVOR OF THE CITY.

The City first contends that Plaintiff cannot establish that the City's water rates are inequitable because it did not perform a "cost of service (i.e., rate study)." City Br. at p. 11-12. The Court should reject this argument, for at least two reasons.

A. In a Case Like This One—Challenging Discriminatory Rates—a Plaintiff Is Not Required To Present A Cost of Service Study.

First, this is not a "gross overcharge" case, which alleges that a municipality's utility charges are unreasonable because they generate revenues far in excess of the municipality's cost-of-service and therefore overcharges all customers. It is a rate discrimination case, which doesn't require a Plaintiff to show that a municipal utility has overcharged in the aggregate. Instead, Plaintiff claims that one group (the Significant Users) is overcharged so that the City can undercharge another group. With the exception of Plaintiff's challenge to the inclusion of bad debt expense in the water rates, Plaintiff's case challenges the City's rate design, which discriminates against Significant Users and therefore overcharges those Users. As noted, the City's Charter requires that its Water Rates be "equitable," and the City's expert, Mr. Rothstein, concedes that an "equitable" rate is one that is "fair, impartial, reasonable, and non-discriminatory." Rothstein Report (Ex. 20 hereto) at p. 5.

In his Affidavit, Mr. Damico explains why a full cost-of-service study was not necessary in this case. *See* Ex. 3, ¶¶ 9, 15. Stated simply, the rate design issues presented by this case are not reliant on a cost-of-service study, which is a different step in the rate-making process. *Id.*

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customers would always pay rates in the highest tiers even when they use water efficiently for their size." *Id.*

B. YOUMANS DOES NOT REQUIRE A COST-OF-SERVICE STUDY

Second, the law does not require that Plaintiff conduct a cost-of-service study. *Youmans* expressly holds that, without a rate study, a plaintiff challenging municipal utility charges can still meet its burden of proof by submitting "some similar evidence demonstrating that the disputed rates excessively compensated the [City] for the related utility services." 336 Mich. App. at 220. Plaintiff has clearly done so here.

VI. THE CITY'S WATER RATES INCLUDE "IMPROPER EXPENSES," BUT DISCRIMINATORY RATES ARE UNLAWFUL EVEN IF THE REVENUE REQUIREMENT IN THE AGGREGATE IS NOT INFLATED.

The City next alleges that its Rates are equitable because they recover only the costs of operating the system and do not include impermissible charges (City Br. at pp. 12-14). The City alleges that "[a]side from its complaint about bad debt expense, Plaintiff does not (and cannot claim) that the City's water rates recover any other illegal or improper expense unrelated to the water system." City Br. at p. 15. The Court should reject this argument because (1), by including millions of dollars of bogus "bad debt" expense in the Rates, the City **has** included "improper expenses" in those Rates and (2) that the City argues that a plaintiff must show that utility rate revenues have been diverted to non-utility purposes, this is simply a misstatement of the applicable legal standard.

A. THERE ARE GENUINE ISSUES OF MATERIAL FACT AS TO WHETHER THE CITY'S INCLUSION OF "BAD DEBT" EXPENSE IN THE RATES IS IMPROPER.

First, Plaintiff acknowledges that including legitimate "bad debt" expense in the Rates is appropriate for truly "uncollectible accounts." The problem is that the City includes "bad debt" expense in the Rates even though **no** accounts are truly uncollectible.

For example, for FY 2023, the City included $10,120,810 of Bad Debt Expense in the volumetric Water Rates, purportedly to cover Water Charges the City expects will go unpaid by certain water customers. (See Stantec Rate Study page 104.) This represents over 10% of the total Revenue Requirement the City intended to cover through its volumetric water rates. To state

another way, by including the bad debt expense, the rates are set to generate from paying water customers millions in additional revenues from those customers that the City then uses to cover the costs associated with non-paying water customers. This results in a direct Rate subsidy flowing from paying customers to non-paying customers.

Worse, the purported Bad Debt Expense is grossly inflated because the City ultimately receives, or has the legal ability to receive, virtually all of the revenues it claims it does not initially collect from non-paying water customers. In his recent deposition, Istakur Rahman of DWSD confirmed that if an end user does not pay his or her bill after the City puts the unpaid bill on the tax rolls, the City sends the unpaid taxes (which include the unpaid water charges) to Wayne County, and the City receives the amount of any unpaid bill from Wayne County. Rahman Dep. (Ex. 9 hereto, pp. 12-13). Rahman also testified that if the water and sewer charges remain uncollected after three years, Wayne County "charges back" the unpaid amounts to the City. *Id.*, p. 18.

But Rahman also confirmed that the amounts unpaid after three years total only 30 – 35% of what Wayne County already paid the City in "year one," when Wayne County "writes … a check" to the City. That percentage translates into at least $10 million per year that the City receives from Wayne County. *Id.,* pp. 31-32 (emphasis added).

Rahman further conceded in his deposition that accounting principles dictate that **"if a particular debt is collectable," "it can't be classified as bad debt"** (Rahman Dep. at p. 10) (emphasis added), and that the Rates are higher than they would be if "bad debt" expense was not included. Rahman Dep. at pp. 9. Given these admissions, at the very least, there are genuine issues of material fact as to whether the City's inclusion of "bad debt" expense in the Water Rates renders the Rates unreasonable or inequitable because there are no truly "uncollectible accounts."

B. Plaintiff Has No Burden To Show That The City Is Diverting Water Revenues To Non-Water Purposes.

Second, Plaintiff is not required to prove that the City included components in its rates

"unrelated to the water system." While such facts would be sufficient to invalidate the Rates, they are not necessary. The City's Rates include improper expenses because costs that should be recovered through uniform rates are instead packed into Tier 2 rates, resulting in Overcharges to Significant Users. Moreover, Mr. Rothstein's report states that, to be equitable, Water Rates must be non-discriminatory, which obviously does not require unlawful diversion of Rate revenues.

VII. PLAINTIFF HAS ADDUCED SUFFICIENT EVIDENCE TO CREATE GENUINE ISSUES OF MATERIAL FACT AS TO WHETHER THE CITY'S BLOCK WATER RATES ARE UNREASONABLE AND/OR INEQUITABLE, AS APPLIED TO SIGNIFICANT USERS.

Finally, the City claims that Plaintiff "has not otherwise shown that the City's water rates are unreasonable or inequitable" because (1) Damico's Opinions are flawed (City Br. at pp. 16-17), (2) the City does not have inclining block rates (*Id.*, at pp. 17-18), and (3) Plaintiff's assumption that the tiered rates result in the commercial and industrial water customers subsidizing the City's residential customers is unfounded (*Id.* at pp. 18-19). The Court should reject each of these arguments.

A. THE CITY'S CRITICISMS OF DAMICO'S OPINIONS CANNOT JUSTIFY THE DISREGARD OF THOSE OPINIONS AT THE SUMMARY DISPOSITION STAGE.

Based upon performing a "billing tabulation analysis" of the City of Detroit's fiscal years (FY) 2021 and (FY) 2022 water utility billing system and database components and other data and information identified in his Report (Ex. 4 hereto), Damico reached a number of expert opinions, among others, with a reasonable degree of professional certainty, with respect to the water system rate structure design the City utilized beginning in August 2022 and continuing through the present day. Damico's Report fully describes his opinions and the bases therefore.

Plaintiff denies that Damico's Opinions are marked by the alleged "flaws" outlined by the City in its motion, but one thing is clear: the Court cannot properly grant the City's motion for summary disposition on this basis, because the persuasiveness of Damico's opinions is an issue for the fact-finder after trial. In this regard, the Michigan courts are legion in holding that any "defect in

the expert's testimony goes to its weight, not its admissibility." *Rickwalt v Richfield Lakes Corp*, 246 Mich. App. 450, 458; 633 NW2d 418 (2001). In addition, "an opposing party's disagreement with an expert's opinion or interpretation of facts, and gaps in expertise, are matters of the weight to be accorded to the testimony, not its admissibility." *Bouverette v Westinghouse Electric Corp*, 245 Mich. App. 391, 401; 628 N.W.2d 86 (2001).

Moreover, "[w]hen experts offer conflicting opinions, it is for the jury to decide which testimony to believe." *People v. Unger*, 278 Mich. App. 210, 230, 749 N.W.2d 272 (2008).[6] As the Michigan Court of Appeals observed in *Garcia v. West Shore Med. Center,* 2015 Mich. App. LEXIS 1433 (2015)(Ex. 22):

> "A factual dispute is best settled by a battle of the experts before the fact finder, not by judicial fiat. Where two credible experts disagree, it is the job of the fact finder, not the trial court, to determine which source is more credible and reliable." *City of Pomona v. SQM North America Corp.*, 750 F3d 1036, 1049 (CA 9 2014).

See also Stamler v. Oakland Physicians Med. Ctr., LLC, 2016 Mich. App. LEXIS 472 (2016)(Ex. 23) (disagreement among experts evinces a question for the jury which should not be resolved by the trial court incident to a motion for summary disposition; disagreement of experts' interpretation of facts at the summary disposition stage merely evinces the existence of a material question of fact).

B. THERE IS NO QUESTION THAT THE CITY HAS AN INCLINING BLOCK RATE STRUCTURE

Given that the City's Block Rates are completely untethered to professional ratemaking standards applicable to inclining block rates, the City's only hope is to have the Court conclude that the City's Water Rates are **not** based upon an "inclining block rate" structure. Toward that end, the City has categorically stated to the Court that "**the rate structure designed by Stantec is not an**

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[6] This is true whether the jury or the trial court acts as the trier of fact. *See People v Cazal*, 412 Mich. 680, 689; 316 N.W.2d 705 (1982) (a trial court, sitting as the trier of fact, decides the facts from the evidence presented and applies the law to the facts); *Moore v Walgreen Co*, 2012 Mich. App. LEXIS 2356, at *7 (2012)(Ex. 19) ("Deference is accorded the trial court's resolution of the issues when it is presented with various theories of the experts and the witnesses and

inclining block rate." City Br. at p. 17 (emphasis in original).

But the City's own admissions say otherwise. Indeed, the City has repeatedly stated to the public and its water customers that the rate structure **is in fact** an inclining block rate structure. Here is just some of the proof:

- In a DWSD issued document titled "Explanation of Charges on Your Water Bill," DWSD stated: "The cost of service for each centrum cubic feet* (CCF) of water used during a billing period is recorded by the water meter **and based on the DWSD Inclining Block Rates**. Block 1 provides one rate for every water customer in Detroit that uses 4,500 gallons (6 CCF) of water or less per month, and Block 2 is a higher rate for usage above 4,500 gallons per month as higher volume users put more demand on the water system." Ex. 15 hereto (emphasis added).
- On June 28, 2022, the Mayor and DWSD issued a press release stating that "the plan approved by the Board of Water Commissioners includes **a new inclining block rate structure for water usage that provides a lower water rate to all DWSD customers up to 4,500 gallons per month**." Ex. 16 hereto (emphasis added).
- Remarkably, the City even participated in a YouTube video titled "**How Does DWSD's Inclining Block Rate for Water Usage Impact My Small Business**." In the video, a City representative states that "based upon a comprehensive rate study" "as of August 1, 2022, we launched a two-tier inclining block rate for water usage." *See* Ex. 17 hereto.

The fact remains that, labels aside, there are two separate rates – one for usage up to 0.6 MCF per month and another one for usage above that level. Thus, the Court should easily reject the City's newfound assertion that it does not impose "inclining block rates."[7]

C. THE CITY'S RATE STRUCTURE OVERWHELMINGLY FAVORS RESIDENTIAL CUSTOMERS, BUT CLASS MEMBERSHIP IS BASED ON WATER USAGE, NOT CUSTOMER CLASS.

The City inexplicably attempts to discredit the alleged "conclusory assumption that the two-tier rates result in the commercial and industrial water customers subsidizing the City's residential customers." City Br. at p. 18-19. The City's argument is both factually incorrect and legally irrelevant.

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conflicting testimony." *Citing Buckeye Marketers, Inc v Finishing Servs, Inc*, 213 Mich App 615, 617; 540 NW2d 757 (1995).

[7] Two tiers is sufficient to constitute an inclining block rate structure. Indeed, the primary example of inclining block rate structure given in the M1 Manual only has two tiers. *See* M1 Manual at pp. 127-128. Moreover, Rothstein's own prior description of an inclining block rate structure in his article uses just two tiers. *See* Ex. 13 Article at p. 44. Rothstein even concedes that "there is no **standard** number or size of the blocks …" *Id.* (emphasis added).

First, there is no question that the Block Rate structure disproportionately impacts non-residential water customers. *See* Damico Aff. (Ex. 3 hereto) at ¶ 16. As discussed in the Damico Affidavit, the City's own data proves this. For example, the spreadsheets attached as Ex. 21 hereto reveal the following:

a. Residential customers only comprise **25% of the usage in Tier 2**. *See* Ex. 21 at p. 2 (showing 425,773 MCF of Tier 2 usage by residential customers out of 1,733,182 total MCF).

b. Residential customers comprise over **92% of the usage in Tier 1**. *See Id.* (788,632 MCF of Tier 1 usage by residential customers out of 854,603 total MCF).

c. **94% of the total usage** of commercial customers falls within Tier 2 (695,592 MCF of Tier 2 usage vs. just 47,974 MCF of Tier 1 usage).

d. **99% of the total usage** of industrial customers falls within Tier 2 (464,109 MCF of Tier 2 usage vs. just 4,921 MCF of Tier 1 usage). [Ex. 3 ¶ 16.]

Stantec's rate design, while "facially neutral," and although still ensnaring a small fraction of residential users, clearly was intended to foist a disproportionate share of the City's water costs upon the nonresidential class. Damico Aff. at ¶ 17. Second, the City's argument is legally irrelevant because the Class has been defined to include all water users who use an average of at least 1.0 MCF per month. It is the class definition that controls, not Plaintiff's contentions about which customer class ends up bearing the brunt of the City's overcharges. The fact that the Class includes users in each customer class does not undermine any of Plaintiff's contentions.

CONCLUSION

For all of the foregoing reasons, the Court should deny the City's Motion for Summary Disposition.

KICKHAM HANLEY PLLC
/s/ Gregory D. Hanley
Gregory D. Hanley (P51204)
Date: September 11, 2025 Counsel for Plaintiff and the Class

CERTIFICATE OF SERVICE

I hereby certify that on September 11, 2025 I electronically filed the foregoing brief with the Clerk of the Court using the court's electronic filing system.

/s/ Jamie Warrow
Jamie Warrow

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STATE OF MICHIGAN
WAYNE COUNTY CIRCUIT COURT

AJAX METAL PROCESSING, INC., a Michigan corporation, individually and as representative of a class of similarly situated persons and entities,

Plaintiff,

v.

CITY OF DETROIT, a municipal corporation,

Defendant.

Case No. 23-015314-CB
Hon. Annette J. Berry

Hearing Date:
September 18, 2025 at 11 a.m.

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INDEX OF EXHIBITS

PLAINTIFF'S BRIEF IN OPPOSITION TO DEFENDANT'S MOTION FOR SUMMARY DISPOSITION PURSUANT TO MCR 2.116(C)(10)

EXHIBIT

1. Principles of Water Rates, Fees, and Charges, Seventh Ed. –the "M1 Manual" (excerpts)
2. September 19, 2022 Stantec Rate Study/Final Report - Detroit Water & Sewerage Department (excerpts)
3. September 8, 2025 Affidavit of Plaintiff's Expert, John Damico
4. Plaintiff's Expert, John Damico / Environmental Rate Consultants, Inc. (ERC), "Report of Findings and Opinions"
5. City's Charter, § 7-1202

6. *Mackinaw Area Tourist Bureau, Inc. v. Village of Mackinaw City*, COA Case No. 361625 (2024)
7. *Capistrano Taxpayers Ass'n, Inc. v. City of San Juan Capistrano*, 235 Cal. App. 4th 1493, 186 Cal. Rptr. 362 (Cal. 4th Dist. 2015)
8. *Patz v. City of San Diego*, 2025 Cal. App. LEXIS 489 (2025) (Ex. 8 hereto)
9. July 30, 2025 Deposition Testimony of Istakur Rahman
10. Burnham Aff. (Ex. 10
11. June 27, 2018 Stantec Water and Sewer Cost of Service Study/Final Report - City of Ann Arbor
12. March 21, 2020 Stantec Water and Sewer Cost of Service Study/Final Report –James City Services Authority
13. City's Expert, Eric Rothstein: "Building Better Water Rates for an Uncertain World"
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15. DWSD "Explanation of Charges on Your Water Bill"
16. Mayor and DWSD issued a press release stating that "the plan approved by the Board of Water Commissioners includes **a new inclining block rate structure for water usage that provides a lower water rate to all DWSD customers up to 4,500 gallons per month**."
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18. July 30, 2025 Deposition Testimony of Andrew Burnham
19. *Moore v Walgreen Co*, 2012 Mich. App. LEXIS 2356 at *7 (2012)
20. July 3, 2025, City's Expert Report, Eric Rothstein
21. City Spreadsheets Showing Monthly Water Usage of All Customers
22. *Garcia v. West Shore Med. Center,* 2015 Mich. App. LEXIS 1433 (2015)
23. *Stamler v. Oakland Physicians Med. Ctr., LLC*, 2016 Mich. App. LEXIS 472 (2016)
24. 4937-9990-5384, v. 1

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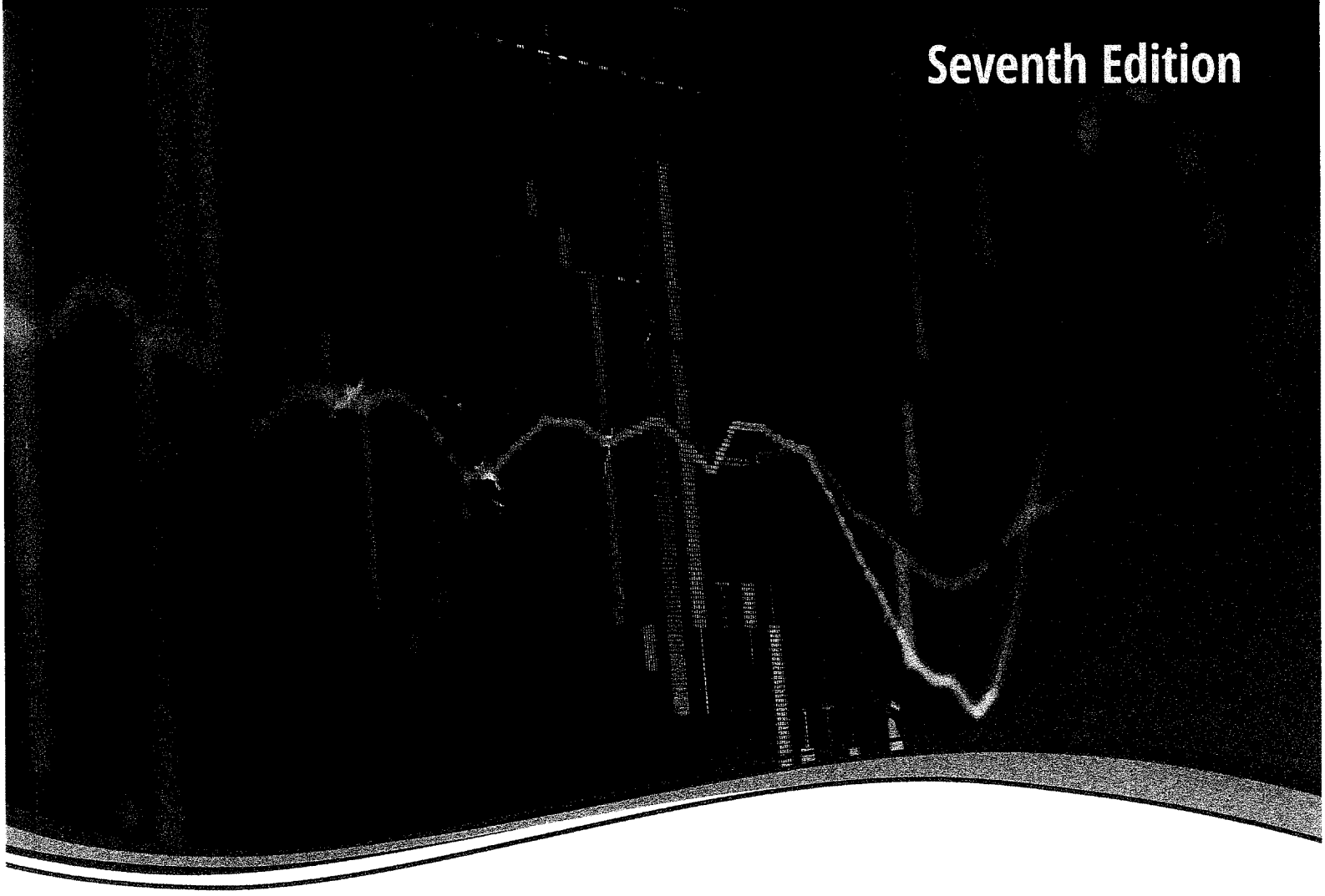
EXHIBIT – 1

Manual of Water Supply Practices

M1

Principles of Water Rates, Fees, and Charges

Seventh Edition



American Water Works Association

Chapter III.2

Distributing Costs to Customer Classes

The preceding chapters explained how utilities determine revenue requirements and how to allocate both operating and capital-related costs to cost components (e.g., base, extra capacity). This chapter presents the final step in the cost-of-service process: distributing allocated cost components to customer classes of service (e.g., residential, commercial).

The ideal solution to developing rates for water utility customers is to assign cost responsibility to each individual customer served and to develop rates that reflect that cost. Unfortunately, it is neither economically practical nor often possible to determine the cost responsibility and applicable rates for each individual customer served. However, the cost of providing service can be reasonably determined for groups or classes of customers that have similar water-use characteristics and for special customers having unusual or unique water-use or service requirements. Rate-making endeavors to assign costs to classes of customers in a nondiscriminatory, cost-responsive manner so that rates can be designed to closely meet the cost of providing service to such customer classes.

CUSTOMER CLASSES

In establishing customer classes, water utilities consider service characteristics, demand patterns, and whether service is provided to customers both inside and outside the owning city's jurisdictional limits. Service characteristic differences may be illustrated by recognizing that customers using treated water require facilities that raw-water customers do not need. Similarly, large-volume industrial customers, wholesale customers, and other large users are often served directly from major treated-water transmission mains, whereas smaller users are served by both large and small distribution mains. Utilities should consider these and other factors when establishing customer classes and their costs of service.

Demand patterns of various customers differ, depending on their maximum-day and maximum-hour rates of demand relative to average demands. For example, the residential customer class, placing summer lawn irrigation loads on the system, typically has a

much higher peak-demand requirement, relative to the average demand, than does a large manufacturing facility, which may require water on a relatively uniform basis throughout the year. These differences in demand patterns can create differences in the cost to serve those customers.

The classification of water customers as either inside or outside the city limits is related to each major group's responsibility for overall costs. As explained in section VI, this classification is important in the allocation of costs of service for government-owned utilities and, in some instances, may have a bearing on investor-owned utilities.

Utilities may need to recognize certain customer classifications from an accounting standpoint because of legal requirements or customs; such requirements can be accommodated in rate studies. However, general service characteristics, facility requirements, demand patterns, and location with regard to city limits are generally the principal considerations in customer classification.

General Classes

It is common for water utilities to have three principal customer classes: residential, commercial, and industrial. Utilities may define these general customer classes differently, but, in very broad terms, the following definitions are common.

- **Residential:** One- and two-family dwellings, usually physically separate
- **Commercial:** Multifamily apartment buildings and nonresidential, nonindustrial business enterprises
- **Industrial:** Manufacturing and processing establishments

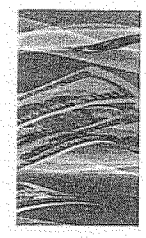
Some utilities may break down these general classes into more specific groups. For example, the commercial customer group may be separated into multifamily customers and commercial customers, or multifamily apartments may be considered part of the residential class. Sometimes this distinction is based on ownership with small owner-occupied apartments considered to be in the residential class and larger nonowner-occupied buildings are part of the commercial class. Similarly, the industrial customer group may be subdivided into small industry, large industry, and special, the latter typified by some unique characteristic(s). Lastly, municipal accounts may be considered separately in some studies.

Many systems, particularly larger ones, have customers with individual water-use characteristics, service requirements, or other factors that differentiate them from other customers with regard to cost responsibility. These customers should have a separate class designation. These classes may include large hospitals, universities and colleges, military establishments, and other such categories.

Because the classification of some customers may be difficult and because there may be large variations within the commercial class, some utilities now classify customers based on meter size. In this case there may be a small meter class (e.g., ⅝-in. and ¾-in. meters), a medium meter class (1–3 in.), and a large meter class (>3 in.). Classifying customers in this manner can eliminate any confusion between a bank and water park that may both be commercial but have very different demand characteristics.

Other Classes

In addition to the general classes of service previously described, water utilities often provide service to certain special classes of customers. Four such classes are wholesale service, fire protection service, irrigation, and outside city limits.



Chapter III.2

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EXHIBIT
Rothstein 9

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The classification of water customers as either inside or outside the city limits is related to each major group's responsibility for overall costs. As explained in chapter V.1, this classification is important in the allocation of costs of service for government-owned utilities and, in some instances, may have a bearing on investor-owned utilities.

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Industrial: Manufacturing and processing establishments

Some utilities may break down these general classes into more specific groups. For example, the commercial customer group may be separated into multifamily customers and commercial customers, or multifamily apartments may be considered part of the residential class. Sometimes this distinction is based on ownership with small owner-occupied apartments considered to be in the residential class and larger non-owner-occupied buildings are part of the commercial class. Similarly, the industrial customer group may be subdivided into small industry, large industry, and special, the latter typified by some unique characteristic(s). Lastly, municipal accounts may be considered separately in some studies.

Many systems, particularly larger ones, have customers with individual water-use characteristics, service requirements, or other factors that differentiate them from other customers with regard to cost responsibility. These customers should have a separate class designation. These classes may include large hospitals, universities and colleges, military establishments, and other such categories.

Other Classes

In addition to the general classes of service previously described, water utilities often provide service to certain special classes of customers. Three such classes are wholesale service, fire protection service, and irrigation.

Wholesale service. Wholesale service is usually defined as a situation in which water is sold to a customer through a master meter at one or more major points of delivery for resale to individual retail customers within the wholesale customer's service area. Usually, the wholesale customer is a separate municipality or water district adjacent to the supplying utility, but it may be in an area within the jurisdiction of

the supplying utility. A more detailed discussion of outside-city and wholesale service considerations is provided in chapter V.1.

Fire protection service. Fire protection service has characteristics that are markedly different from other types of water service. The service provided is principally of a standby nature—that is, readiness to deliver relatively large quantities of water for short periods of time at any of a large number of points in the water distribution system.

Costs allocated to fire protection service as a class can be subdivided to those related to public fire protection service and private fire protection service. The reader should refer to chapter IV.8 for further discussion of fire protection rates and charges.

Irrigation. Irrigation is characterized by the relatively high demands it places on the water system, usually during the late afternoon and early evening hours. Throughout most of the United States, both lawn and agricultural irrigation are very seasonal in nature. Such usage is most pronounced during the summer months and, in some areas, virtually nonexistent during the winter months.

In many instances, irrigation service is not separately metered from other service; therefore, the high peaking characteristics of lawn irrigation need to be recognized as a part of each class's water-use characteristics. However, establishment of a separate class designation is warranted when separate metering for lawn irrigation is available, as is often the case for automatic lawn sprinkling systems, parks, fields, and golf courses, and where such loads are significant in the system. In this case, the significant demands caused by irrigation can be recognized and reflected in the cost to provide this service.

Service outside city limits. Many government-owned utilities recognize in their rate structures the differences in costs of serving water users located outside the corporate limits of the supplying city or jurisdiction compared with those located within the corporate limits. In many cases a government-owned utility may be considered to be the property of the citizens within the city. Customers within the city are effectively the owner customers, who sometimes must bear the risks and responsibilities of utility ownership. Outside-city customers are nonowner customers and, as such, may bear a different responsibility for costs than do owner customers.

The costs to be borne by outside-city (nonowner) customers are similar to those attributed to the customers (nonowners) of an investor-owned utility. Such costs include O&M expense, depreciation expense, and an appropriate return on the value of property devoted to serving the outside-city customers. Chapter V.1 provides a more in-depth discussion of the treatment of outside-city or nonowning customers.

UNITS OF SERVICE

The total cost of each cost component, such as the base cost, is divided by the appropriate total customer service requirements or units of service for all customer classes for each cost component to express a unit cost of service for each cost component. The unit costs of each component serve as a basis for calculating the cost of serving each customer class as well as for designing rates. As a basis for distributing component costs to customer classes, the units of service attributable to the respective classes must be established for the test year. To do so, the utility must determine or estimate the total quantity of water to be used by each class in the test year and the peak rates of use by the class. Peak rates of use are usually designated by maximum-day and maximum-hour rates of use. (In some systems, maximum-week or other peak use periods may be appropriate.) In addition, the utility must determine the number of equivalent meters and services by class, as well as the number of bills by class.

Maximum rates of use may be expressed in terms of a peaking factor—that is, a percentage relationship of the estimated class maximum rate of use to average annual rate of use. Thus, if a customer class maximum-day rate of use is 2.5 times its average annual daily rate, it is said to have a maximum-day peaking factor of 250 percent. Stated another way, using this same example, a class with an average day use of 1.0 million gallons would have a maximum-day peak use of 2.5 million gallons.

To estimate customer class peaking factors, utilities need to investigate and study all pertinent sources of information. Such data should include daily and hourly system pumping records, recorded rates of flow in specific areas of the system, studies and interviews of large users regarding individual and group characteristics of use, special demand metering programs, and experience in studies of other utilities exhibiting like characteristics. Recent technology improvements in automated meter reading (AMR), particularly those associated with a fixed network system, have provided utilities with far greater opportunities to collect demand data applicable to cost-of-service studies. In addition, sound and logical inferences can be drawn from customer billing information, provided billing periods are sufficiently short to reflect seasonal differences, usually not to exceed three-month periods, with monthly billing being preferable for these analyses. Appendix A provides some techniques that can be used to determine reasonable estimates of the maximum-day and maximum-hour peaking factors for each customer class using available system demand data for the utility and customer class billing records.

The total annual volume of water used for fire service is usually negligible, at least in relation to that of other classes; however, peak requirements for fire service can be quite significant. The Insurance Services Office (ISO) periodically defines desired rates of flow for fire service, which is a good source of maximum-capacity requirements for fire service. This data must be applied judiciously to achieve practical cost allocations.

Customer-related costs for meters and services may be properly distributed among customer classes by recognizing factors that are generally responsible for those costs being incurred. As an example, one method for distributing meter-and-service costs to customer classes is in proportion to the investment in meters and services installed for each customer class, based on the number of equivalent meters. Distribution of customer costs by equivalent meter-and-service ratios recognizes that meter-and-service costs vary, depending on considerations such as size of service pipe, materials used, locations of meters, and other local characteristics for various sized meters as compared to ⅝-in. meters and services. In this example, typical customer meter-and-service equivalent ratios based on investment are as follows:

Meter Size, in.	Equivalent Meter Size Ratios Based on Investment
⅝	1.0
¾	1.1
1	1.4
1½	1.8
2	2.9
3	11.0
4	14.0
6	21.0
8	29.0

Table III.2-1 Units of service—Base-extra capacity method (test year)

Line No.	Customer Class	Base Units		Maximum-Day Units			Maximum-Hour Units			Customer Units	
		Annual Use, 1,000 gal	Average Rate, 1,000 gpd	Peaking Factor, %	Total Capacity, 1,000 gpd	Extra Capacity, 1,000 gpd	Peaking Factor, %	Total Capacity, 1,000 gpd	Extra Capacity, 1,000 gpd	Equivalent Meters & Services	Bills
	Inside-City:										
	Retail Service										
1	Residential	968,000	2,652	250	6,630	3,978	400	10,608	3,978	15,652	185,760
2	Commercial	473,000	1,296	200	2,592	1,296	325	4,212	1,620	1,758	14,640
3	Industrial	1,095,000	3,000	150	4,500	1,500	200	6,000	1,500	251	420
4	Fire Protection				840	840		5,040	4,200		
5	Total Inside City	2,536,000	6,948		14,562	7,614		25,860	11,298	17,661	200,820
	Outside City:										
6	Wholesale	230,000	630	225	1,418	788	375	2,363	945	34	48
7	Total	2,766,000	7,578		15,980	8,402		28,223	12,243	17,695	200,868

Appendix B further discusses how to develop the meter-and-service cost ratios previously shown, as well as equivalent meter ratios based on factors such as meter demand capacity.

Costs related to meter reading, billing, and collecting may be distributed among customer classes based on the total number of bills or equivalent billing units rendered to the respective classes in a test year. In some instances, billing ratios are used to recognize that billing, metering, and collection costs for larger services may be greater than for smaller meter-size services. This may be due to difficulty in accessing the meter facility, replacement of meters, multiple dial meters, more customer service time associated with dealing with larger meter customers, and other factors.

Table III.2-1 illustrates the development of the test-year units of service for the example utility, using the base-extra capacity method of cost allocation and distribution. Test-year units of service reflect the prospective average annual customer water use and other service requirements during the test-year study period considered in this example. For purposes of the example in this manual, it is assumed that retail service and fire protection service are provided inside the city to residential, commercial, and industrial classes. Outside-city service is provided on a wholesale basis (see chapter V.1 for a more detailed discussion). The annual usage and number of customers by customer class were previously developed in Table II.2-2.

DISTRIBUTING COST COMPONENTS TO CUSTOMER CLASSES

Table III.2-1 shows, under the heading "Base Units," the total annual water use in thousand gallons for each customer class, as well as the average rate in thousand gallons per day. Maximum-day peaking factors are applied to average day rates of flow to develop total maximum-day capacity by class. Maximum-day extra capacity is defined as the difference between total maximum-day capacity and the average day rate of use. Fire protection service is considered to require negligible flow on an average annual basis but 840 thousand gallons per day (1,000 gpd) on a maximum daily basis (3,500 gpm for 4 hours).

Maximum-hour extra peaking factors for each customer class are applied to average day rates of flow, and the maximum-hour extra capacity units are defined as the difference in the total maximum-hour capacity and the maximum-day capacity. Maximum-hour units for fire protection service assumes that flow for fires is 5,040 thousand gpd (3,500 gpm expressed as a gpd rate = 3,500 gpm × 60 min ×

Table III.2-2 Units of service—Commodity-demand method (test year)

Line No.	Customer Class	Commodity		Maximum Day		Maximum Hour		Customer Units	
		Annual Use, 1,000 gal	Average Rate, 1,000 gpd	Peaking Factor, %	Total Capacity, 1,000 gpd	Peaking Factor, %	Total Capacity, 1,000 gpd	Equivalent Meters & Services	Bills
	Inside City:								
	Retail Service								
1	Residential	968,000	2,652	250	6,630	400	10,608	15,652	185,760
2	Commercial	473,000	1,296	200	2,592	325	4,212	1,758	14,640
3	Industrial	1,095,000	3,000	150	4,500	200	6,000	251	420
4	Fire Protection				840		5,040		
5	Total Inside City	2,536,000	6,948		14,562		25,860	17,661	200,820
	Outside City:								
6	Wholesale	230,000	630	225	1,418	375	2,363	34	48
7	Total	2,766,000	7,578		15,980		28,223	17,695	200,868

24 hours). Maximum-hour extra capacity units for fire protection is defined as the total maximum-hour capacity less total maximum-day capacity, similar to the other classes of service.

Equivalent meters and services are derived by applying equivalent meter-and-service cost ratios to the number of meters of each size by class. The number of bills is simply the total number of bills rendered annually for each class. If customers are billed at different frequencies, care must be taken to reflect this. For example, large customers may get 12 bills per year and smaller customers may get 4 bills per year.

Table III.2-2 shows the development of the units of service that apply to the commodity-demand method of cost allocation. Table III.2-2 differs from Table III.2-1 only in that the incremental maximum-day and maximum-hour extra capacity columns are excluded. Under the commodity-demand method, the total maximum day or maximum hour is used.

In this example, the maximum total capacity, on both a maximum-day and maximum-hour basis, for the total system (shown in Tables III.2-1 and III.2-2) is an estimate of the sum of noncoincidental peaking requirements on the system. That is, it is the sum of the peaks for each class, regardless of the day or hour in which such peaks may occur. Again, Appendix A provides a more thorough discussion of the noncoincidental peaking requirements by customer class and their development.

UNIT COSTS

Unit costs of service are based on total costs previously allocated to each of the cost components and divided by the total number of applicable units of service for the test year. The development of unit costs of service for the base-extra capacity method is presented in Table III.2-3. As explained in the previous chapter, the following tables contain capital cost allocations based on the utility method of determining revenue requirements. This is because the example includes a wholesale customer, which is considered to be an outside-city, nonowner customer. As described more fully in chapter V.1, it is appropriate to use the utility basis of revenue requirements for nonowner customers in order to assess them a fair rate of return in determining the costs of providing service to such customers. The residual cash needs are the total cash expenses after deducting the revenues from outside-city customers. These residual cash needs may then be recovered from the "owners" or inside-city customers.

Most government-owned utilities, particularly those that do not have outside-city service, may choose to allocate their costs based on their cash needs, because most of these utilities use the cash basis of revenue requirement determination. In using

Table III.2-3 Unit costs of service—Base-extra capacity method (test year)

Line No.	Unit Cost Component	Rate of Return Percentage	Total	Base	Extra Capacity		Customer Costs		Direct Fire Protection Services
					Maximum Day	Maximum Hour*	Meters and Services	Billing and Collecting	
	Units of Service								
1	Total System			2,766,000 1,000 gal	8,402 1,000 gpd	12,243 1,000 gpd	17,695 equiv. meters	200,868 bills	
	O&M Expense								
2	Total		$6,837,000	$3,202,390	$955,048	$319,072	$989,367	$1,288,624	$82,498
3	Unit Cost, $/Unit			$1.1578	$113.6740	$26.0613	$55.9122	$6.4153	
	Depreciation Expense								
4	Total		$1,242,000	$548,063	$271,740	$167,816	$216,789		$37,592
5	Unit Cost, $/Unit			$0.1981	$32.3436	$13.7069	$12.2514		
	Nonrate Revenue								
6	Total		($78,000)	($29,000)	($12,000)	($4,000)	($14,000)	($18,000)	($1,000)
7	Unit Rate Base, $/Unit			– $0.0105	–$1.4283	– $0.3267	– $0.7912	– $0.0896	
	Rate Base								
8	Total Rate Base		$48,558,000	$23,572,110	$11,175,548	$6,558,537	$5,974,569		$1,277,236
9	Unit Rate Base, $/Unit			$8.5221	$1,330.1621	$535.6903	$337.6416		
	Unit Return on Rate Base								
10	Outside-City, $/Unit Return on Rate Base (Input)	8.00%		$0.6818	$106.4130	$42.8552	$27.0113		
11	Outside-City Units of Service			230,000	788	945	34		
12	Outside-City Rate Base		$3,525,629	$1,960,081	$1,047,730	$506,337	$11,480		
13	Outside-City Return on Rate Base		$282,050	$156,807	$83,818	$40,507	$918		
14	Inside City, $/Unit Return on Rate Base (Input)	5.20%		$0.4431	$69.1562	$27.8510	$17.5543		
15	Inside-City Units of Service			2,536,000	7,614	11,298	17,661		
16	Inside-City Rate Base		$45,032,371	$21,612,029	$10,127,818	$6,052,200	$5,963,089		$1,277,236
17	Inside-City Return on Rate Base		$2,341,270	$1,123,627	$526,553	$314,659	$310,026		$66,405
18	Total System Return on Rate Base (Calculated)	5.40%	$2,623,320	$1,280,434	$610,372	$355,166	$310,944		$66,405
19	Inside City, $/Unit (Line 3 + 5 + 7 + 14)			$1.7885	$213.7455	$67.2925	$84.9268	$6.3257	$185.495
20	Outside City, $/Unit (Line 3 + 5 + 7 + 10)			$2.0272	$251.0023	$82.2967	$94.3838	$6.3257	

*Maximum-hour demand in excess of maximum-day demand.

the cash-needs revenue requirements, instead of including depreciation and return on rate base as the capital costs, a government-owned utility can replace these items with debt service (including any coverage requirements), and annual capital outlays. Because the annual costs of debt service or cash-financed capital outlays can vary significantly from year-to-year, revenue requirements under the cash-needs approach can also vary significantly. To conform to the objective of rate continuity, those capital costs can be allocated to base and extra capacity components, or to commodity and demand cost components, in the same overall proportion or ratio as the allocation of total net plant investment or rate base. It is assumed that future capital projects (whether debt or cash financed) will be in rough proportion to the past investments in the system, or the net plant value, and the use of the cumulative net plant-value allocation basis for annual capital costs will tend to "dampen out" the variations in the annual additions to the net plant value and will provide for rate continuity.

Unit costs are determined simply by dividing the test-year O&M and capital cost components by the respective total system units of service for the test year. For example, in Table III.2-3 under the base-extra capacity method, the base unit cost for O&M expense of $1.1578 per thousand gallons may be derived by dividing the allocated base O&M expense of $3,202,390 by the total base-component units of service of 2,766,000 thousand gallons. Similar computations are made to determine unit costs for all other O&M expense and depreciation expense. Using the utility-basis approach, the resulting average unit costs for O&M expense and depreciation expense apply to all customers, both inside and outside the city. Allocation of O&M expense and depreciation expense to cost components is presented in chapter III.1.

As shown in Table III.2-3, unit return on rate base is determined by first calculating the unit cost for rate base. The rate base for each cost component is divided by respective total system units of service to yield unit costs for rate base. Subsequently, unit return on rate base is derived by applying the appropriate inside-city and outside-city rates of return to the unit costs for rate base. As discussed in chapters I.1 through II.5, for the government-owned utility to meet total cash revenue requirements under the hybrid utility approach or residual cash-needs approach, the required level of return in the example would be $2,623,320. Based on a total rate base of $48,558,000, the overall required rate of return is approximately 5.40 percent. In this example, it is assumed that the utility provides service to both inside-city and outside-city customers. Generally, where inside-city owners provide service to outside-city nonowners, a differential rate of return is appropriate. In this example, a rate of return of 8.0 percent is assumed and applied to component unit costs for rate base to determine the outside-city unit return on rate base.

In some cases, it may be desirable to calculate the outside-city and inside-city rates of return under the hybrid approach. Total outside-city return is calculated by determining total outside-city rate base and applying the 8.0 percent rate of return. According to the base-extra capacity method, total outside-city rate base is derived by applying the unit costs for rate base from Table III.2-3 to the respective outside-city units of service presented in Table III.2-1. Application of the 8.0 percent rate of return to an outside-city rate base of $3,525,629 results in an outside-city return of approximately $282,050. Once outside-city return is determined, the inside-city rate of return can be calculated as a level sufficient to derive the balance of the total required return or cash needs. In the example, the total required return is $2,793,000. Subtracting the outside-city return of $282,050 leaves a residual amount of $2,341,270, which is the net revenue requirement for inside-city customers.

The inside-city rate of return can be determined by dividing the total return from inside-city customers of $2,341,270 by the inside-city rate base. The inside-city rate base is calculated in a manner similar to that described for developing the outside-city

rate base and totals $45,032,371. As a result, the total inside-city rate of return is determined to be 5.20 percent.

Returning to the unit-cost approach presented in Table III.2-3, inside-city unit return on rate base is developed by applying the 5.58 percent rate of return to the unit costs for rate base. The differential in inside-city versus outside-city rates of return reflects in part the municipality's risk in the ownership of facilities constructed to serve outside-city customers, as well as a return on paid-up equity in system facilities to inside-city customers.

Total unit costs of service are comprised of the O&M, depreciation, the credit for nonrate revenues, and return on rate-base unit costs of service and are shown at the bottom of Table III.2-3 for inside-city and outside-city customers on Lines 19 and 20, respectively. Also included in the table are the costs of service directly allocated to fire protection service. See chapter IV.8 for details on direct and indirect fire protection costs.

Unit costs of service for the commodity-demand method are developed using an approach similar to that used for the base-extra capacity method. Total unit costs of service for inside-city and outside-city customers under the commodity-demand method are summarized at the bottom of Table III.2-4.

DISTRIBUTING COSTS TO CUSTOMER CLASSES: BASE-EXTRA CAPACITY METHOD

The costs of service are distributed to the utility's customer classes by applying unit costs of service to individual customer class units of water service. The total units of service and the unit costs of service for the test year, from Tables III.2-1 and III.2-3 respectively, are summarized in Table III.2-5.

As discussed previously, base costs are costs that would be incurred in supplying water at perfect load factor (i.e., at a continuous, uniform rate), without costs incurred in providing extra plant capacity for variation in the rate of use beyond a uniform rate. The resulting distribution of cost responsibility for base costs is simply a function of the volume of water used by each class.

As shown in Table III.2-5, residential customers are projected to use 968,000 thousand gallons of water in the test year; commercial customers, 473,000 thousand gallons; and industrial customers 1,095,000 thousand gallons. Applying the inside-city unit base cost of $1.7885 per thousand gallons to the respective units of service yields the distributed customer-class base cost of service. By definition, the unit base cost is the minimum rate at which water could be sold (if perfect load-factor use could be achieved) after customer costs are recovered. Outside-city distributed base costs are derived from applying the unit base cost of $2.0272 per thousand gallons to the outside-city base unit-of-service requirements. The higher unit base cost reflects the rate of return differential discussed previously.

Extra capacity costs for maximum-day and maximum-hour service are incurred in providing facilities to furnish water at varying rates above the average. Customer class responsibility for extra capacity costs is determined by applying the unit costs of service to the individual customer-class units of service in a manner similar to that used for determining customer class base costs.

Customer costs, which include the categories of meters and services and billing and collection costs, are generally treated separately in rate studies. Customer costs associated with meters and services (both capital and O&M costs) may be distributed to customer classes on the basis of equivalent meter-and-service cost factors. Meter-and-service costs are based on the total number of equivalent ⅝-in. meters and are

Table III.2-4 Unit costs of service—Commodity-demand method (test year)

Line No.	Unit Cost Component	Rate of Return Percentage	Total	Commodity	Capacity		Customer Costs		Direct Fire Protection Services
					Maximum Day	Maximum Hour*	Meters and Services	Billing and Collecting	
	Units of Service								
1	Total System			2,766,000 1,000 gal	15,980 1,000 gpd	28,223 1,000 gpd	17,695 equiv. meters	200,868 bills	
	O&M Expense								
2	Total		$6,837,000	$1,414,105	$2,450,547	$614,083	$987,143	$1,288,624	$82,498
3	Unit Cost, $/Unit			$0.5112	$153.3535	$21.7583	$55.7865	$6.4153	
	Depreciation Expense								
4	Total		$1,242,000	$36,828	$563,790	$387,000	$216,789		$37,592
5	Unit Cost, $/Unit			$0.0133	$35.2816	$13.7123	$12.2514		
	Nonrate Revenue								
6	Total		($78,000)	($7,000)	($30,000)	($8,000)	($14,000)	($18,000)	($1,000)
7	Unit Rate Base, $/Unit			– $0.0025	–$1.8774	– $0.2835	– $0.7912	– $0.0896	
	Rate Base								
8	Total Rate Base		$48,558,000	$2,633,508	$24,002,797	$14,667,890	$5,976,569		$1,277,236
9	Unit Rate Base, $/Unit			$0.9521	$1,502.0781	$519.7163	$337.7547		
	Unit Return on Rate Base								
10	Outside City, $/Unit Return on Rate Base (Input)	8.00%		$0.0762	$120.1662	$41.5773	$27.0204		
11	Outside-City Units of Service			230,000	1,418	2,363	34		
12	Outside-City Rate Base		$3,588,222	$218,983	$2,129,659	$1,228,097	$11,484		
13	Outside-City Return on Rate Base		$287,058	$17,519	$170,373	$98,248	$919		
14	Inside City, $/Unit Return on Rate Base (Input)	5.20%		$0.0495	$78.0357	$27.0002	$17.5470		
15	Inside-City Units of Service			2,536,000	14,562	25,860	17,661		
16	Inside-City Rate Base		$44,969,778	$2,414,525	$21,873,138	$13,439,794	$5,965,085		$1,277,236
17	Inside-City Return on Rate Base		$2,336,262	$125,439	$1,136,350	$698,222	$309,897		$66,355
18	Total System Return on Rate Base (Calculated)	5.40%	$2,623,320	$142,958	$1,306,722	$796,470	$310,816		$66,355
19	Inside City, $/Unit (Line 3 + 5 + 7 + 14)			$0.5715	$264.7934	$62.1874	$84.7938	$6.3257	$185,445
20	Outside City, $/Unit (Line 3 + 5 + 7 + 10)			$0.5982	$306.9240	$76.7645	$94.2672	$6.3257	

* Maximum-hour demand in excess of maximum-day demand.

Table III.2-5 Cost distribution to customer classes—Base-extra capacity method (test year)

Line No.	Item	Total Cost of Service	Base Demand	Extra Capacity		Customer Costs		Direct Fire Protection Services
				Maximum Day	Maximum Hour*	Meters and Services	Billing and Collecting	
	Inside City:							
1	Unit Costs of Service, $/Unit		$1.7885 per 1,000 gal	$213.7455 per 1,000 gal	$67.2925 per 1,000 gal	$84.9268 per equiv. meters	$6.3257 per bill	
	Residential							
2	Units of Service		968,000	3,978	3,978	15,652	185,760	
3	Allocated Costs of Service	$5,353,588	$1,731,266	$850,297	$267,695	$1,329,274	$1,175,056	
	Commercial							
4	Units of Service		473,000	1,296	1,620	1,758	14,640	
5	Allocated Costs of Service	$1,473,864	$845,960	$276,991	$109,005	$149,301	$92,608	
	Industrial							
6	Units of Service		1,095,000	1,500	1,500	251	420	
7	Allocated Costs of Service	$2,403,936	$1,958,406	$320,618	$100,939	$21,317	2,657	
	Fire Protection Service							
8	Units of Service			840	4,200			
9	Allocated Costs of Service	$647,669		$179,546	$282,628			$185,495
10	Total Inside-City Allocated Cost of Service	$9,879,058	$4,535,632	$1,627,452	$760,267	$1,499,892	$1,270,320	$185,495
	Outside City:							
11	Unit Costs of Service, $/Unit		$2.0272 1,000 gal	$251.0023 1,000 gal	$82.2967 1,000 gal	$94.3838 per equiv. meters	$6.3257 per bill	
	Wholesale							
12	Units of Service		230,000	788	945	34	48	
13	Allocated Costs of Service	$745,262	$466,255	$197,707	$77,787	$3,209	$304	
14	Total System Allocated Cost of Service	$10,624,320	$5,001,887	$1,825,160	$838,054	$1,503,101	$1,270,624	$185,495

* Maximum-hour demand in excess of maximum-day demand.

applied to customer class equivalent meter units of service to determine allocated cost of service. Units based on equivalent ⅝-in. meters allow for the fact that customer costs will vary and tend to increase with the size of the customer meter and service.

Billing and collecting costs may be related to the number of bills issued and, in turn, distributed to customer classes on the basis of the number of bills rendered to customers within each class. For the example, customer class responsibility is determined by applying the billing and collecting unit cost to the total estimated number of bills in each customer class rendered for the average rate year.

The base-extra capacity and customer costs, summarized by customer class, constitute the costs of service to be recovered from the respective classes of customers involved. This summation also identifies the responsibility of each class for the functional costs.

DISTRIBUTING COSTS TO CUSTOMER CLASSES: COMMODITY-DEMAND METHOD

As noted in the previous chapter, there are two generally accepted methods of allocating costs to cost components: the base-extra capacity method and the commodity-demand method. Costs are distributed to customer classes under the commodity-demand

Table III.2-6 Cost distribution to customer classes—Commodity-demand method (test year)

Line No.	Item	Total Cost of Service	Commodity	Capacity		Customer Costs		Direct Fire Protection Services
				Maximum Day	Maximum Hour*	Meters and Services	Billing and Collecting	
	Inside City:							
1	Unit Costs of Service, $/Unit		$0.5715 per 1,000 gal	$264.7934 per 1,000 gal	$62.1874 per 1,000 gal	$84.7938 per equiv. meters	$6.3257 per bill	
	Residential							
2	Units of Service		968,000	6,630	10,608	15,652	185,760	
3	Allocated Costs of Service	$5,470,767	$553,205	$1,755,617	$659,697	$1,327,192	$1,175,056	
	Commercial							
4	Units of Service		473,000	2,592	4,212	1,758	14,640	
5	Allocated Costs of Service	$1,460,189	$270,316	$686,287	$261,911	$149,067	$92,608	
	Industrial							
6	Units of Service		1,095,000	4,500	6,000	251	420	
7	Allocated Costs of Service	$2,214,419	$625,784	$1,191,570	$373,124	$21,283	$2,657	
	Fire Protection Service							
8	Units of Service			840	5,040			
9	Allocated Costs of Service	$721,296		$222,426	$313,424			$185,445
10	Total Inside-City Allocated Cost of Service	$9,866,671	$1,449,305	$3,855,900	$1,608,157	1,497,543	$1,270,320	$185,445
	Outside City:							
11	Unit Costs of Service, $/Unit		$0.5982 1,000 gal	$306.9240 1,000 gal	$76.7645 1,000 gal	$94.2672 per equiv. meters	$6.3257 per bill	
	Wholesale							
12	Units of Service		230,000	1,418	2,363	34	48	
13	Allocated Costs of Service	$757,649	$137,585	$435,159	$181,396	$3,205	$304	
14	Total System Allocated Cost of Service	$10,624,320	$1,586,891	$4,291,059	$1,789,553	$1,500,748	$1,270,624	$185,445

* Maximum-hour demand in excess of maximum-day demand.

method using the same process previously discussed to distribute base-extra capacity costs. Table III.2-6 summarizes the application of units of service to unit costs of service, as developed in Tables III.2-2 and III.2-4 for the commodity-demand method.

In the commodity-demand method, commodity costs are distributed to customer classes on the basis of total annual use. Demand-related costs are distributed to the various classes in proportion to the class total-demand responsibility; this is not the extra or incremental demand over the base use, but the total maximum-day or peak-hour demand. The method of distributing demand cost responsibilities is an important differentiator between the base-extra capacity method and the commodity-demand method. As noted previously, the base-extra capacity method uses the difference between class contribution to the average demand and peak demand, while the commodity-demand method uses the class contribution to the total maximum demand. These are clearly two separate and distinct perspectives regarding customer class demand responsibilities.

Customer costs are distributed based on equivalent meter and billing requirements. Commodity costs, which tend to vary with the annual quantity of water produced, are distributed to inside-city customer classes by applying the inside-city commodity unit cost of $0.5715 per thousand gallons to the respective inside-city class units of service. Likewise, demand-related costs for maximum-day and maximum-hour

Table III.2-7 Allocated cost to customer classes—Base-extra capacity and commodity-demand comparison

Line No.	Customer Class	Base-Extra Capacity		Commodity-Demand	
		Allocated Cost of Service	Percent of Total	Allocated Cost of Service	Percent of Total
	Inside City:				
1	Residential	$5,353,588	50.4%	$5,470,767	51.5%
2	Commercial	1,473,864	13.9%	1,460,189	13.7%
3	Industrial	2,403,936	22.6%	2,214,419	20.8%
4	Fire Protection Service	647,669	6.1%	721,296	6.8%
5	Total Inside-City Allocated Cost-of-Service	9,879,058	93.0%	9,866,671	92.9%
	Outside City:				
6	Wholesale	745,262	7.0%	757,649	7.1%
7	Total System Allocated Cost of Service	$10,624,320	100.0%	$10,624,320	100.0%

service requirements are distributed to the classes based on the application of total estimated class service demands and the unit costs of demand.

Customer costs for meters and services and for billing and collecting are the same under both the base-extra capacity and commodity-demand methods and are distributed similarly in both methods. Meter-and-service costs are distributed to classes in proportion to the number of equivalent ⅝-in. meters, whereas billing and collecting costs are distributed on the basis of the number of bills rendered. Cost of service for outside-city wholesale service may also be derived by applying the outside-city unit costs of service to outside units of service.

A summation of the distributed costs for each cost component for inside- and outside-city customers yields the total distributed customer class cost-of-service responsibility and appears in the column of Table III.2-6 labeled "Total Cost of Service."

A word of caution should be added that may prevent misinterpretation of the commodity cost of $0.5715 per thousand gallons. Under no circumstances does the commodity cost equate to the base cost of service for water. Even with perfectly uniform use, demand or capacity costs must be added. The base-extra capacity method clearly identifies the *base* cost of service for water.

A summary comparison of the distribution of costs to customer classes under the base-extra capacity and commodity-demand methods is provided in Table III.2-7. As discussed in chapter III.1, depending on the unique total demand and customer peaking factor characteristics of the utility in question, the base-extra capacity and commodity-demand methods may result in reasonably similar allocation of cost of service to class and the resulting water rates.

a "minimum bill." In this case, the utility may calculate the customer's bill based purely on volume consumed. If the calculated bill is more than the minimum bill, the customer is charged at the calculated amount. However, if the calculated amount is less than the minimum bill, the customer is charged the minimum bill amount. This approach recognizes the substantial fixed costs to serve customer accounts that would not be recovered through volumetric charges that fail to exceed certain minimum levels.

Similarly, "readiness to serve" charges perhaps connote something more comprehensive than simple "base charges" in conveying the incurrence of fixed costs to service customer accounts. Both terms relate to charges that aim at capturing the costs of having a system in place to provide water to the customer regardless of whether the customer consumes any water in a given service period. Common inputs for both charges include costs such as

- billing costs (meter reading, mailing bills, accounting, collecting, and customer service),
- debt-service cost (allocating at least a portion of the annual utility debt service), and
- fire protection (allocating public fire protection costs for the oversizing of distribution facilities).

In developing readiness-to-serve charges, one can go as far as analyzing the minimum distribution system required to serve water customers. This is a concept that is also inspired by the electricity industry. The rationale is that a minimum amount of distribution system investment and operation and maintenance (O&M) expenses are required to enable the system to be ready to serve. As the number of customers to a system increases, so does O&M, and fixed capital costs may be spread over larger populations. However, the minimum system requirements may be considered customer-related costs recoverable through the readiness-to-serve charge. One method for calculating the minimum system concept in the water sector could be to calculate the cost of distributing one gallon of water per day to customers (Gould and Grace 2011). That theoretical minimum investment can then be compared to the total current utility investment to determine the customer-related portion of distribution lines. Such an approach allows the utility to establish a base charge that relates more closely to the cost of providing water service.

Individualized Rate Setting

Customer classes are created to provide an equitable means of cost recovery through a manageable rate schedule. Associating users with similar demand profiles is at the heart of class creation, and this practice continues to render equity in cost recovery. But aggregation of customers into classes necessarily obscures some level of detail. With modern data systems, it is possible in some cases to create a more customized cost recovery plan.

One approach already adopted by some utilities is to recognize "load factor" concepts to reward stable usage and push costs toward those users who make larger contributions to system peaks. A variety of rate structure options are possible. One is a set of increasing blocks with individualized breakpoints reflecting each customer's usage pattern. A residential customer could be provided with a first tier consumption approximating their consumption during a time of year when irrigation is not common. The individual amounts would differ within the class, reflecting the stable usage portion of that individual customer's consumption pattern. Further breakpoints could be set at increments to first tier levels, providing a stepped conservation incentive uniquely reflecting each customer's demands. The objective of this approach would be to push costs of meeting peak water demands to those individual customers contributing the most to those peaks. If customers as a whole

Chapter IV.2

Uniform Rates

A uniform, uniform-volume, or uniform-commodity rate is a constant unit price for all metered volumetric units of water consumed on a year-round basis. Unlike flat fees or charges, uniform rates require metered service and can be applied to all customer or service classifications, such as residential, commercial, industrial, wholesale, and so on. Alternatively, uniform rates by class provide separate uniform-volume rates within a customer or service classification. Figure IV.2-1 illustrates a uniform rate for three customer classifications.

The term *uniform rates* sometimes refers to applying a common rate structure to non-interconnected (as well as interconnected) systems operated by the same water utility, a practice also known as *single-tariff pricing*. Single-tariff pricing can involve any of the rate structures described in this manual.

GENERAL CONSIDERATIONS

A uniform water rate is expressed as constant price per thousand gallons or per hundred cubic feet (see Figure IV.2-1). Potential cost-of-service differentials among customer or service classifications are not recognized when designing a uniform rate applicable to all general water service customers. To capture class-based, cost-of-service differentials, uniform rates must be designed by customer class. The rate usually accompanies a fixed charge per billing period, commonly referred to as a customer charge, meter charge, service charge, or administrative charge. Fixed charges can vary by customer class, meter size, or other service characteristics, but not by the amount of water consumed.

Uniform rates are relatively simple for water utilities to implement and for customers to understand. A uniform rate also sends customers a usage-based price signal. Although the unit price is constant, customer bills will escalate with increased water use. However, in comparison to block rates (where unit prices vary with the level of consumption), the uniform rate also implies that all increments of water provided are associated with the same unit cost of service.

Utilities might consider a uniform rate for all customers when

- customer groups or service classes exhibit similarities in usage (demand) characteristics,

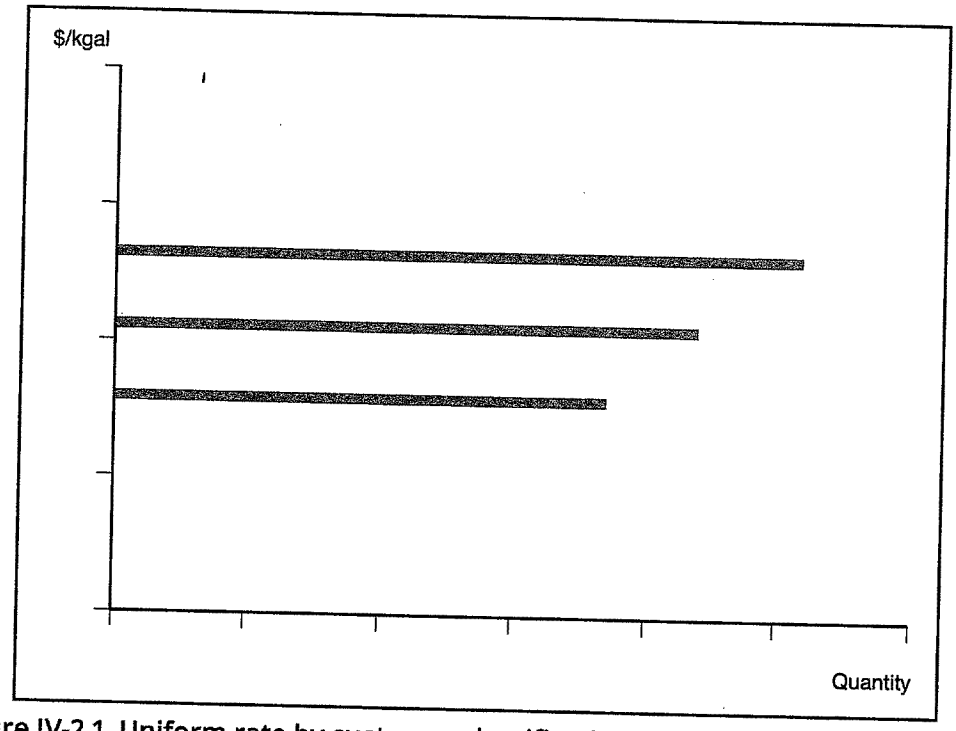


Figure IV-2.1 Uniform rate by customer classification

- varying rates by customer or service classification are undesirable from equitability or other perspectives,
- simplicity and customer understanding of the rate structure are valued highly,
- rate uniformity adequately addresses economic efficiency and conservation concerns,
- rate structures that vary charges by usage block or other means are not justifiable, or
- cost and usage data by customer or service classifications are not available or too costly to develop (i.e., costs outweigh potential benefits).

The feasibility and ease of implementing a uniform rate structure depends on a variety of factors. Metering is required, as is cost allocation by customer class if uniform rates by class are developed. The transition to uniform rates from block rates affects customer bills. For example, large-volume customers with decreasing block rates pay more under a uniform rate structure, but uniform rates by customer class could mitigate this effect.

HISTORICAL PERSPECTIVES

Historically, many water utilities began charging for service without the benefit of metering. Property taxes and, eventually, flat fees or charges were used to collect utility revenues. Some utilities began approximating the cost of service by varying user charges according to equivalent residency units, fixture units, or even number of livestock.

With metering came the potential to charge for water on a per-unit basis, and many smaller water utilities opted for the simplicity of the uniform rate. During the 1960s, many middle-sized and larger water utilities used decreasing block rate structures. Decreasing

block rates were often justified on the grounds that large-volume customers typically had favorable demand and cost-of-service characteristics.

By the late 1970s, concerns about conservation in the energy and water sectors led many legislators and regulators to rethink the prudence of decreasing block rates. The Public Utility Regulatory Policies Act of 1978, among other things, required investor-owned electric utilities to justify the continued use of decreasing block rates over innovative rate-design alternatives that were considered more conservation oriented. State public utility regulators began considering economic efficiency in the context of utility pricing and planning.

At the same time, economic efficiency emerged as an important consideration in the water sector as well. Metering and volume-based rates are considered vital steps toward efficient water production and consumption. Conservation advocates believe that decreasing block rates do not send an appropriate pricing signal to encourage conservation. In addition, some consumer advocates believe that decreasing block rates are unfair to residential customers. In the 1990s, many utilities reconsidered uniform rates as a cost-effective way to simplify rate design. Uniform rates were accepted and approved for use by many unregulated and regulated water utilities.

Historically, some utilities and individuals did not consider a uniform rate structure to be conservation oriented. Water industry thinking and opinion have changed over time, and a uniform rate structure is now considered conservation oriented when a majority of the revenue derived from the rate structure is from the volumetric portion of the rate structure as opposed to being generated from the fixed-charge portion of the rate structure.

ADVANTAGES AND DISADVANTAGES

This section provides a discussion of the benefits and detriments of uniform rates, including considerations of simplicity, equity, revenue stability, conservation, and implementation.

Simplicity

Simplicity is one of the chief advantages of uniform rates. Uniform rates are easily understood and implemented. Other utility functions, such as cost analysis, customer service, and regulatory proceedings, are also simplified with less complex rate forms.

Equity

Uniform rates are usually considered equitable because all customers pay the same unit price for general water service. Uniform rates also might be perceived as equitable during periods of rising costs. Political and public opposition might be less with uniform rates than with other rate structures. With uniform rates across all customer classes, the appearance of large-volume customers subsidizing small-volume customers, or vice versa, is avoided.

Uniform rates might not be perceived as equitable when variations in the cost of serving different customer groups are substantial. Unless a community's customers all show relatively similar demand patterns, the use of uniform rates by customer class should be considered to reflect the variations in the costs to serve different customer demands.

Revenue Stability

Uniform rates provide utilities with a degree of revenue stability in comparison to increasing block rates and other more complex rate forms. Barring adverse economic or other conditions causing usage to fluctuate widely, uniform rates provide a dependable revenue

In this case, the decreasing block rate structure is designed to reflect the differences in water and capacity use for the different classes of customers served.

Generally, large-volume users, as a class, have a lower peak-to-average peaking factor (i.e., relationship of peak use to average use) with correspondingly lower extra-capacity requirements and related costs than do smaller-volume users as a class. A properly designed decreasing block rate schedule recovers revenue for each class according to how costs are incurred. Another way to view this approach is to consider the results of the cost-of-service study. Within the cost-of-service study, all base costs or annual volume-related costs should be equal for each class of service on a per-unit basis, stated in dollars per hundred cubic feet or dollars per thousand gallons. It is the peaking-related costs, stated in dollars per hundred cubic feet or dollars per thousand gallons, that vary by class of service and reflect the overall demand characteristics of each class.

Residential and small commercial customers usually have greater peaking (capacity or demand) factors than large commercial and industrial customers. As a result, a utility typically faces higher unit costs to meet the peaking requirements of residential and small commercial customers relative to large commercial and industrial customers. A properly designed decreasing block rate structure reflects the differences in usage levels and peaking-related costs between the types of customers served using the size of the blocks to establish the approximate usage levels of each class and the relative price differences between blocks to recognize demand characteristics of each class.

Another justification assumes that with increased consumption, certain economies of scale may be achieved, and these economies of scale or savings should be reflected within the rates. The economies of scale are assumed to be achieved via capacity utilization or improved capacity use with the existing capacity.

One attribute of the decreasing block rate structure sometimes cited is revenue stability. A decreasing block rate is said to provide more revenue stability when compared to an increasing (or inverted) block rate structure. Given the potential for variability in consumption between a wet and a dry summer, the decreasing block rate may minimize revenue swings. In addition, from an economic perspective, under a decreasing block rate structure, customers with the least ability to change consumption (inelastic demand) tend to consume water primarily in the highest-priced initial blocks, while those customers with the greatest ability to change consumption (elastic demands) tend to consume more water in the subsequent lower-priced blocks of the decreasing block rate structure.

Given the nature of this rate structure, there are mixed views regarding its appropriateness. While proponents of the structure argue that it reflects the costs incurred by the system, critics argue that a decreasing block rate structure encourages waste and in some cases provides a subsidy to large-volume users. Careful thought and analysis should go into developing the size and unit price of the decreasing blocks to justify them from a cost and usage characteristic basis.

ADVANTAGES AND DISADVANTAGES

The following paragraphs discuss the pros and cons of decreasing block rates.

Simplicity

For the most part, the decreasing block rate structure is fairly easy for the customer to understand and for the utility to administer. Designing the rate does require information and analysis of customer usage patterns and peaking requirements, a portion of rate development that can be fairly complex. In addition, ensuring that the proposed rate design collects the appropriate level of revenues is an important test.

Chapter IV.4

Increasing Block Rates

Increasing block rates (also known as ascending, inclining, inverted, or tiered block rates) charge increasing volumetric rates for increasing consumption. Increasing block rates require metering and defining consumption blocks over which rates increase. Increasing block rates should usually be designed by customer classes (i.e., groups with similar usage patterns). Figure IV.4-1 illustrates an increasing block rate.

GENERAL CONSIDERATIONS

Although increasing block rates can be more complicated to design than other types of rates, they also provide flexibility in rate design, particularly when designed by customer classes. Properly designed increasing block rates recover class-specific cost of service while sending a more conservation-oriented price signal to that class. This flexibility places larger analytical demands on the rate analyst, especially when accounting for potential demand responses to block rate differentials (see chapter V.7). Increasing block rates can be coupled with fixed or service charges. See chapter IV.7 for further discussion of these charges.

Increasing block rates should be considered by a water utility when the utility

- is able to distinguish separate customer classes for billing;
- has the analytical capability to design block rate structures, including defining the amount of water sold per block, potential demand responses to differential rate impacts, and the development of the underlying costs of service for each block;
- has or will attain the administrative capability to apply block rate structures;
- is confronting system capacity (supply or infrastructure) constraints or potential system expansion (i.e., in cases where there is a higher payoff to demand-side management);
- would like to send a strong conservation price signal; and
- is willing to spend additional effort to communicate the nature and rationale of increasing block rates.

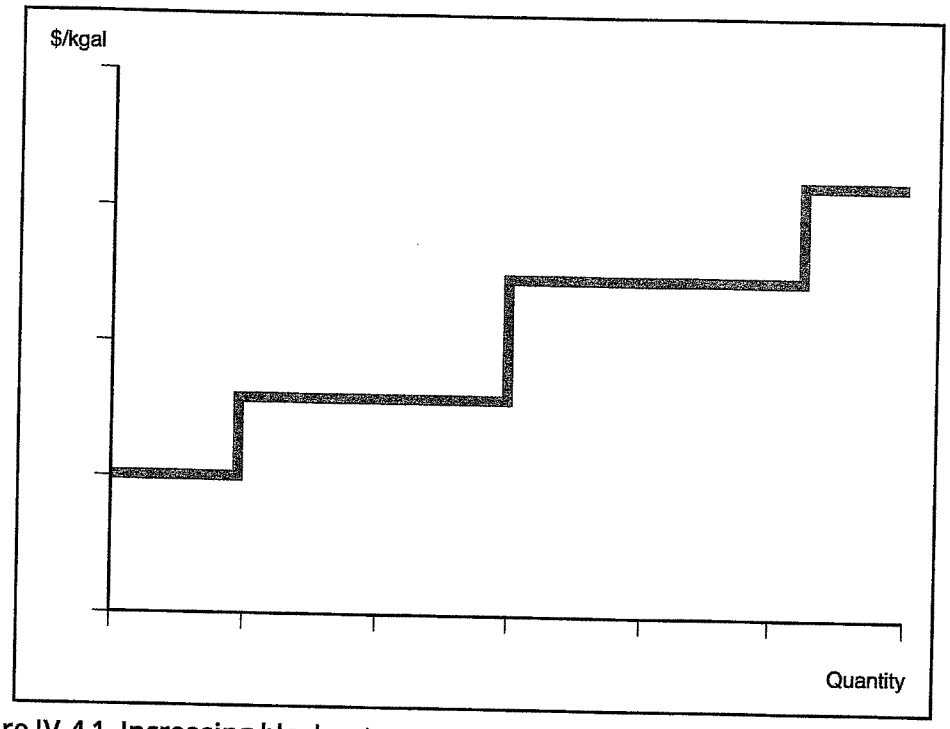


Figure IV-4.1 Increasing block rate

Increasing block rates are not a one-size-fits-all solution. Unless used with a small, highly homogeneous customer base, system-wide application of a single increasing block rate structure is likely to result in cost-of-service inequities, especially to commercial and industrial customers with relatively uniform consumption patterns (low peak demands but high total usage). These larger-volume customers may not impose costs on a water system proportional to the unit costs implied by increasing block rates. Additionally, assigning large price increases on customer classes known to have price-elastic demand can make it difficult to predict decreases in consumption. A single system-wide increasing block rate design applied to a customer base with diverse consumption patterns is more difficult to justify on a cost-of-service basis than increasing block rates designed for specific customer classes within which there are relatively homogeneous consumption patterns.

HISTORICAL PERSPECTIVES

Increasing block rate structures, designed for revenue neutrality and differentiated by customer class, may allow a utility experiencing supply cost escalations to send consistent price signals to customers. For this reason and because of the heightened interest in water conservation, increasing block rates have been progressively more favored, especially in relatively water-scarce regions.

Because a system must be constructed to meet maximum-day and maximum-hour demands, system capacity is underutilized during non-peak periods. Moreover, if the system were sized to meet the average demand only, the resource and infrastructure demands could be much smaller. Consequently, an increasing block structure may be designed to recover the cost of constructing and maintaining extra capacity for the peak demands. Because this capacity is underutilized, the per-unit cost of water is higher than for base capacity, which is used year-round. In short, a block structure can remain consistent with, if not enhance, the relationship of rates to cost of service.

ADVANTAGES AND DISADVANTAGES

The following paragraphs analyze the advantages and disadvantages of increasing block rate structures.

Simplicity

Increasing block rates are not as simple to design or explain as some other rate forms. They require information on water sales by block of consumption. This information can be developed through bill tabulation (see appendix C). They also require applying judgment and utility policy regarding the number of blocks, the point at which one block ends and the next begins, and the relative price levels of the blocks.

Equity

As with any rate design, overly simple or poorly designed increasing block rate structures run the risk of being inequitable. Increasing block rates can address various definitions of equity and provide flexibility with regard to pricing strategies for water utilities.

Revenue Stability

Increasing block rate structures tend to result in more revenue volatility than other rate structures (i.e., decreasing and uniform block rates). This revenue volatility is because an increasing block rate anticipates recovering a proportionately greater percentage of the customer class's revenue requirement at higher levels of consumption. These higher levels of consumption tend to be more subject to variations in seasonal weather and, when coupled with a higher-than-average unit pricing, customers tend to curtail consumption in these higher consumption blocks. As a result, a utility implementing an increasing block rate structure is advised to have a good understanding of the distribution of water demand by customer class and of price elasticity of demand.

A utility concerned about adverse revenue effects resulting from an increasing block rate design might consider developing a reserve, often referred to as a rate or revenue *stabilization fund*. A stabilization fund allows a utility to draw on the fund balance during revenue shortfalls that result from lower-than-expected consumption.

Conservation

Increasing block rate structures are usually considered to be conservation oriented. The most conservation-oriented rate structure maximizes the consistency of the price signal. Under a properly designed increasing block rate structure, no customer within a given class and using similar amounts of water should be rewarded more or less than another customer for saving water. If properly designed, increasing block rates can send an appropriate conservation signal to certain customer classes. However, care should be taken when determining whether increasing block rates are applicable for a particular class of customers that includes large-volume and master meter customers and those with highly diversified water-use characteristics and demand patterns.

Implementation

The implementation of increasing block rate structures is accompanied by some disadvantages, including the following:

- These rates are more difficult to design for predictable revenue streams.
- Definitions of rate blocks can be based on more than one rationale.
- The rate structure can be more difficult to communicate to customers.
- The use of customer class rates creates additional billing and customer service issues, and requires care that customers are classified correctly.

Water systems requiring more flexibility and conservation response from a rate structure may find the higher implementation cost of increasing block rate structures to be justified.

SETTING BLOCK SIZE AND PRICING

There is no single method for setting the size or unit price of the usage blocks under this rate approach; however, there are several general considerations.

Block Size

Increasing block rates are most commonly applied to residential customers because of their relatively homogeneous demand pattern. Block sizes should correspond to the utility's individual bill distribution and customers' usage patterns. For example, the first block can be set to capture a defined percentage of the annual number of bills, such as 50 percent (or median number) of all single-family residential bills. Another example would be establishing the first block to correspond to nonirrigation season (winter) water demands, which provide some indication of indoor water usage in most areas. Finally, this first block can be established to meet policy objectives, such as tying the block size to a lifeline need or essential use allowance (i.e., to correspond to the estimated basic water needs of a typical family).

Additional blocks can be set based on percentage of bills or to encourage usage reductions at the higher end of the demand curve. For example, single-family usage greater than 30 thousand gallons per month might make up 5 percent of the annual bills but 15 percent of a utility's residential water consumption. The top block could be set at 30 thousand gallons to reduce this high-end water consumption.

Block Pricing

As with any rate structure, increasing block rates must be set to recover the stated revenue requirements. Rate setting must necessarily take into account any reduction in water demands due to the price elasticity factor demonstrated by a particular customer class. Through the cost allocation, individual customer classes are assigned a proportionate share of the utility's total revenue requirement. Once that allocated amount has been determined, the utility can then establish the price of each usage block within that customer class to achieve its desired objectives.

Blocks by Customer Class

As previously stated, increasing block rates are most commonly applied to residential customers, because of their relatively homogeneous usage pattern and peaking characteristics. The utility could also create a general service customer class comprised of residential and small commercial customers. In this way, smaller residential customers can be included with smaller nonresidential customers that may have the same consumption patterns. This may also eliminate problems with inequities within the commercial class

where customer demands may greatly vary (e.g., clothing store versus restaurant or hotel). Customer classes that do not demonstrate uniform demand patterns might be adversely affected by an increasing block structure.

Blocks by Meter Size

In some cases, it may be better to determine customer classes based on meter size (see chapter III.2). A utility can also implement an increasing block structure by meter size if it can demonstrate a consistent relationship or homogeneous usage pattern by meter size. For example, the first block for a ⅝-in. meter might be 7 thousand gallons while increasing to 12 thousand gallons for a 1-in. meter. As previously noted, this rate structure is best applied to customer classes that demonstrate a significant peaking pattern and might not be appropriate for industrial or commercial customers that use water at relatively consistent levels throughout the year.

EXAMPLES

The first example illustrates how an increasing two-block rate might be designed for inside-city residential customers. In this example, annual water sales are anticipated to be 968,000 thousand gallons and the consumption-related cost of service is $2,720,000 (see Table III.2-5, Residential Base Demand 1,000 gal divided into the Base, Maximum-Day and Maximum-Hour Allocated Costs of Service). While there is no single analytical method to define consumption blocks, for this example, it is assumed that the utility wishes to set the threshold between block 1 and block 2 at an amount that approximates the transition from indoor to outdoor consumption. The utility's objective is to have block 1 consumption approximate indoor usage and to charge a higher amount for outdoor usage in block 2 to promote conservation.

Based on a review of low-consumption (typically winter) billing information and a bill tabulation, the utility determines that a typical residential customer uses 7 thousand gallons per month for "indoor" use and that, on an annual basis, 80 percent of the water sales are for 7 thousand gallons or less. This equates to annual block 1 sales of 774,400 thousand gallons and block 2 sales of 193,600 thousand gallons. In this example, the utility has also conducted an analysis of supply costs and determined that block 2 rates should be set at a level 30 percent higher than block 1 to reflect the cost incurred for increased capacity costs and supply purchases. With this information it is possible to calculate block 1 and block 2 water rates as follows:

Block 1 Equation:

$$\text{Block 1 Rates} = \frac{\text{Total Consumption-Based Revenue Requirement for Class}}{\text{Block 1 Sales} + [\text{Block 2 Sales} \times (1 + \text{Price Differential})]}$$

$$= \frac{\$2{,}720{,}000}{774{,}400 + [193{,}600 \times (1 + 0.30)]}$$

$$= \$2.65 \text{ per Thousand Gallons}$$

Block 2 Equation:

$$\text{Block 2 Rates} = \text{Block 1 Rate} \times (1 + \text{Price Differential})$$

$$\$2.65 \times 1.30 = \$3.45 \text{ per Thousand Gallons}$$

Table IV.4-1 Increasing block rate design—Residential class

Consumption Block Threshold	Consumption, 1,000 gal	Consumption, %	Rate Differential	Estimated Revenue	Rate, $/1,000 gal
Block 1 (first 7,000 gal)	774,400	80	1.0	$2,053,118	$2.65
Block 2 (over 7,000 gal)	193,600	20	1.3	667,263	$3.45
Estimated Total	968,000	100		2,720,381	
Cost of Service				2,720,381	
Difference				$0	

Table IV.4-2 Increasing block rate design—Residential class marginal cost-based rate

Residential Inside City	Consumption, 1,000 gal	Consumption, %	Estimated Revenue	Rate, $/1,000 gal
Block 1 (first 7,000 gal)	774,400	80	$1,752,381	$2.26
Block 2 (over 7,000 gal)	193,600	20	968,000	$5.00
Estimated Total	968,000	100	$2,720,381	

Table IV.4-1 displays a method of verifying these calculations. Table IV.4-2 illustrates an alternative method of setting increasing block rates for the inside-city residential class using marginal cost information. (This example is purely hypothetical, and the reader should refer to chapter V.8 for a discussion of marginal cost pricing.) Block 1 in this second example is again defined as the first 7 thousand gallons of monthly water use. The second consumption block is any monthly water consumption over 7 thousand gallons. For this marginal cost example, the rate in the second block is first set equal to the sum of the three-year marginal operating cost ($3.90 per thousand gallons) plus the average incremental capital cost ($2.10 per thousand gallons), resulting in the utility's marginal cost pricing estimate of $5.00 per thousand gallons.

The revenue from block 2 water sales equals $968,000, leaving $1,752,381 ($2,720,381 – $968,000) to be recovered from block 1 water sales. Block 1 rates are then calculated by dividing revenue needed from water sales in the first block ($1,752,381) by annual water use in the first block (774,400 thousand gallons), equaling a block 1 rate of $2.26/thousand gallons.

SUMMARY

Increasing block rate structures have been used more often in areas experiencing growth in water demand that is reaching the safe yield or capacity of the system, where there has been an impetus for improved efficiency in water use. In these areas, there can be a payoff to using price as a demand management tool. Such conservation-oriented rate structures require additional analysis to avoid the over- or under-recovery of revenue requirements. When legally defensible, utilities willing to undertake the additional analysis in rate design and conduct customer communications may find that increasing block rate structures are valuable tools in the effort to provide demand-side management.

EXHIBIT – 2

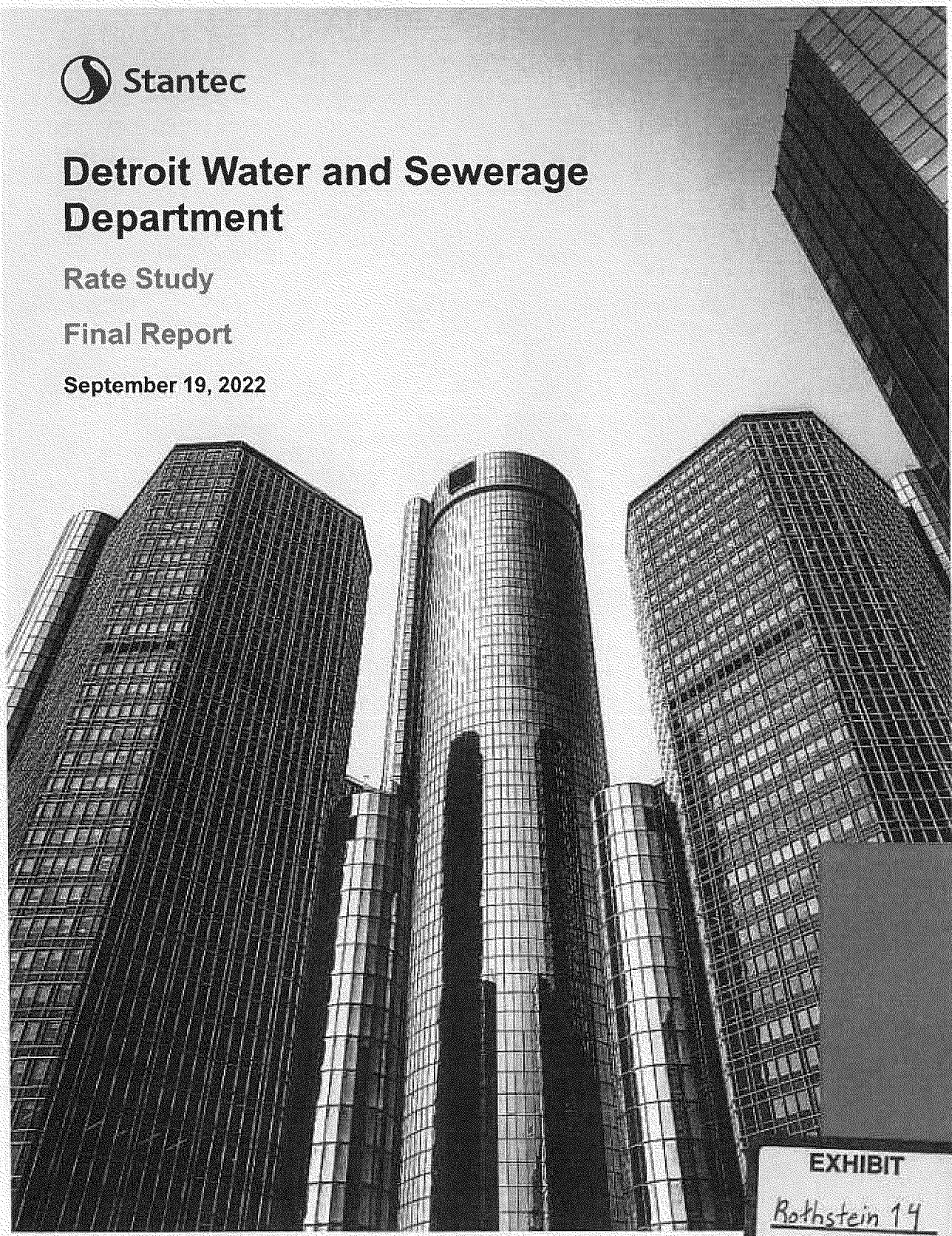
Stantec

Detroit Water and Sewerage Department

Rate Study

Final Report

September 19, 2022



EXHIBIT

Rothstein 14

Stantec

September 19, 2022

Mr. Istakur Rahman
Chief Financial Officer,
Detroit Water and Sewerage Department

Re: Rate Study

Dear Mr. Rahman,

Stantec Consulting Services Inc. is pleased to present this Final Report of the Rate Study (Study) that we completed for the Detroit Water and Sewerage Department (DWSD). We appreciate the fine assistance provided by you and the members of DWSD staff who participated in this Study.

If you or others at DWSD have any questions, please do not hesitate to contact us. We appreciate the opportunity to be of service to DWSD and look forward to working with you again in the near future.

Sincerely,

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Enclosure

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1. EXECUTIVE SUMMARY

This executive summary outlines the background, objectives, approach, and results of the Rate Study (Study) completed by Stantec Consulting Services Inc. (Stantec) for the Detroit Water and Sewerage Department (DWSD or "the Utility"). The full report describes the detailed assumptions, data sources, and methodology used in the Study.

1.1 BACKGROUND AND OBJECTIVES

DWSD provides water, wastewater, and drainage services to a customer base of approximately 230,000 accounts. DWSD is an enterprise agency of the City of Detroit and is a customer of the Great Lakes Water Authority (GLWA). The City of Detroit by and through the Water and Sewerage Department is GLWA's agent to perform certain services and functions in Detroit, including setting retail rates to meet revenue requirements, billing and collecting from Detroit retail customers, and enforcing the collection of fees and charges. GLWA leases the City's water supply and sewerage disposal facilities serving the regional service area and makes an annual payment that is used by DWSD to support capital infrastructure for its retail systems. The Study focuses on DWSD's costs, paid for by DWSD customers through water, sewer, and drainage rates.

A formal cost-of-service study has not been performed since bifurcation of the City of Detroit's water and sewer system assets in January 2016. This Study also facilitates DWSD's efforts to structure rates that adhere to proportionality[1] and cost-of-service principles. This Study's overall goal is to develop rates for DWSD's customers that are in proportion to the cost of providing service, follow industry best practices, and are reasonable and transparent.

The Study was performed based on the following process:

Revenue Requirements – Develop a multi-year forecast for DWSD that determines the annual revenue needed to fund operating expenses, wholesale costs, existing liabilities, and infrastructure needs. Determine appropriate funding sources for capital projects and maintain financial policies and targets. Identify key factors affecting future rate increases and compare results to national trends.

Cost Allocation – Allocate test year revenue requirements to water and combined sewer systems based on cost center categories and proportional usage characteristics of each system. Allocate water revenue requirements to water system functions and customers based on system and use

[1] *Bolt v City of Lansing*, a 1998 Michigan Supreme Court decision, identified what is a valid user fee versus a tax, suggesting that user fees should be regulatory, proportional, and voluntary.

characteristics. Allocate combined sewer revenue requirements to wastewater and drainage based on functional categories and components of combined sewage flow.

Rate Design – Review DWSD's existing rate structure and develop modifications, as appropriate, based on accepted industry best practices and proportional allocation of costs based on cost-of-service analysis. Evaluate customer bill impacts, affordability programs currently available to DWSD customers, and possible future affordability programs. Perform bill comparisons to other agencies.

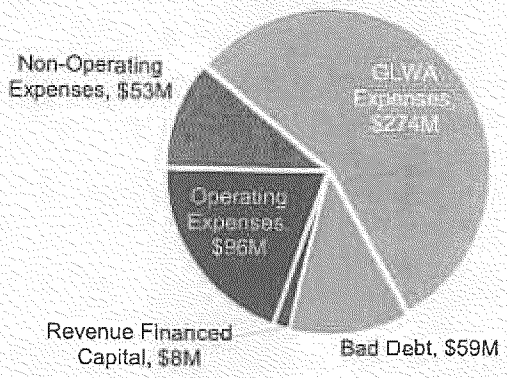
1.2 REVENUE REQUIREMENTS

Revenue requirements are the level of revenues needed to meet annual system costs. The revenue requirements analysis evaluated the adequacy of DWSD's current revenues and the levels of rate increases needed to meet projected financial requirements for DWSD's water and combined sewer systems over the 10-year period of Fiscal Year (FY) 2023 through FY 2032. The process included a review of DWSD's operating expenses, non-operating expenses, GLWA wholesale treatment and pre-bifurcation debt expenses, bad debt, and capital expenses. The analysis also evaluated non-rate revenue sources of funding and identified a capital funding plan for the projected capital cost requirements.

Through this process, financial management plans and associated annual water, wastewater, and drainage rate revenue increases were developed to address current and projected DWSD costs. Based on the FY 2023 Adopted Budget, GLWA expenses (including wholesale treatment expenses and pre-bifurcation debt) are more than 55 percent of the total revenue requirement, while costs funded by customer rates that DWSD can "control" (operating expenses and revenue financed capital costs) represent 21 percent of the total revenue requirement. Figure 1-1 shows a summary of FY 2023 revenue requirements for the DWSD combined water and sewer Revenue Fund by expense type.[2]

[2] In addition to the Revenue Fund, DWSD has an Improvement & Extension (I&E) fund that supports major capital expenses and is funded by the GLWA lease payment and transfers from the Revenue Fund.

Figure 1-1: FY 2023 Revenue Requirement Summary



Note: Non-Operating Expenses include pension requirements, Water Retail Assistance Program (WRAP) expenses, and industrial waste control (IWC) costs.

Stantec worked with DWSD to develop a sustainable financial management plan for the water and sewer systems that utilized available revenue sources, borrowing, and rate increases to support future expenditure requirements and reserve levels. The following are key assumptions impacting the forecast:

1. Water customer growth of 0.50 percent and wastewater customer growth of 0.25 percent per year in FY 2023 and beyond. Water and wastewater volume decline of 2.00 percent per year. No drainage customer growth. Growth assumptions were provided by DWSD staff and are consistent with historical trends.

2. Bad debt expense is assumed to be 10 percent of water rate revenue, 10 percent of sewer rate revenue, and 18 percent of drainage rate revenue, based on FY 2019 through FY 2021 historical revenue collection rates. The current shutoff moratorium is expected to end during FY 2023 and DWSD staff expects that bad debt expense should decrease to 8 percent of water rate revenue, 8 percent of sewer rate revenue, and 16 percent of drainage rate revenue by FY 2027, but this is an estimate and bad debt may increase or decrease depending upon the circumstances and available funding programs. However, these latter levels are consistent with longer-term historical collection rates provided by DWSD staff.

3. GLWA gross wholesale water and sewer treatment expenses are assumed to escalate by 4.00 percent per year based on GLWA estimates available at the time the Study was conducted;[3] DWSD operating costs are assumed to escalate by 2.60 percent per year, on average, based on the specific operating cost escalation factors shown in Schedule 5 of Appendices A and B. The

[3] 4.00% escalation is applied to the GLWA wholesale charge inclusive of the fixed ownership charge.

level of increases align with long-term inflationary trends that are consistent with the duration of the projection period of this Study.

4. Total anticipated capital improvement program spending of approximately $258 million and $218 million in FY 2023 through FY 2027 for the water and sewer systems, respectively, based on DWSD's FY 2023 5-Year CIP Plan.

5. Borrowing for future capital at 5.00 percent interest rate for revenue bonds and 2.00 percent for State Revolving Fund (SRF) loans based on DWSD staff input and recent SRF loan experience.

6. Minimum Operating Fund reserve target for each system of three months of annual operating expenses, consistent with industry practices to ensure availability of funds for unforeseen risks and cash flow purposes.

7. Principal forgiveness of 8.00 percent on future Drinking Water Revolving Fund (DWRF) loans based on input from DWSD staff based on recent DWRF loan experience per DWSD staff.

Based on DWSD budget data and the above assumptions, Stantec developed a plan of annual rate adjustments to fund DWSD's financial requirements. The level of projected water, wastewater, and drainage adjustments to rate revenues are shown in Table 1-1. The FY 2023 proposed rate adjustments reflect the results of the cost allocation study to rebalance the revenue needed from each system. The total amount of additional revenue generated by the rate increase for FY 2023 is 0.8 percent.

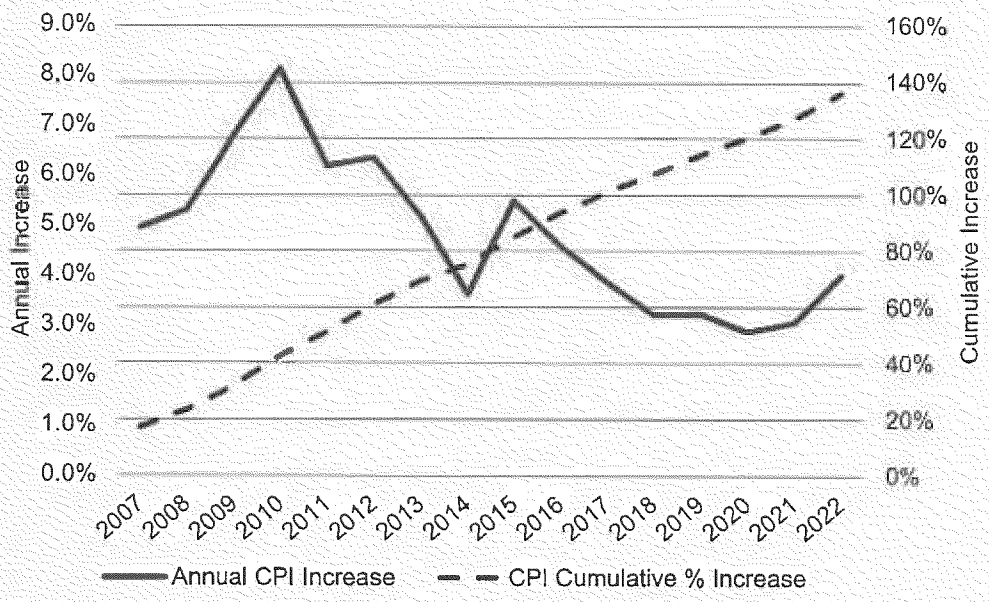
Table 1-1: Projected Annual Rate Revenue Increases

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Effective Date	July 1, 2022 *Proposed*	July 1, 2023 *Projected*	July 1, 2024 *Projected*	July 1, 2025 *Projected*	July 1, 2026 *Projected*
Water Increase	21.2%	4.0%	4.0%	4.0%	4.0%
Wastewater Increase	-13.7%	4.0%	4.0%	4.0%	4.0%
Drainage Increase	1.8%	4.0%	4.0%	4.0%	4.0%
Total Combined Increase	**0.8%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**

The future rate increase projections shown in Table 1-1 for FY 2024 through FY 2027 are dependent on the above assumptions. Any changes to the assumptions, such as changes in future interest rates or expense inflation may have an impact on the overall financial forecast and rate revenue projections. These variables will be important considerations in DWSD's annual budgetary and rate setting process moving forward.

The level of projected annual rate adjustments identified herein are consistent with national trends and Stantec's industry experience. As demonstrated in Figure 1-2, the U.S. Consumer Price Index (CPI) Water & Sewerage Maintenance Series, which specifically measures the average national change in the cost of water and wastewater service to households, has risen at an average annual rate of approximately 5.00 percent during the past ten years. Moreover, many of Stantec's clients across the country are presently experiencing rate increases in the range of 3.0 percent to 8.0 percent per year.

Figure 1-2: US CPI - Water & Sewerage Maintenance Series



US CPI, Water and sewerage maintenance, Series Id: CUUR0000SEHG01

1.3 COST ALLOCATION

The purpose of a cost-of-service analysis is to proportionally distribute identified revenue requirements among the various systems and types of customers served, based on accepted industry practices and guidelines. Such practices and guidelines are documented by industry publications such as the American Water Works Association's (AWWA) M1 Principles of Water, Rates, Fees, and Charges[4], the Water Environment Federation's (WEF) Manual of Practice No. 27[5], the AWWA M22 Sizing Water Service Lines and Meters[6], and the AWWA M29 Water Utility Capital Financing[7].

Figure 1-3 below shows the cost-of-service allocation approach utilized in the Study. Total FY 2023 Operating Fund revenue requirements were first allocated between the water and combined sewer systems, and the combined sewer system costs were further allocated to wastewater and drainage. Water system costs were allocated to typical system components or functions, and wastewater costs

[4] Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, AWWA M1, Seventh Edition, 2017.

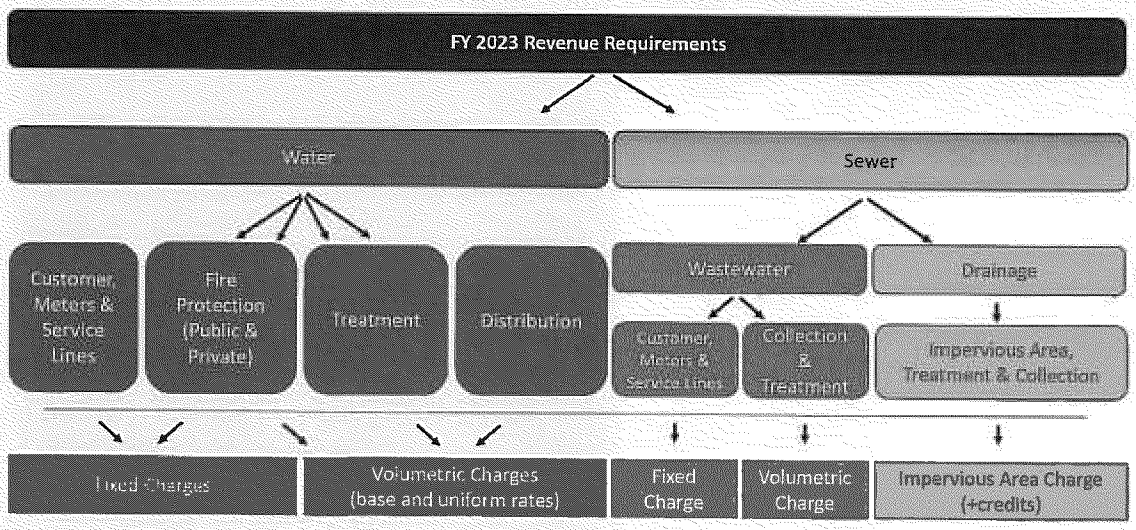
[5] Financing and Charges for Wastewater Systems, WEF Manual of Practice No. 27, 2019.

[6] Sizing Water Service Lines and Meters, AWWA M22, Third Edition, 2014.

[7] Water Utility Capital Financing, AWWA M29, Fourth Edition, 2014.

were similarly allocated to wastewater functions. The bottom portion of the graphic shows how the cost allocation forms the cost basis for the development of water, wastewater, and drainage charges.

Figure 1-3: Cost Allocation Approach



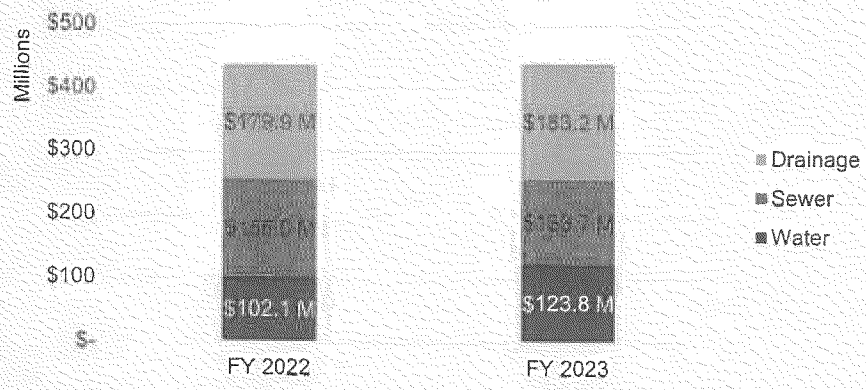
The Study followed the AWWA and WEF industry best practices by:

1. Allocating costs to water, wastewater, and drainage based on individual categories of costs and appropriate allocation criteria.
2. Allocating water and wastewater costs to individual functions or activities (such as supply, treatment, distribution, meters/services, etc.). This step is often called "functionalization" and it links costs with the functions utilities perform to meet customer demands.
3. Allocating water functional costs to the appropriate cost components (such as average use, maximum day demands, peak hour demands, customer service, etc.). This links costs with the customer usage and service characteristics that drive costs and is called the base/extra-capacity approach for cost allocation.[8]
4. Distributing each water cost component to customers in accordance with the demand and service characteristics placed on the system. This step identifies the units of service for customers based on meter size and billed volume.

The results of the cost allocation to water, wastewater, and drainage are depicted in Figure 1-4, showing the total revenue requirements by system in FY 2022 and FY 2023. The results demonstrate that current revenues are generally proportional to the rate revenue requirements from the cost-of-service analysis. FY 2023 rate revenues will reflect the cost-of-service allocation results, which represents a shift of about $20 million from wastewater to water and a small increase in drainage requirements (before credits).

[8] Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, AWWA M1, Seventh Edition, 2017.

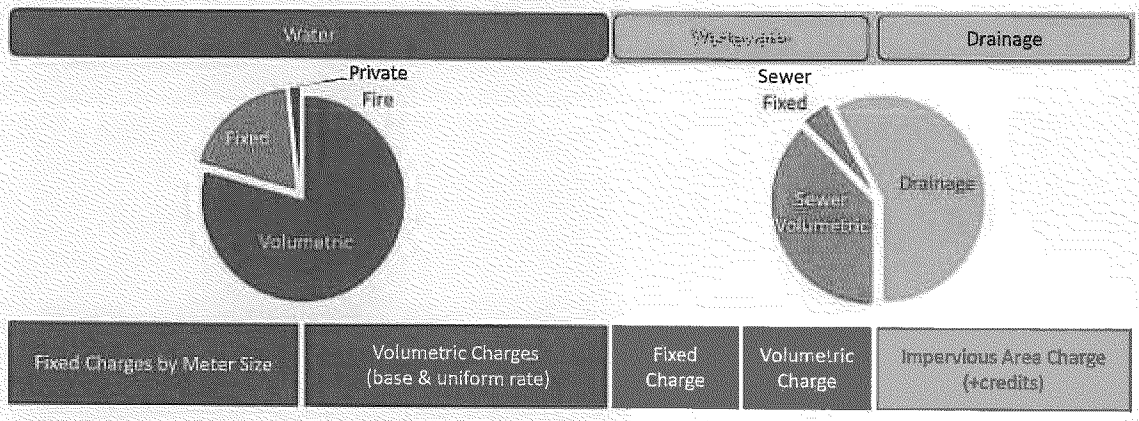
Figure 1-4: FY 2023 Rate Revenue Requirements vs. Current Revenue by System



1.4 RATE DESIGN

Stantec examined DWSD's current water, wastewater, and drainage rates and developed recommended rate structure modifications that 1) proportionally recover cost of service and revenue requirements from each system, 2) conform to accepted national and local industry best practices, and 3) promote affordability, equity, and conservation. The cost allocation analysis connects the types of cost drivers with rate structure components as shown in Figure 1-5. The following sub-sections describe the rate structures in more detail.

Figure 1-5: Rate Design Approach

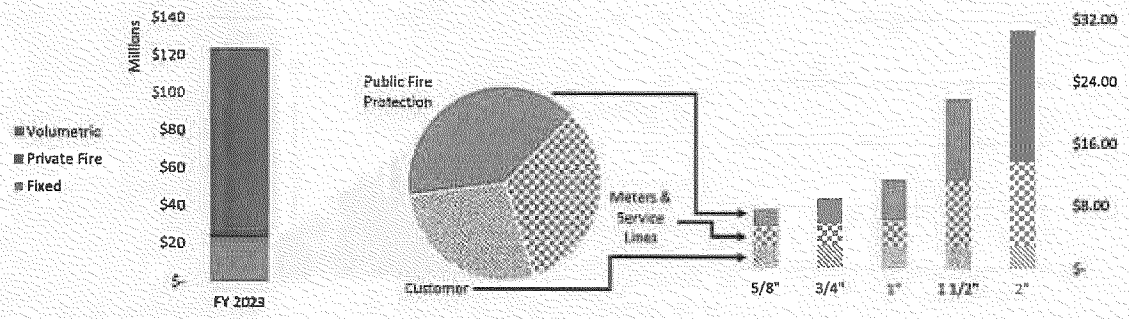


Water Fixed Charges – Water fixed charges are proposed to recover three types of costs through a monthly meter charge:

- Customer service costs are allocated uniformly to all meters.
- Meters and service line costs reflect replacement cost by meter size.
- A portion of public fire protection costs (capital, debt, and GLWA expenses) are scaled based on hydraulic capacity of each meter size.

Figure 1-6 shows the allocation of costs recovered in the proposed water fixed charge and the approach for allocating each cost to the monthly meter charge for meter sizes up to 2". Larger meter sizes are not shown; however, all meter sizes follow the same approach.

Figure 1-6: Water Fixed Charge Approach



Private fire costs are recovered in a separate fixed charge based on the size of each connection.

Water Volumetric Rates – Water volumetric rates recover remaining water costs in a tiered structure.

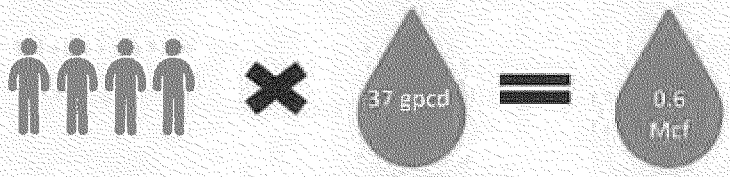
- Base tier threshold of 0.6 thousand cubic feet (Mcf) per month was calculated based on estimated indoor residential water use[9] and substantiated based on a review of DWSD FY 2021 monthly billed volume distributions.
- Base tier rate was calculated by dividing average day costs by total usage volume, plus Tier 1 peaking costs[10], divided by Tier 1 volume. The base tier structure applies to all customer classes for the first 0.6 Mcf of water use each month.
- New uniform tier rate for all use above 0.6 Mcf calculated based on average day costs divided by total volume, plus Tier 2 peaking costs[10], divided by Tier 2 volume. The higher tier reflects a proportionally greater allocation of costs to water users who impose increased burden on the system due to higher demands.

[9] Assumes four people per household and 36.7 gallons per capita per day based on *Residential End Uses of Water, Version 2*, The Water Research Foundation, 2016. Monthly usage calculates to be 4,040 gallons, or 0.6 Mcf.

[10] Peaking cost allocation based on proportional change in monthly volume in each tier from the lowest month to highest month, based on DWSD FY 2021 billing data.

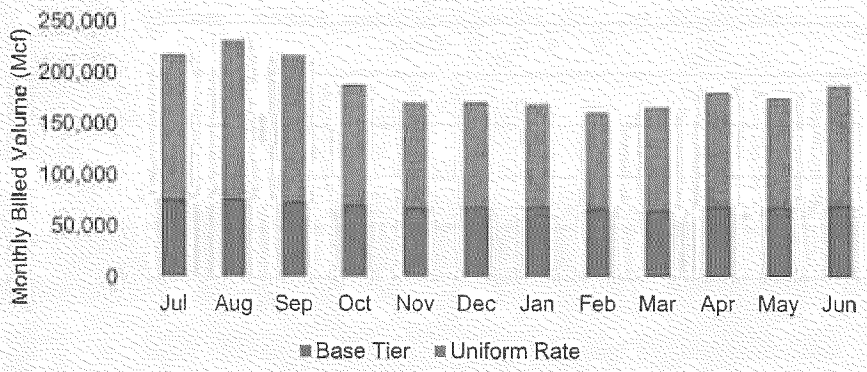
Figure 1-7 shows the calculation for the base tier size of 0.6 Mcf per month.

Figure 1-7: Base Tier Size Analysis



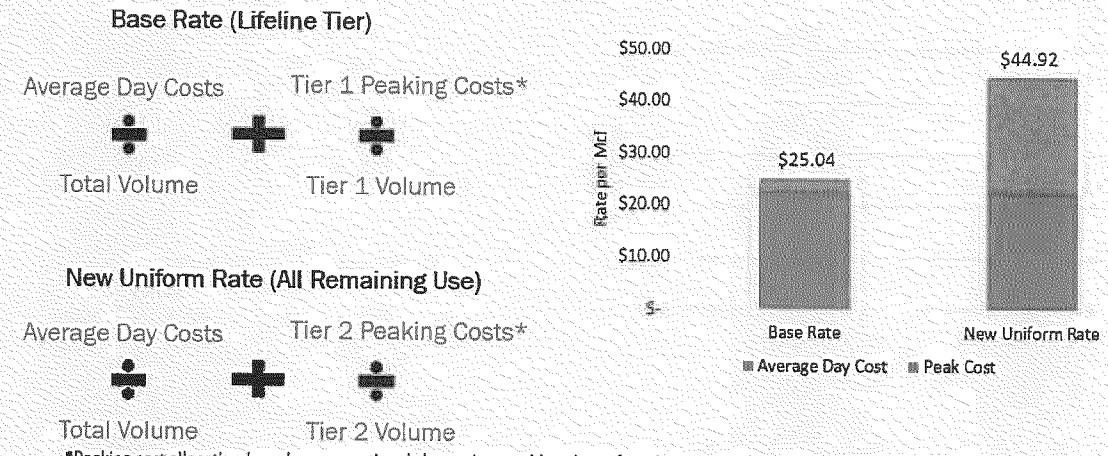
The following Figure 1-8 shows the resulting volume in each tier by month, based on DWSD's 2021 billing data. The chart demonstrates that there is minimal peaking in the base tier because the amount of water use in the base tier is consistent each month throughout the year.

Figure 1-8: Amount of Water Use that Falls in Each Tier



The following Figure 1-9 shows the calculation of the base rate and new uniform rate prices as well as the resulting rate per Mcf of the base tier and new uniform tier. The water system incurs additional costs to meet peak demands; therefore, allocating peak costs to tiers in this way shifts peak costs to the customers who contribute to increasing peak demands.

Figure 1-9: Water Volumetric Rates Pricing Analysis



*Peaking cost allocation based on proportional change in monthly volume from lowest month to highest month of the test year

Wastewater Fixed Charges and Volumetric Rates – Wastewater costs are recovered through a monthly customer charge and volumetric rate.

- Recover wastewater customer-related costs through a fixed monthly charge that applies equally to each customer bill.
- Proposed volumetric rate approach uses customer's monthly average winter consumption (AWC) or actual water use, whichever is lower, as basis for billing the volumetric rate.[11]
  - AWC is based on average water use from January through March.
  - AWC is applied to all customer classifications.
  - This change requires modifications to DWSD's billing system and will be implemented when feasible (see interim wastewater volumetric approach).
- Interim wastewater volumetric rate approach applies monthly cap of 1.2 Mcf on individually metered residential units.[12]
  - Continue using billed monthly water use for all other customers and allow deduct or water only metering configurations for other customers at their expense.

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[11] Winter months are typically representative of indoor water use only. Outdoor water use, such as irrigation, does not return to the sewer system. Therefore, using the lesser of actual water use or winter average water consumption is generally accepted as a more accurate method of determining wastewater flow for billing purposes.

[12] Sewer caps are appropriate for residential customers that have relatively homogeneous usage profiles, compared to the wide variability of usage in commercial customers that make sewer caps problematic. That said, commercial customers can and do often utilize separate meters to capture water only demands not returning to the wastewater system.

- Use until AWC can be implemented through modifications to the billing system (FY 2024).

Drainage Charges – Drainage charges are recovered through a monthly charge applied based on impervious area.

- No changes recommended to DWSD's existing drainage rate structure.
- Update the drainage charge based on the current rate structure and cost-of-service results, customer credit program, Michigan Department of Transportation (MDOT) settlement, and latest Billable Impervious Area (BIA).

Water, Wastewater, and Drainage Rates and Charges

DWSD annually adopts a rate schedule for water, wastewater, and drainage rates as part of its budget process. Below are the current FY 2022 and proposed FY 2023 rates and charges.

The current and proposed monthly water meter charges are shown in Table 1-2.

Table 1-2: Summary of Current and Proposed Water Meter Charges

Meter Size	Current Meter Charge (per month)	Proposed Meter Charge (per month)
5/8"	$7.86	$7.59
3/4"	$11.79	$8.88
1"	$19.65	$11.47
1.5"	$39.31	$21.88
2"	$62.89	$30.62
3"	$125.79	$96.03
4"	$196.54	$145.08
6"	$393.08	$367.74
8"	$628.93	$492.14
10"	$904.08	$923.52
12"	$1,218.55	$1,425.61
14"	$1,690.24	$2,246.35
16"	$2,240.56	$2,984.63

The current and proposed water volumetric rates are shown in Table 1-3.

Table 1-3: Summary of Current and Proposed Water Volumetric Rates

Current Tier	Current Volumetric Rate (per Mcf)	Proposed Tier	Proposed Volumetric Rate (per Mcf)
All Use	$26.60	Base Tier (0-0.6 Mcf)	$25.04
		Uniform Tier (>0.6 Mcf)	$44.92

The current and proposed private fireline charges are shown in Table 1-4.

Table 1-4: Summary of Current and Proposed Private Fireline Charges

Connection Size	Current Charge (per month)	Proposed Charge (per month)
4"	$94.41	$28.84
6"	$196.69	$83.78
8"	$283.23	$178.54
10"	$456.32	$321.07
12"	$676.61	$518.62

The current and proposed wastewater service charges are shown in Table 1-5.

Table 1-5: Summary of Current and Proposed Wastewater Service Charge

	Current Charge (per bill)	Proposed Charge (per bill)
All Customers	$6.54	$6.34

The current and proposed wastewater disposal rates are shown in Table 1-6.

Table 1-6: Summary of Current and Proposed Sewer Disposal Rates

	Current Volumetric Rate (per Mcf)	Proposed Volumetric Rate (per Mcf)
All Use	$57.06	$55.40

The current and proposed drainage charges are shown in Table 1-7.

Table 1-7: Summary of Current and Proposed Drainage Charges

	Current Charge (per month per impervious acreage)	Proposed Charge (per month per impervious acreage)
All Customers	$677.00	$678.28

Customer Bill Impacts

Table 1-8 presents a summary of the combined monthly impacts to single family residential customers with 5/8" meters at various levels of water use. These projections include the revenue requirement adjustments, customer class cost-of-service adjustments, and rate structure modifications recommended herein.

Table 1-8: Single Family Combined Water, Wastewater, and Drainage Bill Comparisons (5/8" Meter)

Water Use (Mcf)	Percentage of Bills	Current Bill	Proposed Bill	$ Change	% Change
0.0	11%	$39.79	$39.37	-$0.42	-1.1%
0.1	19%	$48.15	$47.41	-$0.74	-1.5%
0.2	31%	$56.52	$55.45	-$1.07	-1.9%
0.3	43%	$64.89	$63.50	-$1.39	-2.1%
0.4	54%	$73.25	$71.54	-$1.71	-2.3%
0.5	64%	$81.62	$79.59	-$2.03	-2.5%
0.6	72%	$89.98	$87.63	-$2.35	-2.6%
0.7	78%	$98.35	$97.66	-$0.69	-0.7%
0.8	83%	$106.72	$107.69	$0.97	0.9%
0.9	86%	$115.08	$117.73	$2.65	2.3%
1.0	89%	$123.45	$127.76	$4.31	3.5%
1.1	91%	$131.81	$137.79	$5.98	4.5%
1.2	92%	$140.18	$147.82	$7.64	5.5%
1.3	94%	$148.55	$152.31	$3.76	2.5%

Note:

1. Proposed bill reflects water, wastewater, and drainage FY 2023 revenue requirements.
2. Proposed bill reflects water rate structure changes and wastewater volumetric rate cap of 1.2 Mcf.
3. Assumes 0.05 billable impervious acres for drainage portion of bill.

Affordability of service is important to DWSD and effective August 1, 2022, customer assistance to qualifying customers is provided through GLWA's Water Rate Assistance Program (WRAP) funding and Federal Low Income Household Water Assistance Program (LIHWAP)[13] funding. DWSD administers program funds through its pilot Lifeline Affordability Plan. The Lifeline Plan was created by DWSD to provide low-income customers with non-rate revenue funds from WRAP and LIHWAP to help cover their bills. . While the shut-off moratorium ended in the State March 31, 2021, the City of Detroit and DWSD extended the moratorium through 2022[14]. The Lifeline Plan offers qualifying residential customers a fixed monthly bill for the first 4,500 gallons of water, pays off arrearages, and offers plumbing repairs at households using more than 4,500 gallons of water per month. In the Lifeline Plan, there are three

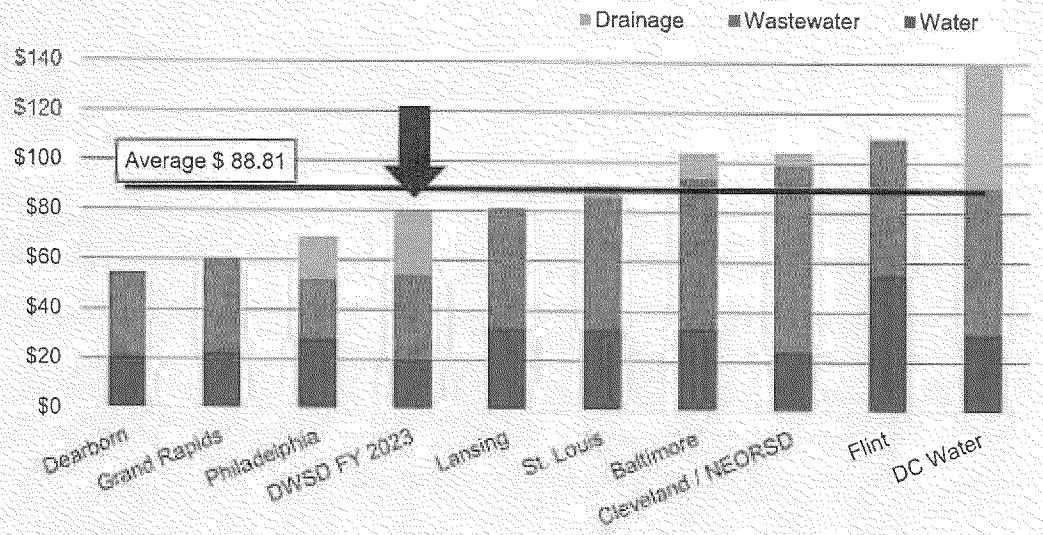
[13] The LIHWAP program provides up to $1,000 in assistance to low-income customers with disconnected services or those facing disconnection. Low Income Household Water Assistance Program, Michigan LIHWAP Profile Summary, RPT _LIHWAP_Profile Summary_MI_FY2022 (hhs.gov).

[14] https://detroitmi.gov/news/mayor-dwsd-extend-moratorium-residential-water-shutoffs-through-2022-and-announce-intention

payment tiers: $18/month for water, sewer, and drainage bill if household income is at or below 135% of Federal Poverty Level; $43/month if household income is above 135% of FPL but at or below 150% of FPL; and $56/month if household income is above 150% of FPL but at or below 200% of FPL. The gap amount between the payment tiers offered under the Lifeline Plan and the customer's actual bill are paid with WRAP and LIHWAP assistance funding. DWSD continues to review the use of outside funding sources and is actively lobbying for continued funding under LIHWAP appropriation to assist its neighbors in need, as the current LIHWAP program will end in September 2023.

Stantec prepared a survey of monthly residential bills for local and national peers. Figure 1-10 shows the results of this survey, comparing current water, wastewater, and drainage monthly charges to DWSD's proposed FY 2023 monthly charge for a typical residential customer. DWSD's bill of $79.59 per month is lower than the average bill of $88.81 per month.

Figure 1-10: Monthly Residential Bill Comparison



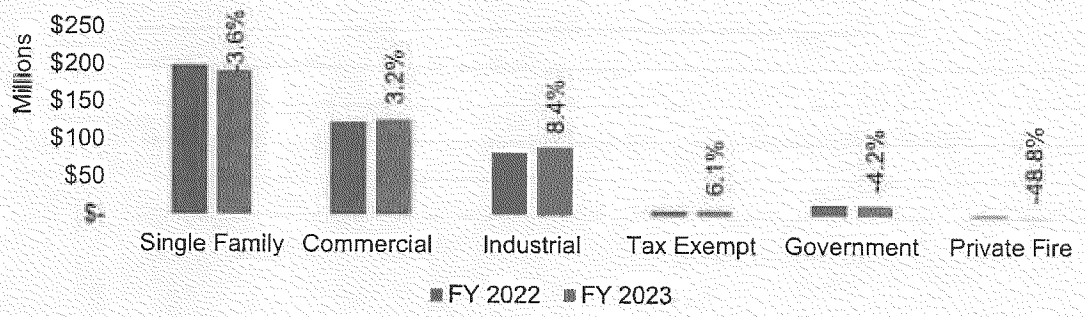
Note:

1. "DWSD FY 2023" reflects water, wastewater, and drainage FY 2023 revenue requirements and proposed rates.
2. Assumes 5/8" meter, 0.5 Mcf of water use, and 0.05 billable impervious acres.
3. Agencies without a drainage fee may capture costs in water/sewer charges or in non-utility sources (i.e., taxes).
4. Bills for other agencies are based on current (FY 2022) rates, and some will likely increase in FY 2023.

While only residential bill impacts are shown in Table 1-8 and Figure 1-10, non-residential customers will have varying impacts based on each customer's meter size, monthly water volume, and impervious area. Figure 1-11 shows a summary of revenue impacts aggregated for various customer classifications based on FY 2023 rates (assuming AWC for wastewater billing) and customer billing data. Generally, the range

of impact is dependent upon the amount and distribution of monthly water use of individual customers within each classification as this will impact how much water is billed in each tier of the proposed water rate structure as well as how much volume is billed wastewater volumetric charges.

Figure 1-11: FY 2023 Estimated Change in Revenue by Customer Class



1.5 FINDINGS AND RECOMMENDATIONS

This Study developed proposed rates for DWSD's customers that are in proportion to the cost of providing service, consistent with industry practices, and are reasonable and transparent. The Study's findings and recommendations are summarized below:

1. FY 2023 rate adjustments reflect the results of the cost allocation analysis that rebalance revenue from each system. The total revenue increase needed from FY 2022 to FY 2023 is 0.8 percent.
2. FY 2023 cost allocation of revenue requirements results in a $20 million shift in costs from wastewater to water from FY 2022 revenues based on a detailed allocation of operating and capital costs reflecting current and planned activities.
3. Water rate structure revised to apply base rate to water use that is consistent throughout the year and allocate peaking costs to the base rate and a new uniform rate in proportion to the contribution to the peak demands on the system from use in each tier.
4. Wastewater rate structure revised to bill volumetric rate based on lesser of actual water use or average winter consumption, calculated based on January through March water use by FY 2024.
5. Until average winter water usage can be incorporated into DWSD's billing system, apply a monthly sewer use cap of 1.2 Mcf for individually metered residential customers and bill actual water use for all other customers.
6. Continue to charge drainage rate per acre of impervious area with credits applied to customers who qualify.
7. Evaluate additional funding sources for customer assistance programs within legal limitations to minimize rate impacts on vulnerable customers.
8. Update rate revenue requirements annually and perform periodic rate studies (every 3 to 5 years) to address changes in cost distributions between services and customer characteristics.

2. BACKGROUND & OBJECTIVES

Stantec Consulting Services Inc. (Stantec) has conducted a comprehensive rate study (Study) for the Detroit Water and Sewerage District (DWSD or "the Utility"). This report outlines the background, objectives, approach, and results of the Study.

2.1 BACKGROUND

DWSD provides water, wastewater, and drainage services to a customer base of approximately 230,000 accounts. DWSD is an enterprise agency of the City of Detroit and is a customer of the Great Lakes Water Authority (GLWA). The City of Detroit by and through the Water and Sewerage Department is GLWA's agent to perform certain services and functions in the City, including setting retail rates to meet revenue requirements, billing and collecting from Detroit retail customers, and enforcing the collection of fees and charges. GLWA leases the City's water supply and sewerage disposal facilities serving the regional service area and makes an annual payment that is used to support capital infrastructure of its retail system. The Study focuses on DWSD's costs, paid for by DWSD customers through water, sewer, and drainage rates.

A formal cost-of-service study has not been performed since bifurcation of the City of Detroit's water and sewer system assets in January 2016. This Study also facilitates DWSD's efforts to structure rates that adhere to proportionality[15] and cost-of-service principles. This Study's overall goal is to develop rates for DWSD's customers that are in proportion to the cost of providing service, follow industry best practices, and are reasonable and transparent.

2.2 OBJECTIVES

Revenue Requirements – Develop a multi-year forecast for DWSD that determines the annual revenue needed to fund operating expenses, wholesale costs, existing liabilities, and infrastructure needs. Determine appropriate funding sources for capital projects and maintain financial policies and targets. Identify key factors affecting future rate increases and compare results to national trends.

Cost Allocation – Allocate test year revenue requirements to water and combined sewer systems based on cost center categories and proportional usage characteristics of each system. Allocate water revenue requirements to water system functions and customers based on system and use

[15] *Bolt v City of Lansing*, a 1998 Michigan Supreme Court decision, identified what is a valid user fee versus a tax, suggesting that user fees should be regulatory, proportional, and voluntary.

characteristics. Allocate combined sewer revenue requirements to wastewater and drainage based on functional categories and components of combined sewage flow.

Rate Design – Review DWSD's existing rate structure and develop modifications, as appropriate, based on accepted industry best practices and proportional allocation of costs based on cost-of-service analysis. Evaluate customer bill impacts, affordability programs currently available to DWSD customers, and possible future affordability programs. Perform bill comparisons to other agencies.

2.3 RESOURCES

In addition to relying on its knowledge and experience, Stantec relied on several industry resources in the conduct of this Study, notably including guidance and practices from the American Water Works Association (AWWA) and the Water Environment Federation (WEF) as reflected in the following resources:

i. **Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, AWWA M1, Seventh Edition.** This manual is intended to help policymakers and rate analysts consider all relevant factors when evaluating/defining customer classes, performing cost of service allocations, and selecting/calculating specific rate structures. It is a comprehensive collection of guidance on a variety of issues associated with designing and developing water rates and charges.

ii. **Financing and Charges for Wastewater Systems, WEF MOP 27, Fourth Edition.** This manual provides an overview of the current practices and procedures that should be considered for financing and establishing rates and charges for sanitary sewer collection and treatment systems. It is intended to provide guidance by illustrating various ways of analyzing and allocating the operating and capital costs associated with collecting and treating wastewater and developing rates and charges that fairly and reasonably reflect the cost of providing service to different customers.

iii. **Sizing Water Service Lines and Meters, AWWA M22, Third Edition.** This manual provides demand and maximum expected flow estimates that can be used to determine the appropriate size of new service lines and meters.

iv. **Water Utility Capital Financing, AWWA M29, Fourth Edition**. This manual provides support for obtaining funding and financing for water utility capital projects. It is intended as a resource for utilities with short- and long-term capital needs to obtain funding through both traditional and innovative funding sources.

It is important to note that these industry resources are meant to provide guidance to the cost-of-service and rate-making process. There is no single approach that fits a utility perfectly. WEF MOP 27 states (p 2), "As individual wastewater utilities address their financial management challenges, it is important that their practices for setting rates and charges be responsive to the unique circumstances and values of the communities they serve. Accordingly, this MOP offers industry-accepted guidance in addressing these challenges without prescribing specific methods. In many instances, acceptable methodological alternatives are presented."

3. REVENUE REQUIREMENTS

3.1 DESCRIPTION

This section presents the financial management plan and corresponding plan of water, wastewater, and drainage rate adjustments developed for the Utility in the revenue requirements analysis conducted as part of this Study. The following sub-sections of the report present a description of the source data, assumptions, and results of the revenue requirements analysis, while Appendices A and B include detailed supporting schedules for the financial management plans identified herein for the water and sewer systems, respectively.

The revenue requirements analysis evaluated the adequacy of DWSD's current revenues and the levels of rate increases needed to meet projected financial requirements for DWSD's systems over the 10-year period of Fiscal Year (FY) 2023 through FY 2032. The process included a review of DWSD's operating expenses, non-operating expenses, GLWA wholesale treatment and pre-bifurcation debt expenses, bad debt, and capital expenses. The analysis also evaluated non-rate revenue sources of funding and identified a capital funding plan based for the projected capital cost requirements.

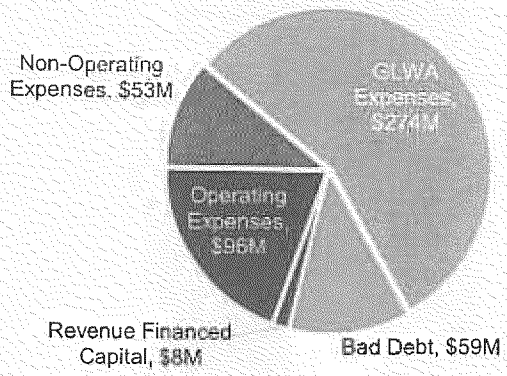
Stantec obtained DWSD's historical and budgeted financial information regarding the operation of its water and sewer systems, as well as historical customer counts and volume data by type of customer. Stantec also obtained the Utility's multi-year capital improvement program (CIP) and documented the Utility's current debt service obligations and covenants, or promises made to lenders, relative to net income coverage requirements and reserve levels. Stantec also consulted with DWSD regarding other assumptions and policies that would affect the performance of the Utility, such as trends in demands, customer growth, bad debt, debt service coverage and fund reserve levels, capital funding sources, earnings on invested funds, and escalation rates for operating costs.

These data and assumptions were entered into two separate versions of Stantec's proprietary Financial Analysis and Management System (FAMS) interactive modeling system, one for the water system and one for the combined sewer system. FAMS produced a 10-year projection of the sufficiency of the revenue provided by the existing rates for each system to meet current and projected financial requirements. These projections further determined the overall level of rate revenue increases necessary in each year of the projection period to satisfy each system's annual financial requirements.

Through this process, financial management plans and associated annual water, wastewater, and drainage rate revenue increases were developed to address current and projected DWSD costs. Based on the FY 2023 Adopted Budget, GLWA expenses (including wholesale treatment expenses and pre-bifurcation debt) are more than 55 percent of the total revenue requirement, while costs funded by customer rates that DWSD can "control" (operating expenses and revenue financed capital costs)

represent 21 percent of the total revenue requirement. Figure 3-1 shows a summary of FY 2023 revenue requirements for the DWSD combined water and sewer Revenue Fund by expense type.[16]

Figure 3-1: FY 2023 Revenue Requirement Summary



Note: Non-Operating Expenses include pension requirements, Water Retail Assistance Program (WRAP) expenses, and industrial waste control (IWC) costs.

3.2 SOURCE DATA

The following presents the key source data relied upon for conducting the revenue requirements analysis:

Beginning Fund Balances

The FY 2022 year ending cash balance provided by DWSD was used to establish beginning FY 2023 balances for the water and sewer models. Balances for the water and sewer systems were each comprised of the Revenue Fund, the Improvement and Extension (I&E) Fund, and the Construction Fund, which contains existing bond proceeds. The Revenue Fund balance reflects the results of operating and non-operating cash flow each year, while the I&E Fund and Construction Fund balances are applied to specific eligible capital projects, based on input from DWSD.

Revenues

The rate revenues utilized in the revenue requirements analysis reflect the water, wastewater, and drainage revenue requirements for FY 2023, based on the cost-of-service analysis. Non-rate revenues consist of other operating revenue, non-operating revenue, and interest income. The FY 2023 Budget was used to project all non-rate revenue amounts, excluding interest income, which was calculated

[16] In addition to the Revenue Fund, DWSD has an Improvement & Extension (I&E) fund that supports major capital expenses and is funded by the GLWA lease payment and transfers from the Revenue Fund.

annually based on projected average fund balances and assumed interest rates. Lease revenue received from GLWA is reflected in the I&E Fund.

Other operating revenues include various miscellaneous fees, such as penalties, permit review fees, inspection fees, and other fees for activities completed by DWSD staff. Typically, late fees and disconnection fees are tools available to utilities to recover costs of service and avoid providing free service. The State of Michigan implemented a moratorium on water service shut-offs during the COVID-19 pandemic. While the shut-off moratorium ended in the State March 31, 2021, the City of Detroit and DWSD extended the moratorium through 2022[17].

Stantec provided DWSD with an Excel spreadsheet tool that builds the cost basis for miscellaneous fees using labor and materials inputs. The benefit of cost-based fees is that the costs of service are being recovered from those benefitting from the service. Revenues collected for these services are used to offset the user rate revenue requirement. Stantec recommends that DWSD staff assess which fees require updated calculations based on cost, implement cost-based fees if appropriate, and evaluate the impact to the revenue requirements of the cost-based fees. At this time, no changes in these miscellaneous fees are projected in Stantec's forecast of other operating revenues.

Operating Expenditures

The Utility's operating expenditures include all operating and maintenance expenses, pension requirements, WRAP expenses, GLWA wholesale charges, and pre-bifurcation debt expenses. The revenue requirements analysis based the operating expenditure projections on the FY 2023 Adopted Budget, adjusted annually based on assumed cost escalation factors that were reviewed with DWSD.

Capital Improvement Program

DWSD provided a multi-year CIP, in project level detail, from FY 2023 through FY 2027. For the following five years of the analysis, FY 2028 through FY 2032, projected capital costs were estimated based on historical trends and considering current costs. The CIP has been adjusted using an execution factor to bring projections in line with historical CIP budget versus actual performance and DWSD staff estimates of approximately $50 million for water and $40 million for sewer and storm drainage projects per year.

In total, the CIP (including execution) from FY 2023 through FY 2032 is approximately $509 million and $418 million for the water and sewer systems, respectively. A list of projects and costs by year is included on Schedule 6 of Appendices A and B for the water and sewer systems, respectively.

[17] https://detroitmi.gov/news/mayor-dwsd-extend-moratorium-residential-water-shutoffs-through-2022-and-announce-intention

3.3 ASSUMPTIONS

The following presents the key assumptions utilized in conducting the revenue requirement analysis.

Cost Escalation

Annual cost escalation factors for various types of operating and maintenance expenses were developed based on discussions with DWSD, a review of historical trends, and Stantec's industry experience. The specific escalation factors assumed for various categories of expenses can be found on Schedule 5 of Appendices A and B for the water and sewer systems, respectively. GLWA wholesale treatment costs are based on the FY 2023 Service Charges Proposal provided by GLWA and are assumed to escalate by 4.00 percent per year, beginning in FY 2024.[18] Other operating costs escalation is based on assumptions as of this Study; however, the inflationary environment is expected to be volatile and DWSD should be vigilant in updating these assumptions going forward.

Interest Earnings

The analysis reflects assumed interest earning rates of 0.00 percent in FY 2023 based on the FY 2023 Adopted Budget, 0.25 percent in FY 2024, 0.50 percent in FY 2025, and 0.75 percent in FY 2026 and each year of the forecast period based on DWSD projections.

Customer and Volume Forecast

Customer and billed volume projections were based on DWSD estimates for FY 2023 through FY 2031 that reflect recent historical trends. Table 3-1 presents the assumed customer growth and assumed changes in volume by year through FY 2027. For FY 2028 through FY 2032, customer growth and volume changes are assumed to continue at the same levels as forecast for FY 2023 through FY 2027. The assumed growth in customers and changes in billed volume is used to forecast fixed charge revenue and volumetric rate revenue, respectively.

[18] 4.00% escalation is applied to the GLWA wholesale charge inclusive of the fixed ownership charge.

Table 3-1: Water and Wastewater Projected Customer and Volume Growth

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Water					
Customer Growth	0.50%	0.50%	0.50%	0.50%	0.50%
Volume Growth	-2.00%	-2.00%	-2.00%	-2.00%	-2.00%
Wastewater					
Customer Growth	0.25%	0.25%	0.25%	0.25%	0.25%
Volume Growth	-2.00%	-2.00%	-2.00%	-2.00%	-2.00%
Drainage					
Customer / Impervious Area Growth	0.00%	0.00%	0.00%	0.00%	0.00%

Bad Debt

Due to the moratorium on shutoffs, DWSD's bad debt on water and combined sewer revenues in recent years (FY 2019 through FY 2021) has ranged from 6 percent to 12 percent for water and from 9 percent to 14 percent for the combined sewer system. Staff estimates that water and wastewater bad debt expense will be 10 percent as long as the current moratorium is in place, and drainage bad debt expense will be 18 percent, to result in a combined sewer bad debt of 14 percent. Bad debt expense is expected to be reduced to 8 percent for water and wastewater and 16 percent for drainage by FY 2027 in a response to the elimination of the moratorium on shutoffs and customer assistance programs. Current and future federal funding and customer assistance programs, and other factors, may impact the levels of bad debt.

Minimum Reserve Fund Balance Policy

Reserve balances for utilities are funds set aside for a specific cash flow requirement, financial need, project, task, or legal covenant. These balances are maintained to meet short-term cash flow requirements and minimize the risk associated with meeting the financial obligations and continued operational and capital needs under adverse conditions. The level of reserves maintained by a utility is an important component and consideration of developing a utility's multi-year financial management plan.

Many utilities, rating agencies and the investment community as a whole place a significant emphasis on having sufficient reserves available for potentially adverse conditions. The rationale related to the maintenance of adequate reserves is twofold. First, it helps to ensure that a utility will have adequate funds available to meet its financial obligations during unusual periods (i.e., when revenues are unusually low and/or expenditures are unusually high). Second, it provides funds that can be used for emergency repairs or replacements to the system, which can occur because of natural disasters or unanticipated system failures.

The financial management plans presented in this report assume that the Utility will maintain a minimum Revenue Fund balance, or reserve, equal to three months of annual operating reserves. In addition, DWSD will maintain a reserve of six months of lease revenue in the I&E Fund. These levels of reserve

fund balances are consistent with 1) Stantec's industry experience for similar systems, 2) the findings of reserve fund studies and guidelines prepared by the AWWA, and 3) a healthy level of reserves for a municipal utility system, per the evaluation criteria published by municipal utility rating agencies such as Fitch, Moody's, and Standard & Poor's. The recommended financial plan presented herein transfers funds to the I&E fund to pay for future capital projects when funds are available per GLWA's master bond ordinance.

Future Borrowing and Capital Funding

Capital projects are assumed to be funded with cash, revenue bonds, and State Revolving Fund (SRF) loans. Project funding sources are determined based on eligibility of available funds and minimum fund balance reserves in each year of the projection period. Future revenue bonds are assumed to be issued for a 20-year term, at an interest rate of 5.00 percent. SRF loans are assumed to be issued for a 30-year term at an interest rate of 2.00 percent and reflect 8.00 percent principal forgiveness. Debt service payments from revenue bonds and SRF loans are assumed to be paid for using I&E revenues. The Utility's actual future financing and funding decisions will reflect actual future conditions, but the projections in the revenue requirements analysis reflect realistic overall conditions and are appropriate for planning purposes. Given the current interest rate environment as of the date of this Study, DWSD should continue to monitor borrowing costs and update revenue requirement projections annually. A complete schedule of assumed future borrowing can be found in Schedules 11 and 12 of Appendices A and B for the water and sewer systems, respectively.

3.4 RESULTS

Based on the data, assumptions and policies presented herein, DWSD's current water and sewer rates will not provide sufficient revenue to meet its ongoing debt service, discrete capital investment appropriately financed through revenue, operation and maintenance expenses, and reserve requirements over an extended multi-year projection period. The level of projected water, wastewater, and drainage adjustments to rate revenues needed to meet these requirements are shown in Table 3-2. The FY 2023 proposed rate adjustments reflect the results of the cost allocation study to rebalance the revenue needed from each system. The total amount of additional revenues generated by the rate increases shown in FY 2023 is 0.8 percent.

Table 3-2: Projected Annual Rate Revenue Increases

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Effective Date	July 1, 2022 *Proposed*	July 1, 2023 *Projected*	July 1, 2024 *Projected*	July 1, 2025 *Projected*	July 1, 2026 *Projected*
Water Increase	21.2%	4.0%	4.0%	4.0%	4.0%
Wastewater Increase	-13.7%	4.0%	4.0%	4.0%	4.0%
Drainage Increase	1.8%	4.0%	4.0%	4.0%	4.0%
Total Combined Increase	**0.8%**	**4.0%**	**4.0%**	**4.0%**	**4.0%**

It is important to note that the projections of future conditions underlying this analysis are estimates. There are multiple factors beyond the Utility's control, such as: 1) bad debt and shut offs, 2) grant

funding, 3) GLWA wholesale treatment cost increases, and 4) interest rates and inflation. Moreover, the projections in this Study rely on data and guidance provided during the Study, and while the information utilized in this Study is believed to be reliable, detailed independent reviews or auditing of the data were not conducted. As a result, there will usually be differences between forecast and actual results because events and circumstances frequently do not occur as expected, and those differences may be material.

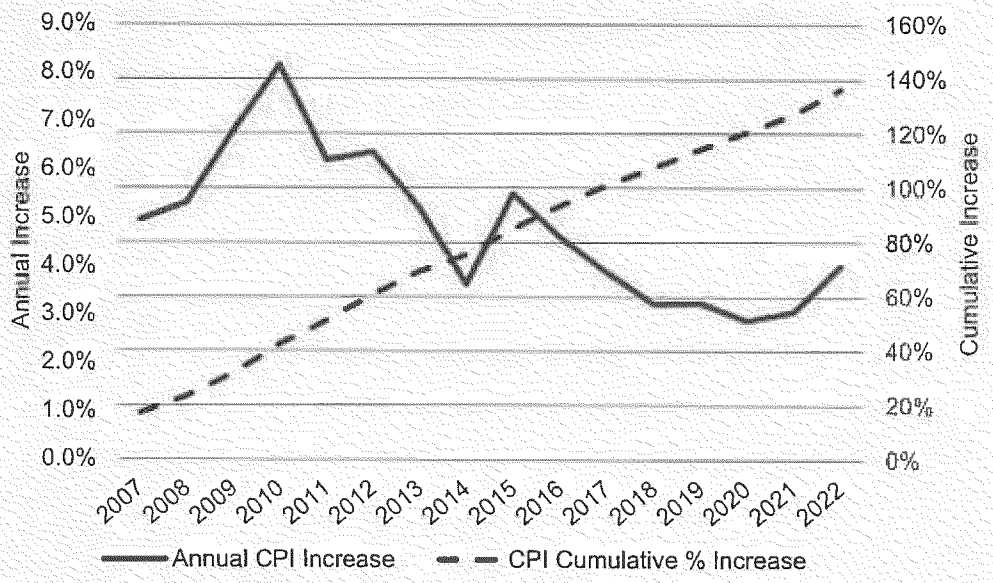
Any changes to the assumptions, such as a reduction in the bad debt expense that may occur as a result of resuming shutoffs or assistance programs, or changes in future interest rates or expense inflation may have an impact on the overall financial forecast and level of rate increase requirements. These variables will be important considerations in DWSD's annual budgetary and rate setting process moving forward.

Appendices A and B include detailed schedules presenting all components of the financial management plan developed for the Utility.

Local and National Water and Sewer Cost Trends

The rate adjustments identified herein are consistent with national trends and Stantec's industry experience. As demonstrated in Figure 3-2 the U.S. Consumer Price Index (CPI) Water & Sewerage Maintenance Series, which specifically measures the average national change in the cost of water and wastewater service to households, has risen at an average annual rate of approximately 5.0 percent during the past ten years. Moreover, many of Stantec's clients across the country are presently experiencing rate increases in the range of 3.0 percent to 8.0 percent per year.

Figure 3-2: US CPI - Water & Sewerage Maintenance Series



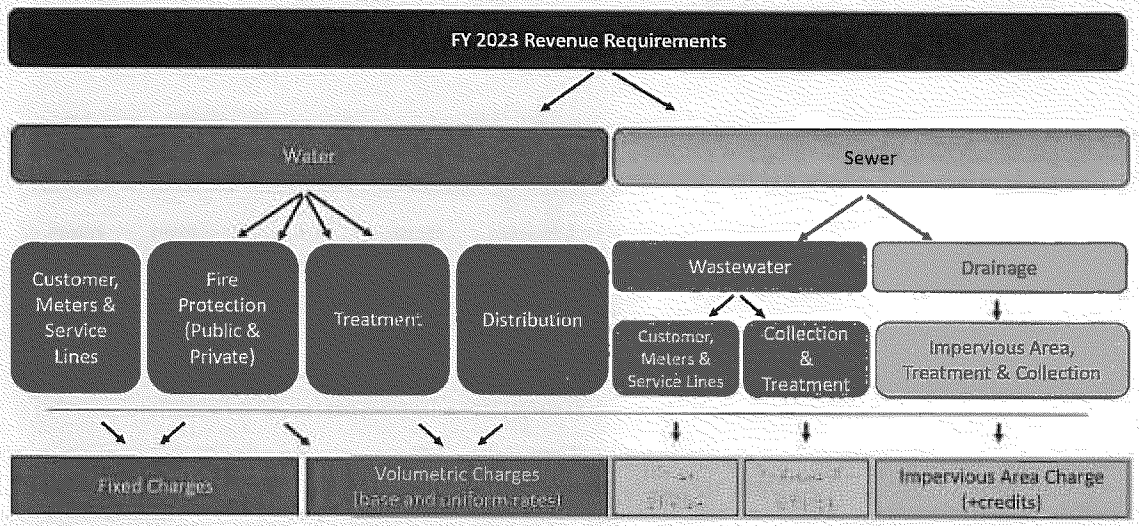
US CPI, Water and sewerage maintenance, Series Id: CUUR0000SEHG01

4. COST ALLOCATION

The purpose of a cost-of-service analysis is to proportionally distribute identified revenue requirements among the various systems and customers served, based on accepted industry best practices. Such practices are documented by water industry publications such as the American Water Works Association's (AWWA) M1 Principles of Water, Rates, Fees, and Charges[19] and the Water Environment Federation's (WEF) Manual of Practice No. 27[20].

Figure 4-1 shows the cost-of-service allocation approach followed in this Study. Total FY 2023 Operating Fund revenue requirements were first allocated between the water and sewer systems, and sewer system costs were further allocated between wastewater and drainage. Water system costs were allocated to water functions, and wastewater costs were similarly allocated to wastewater functions. The bottom portion of the graphic shows how the cost allocation forms the cost basis for the development of water, wastewater, and drainage charges.

Figure 4-1: Cost of Service Approach



The Study followed AWWA and WEF industry practices and guidance by:

1. Allocating costs to water, wastewater, and drainage based on individual categories of costs and appropriate allocation criteria.

[19] Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, AWWA M1, Seventh Edition, 2017,

[20] Financing and Charges for Wastewater Systems, WEF Manual of Practice No. 27, 2019

2. Allocating water and wastewater costs to individual functions or activities (such as supply, treatment, distribution, meters/services, etc.). This step is often called "functionalization" and it links costs with the functions utilities perform to meet customer demands.
3. Allocating water functional costs to the appropriate cost components (such as average use, maximum day demands, peak hour demands, customer service, etc.). This links costs with the customer usage and service characteristics that drive costs and is called the base/extra-capacity approach for cost allocation.[21]
4. Distributing water cost components to customers in accordance with the demand and service characteristics that customers place on the system. This step identifies the units of service for customers based on meter size and billed volume.

4.1 COST-OF-SERVICE APPROACH

Cost allocation studies reflect the analysis of conditions during a test year, selected to provide a normalized set of circumstances regarding key factors, including operating and capital costs, consumption patterns and revenues, weather influences, and other factors. As noted in Section 3, the revenue requirements analysis projected annual water and sewer system needs based on current conditions and budgets. The cost allocation analysis compiles the current needs and apportions them across DWSD's systems using specific factors. Revenue requirements for FY 2023 were selected as the test year for the purposes of this cost allocation analysis. The following sections describe how the test year revenue requirements were allocated to systems, functions, cost components, and charge types.

Allocation to Water and Combined Sewer Systems

The allocation of operating expenses, non-operating expenses, and revenue financed capital reflect the specific activities involved in providing water and combined sewer service. Costs from the FY 2023 Budget were aggregated by cost center and allocated between water and sewer systems based on input and data provided from DWSD staff. DWSD's detailed budget categories simplified the allocation process, allowing direct data-driven allocations in many cases. Expenses with general benefit and no direct link to a key functional category (i.e., indirect expenses) were allocated in proportion to the direct allocation of water and sewer operating costs. The resulting cost allocations by expense type (excluding bad debt) are shown in Table 4-1. Allocation factors and detailed cost allocations are shown in Schedule 2 and Schedule 3 of Appendix C, respectively.

[21] Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, AWWA M1, Seventh Edition, 2017.

Table 4-1: FY 2023 Costs Allocated to Water and Sewer Systems ($M)

	Water	Sewer	Total
Operating Expenses	$43.4	$53.1	$96.5
Non-Operating Expenses	$21.6	$31.5	$53.1
GLWA Expenses	$56.4	$217.3	$273.7
Revenue Financed Capital	$6.6	$1.2	$7.8
Total Revenue Requirement	$128.0	$303.1	$431.1

Allocation of Combined Sewer System Costs to Wastewater and Drainage

Sewer revenue requirements were allocated to wastewater and drainage systems based on the drivers of sewer operating and capital costs. Dry weather treatment and collection costs were allocated to wastewater, while wet weather treatment and distribution costs were allocated to drainage. Direct costs in the Storm Drainage cost center were allocated 50 percent directly to drainage and 50 percent based on the weighted allocation of sewer operating expenses to account for the portion of permitting costs included in this cost center. Indirect or administrative departments were allocated based on the weighted allocation of operating costs to wastewater and drainage. The resulting cost allocations by expense type (excluding bad debt) are shown in Table 4-2. Allocation factors and detailed cost allocations are shown in Schedule 2 and Schedule 4a of Appendix C, respectively.

Table 4-2: FY 2023 Sewer System Costs Allocated to Wastewater and Drainage ($M)

	Wastewater	Drainage	Total
Operating Expenses	$32.8	$20.4	$53.2
Non-Operating Expenses	$20.9	$10.6	$31.5
GLWA Expenses	$87.5	$129.8	$217.3
Revenue Financed Capital	$0.8	$0.4	$1.2
Total Revenue Requirement	$141.9	$161.2	$303.1

4.2 ALLOCATION OF WASTEWATER SYSTEM COSTS

Wastewater revenue requirements were allocated to the following system functions: treatment, collection, meters & service lines, and customer. Meters & service line-related costs are primarily meter operations activities shared by the water and wastewater systems and were allocated based on the proportion of respective accounts. Wastewater accounts are billed based on water meter readings and are responsible for a proportional share.

As a wholesale customer of GLWA, DWSD does not directly monitor industries with higher than domestic strength wastewater;[22] if DWSD were responsible for monitoring and charging customers based on wastewater strength characteristics, additional wastewater system functions would be required for cost allocation purposes. GLWA wholesale treatment costs were allocated directly to treatment, while DWSD operating and debt service costs were allocated to collection, meters and service lines, and customer functions. The wastewater system's share of WRAP expenses was allocated to functions based on the weighted allocation of operating costs. Table 4-3 shows the summary of cost allocations (excluding bad debt) to functions. Allocation factors and detailed cost allocations are shown in Schedule 2 and Schedule 5 of Appendix C, respectively.

Table 4-3: FY 2023 Wastewater Costs Allocated to Functions ($M)

	Treatment	Collection	Meters & Service Lines	Customer	Total
FY 2023 Revenue Requirement ($M)	$85.1	$41.3	$8.2	$7.3	$141.9

Customer counts and billed sewer volume, currently based on billed monthly water use, are used to further allocate wastewater costs to customers. Industry guidelines recognize two primary approaches to allocating wastewater costs: the quantity/quality approach and the surcharge approach. Under the quantity/quality approach, wastewater is measured, and rates are based on the amount of pollutants discharged to the system. With the surcharge approach, all customers are assumed to contribute average domestic strength waste. Those monitored users discharging above a certain limit are assessed a high strength surcharge. DWSD, by way of GLWA's treatment cost recovery policies following the surcharge approach, recovers its wastewater costs uniformly across its customers. The units of service for wastewater cost allocations, therefore, are total accounts billed monthly and total billed volume.

Given DWSD's wastewater service characteristics, the functionalized revenue requirements are simply allocated to two cost components: fixed and volume. Meters & service lines- and customer-related costs are allocated as fixed costs, and treatment- and collection-related costs are allocated as volumetric costs. Table 4-4 presents the FY 2023 wastewater costs by cost component and current units of service.

Table 4-4: FY 2023 Wastewater Costs Allocated to Cost Components

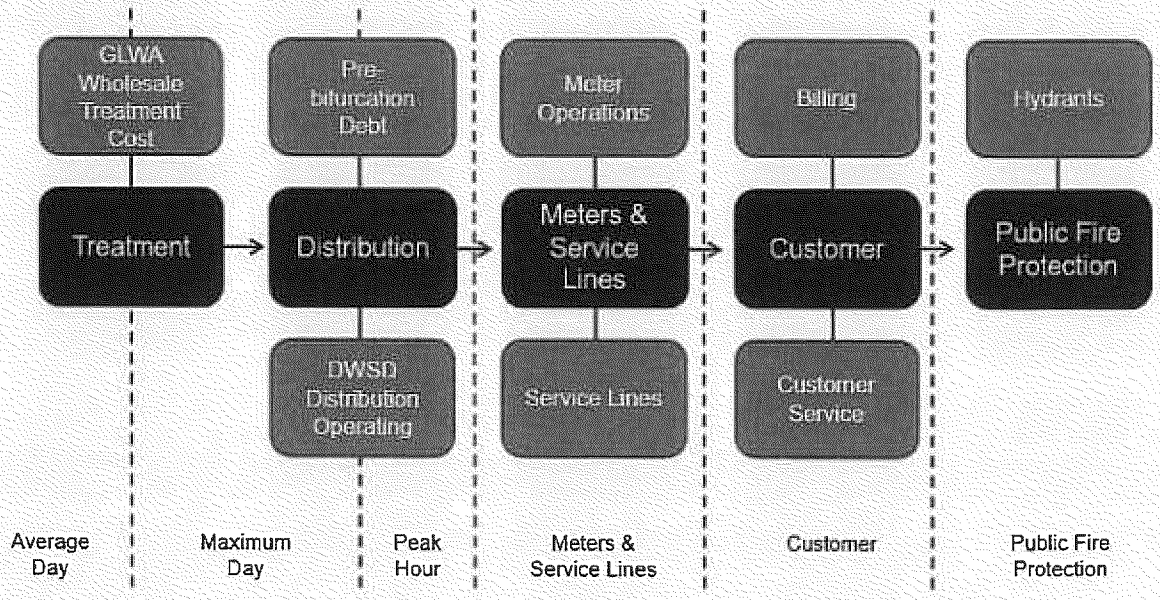
	Fixed	Volumetric	Total
FY 2023 Revenue Requirement ($M)	$15.5	$126.4	$141.9
Units of Service			
Wastewater Accounts	188,993		
FY 2023 Billed Usage (Mcf)		2,403,460	

[22] GLWA imposes an industrial waste control charge to industrial customers. This cost is a pass-through for DWSD.

4.3 ALLOCATION OF WATER SYSTEM COSTS

Water revenue requirements were allocated following the AWWA M1 base extra capacity approach, as shown in Figure 4-2. This approach first allocates costs to system functions, then to cost components, and then to customers based on units of service. Figure 4-2 provides a sample of DWSD's revenue requirements cost categories and allocation steps.

Figure 4-2: Water System Allocation Approach



As shown in Figure 4-2, GLWA wholesale water treatment costs were allocated directly to the treatment function. DWSD operating expenses such as meter operations, billing, and distribution operations were allocated based on their respective functions. Pre-bifurcation debt service was allocated to the distribution function because pre-bifurcation debt is related to distribution system assets. Expenses related to administration, finance support, and compliance were allocated in proportion to the direct allocation of water operating costs. Table 4-5 shows the summary of cost allocations (excluding bad debt) to water system functions. Allocation factors and detailed cost allocations are shown in Schedule 2 and Schedule 6 of Appendix C, respectively.

Table 4-5: FY 2023 Water Costs Allocated to Functions ($M)

	Treatment	Distribution	Meters & Service Lines	Customer	Public Fire Protection	Total
FY 2023 Revenue Requirements ($M)	$23.0	$89.0	$8.5	$6.8	$0.7	$128.0

Allocation of Functions to Cost Components

The next step in the process is the allocation of functional costs to cost components. This step links costs with customer usage and service characteristics that drive those costs and is known as the base/extra-capacity approach for cost allocation. Water system components include average day water demands, maximum day extra capacity demands, peak hour extra capacity demands, meters and service lines, customer, and fire protection. These costs components included in the analysis are standard for a water utility and reflect the different ways a utility provides service and incurs cost. Notably, the Utility makes significant investments in meeting the peak needs of customers where they occur, and when they occur. To serve their customers, utilities such as DWSD are required to plan, install, and maintain water capacity in a manner that provides service reliability. From a cost perspective, the Utility incurs peak-related costs year-round, even if customers only use that peak for short periods during the year. Certain water system functions are sized for and service multiple types of water demands. For these functions, ratios of daily and hourly water demands to measured average annual water demands were applied and used in the allocation process.

Retail system average annual demand (or usage) is based on FY 2021 billing data. Retail system maximum day and peak hour factors are based on a previous study completed for GLWA on units of service for its non-master metered customers [23]. Total system maximum day and peak hour factors are calculated by adding fire flow requirements to retail requirements for average day demands and extra capacity units. GLWA does not have actual average and peaking factors for DWSD because DWSD is a non-master metered community. The information used for this Study are estimates derived from detailed studies conducted by GLWA, which provide the best data for purposes of this analysis.

Fire flow requirements were calculated in this Study based on a detailed review of the City of Detroit Fire Department calls for service data from 2017 through 2021. Actual maximum fire incidents per day and per hour were averaged for structure fires. Schedule 9 of Appendix C shows the maximum number of fires per day and maximum coincident fires, by year for FY 2017 through FY 2021, for residential and non-residential structure fires. The number of fire incidents was averaged over the five-year period. Durations in minutes and fire flow needs in gallons per minute (gpm) for single family and non-single family fires were obtained from Insurance Services Office (ISO) guidelines and ISO fire suppression rating schedules[24]. Service line equivalencies for private fire connections were calculated using the cost of replacing a 5/8" meter and the cost of replacing a service line at the given diameter. The calculation of fireline equivalencies is shown in Schedule 15 of Appendix C.

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[23] Units of Service for Non-Master Metered Customers of Great Lakes Water Authority and System Water Audit, Phase 1 Report and Recommendations, GLWA Project CS-039, Black & Veatch, December 8, 2017.

[24] Insurance Services Office, Inc, Guide for Determination of Needed Fire Flow, Chapter 7, 2014.

Using these data, maximum day and peak hour fire flow units were calculated. Table 4-6 shows the calculation of system units of service and maximum day and peak hour ratios.

Table 4-6: Calculated DWSD Peaking Ratios

	Average Day Units	Max Day Units	Peak Hour Units
Mcf per Day	7,089.8	9,506.7	11,245.9
DWSD Coincident Peaking Ratios	1.00	1.34	1.59
Calculated DWSD Fire Flow Requirements	-	794.1	2,887.7
Total with Fire Flow Requirements	7,089.8	10,300.9	14,133.6
Calculated DWSD Peaking Ratios	1.00	1.45	1.99

Table 4-7 shows the M1 approach to allocating functional costs to cost components based on the service provided by each function and associated peaking factors shown in Table 4-6. For example, the treatment function provides average day and maximum day demands. The base portion of those demands is 69%, while the extra maximum day demand portion makes up 31%. Total costs by costs component are determined in this step.

Table 4-7: Water System Functional Allocations to Cost Components

	Base Average Day	Extra Max Day	Extra Peak Hour	Meters & Service Lines	Customer	Public Fire Protection	Total ($M)
Treatment	69%	31%					$23.0
Distribution	50%	23%	27%				$89.0
Meters & Service Lines				100%			$8.5
Customer					100%		$6.8
Public Fire Protection						100%	$0.7
Total ($M)	$60.5	$27.4	$24.1	$8.5	$6.8	$0.7	$128.0

Distribution to Customers

All retail customers share in public fire protection-related costs; however, private fire protection customers have separate fire protection service connections and benefit from extra capacity provided by DWSD. In distributing costs to customers, utilities consider customer characteristics and demand patterns. Customer billing data and data from the City of Detroit Fire Department was used to determine customer characteristics, such as number of customers by meter size, number of public hydrants, billed volume, and fire flow. Table 4-8 shows the units of service for the water system. These units are used to allocate water costs by components to charge types and ultimately customers. Schedule 9 and Schedule 10 of Appendix D show the calculation of DWSD Fire Flow Requirements and Equivalent Fire Units, respectively, used to calculate the public and private fire protection units of service, respectively.

Table 4-8: Water Units of Service

	Base Average Day (Mcf/Day)	Extra Max Day (Mcf/Day)	Extra Peak Hour (Mcf/Day)	Equivalent Meters/Service Lines	Bills per Year	Hydrants
Retail	7,090	2,417	1,739	243,907	2,299,762	-
Public Fire	-	743	1,959	-	-	29,948
Private Fire	-	51	135	15,642	21,017	-
Total Units	7,090	3,211	3,833	259,548	2,320,779	29,948

Table 4-9 shows the allocation of cost components from Table 4-7 allocated to service types based on the relative proportion of units of service shown in Table 4-8.

Table 4-9: Water System Allocation of Cost Components to Services ($M)

	Base Average Day	Extra Max Day	Extra Peak Hour	Meters & Service Lines	Customer	Direct Fire Protection	Total
Retail	$60.5	$20.6	$10.9	$8.0	$6.8	-	$106.7
Public Fire	-	$6.3	$12.3	-	-	$0.7	$19.4
Private Fire	-	$0.4	$0.8	$0.5	$0.0	-	$1.9

Fire Protection Costs

DWSD incurs costs for fire protection both for public and private fire services. All retail customers benefit from the extra capacity in DWSD's system that provides water needed for fire suppression in the community. Such extra capacity improves sufficiency and water pressure and facilitates irrigation. As shown in Table 4-8, private fire protection accounts represent a separate customer class in DWSD's system receiving additional protection. Such connections benefit from on-demand water service that is unlike public service provided to retail customers.

Total fire protection costs include direct costs that are identified by DWSD in its work order management records as maintenance and repair of public fire hydrants. Indirect fire protection costs are related to the extra capacity requirements in DWSD's water system required for fire protection service. Direct fire protection costs are allocated to public fire service because these costs are related to public hydrants. Indirect fire protection costs are calculated and allocated between public and private fire service based on units of service developed in this Study.

Following the base/extra-capacity method for allocating water costs as recommended in AWWA Manual M1, costs were allocated to public and private fire protection customers proportionally based on potential peak use of the system.[25] First, total maximum day and peak hour demands needed for fire suppression

[25] Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, AWWA M1, Seventh Edition, 2017, pages 162 – 163.

within DWSD's system were calculated using maximum fire incidents per day and per hour averaged over a five-year period with required durations and gallons per minute of fire flow given ISO guidelines. The resulting demands in MGD were converted to total fire flow requirements in Mcf.

Next, maximum day and peak hour extra capacity water demands were allocated between public and private fire by proportion of equivalent capacity units. Each hydrant is assumed to be installed on a 6" line. Equivalent private fire connections by line size were determined by calculating the flow capacity equivalents to a 6" fire line size. Once the shares of extra capacity demands were determined for public and private fire services, extra capacity costs were allocated to retail service for the public fire protection portion of costs and to private fire protection service for private fire service costs.

Additionally, costs were allocated to private fire accounts for maintenance of meters and service lines using DWSD's actual installation and materials costs for firelines by size, including the cost of a 5/8" meter used to detect flows through private fire connections. These costs and allocation factors are shown in Schedule 15 of Appendix C. Customer service-related costs were allocated to private fire protection accounts based on 12 annual bills (one per month) sent to each private fireline connection. Public fire service costs are recovered through the water fixed charges as described in Section 5.1.

4.4 ALLOCATION OF DRAINAGE SYSTEM COSTS

WEF's manual of stormwater charges[26] describes several reasonable methods for establishing property characteristics used to apply the stormwater charges, including impervious area by parcel, average impervious area, gross area factored by runoff coefficient, class intensity of development, and equivalent hydraulic area. Key considerations for selecting the appropriate method described in the manual are equity and availability of data. During FY 2022, DWSD completed an assessment of impervious acres, which is reported in Table 4-10 (along with the FY 2023 cost of service, excluding bad debt and cost of credits). Billable impervious acres (BIA) compile all types of properties within DWSD's drainage service area subject to stormwater charges (including Detroit Land Blank Authority parcels). The availability of impervious area by parcel provides DWSD the most equitable basis for applying drainage charges and recognizes that impervious area is widely recognized as the largest contributor to runoff.

Table 4-10: FY 2023 Drainage Costs & Units of Service

	FY 2023
Revenue Requirement ($M)	$161.2
Units of Service	
Billable Impervious Acres (BIA)	26,461

[26] Water Environment Federation, *User-Fee-Funded Stormwater Programs*, Second Edition, 2013.

4.5 NON-RATE REVENUE, BAD DEBT, AND DRAINAGE CREDITS

After allocating costs to water, wastewater, and drainage, offsetting non-rate revenues and bad debt were applied in proportion to the cost of service to determine the overall level of revenue requirement from fixed charges, volumetric rates, and drainage charges. Non-rate revenues include miscellaneous sources such as penalties and fees and reduce the revenue required from rates for each system.

Bad debt represents a percentage of retail rate revenues that is not collected by DWSD. Bad debt increases the revenue required from rates. Historically, bad debt varies by customer class, but in general, has been approximately 10% of water and wastewater rate revenues and 18% of drainage revenues. Some of the drainage system bad debt has resulted from the Michigan Department of Transportation (MDOT) disputing the amount of acres for which it was billed and DWSD's interpretation of language in a 1989 Consent Judgment. DWSD has recently reached a settlement of the dispute that will resolve the credits offered MDOT for highway impervious acres and result in an equitable and improved drainage cost recovery from this customer. Schedule 11 of Appendix C shows the detailed allocation of non-rate revenue and bad debt to each utility, function, and class.

Moreover, the drainage revenue requirements also reflect the amount of credits that will be applied to residential, highway drainage, and green credit customers in FY 2023. The drainage credit calculation, based on the calculated rate shown in the following section of this report and the latest BIA data, is shown in Schedule 4 of Appendix D.

4.6 RESULTS

The results of the cost allocation analysis for water, wastewater, and drainage are depicted in Figure 4-3. The results demonstrate that current revenues are generally proportional to the rate revenue requirements resulting from the cost-of-service analysis. FY 2023 rate revenues will reflect the cost-of-service allocation results, which represent a $20 million shift from wastewater to water and a small increase in drainage costs (before credits).

Figure 4-3: Rate Revenue Requirements vs. Current Revenue by System

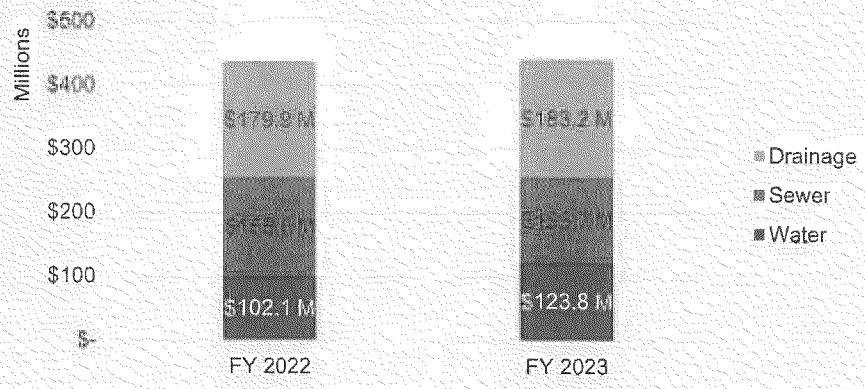


Figure 4-4 and Figure 4-5 show the wastewater and water cost allocation to rate components: wastewater fixed and volumetric charges and water fixed, volumetric, and private fireline charges.

Figure 4-4: Wastewater Rate Revenue Requirements vs. Current Revenue

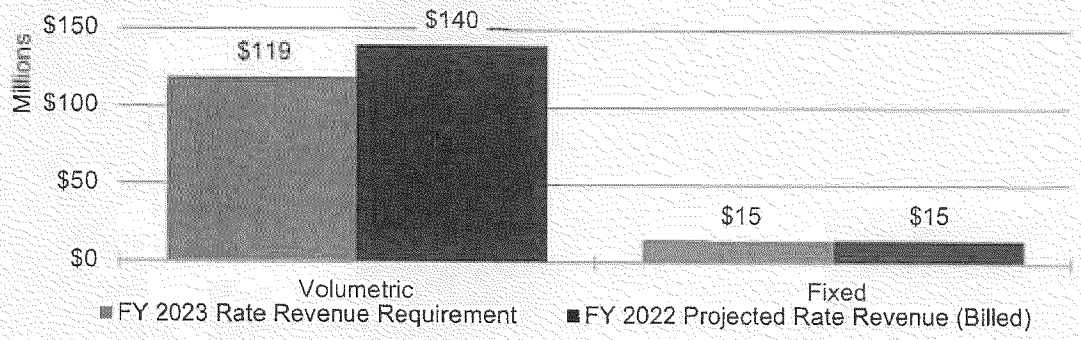
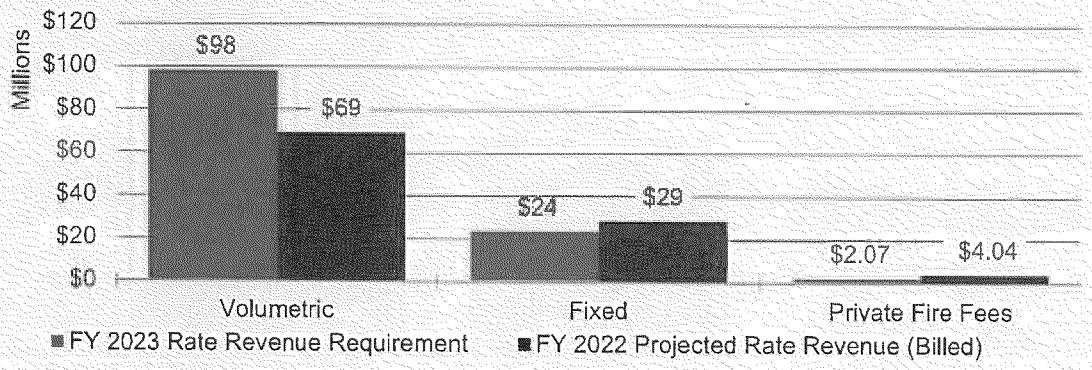


Figure 4-5: Water Rate Revenue Requirements vs. Current Revenue

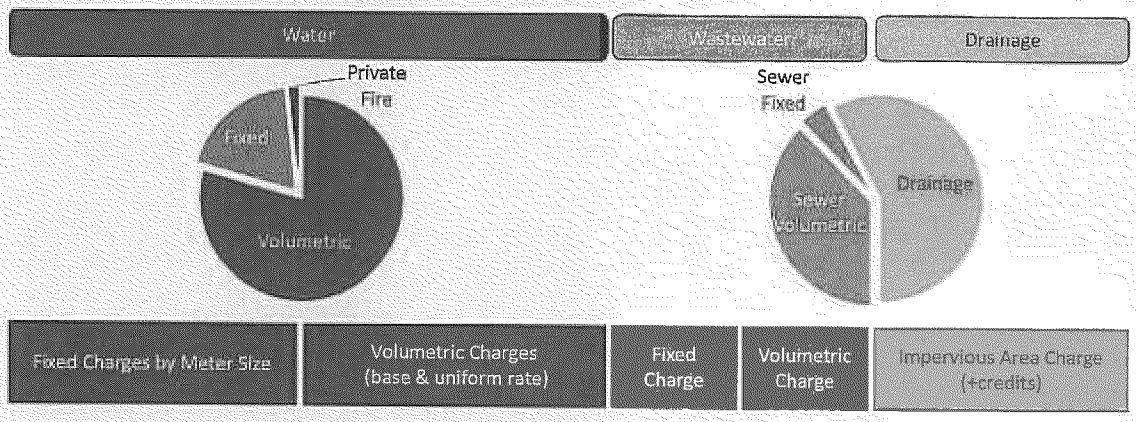


5. RATE DESIGN

Stantec examined DWSD's current water, wastewater, and drainage rates and developed recommended rate structure modifications that 1) proportionally recover cost of service and revenue requirements from each system, 2) conform to accepted national and local industry best practices, and 3) promote affordability, equity, and conservation.

The cost allocation analysis presented previously connects the specific types of system costs with rate structure components as shown in Figure 5-1.

Figure 5-1: Rate Design Approach



The following sub-sections describe the Study's recommended rate structures in more detail.

5.1 WATER FIXED CHARGES

Water fixed charges are recommended to recover three types of costs through a monthly meter charge:

- Customer service costs, which are allocated uniformly to all meters.
- Meters and service line costs, which reflect replacement cost by meter size.
- A portion of public fire protection costs (capital, debt, and GLWA expense) that are scaled based on hydraulic capacity of each meter size determined using AWWA M22 Sizing Water Service Lines and Meters[27].

Figure 5-2 shows the allocation of costs recovered in the recommended water fixed charge and the approach for allocating each cost to the monthly meter charge for meter sizes up to 2". Larger meter sizes are not shown; however, all meter sizes follow the same approach.

[27] Sizing Water Service Lines and Meters, AWWA M22, Third Edition, 2014.

Figure 5-2: Water Fixed Charge Approach

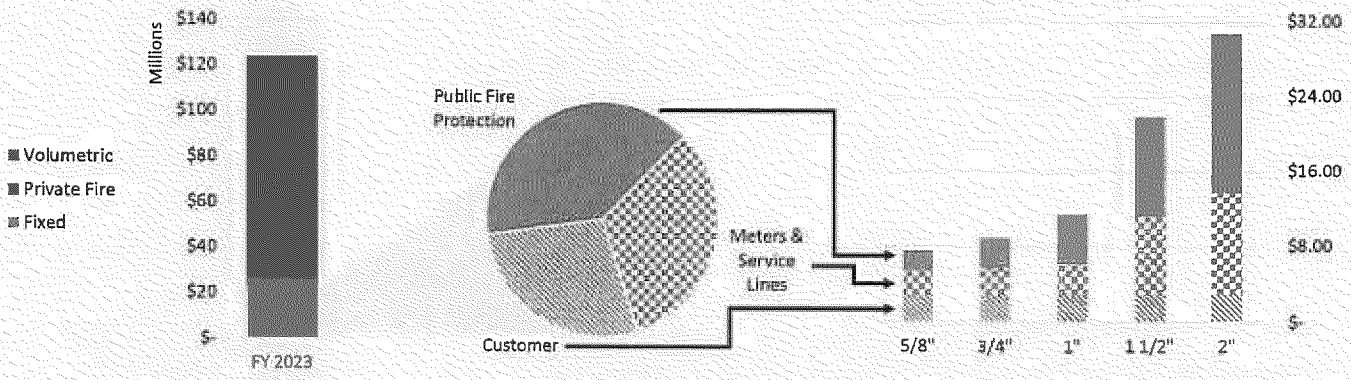


Table 5-1 shows the number of meters by meter size, meter equivalency factors by meter size and fixed charge cost type, and the calculation of the charge per equivalent unit by component.

Table 5-1: Meter Equivalency Factors by Cost Type

Meter Size	Meter Count	Customer	Meters & Service Lines	Public Fire Protection
Revenue Requirement		$6,544,251	$7,688,955	$9,348,988
5/8"	137,605	1.00	1.00	1.00
3/4"	33,579	1.00	1.09	1.50
1"	11,024	1.00	1.27	2.50
1.5"	2,865	1.00	3.22	5.00
2"	2,720	1.00	4.12	8.00
3"	672	1.00	14.92	25.50
4"	539	1.00	17.07	46.00
6"	269	1.00	26.07	140.00
8"	85	1.00	37.16	185.00
10"	38	1.00	66.58	352.25
12"	4	1.00	98.00	550.40
14"	0	1.00	144.27	880.65
16"	1	1.00	212.37	1,144.85
Equivalent Meters		191,647	243,907	367,978
Charge per Equivalent per Month		$2.85	$2.63	$2.12

The current and proposed monthly water meter charges are shown in Table 5-2.

Table 5-2: Summary of Current and Proposed Water Meter Charges

Meter Size	Current Meter Charge (per month)	Proposed Meter Charge (per month)
5/8"	$7.86	$7.59
3/4"	$11.79	$8.88
1"	$19.65	$11.47
1.5"	$39.31	$21.88
2"	$62.89	$30.62
3"	$125.79	$96.03
4"	$196.54	$145.08
6"	$393.08	$367.74
8"	$628.93	$492.14
10"	$904.08	$923.52
12"	$1,218.55	$1,425.61
14"	$1,690.24	$2,246.35
16"	$2,240.56	$2,984.63

Private fireline charges are calculated based on the private fireline revenue requirement from the cost allocation process and equivalent fireline connection size. A 6-inch fireline is considered the base size against which other sizes are compared. Equivalent connection size equivalencies are calculated based on the Hazen-Williams formula that relates the capacity of flow in a pipe to its inside diameter[28].

Table 5-3 shows the number of fireline connections by connection size and connection equivalency factors used for calculating private fireline charges by size.

Table 5-3: Summary of Connections & Equivalency Factors

Connection Size	Connection Count	Connection Equivalency (Hazen Williams)
4"	614	0.34
6"	607	1.00
8"	428	2.13
10"	40	3.83
12"	20	6.19

[28] The Hazen-Williams equation determines relative flow potential for service connections by raising the diameter of the pipe to the 2.63 power. Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, AWWA M1, Seventh Edition, 2017, page 163.

Table 5-4 shows the current and proposed private fireline charges based on the private fireline cost allocation and connection equivalency factors in Table 5-3.

Table 5-4: Summary of Current and Proposed Private Fireline Charges

Connection Size	Current Charge (per month)	Proposed Charge (per month)
4"	$94.41	$28.84
6"	$196.69	$83.78
8"	$283.23	$178.54
10"	$456.32	$321.07
12"	$676.61	$518.62

5.2 WATER VOLUMETRIC RATES

DWSD's current water volumetric rate is applied uniformly to all water use. Water rate structures vary widely in the industry; uniform volume rates are becoming less common as water conservation and affordability of water service become priority pricing objectives. As part of the Study, an alternative approach was evaluated that is based on cost of service principles that had the added benefit of improving the affordability of DWSD's water bills for lower volume users and providing a price incentive for conservation for higher volume users.

A two-tiered volumetric rate structure was determined to meet DWSD's objectives of a simple, equitable, and affordable water rate structure for retail water service to its customers. The tiered structure offers a lower rate per Mcf to all customers up to a certain threshold of monthly water use. Usage during the month that exceeds the threshold is charged at a higher rate. Such an approach incentivizes customers to monitor monthly water use and provides an incentive to reduce water use within the first-tier threshold. This structure also provides lower bills to all low volume water users, regardless of income.

A summary of the approach follows. Fundamentally, the recommended water volumetric rates will recover other water system costs not covered in the fixed charges from a two-tiered structure.

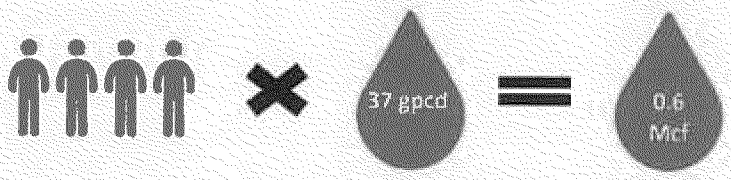
- Base tier threshold of 0.6 thousand cubic feet (Mcf) per month was calculated based on estimated indoor residential water use[29] and substantiated based on a review of DWSD FY 2021 monthly billed volume distributions.

[29] Assumes four people per household and 36.7 gallons per capita per day based on *Residential End Uses of Water, Version 2*, The Water Research Foundation, 2016. Monthly usage calculates to be 4,040 gallons, or 0.6 Mcf.

- Base tier rate was calculated by dividing average day costs by total usage volume, plus Tier 1 peaking costs[30], divided by Tier 1 volume. The base tier structure applies to all customers for the first 0.6 Mcf of water use each month.
- New uniform tier rate for all use above 0.6 Mcf calculated based on average day costs divided by total volume, plus Tier 2 peaking costs divided by Tier 2 volume. The higher tier reflects allocation of costs to the water users who impose increased burden on the system due to peak demand.

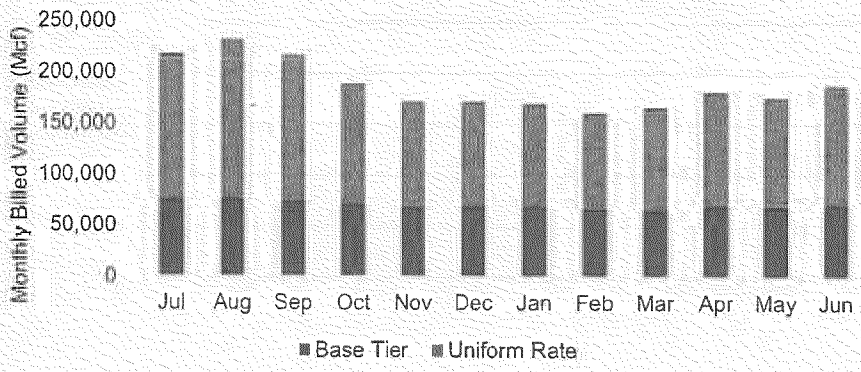
Figure 5-3 shows the calculation for the base tier size of 0.6 Mcf per month. Although this calculation is conceptually based on a residential profile of efficient indoor water use, it is applied to all retail customers.

Figure 5-3: Base Tier Size Analysis



The following Figure 5-4 shows the resulting volume in each tier by month, based on 2021 billing data for all retail customers. The chart demonstrates that there is minimal peaking in the base tier because the amount of water use stays consistent throughout the year. The water system incurs additional costs to meet peak demands; therefore, allocating peak costs to proportionally to the tiers results in peak-related costs being paid by the customers who contribute to increasing peak demands.

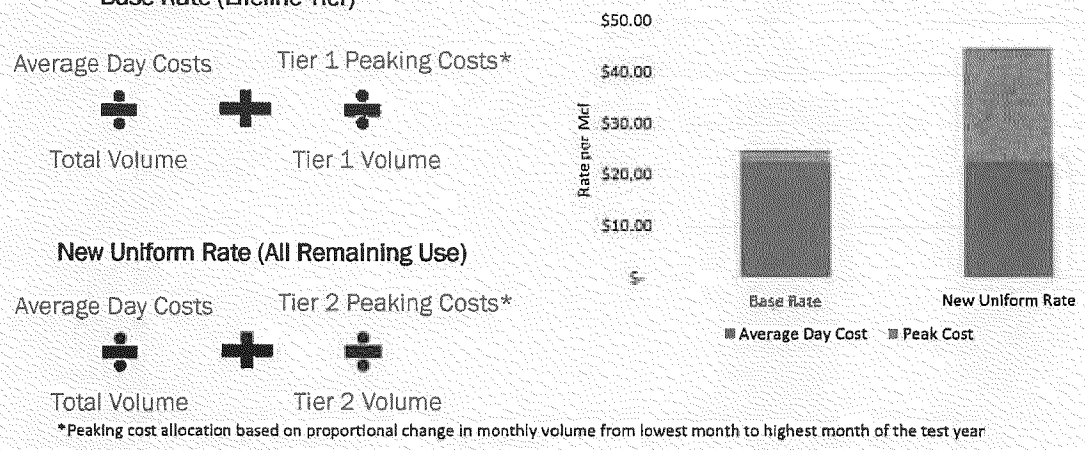
Figure 5-4: Amount of Water Use that Falls in Each Tier



The following Figure 5-5 shows the calculation of the base rate and new uniform rate as well as the resulting rate per Mcf of the base tier and new uniform tier.

[30] Peaking cost allocation between the tiers reflects the proportional change in monthly volume from lowest month to highest month for each tier based on DWSD FY 2021 billing data.

Figure 5-5: Water Volumetric Rates Pricing Analysis



*Peaking cost allocation based on proportional change in monthly volume from lowest month to highest month of the test year

The current and proposed water volumetric rates are shown in Table 5-5.

Table 5-5: Summary of Current and Proposed Water Volumetric Rates

Current Tier	Current Volumetric Rate (per Mcf)	Proposed Tier	Proposed Volumetric Rate (per Mcf)
All Use	$26.60	Base Tier (0-0.6 Mcf)	$25.04
		Uniform Tier (>0.6 Mcf)	$44.92

5.3 WASTEWATER FIXED CHARGES AND VOLUMETRIC RATES

Wastewater costs are recovered through a monthly customer charge and volumetric rate. Currently, the uniform volumetric rate is applied to each customer's monthly billed water usage to determine the volume component of the sewer bill. While this is not a unique practice within the wastewater industry, utilities will often make allowances for seasonal water demands such as outdoor irrigation that likely does not return to the wastewater system.

Alternative approaches to billing for total water use include average winter water consumption calculations for each customer that serve as the basis for sewer bills in the summer months. Implementation of a sewer cap on water usage for residential customers is another approach used in the industry. Applying a cap is appropriate for residential customers that have relatively homogeneous usage profiles, compared to the wide variability of usage in commercial customers that makes a uniform cap amount problematic. Moreover, many commercial customers will have separate metering configurations for water only demands. Regardless, both approaches better approximate actual water usage that returns through the wastewater system.

A summary of the recommended rate structure for wastewater is as follows.

1. Recover wastewater customer-related costs through a fixed monthly charge that applies equally to each customer bill.[31]
2. Proposed volumetric rate approach uses each customer's monthly average winter consumption (AWC) or actual water use, whichever is lower, as the basis for billing the volumetric rate.
    a. AWC is based on average water use from January through March.
    b. AWC is applied to all customer classifications.
3. Interim wastewater volumetric rate approach applies monthly cap of 1.2 Mcf on individually metered residential units.
    a. Continue using billed monthly water use for all other customers.
    b. Use until AWC can be implemented in billing system (FY 2024).

The current and proposed wastewater service charges are shown in Table 5-6.

Table 5-6: Summary of Current and Proposed Wastewater Service Charge

	Current Charge (per bill)	Proposed Charge (per bill)
All Customers	$6.54	$6.34

The current and proposed wastewater volumetric rates are shown in Table 5-7.

Table 5-7: Summary of Current and Proposed Sewer Volumetric Rates

	Current Volumetric Rate (per Mcf)	Proposed Volumetric Rate (per Mcf)
All Use	$57.06	$55.40

5.4 DRAINAGE CHARGES

The drainage charge was calculated based on the cost-of-service results, which incorporate credits, and the latest available billed impervious area (BIA) data. DWSD offers drainage charge or user fee credits to qualifying customers. The credits are ongoing reductions in the customer's drainage charge based on the demonstration of stormwater management practices that provide DWSD with a cost savings that DWSD would otherwise incur as part of their efforts to manage drainage runoff. Credits are a key component of DWSD's stormwater program as they provide the customer with the ability to voluntarily reduce or control

[31] Wastewater customer costs include meters and service line-related costs, allocated proportionally to water and wastewater based on customer bills. While water meters and service line-related costs were scaled in fixed charges based on meter and service line replacement costs by water meter/service line size, DWSD currently charges sewer fixed costs per customer and does not scale based on water meter/service line size. DWSD may want to consider scaling wastewater fixed charges based on meter size in a future analysis.

their use of the stormwater system, which is a key component of user fees. Additionally, credits provide an incentive for customers to proactively manage stormwater on their property, thus encouraging effective stormwater management within DWSD and reducing the burden on the drainage system. The credit calculation is shown in Schedule 4 of Appendix D.

The current and proposed drainage charges per impervious acre are shown in Table 5-8.

Table 5-8: Summary of Current and Proposed Drainage Charges

	Current Charge (per month per impervious acreage)	Proposed Charge (per month per impervious acreage)
All Customers	$677.00	$678.28

Public Rights of Way (ROW)

Public rights-of-way (ROW) serve as vital components of the DWSD drainage system. ROW include streets, curbs and inlets, and other parcels of land that allow for buried drainage infrastructure. Without these key assets DWSD would be required to develop alternative infrastructure to convey runoff and therefore the ROW are considered integral to the drainage conveyance network. It is important to take these benefits into account as part of the drainage rate calculations. Stantec used two approaches to evaluate the net benefits associated with the role of public ROW in the management of drainage within DWSD.

The first approach is based on the cost of providing drainage service to ROW compared to the cost of acquiring the ROW easements. The first step in determining the cost of providing drainage service is to establish the drainage rate if ROW impervious area were included. DWSD has an estimated 15,872 acres of public ROW not currently included in its drainage charge calculation. The updated drainage charge per impervious acre was then applied to these total ROW acres to establish the cost of providing drainage service per year.

The benefit of ROW was evaluated based on the value of the easements needed to convey DWSD's stormwater. The calculation is based on a range of costs per square foot of vacant land within the City of Detroit,[32] the miles of system in the public ROW, and a 6.00% rate of return. The resulting cost reflects a range of credits that could be applied to the ROW if a drainage charge was applied. The analysis found that the credits would be higher than the revenue received from the ROW, based on the above drainage cost evaluation. The detailed analysis is presented in Schedule 5 of Appendix D.

[32] CDM Smith, *Expert Report of John A. Aldrich In the Matter of Binns et al. v City of Detroit DAART et al. v. City of Detroit Wayne County Circuit Court Case No. 21-009013-PZ (on referral from Michigan Court of Appeals Case No. 337609 and Case No. 339176)*, April 8. 2022.

The second approach evaluated the cost of public ROW to the drainage system by estimating the public ROW wet weather flow contributed to DWSD's system. Total ROW impervious area in DWSD's drainage area was estimated based on similar studies' experience in acres of impervious area contributing runoff. Cost per million gallons per day (MGD) of wet weather flow was applied to ROW's contributed flow to estimate the cost.

Benefits that public ROW provide to DWSD's drainage system were calculated again using wet weather flow. For conveyance benefits, estimates of impervious acres for which ROW convey stormwater runoff were calculated. Cost per MGD was applied to the wet weather flow conveyed by ROW. When benefits were compared to costs, the net benefit of ROW was positive, indicating the value provided by the public ROW exceeds the drainage costs attributable to the ROW. The detailed analysis is presented in Schedule 5 of Appendix D.

Based on both analyses, which demonstrate that the benefit of having ROW is higher than the cost, it is not recommended to add public ROW to the drainage charge system.

5.5 CUSTOMER BILL IMPACTS

Table 5-9 presents a summary of the monthly impacts to single family residential customers with 5/8" meters at various levels of water use. These projections include the revenue requirement adjustments, cost-of-service adjustments, and rate structure modifications recommended herein.

Table 5-9: Single Family Combined Water, Wastewater, and Drainage Bill (5/8" Meter)

Water Use (Mcf)	Percentage of Bills	Current Bill	Calculated Bill	$ Change	% Change
0.0	11%	$39.79	$39.37	-$0.42	-1.1%
0.1	19%	$48.15	$47.41	-$0.74	-1.5%
0.2	31%	$56.52	$55.45	-$1.07	-1.9%
0.3	43%	$64.89	$63.50	-$1.39	-2.1%
0.4	54%	$73.25	$71.54	-$1.71	-2.3%
0.5	64%	$81.62	$79.59	-$2.03	-2.5%
0.6	72%	$89.98	$87.63	-$2.35	-2.6%
0.7	78%	$98.35	$97.66	-$0.69	-0.7%
0.8	83%	$106.72	$107.69	$0.97	0.9%
0.9	86%	$115.08	$117.73	$2.65	2.3%
1.0	89%	$123.45	$127.76	$4.31	3.5%
1.1	91%	$131.81	$137.79	$5.98	4.5%
1.2	92%	$140.18	$147.82	$7.64	5.5%
1.3	94%	$148.55	$152.31	$3.76	2.5%

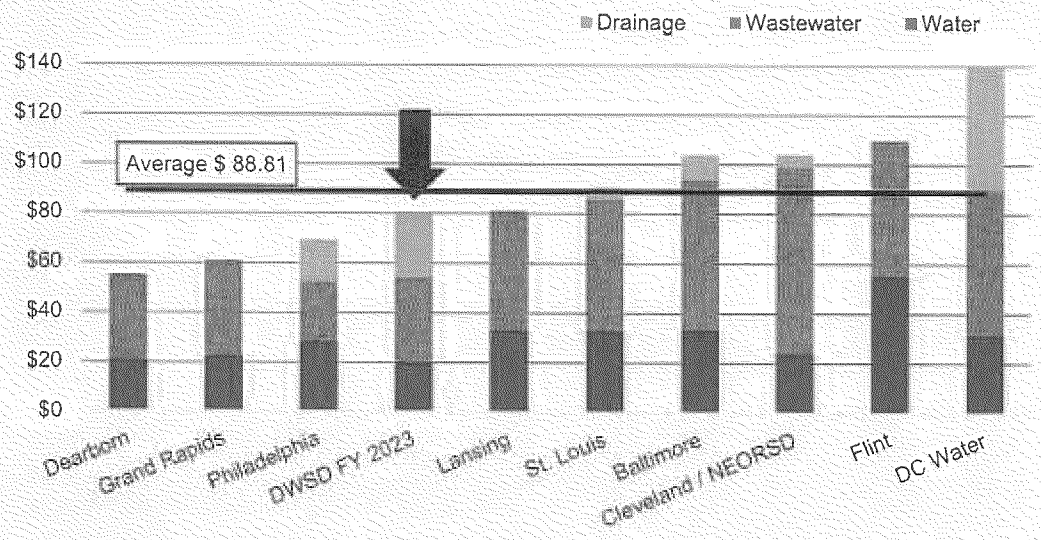
Note:

1. Proposed bill reflects water, wastewater, and drainage FY 2023 revenue requirements.
2. Proposed bill reflects water rate structure changes and wastewater volumetric rate cap of 1.2 Mcf.

3. Assumes 0.05 billable impervious acres for drainage portion of bill.

Stantec prepared a survey of monthly residential bills for local and national peers. Figure 5-6 shows the results of this survey, comparing current water, wastewater, and drainage monthly charges to DWSD's proposed FY 2023 monthly charge for a typical residential customer. DWSD's bill of $79.59 per month is lower than the average bill of $88.81 per month.

Figure 5-6: Monthly Residential Bill Comparison

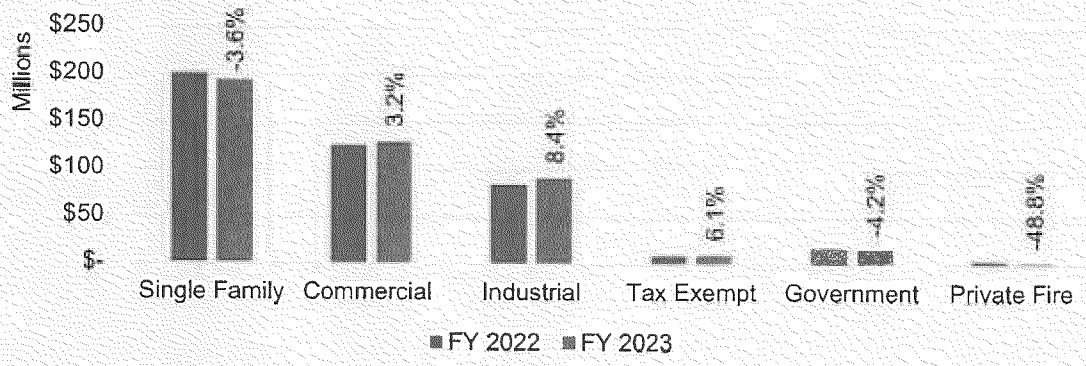


Notes:

1. "DWSD FY 2023" reflects water, wastewater, and drainage FY 2023 revenue requirements and proposed rates.
2. Assumes 5/8" meter, 0.5 Mcf of water use, and 0.05 billable impervious acres.
3. Agencies without a drainage fee may capture costs in water/sewer charges or in non-utility sources (i.e., taxes).
4. Bills for other agencies are based on current (FY 2022) rates, and several will likely increase in FY 2023.

While only residential bill impacts are shown in Table 5-9 and Figure 5-6, non-residential customers will have varying impacts based on each customer's meter size, monthly water volume, and impervious area. Figure 5-7 shows a summary of revenue impacts aggregated for various customer classifications based on FY 2023 rates (assuming AWC for wastewater billing) and customer billing data. Generally, the range of impact is dependent upon the amount and distribution of monthly water use of individual customers within each classification as this will impact how much water is billed in each tier of the proposed water rate structure as well as how much volume is billed wastewater volumetric charges.

Figure 5-7: FY 2023 Estimated Change in Revenue by Customer Class



5.6 AFFORDABILITY

Affordability of service is important to DWSD and effective August 1, 2022, customer assistance to qualifying customers is provided through GLWA's Water Rate Assistance Program (WRAP) funding and Federal Low Income Household Water Assistance Program (LIHWAP)[33] funding. DWSD administers program funds through its pilot Lifeline Affordability Plan. The Lifeline Plan was created by DWSD to provide low-income customers with non-rate revenue funds from WRAP and LIHWAP to help cover their bills. . While the shut-off moratorium ended in the State March 31, 2021, the City of Detroit and DWSD extended the moratorium through 2022[34]. The Lifeline Plan offers qualifying residential customers a fixed monthly bill for the first 4,500 gallons of water, pays off arrearages, and offers plumbing repairs at households using more than 4,500 gallons of water per month. In the Lifeline Plan, there are three payment tiers: $18/month for water, sewer, and drainage bill if household income is at or below 135% of Federal Poverty Level; $43/month if household income is above 135% of FPL but at or below 150% of FPL; and $56/month if household income is above 150% of FPL but at or below 200% of FPL. The gap amount between the Lifeline Plan payment and actual bill are paid with WRAP and LIHWAP dollars. DWSD continues to review the use of outside funding sources and is actively lobbying for continued funding under LIHWAP appropriation to assist its neighbors in need, as current LIHWAP program will end in September 2023.

[33] The LIHWAP program and provides up to $1,000 in assistance to low-income customers with disconnected services or those facing disconnection. Low Income Household Water Assistance Program, Michigan LIHWAP Profile Summary, RPT _LIHWAP_Profile Summary_MI_FY2022 (hhs.gov).

[34] https://detroitmi.gov/news/mayor-dwsd-extend-moratorium-residential-water-shutoffs-through-2022-and-announce-intention

6. FINDINGS & RECOMMENDATIONS

This Study developed proposed rates for DWSD's customers that are in proportion to the cost of providing service, consistent with industry practices, and are reasonable and transparent. The Study's findings and recommendations are summarized below:

1. FY 2023 rate adjustments reflect the results of the cost allocation analysis that rebalance revenue needed from each system. The total revenue increase needed from FY 2022 to FY 2023 is 0.8 percent.
2. FY 2023 cost allocation of revenue requirements results in a $20 million shift in costs from wastewater to water from FY 2022 revenues based on a detailed allocation of operating and capital costs reflecting current and planned activities.
3. Water rate structure revised to apply base rate to water use that is consistent throughout the year and allocate peaking costs to the base rate and a new uniform rate in proportion to the contribution to the peak demands on the system from use in each tier.
4. Wastewater rate structure revised to bill volumetric rate based on the lesser of actual water use or average winter consumption, calculated based on January through March water use by FY 2024.
5. Until average winter water usage can be incorporated into DWSD's billing system, apply a monthly sewer use cap of 1.2 Mcf for individually metered residential customers and bill actual water use for all other customers.
6. Continue to charge drainage rates per acre of impervious area with credits applied to customers who qualify.
7. Evaluate additional funding sources for customer assistance programs within legal limitations to minimize rate impacts on vulnerable customers.
8. Update rate revenue requirements annually and perform periodic rate studies (every 3 to 5 years) to address changes in cost distributions between services and customer characteristics.

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Additionally, the purpose of this document is to summarize Stantec's analysis and findings related to this project, and it is not intended to address all aspects that may surround the subject area. Therefore, this document may have limitations, assumptions, or reliances on data that are not readily apparent on the face of it. Moreover, the reader should understand that Stantec was called on to provide judgments on a variety of critical factors which are incapable of precise measurement. As such, the use of this document and its findings by the Detroit Water and Sewerage Department should only occur after consultation with Stantec, and any use of this document and findings by any other person is done so entirely at their own risk.

APPENDIX A: WATER REVENUE REQUIREMENTS SUPPORTING SCHEDULES

Schedule 1: Assumptions

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
Rate Increase Adoption Date	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027	7/1/2028	7/1/2029	7/1/2030	7/1/2031
Annual Growth [1]										
Ending Number of Equivalent Meters	304,944	306,468	308,001	309,541	311,088	312,644	314,207	315,778	317,357	318,944
% Change in Equivalent Meters	*0.50%*	*0.50%*	*0.50%*	*0.50%*	*0.50%*	*0.50%*	*0.50%*	*0.50%*	*0.50%*	*0.50%*
Total Usage (Mcf)	2,558,087	2,506,925	2,456,787	2,407,651	2,359,498	2,312,308	2,266,062	2,220,741	2,176,326	2,132,799
% Change in Usage	*-2.00%*	*-2.00%*	*-2.00%*	*-2.00%*	*-2.00%*	*-2.00%*	*-2.00%*	*-2.00%*	*-2.00%*	*-2.00%*
Capital Spending [2]										
Annual Capital Plan (Future Year Dollars)	$ 49,493,280	$ 50,094,304	$ 51,709,998	$ 57,287,974	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000
Average Annual Interest Earnings Rate [3]										
On Fund Balances	0.00%	0.25%	0.50%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%
Operating Budget Reserve [4]										
Target (Number of Months of Reserve)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Operating Budget Execution Percentage										
Personnel Services	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Operations and Maintenance	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

[1] Current and projected equivalent meters and usage based on DWSD forecast model used to prepare FY 2023 Adopted Budget.
[2] Capital spending from FY 2023 through FY 2027 reflects 2023 5-Year CIP Plan BOWC Approved with annual execution factors. Future CIP reflects estimated levels of spending
[3] Annual interest earnings on fund balances reflect staff estimates. FY 2023 reflects FY 2023 Adopted Budget level of $0 interest earnings.
[4] Recommended Revenue Fund reserve level of three months of operating expenses.

Schedule 2: Beginning Balances

Water Beginning Balances as of June 30, 2022 [1]	Revenue Fund	Bond Proceeds	Improvement & Extension
Available Fund Balance	**$ 26,487,000**	**$ 45,113,000**	**$ 77,764,000**

[1] Unaudited cash balances provided by DWSD staff.

Schedule 3: Cash In

		FY 2023 [1]	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
	Rate Revenue Growth Assumptions										
1	% Change in Equivalent Meters	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
2	% Change in Usage	-2.00%	-2.00%	-2.00%	-2.00%	-2.00%	-2.00%	-2.00%	-2.00%	-2.00%	-2.00%
	Assumed Rate Revenue Increase										
3	Assumed Water Rate Increase	21.21%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
	Water Rate Revenue										
4	Base Rate Revenue	$ 36,673,565	$ 41,414,550	$ 43,290,687	$ 45,243,037	$ 47,288,022	$ 49,425,443	$ 51,658,473	$ 53,994,478	$ 56,435,029	$ 59,085,093
5	Usage Rate Revenue	84,147,819	85,758,361	87,404,921	89,083,096	90,793,491	92,536,726	94,313,431	96,124,240	97,969,835	99,850,856
6	Total Water Rate Revenue	$ 120,821,384	$ 127,172,910	$ 130,695,609	$ 134,326,132	$ 138,081,513	$ 141,962,167	$ 145,972,903	$ 150,118,718	$ 154,404,864	$ 158,936,748
	Other Operating Revenue										
7	474700 Water Other Sales	$ 2,900,760	$ 2,900,760	$ 2,900,760	$ 2,900,760	$ 2,900,760	$ 2,900,760	$ 2,900,760	$ 2,900,760	$ 2,900,760	$ 2,900,760
8	474710 Miscellaneous Receipts	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
9	**Total Other Operating Revenue**	$ 3,900,760	$ 3,900,760	$ 3,900,760	$ 3,900,760	$ 3,900,760	$ 3,900,760	$ 3,900,760	$ 3,900,760	$ 3,900,760	$ 3,900,760
	Non-Operating Revenue										
10	471000 Interdepartmental Revenue	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000
11	472100 Other Miscellaneous [2]	12,316,300	3,675,596	4,453,309	4,422,197	4,247,403	4,106,706	4,075,594	4,044,482	4,013,370	3,982,258
12	**Total Non-Operating Revenue**	$ 13,066,300	$ 4,425,596	$ 5,203,309	$ 5,172,197	$ 4,997,403	$ 4,856,706	$ 4,825,594	$ 4,794,482	$ 4,763,370	$ 4,732,258
	Interest Income										
13	Unrestricted	$ -	$ 214,879	$ 378,345	$ 533,284	$ 531,165	$ 531,165	$ 531,165	$ 531,165	$ 531,165	$ 531,165
14	**Total Interest Income**	$ -	$ 214,879	$ 378,345	$ 533,284	$ 531,165	$ 531,165	$ 531,165	$ 531,165	$ 531,165	$ 531,165
15	**Total Cash Inflows**	$ 133,721,443	$ 135,714,045	$ 140,173,423	$ 143,032,373	$ 147,010,841	$ 151,250,797	$ 155,230,429	$ 159,345,124	$ 163,600,158	$ 168,000,171

[1] FY 2023 based on results of cost allocation analysis.

[2] Other Miscellaneous forecast based on pension expenses reimbursable by GLWA

Schedule 4: Cash Out

	Object Description	Cost Center	FY 2023 [1]	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
1	601100-Salar-Full Time-Gen City	481001	$ 299,881	$ 304,430	$ 312,016	$ 319,816	$ 327,812	$ 336,007	$ 344,407	$ 353,017	$ 361,843	$ 370,889
2	601115-Salaries-Contractual	481001	132,196	136,439	134,864	142,338	146,095	149,848	153,282	157,114	161,042	165,068
3	602100-Wages-Full Time-Gen City	481001	16,681	16,993	17,318	17,648	17,982	18,322	18,668	19,020	19,380	19,748
4	603125-Empir Pd Pension-GRS	481001	23,272	22,879	23,400	23,985	24,586	25,202	25,832	26,478	27,140	27,819
5	603200-Empir Pd Ben-Medical	481001	54,469	56,659	58,926	61,283	63,734	66,284	68,935	71,692	74,560	77,542
6	603300-Employer Pd FICA	481001	34,091	33,453	35,809	38,348	41,087	43,937	46,913	50,030	53,303	56,751
7	603400-Unemployment	481001	4,239	4,199	4,601	4,715	4,834	4,955	5,078	5,205	5,335	5,469
8	603405-Workers' Compensation	481001	26,141	26,805	27,506	28,191	28,893	29,621	30,362	31,122	31,900	32,698
9	603900-Emp Benefits-Miscellaneous	481001	1,790	1,834	1,880	1,927	1,975	2,024	2,075	2,127	2,180	2,234
10	604100-Other Comp-Unused Sick Leave	481001	424	434	445	456	468	479	491	503	516	529
11	605100-Group Life Insurance	481001	1,130	1,159	1,188	1,217	1,248	1,279	1,311	1,343	1,377	1,411
12	605205-Eye Care-Active Civilian	481001	191	196	201	847	885	917	953	987	1,021	1,072
13	605500-Income Protection	481001	1,258	1,289	1,321	1,377	1,431	1,488	1,548	1,611	1,676	1,743
14	605620-Dental Active	481001	3,872	3,967	4,067	4,231	4,400	4,576	4,759	4,949	5,147	5,353
15	605700-Health Care Reserve - Civilian	481001	8,917	9,139	9,677	10,604	10,988	10,845	11,228	11,773	12,240	12,729
16	620100-Office Supplies	481001	4,709	4,826	4,947	5,071	5,198	5,328	5,461	5,597	5,737	5,880
17	621900-Oper Supplies-Miscellaneous	481001	1,611	1,646	1,686	1,727	1,769	1,813	1,858	1,904	1,951	1,999
18	623010-Insurance Premium	481001	97,142	99,570	102,059	104,611	107,226	109,907	112,654	115,470	118,357	121,316
19	625000-Dues & Miscellaneous	481001	82,830	84,901	87,023	89,199	91,429	93,714	96,057	98,458	100,920	103,443
20	626600-Postage	481001	201	206	212	218	224	230	236	242	248	254
21	627730-Employee Parking	481001	4,025	4,126	4,229	4,335	4,443	4,554	4,668	4,785	4,904	5,027
22	628100-Travel	481001	7,294	7,476	7,663	7,855	8,051	8,253	8,459	8,671	8,888	9,110
23	601100-Salar-Full Time-Gen City	481501	28,859	29,581	30,320	31,078	31,855	32,651	33,467	34,304	35,162	36,041
24	603125-Empir Pd Pension-GRS	481501	1,485	1,460	1,521	1,572	1,641	1,682	1,724	1,767	1,811	1,857
25	603200-Empir Pd Ben-Medical	481501	3,672	3,820	3,973	4,132	4,297	4,469	4,648	4,834	5,027	5,228
26	603300-Employer Pd FICA	481501	2,243	2,202	2,358	2,524	2,702	2,893	3,096	3,313	3,545	3,793
27	603400-Unemployment	481501	283	280	307	316	325	334	344	354	365	376
28	603405-Workers' Compensation	481501	1,696	1,739	1,781	1,825	1,871	1,918	1,966	2,015	2,065	2,117
29	603900-Emp Benefits-Miscellaneous	481501	143	146	149	153	156	160	164	168	172	176
30	605100-Group Life Insurance	481501	87	89	91	93	95	97	99	101	103	105
31	605205-Eye Care-Active Civilian	481501	82	83	85	83	85	87	89	91	93	95
32	605500-Income Protection-LTD	481501	87	89	91	93	95	97	99	101	103	105
33	605620-Dental Active	481501	299	306	314	310	329	329	336	344	353	361
34	605700-Health Care Reserve - Civilian	481501	813	831	852	826	746	842	775	806	838	871
35	620100-Office Supplies	481501	4,709	4,826	4,947	5,071	5,198	5,328	5,461	5,597	5,737	5,881
36	621900-Oper Supplies-Miscellaneous	481501	1,415	1,098	1,486	1,521	1,559	1,598	1,638	1,679	1,721	1,764
37	623010-Insurance Premium	481501	91,777	94,029	96,340	98,710	101,140	103,630	106,181	108,794	111,469	114,208
38	625000-Dues & Miscellaneous	481501	4,376	4,484	4,594	4,708	4,824	4,943	5,064	5,189	5,316	5,449
39	626600-Postage	481501	283	290	297	304	312	320	328	336	344	353
40	628100-Travel	481501	28,692	27,139	30,501	28,703	29,418	30,154	30,908	31,680	32,472	33,284
41	601100-Salar-Full Time-Gen City	482401	325,580	333,720	342,063	350,614	359,379	368,364	377,573	387,012	396,687	406,604
42	603125-Empir Pd Pension-GRS	482401	16,780	16,662	17,078	17,637	17,978	18,428	18,886	19,358	19,841	20,337
43	603200-Empir Pd Ben-Medical	482401	41,761	41,961	43,605	44,736	46,654	48,019	50,090	52,322	54,415	56,791
44	603300-Employer Pd FICA	482401	24,901	25,523	26,161	26,815	27,485	28,172	28,876	29,598	30,338	31,096
45	603400-Unemployment	482401	3,177	3,256	3,338	3,421	3,506	3,594	3,683	3,775	3,869	3,966
46	603405-Workers' Compensation	482401	19,166	19,645	20,136	20,640	21,156	21,684	22,226	22,782	23,351	23,935
47	603900-Emp Benefits-Miscellaneous	482401	1,372	1,406	1,441	1,477	1,514	1,552	1,591	1,631	1,672	1,713
48	604100-Other Comp-Unused Sick Leave	482401	264	271	278	285	292	299	307	314	322	330
49	605100-Group Life Insurance	482401	849	870	892	914	937	960	984	1,009	1,034	1,060
50	605205-Eye Care-Active Civilian	482401	329	337	972	965	979	843	999	1,024	1,050	1,076
51	605500-Income Protection-LTD	482401	999	1,024	1,050	1,081	1,063	1,094	1,121	1,149	1,178	1,208
52	605620-Dental Active	482401	2,715	2,783	2,853	2,927	2,977	3,053	3,129	3,208	3,288	3,370
53	605700-Health Care Reserve - Civilian	482401	6,583	6,753	7,004	7,185	7,401	6,270	6,556	6,723	6,891	7,063
54	616100-Computer Fees-Mgt Consult	482401	180,054	184,581	194,423	199,291	204,290	209,419	214,685	220,092	225,647	231,353
55	617000-Contract Svcs-Other Misc	482401	107,705	108,380	111,089	113,866	116,713	119,631	122,622	125,688	128,830	132,051
56	620100-Office Supplies	482401	2,664	2,710	2,777	2,847	2,918	2,991	3,066	3,142	3,221	3,302
57	621900-Oper Supplies-Miscellaneous	482401	7,091	6,163	6,317	6,474	6,636	6,797	6,967	7,141	7,319	7,502
58	625000-Dues & Miscellaneous	482401	16,662	16,256	16,662	17,081	17,508	17,946	18,395	18,855	19,326	19,809
59	628100-Travel	482401	21,549	21,978	22,528	23,091	23,668	24,260	24,866	25,488	26,125	26,778
60	628501-Misc-License,Insp&Permit Fees	482401	59,369	61,329	62,862	64,433	66,044	67,695	69,387	71,122	72,900	74,723
61	628515-Central Services Expense	482401	1,551,462	1,569,750	1,143,746	1,172,339	1,201,647	1,231,688	1,262,480	1,294,042	1,326,393	1,359,553
62	601100-Salar-Full Time-Gen City	482411	442,330	453,391	464,726	476,344	488,252	500,458	512,970	525,794	538,939	552,412
63	601115-Salaries-Contractual	482411	169,446	172,162	114,847	117,693	120,636	123,629	126,695	129,837	133,058	136,361
64	601300-Sala-Overtime-Gen City	482411	57,473	54,190	55,545	56,934	58,357	59,821	61,316	62,849	64,420	66,031
65	602100-Wages-Full Time-Gen City	482411	1,246,642	1,308,474	1,077,387	1,779,361	1,783,845	1,828,941	1,874,164	1,921,768	1,969,812	2,019,307
66	602400-Wages-Shift Prem-Gen City	482411	231,499	236,728	224,137	227,760	333,446	239,282	245,264	251,396	257,681	264,123
67	603125-Empir Pd Pension-GRS	482411	107,417	110,122	112,876	115,698	118,591	121,555	124,594	127,709	130,902	134,174
68	603200-Empir Pd Ben-Medical	482411	294,810	306,610	318,875	331,630	344,896	358,691	373,038	387,959	403,478	419,618
69	603300-Employer Pd FICA	482411	166,578	161,961	161,015	267,655	215,591	224,208	233,168	242,484	252,184	262,271
70	603400-Unemployment	482411	23,419	24,223	24,831	25,451	26,088	26,740	27,409	28,094	28,796	29,516
71	603405-Workers' Compensation	482411	140,593	145,133	148,761	152,480	160,292	159,199	164,204	169,309	172,517	176,830
72	603900-Emp Benefits-Miscellaneous	482411	9,678	9,999	10,249	10,505	10,768	11,037	11,313	11,596	11,886	12,183

Schedule 4: Cash Out

	Object Description	Cost Center	FY 2022	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
70	604100-Other Comp-Unused Sick Leave	482411	2,758	2,757	2,756	2,755	2,753	2,752	2,751	2,750	2,749	2,747
71	605100-Group Life Insurance	482411	6,239	6,499	6,768	7,048	7,339	7,641	7,954	8,279	8,618	8,969
72	605205-Eye Care Active Civilian	482411	5,865	5,954	6,176	6,345	6,515	6,690	6,864	7,042	7,222	7,406
73	605305-Income Protection-LTD	482411	5,603	6,753	7,034	7,326	7,630	7,947	8,229	8,565	8,915	9,280
74	605620-Dental Active	482411	19,703	19,997	20,985	21,664	22,365	23,088	23,833	24,601	25,392	26,207
75	605705-Health Care Reserve - Civilian	482411	64,275	58,254	52,218	54,309	56,482	58,738	61,088	63,534	66,085	68,743
76	620100-Office Supplies	482411	13,515	13,649	13,831	14,386	14,962	15,560	16,183	16,830	17,503	18,203
77	621000-Oper Supplies-Miscellaneous	482411	13,515	13,649	13,831	14,204	14,592	14,989	15,397	15,815	16,245	16,686
78	626300-Dues & Miscellaneous	482411	2,844	2,758	2,777	2,847	2,918	2,991	3,066	3,142	3,221	3,302
79	627305-Private Car Reimbursement	482411	13,216	13,348	13,664	14,216	14,800	15,408	16,039	16,695	17,376	18,084
80	628501-Misc-License,Insp&Permit Fees	482411	10,575	10,699	11,138	11,398	11,672	11,964	12,263	12,570	12,884	13,206
81	601100-Salar-Full Time-Gen City	482421	35,516	36,190	37,104	38,052	39,032	40,036	41,065	42,118	43,196	44,300
82	601115-Salaries-Commercial	482421	72,725	72,461	73,914	75,693	77,146	78,779	80,479	82,218	83,998	85,820
83	602100-Wages-Full Time-Gen City	482421	108,329	110,317	112,938	115,856	118,845	121,905	125,037	128,243	131,524	134,881
84	603125-Empir Pd Pension-GRS	482421	16,275	16,137	16,196	16,576	16,967	17,371	17,786	18,212	18,651	19,102
85	603200-Empir Pd Ben-Medical	482421	34,730	34,522	36,568	38,319	40,151	41,925	43,781	45,718	47,741	49,849
86	603300-Employer Pd FICA	482421	28,017	28,116	28,909	29,578	30,276	31,001	31,752	32,530	33,335	34,167
87	603400-Unemployment	482421	3,528	3,668	3,808	3,898	3,990	4,085	4,183	4,284	4,389	4,498
88	603405-Workers' Compensation	482421	21,442	22,009	22,568	23,101	23,650	24,214	24,791	25,383	25,989	26,611
89	603900-Emp Benefits-Miscellaneous	482421	1,903	1,980	1,834	1,877	1,921	1,966	2,013	2,061	2,110	2,161
90	604100-Other Comp-Unused Sick Leave	482421	338	338	338	338	338	338	338	338	338	338
91	605100-Group Life Insurance	482421	962	978	1,003	1,026	1,050	1,075	1,100	1,126	1,153	1,180
92	605205-Eye Care Active Civilian	482421	884	898	931	956	982	1,008	1,034	1,061	1,088	1,116
93	605305-Income Protection-LTD	482421	863	1,018	1,060	1,104	1,150	1,197	1,241	1,291	1,343	1,398
94	605620-Dental Active	482421	3,264	3,049	3,026	3,048	3,754	3,854	3,978	4,088	4,237	4,351
95	605705-Health Care Reserve - Civilian	482421	9,250	8,997	8,804	8,318	8,638	8,966	9,306	9,658	10,023	10,400
96	617000-Contract Svcs-Other-Misc	482421	1,400,844	1,482,113	1,519,166	1,557,145	1,596,074	1,635,976	1,676,875	1,718,797	1,761,767	1,805,811
97	620100-Office Supplies	482421	2,164	2,193	2,473	2,535	2,598	2,664	2,730	2,799	2,869	2,940
98	622200-Repairs & Maint-Bldgs&Grounds	482421	70,631	72,197	74,007	75,857	77,754	79,697	81,691	83,733	85,827	87,973
99	622300-Repairs & Maint-Equipment	482421	30,769	31,238	34,357	37,793	41,573	45,731	50,304	55,335	60,868	66,955
100	622400-Repairs & Maint-Facilities	482421	106,347	108,606	117,511	118,693	119,880	121,079	122,290	123,513	124,748	125,996
101	622900-Repairs & Maint-Misc	482421	139,643	139,016	138,393	137,776	137,164	136,557	135,954	135,354	134,761	134,172
102	623001-Utilities-Water	482421	527,584	548,179	564,623	581,562	598,009	615,749	634,221	653,248	672,845	693,030
103	623002-Utilities-Gas	482421	180,209	186,753	192,357	198,127	204,071	210,193	216,499	222,994	229,684	236,574
104	623003-Utilities-Steam	482421	69,595	71,336	73,119	74,947	76,820	78,741	80,709	82,727	84,795	86,915
105	623004-Utilities-Electricity	482421	799,126	809,065	824,958	850,028	873,271	895,852	915,939	938,943	961,720	985,263
106	628501-Misc-License,Insp&Permit Fees	482421	11,772	12,066	12,369	12,677	12,994	13,319	13,652	13,993	14,343	14,701
107	601100-Salar-Full Time-Gen City	482422	168,783	173,053	177,379	181,763	186,207	190,713	195,282	199,914	204,611	209,374
108	601300-Salar-Overtime Gen City	482422	24,883	25,484	26,121	26,774	27,444	28,130	28,833	29,554	30,293	31,050
109	601400-Salar-Shift Prem-Gen City	482422	1,164	1,201	1,243	1,289	1,336	1,384	1,435	1,487	1,541	1,597
110	601500-Salaries-Holiday Premium	482422	27,899	28,563	29,507	30,040	30,797	31,572	32,368	33,183	34,017	34,867
111	617000 - Contract Svcs Info Technology	482422	20,719	20,718	21,217	21,728	22,252	22,800	23,442	24,028	24,628	25,244
112	602100-Wages-Full Time-Gen City	482422	388,854	398,687	408,370	418,079	428,031	438,231	448,687	459,404	470,389	481,648
113	603125-Empir Pd Pension-GRS	482422	37,435	36,259	36,296	37,196	38,116	39,058	40,023	41,011	42,023	43,059
114	603200-Empir Pd Ben-Medical	482422	79,345	78,312	82,324	87,462	92,715	98,158	103,828	109,743	115,918	122,368
115	603300-Employer Pd FICA	482422	46,329	47,145	48,628	50,163	51,753	53,396	55,096	56,853	58,668	60,543
116	603400-Unemployment	482422	5,811	5,892	6,106	6,258	6,414	6,575	6,739	6,908	7,081	7,258
117	603405-Workers' Compensation	482422	34,767	35,631	36,507	37,441	38,377	39,336	40,319	41,327	42,360	43,419
118	603900-Emp Benefits-Miscellaneous	482422	2,375	2,434	2,495	2,558	2,622	2,688	2,754	2,823	2,893	2,966
119	604100-Other Comp-Unused Sick Leave	482422	498	498	497	498	498	498	498	498	498	498
120	605100-Group Life Insurance	482422	1,534	1,577	1,618	1,659	1,701	1,744	1,788	1,833	1,879	1,926
121	605205-Eye Care Active Civilian	482422	867	880	1,018	1,044	1,070	1,097	1,125	1,153	1,182	1,211
122	605305-Income Protection-LTD	482422	1,011	1,042	1,068	1,095	1,122	1,150	1,179	1,208	1,238	1,269
123	605620-Dental Active	482422	3,431	3,504	4,194	4,301	4,409	4,518	4,630	4,744	4,861	4,980
124	605705-Health Care Reserve - Civilian	482422	11,835	12,208	12,845	13,258	14,082	14,535	15,007	15,497	16,007	16,537
125	617000-Contract Svcs-Other-Misc	482422	1,243,984	1,274,161	1,306,015	1,338,666	1,372,133	1,406,436	1,441,597	1,477,638	1,514,577	1,552,442
126	620100-Office Supplies	482422	2,127	2,348	2,465	2,527	2,590	2,655	2,721	2,789	2,859	2,930
127	621000-Oper Supplies-Automotive	482422	12,831	12,948	13,210	13,605	13,945	14,294	14,651	15,017	15,393	15,778
128	621900-Oper Supplies-Miscellaneous	482422	2,127	2,348	2,465	2,527	2,590	2,655	2,721	2,789	2,859	2,930
129	622100-Repairs & Maint-Automotive	482422	155,155	159,572	154,568	158,709	172,918	177,241	181,672	186,214	190,869	195,641
130	623100-Uniforms, Laundry, Cleaning	482422	10,107	10,359	10,618	10,884	11,156	11,435	11,721	12,014	12,314	12,622
131	626435 - Rentals-Lease of Equipment	482422	161,482	165,522	163,377	167,459	167,540	171,624	175,914	180,307	184,815	189,435
132	626500-Dues & Miscellaneous	482422	5,859	5,859	5,840	5,986	6,136	6,289	6,446	6,608	6,773	6,942
133	628100-Travel	482422	5,603	5,188	6,909	5,442	5,578	5,717	5,860	6,007	6,157	6,311
134	628501-Misc-License,Insp&Permit Fees	482422	7,580	7,770	7,964	8,163	8,367	8,576	8,791	9,010	9,235	9,466
135	601100-Salar-Full Time-Gen City	482431	703,938	721,536	739,575	758,064	777,015	796,441	816,352	836,761	857,680	879,122
136	601300-Salar-Overtime Gen City	482431	535,139	537,973	536,932	544,136	557,739	571,682	585,974	600,623	615,639	631,030
137	601400-Salar-Shift Prem-Gen City	482431	7,580	7,770	7,964	8,163	8,367	8,576	8,791	9,010	9,235	9,466
138	601500-Salaries-Holiday Premium	482431	131,390	134,675	138,292	141,749	145,293	148,925	152,648	156,464	160,376	164,385
139	602100-Wages-Full Time-Gen City	482431	3,136,210	3,215,063	3,295,364	3,377,653	3,462,095	3,548,648	3,637,364	3,728,297	3,821,504	3,917,042
140	603125-Empir Pd Pension-GRS	482431	301,926	300,776	307,840	314,936	322,183	329,586	337,150	344,880	352,781	360,858
141	603200-Empir Pd Ben-Medical	482431	647,681	669,644	692,378	716,013	740,716	766,345	793,009	820,710	849,547	879,528

Schedule 4: Cash Out

	Object Description	Cost Center	FY 2023[1]	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
1	603300-Employer Pd FICA	482431	342,923	356,640	370,906	385,742	401,172	417,219	433,907	451,264	469,314	488,086
2	603400-Unemployment	482431	43,956	45,564	46,105	47,949	49,867	51,862	53,936	56,094	58,337	60,670
3	603405-Workers' Compensation	482431	223,180	205,867	245,308	255,300	265,531	276,152	287,158	298,652	310,597	323,020
4	603900-Emp Benefits-Miscellaneous	482431	12,600	13,230	13,795	14,265	14,748	15,248	15,766	16,304	16,861	17,441
5	604100-Other Comp-Unused Sick Leave	482431	8,000	4,144	4,247	4,354	4,462	4,574	4,688	4,806	4,926	5,049
6	605100-Group Life Insurance	482431	11,023	12,006	12,471	13,078	13,597	14,133	14,687	15,259	15,852	16,465
7	605205-Eye Care-Active Civilian	482431	7,175	7,453	7,761	8,072	8,396	8,736	9,090	9,461	9,847	10,253
8	605500-Income Protection-LTD	482431	12,128	12,613	13,118	13,643	14,189	14,756	15,346	15,960	16,598	17,262
9	605620-Dental Active	482431	31,455	30,012	31,483	32,747	34,057	35,419	36,836	38,304	39,836	41,429
10	605700-Health Care Reserve - Civilian	482431	93,837	97,731	98,981	103,841	108,576	109,078	113,510	117,978	122,668	127,586
11	617900-Contract Svcs-Other Misc	482431	1,253,348	1,304,102	1,027,309	1,388,699	1,444,189	1,499,963	1,559,961	1,622,324	1,687,259	1,677,769
12	620100-Office Supplies	482431	29,000	21,545	22,608	23,619	23,206	23,799	24,309	24,809	25,423	26,354
13	621400-Oper Supplies-Janitorial	482431	3,521	3,663	3,809	3,721	3,789	3,858	3,930	4,003	4,079	4,155
14	621600-Operating Supplies-Chemicals	482431	6,154	5,703	5,931	6,061	6,199	6,342	6,487	6,637	6,790	6,947
15	621900-Oper Supplies-Miscellaneous	482431	112,861	115,603	119,886	124,519	124,157	131,077	136,282	136,134	137,497	140,976
16	622300-Repairs & Maint-Equipment	482431	180,194	205,197	210,335	215,591	220,988	226,511	232,171	237,973	243,923	249,016
17	622900-Repairs & Maint-Misc	482431	407,426	414,125	401,969	409,991	419,969	428,968	440,190	450,694	459,529	469,767
18	626435-Rentals - Lease of Equipment	482431	25,997	25,000	26,500	27,210	27,890	28,587	29,302	30,035	30,786	31,556
19	626915-Dues & Memberships	482431	2,427	2,012	2,124	2,127	2,231	2,287	2,344	2,403	2,463	2,524
20	627105-Private Car Reimbursements	482431	1,616	1,554	1,593	1,633	1,674	1,716	1,758	1,802	1,847	1,893
21	627195-Employee Uniform Expense	482431	61,167	64,167	65,896	68,024	69,725	71,468	73,255	75,086	76,963	78,887
22	627225-Other Oper Svc-Miscellaneous	482431	8,865	8,296	8,490	8,707	8,925	9,148	9,377	9,611	9,851	10,098
23	627230-Employee Parking	482431	506	515	531	544	558	572	586	601	616	631
24	628501-Travel	482431	4,643	4,060	4,778	4,898	5,020	5,146	5,274	5,406	5,541	5,680
25	628501-Misc-Licenses/Permit Fees	482431	11,117	11,396	11,680	11,972	12,272	12,578	12,893	13,215	13,546	13,885
26	601100-Salar-Full Time-Gen City	482432	131,316	155,093	158,227	162,261	167,026	171,291	175,463	179,828	184,351	188,573
27	601300-Salar-Overtime-Gen City	482432	10,000	10,505	10,767	11,037	11,312	11,595	11,885	12,182	12,487	12,799
28	601400-Salar-Shift Prem-Gen City	482432	853	865	886	908	931	954	978	1,002	1,027	1,053
29	601500-Salaries-Holiday Premium	482432	34,360	35,220	36,102	37,005	37,930	38,878	39,850	40,846	41,867	42,914
30	602300-Wages-Full Time-Gen City	482432	1,193,084	1,213,733	1,244,077	1,241,489	1,313,531	1,346,369	1,380,028	1,414,517	1,449,880	1,486,127
31	603125-Empr Pd Pension-GRS	482432	92,855	88,744	90,963	92,237	94,538	96,901	99,323	101,806	104,351	106,960
32	603200-Empr Pd Ben-Medical	482432	198,662	205,230	202,000	199,601	198,226	204,163	214,471	220,905	231,950	241,183
33	603300-Employer Pd FICA	482432	106,150	110,346	114,760	119,351	124,125	129,090	134,254	139,624	145,209	151,017
34	603400-Unemployment	482432	13,604	13,953	14,261	14,587	14,922	15,263	15,613	15,970	16,337	16,711
35	603405-Workers' Compensation	482432	81,384	83,420	85,505	87,643	89,834	92,081	94,382	96,742	99,160	101,639
36	603900-Emp Benefits-Miscellaneous	482432	5,529	5,664	5,806	5,951	6,100	6,253	6,409	6,569	6,733	6,901
37	604100-Other Comp-Unused Sick Leave	482432	1,200	1,287	1,329	1,353	1,380	1,407	1,435	1,464	1,493	1,523
38	605100-Group Life Insurance	482432	1,617	3,760	3,913	4,089	4,272	4,461	4,657	4,863	5,076	5,298
39	605205-Eye Care-Active Civilian	482432	2,295	2,389	2,491	2,596	2,688	2,784	2,884	2,987	3,094	3,205
40	605500-Income Protection-LTD	482432	3,764	3,919	4,075	4,239	4,409	4,584	4,768	4,958	5,157	5,363
41	605620-Dental Active	482432	9,943	9,485	9,789	10,127	10,479	10,844	11,224	11,618	12,028	12,451
42	605700-Health Care Reserve - Civilian	482432	27,797	28,081	30,994	31,784	32,449	33,128	34,080	34,832	37,052	35,403
43	617400-Contract Svcs-Info Technology	482432	82,800	84,000	87,003	89,206	91,488	93,765	96,136	98,533	100,996	103,521
44	617900-Contract Svcs-Other Misc	482432	602,366	615,079	636,719	658,911	665,814	666,110	683,276	694,736	699,604	699,602
45	620100-Office Supplies	482432	10,000	10,000	10,556	10,820	11,091	11,368	11,652	11,943	12,242	12,548
46	621900-Oper Supplies-Miscellaneous	482432	951,654	969,457	969,466	978,716	988,172	997,807	997,830	998,916	998,870	999,161
47	622900-Repairs & Maint-Misc	482432	165,714	154,401	160,393	162,209	168,281	170,512	174,752	175,113	183,936	188,221
48	626810 - Advertising	482432	30,141	30,000	31,664	32,460	33,272	34,104	34,956	35,830	36,726	37,644
49	626100 - Printing	482432	5,024	5,140	5,275	5,410	5,545	5,684	5,826	5,972	6,121	6,274
50	626500-Dues & Memberships	482432	5,024	5,140	5,275	5,410	5,545	5,684	5,826	5,972	6,121	6,274
51	626600-Postage	482432	12,559	12,850	13,189	13,526	13,863	14,210	14,566	14,930	15,303	15,685
52	626700-Travel	482432	10,048	10,280	10,556	10,820	11,091	11,368	11,652	11,943	12,242	12,548
53	601100-Salar-Full Time-Gen City	482435	136,000	139,315	143,004	146,580	150,245	153,746	156,599	160,473	164,484	168,596
54	601200 - Wages-Full Time	482435	90,309	91,008	92,430	94,188	96,552	98,966	101,430	103,946	106,515	109,138
55	603125-Empr Pd Pension-GRS	482435	9,305	9,533	9,771	10,015	10,265	10,522	10,785	11,055	11,331	11,614
56	603200-Empr Pd Ben-Medical	482435	22,700	23,600	24,552	25,534	26,556	27,618	28,723	29,872	31,067	32,309
57	603205 Employer Pd FICA	482435	14,200	14,799	15,369	15,973	16,602	17,256	17,936	18,645	19,384	20,154
58	603400-Unemployment	482435	1,800	1,845	1,891	1,938	1,987	2,037	2,088	2,140	2,193	2,248
59	603405-Workers' Compensation	482435	10,000	11,173	11,452	11,738	12,032	12,333	12,641	12,957	13,281	13,613
60	603900-Emp Benefits-Miscellaneous	482435	700	716	736	754	773	792	812	832	853	874
61	604100-Other Comp-Unused Sick Leave	482435	200	205	210	215	221	226	232	237	244	250
62	605100-Group Life Insurance	482435	600	503	541	583	628	676	728	784	844	909
63	605205-Eye Care-Active Civilian	482435	400	372	424	497	521	565	592	591	611	637
64	605500-Income Protection-LTD	482435	500	500	541	587	636	690	748	811	879	953
65	605620-Dental Active	482435	1,200	1,248	1,298	1,350	1,404	1,460	1,518	1,579	1,642	1,708
66	605700-Health Care Reserve - Civilian	482435	3,700	3,848	4,002	4,162	4,328	4,502	4,682	4,869	5,064	5,265
67	620100 - Office Supplies	482435	5,000	5,125	5,253	5,384	5,518	5,657	5,798	5,943	6,092	6,244
68	621900-Oper Supplies-Miscellaneous	482435	20,000	20,600	21,613	21,538	22,076	22,628	23,194	23,774	24,368	24,977
69	626600 - Postage	482435	200	205	210	215	221	226	232	238	244	250
70	627195 - Employee Uniform Expense	482435	3,000	3,090	3,181	3,276	3,374	3,475	3,579	3,687	3,797	3,911
71	601100-Salar-Full Time-Gen City	482701	77,000	79,310	81,529	83,597	85,686	87,786	89,981	92,232	94,538	96,902
72	601300-Salar-Overtime-Gen City	482701	50,000	52,015	53,365	54,651	55,971	57,325	58,714	60,139	61,601	63,100

Schedule 4: Cash Out

	Object Description	Cost Center	FY 2023 [1]	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
217	601400-Salar-Shft Prem-Gen City	482223	9,630	9,821	9,894	10,042	10,191	10,343	10,497	10,654	10,814	10,977
218	602100-Wages-Full Time-Gen City	482223	265,000	253,100	260,693	268,867	264,682	272,528	280,681	289,156	297,826	306,761
219	603125-Emplr Pd Pension-GRS	482223	18,538	18,867	19,056	19,503	20,011	20,511	21,024	21,549	22,088	22,640
220	603200-Emplr Pd Ben-Medical	482223	52,395	53,632	55,237	56,413	57,273	58,359	59,750	61,239	62,819	64,491
221	603300-Employer Pd FICA	482223	32,700	33,016	34,007	35,218	36,235	37,322	38,034	38,985	39,959	40,958
222	603400-Unemployment	482223	6,197	4,276	4,403	4,519	4,634	4,241	4,368	4,352	4,534	4,534
223	603405-Workers' Compensation	482223	25,168	26,730	26,442	27,109	27,781	28,476	29,188	29,918	30,665	31,432
224	603900-Emp Benefits-Miscellaneous	482223	1,710	1,762	1,805	1,851	1,897	1,944	1,993	2,043	2,094	2,146
225	604100-Other Comp-Unused Sick Leave	482223	377	386	396	406	416	426	437	448	459	470
226	605100-Group Life Insurance	482223	1,107	1,134	1,163	1,192	1,221	1,251	1,283	1,315	1,348	1,381
227	605205-Eye Care-Active Civilian	482223	693	710	717	735	753	771	790	810	830	851
228	605301-Income Protection-LTD	482223	1,154	1,182	1,212	1,242	1,273	1,305	1,338	1,371	1,405	1,441
229	605520-Dental Active	482223	3,778	3,849	3,918	3,990	4,067	4,145	4,225	4,306	4,389	4,474
230	605700-Health Care Reserve - Civilian	482223	8,571	8,761	8,951	9,228	9,462	9,698	9,938	10,181	10,431	10,686
231	610100-Grenadier Fire-Mpl Circuit	482223	211,845	217,191	222,823	228,187	233,891	239,738	245,732	251,875	258,172	264,626
232	637900 - Contract Svcs-Other Misc	482223	37,000	38,295	39,677	40,766	41,915	43,275	44,657	46,072	47,372	48,806
233	620100-Office Supplies	482223	3,531	3,610	3,700	3,803	3,898	3,996	4,096	4,198	4,303	4,411
234	621900-Oper Supplies-Miscellaneous	482223	3,531	3,610	3,700	3,803	3,898	3,996	4,096	4,198	4,303	4,411
235	626100-Printing	482223	1,648	1,683	1,725	1,774	1,819	1,865	1,911	1,958	2,008	2,058
236	626500-Dues & Miscellaneous	482223	1,882	1,911	1,959	2,014	2,064	2,116	2,169	2,223	2,278	2,335
237	626600-Postage	482223	1,177	1,203	1,233	1,268	1,299	1,331	1,365	1,399	1,434	1,470
238	627105-Private Car Reimbursements	482223	4,707	4,810	4,932	5,071	5,196	5,329	5,461	5,597	5,737	5,881
239	626501-Misc-Licenses,Insp&Permit Fees	482223	210	241	247	254	260	266	273	280	287	294
240	601100-Salar-Full Time-Gen City	483101	314,300	278,749	286,943	295,614	286,666	293,833	301,179	308,708	316,425	324,336
241	603125-Emplr Pd Pension-GRS	483101	22,283	19,338	19,836	20,431	21,195	21,725	22,268	22,825	23,396	23,981
242	603200-Emplr Pd Ben-Medical	483101	36,161	27,226	28,317	29,449	30,628	31,863	33,137	34,462	35,840	37,274
243	603300-Employer Pd FICA	483101	18,308	17,060	17,714	18,433	19,170	19,937	20,734	21,563	22,426	23,323
244	603400-Unemployment	483101	2,021	2,124	2,177	2,231	2,287	2,344	2,403	2,463	2,524	2,587
245	603405-Workers' Compensation	483101	13,971	13,847	14,208	14,579	14,958	15,344	14,596	14,996	15,406	15,826
246	603900-Emp Benefits-Miscellaneous	483101	899	865	886	910	935	959	983	1,008	1,033	1,059
247	604100-Other Comp-Unused Sick Leave	483101	185	191	199	209	218	228	238	249	260	272
248	605100-Group Life Insurance	483101	645	668	685	696	691	697	715	734	754	774
249	605205-Eye Care-Active Civilian	483101	335	347	357	371	385	400	417	434	451	469
250	605301-Income Protection-LTD	483101	672	697	662	694	716	741	775	810	838	871
251	605520-Dental Active	483101	1,413	1,465	1,530	1,584	1,643	1,715	1,787	1,863	1,943	2,027
252	605700-Health Care Reserve - Civilian	483101	4,285	4,440	4,635	4,800	5,013	5,233	5,403	5,583	5,864	6,058
253	613100-Legal	483101	400,000	414,800	429,562	444,939	461,196	478,035	494,766	511,744	529,744	548,551
254	620100-Office Supplies	483101	2,354	2,413	2,512	2,536	2,599	2,664	2,731	2,799	2,869	2,940
255	626500-Dues & Miscellaneous	483101	3,531	3,610	3,700	3,804	3,952	4,064	4,169	4,284	4,403	4,526
256	626600-Postage	483101	471	483	495	507	520	533	546	560	574	589
257	627105-Private Car Reimbursements	483101	353	361	357	304	312	320	328	336	344	353
258	627230-Employee Parking	483101	1,600	1,728	1,781	1,836	1,871	1,915	1,964	2,011	2,065	2,117
259	628100-Travel	483101	2,354	2,413	2,473	2,536	2,599	2,664	2,732	2,799	2,869	2,940
260	661100-Damage Claims	483101	235,439	210,938	235,439	229,439	225,439	155,439	236,439	236,439	236,439	236,439
261	601100-Salar-Full Time-Gen City	483201	367,535	386,412	376,946	386,627	396,293	406,200	416,355	426,764	437,433	448,369
262	603125-Emplr Pd Pension-GRS	483201	17,803	18,349	18,799	19,269	19,751	20,245	20,751	21,269	21,801	22,346
263	603200-Emplr Pd Ben-Medical	483201	43,955	45,306	47,212	48,393	51,952	53,251	54,582	55,947	57,346	58,780
264	603300-Employer Pd FICA	483201	27,319	28,057	29,560	30,774	32,306	33,096	34,615	35,481	37,368	38,302
265	603400-Unemployment	483201	3,484	3,592	3,681	3,773	3,868	3,965	4,064	4,166	4,270	4,377
266	603405-Workers' Compensation	483201	21,033	21,539	22,064	22,616	23,181	23,761	24,355	24,964	25,588	26,228
267	603900-Emp Benefits-Miscellaneous	483201	1,311	1,348	1,381	1,414	1,449	1,486	1,523	1,561	1,600	1,640
268	604100-Other Comp-Unused Sick Leave	483201	330	338	346	355	364	373	382	392	402	412
269	605100-Group Life Insurance	483201	942	974	1,018	1,060	1,102	1,148	1,193	1,239	1,286	1,334
270	605205-Eye Care-Active Civilian	483201	851	837	882	868	716	736	775	816	858	901
271	605301-Income Protection-LTD	483201	941	976	1,010	1,050	1,092	1,136	1,182	1,229	1,278	1,329
272	605520-Dental Active	483201	2,354	2,440	2,546	2,640	2,739	2,842	2,948	3,058	3,172	3,291
273	605700-Health Care Reserve - Civilian	483201	6,997	7,448	7,741	8,021	8,321	8,709	9,056	9,419	9,797	10,189
274	637900-Contract Svcs-Other Misc	483201	25,000	26,546	27,208	27,888	28,587	29,302	30,034	30,785	31,554	32,343
275	620100-Office Supplies	483201	7,061	7,198	7,421	7,658	7,797	7,995	8,197	8,396	8,606	8,821
276	626100-Printing	483201	4,709	4,798	4,947	5,071	5,198	5,328	5,461	5,597	5,737	5,881
277	626500-Dues & Miscellaneous	483201	2,354	2,413	2,474	2,536	2,599	2,664	2,732	2,799	2,869	2,940
278	627110-Purchased Services - Other	483201	47,000	48,205	49,677	50,708	51,976	53,275	54,607	55,972	57,372	58,806
279	627225-Other Cont Svc-Miscellaneous	483201	14,125	14,478	14,841	15,212	15,593	15,983	16,382	16,792	17,211	17,642
280	627230-Employee Parking	483201	6,761	6,933	7,106	7,283	7,465	7,652	7,843	8,040	8,242	8,448
281	628100-Travel	483201	4,708	4,826	4,947	5,071	5,198	5,328	5,461	5,597	5,737	5,881
282	628200-Training	483201	107,345	105,065	109,528	112,269	115,076	118,068	121,005	124,025	127,126	130,254
283	628203-Training-Tuition Reimbursement	483201	37,620	38,612	39,577	40,566	41,581	42,620	43,686	44,778	45,897	47,045
284	601100-Salar-Full Time-Gen City	483301	926,619	949,285	973,017	997,342	1,022,261	1,048,818	1,077,025	1,101,896	1,129,439	1,157,675
285	601115-Overtime-Contractual	483301	37,000	37,924	38,862	39,834	40,831	41,872	42,919	43,992	45,091	46,218
286	602100-Wages-Full Time-Gen City	483301	102,796	105,364	107,998	110,698	113,465	116,302	119,209	122,179	125,233	128,364
287	603125-Emplr Pd Pension-GRS	483301	51,300	54,833	56,204	57,609	59,051	60,526	62,039	63,587	65,177	66,806
288	603200-Emplr Pd Ben-Medical	483301	131,311	135,545	140,007	144,256	152,469	160,569	164,579	173,607	178,018	182,482

Schedule 4: Cash Out

	Object Description	Cost Center	FY 2023 [1]	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
293	602300-Employer Pd FICA	483301	81,516	84,074	86,709	89,430	92,242	95,145	98,143	101,240	104,440	107,746
294	603405-Unemployment	483301	10,466	10,715	10,969	11,228	11,493	11,764	12,041	12,327	12,621	12,923
295	603405-Workers' Compensation	483301	83,809	84,516	85,230	85,950	86,678	87,412	88,154	88,903	89,659	90,423
296	603900-Emp Benefits-Miscellaneous	483301	4,731	4,888	5,050	5,217	5,390	5,569	5,754	5,945	6,142	6,345
297	604100-Other Comp-Unused Sick Leave	483301	886	1,011	1,040	1,069	1,098	1,128	1,159	1,191	1,223	1,256
298	605100-Group Life Insurance	483301	2,785	2,897	3,012	3,133	3,258	3,389	3,524	3,665	3,812	3,964
299	605205-Eye Care-Active Civilian	483301	1,819	1,746	1,840	1,892	1,964	2,042	2,124	2,209	2,297	2,389
300	605500-Income Protection LTD	483301	2,905	3,025	3,136	3,262	3,392	3,528	3,669	3,816	3,969	4,127
301	605610-Dental Active	483301	6,014	7,022	7,551	7,851	8,165	8,493	8,795	9,154	9,520	9,899
302	605700-Health Care Reserve - Civilian	483301	24,328	22,781	23,668	20,942	24,464	25,446	26,464	27,522	28,623	29,768
303	617400-General Svcs-Oth Technology	483301	665,205	691,930	719,606	748,390	778,326	809,459	841,837	875,511	910,531	946,952
304	620100-Office Supplies	483301	5,720	5,948	6,014	6,193	6,377	6,479	6,637	6,803	6,973	7,147
305	622300-Repairs & Maint-Equipment	483301	80,010	81,610	84,879	88,274	91,805	95,477	99,296	103,268	107,399	111,695
306	623811-Hardware Maintenance	483301	220,807	235,400	232,081	217,869	203,810	208,906	194,188	182,583	203,194	170,883
307	623813-Software Maintenance	483301	2,691,260	2,691,392	2,134,032	2,017,303	2,261,967	2,298,149	2,344,475	2,414,401	2,374,825	2,210,665
308	624010-Advertising	483301	1,008	1,048	1,090	1,134	1,179	1,226	1,275	1,326	1,379	1,434
309	624310-Printing	483301	3,045	3,167	3,294	3,426	3,563	3,705	3,853	4,007	4,167	4,334
310	626415-Rentals- Office Equipment	483301	3,815	3,911	4,009	4,109	4,211	4,317	4,425	4,535	4,649	4,765
311	626435 - Rentals-Lease of Equipment	483301	5,723	5,866	6,013	6,163	6,317	6,475	6,637	6,803	6,973	7,147
312	629100-Dues & Miscellaneous	483301	3,815	3,911	4,009	4,109	4,211	4,317	4,425	4,535	4,649	4,765
313	629810-Postage	483301	6,196	6,297	6,401	6,509	6,619	6,732	6,847	6,965	7,086	7,209
314	629870-Telecommunications	483301	171,550	175,943	180,441	184,941	189,513	194,251	199,110	204,095	209,197	214,417
315	629872-Data Com Equip	483301	157,813	156,420	160,329	164,147	168,656	173,054	177,384	181,818	185,364	188,071
316	632105-Private Car Reimbursements	483301	239	735	241	247	253	259	265	272	278	285
317	637230-Employee Parking	483301	11,446	11,739	12,029	12,329	12,638	13,004	13,329	13,662	13,949	14,298
318	637305-Diesel	483301	13,098	13,514	13,827	14,148	14,476	14,811	15,155	15,507	15,867	16,237
319	628515-Shared Services Expense	483301	660,226	685,614	705,981	646,937	698,955	685,867	615,330	633,825	655,437	662,050
320	601105-Salar-Full Time-Gen City	483411	382,843	385,643	178,460	366,271	367,879	452,920	438,113	458,580	458,258	459,273
321	601205-Salar-Overtime-Gen City	483411	36,203	36,753	37,304	37,860	38,418	39,001	39,607	40,221	40,827	41,445
322	601405-Salar-Shift Prem-Gen City	483411	1,108	1,125	1,142	1,159	1,176	1,194	1,212	1,230	1,248	1,267
323	601505-Salaries-Holiday Premium	483411	1,413	1,434	1,456	1,478	1,500	1,523	1,546	1,569	1,593	1,617
324	602100-Wages-Full Time-Gen City	483411	628,646	630,867	639,829	628,788	638,220	652,186	668,606	686,211	702,314	713,895
325	602130-Wages-Holiday Pay	483411	11,254	11,636	11,671	12,110	12,452	12,733	13,057	13,377	13,712	14,055
326	602300-Wages-Overtime-Gen City	483411	136,407	138,783	139,783	142,642	146,208	149,863	153,610	157,450	161,386	165,421
327	602400-Wages-Shift Prem-Gen City	483411	4,097	4,160	4,208	4,415	4,526	4,639	4,755	4,874	4,997	5,122
328	603125-Emplr Pd Pension-GRS	483411	46,825	47,810	49,178	50,609	51,984	53,408	54,879	56,396	57,927	58,963
329	603205-Emplr Pd Ben-Medical	483411	140,618	146,328	152,077	158,160	164,486	171,066	177,908	185,024	192,425	200,122
330	603300-Employer Pd FICA	483411	89,092	91,676	95,139	99,098	103,200	107,131	111,419	116,010	120,650	125,476
331	603400-Unemployment	483411	11,301	11,584	11,873	12,170	12,474	12,786	13,106	13,433	13,769	14,113
332	603405-Workers' Compensation	483411	67,548	68,212	70,845	72,715	74,510	76,317	78,207	80,264	82,277	84,328
333	603900-Emp Benefits-Miscellaneous	483411	4,552	4,680	4,799	4,919	5,042	5,168	5,297	5,429	5,565	5,704
334	604100-Other Comp-Unused Sick Leave	483411	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
335	605100-Group Life Insurance	483411	2,967	3,085	3,209	3,337	3,470	3,609	3,754	3,904	4,060	4,222
336	605205-Eye Care-Active Civilian	483411	1,856	1,810	1,846	2,008	2,168	2,334	2,508	2,817	2,921	3,014
337	605500-Income Protection LTD	483411	3,309	3,230	3,361	3,496	3,636	3,781	3,932	4,089	4,251	4,421
338	605610-Dental Active	483411	7,687	7,786	8,099	8,423	8,760	9,110	9,474	9,853	10,246	10,656
339	605700-Health Care Reserve - Civilian	483411	29,326	31,847	34,892	35,007	36,937	29,824	30,735	31,955	33,233	32,774
340	617400-General Svcs-Other Misc	483411	30,954	32,470	32,295	33,611	33,238	34,567	35,949	37,387	38,883	40,437
341	620100-Office Supplies	483411	26,369	27,178	27,982	29,813	29,369	29,978	24,573	25,556	26,577	27,640
342	621900-Oper Supplies-Miscellaneous	483411	35,510	36,613	38,977	40,600	41,481	42,330	43,196	44,079	45,854	47,043
343	622300-Repairs & Maint-Equipment	483411	1,224	1,256	1,288	1,321	1,355	1,390	1,426	1,463	1,501	1,540
344	629100-Dues & Miscellaneous	483411	2,854	2,929	2,954	3,030	3,108	3,189	3,271	3,356	3,443	3,532
345	627195 - Employee Uniform Expense	483411	30,057	31,370	32,756	33,905	33,794	34,639	35,505	36,393	37,303	38,236
346	628100-Travel	483411	4,704	4,826	4,947	5,071	5,198	5,328	5,461	5,597	5,737	5,880
347	602500 - Wages-Holiday Premium	483411	25,228	26,882	27,555	28,244	28,951	29,674	30,416	31,176	31,955	32,754
348	628501-Misc-License,Insp&Permit Fees	483411	760	779	799	819	839	860	881	903	926	949
349	628515-Shared Services Expense	483411	142,936	147,842	153,805	159,759	166,101	172,798	179,878	187,357	194,350	202,139
350	601100-Salar-Full Time-Gen City	483421	203,748	207,249	212,430	217,741	223,184	228,764	234,483	240,345	246,334	252,512
351	603125-Emplr Pd Pension-GRS	483421	10,077	10,309	10,567	10,832	11,103	11,381	11,666	11,958	12,256	12,564
352	603205-Emplr Pd Ben-Medical	483421	25,574	26,561	27,725	28,946	30,225	31,566	32,969	34,438	35,788	36,176
353	603300-Employer Pd FICA	483421	16,416	16,811	16,766	17,425	18,122	18,858	19,633	20,450	21,302	22,192
354	603400-Unemployment	483421	1,979	2,027	2,076	2,126	2,178	2,231	2,285	2,341	2,398	2,457
355	603405-Workers' Compensation	483421	11,886	12,161	12,467	12,778	13,098	13,425	13,761	14,105	14,458	14,819
356	603900-Emp Benefits-Miscellaneous	483421	800	821	841	862	884	906	929	952	976	1,000
357	604100-Other Comp-Unused Sick Leave	483421	988	1,011	1,036	1,062	1,088	1,115	1,143	1,171	1,200	1,230
358	605100-Group Life Insurance	483421	548	570	593	617	642	668	695	723	752	782
359	605205-Eye Care-Active Civilian	483421	330	340	357	371	386	401	417	434	451	469
360	605500-Income Protection LTD	483421	570	589	609	630	652	675	698	722	747	773
361	605610-Dental Active	483421	1,318	1,371	1,426	1,483	1,542	1,604	1,668	1,735	1,804	1,877
362	605700-Health Care Reserve - Civilian	483421	4,060	4,219	4,388	4,564	4,737	4,927	5,124	5,329	5,542	5,764
363	610100-Compiled Pure-Hyd Consult	483421	153,191	161,431	172,346	184,710	198,889	198,911	223,041	176,726	146,673	95,194
364	617400-General Svcs-Other Misc	483421	36,207	37,655	39,161	32,200	43,195	44,923	46,720	48,589	50,532	52,553

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	Object Description	Cost Center	FY 2023 [1]	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
349	620100-Office Supplies	484121	7,603	7,782	7,921	7,826	7,736	7,801	8,191	8,356	8,516	8,677
352	621300-Oper Supplies-Automotive	484121	1,434	1,376	1,298	1,318	1,351	1,365	1,429	1,445	1,462	1,539
361	621900-Oper Supplies-Miscellaneous	484121	7,683	7,748	7,827	7,926	7,795	7,911	8,191	8,356	8,516	8,321
364	626010-Advertising	484121	13,771	13,966	12,360	12,677	13,384	13,319	13,983	13,983	14,243	14,191
365	626100-Printing	484121	57,008	60,266	59,471	58,703	61,976	64,276	64,607	66,672	67,372	68,904
366	626600-Dues & Miscellaneous	484121	2,764	2,813	2,674	2,625	2,693	2,764	2,730	2,791	2,869	2,945
367	626800-Postage	484121	23,984	24,432	24,736	25,364	25,888	25,838	27,308	27,308	28,008	28,409
368	627115-Private Car Reimbursements	484121	2,764	2,813	2,674	2,625	2,693	2,764	2,730	2,791	2,869	2,945
369	627195-Employee Uniform Expense	484121	7,003	7,260	7,421	7,606	7,396	7,891	8,191	8,356	8,516	8,921
370	627225-Other Oper Svc-Miscellaneous	484121	2,764	2,813	2,674	2,625	2,693	2,764	2,730	2,791	2,869	2,945
371	627230-Employee Parking	484121	5,230	5,475	5,552	5,651	5,742	5,838	5,932	6,046	6,161	6,233
372	628105-Travel	484121	982	999	990	1,014	1,040	1,065	1,092	1,113	1,167	1,176
373	601100-Salar-Full Time-Gen City	484001	946,713	1,015,421	964,307	911,419	967,750	980,114	997,727	1,152,385	1,220,484	1,311,096
374	601115-Salaries-Contractual	484001	81,114	82,734	84,319	85,807	87,422	88,755	90,998	92,264	94,545	96,448
375	603125-Emplr Pd Pension-GRS	484001	17,309	17,767	18,056	18,527	19,017	19,105	20,035	20,338	21,151	21,641
376	603200-Emplr Pd Ben-Medical	484001	42,378	44,206	45,351	47,078	48,677	51,940	53,623	55,240	57,000	58,356
377	603300-Employer Pd FICA	484001	26,531	27,521	28,677	29,429	31,013	30,254	31,568	31,986	36,201	37,762
378	603400-Unemployment	484001	3,037	3,023	3,011	3,236	3,334	3,869	3,986	4,086	4,188	4,293
379	603405-Workers' Compensation	484001	21,396	20,830	21,302	21,866	22,462	23,081	23,636	24,124	24,727	25,345
380	603900-Emp Benefits-Miscellaneous	484001	1,412	1,466	1,484	1,527	1,568	1,589	1,636	1,679	1,721	1,764
381	604100-Other Comp-Unused Sick Leave	484001	330	338	346	356	364	373	382	392	402	412
382	605100-Group Life Insurance	484001	488	506	568	1,025	1,047	1,084	1,132	1,177	1,224	1,273
383	605205-Eye Care-Active Civilian	484001	603	588	611	636	661	687	715	745	773	803
384	605500-Income Protection-LTD	484001	967	978	1,000	1,029	1,100	1,146	1,192	1,239	1,288	1,340
385	605520-Dental Active	484001	2,365	2,521	2,445	2,542	2,644	2,745	2,853	2,974	3,093	3,217
386	605700-Health Care Reserve - Civilian	484001	6,911	7,181	7,187	7,796	8,108	8,422	8,758	9,109	9,473	9,852
387	616100-Consultant Fees-Mgt Consult	484001	23,634	24,100	24,736	25,364	25,888	26,838	27,308	27,308	28,008	28,409
394	620100-Office Supplies	484001	14,734	14,979	15,441	15,212	15,801	15,981	16,380	16,716	17,211	17,442
395	621900-Oper Supplies-Miscellaneous	484001	888	917	948	963	1,000	1,012	1,038	1,063	1,088	1,114
396	626600-Dues & Miscellaneous	484001	1,035	1,060	1,088	1,116	1,143	1,172	1,201	1,231	1,262	1,294
397	627110-Purchased Services - Other	484001	1,417,626	1,467,942	1,484,148	1,471,244	1,558,215	1,598,657	1,638,623	1,679,588	1,721,578	1,764,618
398	627230-Employee Parking	484001	1,232	1,268	1,281	1,317	1,347	1,379	1,411	1,443	1,477	1,511
399	628105 - Travel	484001	2,587	2,606	2,727	2,749	2,864	2,930	3,015	3,078	3,155	3,234
400	628515-Shared Services Expense	484001	16,060	17,140	17,826	18,538	19,280	20,051	20,853	21,687	22,555	23,457
389	601100-Salar-Full Time-Gen City	484111	433,705	454,125	439,138	466,503	456,178	493,153	502,305	554,545	577,926	597,590
390	602100-Wages-Full Time-Gen City	484111	95,726	98,128	100,576	103,090	105,667	108,309	111,018	113,793	116,638	119,554
397	603125-Emplr Pd Pension-GRS	484111	29,504	30,242	31,008	31,794	32,599	34,049	35,005	35,880	36,857	37,829
398	603200-Emplr Pd Ben-Medical	484111	72,881	75,975	77,974	81,043	84,336	87,736	91,218	94,867	98,662	102,609
399	603300-Employer Pd FICA	484111	16,162	16,565	16,942	16,794	17,211	17,641	18,082	18,534	19,000	19,475
400	603400-Unemployment	484111	5,792	5,937	6,085	6,237	6,393	6,553	6,717	6,885	7,057	7,233
401	603405-Workers' Compensation	484111	34,858	35,930	36,811	37,721	38,704	39,711	40,701	41,719	42,762	43,831
402	603900-Emp Benefits-Miscellaneous	484111	2,364	2,413	2,474	2,536	2,599	2,664	2,730	2,799	2,869	2,940
403	604100-Other Comp-Unused Sick Leave	484111	618	631	646	662	678	695	713	731	749	767
404	605100-Group Life Insurance	484111	1,564	1,615	1,647	1,738	1,878	1,991	1,986	2,106	2,232	2,367
405	605205-Eye Care-Active Civilian	484111	912	979	1,019	1,060	1,102	1,146	1,192	1,239	1,288	1,340
406	605500-Income Protection-LTD	484111	1,551	1,665	1,732	1,801	1,873	1,948	2,026	2,107	2,191	2,279
407	605520-Dental Active	484111	3,814	3,987	4,226	4,290	4,462	4,640	4,826	5,019	5,220	5,429
408	605700-Health Care Reserve - Civilian	484111	11,772	12,243	12,732	13,242	13,771	14,322	14,895	15,491	16,111	16,755
409	616100-Consultant Fees-Mgt Consult	484111	47,268	48,182	49,671	50,728	51,776	53,775	54,616	56,977	57,972	59,900
410	620100-Office Supplies	484111	7,603	7,782	7,921	7,826	7,736	7,801	8,191	8,356	8,516	8,677
411	621900-Oper Supplies-Miscellaneous	484111	1,884	1,931	1,979	2,028	2,078	2,129	2,184	2,238	2,295	2,350
412	626600-Dues & Miscellaneous	484111	761	772	792	811	832	852	874	896	918	941
413	626800-Postage	484111	982	995	990	1,014	1,040	1,065	1,092	1,113	1,167	1,176
414	627230-Employee Parking	484111	5,021	5,150	5,281	5,085	5,220	5,353	5,553	5,717	5,885	7,057
415	628105-Travel	484111	2,767	2,865	2,958	3,057	3,158	4,260	4,369	4,479	4,593	4,712
416	601100-Salar-Full Time-Gen City	484129	383,479	401,164	402,324	413,018	423,366	433,940	444,829	455,962	467,349	479,033
417	601300-Salar-Overtime-Gen City	484129	9,419	9,661	9,911	10,167	10,425	10,693	10,967	11,244	11,531	11,821
418	601400-Salar-Shift Prem-Gen City	484129	11,772	12,065	12,368	12,677	12,994	13,319	13,652	13,993	14,343	14,701
419	602100-Wages-Full Time-Gen City	484129	564,674	578,791	593,260	608,092	623,294	638,876	654,848	671,220	688,011	705,216
420	602300-Wages-Overtime-Gen City	484129	3,516	3,604	3,694	18,162	18,305	18,668	19,675	19,794	21,174	21,703
421	603125-Emplr Pd Pension-GRS	484129	47,417	48,603	49,818	51,063	52,340	53,648	54,989	56,364	57,773	59,218
422	603200-Emplr Pd Ben-Medical	484129	119,602	124,386	129,362	134,536	139,918	145,515	151,336	157,389	163,684	170,232
423	603300-Employer Pd FICA	484129	34,885	37,664	40,679	44,219	47,586	50,990	54,733	58,827	62,464	66,362
424	603400-Unemployment	484129	6,005	6,845	7,802	8,344	10,863	10,863	11,148	11,416	11,701	11,988
425	603405-Workers' Compensation	484129	57,847	58,685	59,055	61,886	63,471	64,906	66,427	68,060	69,801	71,743
426	603900-Emp Benefits-Miscellaneous	484129	3,906	4,005	4,108	4,209	4,314	4,422	4,532	4,646	4,762	4,881
427	604100-Other Comp-Unused Sick Leave	484129	895	917	940	963	988	1,012	1,038	1,063	1,089	1,117
428	605100-Group Life Insurance	484129	2,613	2,684	2,758	2,865	2,976	3,090	3,217	3,346	3,483	3,626
429	605205-Eye Care-Active Civilian	484129	1,554	1,615	1,661	1,709	1,758	1,808	1,861	1,916	1,973	2,032
430	605500-Income Protection-LTD	484129	2,017	2,147	2,267	2,388	2,515	2,648	2,787	2,932	3,084	3,243
431	605520-Dental Active	484129	6,404	6,686	6,982	7,294	7,623	7,969	8,329	8,707	9,101	9,513
432	605700-Health Care Reserve - Civilian	484129	19,549	20,371	21,187	22,034	22,915	23,832	24,786	25,777	26,808	27,880

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	Object Description	Cost Center	FY 2023 [1]	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
634	616100-Consultant Fees-Mgt Consult	484121	47,994	48,205	48,417	48,630	48,845	49,061	49,277	49,495	49,713	49,933
635	617900-Contract Svcs-Other-Misc	484121	113,985	115,635	116,291	117,040	117,792	118,548	119,307	120,069	120,835	121,604
636	620100-Office Supplies	484121	2,364	2,413	2,463	2,514	2,566	2,620	2,674	2,730	2,787	2,845
637	621800-Oper Supplies-Miscellaneous	484121	5,853	5,702	5,553	5,406	5,264	5,125	4,991	4,859	4,732	4,607
638	626900-Dues & Memberships	484121	2,364	2,413	2,463	2,514	2,566	2,620	2,674	2,730	2,787	2,845
639	627100-Private Car Reimbursements	484121	342	349	356	364	371	379	387	395	403	411
640	627225 - Other Operational Services - Misc	484121	342	349	356	364	371	379	387	395	403	411
641	627230-Employee Parking	484121	475	485	495	505	516	527	538	549	560	572
642	628100-Travel	484121	4,750	4,848	4,949	5,051	5,156	5,263	5,371	5,482	5,595	5,709
643	601100-Salar-Full Time-Gen City	484131	128,125	131,328	133,817	136,977	141,478	144,960	148,536	152,207	156,139	160,111
644	603125-Emplr Pd Pension-GRS	484131	6,404	6,566	6,691	6,848	7,073	7,248	7,427	7,612	7,807	8,006
645	603200-Emplr Pd Ben-Medical	484131	16,640	16,294	16,600	17,638	18,344	18,977	19,640	20,454	21,452	22,316
646	603300-Employer Pd FICA	484131	9,794	10,196	10,981	11,417	11,888	12,379	12,889	13,420	13,974	14,550
647	603400-Unemployment	484131	1,275	1,308	1,338	1,368	1,398	1,429	1,461	1,493	1,526	1,560
648	603405-Workers' Compensation	484131	4,519	4,722	4,913	5,114	5,324	5,544	5,737	5,966	6,179	6,400
649	603900-Emp Benefits-Miscellaneous	484131	639	655	644	705	672	690	697	698	695	697
650	604100-Other Comp-Unused Sick Leave	484131	141	146	148	152	156	160	164	168	173	178
651	605100-Group Life Insurance	484131	332	341	350	377	388	401	417	436	453	466
652	605205-Eye Care-Active Civilian	484131	189	195	204	212	220	228	238	248	258	268
653	605600-Income Protection-LTD	484131	285	293	307	317	330	341	357	372	387	402
654	605625-Dental Active	484131	805	831	866	893	930	974	1,013	1,053	1,096	1,139
655	605700-Health Care Reserve - Civilian	484131	2,849	2,944	2,750	2,850	2,975	3,058	3,217	3,348	3,480	3,619
656	616850 - Consultant Fees Mgt Consultant	484131	105,947	109,506	111,011	114,003	116,941	119,956	122,966	126,030	129,186	132,363
657	617225-Other Oper Svc-Miscellaneous	484131	824,000	849,833	861,744	882,382	903,571	925,319	948,004	970,670	994,004	1,018,181
658	628100-Travel	484131	2,166	2,239	2,270	2,333	2,391	2,451	2,513	2,576	2,641	2,708
659	628515-Shared Services Expense	484131	117,716	122,470	127,205	130,818	134,714	143,359	146,962	154,010	161,159	167,551
660	601100-Salar-Full Time-Gen City	484151	87,371	89,115	91,351	93,656	96,009	98,409	100,860	103,381	105,966	108,614
661	601115-Salaries Connected	484151	43,509	44,997	45,719	46,864	48,036	49,236	50,467	51,729	53,021	54,347
662	603125-Emplr Pd Pension-GRS	484151	6,545	6,709	6,877	7,049	7,225	7,406	7,590	7,780	7,975	8,174
663	603200-Emplr Pd Ben-Medical	484151	16,963	16,601	17,266	17,956	18,674	19,421	20,198	21,006	21,846	22,720
664	603300-Employer Pd FICA	484151	9,985	10,232	10,737	11,204	11,693	12,205	12,741	13,299	13,882	14,490
665	603400-Unemployment	484151	1,301	1,334	1,336	1,368	1,402	1,436	1,471	1,507	1,544	1,582
666	603405-Workers' Compensation	484151	4,608	4,817	4,993	5,209	5,437	5,677	5,929	6,193	6,469	6,758
667	603900-Emp Benefits-Miscellaneous	484151	655	671	688	704	721	739	757	776	795	815
668	604100-Other Comp-Unused Sick Leave	484151	141	146	148	152	156	160	164	168	173	178
669	605100-Group Life Insurance	484151	332	341	350	377	388	401	417	436	453	466
670	605205-Eye Care-Active Civilian	484151	189	195	204	212	220	228	238	248	258	268
671	605600-Income Protection-LTD	484151	285	293	307	317	330	341	357	372	387	402
672	605625-Dental Active	484151	805	831	866	893	930	974	1,013	1,053	1,096	1,139
673	605700-Health Care Reserve - Civilian	484151	2,849	2,944	2,750	2,850	2,975	3,058	3,217	3,348	3,480	3,619
674	622601-Advertising	484151	183	190	196	204	212	220	228	236	245	254
675	627100-Private Car Reimbursements	484151	47	48	50	52	54	56	58	60	62	64
676	601100-Salar-Full Time-Gen City	484161	124,799	124,799	127,018	127,117	130,345	132,765	141,199	144,528	148,341	152,109
677	601105-Salaries-Full Time-Gen City	484161	181,003	185,860	189,040	194,207	199,119	203,197	207,197	212,951	217,241	222,156
678	603125-Emplr Pd Pension-GRS	484161	14,202	14,595	14,919	15,236	15,675	16,009	16,343	16,800	17,208	17,730
679	603200-Emplr Pd Ben-Medical	484161	36,654	35,548	37,481	38,991	40,540	42,151	43,846	45,592	47,426	49,333
680	603300-Employer Pd FICA	484161	21,730	21,678	23,491	24,422	25,397	26,411	27,470	28,565	29,711	30,909
681	603400-Unemployment	484161	2,805	2,876	2,941	3,007	3,076	3,144	3,214	3,287	3,361	3,437
682	603405-Workers' Compensation	484161	10,026	10,281	10,496	10,734	10,979	11,229	11,485	11,747	12,015	12,289
683	603900-Emp Benefits-Miscellaneous	484161	1,425	1,460	1,492	1,527	1,561	1,596	1,632	1,668	1,706	1,744
684	604100-Other Comp-Unused Sick Leave	484161	283	290	296	303	310	317	324	331	339	346
685	605100-Group Life Insurance	484161	720	739	755	772	789	807	825	844	863	882
686	605205-Eye Care-Active Civilian	484161	455	466	476	487	498	509	520	532	544	556
687	605600-Income Protection-LTD	484161	760	782	822	856	889	924	961	1,000	1,040	1,081
688	605625-Dental Active	484161	1,841	1,911	1,993	2,077	2,163	2,255	2,350	2,450	2,553	2,659
689	605700-Health Care Reserve - Civilian	484161	6,658	6,888	6,708	6,976	6,853	6,987	7,172	7,401	7,635	7,869
690	617900-Contract Svcs-Other-Misc	484161	194,755	201,607	211,082	219,469	227,261	235,153	243,718	252,714	261,910	271,310
691	617901 - Contract Svcs-Pers Servs Contract-Pd On P/R	484161	33,849	32,645	33,481	34,246	35,155	36,053	36,935	37,803	38,691	39,599
692	620100 - Office Supplies	484161	1,693	1,697	1,696	1,673	1,670	1,653	1,634	1,617	1,602	1,586
693	620600 - Postage	484161	1,693	1,697	1,696	1,673	1,670	1,653	1,634	1,617	1,602	1,586
694	627230-Employee Parking	484161	3,388	3,394	3,393	3,346	3,340	3,306	3,268	3,234	3,203	3,172
695	628100-Travel	484161	2,046	2,086	2,169	2,203	2,268	2,313	2,373	2,433	2,496	2,559
696	601100 - Salaries-Full Time	484171	47,899	48,265	48,471	50,709	51,978	53,278	54,610	55,975	57,375	58,809
697	603125 - Pensions GRS/DCP	484171	2,394	2,413	2,424	2,535	2,599	2,664	2,730	2,799	2,869	2,940
698	603200 - Empl Ben-Healthcare	484171	5,760	6,008	6,364	6,816	7,298	7,661	7,968	8,402	8,946	9,343
699	603300 - Empl Ben-Social Security	484171	3,629	3,777	3,862	4,078	4,242	4,451	4,588	4,773	4,965	5,161
700	603400 - Unemployment	484171	473	480	496	502	520	533	546	560	574	589
701	603405 - Workers Compensation	484171	2,778	2,846	2,915	2,990	3,067	3,153	3,232	3,326	3,385	3,470
702	603900 - Empl Ben-Miscellaneous	484171	189	193	198	203	208	213	218	224	229	235
703	604100 - Other Comp-Unused Sick Leave	484171	94	97	99	101	104	107	109	112	115	118
704	605100 - Group Life Insurance	484171	141	147	151	154	157	161	165	169	173	177
705	605600 - Income Protection	484171	101	147	153	158	160	167	176	186	191	199

Schedule 4: Cash Out

	Object Description	Cost Center	FY 2023 [1]	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
505	602020 - Dental Active	454771	330	341	351	371	386	401	417	434	451	469
506	602700 - Health Care Retiree	454771	902	929	1,019	1,059	1,102	1,146	1,192	1,239	1,289	1,340
507	603200 - Auto	454771	211,894	217,251	223,821	238,707	237,897	239,536	249,117	251,875	258,431	264,828
508	626500 - Dues & Miscellaneous	454771	431	485	499	507	528	533	540	616	624	682
509	627230 - Employee Parking	454771	1,695	1,746	1,781	1,835	1,881	1,918	1,960	2,016	2,069	2,117
510	626700 - Travel	454771	2,360	2,413	2,474	2,550	2,599	2,654	2,709	2,764	2,822	2,880
511	601100-Salar-Full Time-Gen City	455111	141,396	153,605	163,441	159,712	162,908	166,247	170,515	175,168	179,668	184,009
512	601100-Wages-Full Time-Gen City	455111	973,847	926,245	973,759	974,962	992,348	1,022,233	1,048,291	1,074,528	1,101,371	1,128,905
513	603125-Empr Pd Pension GRS	455111	52,356	53,879	55,028	56,007	56,972	58,172	59,626	61,094	64,246	65,846
514	603200-Empr Pd Ben-Medical	455111	128,478	133,611	138,959	144,518	150,299	156,311	162,563	169,065	175,828	182,861
515	603205-Employer Pd FICA	455111	83,880	83,657	87,054	90,536	94,103	97,867	101,782	105,853	110,087	114,491
516	603460-Unemployment	455111	10,314	10,572	10,836	11,107	11,385	11,670	11,961	12,260	12,567	12,881
517	603605-Workers' Compensation	455111	67,710	63,315	64,936	66,560	68,177	69,882	71,629	73,354	75,188	77,068
518	602905-Emp Benefits-Miscellaneous	455111	4,230	4,315	4,421	4,531	4,644	4,760	4,879	5,001	5,126	5,255
519	501100-Other Comp-Hourly Services	455111	364	398	1,011	1,036	1,062	1,088	1,116	1,144	1,173	1,202
520	602500-Group Life Insurance	455111	2,737	2,425	2,909	3,057	3,179	3,309	3,439	3,576	3,719	3,868
521	602205-Eye Care-Active Civilian	455111	1,655	1,730	1,801	1,873	1,948	2,026	2,107	2,192	2,279	2,370
522	602600-Income Protection LTD	455111	3,041	2,946	3,060	3,186	3,306	3,438	3,581	3,730	3,879	4,034
523	602020-Dental Active	455111	4,231	4,421	4,599	4,805	4,999	5,199	5,411	5,637	5,867	6,102
524	602700-Health Care Retiree - Civilian	455111	21,679	21,679	22,764	23,654	24,611	25,596	26,618	27,683	28,791	29,943
525	617900-Contract Svcs-Other-Misc	455111	21,679	22,662	23,645	24,565	25,564	26,584	27,651	28,763	29,917	31,114
526	626100-Printing	455111	2,802	2,930	3,070	3,191	3,320	3,453	3,593	3,737	3,886	4,042
527	626500-Dues & Miscellaneous	455111	1,443	1,508	1,578	1,640	1,706	1,775	1,846	1,920	1,997	2,077
528	626600-Postage	455111	5,476	5,702	5,952	6,189	6,436	6,693	6,962	7,242	7,532	7,833
529	627230-Employee Parking	455111	1,552	1,578	1,596	1,633	1,681	1,730	1,780	1,832	1,886	1,941
530	603121 - Pension Reimbursement - Operating (GLWA's portion) [2]	457111	(2,668,920)									
531	603121-Pension Reimbursement - Operating [2]	457111	(4,012,200)									
532	626513-GLWA Charge	457111	22,580,300	24,870,600	26,431,200	28,208,511	30,207,729	32,218,600	34,169,614	37,325,416	39,648,217	38,546,017
533	626513-Other GLWA Allocations [3]	457111	3,866,200	1,877,778	1,877,778	1,877,778	1,877,778	1,877,778	1,877,778	1,877,778	1,877,778	1,877,778
534	626514-Other Retail Allocations [3]	457111	2,392,800	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000
535	651180-Note Payment [2]	457111	875,000	875,000	1,250,000	1,622,787	1,947,800	1,304,706	1,275,144	1,246,643	1,211,143	1,167,286
536	651180-Note Payment [2]	457111	875,000	875,000	1,250,000	1,622,787	1,947,800	1,304,706	1,275,144	1,246,643	1,211,143	1,167,286
537	711700-Bad Debts [3]	457111	12,786,114	12,786,114	13,197,361	14,869,211	17,264,662	17,663,034	15,980,893	16,321,333	12,461,440	12,461,440
538	725100-Water Retail Assistance Program	457111	611,000	611,000	611,000	611,000	611,000	611,000	611,000	611,000	611,000	611,000
539	**Total Operating and Non-Operating Expenses**		$ 100,714,413	$ 93,044,143	$ 97,700,879	$ 97,972,043	$ 97,601,636	$ 100,908,243	$ 104,974,846	$ 108,211,049	$ 112,384,611	$ 114,046,270
540	Total Expenses by Category											
541	Personal Services		$ 27,225,400	$ 27,994,426	$ 28,671,780	$ 29,197,480	$ 29,803,631	$ 30,408,280	$ 31,249,573	$ 32,103,126	$ 32,883,626	$ 33,684,618
542	Operations & Maintenance		73,489,013	65,049,717	68,979,099	68,674,563	67,797,993	70,499,973	73,725,273	76,108,003	79,500,985	80,361,651
543	**Total Expenses**		$ 100,714,413	$ 93,044,143	$ 97,700,879	$ 97,872,043	$ 97,601,636	$ 100,908,243	$ 104,974,846	$ 108,211,049	$ 112,384,611	$ 114,046,270
	Expense Escalation Factors											
544	Personal Services		100%	103%	106%	108%	110%	112%	115%	118%	121%	124%
545	Operations & Maintenance		100%	103%	106%	108%	110%	112%	115%	118%	121%	123%
	Total Expenses at Escalation											
546	Personal Services		$ 27,225,400	$ 28,812,230	$ 28,671,780	$ 29,197,480	$ 29,803,631	$ 30,408,280	$ 31,249,573	$ 32,103,126	$ 32,883,626	$ 33,684,618
547	Operations & Maintenance		73,489,013	66,108,707	68,979,099	71,674,563	71,867,203	74,299,973	77,725,273	80,208,910	83,427,061	84,161,751
548	**Total Expenses at Escalation**		$ 100,714,413	$ 94,920,937	$ 97,700,879	$ 100,872,043	$ 101,670,834	$ 104,708,253	$ 108,974,846	$ 112,312,036	$ 116,310,687	$ 117,846,369
	Debt Service											
549	Obligation to GLWA		$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800
550	Water Collateral Note Subordinate Debt Service			337,080	806,760	1,157,449	1,565,259	1,984,782	2,162,358	2,111,038	2,065,188	2,005,186
551	**Total Debt Service**		$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800	$ 33,438,800
	Transfer to I&E Fund											
552	Transfer to I&E Fund for Operations		$ 6,680,238	$ 11,211,113	$ 13,035,161	$ 13,435,670	$ 12,917,203	$ 13,861,734	$ 17,210,775	$ 17,534,383	$ 17,886,143	$ 18,270,681
553	**Total Cash Funded Capital**		$ 6,680,238	$ 11,211,113	$ 13,035,161	$ 13,435,670	$ 12,917,203	$ 13,861,734	$ 17,210,775	$ 17,534,383	$ 17,886,143	$ 18,270,681
554	**Total Cash Outflows**		$ 140,833,451	$ 138,714,056	$ 144,174,839	$ 144,746,513	$ 143,976,639	$ 148,208,777	$ 156,624,421	$ 159,283,219	$ 163,609,554	$ 165,955,751

[1] FY 2023 based on FY 2023 Approved Budget.
[2] Forecast based on future pension obligations.
[3] Bad debt calculated as 10% of water rate revenue through FY 2026; 8% of water rate revenue in FY 2027 through FY 2032.

Schedule 5: Cost Escalation Factors

Object #	Object Description	Inflation Factor	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
[illegible]	Salaries-Full Time-Gen City	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Wages-Full Time	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Salaries-Overtime-Gen City	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Salaries-Shift Prem-Gen City	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Salaries-Holiday Premium	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
601300	Wages-Full Time-Gen City	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Wages-Holiday Pay	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Wages-Overtime-Gen City	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Wages-Shift Prem-Gen City	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Pension Reimbursement - Operating	Retirement	108.30%	8.00%	7.00%	6.00%	5.00%	5.00%	5.00%	5.00%	5.00%
[illegible]	Empl Pd Pension-GRS	Retirement	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
[illegible]	Empl Pd Ben-Medical	Health Insurance	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
[illegible]	Employer Pd FICA	Health Insurance	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
[illegible]	Unemployment	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Workers' Compensation	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Emp Benefits-Miscellaneous	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Other Comp-Unused Sick Leave	Salaries & Wages	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Group Life Insurance	Health Insurance	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
[illegible]	Eye Care-Active Civilian	Health Insurance	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
[illegible]	Income Protection	Health Insurance	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
[illegible]	Dental Active	Health Insurance	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
[illegible]	Health Care Reform - Admin	Health Insurance	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
[illegible]	Auditing	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Legal	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Consultant Fees-Mgt Consult	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Contract Extraction-Technology	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Contract Security-Police	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Contract Non-Pen Pers Detail Health F/F	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
628000	Office Supplies	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Oper Supplies-Automotive	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Oper Supplies-Janitorial	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Operating Supplies-Chemicals	Fuel, Utilities, Chemicals	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Oper Supplies-Miscellaneous	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Repairs & Maint-Automotive	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Repairs & Maint-Bldgs&Ground	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Repairs & Maint-Equipment	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Hardware Maintenance	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Software Maintenance	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Repairs & Maint-Facilities	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Repairs & Maint-Misc	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Uniforms, Laundry, Cleaning	Repair & Maintenance	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Advertising	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Cleaning	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Insurance Premium	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Rentals- Other Equipment	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Rentals - Lease of Equipment	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Rent & Miscellaneous	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Postage	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Telecommunications	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Data Circ Equip	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Utilities-Water	Fuel, Utilities, Chemicals	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Utilities-Gas	Fuel, Utilities, Chemicals	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Utilities-Steam	Fuel, Utilities, Chemicals	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Utilities-Electricity	Fuel, Utilities, Chemicals	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Person Car Reimbursements	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Purchased Services - Other	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Employee Uniform Expense	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Othpf Oper Svc-Miscellaneous	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Employee Parking	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Dues	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Training	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Training Tuition Reimbursement	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	Misc-License Insp&Permit Fees	Admin Services	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
[illegible]	GLWA Charge	NA				Based on GLWA Forecast					
[illegible]	Other GLWA Accounts	NA				Based on GLWA Forecast					
[illegible]	Other Retail Accounts	NA				Based on GLWA Forecast					
[illegible]	Unpaid Services Expense	All Other	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
[illegible]	Note Payment	NA				Based on GLWA Loan Forecast					
[illegible]	Damage Claims	All Escalators	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
[illegible]	Bad Debts	NA				Based on Revenue Forecast					
[illegible]	Water Relief Assistance Program	All Escalators	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%

Schedule 6. Capital Improvement Program

	Capital Improvement Program	Funding Source	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	Total Cost
1	WS-711 Water Main Replacement for Jefferson Streetscape	New DWRF Funded	$ 1,614,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,614,000
2	WS-712 Water Main Replacement-Somerset Alleys	Pay Gold Proceeds	1,980,000	-	-	-	-	-	-	-	-	-	1,980,000
3	WS-713 Water Main Replacement- Johnson Controls	New DWRF Funded	2,250,000	2,250,000	-	-	-	-	-	-	-	-	4,500,000
4	WS-715 Pilot Area Permian, Mount, Miller & Hamilton	New DWRF Funded	5,000,000	500,000	-	-	-	-	-	-	-	-	5,500,000
5	WS-720 Waterman Replacement Water Mains	Pay Gold Proceeds	6,000,000	5,000,000	2,000,000	-	-	-	-	-	-	-	13,000,000
6	WS-721 Lead Service Line Replacement	100% Forgiveness or Grant	6,000,000	4,000,000	-	-	-	-	-	-	-	-	10,000,000
7	WS-722 Lead Service Line Replacement for Settlements	100% Forgiveness or Grant	600,000	-	-	-	-	-	-	-	-	-	600,000
8	WS-725 Waterman Replacement Mains at Cultural Ctr Alabama to Rose	Pay Gold Proceeds	5,000,000	5,000,000	4,000,000	-	-	-	-	-	-	-	14,000,000
9	WS-732 Water Main Replacement, Various Locations - Detroit Water	New DWRF Funded	-	2,750,000	5,000,000	4,000,000	-	-	-	-	-	-	11,750,000
10	WS-737 Water Main Replacement, Various Locations - Detroit Water	New DWRF Funded	-	2,250,000	5,000,000	4,000,000	-	-	-	-	-	-	11,250,000
11	WS-717 Repair & Replacement of Water Mains (WS-7[0]35)	Operations	2,000,000	1,000,000	1,000,000	-	-	-	-	-	-	-	4,000,000
12	WS-718 Repair of Water Mains (WS-7[0]WS-7[0]41)	Operations	5,471,000	4,500,000	4,000,000	250,000	-	-	-	-	-	-	14,221,000
13	DWS-838 Replace IT Loops (Work Order)	Operations	200,000	125,000	-	-	-	-	-	-	-	-	325,000
14	DWS-816 Replace DWS-0[0]1	Operations	2,500,000	5,000,000	2,500,000	-	-	-	-	-	-	-	10,000,000
15	PC-816 West Warren (Crossover at Rosa Park Avenue Sewer PH 1B)	Pay Gold Proceeds	1,200,000	4,500,000	964,000	500,000	-	-	-	-	-	-	6,964,000
16	CS-1621 Waterman Sewer Lining	WE Funded	1,000,000	1,000,000	-	-	-	-	-	-	-	-	2,000,000
17	CS-1624 Flow Path Inspection (Mains & Sewer)	WE Funded	700,000	1,500,000	-	-	-	-	-	-	-	-	2,200,000
18	CS-1641 Condition Assessment Redmond Forest	WE Funded	250,000	-	-	-	-	-	-	-	-	-	250,000
19	CS-1610 Professional Engineering and Construction Services for CPWO	WE Funded	4,000,000	-	-	-	-	-	-	-	-	-	4,000,000
20	Construction Program Management Allowance	WE Funded	-	1,200,000	750,000	750,000	750,000	-	-	-	-	-	3,250,000
21	Abatement Program Allowance	WE Funded	-	9,000,000	15,000,000	22,500,000	22,500,000	-	-	-	-	-	69,000,000
22	PC-1611 Water Reliability	WE Funded	700,000	700,000	-	-	-	-	-	-	-	-	1,400,000
23	Water Meter Replacement Program	WE Funded	850,000	850,000	850,000	850,000	850,000	-	-	-	-	-	4,250,000
24	Fire Hydrant Replacement Program	WE Funded	250,000	250,000	250,000	250,000	250,000	-	-	-	-	-	1,250,000
25	CS-1625 Iron Mountain Add Replacement	WE Funded	350,000	14,500,000	1,000,000	-	-	-	-	-	-	-	15,850,000
26	CS-1626 Iron Mountain Project Management	WE Funded	300,000	1,175,000	-	-	-	-	-	-	-	-	1,475,000
27	Vehicle, Heavy Equipment, and Equipment Purchases	WE Funded	900,000	500,000	750,000	1,200,000	750,000	-	-	-	-	-	4,100,000
28	Information Technology	WE Funded	2,000,000	600,000	500,000	500,000	500,000	-	-	-	-	-	4,100,000
29	Facility Improvement Allowance	WE Funded	1,000,000	500,000	500,000	500,000	1,000,000	-	-	-	-	-	3,500,000
30	Unspecified Future Spending: Water	WE - Operating Fund	-	-	-	-	-	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	80,000,000
31	Unspecified Future Spending: Sewer	New Bond Proceeds	-	-	-	-	-	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	80,000,000
32	Unspecified Future Spending: SRF	New DWRF Funded	-	-	-	-	-	16,000,000	16,000,000	16,000,000	16,000,000	16,000,000	80,000,000
33	WS-734 Emergency Waterman Break Repair	WE Funded	450,000	-	-	-	-	-	-	-	-	-	450,000
34	Total CIP Budget (in current dollars)		$ 80,835,000	$ 88,435,000	$ 47,854,000	$ 34,050,000	$ 34,100,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 494,835,000
35	Annual CIP Execution Percentage [2]		82%	75%	100%	100%	141%	100%	100%	100%	100%	102%	
36	Final CIP Funding Level		$ 66,471,300	$ 66,044,704	$ 51,739,320	$ 57,267,971	$ 48,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 50,000,000	$ 564,883,596

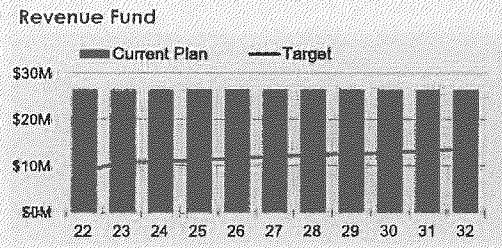
[1] Capital spending from FY 2023 through FY 2027 reflects 2023 5-Year CIP Plan BOWC Approved. Future CIP reflects estimated levels of spending.

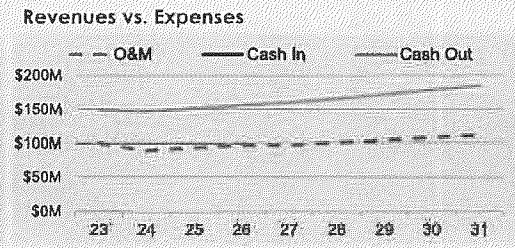
[2] Annual CIP Execution Percentages are based on expected annual spending in each year of forecast.

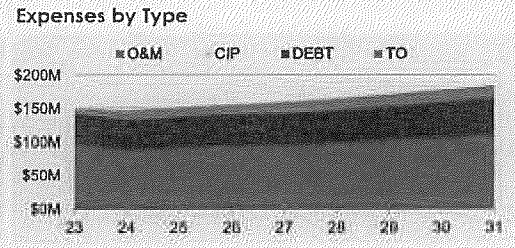
FAMS | DWSD WATER FUND

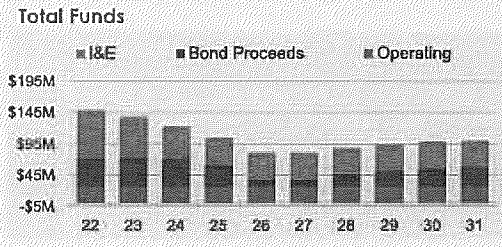
Stantec

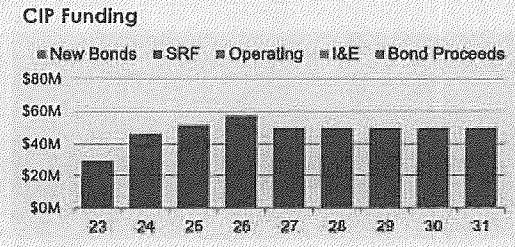
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2027 Cumulative	FY 2032 Cumulative
Water Rate Plan [1]	21.32%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	16.99%	42.33%
All-In DSC	1.15	1.11	1.11	1.11	1.16	1.13	1.07	1.03	0.99	0.99		

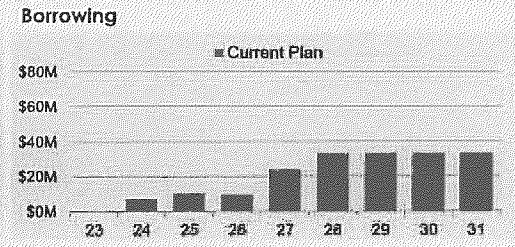






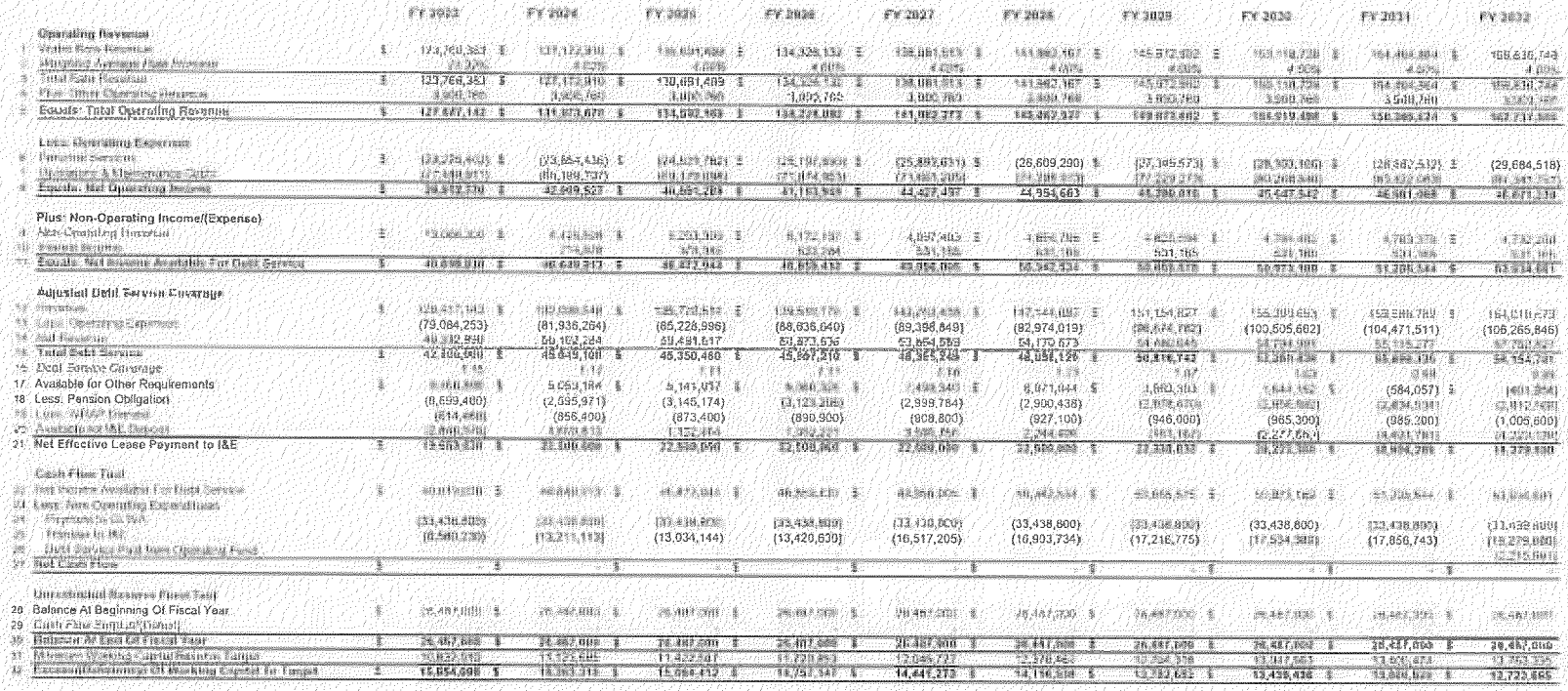






[1] FY 2023 rates reflect results of cost allocation and rate design analyses. Total water, wastewater, and drainage rate revenue increase of 0.8% in FY 2023.

Schedule 8: Pro Forma



	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
Operating Revenue										
1 Water Rate Revenue	$ 124,760,361	$ 127,172,810	$ 130,681,489	$ 134,328,132	$ 138,081,513	$ 141,962,167	$ 145,972,302	$ 150,118,728	$ 154,404,804	$ 158,836,748
2 Rolling Average Rate Revenue	(3.37)%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
3 Total Rate Revenue	$ 121,766,361	$ 127,172,810	$ 130,681,489	$ 134,328,132	$ 138,081,513	$ 141,962,167	$ 145,972,302	$ 150,118,728	$ 154,404,804	$ 158,836,748
4 Plus: Other Operating Revenue	3,900,780	3,900,780	3,900,780	3,900,780	3,900,780	3,900,780	3,900,780	3,900,780	3,900,780	3,900,780
5 Equals: Total Operating Revenue	$ 127,667,142	$ 131,073,590	$ 134,582,269	$ 138,228,912	$ 141,982,293	$ 145,862,947	$ 149,873,082	$ 154,019,508	$ 158,305,584	$ 162,737,528
Less: Operating Expenses										
6 Personnel Services	$ (23,229,400)	$ (23,853,436)	$ (24,623,782)	$ (25,197,900)	$ (25,893,631)	$ (26,609,290)	$ (27,345,573)	$ (28,103,186)	$ (28,882,512)	$ (29,684,518)
7 Operations & Maintenance Costs	(77,349,911)	(81,189,737)	(80,129,008)	(77,854,953)	(73,481,205)	(74,388,823)	(77,329,275)	(80,268,940)	(83,422,668)	(86,547,757)
8 Equals: Net Operating Income	$ 27,087,830	$ 26,030,417	$ 29,829,479	$ 35,175,959	$ 42,607,457	$ 44,864,833	$ 45,198,234	$ 45,647,382	$ 46,000,404	$ 46,505,253
Plus: Non-Operating Income/(Expense)										
9 Non-Operating Income	$ 13,000,000	$ 6,418,520	$ 5,203,300	$ 6,172,197	$ 4,057,403	$ 1,856,786	$ 4,824,294	$ 4,396,480	$ 4,783,378	$ 4,732,260
10 Interest Income	774,810	678,360	623,204	531,185	531,185	531,185	531,185	531,185	531,185	531,185
11 Equals: Net Income Available For Debt Service	$ 40,862,640	$ 33,127,297	$ 35,656,083	$ 41,879,341	$ 47,196,045	$ 47,252,804	$ 50,553,713	$ 50,575,047	$ 51,314,967	$ 51,768,698
Adjusted Debt Service Coverage										
12 Revenues	$ 128,417,142	$ 131,598,549	$ 135,703,851	$ 139,599,178	$ 143,513,698	$ 147,744,087	$ 151,154,827	$ 155,300,653	$ 159,588,789	$ 164,019,673
13 Less: Operating Expenses	(79,084,253)	(81,936,264)	(85,228,996)	(88,636,640)	(89,398,849)	(92,974,019)	(96,674,782)	(100,505,662)	(104,471,511)	(108,265,846)
14 Add Revenue	49,332,994	50,163,284	50,481,617	50,873,676	52,854,583	54,170,673	54,480,945	54,794,991	55,116,277	55,750,827
15 Total Debt Service	$ 42,800,000	$ 48,649,101	$ 46,350,460	$ 45,867,210	$ 48,565,248	$ 48,051,126	$ 50,816,742	$ 51,381,434	$ 55,666,126	$ 56,154,741
16 Debt Service Coverage	1.15	1.12	1.21	1.23	1.16	1.19	1.07	1.03	0.98	0.99
17 Available for Other Requirements	$ 6,062,640	$ 5,053,184	$ 5,141,057	$ 6,012,131	$ 7,498,340	$ 6,071,044	$ 3,663,303	$ 3,643,162	$ (584,057)	$ (401,254)
18 Less: Pension Obligation	(6,699,400)	(2,695,971)	(3,145,174)	(3,123,288)	(2,998,784)	(2,900,438)	(2,878,678)	(2,854,902)	(2,834,911)	(2,812,468)
19 Less: WRAP Reserve	(814,468)	(856,400)	(873,400)	(890,900)	(908,800)	(927,100)	(946,000)	(965,300)	(985,300)	(1,005,600)
20 Available for I&E Deposit	(2,800,228)	1,500,813	1,122,484	1,997,943	3,590,756	2,244,506	(161,375)	(2,277,041)	(4,404,268)	(4,219,322)
21 Net Effective Lease Payment to I&E	$ 12,563,230	$ 33,100,000	$ 32,500,000	$ 32,500,000	$ 32,500,000	$ 32,500,000	$ 33,338,033	$ 33,271,000	$ 33,004,700	$ 33,379,600
Cash Flow Test										
22 Net Income Available For Debt Service	$ 40,862,640	$ 33,127,297	$ 35,656,083	$ 41,879,341	$ 47,196,045	$ 47,252,804	$ 50,553,713	$ 50,575,047	$ 51,314,967	$ 51,768,698
23 Less: Non Operating Expenditures										
24 Payment to GLWA	(33,438,800)	(33,438,800)	(33,438,800)	(33,438,800)	(33,438,800)	(33,438,800)	(33,438,800)	(33,438,800)	(33,438,800)	(33,438,800)
25 Transfer to I&E	(6,560,230)	(13,211,113)	(13,034,144)	(13,420,630)	(16,517,205)	(16,903,734)	(17,216,775)	(17,534,380)	(17,856,743)	(18,279,880)
26 Debt Service Paid from Operating Fund										(2,215,018)
27 Net Cash Flow	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Unrestricted Reserve Fund Test										
28 Balance At Beginning Of Fiscal Year	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000
29 Cash Flow Surplus/(Deficit)	-	-	-	-	-	-	-	-	-	-
30 Balance At End Of Fiscal Year	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000
31 Minimum Working Capital Reserve Target	12,832,000	13,125,000	11,422,000	11,720,000	12,045,727	12,376,000	12,704,000	13,047,000	13,404,000	13,763,000
32 Excess/(Deficiency) of Working Capital to Target	$ 13,654,000	$ 13,362,000	$ 15,064,000	$ 14,767,000	$ 14,441,273	$ 14,111,000	$ 13,783,000	$ 13,440,000	$ 13,083,000	$ 12,724,000

Schedule 9: Capital Project Funding Summary

Final Capital Projects Funding Sources	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
I&E	$ 17,529,280	$ 26,994,304	$ 33,145,998	$ 47,434,900	$ 26,264,691	$ 16,666,667	$ 16,666,667	$ 16,666,667	$ 16,666,667	$ 16,666,667
Construction	12,300,000	12,000,000	8,564,000	565,000	-	-	-	-	-	-
Forgiveness/Grant	5,600,000	4,000,000	-	-	-	-	-	-	-	-
Subordinate Debt Proceeds	14,064,000	7,100,000	10,000,000	9,288,074	23,735,309	16,666,667	16,666,667	16,666,667	16,666,667	16,666,667
Senior-Lien Debt Proceeds	-	-	-	-	-	16,666,667	16,666,667	16,666,667	16,666,667	16,666,667
Total Projects Paid	**$ 49,493,280**	**$ 50,094,304**	**$ 51,709,998**	**$ 57,287,974**	**$ 50,000,000**	**$ 50,000,000**	**$ 50,000,000**	**$ 50,000,000**	**$ 50,000,000**	**$ 50,000,000**

Schedule 10: Funding Summary by Fund

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
I&E										
Balance At Beginning Of Fiscal Year	$ 45,113,000	$ 47,236,750	$ 44,457,734	$ 35,132,680	$ 11,423,935	$ 11,335,027	$ 19,528,070	$ 25,357,867	$ 29,127,245	$ 30,780,602
DWA Lease Revenue	22,500,000	22,500,000	22,500,000	22,500,000	22,500,000	22,500,000	22,500,000	22,500,000	22,500,000	22,500,000
Transfer from Operations	6,580,230	13,211,113	13,034,144	13,420,630	16,517,205	16,903,734	17,216,775	17,534,389	17,856,743	18,279,880
Payment of Post Bifurcation Debt	(9,427,200)	(11,610,300)	(11,911,680)	(12,368,410)	(12,926,449)	(14,659,329)	(17,377,942)	(19,812,038)	(22,280,635)	(22,500,000)
Subtotal	$ 64,766,030	$ 71,337,563	$ 68,080,198	$ 58,684,900	$ 37,514,691	$ 36,079,432	$ 41,866,903	$ 45,590,318	$ 47,223,453	$ 48,060,482
Less: Restricted Funds	(11,250,000)	(11,250,000)	(11,250,000)	(11,250,000)	(11,250,000)	(11,250,000)	(11,250,000)	(11,250,000)	(11,250,000)	(11,250,000)
Total Amount Available For Projects	$ 53,516,030	$ 60,087,563	$ 56,830,198	$ 47,434,900	$ 26,264,691	$ 24,829,432	$ 30,616,903	$ 34,340,318	$ 35,973,453	$ 37,810,482
Amount Paid For Projects	(17,529,280)	(26,994,364)	(33,145,998)	(47,434,900)	(26,264,691)	(16,666,667)	(16,666,667)	(16,666,667)	(16,666,667)	(16,666,667)
Subtotal	$ 35,986,750	$ 33,093,259	$ 23,684,200	$ -	$ -	$ 8,162,766	$ 13,950,236	$ 17,673,651	$ 19,306,787	$ 21,143,815
Add Back: Restricted Funds	11,250,000	11,250,000	11,250,000	11,250,000	11,250,000	11,250,000	11,250,000	11,250,000	11,250,000	11,250,000
Plus: Interest Earnings		146,660	198,480	173,035	85,027	115,304	157,731	203,594	223,815	236,864
Less: Interest Allocated To Cash Flow										
Balance At End Of Fiscal Year	**$ 47,236,750**	**$ 44,457,734**	**$ 35,132,680**	**$ 11,423,935**	**$ 11,335,027**	**$ 19,528,070**	**$ 25,357,967**	**$ 29,127,245**	**$ 30,780,602**	**$ 32,630,719**
Construction										
Balance At Beginning Of Fiscal Year	$ 77,764,000	$ 65,464,000	$ 53,464,000	$ 44,900,000	$ 44,335,000	$ 44,335,000	$ 44,335,000	$ 44,335,000	$ 44,335,000	$ 44,335,000
Amount Paid For Projects	(12,300,000)	(12,000,000)	(8,564,000)	(565,000)						
Subtotal	$ 65,464,000	$ 53,464,000	$ 44,900,000	$ 44,335,000	$ 44,335,000	$ 44,335,000	$ 44,335,000	$ 44,335,000	$ 44,335,000	$ 44,335,000
Add Back: Restricted Funds										
Plus: Interest Earnings		146,660	245,910	334,631	332,513	332,513	332,513	332,513	332,513	332,513
Less: Interest Allocated To Cash Flow		(146,660)	(245,910)	(334,631)	(332,513)	(332,513)	(332,513)	(332,513)	(332,513)	(332,513)
Balance At End Of Fiscal Year	**$ 65,464,000**	**$ 53,464,000**	**$ 44,900,000**	**$ 44,335,000**	**$ 44,335,000**	**$ 44,335,000**	**$ 44,335,000**	**$ 44,335,000**	**$ 44,335,000**	**$ 44,335,000**
Forgiveness/Grant										
Balance At Beginning Of Fiscal Year	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Annual Payments	5,600,000	4,000,000								
Less: Annual Expenses										
Less: Payment Of Debt Service										
Subtotal	$ 5,600,000	$ 4,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Less: Restricted Funds	-	-	-	-	-	-	-	-	-	-
Total Amount Available For Projects	$ 5,600,000	$ 4,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Amount Paid For Projects	(5,600,000)	(4,000,000)								
Subtotal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Add Back: Restricted Funds	-	-	-	-	-	-	-	-	-	-
Plus: Interest Earnings	-	-	-	-	-	-	-	-	-	-
Less: Interest Allocated To Cash Flow	-	-	-	-	-	-	-	-	-	-
Balance At End Of Fiscal Year	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Revenue Fund										
Balance At Beginning Of Fiscal Year	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000
Net Cash Flow	6,580,230	13,211,113	13,034,144	13,420,630	16,517,205	16,903,734	17,216,775	17,534,389	17,856,743	18,279,880
Transfer to I&E	(6,580,230)	(13,211,113)	(13,034,144)	(13,420,630)	(16,517,205)	(16,903,734)	(17,216,775)	(17,534,389)	(17,856,743)	(18,279,880)
Less: Payment Of Debt Service										
Subtotal	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000	$ 26,487,000
Less: Restricted Funds	(10,832,910)	(11,123,685)	(11,422,587)	(11,729,853)	(12,045,727)	(12,370,462)	(12,704,318)	(13,047,563)	(13,400,474)	(13,763,335)
Subtotal	$ 15,654,090	$ 15,363,315	$ 15,064,413	$ 14,757,147	$ 14,441,273	$ 14,116,538	$ 13,782,682	$ 13,439,436	$ 13,086,526	$ 12,723,665
Add Back: Restricted Funds	10,832,910	11,123,685	11,422,587	11,729,853	12,045,727	12,370,462	12,704,318	13,047,563	13,400,474	13,763,335
Plus: Interest Earnings		66,218	133,435	198,652	198,652	198,653	198,653	198,653	198,653	198,653
Less: Interest Allocated To Cash Flow		(66,218)	(133,435)	(198,652)	(198,652)	(198,653)	(198,653)	(198,653)	(198,653)	(198,653)
Balance At End Of Fiscal Year	**$ 26,487,000**	**$ 26,487,000**	**$ 26,487,000**	**$ 26,487,000**	**$ 26,487,000**	**$ 26,487,000**	**$ 26,487,000**	**$ 26,487,000**	**$ 26,487,000**	**$ 26,487,000**
Restricted Reserve										
Balance At Beginning Of Fiscal Year	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,491,948	$ 2,995,086	$ 4,509,498	$ 6,035,267
Additional Funds										
Debt Service Reserve on New Debt						1,486,374	1,486,374	1,486,374	1,486,374	1,486,374
Other Additional Funds										
Subtotal	$ -	$ -	$ -	$ -	$ -	$ 1,486,374	$ 2,978,323	$ 4,481,461	$ 5,995,872	$ 7,521,642
Plus: Interest Earnings	-	-	-	-	-	5,574	16,764	28,037	39,395	50,838
Less: Interest Allocated To Cash Flow										
Balance At End Of Fiscal Year	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 1,491,948**	**$ 2,995,086**	**$ 4,509,498**	**$ 6,035,267**	**$ 7,572,480**

Schedule 11: Senior Lien Borrowing Projections

		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
Term (Years)		20	20	20	20	20	20	20	20	20	20
Interest Rate		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Sources of Funds											
Par Amount		$ -	$ -	$ -	$ -	$ -	$ 18,523,511	$ 18,523,511	$ 18,523,511	$ 18,523,511	$ 18,523,511
Uses of Funds											
Proceeds		$ -	$ -	$ -	$ -	$ -	$ 16,666,667	$ 16,666,667	$ 16,666,667	$ 16,666,667	$ 16,666,667
Cost of Issuance	2.00% of Par	-	-	-	-	-	370,470	370,470	370,470	370,470	370,470
Debt Service Reserve	1 Year(s) of Debt Service	-	-	-	-	-	1,486,374	1,486,374	1,486,374	1,486,374	1,486,374
Total Uses		$ -	$ -	$ -	$ -	$ -	$ 18,523,511	$ 18,523,511	$ 18,523,511	$ 18,523,511	$ 18,523,511
1 Year Interest		-	-	-	-	-	926,176	926,176	926,176	926,176	926,176
Annual Debt Service		$ -	$ -	$ -	$ -	$ -	$ 1,486,374	$ 1,486,374	$ 1,486,374	$ 1,486,374	$ 1,486,374
Total Debt Service		-	-	-	-	-	29,727,489	29,727,489	29,727,489	29,727,489	29,727,489
Cumulative New Annual Senior Lien Debt Service [1]		$ -	$ -	$ -	$ -	$ -	$ 926,176	$ 2,412,550	$ 3,898,924	$ 5,385,299	$ 6,871,673

[1] Reflects interest-only payment due in year of issuance.

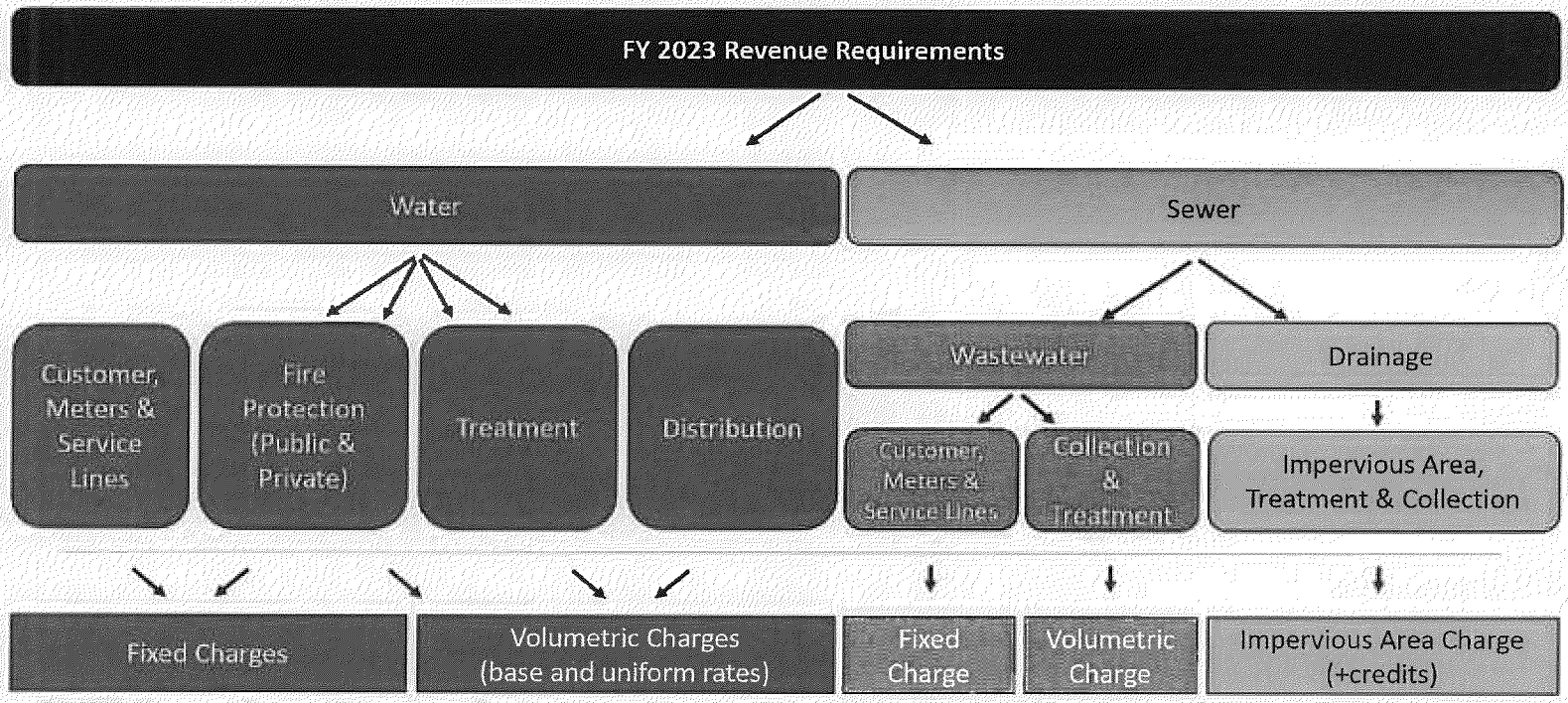
Schedule 12: Subordinate Borrowing Projections

			FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
Term (Years)			20	20	20	20	20	20	20	20	20	20
Interest Rate			2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Sources of Funds												
Par Amount			$ -	$ 6,671,000	$ 9,400,000	$ 8,730,789	$ 22,311,190	$ 15,666,667	$ 15,666,667	$ 15,666,667	$ 15,666,667	$ 15,666,667
Uses of Funds												
Proceeds			$ -	$ 7,100,000	$ 10,000,000	$ 9,288,074	$ 23,735,309	$ 16,666,667	$ 16,666,667	$ 16,666,667	$ 16,666,667	$ 16,666,667
Cost of Issuance	0.00%	of Par	-	-	-	-	-	-	-	-	-	-
Loan Repayment Res.	0.00%	of Capital Cost	-	-	-	-	-	-	-	-	-	-
Loan Service Fee	2.00%	of Capital Cost	-	142,000	200,000	185,761	474,706	333,333	333,333	333,333	333,333	333,333
Capitalized Interest	0	Year's Interest	-	-	-	-	-	-	-	-	-	-
Debt Service Reserve	0	Year(s) of Debt Service	-	-	-	-	-	-	-	-	-	-
Principal Forgiveness	8.00%		-	(568,000)	(800,000)	(740,846)	(1,888,826)	(1,333,333)	(1,333,333)	(1,333,333)	(1,333,333)	(1,333,333)
Total Uses			$ -	$ 6,671,000	$ 9,400,000	$ 8,730,789	$ 22,311,190	$ 15,666,667	$ 15,666,667	$ 15,666,667	$ 15,666,667	$ 15,666,667
1 Year Interest			-	133,420	388,000	174,616	446,224	313,333	313,333	313,333	313,333	313,333
Annual Debt Service			$ -	$ 408,160	$ 574,871	$ 533,946	$ 1,364,479	$ 958,122	$ 958,122	$ 958,122	$ 958,122	$ 958,122
Total Debt Service				8,163,199	11,497,483	10,678,928	27,289,584	19,162,438	19,162,438	19,162,438	19,162,438	19,162,438
Cumulative New Annual Subordinate Debt Service [1]			$ -	$ -	$ 133,488	$ 596,160	$ 1,157,649	$ 1,963,203	$ 3,194,792	$ 4,152,914	$ 5,111,036	$ 6,069,158

[1] Debt service repayment delayed two years.

APPENDIX C: COST ALLOCATION SUPPORTING SCHEDULES

Schedule 1: Cost Allocation Framework



Schedule 2: Allocation Factors

System Cost Allocation Factors	Note	Factors Water	Sewer
Water Only		100.0%	0.0%
FY 2020 Accounts (Water & Sewer)	1	50.2%	49.8%
FY 2020 Accounts	1	29.2%	70.8%
Maintenance Hours	2	50.5%	49.5%
5-Year CIP (FY22-26)	3	52.9%	47.1%
FY 23-26 M&R	4	84.6%	15.4%
Information Technology	5	38.2%	61.8%
Storm Drainage / Permitting CC	6	23.5%	76.5%
Weighted Expense	7	47.1%	52.9%
FY 2023 Revenue Requirement	8	29.2%	70.8%

Sewer Cost Allocation Factors	Note	Factors Wastewater	Drainage
Wastewater Only		100.0%	0.0%
Drainage Only		0.0%	100.0%
FY 2020 Accounts	1	40.9%	59.1%
Information Technology	5	53.2%	46.8%
Storm Drainage / Permitting CC	6	32.7%	67.3%
Wet Weather Percent of Flow	9	69.1%	30.9%
Peak Flow Ratios	10	15.0%	85.0%
Weighted GLWA Expense	11	43.7%	56.3%
Weighted Expense	12	65.4%	34.6%
FY 2023 Revenue Requirement	8	44.3%	55.7%

Wastewater Cost Allocation Factor	Note	Factors Treatment	Collection	Meters & Service Lines	Customer
Treatment Only		100.0%	0.0%	0.0%	0.0%
Collection Only		0.0%	100.0%	0.0%	0.0%
Meters & Service Lines Only		0.0%	0.0%	100.0%	0.0%
Customer Only		0.0%	0.0%	0.0%	100.0%
Weighted Internal	13	0.0%	70.2%	15.8%	14.0%

Water Cost Allocation Factors	Note	Factors Treatment	Distribution	Meters & Service Lines	Customer	Fire Protection
Treatment Only		100.0%	0.0%	0.0%	0.0%	0.0%
Distribution Only		0.0%	100.0%	0.0%	0.0%	0.0%
Meters & Service Lines Only		0.0%	0.0%	100.0%	0.0%	0.0%
Customer Only		0.0%	0.0%	0.0%	100.0%	0.0%
Maintenance & Repair	14	0.0%	91.3%	0.0%	0.0%	8.7%
Weighted Internal	15	0.0%	76.2%	13.2%	10.7%	0.0%

(1) Reflect FY 2020 billed accounts of 181,807 for water, 180,085 for wastewater, and 260,330 for drainage. Combined sewer (wastewater and drainage accounts of 440,415).
(2) Maintenance Hours allocation shown in Schedule 13.
(3) 5-Year CIP allocation based on 2022 5-Year CIP Plan, shown in Schedule 14.
(4) FY 2023 M&R allocation based on FY 2023 projects funded through operations, shown in Schedule 14.
(5) Information Technology allocation based on 50% Weighted Expense allocation and 50% FY 2020 Accounts direct allocation.
(6) Storm Drainage / Permitting Cost Center allocation based on 50% Weighted Expense allocation and 50% Drainage direct allocation
(7) Weighted Expense based on results of direct allocations to Water/Sewer, shown in Schedule 3.
(8) FY 2023 Revenue Requirement allocation based on initial revenue requirement of $110,999,669 to water, $119,409,132 to wastewater, and $150,203,140 to drainage shown in Schedule 11. Combined sewer (wastewater and drainage) revenue requirement of $269,612,271.
(9) Wet Weather Percent of Flow allocation shown in Schedule 12.
(10) Peak Flow Ratios based on assumed design capacity based on CDM 2021 Flow report.
(11) Weighted GLWA allocation shown in Schedule 12.
(12) Weighted Expense based on results of direct allocations to Wastewater/Drainage, shown in Schedule 4a.
(13) Weighted Internal based on results of direct allocations to Collection/Meters & Service Lines/Customer (DWSD functions), shown in Schedule 5.
(14) Based on total FTEs in maintenance and repair and FTEs needed for hydrant activities per maintenance hours on Schedule 13.
(15) Weighted Internal based on results of direct allocations to Distribution/Meters & Service Lines/Customer (DWSD functions), shown in Schedule 6.

Schedule 3: Revenue Requirements Allocation to Water & Sewer

Appm. Description	Center	Cost Center Description		FY 2023 Expense for COSA	Allocation Factor	Allocations Water	Allocations Sewer	$ Water	$ Sewer
Operating Expenses									
Administration	1001	Chief Exec Officer	$	1,703,900	Weighted Expense	47.1%	52.9%	$ 802,324	$ 901,576
Administration	1601	BOWC	$	357,800	Weighted Expense	47.1%	52.9%	$ 168,479	$ 189,321
Operations	2401	Deputy Director Administration	$	3,624,700	5-Year CIP (FY22-26)	52.9%	47.1%	$ 1,916,474	$ 1,708,226
Operations	2411	Field Engineering	$	6,260,400	5-Year CIP (FY22-26)	52.9%	47.1%	$ 3,310,037	$ 2,950,363
Operations	2421	Facility Oper	$	8,413,000	Weighted Expense	47.1%	52.9%	$ 3,961,474	$ 4,451,526
Operations	2422	Fleet Operations	$	4,785,000	Maintenance Hours	50.5%	49.5%	$ 2,418,049	$ 2,366,951
Operations	2431	Maint & Repair	$	16,290,100	Maintenance Hours	50.5%	49.5%	$ 8,232,028	$ 8,058,072
Operations	2432	Meter Operations	$	6,042,800	FY 2020 Accounts (Water & Sewer)	50.2%	49.8%	$ 3,035,773	$ 3,007,027
Operations	2435	Lead Service	$	278,500	Water Only	100.0%	0.0%	$ 278,500	$ -
Compliance	3101	General Counsel	$	1,989,800	Weighted Expense	47.1%	52.9%	$ 936,948	$ 1,052,852
Compliance	3201	Org Development	$	1,570,300	Weighted Expense	47.1%	52.9%	$ 739,416	$ 830,884
Compliance	3301	Info Technology	$	13,925,300	Information Technology	38.2%	61.8%	$ 5,312,953	$ 8,612,347
Compliance	3411	Compliance-Security	$	3,865,800	Weighted Expense	47.1%	52.9%	$ 1,820,310	$ 2,045,490
Compliance	3421	Compliance-Public Affairs	$	1,862,400	Weighted Expense	47.1%	52.9%	$ 876,958	$ 985,442
Finance	4001	Chief Financial Officer	$	4,255,200	Weighted Expense	47.1%	52.9%	$ 2,003,669	$ 2,251,531
Finance	4111	Finance	$	1,711,400	Weighted Expense	47.1%	52.9%	$ 805,856	$ 905,544
Finance	4121	Procurement	$	3,191,600	Weighted Expense	47.1%	52.9%	$ 1,502,846	$ 1,688,754
Finance	4131	Treasury	$	2,598,400	Weighted Expense	47.1%	52.9%	$ 1,223,522	$ 1,374,878
Finance	4151	Budget	$	376,400	Weighted Expense	47.1%	52.9%	$ 177,237	$ 199,163
Finance	4161	Billing & Collect	$	4,169,400	FY 2020 Accounts	29.2%	70.8%	$ 1,218,255	$ 2,951,145
Finance	4170	Internal Aud	$	595,400	Weighted Expense	47.1%	52.9%	$ 280,359	$ 315,041
Customer Svc	5111	Customer Service	$	4,985,900	FY 2020 Accounts	29.2%	70.8%	$ 1,456,827	$ 3,529,073
Operations	2223	Storm Drainage	$	3,624,500	Storm Drainage / Permitting CC	23.5%	76.5%	$ 853,344	$ 2,771,156
			$	**96,478,000**				**$ 43,331,639**	**$ 53,146,361**
Non-Operating Expenses									
Non-Operating	7111	Water Pension Expense	$	21,015,700	Water Only	100.0%	0.0%	$ 21,015,700	$ -
Non-Operating	7111	Sewer Pension Expense	$	28,367,500	Sewer Only	0.0%	100.0%	$ -	$ 28,367,500
Non-Operating	7111	Water Retail Assistance Program	$	2,107,200	FY 2023 Revenue Requirement	29.2%	70.8%	$ 614,460	$ 1,492,740
Non-Operating	7111	IWC Charges	$	1,616,300	Sewer Only	0.0%	100.0%	$ -	$ 1,616,300
			$	**53,106,700**				**$ 21,630,160**	**$ 31,476,540**
GLWA Expenses									
Non-Operating	487111	GLWA Water Charge	$	22,985,900	Water Only	100.0%	0.0%	$ 22,985,900	$ -
Water - Pre-Bifurcation Debt	Debt	Water Pre-Bifurcation Debt	$	33,438,800	Water Only	100.0%	0.0%	$ 33,438,800	$ -
Non-Operating	497111	GLWA Sewer Charge	$	191,042,200	Sewer Only	0.0%	100.0%	$ -	$ 191,042,200
Sewer - Pre-Bifurcation Debt	Debt	Sewer Pre-Bifurcation Debt	$	26,271,500	Sewer Only	0.0%	100.0%	$ -	$ 26,271,500
			$	**273,738,400**				**$ 56,424,700**	**$ 217,313,700**
Revenue Financed Capital									
Transfer to I&E from Revenue Fund	Capital		$	7,781,600	FY 23-26 M&R	84.6%	15.4%	$ 6,580,230	$ 1,201,370
			$	**7,781,600**				**$ 6,580,230**	**$ 1,201,370**
			$	**431,104,700**				**$ 127,966,729**	**$ 303,137,971**
Weighted direct allocation								47.1%	52.9%

Schedule 4a: Sewer Cost Allocation to Wastewater & Drainage

Appn. Description	Center	Cost Center Description	FY 2023 Sewer Expense for COSA	Allocation Factor	Allocations Wastewater	Allocations Drainage	$ Wastewater	$ Drainage
Operating Expenses								
Administration	1001	Chief Exec Officer	$ 901,576	Weighted Expense	65.4%	34.6%	$ 589,938	$ 311,638
Administration	1601	BOWC	$ 189,321	Weighted Expense	65.4%	34.6%	$ 123,880	$ 65,441
Operations	2401	Deputy Director Administration	$ 1,708,226	Wet Weather Percent of Flow	69.1%	30.9%	$ 1,180,176	$ 528,051
Operations	2411	Field Engineering	$ 2,950,363	Wet Weather Percent of Flow	69.1%	30.9%	$ 2,038,340	$ 912,022
Operations	2421	Facility Oper	$ 4,451,526	Weighted Expense	65.4%	34.6%	$ 2,912,814	$ 1,538,711
Operations	2422	Fleet Operations	$ 2,366,951	Wet Weather Percent of Flow	69.1%	30.9%	$ 1,635,274	$ 731,677
Operations	2431	Maint & Repair	$ 8,058,072	Wet Weather Percent of Flow	69.1%	30.9%	$ 5,567,143	$ 2,490,929
Operations	2432	Meter Operations	$ 3,007,027	Wastewater Only	100.0%	0.0%	$ 3,007,027	$ -
Compliance	3101	General Counsel	$ 1,052,852	Weighted Expense	65.4%	34.6%	$ 688,924	$ 363,928
Compliance	3201	Org Development	$ 830,884	Weighted Expense	65.4%	34.6%	$ 543,682	$ 287,203
Compliance	3301	Info Technology	$ 8,612,347	Information Technology	53.2%	46.8%	$ 4,578,492	$ 4,033,855
Compliance	3411	Compliance-Security	$ 2,045,490	Weighted Expense	65.4%	34.6%	$ 1,338,447	$ 707,043
Compliance	3421	Compliance-Public Affairs	$ 985,442	Weighted Expense	65.4%	34.6%	$ 644,815	$ 340,627
Finance	4001	Chief Financial Officer	$ 2,251,531	Weighted Expense	65.4%	34.6%	$ 1,473,268	$ 778,263
Finance	4111	Finance	$ 905,544	Weighted Expense	65.4%	34.6%	$ 592,534	$ 313,010
Finance	4121	Procurement	$ 1,688,754	Weighted Expense	65.4%	34.6%	$ 1,105,021	$ 583,734
Finance	4131	Treasury	$ 1,374,878	Weighted Expense	65.4%	34.6%	$ 899,638	$ 475,239
Finance	4151	Budget	$ 199,163	Weighted Expense	65.4%	34.6%	$ 130,320	$ 68,842
Finance	4161	Billing & Collect	$ 2,951,145	FY 2020 Accounts	40.9%	59.1%	$ 1,206,719	$ 1,744,427
Finance	4170	Internal Aud	$ 315,041	Weighted Expense	65.4%	34.6%	$ 206,144	$ 108,897
Customer Svc	5111	Customer Service	$ 3,529,073	FY 2020 Accounts	40.9%	59.1%	$ 1,443,032	$ 2,086,040
Operations	7221	Storm Drainage	$ 2,771,156	Storm Drainage / Permitting CC	32.7%	67.3%	$ 906,640	$ 1,864,516
			$ 53,146,361				$ 32,812,269	$ 20,334,093
Non-Operating Expenses								
Non-Operating	7111	Sewer Pension Expense	$ 28,367,500	Weighted Expense	65.4%	34.6%	$ 18,562,009	$ 9,805,491
Non-Operating	7111	Water Retail Assistance Program	$ 1,492,740	FY 2023 Revenue Requirement	44.3%	55.7%	$ 661,123	$ 831,618
Non-Operating	7111	IWC Charges	$ 1,616,300	Wastewater Only	100.0%	0.0%	$ 1,616,300	$ -
			$ 31,476,540				$ 20,839,432	$ 10,637,109
GLWA Expenses								
Non-Operating	497111	GLWA Sewer Charge	$ 191,042,200	Weighted GLWA Expense	43.7%	56.3%	$ 83,526,519	$ 107,515,681
Sewer - Pre-Bifurcation Debt	Debt	Sewer Pre-Bifurcation Debt	$ 26,271,500	Peak Flow Ratios	15.0%	85.0%	$ 3,940,725	$ 22,330,775
			$ 217,313,700				$ 87,467,244	$ 129,846,456
Revenue Financed Capital								
Transfer to I&E from Revenue Fund			$ 1,201,370	Weighted Expense	65.4%	34.6%	$ 786,105	$ 415,265
			$ 1,201,370				$ 786,105	$ 415,265
			$ 303,137,971				$ 141,905,050	$ 161,232,922
Weighted direct allocation							*65.4%*	*34.6%*

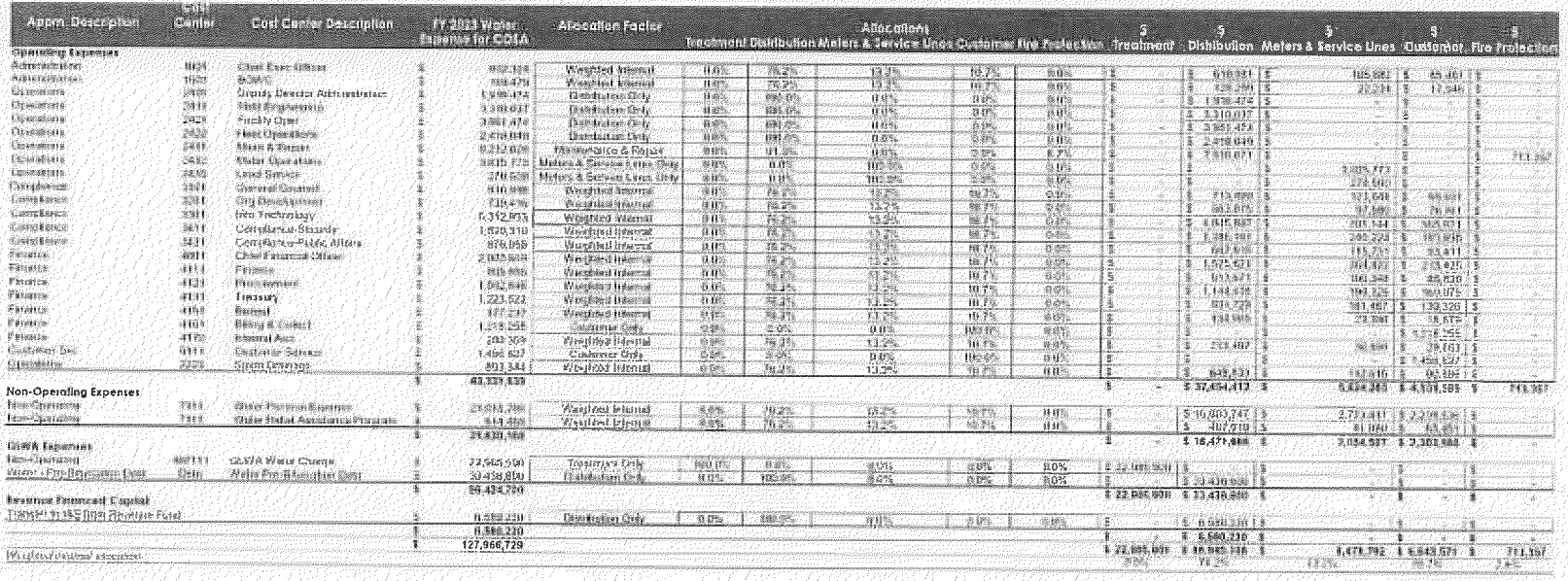
Schedule 4b: Sewer Revenue Cost Allocation to Wastewater & Drainage

Appn. Description	Cost Center	Object Description	FY 2023 Sewer Revenue for COSA	Allocation Factor	Allocations Wastewater	Allocations Drainage	$ Wastewater	$ Drainage
SDWSD-R Operating Revenue	497211	City of Detroit IWC Charges	$ 1,616,300	Wastewater Only	100.0%	0.0%	$ 1,616,300	$ -
SDWSD-R Operating Revenue	497211	Shared Services Revenue	$ 1,750,000	Weighted Expense	65.4%	34.6%	$ 1,145,096	$ 604,904
SDWSD-R Operating Revenue	497211	Late Payment Fee	$ 7,538,700	Weighted Expense	65.4%	34.6%	$ 4,932,878	$ 2,605,822
SDWSD-R Operating Revenue	497211	472150-Other Miscellaneous	$ 22,520,700	Weighted Expense	65.4%	34.6%	$ 14,736,210	$ 7,784,490
SDWSD-R Operating Revenue	497211	Miscellaneous Receipts	$ 100,000	Weighted Expense	65.4%	34.6%	$ 65,434	$ 34,566
			$ 33,525,700				**$ 22,495,918**	**$ 11,029,782**

Schedule 5: Wastewater Cost Allocation to Functions

Appn. Description	Cost Center	Cost Center Description	FY 2023 Wastewater Expense for COSA	Allocation Factor	Allocations Treatment	Collection	Meters & Service Lines	Customer	$ Treatment	$ Collection	$ Meters & Service Lines	$ Customer
Operating Expenses												
Administration	1001	Chief Exec Officer	$ 599,535	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 414,211	$ 93,153	$ 82,313
Administration	1001	BLWC	$ 123,080	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 85,050	$ 19,126	$ 16,904
Operations	2001	Deputy Director Administration	$ 1,180,176	Collection Only	0.0%	100.0%	0.0%	0.0%	$ -	$ 1,180,176	$ -	$ -
Operations	2001	Field Engineering	$ 2,038,340	Collection Only	0.0%	100.0%	0.0%	0.0%	$ -	$ 2,038,340	$ -	$ -
Operations	2421	Facility Oper	$ 2,912,564	Collection Only	0.0%	100.0%	0.0%	0.0%	$ -	$ 2,912,564	$ -	$ -
Operations	2422	Plant Operations	$ 1,615,274	Collection Only	0.0%	100.0%	0.0%	0.0%	$ -	$ 1,615,274	$ -	$ -
Operations	2423	Maint & Repair	$ 3,567,143	Collection Only	0.0%	100.0%	0.0%	0.0%	$ -	$ 3,567,143	$ -	$ -
Operations	2424	Meter Operations	$ 3,807,007	Meters & Service Lines Only	0.0%	0.0%	100.0%	0.0%	$ -	$ -	$ 3,807,007	$ -
Compliance	3001	General Counsel	$ 696,924	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 489,782	$ 110,307	$ 96,836
Compliance	3001	City Development	$ 443,682	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 311,721	$ 70,209	$ 61,752
Compliance	3001	Info Technology	$ 4,078,482	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 2,866,479	$ 645,572	$ 566,431
Compliance	3411	Compliance Security	$ 1,198,467	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 838,759	$ 188,934	$ 165,774
Compliance	3421	Compliance-Public Affairs	$ 662,818	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 465,741	$ 104,902	$ 92,175
Finance	4001	Chief Financial Officer	$ 1,473,265	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 1,035,421	$ 233,203	$ 204,641
Finance	4111	Finance	$ 562,834	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 395,504	$ 89,081	$ 78,249
Finance	4121	Procurement	$ 1,165,471	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 775,864	$ 174,823	$ 154,784
Finance	4141	Treasury	$ 899,838	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 632,369	$ 142,452	$ 125,017
Finance	4151	Budget	$ 130,321	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 91,581	$ 20,631	$ 18,108
Finance	4161	Billing & Collect	$ 1,209,710	Customer Only	0.0%	0.0%	0.0%	100.0%	$ -	$ -	$ -	$ 1,209,710
Finance	4170	Internal Aud	$ 205,144	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 144,139	$ 32,482	$ 28,523
Customer Svc	5111	Customer Service	$ 1,443,032	Customer Only	0.0%	0.0%	0.0%	100.0%	$ -	$ -	$ -	$ 1,443,032
Operations	2221	Storm Drainage	$ 906,681	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 636,976	$ 143,501	$ 126,004
			$ 32,812,269						$ -	$ 23,038,167	$ 5,190,610	$ 4,583,493
Non-Operating Expenses												
Non-Operating	7111	Sewer Pension Expense	$ 18,382,809	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 13,033,275	$ 2,936,174	$ 2,593,360
Non-Operating	7111	Water Retail Assistance Program	$ 661,133	Weighted Internal	0.0%	70.2%	15.8%	14.0%	$ -	$ 464,180	$ 104,595	$ 92,357
SEWER Non-Operating	7111	SEWER-R Non-Operating Exp	$ 1,416,300	Treatment Only	100.0%	0.0%	0.0%	0.0%	$ 1,416,300	$ -	$ -	$ -
			$ 20,460,242						$ 1,416,300	$ 13,497,455	$ 3,040,768	$ 2,685,717
GLWA Expenses												
Non-Operating	7007111	GLWA Sewer Charge	$ 83,526,518	Treatment Only	100.0%	0.0%	0.0%	0.0%	$ 83,526,518	$ -	$ -	$ -
Sewer - Pre-Betterment Debt	Debt	Sewer Pre-Betterment Debt	$ 3,540,725	Collection Only	0.0%	100.0%	0.0%	0.0%	$ -	$ 3,540,725	$ -	$ -
			$ 87,067,244						$ 83,526,518	$ 3,540,725	$ -	$ -
Revenue Financed Capital												
Transfer to R&E from Revenue Fund			$ 730,125	Collection Only	0.0%	100.0%	0.0%	0.0%	$ -	$ 730,125	$ -	$ -
			$ 730,125						$ -	$ 730,125	$ -	$ -
			$ 141,069,880						$ 84,942,818	$ 41,102,224	$ 8,235,469	$ 7,249,317
Weighted Internal allocation									60.2%	29.1%	5.8%	5.1%

Schedule 6: Water Cost Allocation to Functions



Approp. Description	Cost Center	Cost Center Description	FY 2023 Water Expense for COSA	Allocation Factor	Allocations					$	$	$	$	$
					Treatment	Distribution	Meters & Service Lines	Customer	Fire Protection	Treatment	Distribution	Meters & Service Lines	Customer	Fire Protection
Operating Expenses														
Administration	1021	Chief Exec Office	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Administration	1120	BCWS	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Operations	2010	Deputy Director Administration	$	Distribution Only	0.0%	100.0%	0.0%	0.0%	0.0%	$ -	$	$	$	$ -
Operations	2011	Field Engineering	$	Distribution Only	0.0%	100.0%	0.0%	0.0%	0.0%	$ -	$	$	$	$ -
Operations	2020	Facility Oper	$	Distribution Only	0.0%	100.0%	0.0%	0.0%	0.0%	$ -	$	$	$	$ -
Operations	2030	Field Operations	$	Distribution Only	0.0%	100.0%	0.0%	0.0%	0.0%	$ -	$	$	$	$ -
Operations	2040	Meter & Repair	$	Maintenance & Repair	0.0%	91.3%	0.0%	2.0%	6.7%	$ -	$	$	$	$
Operations	2050	Water Operations	$	Meters & Service Lines Only	0.0%	0.0%	100.0%	0.0%	0.0%	$ -	$	$	$	$ -
Operations	2060	Lead Service	$	Meters & Service Lines Only	0.0%	0.0%	100.0%	0.0%	0.0%	$ -	$	$	$	$ -
Compliance	3000	General Counsel	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Compliance	3001	City Ombudsman	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Compliance	3011	Info Technology	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Compliance	3021	Compliance-Steady	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Compliance	3031	Compliance-Public Affairs	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Finance	4001	Chief Financial Office	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Finance	4011	Finance	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Finance	4021	Procurement	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Finance	4031	Treasury	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Finance	4051	Retail	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Finance	4101	Billing & Collect	$	Customer Only	0.0%	0.0%	0.0%	100.0%	0.0%	$ -	$	$	$	$ -
Finance	4151	Internal Aud	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Customer Svc	6111	Customer Service	$	Customer Only	0.0%	0.0%	0.0%	100.0%	0.0%	$ -	$	$	$	$ -
Operations	2021	Storm Drainage	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
			$							$ -	$	$	$	$ -
Non-Operating Expenses														
Non-Operating	7111	Water Pension Expense	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
Non-Operating	7112	Water Relief Assistance Program	$	Weighted Internal	0.0%	75.2%	13.3%	10.7%	0.8%	$ -	$	$	$	$ -
			$							$ -	$	$	$	$ -
GLWA Expenses														
Non-Operating	667111	GLWA Water Charge	$	Treatment Only	100.0%	0.0%	0.0%	0.0%	0.0%	$	$	$	$	$
Water - Pre-Retirement Debt	Debt	Water Pre-Retirement Debt	$	Distribution Only	0.0%	100.0%	0.0%	0.0%	0.0%	$ -	$	$	$	$ -
			$							$	$	$	$	$ -
Revenue Financed Capital														
Transfer to Water Revenue Fund			$	Distribution Only	0.0%	100.0%	0.0%	0.0%	0.0%	$ -	$	$	$	$ -
			$							$ -	$	$	$	$ -
			$							$	$	$	$	$
Weighted internal allocation														

Schedule 7: Water Cost Allocation to Cost Components

	Base Average Day	Extra Max Day	Extra Peak Hour	Meters & Service Lines	Customer	Fire Protection	Total
Treatment	69%	31%					$22,985,900
Distribution	50%	23%	27%				$88,945,108
Meters & Service Lines				100%			$8,478,792
Customer					100%		$6,843,571
Fire Protection						100%	$713,357
Total	**$60,438,125**	**$27,372,918**	**$24,119,965**	**$8,478,792**	**$6,843,571**	**$713,357**	

	Average Units	Max Day Units	Peak Hour Units
Model Units (FY 2023)	7,089.8	9,506.7	11,245.9
DWSD Coincident Peaking Ratios[1]	1.00	1.34	1.59
Calculated DWSD Fire Flow Requirements	-	794.1	2,887.7
Total with Fire Flow Requirements[2]	7,089.8	10,300.9	14,133.6
Calculated DWSD Peaking Ratios	**1.00**	**1.45**	**1.99**

(1) Peaking factors based on Black & Veatch Phase 1 Report.
(2) DWSD Fire Flow Requirements calculation shown in Schedule 9.

Schedule 8: Water Allocation to Class

	Base Average Day	Extra Max Day	Extra Peak Hour	Meters & Service Lines	Customer	Direct Fire Protection
Cost	$60,438,125	$27,372,918	$24,119,965	$8,478,792	$6,843,571	$713,357

Units	Mcf/day	Mcf/day	Mcf/day	Equivalent Meters/Services	Bills	Hydrants
Retail[1]	7,090	2,417	1,739	243,907	2,299,762	-
Public Fire[2]	-	743	1,959			29,948
Private Fire[2]	-	51	135	15,642	21,017	-
Total Units	**7,090**	**3,211**	**3,833**	**259,548**	**2,320,779**	**29,948**
Cost per Unit	$23.36	$8,524.63	$6,293.18	$32.67	$2.95	$23.82

Allocation to Class							**Total Class Cost**
Retail	$60,438,125	$20,603,357	$10,944,675	$7,967,815	$6,781,596	$0	**$106,735,568**
Public Fire	$0	$6,334,399	$12,328,353	$0	$0	$713,357	**$19,376,109**
Private Fire	$0	$435,162	$846,937	$510,977	$61,975	$0	**$1,855,051**

(1) Retail average day, max day, and peak hour units shown in Schedule 7. Retail equivalent meters and bills based FY 2021 actual billing data adjusted for FY 2022 & FY 2023 growth.

(2) Public and Private Fire max day and peak hour units calculation shown in Schedule 9. Bills and hydrants shown in Schedule 10.

Schedule 9: DWSD Fire Flow Requirements

Fire Type	FY 2017-21 Max Fires/Day[1]	FY 2017-21 Max Fire/Hour[2]	Duration (min)	Gallons/Minute (gpm)	Peak Day Demand (MGD)	Peak Hour Demand (MGD)
Single Family[3]	27	8	120	1,500	4.9	17.3
Non-Single Family[4]	2	1	180	3,000	1.1	4.3
Total Fire (MGD)					5.9	21.6
Total Fire (Mcf)					794.1	2,887.7
Extra Capacity						2,093.6

(1) Maximum fires/day based on average of 2017-2021 maximum fire incidents in a single day for structure fires.
(2) Maximum fires/hour based on average of 2017-2021 maximum fire incidents in a single hour on maximum day for structure fires.
(3) Per ISO Guidelines (Chapter 7) needed fire flow is 1,500 gpm and duration for 2 hours when distance between residential dwellings is 0-10 feet. Detroit ordinance minimum setbacks are 4 feet on a side / 14 ft combined total.
(4) Needed Fire Flow Duration for commercial properties based on ISO Fire Suppression Rating Schedule.

Duration of Fires

Customer Type	> 2:00	> 1:00	< 1:00
Residential	795	4,144	6,845
Non-Single Family	182	698	1,420

Count of Fires

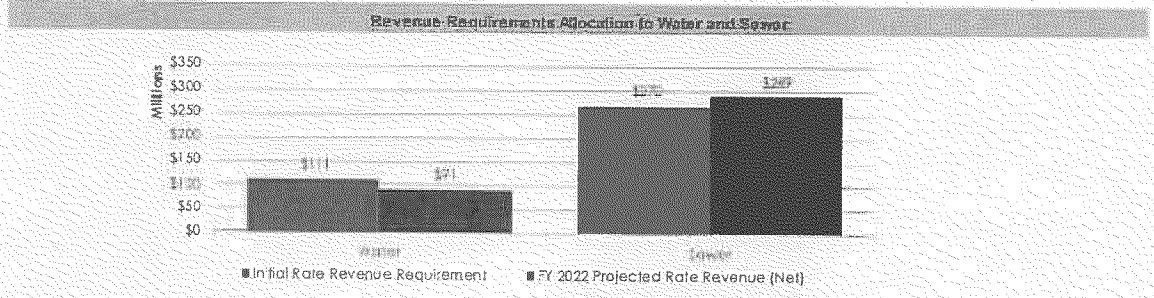
Customer Type	2017	2018	2019	2020	2021	5-Yr Average
Residential Max Day	40	26	23	27	20	27
Non-Single Family Max Day	7	9	8	7	6	7
Coincident Max Day	43	27	25	30	20	29
Max Day	7/5/2017	5/29/2018	7/5/2019	7/5/2020	10/31/2020	
Residential on Max Day	40	26	23	27	20	27
Non-Single Family Max Day	3	1	2	3	0	2
Coincident Peak Fires on Max Day	12	5	9	9	6	
Residential at Peak Hour	11	5	8	8	6	8
Non-Single Family at Peak Hour	1	0	1	1	0	1

Schedule 10: Equivalent Fire Units

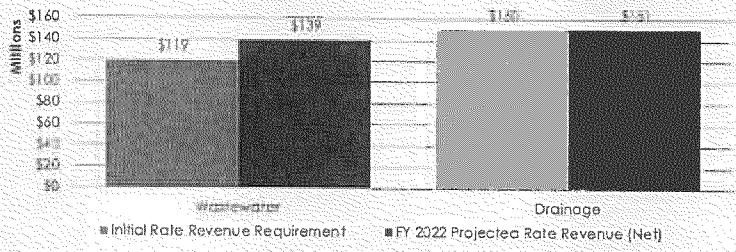
Fire Type	6" Equivalency for Capacity[1]	5/8" Equivalency for Meters & Services[2]	Private Fire Connections[3]	Public Fire[4]
4" Fireline	0.34	5.81	629	
6" Fireline	1.00	9.18	622	
8" Fireline	2.13	11.77	439	
10" Fireline	3.83	16.33	41	
12" Fireline	6.19	21.72	20	
Hydrants	1.00			29,948
Total Bills			**21,017**	**N/A**
Total Equivalent Capacity Units			**2,057**	**29,948**
Total 5/8" Equivalents for Meters & Services			**15,642**	**N/A**

(1) Assumes hydrants are on 6" line and uses Hazen Williams formula to calculate flow capacity.
(2) Based on line costs per DWSD staff by size and cost of 5/8" meter used for flow detection.
(3) Private fire meters based on FY 2021 actual billing data adjusted for FY 2022 & FY 2023 growth.
(4) Current total fire hydrants as of April 11, 2022 based on data per Detroit Fire Department.

Schedule 11: Cost Allocation Analysis Summary

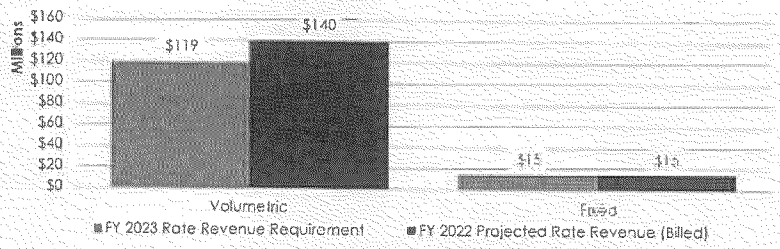


	Water	Sewer		
FY 2023 Total Expenses	$ 127,966,729	$ 303,137,971		
Less: Non-Rate Revenues[1]	(16,967,060)	(33,525,700)	*(Budget)*	
Initial Rate Revenue Requirement	**$ 110,999,669**	**$ 269,612,271**	$ 380,611,940	
Drainage Credit Adjustment		32,201,061		
Bad Debt Estimate[2]	10%			
Bad Debt Adjustment	[illegible]	47,267,436	*Total Including Credits*	*Total Before Credits*
FY 2023 Rate Revenue Requirement	$ 123,766,383	$ 349,080,768	$ 472,847,151	$ 440,646,090
% of Total	*26%*	*74%*		
FY 2022 Projected Rate Revenue (Billed)[3]	$ 102,094,900	$ 380,231,033	$ 482,325,933	$ 436,954,000
FY 2022 Projected Drainage Credit		45,371,933		
FY 2022 Projected Rate Revenue (Net)	**91,495,334**[illegible]	**288,908,716**	**380,404,050**	
% Cost Recovery	*82%*	*109%*	*102.00%*	
% Change Needed	***21.3%***	***-6.7%***	***0.1%***	***0.8%***

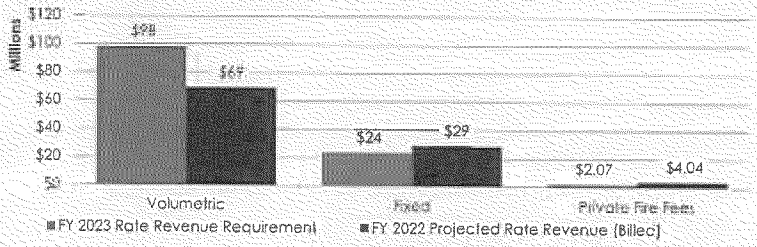


	Wastewater	Drainage	
FY 2023 Total Expenses	$ 141,905,050	$ 161,232,922	
Less: Non-Rate Revenues[4]	(22,495,918)	(11,029,782)	*(Direct & Indirect)*
Initial Rate Revenue Requirement	**$ 119,409,132**	**$ 150,203,140**	$ 269,612,271
Drainage Credit Estimate[5]		16%	
Drainage Credit Adjustment		32,201,061	
Bad Debt Estimate[2]	10%	16%	
Bad Debt Adjustment	[illegible]	[illegible]	
FY 2023 Rate Revenue Requirement	$ 133,705,146	$ 215,375,622	$ 349,080,768
% of Total	*38%*	*62%*	
FY 2022 Projected Rate Revenue (Billed)[3]	$ 154,972,300	$ 225,258,733	$ 380,231,033
FY 2022 Projected Drainage Credit		45,371,933	
FY 2022 Projected Bad Debt		29,527,654	
FY 2022 Projected Rate Revenue (Net)	**138,549,570**[illegible]	**150,359,146**	**288,908,716**
% Cost Recovery	*116%*	*105%*	*109%*
% Change Needed	***-13.8%***	***-0.1%***	***-6.7%***

Schedule 11: Cost Allocation Analysis Summary



	Volumetric	Fixed	
FY 2023 Total Expenses	$ 126,405,074	$ 15,499,976	
Less: Non-Rate Revenues[5]	(20,038,739)	(2,457,180)	*(Indirect)*
Initial Rate Revenue Requirement	$ 106,366,335	$ 13,042,796	$ 119,409,132
Bad Debt Adjustment[6]	12,734,492	1,561,523	
FY 2023 Rate Revenue Requirement	**$ 119,100,828**	**$ 14,604,319**	**$ 133,705,146**
FY 2022 Projected Rate Revenue (Billed)[3]	**$ 139,941,000**	**$ 15,031,300**	**$ 154,972,300**
FY 2022 Projected Rate Revenue (Net)	125,111,167	13,438,403	138,549,570
% Cost Recovery	*117%*	*103%*	*116%*



	Volumetric	Fixed	Private Fire Fees	
FY 2023 Total Expenses	$101,674,212	$24,437,465	$1,855,051	
Less: Non-Rate Revenues[7]	(13,679,244)	(3,287,816)	0	*(Indirect Retail)*
Initial Rate Revenue Requirement	$ 87,994,968	$ 21,149,650	$ 1,855,051	$ 110,999,669
Bad Debt Adjustment[8]	10,120,810	2,432,544	213,360	
FY 2023 Rate Revenue Requirement	**$ 98,115,778**	**$ 23,582,193**	**$ 2,068,412**	**$ 123,766,383**
FY 2022 Projected Rate Revenue (Billed)[3]	**$ 69,433,800**	**$ 28,619,200**	**$ 4,041,900**	**$ 102,094,900**
FY 2022 Projected Rate Revenue (Net)	62,225,133	25,647,934	3,622,267	91,495,334
% Cost Recovery	*71%*	*121%*	*195%*	*82%*

(1) Non-Rate Revenues allocated to Water/Sewer based on FY 2023 Budget.
(2) Bad Debt Estimate as a percentage of retail revenues based on DWSD calculation.
(3) FY 2022 Projected Rate Revenue based on Revenue Sufficiency Analysis.
(4) Non-Rate Revenues allocated to Wastewater/Drainage based on Schedule 4b.
(5) Wastewater Non-Rate Revenues indirectly allocated to Volumetric/Fixed based on FY 2023 Total Expenses.
(6) Wastewater bad debt indirectly allocated to Volumetric/Fixed based on Initial Rate Revenue Requirement.
(7) Water Non-Rate Revenues indirectly allocated to Volumetric/Fixed based on FY 2023 Total Expenses
(8) Water bad debt indirectly allocated to Volumetric/Fixed/Private Fire Fees based on Initial Rate Revenue Requirement.

Schedule 12: Wholesale Sewer Allocation

	GLWA System				Detroit Plus			
	Sanitary (MGD)	DWII (MGD)	WWI (MGD)	Wet Weather %	Sanitary (MGD)	DWII (MGD)	WWI (MGD)	Wet Weather %
FY2017	185.32	296.11	207.66	30.1%	51.18	214.69	133.41	33.4%
FY2018	194.47	243.52	220.70	33.5%	58.48	170.11	151.62	39.9%
FY2019	191.30	273.71	232.20	33.3%	57.08	186.22	154.51	38.8%
FY2020	180.75	269.35	182.29	28.8%	52.26	179.65	117.23	33.6%
FY2021	184.59	217.44	162.54	28.8%	52.28	156.02	114.79	35.5%
			5-Year Avg	*30.9%*				

Source: CDM Smith, Flow Balance Analysis & Results for Fiscal Year 2020 (2017-2020), Flow Balance Analysis & Results for Fiscal Year 2021 (2021), Attachment 3 & Attachment 4.

Wholesale Revenue Req't	FY 2022 Costs[1]	Relative %	FY 2023 Costs[2]	Capital Allocation[3]	O&M Allocation[3]	Capital Drainage %[4]	O&M Drainage %[5]	FY17-21 Avg Wet Weather Flow Allocation	Drainage Cost
Treatment	99,348,800	52.7%	100,602,099					30.9%	31,098,339
Collection / Conveyance	39,383,000	20.9%	39,879,822	56.5%	43.5%	85.0%	30.9%	61.5%	24,517,545
CSO Facilities	49,930,600	26.5%	50,560,481					100.0%	50,560,481
Total Revenue Req't	**188,662,400**		**191,042,403**						**106,176,365**
									56.3%

(1) FY 2022 Costs by category based on GLWA FY 2022 Calc Sheets.
(2) FY 2023 Costs based on GLWA FY 2023 Calc Sheets (total), allocated to categories based on FY 2022 Relative %.
(3) Capital Allocation based on GLWA report of costs by type
(4) Capital allocated to drainage based on hydraulic capacity.
(5) O&M costs allocated to drainage based on calculation in Schedule 12.

Schedule 13: Maintenance Hours Allocation

Code	Description	Annual labor hours to complete work		Water	Sewer
INVBBA	CLEAN CATCH BASIN	15000			100%
BR	REPAIR CATCH BASINS	16000			100%
INVCI	INVESTIGATE CAVE IN	800	*Weighted*		
GVR	REPAIR GATE VALVE	600		100%	
HGV	HYDRANT GATE VALVE	400		100%	
HMAJ	HYDRANT DIG UP/NOT OPERABLE	120		100%	
HMAJ	HYDRANT MAJOR/SCREW IN	4000		100%	
HMIN	HYDRANT MINOR OR FROZEN	4500		100%	
INVLP	LOW PRESSURE	1000		100%	
INVCBC	MISSING BASIN COVER	300			100%
INVMHC	MISSING MANHOLE COVER	250	*Weighted*		
MHR	MANHOLE REPAIR (MOSTLY CONTRACTED OUT)	135	*Weighted*		
INVREST	RESTORATION	166	*Weighted*		
REST	RESTORATION	4676	*Weighted*		
DEMO	DEMO DISCONNECT	3200		100%	
WSK	SERVICE KILL	4800		100%	
INVSL	SERVICE LEAK	1500		100%	
SL	SERVICE LEAK	11200		100%	
SL	SERVICE LEAK - TURN OFF VACANT MR	4600		100%	
SNL	STOP BOX DIG UP-LOCATE OR RECONDITION	9600		100%	
SNL	SERVICE REQUEST 1554 RECONDITION- T-OFF	800		100%	
INVSO	SEWER ODOR	400			100%
SR	SEWER REPAIR				
INVWIB	WATER IN BASEMENT	9000			100%
INVWMB	INVESTIGATE WATER MAIN BREAK	5250		100%	
WMB	REPAIR WATER MAIN BREAK (40% IN HOUSE)	14400		100%	
INVWQ	WATER QUALITY	563		100%	
WATER SERVICE	REPLACE LEAD SERVICE	1280		100%	
MISS DIG	MISS DIG LOCATES	63750	*Weighted*		
EMER SEWER		6480			100%
CCTV Sewer Mains	PM Activities	9600			100%
Clean Sewer Mains	PM Activities	9600			100%
Total allocated hours				**67,813**	**66,380**
Allocation				*50.5%*	*49.5%*

Schedule 14: Capital Improvement Plan Allocation

DWSD Water 5 Year CIP ($1,000)

Description		Status	Source of Funds	2021-22	2022-23	2023-24	2024-25	2025-26	2022-2026 CIP Total	FY 2023-FY 2026 Revenue Funded
WS-703	Water Main Replacement (33,820 LF)	C	I&E	-	-	-	-	-	-	
WS-704	Water Main Replacement -along Outerdrive	C	Bond	-	-	-	-	-	-	
WS-705	Water Main Replacement-2-sections	C	Bond	-	-	-	-	-	-	
WS-706	Water Main Replacement Wayne Co. Roads	C	Bond	-	-	-	-	-	-	
WS-707	Water Main Replacement- (20,000LF)	C	Loan (DWRF)	-	-	-	-	-	-	
WS-710	Water Main Replacement-Incl Wayne Co Roads	A	Loan (DWRF)	200	-	-	-	-	200	
WS-711	Water Main Replacement- Incl Jefferson Streetscape	A	Loan (DWRF)	4,200	1,814	-	-	-	6,014	
WS-712	Water Main Replacement-Cornerstone Village	A	I&E/Bond	7,630	3,690	-	-	-	11,320	
WS-713	Water Main Replacement-Jefferson/Chalmers	N	DWRF	7,500	7,250	-	-	-	14,750	
WS-714	Water Main Replacement-MDOT Streetscape	C	DWRF	-	-	-	-	-	-	
WS-715	Pilot Areas-Riverdale, Minock, Miller & Rosedale	N	DWRF/I&E	6,900	7,000	2,100	-	-	16,000	
WS-716	WM New Center Commons & Virginia Park	P	DWRF/I&E	2,300	-	-	-	-	2,300	
DWS-907	Watermain & Sewer Rehab- North Rosedale Park	A	I&E/Bond	5,000	-	-	-	-	5,000	
WS-720	Watermain Replacement-Various Streets	N	I&E/Bond	3,100	6,000	3,000	-	-	12,100	
WS-721	Lead Service Line Replacement	N	I&E/Bond	6,000	5,000	-	-	-	11,000	
WS-723	Lead Service Line Replacement for Settlements	N	Grant/Legal Settlements	800	200	-	-	-	1,000	
WS-725	Watermain Replacement-Medical Ctr, Cultural Ctr & Midtown 30,000LF	N	DWRF/Bond	-	4,000	5,000	5,000	-	14,000	
WS-702	Repair & Replacement of Water Mains	A	I&E	-	-	-	-	-	-	
WS-708	Repair of Water Mains	A	I&E	-	-	-	-	-	-	
WS-717	Repair & Replacement of Water Mains (WS-702B)	N	I&E	3,500	2,500	3,000	3,000	3,000	15,000	6,500
WS-719	Repair of Water Mains (WS-708/WS-702A) incl r	N	I&E	5,000	3,500	2,000	2,000	2,000	14,500	7,500
DWS-902	Repair of Pavement (break repair)	A	I&E	1,920	-	-	-	-	1,920	
DWS-901	Repair of Lawns (break repair)	A	I&E	1,500	-	-	-	-	1,500	
DWS-910	(replace DWS-902)	N	I&E	5,100	5,100	5,100	2,720	2,720	20,740	12,525
PC-808	West Warren (Constance at Rouge Park/Tireman Sawyer PH III)	P	Bond	4,000	4,200	-	-	-	8,200	
CS-1909	A-Condition Assessments-High Priority Neighborhoods	P	I&E	250	-	-	-	-	250	
CS-1921	Watermain/Sewer Design	P	I&E	1,000	1,000	1,000	-	-	3,000	
CS-1923	Third Party Inspection (Water & Sewer)	N	I&E	750	750	750	-	-	2,250	
CS-1917	Condition Assessment Sherwood Forest,	N	I&E	350	350				500	
CS-1812	Professional Engineering and Construction Services for CIPMO	A	I&E/Bond	2,795	-	-	-	-	2,795	
Construction Program Management Allowances		N	I&E	-	-	1,000	750	750	2,500	
Watermain Program Allowances		N	I&E	-	-	8,000	10,000	10,000	28,000	
PC-803B	Meter Installation	A	I&E	700	700	-	-	-	1,400	
Water Meter Replacement Program		A	I&E	451	750	750	750	750	3,451	
Fire Hydrant Replacement Program		A	I&E	250	250	250	250	250	1,250	
CS-1925	Iron Migration -MIU Replacement	A	I&E/Bond	1,800	9,900	1,750	-	-	13,450	
CS-1926	Iron Migration Project Management	A	I&E	325	560	1,115	-	-	2,000	
Vehicle, Heavy Equipment, and Equipment Purchases		A	I&E	682	750	500	500	500	2,932	
Information Technology		A	I&E	1,955	1,618	500	500	500	5,073	
Facility Improvement Allowance		A	I&E	3,761	1,000	500	500	500	6,261	
			TOTALS	*79,628*	*67,782*	*36,315*	*25,970*	*13,250*	*230,665*	*26,925*
Water % of Total									*52.9%*	*84.6%*

Highlighted cells reflect expenses assumed to continue in FY 2026.

Schedule 14: Capital Improvement Plan Allocation

DWSD Sewer 5 Year CIP ($1,000)

Description	Status	Source of Funds	2021-22	2022-23	2023-24	2024-25	2025-26	2022-2026 CIP Total	FY 2022-FY 2026 Revenue Funded
DWS-903 Inspection and Rehabilitation of Sewers City Wide	A	I&E/ Bond	7,000	-	-	-	-	7,000	
DWS-907 North Rosedale Park	A	Bond	3,000	-	-	-	-	3,000	
DWS-908 Cornerstone Village Sewer Rehab	A	Bond	2,693	-	-	-	-	2,693	
DWS-909 Sewer Condition assessments throughout City	C	I&E	-	-	-	-	-	-	
DWS-910- Sewer Condition Assessments High Priority	C	I&E	-	-	-	-	-	-	
DWS-916 Sewer Improvements in High Priority Neighborhoods	A	SRF	2,600	-	-	-	-	2,600	
DWS-917 Sewer Improvement in Riverdale	N	SRF	5,000	4,800	300	-	-	10,100	
DWS-918 Sewer Improvements in Rosedale	N	SRF	4,450	450	-	-	-	4,900	
DWS-920 Inspection and Rehabilitation of Sewers City Wide(Replace DWS-903)	N	I&E	3,000	8,000	4,000	-	-	15,000	
DWS-921 Electrical Monitoring Upgrades at Belle Isle,Woodmere, Fischer Sewage	P	I&E	200	200	200	-	-	600	
DWS-926 Sewer Condition Assessments - West Village,Southwest Detroit, Michiga	P	I&E	-	2,500	2,500	-	-	5,000	
DWS-931 Roofing Upgrades at Sewage PumpStations	P	I&E	325	325	275	-	-	925	
DWS-932 Large Sewer Improvements: Riverdale & Rosedale	P	I&E/Bond	4,400	400	-	-	-	4,800	
DWS-933 Carktown Sewer	C	I&E			-	-	-	-	
DWS-937 Sewer Replacement	N	SRF/I&E	8,000	7,600	-	-	-	15,600	
DWS-938 Sewer Condition assessments throughout City (DWS-909)	N	SRF/I&E	2,250	2,250				4,500	
DWS-939 Sewer Condition Assessments High Priority	N	SRF/I&E	2,250	2,250				4,500	
Sewer Program Allowances	N	I&E	-	2,000	12,000	14,000	14,000	42,000	
CS-1812 Professional Engineering and Construction Services forCapital Improveme	A	I&E	2,795	-	-	-	-	2,795	
DWS-902 Repair of Pavement (break repair)	A	I&E	75	-	-	-	-	75	
DWS-904 Repair of Lawns (break repair)	A	I&E	338	-	-	-	-	338	
DWS-919 (replace DWS-902)	N	I&E	900	900	900	480	-	3,180	3,180
Repair and Maintenance Allowance	N	I&E	-	-	1,000	1,000	1,000	3,000	3,000
CS-1921 Watermain/Sewer Design	N	I&E	1,000	1,000	1,000	-	-	3,000	
CS-1923 Third Party Inspection (Water & Sewer)	N	I&E	750	750	750	-	-	2,250	
CS-1522 Green Infrastructure Program Management	C	I&E	-	-	-	-	-	-	
PC-799 Crowell Rec Center and EcoSite Modifications	C	I&E	3	-	-	-	-	3	
PC-808 West Warren (Constance at Rouge Park/Tireman Sawyer PH III)	N	I&E/Grant	10,040	7,650	6,280	3,995	995	28,960	
PC-808 Sewer Rehabilitation (Non GSI)	N	I&E	1,500	1,500				3,000	
PC-801A Oakman Blvd	A	I&E/ Bond	68	68	114	-	-	180	
PC-800 Clijbee Park	C	I&E	18	-	-	-	-	18	
PC-806 Charles H. Wright Academy	N	I&E	1,485	45	38	-	-	1,568	
North Rosedale (Edmonton)	N	I&E	-	-	-	-	-	-	
Capital Partnership Program	P	I&E	100	-	-	-	-	100	
Chandler Park Drive (CIPMP)	N	I&E	150	-	-	-	-	150	
Green Stormwater Infrastructure Construction Allowance	N	I&E	-	-	-	5,000	5,000	10,000	
CS-1884 Green Infrastructure Program Management	P	I&E	2,508	2,500	2,500	1,000	1,000	9,508	
Vehicle, Heavy Equipment, and Equipment Purchases	N	I&E	682	750	500	500	500	2,932	
Information Technology	N	I&E	1,965	1,618	500	500	500	5,082	
Facility Improvement Allowance	N	I&E	3,761	1,000	500	500	500	6,261	
		TOTALS	***73,280***	***48,548***	***33,303***	***28,975***	***23,495***	***205,601***	***6,280***
Sewer % of Total								*47.1%*	*15.4%*

Schedule 15: Meter & Service Line Costs / Capacity Data

Meter & Line Cost Price List Effective July 1, 2021 per DWSD

Size	Type	Max Flow Rate	Meter Cost	Labor Cost	AFM/MXU - 200W (Time)	Vau	Pipe	Adapter	Tee	Companion Flange	Restraint Rod	Total Cost w/ Meter	Total Cost w/ 5/8" Meter	Retail Meter Equivalency - Cost w/ Meter[1]	Fire Line Equivalency - Cost w/ 5/8" Meter[2]	Capacity Equivalency - Flow Ratios
5/8"	Positive Displacement	30	$59.39	$17.00	$78.00	$12.91						$167.30	$167.30	1.00	1.00	1.00
3/4"	Positive Displacement	30	$74.00	$17.00	$78.00	$12.91						$181.91	$167.30	1.09	1.00	1.50
1"	Positive Displacement	50	$104.00	$17.00	$78.00	$12.91						$211.91	$167.30	1.27	1.00	2.50
1 1/2"	Displacement / Single Jet Electronic	100	$411.00	$34.36	$78.00	$12.91						$536.27	$184.66	3.22	1.12	5.00
2"	Displacement / Single Jet Electronic	160	$552.00	$34.54	$104.00	$19.37						$659.91	$237.39	4.12	1.42	8.00
3"	Magnetic Flow	310	$1,247.00	$222.86	$104.00	$31.64	$238.10	$88.17	$101.32	$32.21	$0.00	$2,466.29	$907.71	14.83	5.43	15.50
4"	Magnetic Flow	620	$1,943.00	$222.80	$104.00	$31.64	$321.19	$125.61	$145.27	$52.47	$0.00	$2,856.06	$907.65	17.07	5.61	31.00
6"	Magnetic Flow	2,600	$2,000.00	$681.76	$104.00	$103.26	$244.88	$184.44	$181.62	$65.75	$0.00	$4,361.73	$1,535.12	26.07	9.18	140.00
8"	Magnetic Flow	3,700	$4,307.00	$561.76	$104.00	$206.56	$344.25	$291.49	$288.13	$91.82	$0.00	$5,216.31	$1,988.70	31.18	11.89	185.00
10"	Magnetic Flow	7,045	$8,465.00	$681.52	$104.00	$206.56	$468.79	$413.80	$485.32	$103.84	$0.00	$11,138.03	$5,732.42	66.58	34.27	352.25
12"	Magnetic Flow	11,000												98.60	51.72	550.00
14"	Magnetic Flow	17,613												145.27	86.89	880.65
16"	Magnetic Flow	22,807												212.21	30.43	1,144.65

(1) Equivalency for meters 10" and smaller based on actual installation and meter costs; equivalency for meters 12" and larger based on average cost increase between 3" - 10" meter sizes.
(2) Equivalency for meters 10" and smaller based on actual installation costs with 5/8" meter cost; equivalency for meters 12" and larger based on average cost increase between 3" - 10" meter sizes.

APPENDIX D: RATE DESIGN SUPPORTING SCHEDULES

Schedule 1: Water Rate Design

Water Fixed Charges						
	Customer	Meters & Service Lines	Public Fire Protection		Current Revenue	Revenue Requirement
			50%	% Incl. in Meter Charge		
FY 2023 Revenue Requirement	$ 6,544,251	$ 7,688,955	$ 9,348,988		$ 28,619,200	$ 23,582,193
FY 2023 Equivalent Units	191,647	243,907	367,978			
Charge per Equivalent per Month	$ 2.85	$ 2.63	$ 2.12			

Meter Equivalency			
5/8"	1.00	1.00	1.00
3/4"	1.00	1.09	1.50
1"	1.00	1.27	2.50
1 1/2"	1.00	3.22	5.00
2"	1.00	4.12	8.00
3"	1.00	14.92	25.50
4"	1.00	17.07	46.00
6"	1.00	26.07	140.00
8"	1.00	37.16	185.00
10"	1.00	66.58	352.25
12"	1.00	98.00	550.40
14"	1.00	144.27	880.65
16"	1.00	212.37	1,144.85

	Current Meter Charge	Proposed Meter Charge
5/8"	$ 7.86	$ 7.59
3/4"	$ 11.79	$ 8.88
1"	$ 19.65	$ 11.47
1 1/2"	$ 39.31	$ 21.88
2"	$ 62.89	$ 30.62
3"	$ 125.79	$ 96.03
4"	$ 196.54	$ 145.08
6"	$ 393.08	$ 367.74
8"	$ 628.93	$ 492.14
10"	$ 904.08	$ 923.52
12"	$ 1,218.55	$ 1,425.61
14"	$ 1,690.24	$ 2,246.35
16"	$ 2,240.56	$ 2,984.63

FY 2021 Meters			
5/8"	137,605	137,605	137,605
3/4"	33,579	33,579	33,579
1"	11,024	11,024	11,024
1 1/2"	2,865	2,865	2,865
2"	2,720	2,720	2,720
3"	672	672	672
4"	539	539	539
6"	269	269	269
8"	85	85	85
10"	38	38	38
12"	4	4	4
14"	0	0	0
16"	1	1	1

Schedule 1: Water Rate Design

Volume Rates

	Volume Rates	
FY 2023 Revenue Requirement	$ 98,115,778	(Includes remaining public fire protection costs)
FY 2023 Usage (Mcf)	2,558,080	

	Current Revenue	Revenue Requirement
	$ 69,433,800	$ 98,115,778

Tier 1 Max (Mcf)	0.60
Tier 2 Max (Mcf)	N/A

	Current Volume in Tier	Proposed Volume in Tier
Tier 1	All Volume	0.60
Tier 2	N/A	> 0.6

FY 2021 Volume	
Tier 1 Volume (Mcf)	854,602
Tier 2 Volume (Mcf)	1,733,183

Tier 1 Rate (per Mcf)	$ 25.04
Tier 2 Rate (per Mcf)	$ 44.92

	Current Volume Rate	Proposed Volume Rate
Tier 1 (0-0.6 Mcf)	$ 26.60	$ 25.04
Tier 2 (>0.6 Mcf)	N/A	$ 44.92

Private Fireline Charges

	Private Fire
Revenue Requirement	$ 2,068,412
Equivalent Units	2,057
Charge per Equivalent per Month	$ 83.78

	Current Revenue	Revenue Requirement
	$ 4,041,900	$ 2,068,412

Connection Size Equivalency	(Hazen Williams)
4"	0.34
6"	1.00
8"	2.13
10"	3.83
12"	6.19

	Current Charge	Proposed Charge
4"	$ 94.41	$ 28.84
6"	$ 196.69	$ 83.78
8"	$ 283.23	$ 178.54
10"	$ 456.32	$ 321.07
12"	$ 676.61	$ 518.62

FY 2021 Connections by Size	
4"	514
6"	607
8"	428
10"	40
12"	20

Wastewater

Fixed Charges

	Customer	Meters & Service Lines
FY 2023 Revenue Requirement	$ 6,840,963	$ 7,763,356
FY 2023 Accounts	192,000	192,000
Charge per Account per Month	$ 2.97	$ 3.37

	Current Revenue	Revenue Requirement
	$ 15,031,300	$ 14,604,319

Meter Equivalency		
All	1.00	1.00

	Current Meter Charge	Proposed Meter Charge
All	$ 6.54	$ 6.34

Meters	
All	188,993	188,993

Volume Rates

	Volume Rates
FY 2023 Revenue Requirement	$ 119,100,828
FY 2023 Usage (Mcf)	2,149,833

	Current Revenue	Revenue Requirement
	$ 139,941,000	$ 119,100,828

FY 2021 Volume	
Winter Usage (Mcf)	2,208,832

Charge per Unit	$ 55.40

	Current Volume	Proposed Volume Rate
All Usage	$ 57.06	$ 55.40

Drainage
Impervious Area Charge

Initial Rate Revenue Requirement	$ 150,203,140
Bad Debt Adjustment	$ 32,971,421
Drainage Credit	$ 32,201,061
FY 2023 Rate Revenue Requirement	$ 215,375,622
FY 2023 Equivalent Units	26,461
Charge per Equivalent per Month	$ 678.28

Current Revenue	Revenue Requirement
$ 226,208,650	$ 215,375,622

	Current Drainage Charge	Proposed Drainage Charge
Per Impervious Acre	$ 677.00	$ 678.28

Schedule 4: Drainage Credit Calculation

Customer Class	Billed Impervious Acreage	Credit %	Credit $	Total Credit
Residential	10,283	25.0%	$169.57	$20,924,383
MDOT/County	2,132	42.5%	$288.31	$ 7,376,678
Green Credit				$ 3,900,000
Total Credit				**$32,201,061**

FY 2023 Drainage Rate Calculation per Rate Study			Source
Initial Rate Revenue Requirement	$	150,203,140	
Bad Debt Adjustment	$	32,971,421	
Drainage Credit	$	32,201,061	
FY 2023 Rate Revenue Requirement	$	**215,375,622**	
FY 2023 Equivalent Units		26,461	
ROW Impervious Area (acres)		15,872	p. 12 John. A. Aldrich (CDM Smith) Expert Report, footnote 39
Charge per Equivalent per Month	$	423.97	

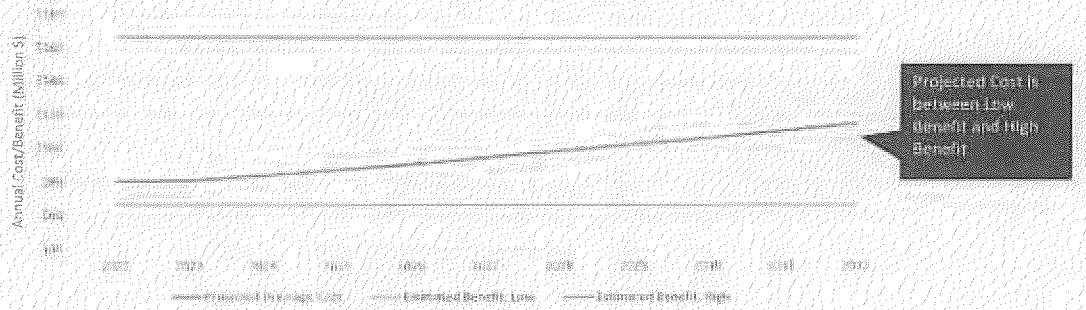
Year		Drainage Rate		Annual Drainage Cost ($M)
2022	$	423.17	$	80.60
2023	$	423.97	$	80.75
2024	$	440.93	$	83.98
2025	$	458.57	$	87.34
2026	$	476.91	$	90.83
2027	$	495.99	$	94.47
2028	$	515.83	$	98.25
2029	$	536.46	$	102.18
2030	$	557.92	$	106.26
2031	$	580.23	$	110.51

Cost Benefit of Rights-of-Way - Option 1

Benefit of Easement Calculation			Source
Equivalent easement value for all roads		40%	p. 11 John A. Aldrich (CDM Smith) Expert Report
Min avg. assessed value of vacant land ($/sq ft)		$ 4.00	p. 11 John A. Aldrich (CDM Smith) Expert Report
Max avg. assessed value of vacant land ($/sq ft)		$ 10.00	p. 11 John A. Aldrich (CDM Smith) Expert Report
Min combined drainage easement cost ($/sq ft)	40%	$ 1.60	p. 11 John A. Aldrich (CDM Smith) Expert Report
Max combined drainage easement cost ($/sq ft)	40%	$ 4.00	p. 11 John A. Aldrich (CDM Smith) Expert Report
Miles of system in public ROW		24.8	p. 12 John A. Aldrich (CDM Smith) Expert Report, footnote 39 - all IA in public ROW
Sq ft of system in public ROW		691,384,320	
Est. cost of easements - min ($M)		$ 1,106	
Est. cost of easements - max ($M)		$ 2,766	

$$PV\ of\ Perpetuity = \frac{D}{r}$$

$PV = Present\ Value$
$D = Dividend\ or\ Coupon\ per\ period$
$r = discount\ rate$



Row	Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	Projected Drainage Cost	$ 80.6	$ 80.8	$ 84.0	$ 87.3	$ 90.8	$ 94.5	$ 98.2	$ 102.2	$ 106.3	$ 110.5	$ 114.9
	6% Estimated Benefit: Low	$ 66.37	$ 66.37	$ 66.37	$ 66.37	$ 66.37	$ 66.37	$ 66.37	$ 66.37	$ 66.37	$ 66.37	$ 66.37
	6% Estimated Benefit: High	$ 165.93	$ 165.93	$ 165.93	$ 165.93	$ 165.93	$ 165.93	$ 165.93	$ 165.93	$ 165.93	$ 165.93	$ 165.93

Cost Benefit of Rights-of-Way - Option 2

ROW Cost Calculation				Source
FY 2023 drainage total cost	$	229,119,951	per year	Stantec cost allocation per current rate study
Total wet weather flow (5 yr avg 17-21)		134	MGD	GLWA Flow Balance Analysis & Results for Fiscal Year 2021 - Draft CDM Report (1/14/22)
Cost per MGD	$	1,705,193		
Total billed impervious area		26,461	acres	DWSD billing data provided per rate study
Total ROW impervious area		15,872	acres	pg. 12 John A. Aldrich (CDM Smith) Expert Report, footnote 39
Total impervious area		42,333	acres	
ROW wet weather flow		50	MGD	
FY 2023 ROW cost	$	85,904,421	cost per year	

ROW Benefit Calculation				Source
FY 2023 drainage total cost	$	229,119,951	per year	Stantec cost allocation per current rate study
Total wet weather flow (5 yr avg 17-21)		134	MGD	GLWA Flow Balance Analysis & Results for Fiscal Year 2021 - Draft CDM Report (1/14/22)
Cost per MGD	$	1,705,193		
Billed Impervious area		26,461	acres	DWSD billing data provided per rate study
Impervious area not conveyed by ROW		25%		p. 9 John A. Aldrich (CDM Smith) Expert Report; Approx. 3/4 of combined sewers in public ROW
ROW conveyance benefit		19,846	acres	
ROW flow benefit		63	MGD	
FY 2023 ROW benefit	$	107,411,647	benefit per year	
Benefit minus cost of ROW	$	21,507,226	net benefit per year	

23-015314-CB FILED IN MY OFFICE Cathy M. Garrett WAYNE COUNTY CLERK 9/11/2025 5:41 PM Jacqueline Ruff

EXHIBIT – 3

STATE OF MICHIGAN
WAYNE COUNTY CIRCUIT COURT

AJAX METAL PROCESSING, INC.,
a Michigan corporation, individually
and as representative of a class of
Similarly situated persons and entities,

Plaintiff,

v.

CITY OF DETROIT,
a municipal corporation,

Defendant.

Case No. 23-015314-CB
Hon. Annette J. Berry

Gregory D. Hanley (P51204)
Jamie K. Warrow (P61521)
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Attorney for City of Detroit

AFFIDAVIT OF JOHN F. DAMICO

City of UNION)
)ss.
State of Kentucky

John F. Damico, being first duly sworn, deposes and states as follows:

1. I have personal knowledge of the facts set forth in this Affidavit and, if called as a witness, could testify competently thereto.

2. I am an independent utility rate consultant and the principal of Environmental Rate Consultants, Inc.

3. I have more than 42 years of water resource (water, sewer, stormwater), financial and rate setting, and public relations experience. I have assisted numerous municipalities with cost of service and rate design studies and other regulatory and ratemaking matters.

4. I have testified on numerous occasions regarding cost of service studies, rate design, and other regulatory and ratemaking matters. My curriculum vitae, which is Attachment 2 to my Report of Findings and Opinions dated June 33, 2025 (Exhibit A hereto), and which I incorporate into this affidavit, contains a more detailed description of my professional background, expertise, and activities.

5. I have evaluated the water rates set by the Defendant City of Detroit (the "City"). My findings are set forth in the attached Exhibit A. I adopt the statements in Exhibit A as my sworn testimony.

6. In addition, I am aware that the City has argued that Plaintiff's claims should fail because I did not conduct a cost-of-service study ____ A cost-of-service study was unnecessary in this case for the following reasons:

7. Municipal water ratemaking consists of three principal steps. The first step in establishing Water Rates and Charges is to determine the total revenue requirement (the "Revenue Requirement") associated with the municipality's water supply system (i.e., the revenues necessary to cover the costs of the entire system). The Revenue Requirement is a summation of the operation, maintenance and capital costs that a utility must recover during the time period for which the rates will be in place.

8. There are two generally accepted approaches for establishing a utility's revenue requirements: the cash-needs approach and the utility-basis approach. During the time period at issue in this case, the City has utilized the cash-needs approach to determine the Revenue Requirement. The City, through its consultant, Stantec, determined that, for the time period from July 1, 2022 through July 1, 2023, the Revenue Requirement for the City's water supply system was $123,766,383.

9. The second step in establishing Water Rates and Charges is to perform a "cost-of-service" analysis. The cost-of-service process includes the following steps: (a) identification of annual

revenue requirements by function or activity (including source of supply, pumping, treatment, etc.) and (b) allocation of these functional costs to appropriate cost components (including those related to annual usage, peak demands, customer meters and bills, and direct fire protection).

10. There are two generally accepted methodologies for conducting the cost-of-service analysis for a water utility. They are called the "base-extra capacity" methodology and the "commodity-demand" methodology. The functionalization, allocation, and distribution process of the base-extra capacity and commodity-demand methodologies are generally considered fair and equitable because both approaches result in the Revenue Requirement being distributed to each class in proportion to each class's contribution to the system components.

11. The City uses the "base-extra capacity" methodology to establish its Water Rates and Charges. Using the base-extra capacity method, costs are usually separated into four primary cost components: (a) base costs, (b) extra capacity costs, (3) customer costs and (4) fire protection costs.

12. "Base" costs are costs that tend to vary with the total quantity of water used plus those operating and maintenance expenses and capital costs associated with service to customers under average load conditions, without the elements of cost incurred to meet water-use variations and resulting peaks in demand.

13. "Extra capacity" costs are costs associated with meeting peak demand rate of use requirements in excess of average (base) use and include operating and maintenance expenses and capital costs for system capacity beyond that required for average rate of use. In the base-extra capacity method, costs must be carefully separated between base costs and extra capacity costs.[1]

---

[1] "Customer" costs comprise those costs associated with serving customers, irrespective of the amount or rate of water use. They include, but are not limited to, meter reading, billing, customer accounting, customer service, and collection expenses, as well as maintenance and capital costs related to meters and services. "Direct fire protection" costs are those costs that apply solely to the fire protection function of the water system. Usually, such costs are simply those directly related to public fire hydrants and related branch mains and valves. The amounts Stantec has derived for "Customer" and "Direct fire protection" costs are not at issue in this case.

14. The third and final step in determining Water Rates and Charges is to conduct a rate-design analysis. This analysis determines how to recover the appropriate level of costs from each customer class of service. There are different rate structures that may be used to collect the appropriate level of revenues from each customer class of service.

15. With the exception of one item of cost included in the City's revenue requirements – i.e., the so called "bad debt expense" – Plaintiff's claims challenge only Stantec's rate design, which is the final step. Stantec's rate design is flawed because, among other things, it recovers costs in an unreasonable and inequitable way by charging higher volume water users a higher amount per gallon, for the reasons set forth in my Report. An independent cost-of-service study (the second step) was simply not necessary for me to reach my opinions on the City's design and imposition of its Block Water Rates. Moreover, in reaching my opinions, I accepted the cost-of-service analysis performed by Stantec.

16. In addition, I have reviewed certain spreadsheets that were produced by the City after I submitted my Report in this case. Certain information contained in those spreadsheets is attached to Plaintiff's Brief as Exhibit 21. I understand that Stantec relied upon the water usage and billing data in the spreadsheets for fiscal year 2021 in devising the Water Rates for fiscal year 2023. That information demonstrates that there is no question that the Block Rate structure disproportionately impacts non-residential water customers. For example, the spreadsheets reveal the following:

a. Residential customers only comprise **25% of the usage in Tier Two**. *See* Exhibit 21 at p. 2 (showing 425,773 MCF of Tier Two usage by residential customers out of 1,733,182 total MCF).

b. Residential customers comprise over **92% of the usage in Tier One**. *See Id.* (788,632 MCF of Tier One usage by residential customers out of 854,603 total MCF).

c. **94% of the total usage** of commercial customers falls within Tier Two (695,592 MCF of Tier Two usage vs. just 47,974 MCF of Tier One usage).

d. **99% of the total usage** of industrial customers falls within Tier Two (464,109 MCF of Tier Two usage vs. just 4,921 MCF of Tier One usage).

17. In my opinion, Stantec's rate design, while "facially neutral," and although still ensnaring a small fraction of residential users, clearly was intended to foist a disproportionate share of the City's water costs upon the nonresidential class.

John F. Damico

SUBSCRIBED AND SWORN TO
before me this 8th day of September, 2025

Notary Public, Boone County,
My commission expires: May 29, 2028
Acting in the County of Boone

KH148018

MADLYNN VONBOKERN
Notary Public
Commonwealth of Kentucky
Commission Number KYNP89090
My Commission Expires May 29, 2028

EXHIBIT – 4

AJAX METAL PROCESSING, INC. v. CITY OF DETROIT
STATE OF MICHIGAN
WAYNE COUNTY CIRCUIT COURT

Case Number: 23-015314-CZ

REPORT OF FINDINGS AND OPINIONS

June 3, 2025

Prepared for:

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Prepared by:

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AJAX METAL PROCESSING, INC. v. CITY OF DETROIT
STATE OF MICHIGAN
WAYNE COUNTY CIRCUIT COURT
Case Number: 23-015314-CZ

REPORT OF FINDINGS AND OPINIONS
June 2, 2025

I. INTRODUCTION

John F. Damico and Environmental Rate Consultants, Inc., (ERC), has been retained by the legal firm of Kickham Hanley PLLC on behalf of AJAX Metal Processing, Inc, individually and as a representative of a class of similarly situated persons and entities, to provide expert consultation in reference to the subject litigation. ERC has completed a review of the water billing database materials provided in the referenced matter as outlined in Attachment 1. Based upon performing a "billing tabulation analysis" of the City of Detroit's fiscal years (FY) 2021 and (FY) 2022 water utility billing system and database components and other data and information identified in this Report, I am prepared to present the following expert opinions with a reasonable degree of professional certainty, with respect to the water system rate structure design the City utilized beginning in August 2022 and continuing through the present day.

A. Prior to August 1, 2022, (fiscal Year (FY) 2023) the City of Detroit volume/usage water rates contained one single uniform water rate for all water rate customers without customer classification distinction. A properly-designed uniform water rate structure is the most fair and equitable rate structure method of the four methods recognized by the AWWA (American Water Works Association).

B. Effective August 1, 2022 (for FY 2023), the City of Detroit water utility improperly restructured the uniform volume/usage rate structure to a two-tiered volume/usage rate structure. AWWA recommends using a billing tabulation analysis that will correctly determine:

   - An accurate multi-Tier rate structure design system,
   - the number of Tier blocks to be used,
   - the size of the Tier blocks to be used, and
   - which customer class the Tiered rate blocks would be applied to.

C. During the time period from August 1, 2022 through the present, the City of Detroit implemented a Tiered (or ascending, inclining, inverted) rate structure design that shifted the cost recovery from all water rate customers equally to the non-residential water rate customer class. The shift resulted in Significant Users (i.e., water customers who use at least 1.0 MCF (approximately 7480 gallons) per month), the majority of which are in the non-residential class, subsidizing the residential class and paying substantially more than the residential customer

classification in an unfair unequitable manner. The Tiered rate structure design method was used in the 1970's and 1980's by some water utilities located in the western and southwestern desert states when water conservation was a big concern. This approach by design, involuntarily forced large companies and larger water users to pay substantially higher prices for the more water they use with the premise the users would use less water when faced with exorbitant water rates.

D. Information I have reviewed shows that the City's intent in implementing the tiered rate structure was to lower the water costs for the residential class. As early as 2016, the City's Blue Ribbon Panel on Affordability advocated establishing an inclining block rate structure to improve "affordability for low-income customers." February 3, 2016 Panel Report at p. 17, n. 23. This approach to "affordability" was advocated as an alternative to income-based rates, which were subject to legal challenges. Indeed, the Panel report states that "a move to an increasing block rate, designed with affordability as one of its explicit objectives, is a reasonable and appropriate 'compromise' between those who argue for an explicit income-based affordability program and those who argue that any such explicit income-based affordability program is contrary to law." Panel Report at p. 22. In a June 23, 2022 letter to a citizen advocacy group, Gary Brown, the Director of the Detroit Water and Sewerage Department, stated:

> Regarding Usage Rates: The rate study Stantec performed for DWSD determined that usage over 6 CCF (4,500 Gallons) per month is the threshold where we can show an increased burden on the system. Note that 80% of our residential customers use 6 CCF or less. Customers who use more than 6 CCF most likely have plumbing issues and Wayne Metro has $10 million a year for the next 5 years to address plumbing issues. We will continue to work with residential customers who have excessive usage to help them bring their usage below the threshold.

E. Effective August 1, 2022, the City of Detroit implemented a base Tier 1 rate structure design using the threshold 0.6-thousand-cubic feet (Mcf) (according to Stantec = 4,040 gallons (or 600 cubic feet) of water) per month. This base Tier 1 (6 Mcf) break point was not a calculation based upon the City's actual water usage data as it was taken from a technical textbook named *"Residential End Uses of Water, Version 2"*, from *"The Water Research Foundation, 2016*", as footnoted in the Stantec report.

F. ERC performed a "billing tabulation analysis" using the City of Detroit water utility billing data for FY 2021 and FY 2022. AWWA recommends identifying and capturing at least the first 50% of water usage to be included when establishing the first Tier block in a rate structure design. The result of performing the billing tabulation analysis identified the range from 1,201 cubic feet and 1,800 cubic feet of water usage to establish the Tier 1 rate block. The analysis was

further narrowed to approximately 1,700 or 1.7 Mcf of water usage per month that represents a more precise 50% break point estimate for establishing the first Tier. The billing tabulation analysis details are summarized in Table 1, Table 2 and Table 3 at the end of this report.

G. The City of Detroit and Stantec identified the 0.6 Mcf (or 600 cubic feet) from a textbook to establish the first Tier and 854,602 Mcf as the water usage as the basis for calculating the first-Tier rate as presented on page 112 of the Stantec report. Conversely, ERC determined the Stantec first Tier breakpoint to be at a much lower water usage at 439,406 Mcf. As a result of the billing tabulation analysis and the City's water usage database, ERC calculated the 50% breakpoint to be 1.7 Mcf equaling 981,413 Mcf of total water usage to be used as the basis for the first-Tier rate calculation.

H. According to AWWA and water rate setting professionals, rate tiers or rate blocks should only be created for the "residential" water customer class, and those tiers and blocks should be created using a billing tabulation analysis. This is due to residential customers typically being the cause for high-water peak usage. Typically, large amounts of water usage occur from 6am to 10am each weekday caused by the residential class. The billing tabulation analysis performed by ERC confirmed that the non-residential customer class, although generally uses more water per user overall, normally does not cause the high-water usage peaking. Therefore, the residential customer class should be as responsible as the nonresidential class for paying for the increased costs to the system. This is accomplished through the peaking cost allocations in the rate structure design, allocating these costs appropriately to the residential customer class and rate structure Tier that contains a majority of the residential water customers.

I. The results of the ERC billing tabulation analysis demonstrate a more accurate two-tier rate structure design establishing the Tier 1 block at the 1.7 Mcf as compared to the Textbook selected 0.6 Mcf Tier 1 in the Stantec report. Therefore. If a multi-tier rate structure method were to be implemented by ERC, the Tier 1 rate would be in the amount of $49.99 per Mcf and the Tier 2 rate in the amount of $28.60 per Mcf. A tiered rate structure would not be appropriate.

J. The single uniform rate is the rate structure most widely used and, when properly designed, is considered the most fair and equitable rate structure by AWWA and rate setting professionals. Based on my complete billing tabulation analysis, I would recommend a uniform no tier rate structure design rate in the amount of no more than $36.38 per Mcf (as of FY 2023) for all water customers. The $36.38 figure assumes the Revenue Requirement for volumetric rates that Stantec used in its 2022 report was appropriate. The City did not perform cost of service studies for FY 2024 or 2025, but merely increased the water rates by fixed percentages (approximately 3.5%) in each of those years.

K. If ERC were to implement a multi-tier rate structure method and exclude the "bad debt expense" from the rate calculation, the Tier 1 rate would be in the amount of $44.83 per Mcf and the Tier 2 rate of $25.65 per Mcf. The bad debt expense should not be included in the water utility annual costs of providing water services.

L. Based on my complete billing tabulation analyses and excluding the bad debt expense from the rate calculation, ERC would recommend a uniform no tier rate structure design in the amount of $32.63 per Mcf (as of FY 2023) for all water customers, using the Stantec volumetric Revenue Requirement but excluding the $10+ million of "bad debt expense." The bad debt expense should not be included in the water utility annual costs of providing water services.

M. I understand that Plaintiff alleges that, as applied to Significant Users, the City's block water rates (1) are unreasonable under the common law because they generate revenue far in excess of the City's actual cost of providing water service to the Significant Users (the "Unreasonable Rate Claims"); and (2) violate § 7-1202 of the Detroit City Charter, which requires all water rates to be "equitable". (the Charter Violation Claims")

N. I understand from Plaintiff's counsel and therefore have assumed that as to the Unreasonable Rate Claims, a party challenging the Rates must establish that the subject Rates, "viewed as a whole", have been unreasonable in that they have been "excessive." *Youmans v. Charter Township pf Bloomfield.*

O. During the period from August 1, 2022 through the present day, the City's Rates, viewed as a whole, have been excessive as applied to Significant Users. In addition, the Rates, as applied to Significant Users, have not been equitable. My opinion is not just that the City's methodology is improper, but that the methodology results in material overcharges to Significant Users. Once the proper Rates are determined the overcharge to each Significant User is a simple mathematical calculation. The overcharges are calculated by taking the product of a customer's usage during a given time period multiplied by the Rates actually imposed by the City minus the product of the customer's usage during a given time period multiplied by the proper Rates.

P. In my opinion, even without a comprehensive rate study, the evidence demonstrates that, as applied to Significant Users, the disputed rates excessively compensated the City for the related water services.

Q. My determination of the reasonableness of the City's Rates is not "freestanding". It is instead based upon, among other things, well-established industry standards, and the City's Charter Section 7-1202.

I reserve the right to supplement the foregoing opinions based upon any additional evidence or documents that may be discovered or provided to me after the date of this report.

II. BACKGROUND

The findings, conclusions and opinions included in this report are based upon 42 years of water resource (water, sanitary sewer, stormwater) rate setting experience, project and financial management expertise, educational background, and training received from Certified Public Accountants (CPAs) and Professional Engineers (PEs) from previous employers, reading publications and publishing articles and publications for trade organizations such as the American Water Works Association (AWWA), the American Public Works Association (APWA) Water Environment Federation (WEF), StormCon, along with the available materials reviewed relating to this matter. I have been involved as Project Manager or Financial Task Manager in performing over 100 water resource (water, sanitary sewer and stormwater) business plans, cost of service analyses-based rate studies for over 80 municipalities throughout the United States. I have been personally involved in or in a supervisory capacity for water resource (water, sewer, stormwater) program; revenue requirement projections and calculations, financial projections and financial forecasting, rate setting analysis, **billing tabulation analysis**, budgeting and development, business plan development based level of service analysis and cost of service analysis, rate study analysis, cash flow analysis, calculating water resource miscellaneous utility program fees such as impact fees, system development fees, tap fees, drainage fees, reserves, rate structure analysis and selection, financing options analysis, billing system policy development, master account and database file development, billing system implementation, error reconciliation, customer service training, development and evaluation, customer appeals process, water resource organizational analysis and ordinance development assistance projects.

During my 42 years of potable water, sanitary sewer and stormwater utility experience, I have gained considerable knowledge and can render an expert opinion, regarding a trained professional practicing in the field of water utility rate setting standards and analysis, performing a water utility billing tabulation analysis regarding the standard of care and skill ordinarily used by water resource (water, sanitary sewer and stormwater management) utility professionals practicing under similar conditions, at the same time, for the City of Detroit, Michigan.

I have published the following water resource related articles and publications

1. APWA Reporter (American Public Works Association Monthly Magazine) February 2005. "What type of (water resource) rate study does my community need?"
2. APWA Publication (American Public Works Association) September 2004. "Who's going to pick up the tab and how? Stormwater funding options" (Co-author)

3. APWA Publication (American Public Works Association) June 2003. "Financing Stormwater Utilities" (Co-author)
4. Cities & Villages (The journal of the Ohio Municipal League) November/December 1990. Stormwater Management Programs: An Accountant's perspective

III. WATER RESOURCE PROFESSIONAL ASSOCIATIONS AND MANUALS

Professionals in the water utility system rate setting and billing tabulation industry and standards rely on the following AWWA (American Water Works Association) trade organization for guidance, principles, methodologies, protocol, training and manuals. The following AWWA trade association manuals and publications used by professionals in the industry of water resources rate setting and billing tabulation analyses standards:

A. The American Water Works Association (AWWA) is the leading association in the water rate setting industry that conducts research and publications, information, training, and technical assistance to water purveyor and water supply systems. The following are the latest manuals from AWWA organization that are used by rate setting professionals as guidelines and standards for establishing water rates:
   - AWWA M1 Manual 7th edition;
   - AWWA Water Utility Accounting Manual;
   - AWWA M29 Water Utility Capital Financing Manual;
   - AWWA M34 Alternative Rates Manual;
   - AWWA M35 Revenue Requirements Manual.

IV. PROFESSIONAL ASSOCIATIONS RATE SETTING STANDARDS AND GUIDELINES

The basic premise or goal for calculating water system utility rates is to establish the most fair and equitable rates and rate structure possible, that can easily be explained to and understood by the general public (rate payer) and contains the rational nexus between the total costs experienced and incurred by the water purveyor utility and matching those total costs to the individual rate payer or utility customer and/or match and assess or charge each class of customer with appropriate portions of those total costs through the rate design (rate structure).

According to the AWWA M1 Manual (seventh edition) "Principles of Water Rates, Fees and Charges" The objective of establishing cost-based rates, fees and charges and utilizing one of the four generally accepted rate structure design methods (uniform rate, decreasing block rate, increasing block rate, and seasonal rate explained in detail later in this report) will allow and provide sufficient funding for communities to build, operate, maintain and reinvest in the water system that provides the community with safe and reliable drinking water and fire protection which allows for economic development and sustainability for the community.

AWWA suggests there are three major analytical steps in developing the cost-based rates that adhere to the AWWA generally accepted methodologies mentioned above including the revenue requirements, cost of service and rate design. This recommended approach should also account for and include good judgement based on years of experience gained from setting rates and accounting for the local needs, requirements and local conditions.

The AWWA recommends three analytical steps for establishing cost-based rates:

Step 1 - "Revenue requirements analysis" step that compares the revenues of the utility to its operating and capital costs to determine the adequacy of the existing rate to recover the utility costs.

Step 2 - "Cost of service analysis" step allocates the revenue requirements to the various customer classes of service in a fair and equitable manner.

Based upon the database dump provided by the City of Detroit and assuming the accuracy of that data, ERC was able to perform a "billing tabulation analysis" and evaluation of the information provided in order to reach my conclusion and opinions included in this report of findings and opinions.

Step 3 - "Rate design analysis" This third step according to the AWWA M1 manual seventh edition, provide a step-by-step approach and method of the generally accepted procedures regarding performing a **"billing tabulation analysis"** if the goal was to develop a Tiered rate structure design approach for any community considering rate tier blocks as part of calculating water utility rates. This third step **"Step 3 - "Rate design analysis"** summarized above, the AWWA prescribes a generally accepted process for developing rate blocks, which is the only topic ERC is providing a professional opinion on and is documented in this report of findings and opinions. Other than my opinions described below regarding the City's "bad debt" allowance, ERC is not providing any opinion on the City's conclusions for steps 1 or 2 (Step 1 - "Revenue requirements analysis" and Step 2 - "Cost of service analysis") from above, the AWWA rate setting procedures from the M1 manual seventh edition.

*Note. Much of the information contained in this report regarding the American Water Works Association (AWWA) manuals and methodologies, such as "**the four generally accepted rate structure methods, and the Billing Tabulation Analysis"** are taken directly or paraphrased from the AWWA M1 manual seventh addition. The purpose of using this information is to provide "what the standard practices or "standard in the water utility industry" are as they relate to the water utility rate setting industry for establishing Tier Block Rates.*

V. AWWA BILLING TABULATION STANDARDS AND PROCEDURES

The process and approach for performing and developing a water utility system billing tabulation analysis should be performed by a trained and seasoned professional in the water resource rate setting profession. The water utility expert is very knowledgeable and familiar with the standard of care used in the water resource rate setting industry and adheres to such trade organizations as the AWWA (American Water Works Association) and their industry manuals. The professional also possesses extensive job experience providing consultation with many different and varying governmental entities and organizations who can perform an accurate billing tabulation analysis and evaluate the results convincingly and apply the results to its useful conclusion.

According to the AWWA M1 manual (seventh edition), the purpose and results of **performing the billing tabulation analysis** on water utility customers determines the **"number of customer bills rendered"** at various levels **of "water usage" during a specific time period for each customer class and meter size serviced by the water utility.** The tabulation of bills for a historical period such as an entire fiscal year provides the basis for identifying typical customer-class usage patterns, "**for choosing water-usage rate blocks**" and aids in the development of rates recognizing such patterns. Rate schedules that are intended to be applicable for an entire year or fiscal year generally need bill tabulation so that annual usage patterns are properly identified. This permits recognition of customer usage patterns and variations in use between seasons. Any rate structure that relies on or uses non water usage metrics such as individual customer characteristics, such as persons per household, average winter water use, and so forth, may require significant analytical efforts to calibrate the data and reconcile different rate structures with revenue requirements and **will not result in an accurate analysis** if implementing rate tiers blocks is the objective.

In 2016, the City convened a "Blue Ribbon Panel on Affordability," which advocated that the City implement an inclining block water rate structure. The Panel's report (p. 17, fn. 24) recognized that "rate blocks appropriate for residential use are unlikely to be appropriate for industrial accounts." The Panel recognized (p. 39) that one of the "requirements" for implementing an increasing block rate structure was to "develop and test bill frequency distribution reporting by customer class." Nonetheless, no billing tabulation analysis was performed prior to the implementation of the City's inclining block rate structure in August 2022.

Below is a brief background regarding preparing and analyzing the water utility billing data provided by the City of Detroit in order to allow the billing tabulation analysis to be performed accurately and reliable.

1. After four attempts of reviewing the data dump information provided by the City, the City of Detroit was able to provide enough billing related information that allowed the data manipulation process to be performed. To say it another way,

ERC had to organize and prepare the City-provided data so that the data could be used to perform the billing tabulation analysis.

2. Three Excel files were provided by the city of Detroit. These files contained the (FY) 2021, (FY) 2022 and (FY) 2023 billing data. Each Excel file contained three worksheets of billing data due to their very large size and large contents of data..
3. All three Excel worksheets were imported into Microsoft Access, changing some of the field types to Short Text (ACCOUNT_NUMBER, METER_SIZE and TAX_TYPE).
4. For each fiscal year, the worksheets were merged into one complete billing file.
5. ERC reviewed the complete City of Detroit provided file for missing data.
6. Updated the METER_SIZE field using the information provided in the rate code field.
7. Each of the three fiscal years, included over 400,000 records that did not contain the meter size for those records.
8. ERC had to populate those more than 400,000 records for the meter size in each of the three fiscal year datasets for missing meter size fields. The total of 1,200,000 records required the meter size to be populated before the ERC billing tabulation could be performed.
9. Copied all records with negative consumption into the removed file and deleted them from the complete file.
10. Copied all records with RATE1 > 43 (fire line) into the removed file and deleted them from the complete file.
11. In addition, to the meter size data omission, The City of Detroit did not provide the customer land use classification in any of the four data dumps.
12. ERC performed an analysis on the 3 fiscal years data and was required to populate and add a new field in all 2,000,000 records, to add the customer land use classification.
13. Therefore, added a description field for TAX_TYPE, calling it CLASS_CODE.
14. Updated all (over 2,000,000) records with a CLASS_CODE that corresponds to the TAX_TYPE field data.

TAX_TYPE	CLASS CODE
0	RESIDENTIAL
1	COMMERCIAL
2	INDUSTRIAL
3	MUNICIPAL
4	TAX EXEMPT

15. Performed multiple queries on the data including determining the number of bills, total consumption and meter size by CLASS_CODE in the following ranges:

BETWEEN 1 AND 300
BETWEEN 301 AND 600
BETWEEN 601 AND 900
BETWEEN 901 AND 1200
BETWEEN 1201 AND 1500
BETWEEN 1501 AND 1800
BETWEEN 1801 AND 2100
BETWEEN 2101 AND 2400
BETWEEN 2401 AND 2700
>= 2701

The remaining section of this report provides a description of how ERC performed the billing tabulation analysis once the data provided by the City of Detroit was managed enough to be used to perform the analysis. According to the AWWA M1 manual (seventh edition), the following are generally the steps used in performing and calculating the billing tabulation analysis of the water utility customer bills and meter sizes by class for the City of Detroit Fiscal years (FY) 2021, and (FY) 2022.

1. The analysis begins by creating a water utility billing system database query to reflect existing customer classes and meter sizes within each class if the purpose is to implement a rate structure that includes rate tier blocks which applies to this situation.
2. Each customer's usage should be tabulated for the 12-month period that follows the water utility fiscal year time period. ERC used City of Detroit Fiscal years (FY) 2021, and (FY) 2022.
3. The bill tabulation process is initiated by selecting the smallest meter size for a particular customer class.
4. Perform the tabulating and identify individual customer usage into a summary Excel spreadsheet for that meter size and for each customer class.
5. This procedure is continued for each meter size and customer bills in each customer class, are then they are all summarized.
6. The City of Detroit provided five customer types (TAX_TYPE) contained in the water utility billing system:
    a. Residential
    b. Commercial
    c. Industrial
    d. Municipal
    e. Tax Exempt
7. Bills issued to active customer accounts with "zero usage" during the appropriate billing period should be included as "zero-usage" bills in the analysis.

8. The City of Detroit Fiscal Year (FY) 2021 that begins July 1, 2020 through June 30, 2021, was used for the (FY) 2021 billing tabulation analysis.
9. The City of Detroit Fiscal Year (FY) 2022 that begins July 1, 2021 through June 30, 2022, was used for the (FY) 2022 billing tabulation analysis.
10. The City of Detroit Fiscal Year (FY) 2022 that begins July 1, 2022 through June 30, 2023, was used for the (FY) 2023 billing tabulation analysis.
11. ERC performed three separate billing tabulation analysis, one for each of the three fiscal years provided by the City of Detroit.
12. The left side of the tabulation Excel spreadsheet provides the various possible levels of customer usage for each billing period in terms of ranges of 300 cubic feet range increments. Every 300 cubic feet range was created by ERC.
13. Beginning with the first customer of the monthly billing cycle, a tick mark was made that corresponds to the usage billed in a given month. Each tick mark is equivalent to one bill for each water customer.
14. For the given billing periods (FY) 2021, (FY) 2022, and (FY) 2023 the usage for each customer is indicated to fall into each of the 300 cubic feet ranges. Therefore, a tick mark is made on the appropriate usage-block line marked with the corresponding 1 through 10 ranges (every 300 cubic feet range) created per the city of Detroit analysis. A tick mark is made for each monthly usage quantity on the appropriate line for all customers' monthly usage quantities. This procedure is repeated for each monthly billing period during the entire fiscal year period. Similarly, a separate tabulation Excel spreadsheet for all cycles by customer class was completed.
15. Once the bill tabulation is completed for each customer class, the number of tick marks or bills is totaled for each meter size by class, the number of ticks or bills is summarized at the bottom of the Excel spreadsheet.
16. Usage associated with the bills tabulated in each usage block is determined by multiplying the number of bills by the usage amount shown for each line in the spreadsheet in the column for each line.
17. After all bills and associated usage have been summarized for each customer class and meter size total customer-class usage and bills was determined by adding the bills and usage for a given customer class.
18. After the tabulation of the number of bills and usage for each customer class and meter size, the next step is to determine the cumulative billed water usage by various usage blocks or increments for each customer class.
19. The number of bills issued for water usage corresponding to the various consumption blocks, as shown below in 300 cubic feet ranges, were created and assigned a number as follows the 0 through 10 columns contained in the left column below.
20. The number of cumulative bills in any particular usage block represents the number of bills issued for the amount of water in that 300 cubic feet block range contained in Exhibit 1 below.

Exhibit 1

Water Usage Block Per Period, per 300 cubic ft range	Usage Block per 300 cubic ft
0	<=0
1	BETWEEN 1 AND 300
2	BETWEEN 301 AND 600
3	BETWEEN 601 AND 900
4	BETWEEN 901 AND 1200
5	BETWEEN 1201 AND 1500
6	BETWEEN 1501 AND 1800
7	BETWEEN 1801 AND 2100
8	BETWEEN 2101 AND 2400
9	BETWEEN 2401 AND 2700
10	>= 2701

VI. BILLING TABULATION ANALYSIS FOR THE CITY OF DETROIT

Based on my 42 years of experience in the field of water utility program rate setting, rate structure design and preforming and calculating water utility billing tabulation analysis utilizing the generally accepted rate setting guidelines, approaches and methodologies from American Water Works Association (AWWA), M1 manual (seventh edition), the following tables summarize the results of performing the water utility system billing tabulation analysis for the City of Detroit for fiscal years (FY) 2021, and (FY) 2022 billing database information provided to me by the City of Detroit.

The City of Detroit provided three fiscal years (FY 2021, FY 2022, FY 2023) of water utility billing database information that was used to perform the billing tabulation analysis. Table 1 below utilized the (FY) 2021 data to generate the number of "BILLS" segregated by the five water customer types (TAX_TYPE = residential, commercial, industrial, municipal and tax-exempt), and then also categorized by 10 water usage block ranges of every 300 cubic feet, and the eleventh range of greater than 2,701 cubic feet of water usage. The far-right column 7 in blue summarizes the number of bills for every 300 cubic feet range and greater than 2,701 usages by the customer types (TAX_TYPE = residential, commercial, industrial, municipal and tax-exempt).

Please note, ERC is relying on the City of Detroit water utility billing usage information to be accurate and further assume the data does not contain any errors or inherent problems that would impact the results of performing the billing tabulation analysis. ERC is not responsible for any errors or inherent issues that may or may not be included as part of the information provided by the City of Detroit. The procedures for creating Table 1 adheres to the American Water Works Association (AWWA), M1 manual (seventh edition) guidelines and procedures for performing the billing tabulation analysis.

The results of creating Table 1 are carried forward and used as a key piece of data in building Table 3 column 3 below.

TABLE 1						
NUMBER OF BILLS PROVIDED BY CITY OF DETROIT						
Usage Block Range Created By me per 300 cubic ft	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	MUNICIPAL	TAX-EXEMPT	See Column 3 in Table 3 below TOTAL
<=0	786,057	93,055	12,462	575	290	892,439
BETWEEN 1 AND 300	675,332	39,958	5,114	95	141	720,640
BETWEEN 301 AND 600	607,321	13,831	2,011	90	52	623,305
BETWEEN 601 AND 900	304,013	8,844	1,117	111	18	314,103
BETWEEN 901 AND 1200	129,855	5,993	786	89	38	136,761
BETWEEN 1201 AND 1500	59,923	4,415	554	84	29	65,005
BETWEEN 1501 AND 1800	31,435	3,944	443	295	17	36,134
BETWEEN 1801 AND 2100	17,804	3,125	345	50	11	21,335
BETWEEN 2101 AND 2400	11,231	2,596	274	27	10	14,138
BETWEEN 2401 AND 2700	7,285	2,389	218	20	10	9,922
>= 2701	29,781	36,982	3,902	370	353	71,388
TOTAL	2,660,037	215,132	27,226	1,806	969	2,905,170

Table 2 below utilized the City of Detroit (FY) 2021 data to generate the amount of "USAGE" segregated by the five water customer types (TAX_TYPE = residential, commercial, industrial, municipal and tax-exempt), and then also categorized by the 10 water usage block ranges of every 300 cubic feet, and the eleventh range of greater than 2,701 cubic feet of water usage. Table 2 far-right column 7 in light green is summarized and carried forward to build Table 3 column 5 below.

Table 2						
THE WATER CONSUMPTION (USAGE) PROVIDED BY CITY OF DETROIT						
Usage Block Range Created By me per 300 cubic ft	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	MUNICIPAL	TAXEXEMPT	See Column 5 in Table 3 below TOTAL
<=0	0	0	0	0	0	0
BETWEEN 1 AND 300	675,332	39,958	5,114	95	141	720,640
BETWEEN 301 AND 600	1,214,642	27,662	4,022	180	104	1,246,610
BETWEEN 601 AND 900	912,039	26,532	3,351	333	54	942,309
BETWEEN 901 AND 1200	519,420	23,972	3,144	356	152	547,044
BETWEEN 1201 AND 1500	299,615	22,075	2,770	420	145	325,025
BETWEEN 1501 AND 1800	188,610	23,664	2,658	1,770	102	216,804
BETWEEN 1801 AND 2100	124,628	21,875	2,415	350	77	149,345
BETWEEN 2101 AND 2400	89,848	20,768	2,192	216	80	113,104
BETWEEN 2401 AND 2700	65,565	21,501	1,962	180	90	89,298
>= 2701	297,810	369,820	39,020	3,700	3,530	713,880
TOTAL	4,387,509	597,827	66,648	7,600	4,475	5,064,059
					TOTAL CHECK	5,064,059

Table 3 below illustrates the result of performing the billing tabulation analysis for the City of Detroit FY (fiscal year) (FY) 2021 water utility billing database. The analysis summarizes the "Number of Bills" and "Usage" combined and segregated by the five water types (residential, commercial, industrial, municipal and tax-exempt). This information is then further categorized by the ten 300 cubic feet water usage blocks. AWWA recommends identifying and capturing at least the first 50% of water usage to be included when establishing the first Tier block in a rate structure design analysis. The result of performing the billing tabulation analysis identified the range from 1,201 cubic feet through and 1,800 cubic feet of water usage that captures the estimated 50% used to establish the Tier 1 rate block, (see the yellow highlighted rows in Table 3 below). The analysis was further narrowed to approximately the 50% breakpoint ERC estimated to be the 1,700 or 1.7 Mcf of water usage per month level that should be used to create the first Tier.

TABLE 3 - FY 2021								
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5	COLUMN 6	COLUMN 7	COLUMN 8	COLUMN 9
I Assigned a # For Each Range of Water Usage	I Created Range of Water Usage per 300 cubic feet	See Table 1 Far Right Column Totals # Bills from Billing Database	Column 3 Total Minus Column 3 Decreasing Running Total	Information Taken from Table 2 Totals in Far Right Column	Column 5 Plus Column 6 Increasing Running Total	Column 1 Times Column 4	Column 6 Plus Column 7	Column 8 Divided By Column 8 Total
Water Usage Block Per Period, per 300 cubic ft range	Usage Block per 300 cubic ft	Number of Bills Ending in this block range	Cumulative Bills Through this Block Range	Total Use of Bills Stopping in this Block Range	Cumulative Use of Bills Stopping in this Block Range	Total Use to This Block Range of All Bills Passing through this Block Range	Cumulative Billed Usage per Block Range	Cumulative Billed Usage Percentage
0	<=0	892,439	2,905,170	-	-	-	-	-
1	BETWEEN 1 AND 300	720,640	2,012,731	720,640	720,640	1,292,091	2,012,731	4.7%
2	BETWEEN 301 AND 600	623,305	1,292,091	1,246,610	1,967,250	1,337,572	3,304,822	12.5%
3	BETWEEN 601 AND 900	314,103	668,786	942,309	2,909,559	1,064,049	3,973,608	21.8%
4	BETWEEN 901 AND 1200	136,761	354,683	547,044	3,456,603	871,688	4,328,291	31.9%
5	BETWEEN 1201 AND 1500	65,005	217,922	325,025	3,781,628	764,585	4,546,213	42.6%
6	BETWEEN 1501 AND 1800	36,134	152,917	216,804	3,998,432	700,698	4,699,130	53.6%
7	BETWEEN 1801 AND 2100	21,335	116,783	149,345	4,147,777	668,136	4,815,913	64.9%
8	BETWEEN 2101 AND 2400	14,138	95,448	113,104	4,260,881	650,480	4,911,361	76.4%
9	BETWEEN 2401 AND 2700	9,922	81,310	89,298	4,350,179	642,492	4,992,671	88.1%
10	>= 2701	71,388	71,388	713,880	5,064,059		5,064,059	100.0%
	TOTAL	2,905,170	0	5,064,059			42,648,799	100.0%

The following describes the AWWA approved process to be used to perform the billing tabulation analysis and to generate the results in Table 3 above.

1. Column 1 information is an assigned number beginning with 0 and continues to number 10. The process creates 10 range blocks of 300 cubic feet. This is a process directly from the AWWA Manual M1 seventh edition and the number was assigned by ERC.
2. Column 2 represents a range of water usage by every 300 cubic feet. There are 10 created range blocks of every 300 cubic feet. This is a process directly from the AWWA Manual M1 seventh edition.
3. Column 3 information was developed as part of the results of Table 1 column 7 above. Table 1 (the number of bills) contains the 10 ranges of every 300 cubic of water and segregates by the 5 different types (residential, commercial, industrial, municipal, tax exempt) to create the amount of water within the 10 ranges.
4. Column 4 begins with the total sum amount at the bottom column 3 in the amount of 2,905,170. Then the 0-usage row amount 2,905,170 minus the 1-usage row in Column 3 in the amount of 720,640 results in 2,012,731 in row 1 Column 4 and so on.
5. Column 5 information provided from Table 2 above.
6. Column 6 row 1 plus column 5 row 2. For example, 720,640 + 1,246,610 = 1,967,250
7. Column 7 is row 1 column 1 multiplied by column 4 row 2. For example, 1,292,091 located in column 7 is the same as row 2 column 4, 1,292,091

8. Column 8 uses the blank row 1 in column 8 plus (adds) row 2 in column 7 and so on to the bottom of column 8. For example, cumulative billed usage of 2,012,731 + 1,337,572 = 3,304,822 in column 8.
9. Column 9 is the calculated percentage for the entire column 8. For example, the 4.7% is calculated by taking the row 1 cumulative billed usage of 2,012,731 / 42,648,799 (the total of column 8), and so on to calculate all the percentages from column 8.
10. Important Note about the water volume/usage contained in Table 3. The usage AND the number of bills is contained in the usage amounts. For example, the billed usage amounts include more than usage. The row 10 billed usage amount of 4,936,829 includes usage and bills and does not pertain to the total annual volume/usage. The total usage for fiscal year 2021, as determined by ERC is in the amount of 2,696,675 Mcf, of water usage only as compared to the 5,064,059 figure in column 8 that requires both water usage and the number of customer bills per the AWWA billing tabulation analysis also known as bill-frequency distribution analysis.

    Note: Calculating procedures used to build Table 3 is directly from the AWWA M1 manual edition seven beginning on page 390 and following the exact AWWA recommended procedures from the M1 manual for performing a billing tabulation analysis. The bottom line is this approach uses the number of bills and water usage calculated and combined together to provide water usage trends within the water utility system. The purpose of the billing tabulation is to determine a 50% usage range used to apply a Tier if deemed necessary for residential water customers only for addressing peak usage in the water utility system.

    I also performed the same analysis for the City of Detroit Billing Tabulation Analysis for FY 2022 water utility billing database information using the same AWWA recommended guidelines and procedures. Table 4 below also presents and confirms that both FY 2021 and FY 2022 billing tabulation analysis resulted in the same range of 1,201 cubic feet of water usage to and through 1,800 cubic feet of water to identify the 50% breakpoint that determines first Tier water usage.

TABLE 4 - FY 2022								
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5	COLUMN 6	COLUMN 7	COLUMN 8	COLUMN 9
I Assigned a # For Each Range of Water Usage	I Created Range of Water Usage per 300 cubic feet	The Far Right Column Totals # Bills from Billing Database	Column 3 Total Minus Column 3 Decreasing Running Total	Totals in Far Right Column	Column 5 Plus Column 6 Increasing Running Total	Column 1 Times Column 4	Column 6 Plus Column 7	Column 8 Divided By Column 8 Total
Water Usage Block Per Period, per 300 cubic ft range	Usage Block per 300 cubic ft	Number of Bills Ending in this block range	Cumulative Bills Through this Block Range	Total Use of Bills Stopping in this Block Range	Cumulative Use of Bills Stopping in this Block Range	Total Use to This Block Range of All Bills Passing through this Block Range	Cumulative Billed Usage per Block Range	Cumulative Billed Usage Percentage
0	<=0	846,329	2,882,940					
1	BETWEEN 1 AND	792,365	2,036,611	792,365	792,365	1,244,246	2,036,611	4.9%
2	BETWEEN 301 AND	624,716	1,244,246	1,249,432	2,041,797	1,239,060	3,280,857	12.8%
3	BETWEEN 601 AND	296,438	619,530	889,314	2,931,111	969,276	3,900,387	22.1%
4	BETWEEN 901 AND	121,206	323,092	484,824	3,415,935	807,544	4,223,479	32.2%
5	BETWEEN 1201	56,394	201,886	281,970	3,697,905	727,460	4,425,365	42.8%
6	BETWEEN 1501	31,503	145,492	189,018	3,886,923	683,934	4,570,857	53.8%
7	BETWEEN 1801	18,589	113,989	130,123	4,017,046	667,800	4,684,846	65.0%
8	BETWEEN 2101	12,565	95,400	100,520	4,117,566	662,680	4,780,246	76.5%
9	BETWEEN 2401	9,087	82,835	81,783	4,199,349	663,732	4,863,081	88.2%
10	>= 2701	73,748	73,748	737,480	4,936,829		4,936,829	100.0%
	TOTAL	2,882,940	0	4,936,829			41,702,558	100.0%

VII. AWWA RATE STRUCTURE RATE DESIGN METHODS

According to AWWA, there are four generally accepted water utility system rate structure methods available to water utility purveyors as follows:

1. Uniform (rate structure) rates

The uniform water system rate structure rate design and corresponding water rates are designed to charge all water customers the exact same rate. There is no distinction between residential, commercial and industrial. This rate structure is considered the most fair and equitable of the four available rate structures.

2. Decreasing (rate structure) block rates:

The decreasing (or declining) block is a rate structure designed approach where the unit price of water decreases as each additional block is added to the overall rate structure. In laymen terms, it's known in the industry by rate setting experts as "the more water used, the less you pay". This rate structure approach was used by most water purveyor utilities throughout the United States in the 1950's through the 1970's when water conservation was not an issue.

The best argument for implementing a decreasing (or declining) block is a rate structure design, is typically large volume users, as a class, have lower peak to average peaking factors (the relationship of peak use to average use) with correspondingly lower extra capacity requirements as compared to smaller volume users. This approach provides much more revenue stability as compared to the increasing (or ascending, including, inverted or tiered) block is a rate structure design. Residential and small commercial / business water users have greater peaking factors as compared to the large commercial and industrial users. Finally, the consumption patterns of each customer class MUST be reviewed and analyzed to determine the number of blocks and the size of the blocks.

3. Increasing (rate structure) block rates: and

The increasing (or ascending, inclining, inverted or tiered) block is a rate structure designed approach where the unit price of water increases as each additional block is added to the overall rate structure. In laymen terms, it's known in the industry by rate setting experts as "the more water purchased, the more you pay". This rate structure approach began in the 1970's and 1980's by some water purveyor utilities throughout the southern states, in the west and in desert states of the United States when water conservation became a huge issue.

The increasing (or ascending, inclining, inverted or tiered) block is a rate structure designed approach is used primarily in areas of water scarcity such as in the desert states such as California, Arizona New Mexico to name a few. The primary purpose of implementing this increasing (or ascending, including, inverted or tiered) block is a rate structure is to force water conservation on all customers, and a greater burden is forced on large volume water users. This approach clearly creates an unfair and unequitable subsidy of forcing the non-residential customer classes to subsidize the smaller residential customer class.

One very important fact related to this increasing (or ascending, including, inverted or tiered) block is a rate structure designed approach, **is increasing block rates are normally applied only to the residential customer class** because the residential class has relatively homogeneous demand patterns and similar peaking factor characteristics. Furthermore, the only way to develop this type of rate structure design is to perform a billing tabulation analysis. It does not appear the City of Detroit performed such an analysis.
Moreover, Andrew Burnham of Stantec, the rate consultant who developed the City's inclining block rate structure, has repeatedly recognized that an inclining block rate structure should not be implemented for non-residential customers. A few years ago, Burnham did a Cost-of-Service Study for the City of Ann Arbor, Michigan. In that study, Burnham recommended an inclining block rate structure just for the residential class, and a uniform rate structure for all other classes, including non-residential users. This is what he said to justify the distinct rate structures:

> "**As a class, it is well established and supported by data (as is the case here) that Residential customers use water differently than Non-Residential, Multifamily, and Water Only customers**. **However, for customers within a class, such as different types of Non-Residential customers, there needs to be a rationale, data and a system for developing a structure that is fair and based on the cost to serve**. **Within the Non-Residential class, there is a wide variety of business types with different levels of water usage requirements and metering configurations, such that charging a tiered volumetric rate for this customer class would not be fair.**
>
> For example, a small office in the City may use about 20 CCF throughout the year, and a restaurant with the same square footage may use 100 CCF throughout the year. If a second tier rate were set at 50 CCF, that would be unfair to the restaurant to charge them more for 50 CCFs, even though they are not contributing to the cost that is driving the Non-Residential peak to the system. **Because Non-Residential customers have no standard activity to determine a fair way to allocate the cost of service in the pricing structure, a flat rate is the most equitable in the absence of the data, system and resources to establish and maintain individualized customer-specific tiers.**" (emphasis added).

In another rate study Mr. Burnham prepared for the James City Service Authority, Mr. Burnham again confirmed the inequity of a block rate structure, expressly recommending and opining:

> Continue to apply a single water usage rate to all use for multi-family residential and non -residential customers based upon the portion of revenue required to be recovered in usage-based rates divided by total volume. A single usage rate is the best practice for this customer class given the significant difference in demand drivers from one customer to the next. For example, a car wash, restaurant and office are all contained in the non-residential customer class but have significantly different demand that they place on the utility system. **Using a tiered structure, such as what's applied to single family customers, would create large inequalities between customers who are efficient in meeting their demands but happen to require more water and have no ability to curtail usage.** [*See* Stantec Water and Sewer Rate Study – Final Report for James City Services Authority.]

4. Seasonal (rate structure) rates.

The seasonal rate structure is a designed approach to better match the water utility's matching of price to the cost recovery and peak-demands There are basically two seasonal method used, the high-demand / low demand approach that literally contains a

specific rate for each season, and the excess use approach, where the water user exceeds a specific threshold and is charged a premium for the exceeding the threshold.

The seasonal rate structure approach for water services in the United States just simply has not caught on and is not really been utilized by water utilities. The concept is this method would be used with high irrigation demand areas and/or in seasonal resort areas. I am aware of seasonal rates incorporated into one of the above three other rate structures, but I am not aware of any water utilities that use this method as a stand-alone method.

Accounting for all of the above four water utility rate structure methods, in order to create a rate block rate structure system, a billing tabulation analysis is required to be performed. Whether the water utility is beginning from starting or the community is considering modifying an existing rate structure method, the AWWA accepted approach to create rate blocks, a billing tabulation analysis is required that will result in a fair and equitable rate structure method.

VIII. CITY OF DETROIT PROPER RATE STRUCTURE DESIGNS

During my 42 years of potable water, sanitary sewer and stormwater utility experience, I have gained considerable knowledge and can render an expert opinion, regarding a trained professional practicing in the field of water utility rate setting standards and analysis, performing a water utility billing tabulation analysis regarding the standard of care and skill ordinarily used by water resource (water, sanitary sewer and stormwater management) utility professionals practicing under similar conditions, at the same time, for the City of Detroit, Michigan.

In this section of my report, I will illustrate and compare the City of Detroit water rate consultant Stantec method and approach to my AWWA based and applied water utility rates and rate structure design method and approach. My comparison will include the information that appears in the Stantec report on page 112 dated September 19, 2022.

1. Page 112 of the Stantec report illustrates and represents a two-tier rate design with one volume/usage rate for tier 1 in the amount of $25.04 and a second volume/usage rate for tier 2 in the amount of $44.92.

2. Page 112 of the Stantec report revenue requirements expenses in the amount of $98,115,778 represents the costs that are to be funded by the variable volume/usage Tier 1 and Tier 2 rates reference in item 1 above. *Noting there is a fixed rate based on the size of the water meter servicing the property is outside the scope of my effort,* ***I will only provide an opinion on the water variable volume/usage portion of the water utility rate.***

3. It appears Stantec did NOT independently perform an actual analysis to determine either the Tier 1 water volume/usage rate and the Tier 2 water volume/usage rate. The tier 1 or base tier threshold was assigned a value of 6 Mcf or 0.6 thousand cubic feet per month, which was taken directly from a technical textbook as

footnoted on Stantec report page 9. The footnote reads: Assumes four people per household and 36.7 gallons per capita per day based on "Residential End Uses of Water, version 2" (technical book) written by the organization called The Water Research Foundation, 2016.

4. The volume/usage figures used by Stantec as follows, Tier 1 volume = 854,602 Mcf. Tier 2 volume 1,733,183 for a total of 2,558,080 Mcf. Note, the volume Tier 1 and Tier 2 do not add up to the total volume/usage amount used by Stantec see below. For example, 854,602 Mcf plus 1,733,183 = 2,587,785 Mcf.

5. The Stantec reports on Tier 1 and Tier 2 volume rates included on page 112 of the Stantec report:

   The Tier 1 rate = $25.04
   The Tier 2 rate = $44.92

Volume/Usage calculations	854,602 Mcf / 2,587,785 Mcf = **33.02%**
	1,733,183 Mcf / 2,587,785 Mcf = **66.98%**
Rate revenue calculations	854,602 * $25.04 = $21,399,234 = **21.56%**
	1,733,183 * $44.92 = $77,854,580 = **78.44%**
	Total Annual Costs = $99,253,814

6. Stantec incorrectly determined that the Tier 1 rates would generate over $30 million in revenues, but, as shown above, this is a mathematical error, because the Tier 1 rates – at the usage level assumed by Stantec (854,602 MCF) would only generate $21,399,234 in revenues.

7. Apart from the error described above, I do not agree with the Stantec Tiered approach. The rate allocation basis from above is 21.56% for Tier 1 and 78.44% for Tier 2 based on total annual costs. As compared to the calculation the Stantec based on Volume/usage analysis allocation of 33.02% for Tier 1 and 66.98% for Tier 2 (based on Volume/usage).

8. This above volume/usage allocation of 33.02% for Tier 1 and 66.89% for Tier 2 appears to be used to determine the split for the Tier 1 and Tier 2 allocation (1/3 to 2/3). However, the rate revenue allocation used in the Stantec report is 21.56% for Tier 1 and 78.44% for Tier 2 allocation. This allocation to determine the Tiers should be the results of performing the billing tabulation analysis that was clearly not performed by Stantec. There appears to be no relationship between the annual costs or volume/usage as it relates to the Tiers created by Stantec.

9. Stantec states that its Rate Study was guided by the M1 Manual. *See* Burnham Aff. at ¶ 5. However, Stantec's method of determining the Block Rates departs from the M1 Manual in several critical ways, including the following:

10. Stantec's Block Rates apply to all of the City's water customers, even though the M1 Manual warns that "system-wide application of a single increasing block rate structure is likely to result in cost-of-service inequities, especially to commercial and industrial customers with relatively uniform consumption patterns (low peak demands but high total usage)." M1 Manual at p. 124.

11. The City does not have a "highly homogeneous customer base" that would justify a Block Rate structure applied across-the-board to all customers. *Id.*

12. Inclining block rates "require information on water sales by block of consumption," but Stantec did not use such information to determine the tier cut-offs. Instead, Stantec determined Tier One volumes by reference to "estimated indoor residential water use" disclosed by a study done by the Water Research Foundation, which it purported to cross-check against "DWSD FY 2021 monthly billed volume distributions." Stantec Study at p. 9. And Stantec completely ignored usage information for commercial and industrial customers, even though that data is readily available for each class of customers.

13. Further, Stantec states that the purpose of Tier Two is to "shift[] peak costs to the customers who contribute to increasing peak demands." Stantec Study at p. 10. But Stantec concedes that a tier structure applied to all customers cannot accomplish that goal. *See* Exhibit B to the Complaint (recognizing that it is unfair to charge higher rates to large volume commercial users who do not cause "peaking" and "there is a wide variety of business types with different levels of water usage requirements and metering configurations, such that charging a tiered volumetric rate for this customer class would not be fair.") In other words, large volume users do not necessarily cause system "peaks," yet they are forced to pay for virtually all of the City's "peaking costs." Thus, the entire Block Rate structure concocted by Stantec is based upon a completely flawed assumption—and Stantec knows its assumption is flawed as it has admitted this in other rate studies.

IX. RATE STRUCTURE DESIGN OPINIONS

This section of my report includes calculating the rates based on the results of performing the billing tabulation analysis. The recalculated Tier 1 and Tier 2 rates and rate structure and the recalculating flat rate no Tier. The following assumptions for the recalculation of the two Tiers:

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1. First and foremost, I do not agree that a Tier rate structure design method is an appropriate approach to use for the City of Detroit. It is contrary to all AWWA rate setting and rate structure design proven procedures and guidelines from the AWWA M1 (seventh edition) manual. Furthermore, and according to the AWWA manual, Tiers should only be created to account for residential peaking factors within the rate structure design. It is generally understood that the residential class is the customer class that primarily drives the water peaking. It is my opinion that the City of Detroit implemented the Tier based on all customer

classes and shifted the bulk of the usage to the Tier 2 **completely opposite of what is recommended by AWWA.**

2. The following ERC assumptions are used to calculate the Tiers and rates based on the results of the billing tabulation analysis:

    a. Total Average day costs in the amount of $60,438,125 from the Stantec Report to be allocated on a 50% to 50% basis, with $30,219,063 allocated to Tier 1 and $30,219,063 allocated to Tier 2. AWWA recommended annual cost 50% 50% allocation basis.
    b. Peaking costs in the amount of $37,677,653 to be allocated on a 50% to 50% allocation. Therefore, $18,838,827 allocated to Tier 1 and $18,838,827 allocated to Tier 2. AWWA recommended 50% 50% Peaking allocation basis.
    c. Total Revenue Requirements from the Stantec Report to be allocated on a 50% to 50% allocation (item a costs plus item b costs from above) = $98,115,778. Therefore, $30,219,063 + $18,838,827 = $49,057,889 allocated to Tier 1 and $30,219,063 + $18,838,827 = $49,057,889 allocated to Tier 2.
    d. Our billing tabulation analysis determined that approximately 1,700 cubic feet or 1.7 Mcf of water volume/usage as the 50% break point to be used to generate the first-Tier rate block.
    e. For comparison, the Stantec 0.6 Mcf or 854,602 Volume/Usage compared to the ERC calculated 1.7 Mcf.
    f. ERC calculated the total water utility annual volume/usage taken directly from the fiscal year 2021 City of Detroit provided water utility billing database in the amount of 2,696,475 MCF (981,413 + 1,715,262).
    g. The Stantec Usage = 2,558,080 MCF versus ERC Usage = 2,696,080.
    h. 1.7 Mcf = 981,413 MCF of water usage allocated to Tier 1
    i. The remaining water usage allocated to Tier 2 = 1,715,262.
    j. 981,413 usage / $49,057,889 costs = $49.99 Mcf Tier 1 rate
    k. 1,715,262 usage / $49,057,889 costs = $28.60 Mcf Tier 2 rate

3. The ERC calculated Tier 1 rate should be $49.99 per Mcf

4. The ERC calculated Tier 2 rate should be $28.60 per Mcf

5. Having presented this analysis, I do not agree that a Tier rate structure design is appropriate. It goes against all AWWA rate setting and rate structure design proven procedures and guidelines contained in the AWWA M1 (seventh edition) manual, but the analysis and opinions in this section demonstrate what the tiered rates should be, if a tiered structure for all customer classes were employed on a "cost of service" basis.

6. The following Table 5 illustrates the ERC Tier rate calculations:

Table 5
Restated Rates Based On Calculated Usage
Peaking Allocation at 50% 50%

FY 2021 Usage	2,696,475		
Tier 1		Tier 2	
Average Day Cost	$30,219,063	Average Day Cost	$30,219,063
Peaking Costs	$18,838,827	Peaking	$18,838,827
	$49,057,889		$49,057,889
Calculated 1.7 Tier Usage	981,413	Remaining Usage	1,715,262
Initial Rate	$49.99	Initial Rate	$28.60
$98,115,778	$49,057,889		$49,057,889

ERC calculated a no Tier flat rate volume/usage rate based on the following assumptions. I do not agree that a Tier rate structure design is appropriate. The AWWA rate setting and rate structure design proven procedures and guidelines contained in the AWWA M1 (seventh edition) manual recognizes the inverted rate design is not fair and is not equitable but does encourage water conservation.

1. A single flat rate with no Tier where all water utility rate payers pay the same rate per MCF should have been used by the City of Detroit during FY 2022.

2. Average day costs = $60,438,125

3. Peaking costs = $37,677,653

4. Using the same revenue requirements of $98,115,778 ($60,438,125 + $37,667,653)

5. The total water utility annual volume/usage taken directly from the usage database provided by the City of Detroit in the amount of 2,696,475

6. The ERC calculated flat no Tier rate would be $36.38 per Mcf for all water utility rate customers.

7. The following Table 6 illustrates the ERC uniform rate calculations

Table 6 Single Flat Rate No Tier	
FY 2021 Usage	2,696,475
Average Day Cost	$60,438,125
Peaking Costs	$37,677,653
	$98,115,778
Calculated Usage	2,696,675
Rate	$36.38
$98,115,778	

X. RATE & RATE STRUCTURE DESIGN "EXCLUDING BAD DEBT"

As rate setting professionals, ERC does not agree with the City of Detroit inflating the revenue requirements by including the "bad debt expense" in the volume/usage rate calculation. The bad debt inclusion practice does not adhere to good rate setting policies and procedures, especially those recognized by the AWWA. For example, for FY 2023, the City included $10,120,810 of Bad Debt Expense in the volumetric Water Rates, purportedly to cover water charges that they expect will go unpaid by certain water customers. (See Stantec Rate Study page 104). This represents over 10% of the total Revenue Requirement the City intended to cover through its volumetric water rates. To state another way, by including the bad debt expense, the rates are set to generate from paying water customers millions in additional revenues from those customers that the City then uses to cover the costs associated with non-paying water customers. This results in a direct Rate subsidy flowing from paying customers to non-paying customers. In its report, the Blue Ribbon Commission recognized that bad debt expense is a "cost[] borne by paying customers." I am basing my opinions in this section in part on the May 27, 2025 memorandum concerning bad debt expense provided by Plaintiff's counsel.

This section of my report includes the two ERC recalculations of the volume/usage rates based on the billing tabulation analysis and **excluding the bad debt expense** from the annual revenue requirements expenditures. The following assumptions for the recalculation of the two Tiers rate structure design method excluding the bad debt expense.

1. ERC calculated a two-Tiered rate structure design and excluded the bad debt expense from the revenue requirements, the following are the assumptions:

    a. Total Average day costs in the amount of $60,438,125 from the Stantec Report to be allocated on a 50% to 50% basis, with $30,219,063 allocated

to Tier 1 and $30,219,063 allocated to Teir 2. AWWA recommended annual cost 50% 50% allocation basis.

b. Peaking costs in the amount of $37,677,653 to be allocated on a 50% to 50% allocation. Therefore, $18,838,827 allocated to Tier 1 and $18,838,827 allocated to Tier 2. AWWA recommended annual cost Peaking 50% 50% allocation basis.

a. Total Revenue Requirements in the amount of $98,115,778, excluding the $10,120,810 bad debt expense = $87,994,968

b. Total Revenue Requirements excluding bad debt expense = $87,994,968 allocated on a 50% to 50% allocation $87,994, 968. Therefore, $30,219,063 + $18,838,827 - $5,060,405. = $43,997,484 allocated to Tier 1 and $30,219,063 + $18,838,827 - $5,060,405. = $43,997,484 allocated to Tier 2.

c. The ERC billing tabulation analysis determined that approximately 1,700 cubic feet or 1.7 Mcf of water volume/usage as the 50% break point to be used to generate the first-Tier rate block.

d. For comparison, the Stantec 0.6 Mcf or 854,602 Volume/Usage compared to my calculated 1.7 Mcf.

e. I calculated the total water utility annual volume/usage taken directly from the fiscal year 2021 City of Detroit provided water utility billing database in the amount of 2,696,475 (981,413 + 1,715,262).

f. 1.7 Mcf = 981,413 of water usage allocated to Tier 1

g. The remaining water usage allocated to Tier 2 in the amount of 1,715,262.

h. 981,413 usage / $43,997,484 costs = $44.83 Mcf Tier 1 rate

i. 1,715,262 usage / $43,997,484 costs = $25.65 Mcf Tier 2 rate

2. The ERC calculated Tier 1 rate should be $44.83 per Mcf

3. The ERC calculated Tier 2 rate should be $25.65 per Mcf

4. I do not agree that a Tier rate structure design is appropriate. It goes against all AWWA rate setting and rate structure design proven procedures and guidelines contained in the AWWA M1 (seventh edition) manual.

5. The following Table 7 illustrates the ERC Tier rate calculations excluding the bad debt expense:

Table 7
Tier Rate Structure Excluding Bad Debt Expense
Peaking at 50% 50% Allocation

FY 2021 Usage	2,696,475			
Tier 1			Tier 2	
Average Day Cost	$30,219,063		Average Day Cost	$30,219,063
Peaking Costs	$18,838,827		Peaking	$18,838,827
Excluding Bad Debt Expense	($5,060,405)	**Excluding Bad Debt Expense**		($5,060,405)
Total Costs	$43,997,484		Total Costs	$43,997,484
Calculated 1.7 Tier Usage	981,413		Remaining Usage	1,715,262
Initial Rate	$44.83		Initial Rate	$25.65
$98,115,778				
($10,120,810)				
$87,994,968	$43,997,484			$43,997,484

I calculated a no Tier flat rate volume/usage rate based on the following assumptions. The AWWA M1 (seventh edition) manual recognizes the inverted rate design is not fair and is not equitable but does encourage water conservation.

1. Average day costs = $60,438,125

2. Peaking costs = $37,677,653

3. Revenue requirements excluding bad debt = $98,115,778 -$10,120,810 = $87,994,968

4. Using the same revenue requirements of $87,994,968 ($60,438,125 + $37,667,653 – $10,120,810)

5. The total water utility annual volume/usage taken directly from the usage database provided by the City of Detroit in the amount of 2,696,475

6. Results in my calculated flat no Tier rate would be $32.63 per Mcf for all water utility rate customers.

7. The following Table 8 illustrates the ERC uniform rate calculations excluding the bad debt expense

Table 8 No Tier Flat Rate Structure Excluding Bad Debt Expense	
FY 2021 Usage	2,696,475
Average Day Cost	$60,438,125
Peaking Costs	$37,677,653
Excluding Bad Debt Expense	- $10,120,810
Total Costs	$87,994,968
Calculated 1.7 Tier Usage	2,696,475
Initial Rate	$32.63
$98,115,778	
($10,120,810)	
$87,994,968	

XI. TIERED RATE VERSUS UNIFORM FLAT RATE COMPARISON

I have calculated the volumes of water usage at which the City's tiered structure begins to overcharge water customers vis-à-vis uniform volume rates. I have performed this calculation using the full Stantec Revenue Requirement for volumetric rates and using the full Stantec Revenue Requirement minus the bad debt expense. This allows the identification of the "Significant Users" who are overcharged by the City's including block rate structure.

A. City's Tiered Rates vs. Uniform Rate Using Stantec Revenue Requirement For Volumetric Rates.

The below illustrates the breakpoint amount of water usage at 1.4 Mcf, where the Two-Tiered rate structure and uniform flat rate structure cost of water is approximately the same using the Stantec volumetric revenue requirement. The usage at 1.5 Mcf, the two-tier rate structure design begins to cost more per Mcf of water usage.

The uniform Rate Structure Design
Charges for 1.4 MCF using the uniform rate approach of $36.38 per MCF = $50.932
Total Charges = $50.932

Two Tiered Rate Structure Design
Charges for 1.4 MCF using tiered rate approach
Tier One – ($25.04 x 0.6) + ($44.92 x 0.4) = $15.024 + $17.968 = $32.992
Tier Two -- $44.92 x 0.4 = $17.968
Total Charges = $50.96

B. The City's Tiered Rates vs. Uniform Rate Excluding Bad Debt Expense.

The below illustrates the breakpoint amount of water usage at 1.0 Mcf, where the Two-Tiered rate structure and uniform flat rate structure cost of water is approximately the same using the Stantec volumetric revenue requirement **minus the $10+ million in bad debt expense.** At usage above 1.0 Mcf, the two-tier rate structure design begins to cost more per Mcf of water usage.

The uniform Rate Structure Design
Charges for 1.0 MCF using the uniform rate approach of $32.63 per MCF = $32.63
Total Charges = $32.63

Two Tiered Rate Structure Design
Charges for 1.0 MCF using tiered rate approach
Tier One – ($25.04 x 0.6) + ($44.92 x 0.4) = $15.024 + $17.968 = $32.992

Total Charges = $32.99

XII. SUMMARY OF FINDINGS AND CONCLUSIONS

Based upon performing a "billing tabulation analysis" of the City of Detroit's fiscal years (FY) 2021 and (FY) 2022 water utility billing system and database components and other data and information identified in this Report, I am prepared to present the following expert opinions with a reasonable degree of professional certainty, with respect to the water system rate structure design the City utilized beginning in August 2022 and continuing through the present day.

A. Prior to August 1, 2022, (fiscal Year (FY) 2023) the City of Detroit volume/usage water rates contained one single uniform water rate for all water rate customers without customer classification distinction. A properly-designed uniform water rate structure is the most fair and equitable rate structure method of the four methods recognized by the AWWA (American Water Works Association).

B. Effective August 1, 2022 (for FY 2023), the City of Detroit water utility improperly restructured the uniform volume/usage rate structure to a two-tiered volume/usage rate structure. AWWA recommends using a billing tabulation analysis that will correctly determine:

- An accurate multi-Tier rate structure design system,
- the number of Tier blocks to be used,
- the size of the Tier blocks to be used, and
- which customer class the Tiered rate blocks would be applied to.

C. During the time period from August 1, 2022 through the present, the City of Detroit implemented a Tiered (or ascending, inclining, inverted) rate structure design that shifted the cost recovery from all water rate customers equally to the non-residential water rate customer class. The shift resulted in Significant Users (i.e., water customers who use at least 1.0 MCF (approximately 7480 gallons) per month), the majority of which are in the non-residential class, subsidizing the residential class and paying substantially more than the residential customer classification in an unfair unequitable manner. The Tiered rate structure design method was used in the 1970's and 1980's by some water utilities located in the western and southwestern desert states when water conservation was a big concern. This approach by design, involuntarily forced large companies and larger water users to pay substantially higher prices for the more water they use with the premise the users would use less water when faced with exorbitant water rates.

D. Information I have reviewed shows that the City's intent in implementing the tiered rate structure was to lower the water costs for the residential class. As early as 2016, the City's Blue Ribbon Panel on Affordability advocated establishing an inclining block rate structure to improve "affordability for low-income customers." February 3, 2016 Panel Report at p. 17, n. 23. This approach to "affordability" was advocated as an alternative to income-based rates, which were subject to legal challenges. Indeed, the Panel report states that "a move to an increasing block rate, designed with affordability as one of its explicit objectives, is a reasonable and appropriate 'compromise' between those who argue for an explicit income-based affordability program and those who argue that any such explicit income-based affordability program is contrary to law." Panel Report at

p. 22. In a June 23, 2022 letter to a citizen advocacy group, Gary Brown, the Director of the Detroit Water and Sewerage Department, stated:

> Regarding Usage Rates: The rate study Stantec performed for DWSD determined that usage over 6 CCF (4,500 Gallons) per month is the threshold where we can show an increased burden on the system. Note that 80% of our residential customers use 6 CCF or less. Customers who use more than 6 CCF most likely have plumbing issues and Wayne Metro has $10 million a year for the next 5 years to address plumbing issues. We will continue to work with residential customers who have excessive usage to help them bring their usage below the threshold.

E. Effective August 1, 2022, the City of Detroit implemented a base Tier 1 rate structure design using the threshold 0.6-thousand-cubic feet (Mcf) (according to Stantec = 4,040 gallons (or 600 cubic feet) of water) per month. This base Tier 1 (6 Mcf) break point was not a calculation based upon the City's actual water usage data as it was taken from a technical textbook named *"Residential End Uses of Water, Version 2"*, from *"The Water Research Foundation, 2016*", as footnoted in the Stantec report.

F. ERC performed a "billing tabulation analysis" using the City of Detroit water utility billing data for FY 2021 and FY 2022. AWWA recommends identifying and capturing at least the first 50% of water usage to be included when establishing the first Tier block in a rate structure design. The result of performing the billing tabulation analysis identified the range from 1,201 cubic feet and 1,800 cubic feet of water usage to establish the Tier 1 rate block. The analysis was further narrowed to approximately 1,700 or 1.7 Mcf of water usage per month that represents a more precise 50% break point estimate for establishing the first Tier. The billing tabulation analysis details are summarized in Table 1, Table 2 and Table 3 at the end of this report.

G. The City of Detroit and Stantec identified the 0.6 Mcf (or 600 cubic feet) from a textbook to establish the first Tier and 854,602 Mcf as the water usage as the basis for calculating the first-Tier rate as presented on page 112 of the Stantec report. Conversely, ERC determined the Stantec first Tier breakpoint to be at a much lower water usage at 439,406 Mcf. As a result of the billing tabulation analysis and the City's water usage database, ERC calculated the 50% breakpoint to be 1.7 Mcf equaling 981,413 Mcf of total water usage to be used as the basis for the first-Tier rate calculation.

H. According to AWWA and water rate setting professionals, rate tiers or rate blocks should only be created for the "residential" water customer class, and those tiers and blocks should be created using a billing tabulation analysis. This is due to residential customers typically being the cause for high-water peak usage. Typically, large amounts of water usage occur from 6am to 10am each weekday

caused by the residential class. The billing tabulation analysis performed by ERC confirmed that the non-residential customer class, although generally uses more water per user overall, normally does not cause the high-water usage peaking. Therefore, the residential customer class should be as responsible as the nonresidential class for paying for the increased costs to the system. This is accomplished through the peaking cost allocations in the rate structure design, allocating these costs appropriately to the residential customer class and rate structure Tier that contains a majority of the residential water customers.

I. The results of the ERC billing tabulation analysis demonstrate a more accurate two-tier rate structure design establishing the Tier 1 block at the 1.7 Mcf as compared to the Textbook selected 0.6 Mcf Tier 1 in the Stantec report. Therefore. If a multi-tier rate structure method were to be implemented by ERC, the Tier 1 rate would be in the amount of $49.99 per Mcf and the Tier 2 rate in the amount of $28.60 per Mcf. A tiered rate structure would not be appropriate.

J. The single uniform rate is the rate structure most widely used and, when properly designed, is considered the most fair and equitable rate structure by AWWA and rate setting professionals. Based on my complete billing tabulation analysis, I would recommend a uniform no tier rate structure design rate in the amount of no more than $36.38 per Mcf (as of FY 2023) for all water customers. The $36.38 figure assumes the Revenue Requirement for volumetric rates that Stantec used in its 2022 report was appropriate. The City did not perform cost of service studies for FY 2024 or 2025, but merely increased the water rates by fixed percentages (approximately 3.5%) in each of those years.

K. If ERC were to implement a multi-tier rate structure method and exclude the "bad debt expense" from the rate calculation, the Tier 1 rate would be in the amount of $44.83 per Mcf and the Tier 2 rate of $25.65 per Mcf. The bad debt expense should not be included in the water utility annual costs of providing water services.

L. Based on my complete billing tabulation analyses and excluding the bad debt expense from the rate calculation, ERC would recommend a uniform no tier rate structure design in the amount of $32.63 per Mcf (as of FY 2023) for all water customers, using the Stantec volumetric Revenue Requirement but excluding the $10+ million of "bad debt expense." The bad debt expense should not be included in the water utility annual costs of providing water services.

M. I understand that Plaintiff alleges that, as applied to Significant Users, the City's block water rates (1) are unreasonable under the common law because they generate revenue far in excess of the City's actual cost of providing water service to the Significant Users (the "Unreasonable Rate Claims"); and (2) violate § 7-1202 of the Detroit City Charter, which requires all water rates to be "equitable". (the Charter Violation Claims")

N. I understand from Plaintiff's counsel and therefore have assumed that as to the Unreasonable Rate Claims, a party challenging the Rates must establish that the subject Rates, "viewed as a whole", have been unreasonable in that they have been "excessive." *Youmans v. Charter Township pf Bloomfield.*

O. During the period from August 1, 2022 through the present day, the City's Rates, viewed as a whole, have been excessive as applied to Significant Users. In addition, the Rates, as applied to Significant Users, have not been equitable. My opinion is not just that the City's methodology is improper, but that the methodology results in material overcharges to Significant Users. Once the proper Rates are determined the overcharge to each Significant User is a simple mathematical calculation. The overcharges are calculated by taking the product of a customer's usage during a given time period multiplied by the Rates actually imposed by the City minus the product of the customer's usage during a given time period multiplied by the proper Rates.

P. In my opinion, even without a comprehensive rate study, the evidence demonstrates that, as applied to Significant Users, the disputed rates excessively compensated the City for the related water services.

Q. My determination of the reasonableness of the City's Rates is not "freestanding". It is instead based upon, among other things, well-established industry standards, and the City's Charter Section 7-1202.

I reserve the right to supplement the foregoing opinions based upon any additional evidence or documents that may be discovered or provided to me after the date of this report.

AJAX METAL PROCESSING, INC. v. CITY OF DETROIT
STATE OF MICHIGAN
WAYNE COUNTY CIRCUIT COURT
Case Number: 23-015314-CZ

REPORT OF FINDINGS AND OPINIONS
June 2, 2025

ATTACHMENT 1

Documents Reviewed

1. AWWA M-1 Manual (Seventh Edition)
2. Plaintiff's Class Action Complaint (with exhibits) – date of November 10, 2023
3. Data dump from City 2025.04.04 DWSDAJ PROD VOL 001
4. Data dump VOL00001, IMAGES, NATIVES, TEXT
5. Detroit data dump file name [Redacted] 07012021 to 06302022 [Redacted]
6. Detroit data dump file name [Redacted] 07012022 to 06302023 [Redacted]
7. Detroit data dump file name Codes
8. Stantec - Detroit Water and Sewerage Department Rate Study Final Report September 19, 2022
9. Rate Sheets from City of Detroit website (FY) 2021, (FY) 2022 and (FY) 2023 billing database information
10. "Residential End Uses of Water, Version 2", from "The Water Research Foundation, 2016".
11. Units of Service for Non-Master Metered Customers of Great Lakes Water Authority and System Water Audit – Phase 1 Report and Recommendation December 8, 2017
12. Units of Service for Non-Master Metered Customers of Great Lakes Water Authority and System Water Audit – Phase Two Report March 29, 2019
13. Final Report of City of Detroit Blue Ribbon Panel on Affordability dated February 3, 2016.

14. Stantec cost of service study for City of Ann Arbor, Michigan

15. Stantec 2025 cost of service study for James City Services Authority.

16. May 27, 2025 memorandum from Plaintiff's counsel (with exhibits).

17. City water rate schedules for FY 2024 and FY 2025.

18. June 23, 2022 letter from Gary Brown to Monica Lewis-Patrick

19. June 22, 2022 letter from Monica Lewis-Patrick to Gary Brown

20. Stantec June 10, 2022 Executive Summary

21. Stantec Revenue Requirements and Cost of Service Study Update, March 2, 2022

22. Presentation to BOWC Finance Committee Proposed FY 2023 Operating Budget March 2, 2022.

AJAX METAL PROCESSING, INC. v. CITY OF DETROIT
STATE OF MICHIGAN
WAYNE COUNTY CIRCUIT COURT
Case Number: 23-015314-CZ

REPORT OF FINDINGS AND OPINIONS
June 2, 2025

ATTACHMENT 2

John F. Damico

Qualifications for Expert Testimony

John F. Damico
President
Environmental Rate Consultants, Inc. (ERC)

QUALIFICATIONS FOR EXPERT TESTIMONY

Mr. Damico is the President of Environmental Rate Consultants, Inc. (ERC), with over 42 years of water resource (water, sewer, stormwater), financial and rate setting, public relations experience and many expert witness testimony projects and assisting over 8 communities in the Commonwealth of Kentucky and over 20 Ohio municipalities with specific water resource needs and over 60 municipal and regional storm water utility programs rate studies and over 200 level of service / cost of service analyses all across the country including establishing and defending a stormwater utility program in a court of law in 2010. Additionally, Mr. Damico has experience in facilitating and consensus building for large and small groups, implementing water resource public involvement campaigns, financing options analysis, strategic planning development, rate structure design and analysis, cost of service analysis, cash flow analysis, organizational analysis, storm water utility billing system design and implementation, and GIS program cost/benefit analysis and implementations. Mr. Damico created the legally defensible multi-phased approach and process for establishing stormwater utility programs that have been challenged and upheld in a court of law in the State of Ohio in May of 2010 defending the City of Lancaster Ohio stormwater utility program that was deemed to be legally defensible.

EDUCATION:

Bachelor of Business Administration **(BBA)** University of Cincinnati, Finance and Marketing, 1981

Masters of Business Administration **(MBA)** Xavier University, Cincinnati, Ohio 1983

Water/Wastewater / Storm Water Utility Program Expert Witness Testimony:

City of Highland Park, Michigan - 2025 - This is a current project that consisted of providing expert witness consultation services and testimony regarding stormwater management rate structure and cost allocation issues. in the water and sewer industry for the legal firm kickham hanley, PLLC.

City of Novi, Michigan - 2021 - This is a past project that consisted of providing expert witness consultation services and testimony regarding financial calculation for the City water and sewer utility Enterprise Fund Reserve Calculations, Debt Reserve Calculations, General Fund Reserve and other Reserve calculations that meet the standards in the water and sewer industry for the legal firm kickham hanley, PLLC.

State Land Bank Authority, State of Michigan - 2020. This is a past project that consisted of providing expert witness consultation services and testimony. Retained by Mr. Erik A. Graney, Assistant Attorney General, Michigan Department of Attorney General - which the City of Highland Park used as the basis for the stormwater utility program fee/rate is fatally flawed, out of date and lacks the quality of accuracy and does not meet the minimum standard for establishing a municipal stormwater rate and rate structure methods used by stormwater

professionals that possess the knowledge of current generally accepted stormwater policies, practices, and procedures used in the stormwater utility industry..

Wayne County Michigan Land Bank Authority, State of Michigan – 2020. This is a past project that consisted of providing expert witness consultation services and testimony. Retained by Mr. Erik A. Graney, Assistant Attorney General, Michigan Department of Attorney General - which the City of Highland Park used as the basis for the stormwater utility program fee/rate is fatally flawed, out of date and lacks the quality of accuracy and does not meet the minimum standard for establishing a municipal stormwater rate and rate structure methods used by stormwater professionals that possess the knowledge of current generally accepted stormwater policies, practices, and procedures used in the stormwater utility industry.

Shelby Township, Michigan - 2019 - This is a past project that consisted of providing expert witness consultation services and testimony. Retained by the legal firm kickham hanley, PLLC on behalf of Judith Staelgraeve to provide expert consultation regarding Township's Water and Sewer Rates were not reasonably proportionate to the direct and indirect costs of providing water and sewer services to the Township's utility rate payer customers. Township's Water and Sewer Rates were unreasonable because they derived revenues that far exceeded the Township's actual cost of providing water and sewer services to the Township's rate payer customers. Maintained excessive reserves much higher than what is the norm. The result from the ERC expert witness services was a $6 Million settlement on behalf the benefit of our client.

Oak Park, Michigan - 2018 - This is a past project that consisted of providing expert witness consultation services and testimony for the legality of the stormwater utility program and wastewater rate structures and rates that were established by the City Staff. The court case centers on the legality of how the stormwater rates are being assessed to the City of Oak Park customer base. Retained by the legal firm kickham hanley, PLLC.

Birmingham, Michigan - 2016 - This is a past project that consisted of providing expert witness consultation services and testimony for the legality of the stormwater utility program and wastewater rate structures and rates that were established by the City Staff. The court case centered on the legality of how stormwater rates are being assessed to the City of Birmingham customer base. Retained by the legal firm kickham hanley, PLLC.

Erie County, New York Sewer District 6 - 2015 - This is a past project that consisted of providing expert witness consultation services and testimony. Retained by the legal firm Phillips Lytle, LLP on behalf of the Arcelomittal Lackwanna, LLC to provide expert consultation regarding the legality of the sewer and storm water rate structures, cost of service and cost allocation analysis and rate studies.

City of Cold Spring, KY, Year 2013 – This is a past project that consisted of providing expert witness testimony and information to the City Legal counsel regarding storm water and sanitary sewer consultation against SD1, the regional storm water district that breached the original services contract. Based on the three-year litigation process, the City of Cold Spring was allowed to leave the SD1 Stormwater KRS 220 District.

City of Lancaster, Ohio, Fact Witness Litigation Project, Year 2010 - This past project consisted of providing information to the City Legal counsel regarding the establishment of the storm water utility program in 2004. A non-residential property owner sued the City and lost

arguing their property does not drain into the City's storm water system. The case went to trial and the program ordinance and language was upheld and deemed appropriate language to defend the storm water utility program.

City of Hudson, Ohio, Storm Water Utility Program, Expert Witness, Year 2002 - As a Financial Expert Witness in this past project, the City of Hudson, the Plaintiff in the lawsuit, was suing a national storm water utility engineering firm for NEGLIGENT acts regarding developing and implementing the City of Hudson's storm water utility program. ERC provided a "Report of Findings" that found many discrepancies in the financial approach, billing system, and creating the ERU (equivalent residential unit) and building block used to create the storm water utility program. This case was settled without a trial.

Jefferson County/City of Louisville Storm Water Drainage Master Plan, Jefferson County/City of Louisville, Kentucky, Year 1987 - This is a past project where churches and schools (Long Run Baptist Church) versus **Jefferson County/City of Louisville Metropolitan Sewer District** project technical, financial and billing information as part of the URS Corporation Team in response to the law suit.

Water and Sewer Rate Study Projects

City of Zanesville, OH, County Bulk Water Purchase, Years 2023 - This past project consisted of determining the bulk water purchase price for the county to purchase bulk water on an annual basis from the City of Zanesville Ohio.

City of Zanesville, OH, Sewer Utility Rate Study Analysis, Years 2022 - This past project consisted of determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. All miscellaneous charges, tap fees, connection fees etc. were evaluated. A flexible rate model developed in Microsoft Excel™ was being developed to allow non-technical city staff to update on an annual basis.

City of Zanesville, OH, Sanitation Utility Rate Study Analysis, Years 2022 - This past project consisted of determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. All miscellaneous charges, tap fees, connection fees etc. were evaluated. A flexible rate model developed in Microsoft Excel™ was being developed to allow non-technical city staff to update on an annual basis.

City of Mason, OH, Updating the Water and Sewer Utility Rate Study and Financial Forecast, Year 2022 - This is a past project that consisted of performing and determining the total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates.

City of Zanesville, OH, Water Utility Rate Study Analysis, Years 2021 - This past project consisted of determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. All miscellaneous charges, tap fees, connection fees etc. were evaluated. A flexible rate model developed in Microsoft Excel™ was being developed to allow non-technical city staff to update on an annual basis.

Georgetown KY Municipal Water and Sewer Service (GMWSS), Year 2019 - This is a current project that will consist of determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. All miscellaneous charges, tap fees, connection fees etc were evaluated. A flexible rate model developed in Microsoft Excel™ was being developed to allow non-technical city staff to update on an annual basis.

Toledo Metropolitan Area Council of Governments (TMACOG) Year 2016 - This is a past project that consisted of preparing a Financial Feasibility Study evaluating public water supply level of service, cost of service, and financial feasibility for the greater Toledo metropolitan area to the Toledo Metropolitan Area Council of Governments (TMACOG) considering the three cost of service scenarios such as; (1) A public water supply serving the City of Toledo alone (water rates for Toledo water supply without outside communities); (2) A public water supply(one or more) serving the current contract communities of the greater Toledo metropolitan area, excluding the City of Toledo itself (water rates for others with a new water supply); (3) A regional water supply and treatment system to serve the city of Toledo and contract communities, to be owned and operated by a regional authority, with the option of each participating entity retaining their own distribution systems. The contract communities include, Lucas County, Wood County, Fulton County, Monroe County Michigan, Cities of Maumee, Perrysburg, Sylvania, Waterville, Rossford, Whitehouse, Berkey, and Townships of Perrysburg, Troy.

DuPage County, IL, Water and Sewer Utility Rate Study, Year 2015 - This is a past project that consisted of updating and revising the previous rate study performed in 2011 that resolved a potential law suit the Village of Woodridge which is one of the 20 communities served by DuPage County. Woodridge claimed fairness and inequity issues with the previous rate structure. A flexible rate model in Microsoft Excel™ and Access™ was developed to allow non-technical city staff to update on an annual basis and turned over to County staff that will allow for future rate revisions for both the water and sewer funds.

DuPage County, IL, Water and Sewer Utility Rate Study, Year 2011 - This past project consisted of updating and revising the previous rate study performed in 2009 that resolved a potential law suit the Village of Woodridge which is one of the 20 communities served by DuPage County. Woodridge claimed fairness and inequity issues with the previous rate structure. A flexible rate model in Microsoft Excel™ and Access™ was developed to allow non-technical city staff to update on an annual basis and turned over to County staff that will allow for future rate revisions for both the water and sewer funds.

DuPage County, IL, Water and Sewer Utility Rate Study, Year 2009 - DuPage County provides water and sewer services to over 20 municipalities/communities in the area with over 40 different customer service and billing services. This past project consisted of developing at least 3 rate structure alternatives for each utility which was directly driven by the threat of a law suit by the Village of Woodridge. Woodridge claimed fairness and inequity issues with the current rate structure. Several meetings with DuPage Staff and Woodridge legal counsel and staff negotiated a complete revision of the current water and sewer rate structure agreeable to both parties and the newly created rate structure was adopted by the DuPage County Board that alleviated the litigation matter. In addition, total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates were analyzed. All miscellaneous charges, sewer maintenance charges, connection fees etc were evaluated. A

flexible rate model in Microsoft Excel™ and Access™ was developed to allow non-technical city staff to update on an annual basis and turned over to County staff that will allow for future rate revisions for both the water and sewer funds.

Holmes County, OH, Sewer District Stand Alone Billing System Programming, Year 2009 - This project consisted of developing a complete billing and collection system for the Sewer District Microsoft Access 2003. This is an open system that will replace the current closed vendor program that allows County staff flexibility to modify the program on an as needed basis in the future. The program is very flexible, allows for expansion in future and provides many useful reports and information that was not provided by the replaced billing system program.

Holmes County, OH, District Sewer Utility Rate Study and Financial Forecast, Year 2009 - This project consisted of consolidating 6 different rate structures, for a County under a Federal EPA consent order, determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. All miscellaneous charges, tap fees, connection fees etc are being evaluated. A flexible rate model developed in Microsoft Excel™ was being developed to allow non-technical city staff to update on an annual basis.

City of Fairborn, OH, Updating the Water and Sewer Utility Rate Study and Financial Forecast, Year 2008 - This project consisted of updating the original rate study performed in 2004. The updating included determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. All miscellaneous charges, tap fees, connection fees etc were evaluated. A flexible rate model developed in Microsoft Excel™ was developed to allow non-technical city staff to update on an annual basis.

Lucas County, OH, Water and Sewer Utility Rate Study and Financial Forecast, Years 2006 – 2007 - This project consisted of determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. All miscellaneous charges, tap fees, connection fees etc were evaluated. A flexible rate model developed in Microsoft Excel™ was being developed to allow non-technical city staff to update on an annual basis.

City of Gahanna, OH, Water and Sewer Utility Rate Study and Financial Forecast, Years 2005 – 2007 - This past project consisted of determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. All miscellaneous charges, tap fees, connection fees etc were evaluated. A flexible rate model developed in Microsoft Excel™ was being developed to allow non-technical city staff to update on an annual basis.

City of Greenville, OH, Water and Sewer Utility Rate Study and Financial Forecast, Year 2005 - This past project included determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. All miscellaneous charges, tap fees, connection fees etc. were evaluated. A flexible rate model developed in Microsoft Excel™ was developed to allow non-technical city staff to update on an annual basis.

City of Lancaster, OH, Wastewater Utility Rate Study, Year 2004 - As Project Manager, this project consisted of all phases of developing wastewater rates, evaluating the current rate structure, implementing a revised cost of service analysis, revising the level of service analysis, billing system issues and reviewing all fees and charges. The primary purpose of this rate study is to determine the revenue requirements for a large Debenture (Bond) package being offered by the City to meet large capital improvements project requirements.

City of Toledo, OH, Wastewater (Combined Sewer Overflow Long Term Control Plan) Utility Rate Study and Financial Forecast, Years 2002 – 2004 - This project was part of a $400 Million Federal Consent Order over the next 15 years. The financial analysis and forecast included determining total annual revenue requirements, capital revenue requirements, evaluating the overall debt structure and cost of service recovery analysis to provide adequate, fair, and equitable rates of the wastewater and storm water rates and rate structure. All miscellaneous charges, tap fees, connection fees, combined sewer overflow grants and loans were evaluated. A flexible computer rate model developed in Microsoft Access™ and Microsoft Excel™ was developed to allow both the consultant team and City non-technical city staff to maintain and update on an annual basis.

City of Fairborn, OH, Water and Sewer Utility Rate Study and Financial Forecast, Year 2002 - This project consisted of determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. All miscellaneous charges, tap fees, connection fees etc were evaluated. A flexible rate model developed in Microsoft Excel™ was developed to allow non-technical city staff to update on an annual basis.

Hopkinsville, KY, Water and Waste Water Rate Study, Year 2000 - This project included ERC assisting the Hopkinsville Water Environment Authority (HWEA) through a local engineering firm, requiring the development of a cost of service analysis for both the water and sewer rate structures to result in a more fair and equitable series of rates for inside the city and out-side the city customers and several large communities/users in the service area. The overall study included a total annual revenue requirement analysis, cost of service analysis, rate structure modification, and billing and administrative recommendations for improvement.

City of Dayton, OH, Waste Water Rate Study, Year 1997 - This project's scope required development of a cost-of-service analysis for the wastewater treatment system to result in fair and equitable rates for city customers and those of four adjacent communities, including Montgomery County, Ohio. The overall study included a total annual revenue requirement analysis, allocation of cost of service to functional cost components, distribution of costs to each cost component, and design and testing of a new rate structure. In addition, a sewer rate sur-charge of fees was established according to the Ohio EPA accepted guidelines.

City of Euclid, OH, Wastewater Rate Study, Years 1989 - 1992 - This project's scope required development of a cost-of-service analysis for the wastewater treatment and collection system to result in fair and equitable rates for city customers and those of six adjacent communities that the city provides sewer service to include two master meter agreements. The overall study included a total annual revenue requirement analysis, allocation of cost of service to functional cost components, distribution of costs to each cost component, and design and testing of a new rate structure. In addition, an impact fee schedule was developed for each of the four communities

receiving sewer service from the city. This project included working with Ohio EPA to resolve the Consent Decree Order that was levied on the City to Comply with the Wastewater regulations.

City of Boynton, FL, Water and Wastewater Utility Rate Study, Capital Improvements Charge, Impact Fee Program, and Rate Study, Year 1989 - Study objectives included determining total annual revenue requirements, capital revenue requirements, allocation of cost components to basic functional water and wastewater cost components, and distribution of each cost component to various customer classes to result in a fair and equitable rate structure for recovering cost of service. A management review study was performed to identify any deficiencies in the current practices of providing water and wastewater.

City of Roanoke, VA, Water and Wastewater Utility Rate Study, Year 1989 - Study objectives included determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. Additional scope of services performed included evaluating and updating eleven utility service user fees.

City of Odessa, TX, Water and Wastewater Surcharge Utility Rate Study, Year 1989 - Study objectives included determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair, and equitable rates. Additional scope of services performed included developing a departmental cost allocation plan.

Victor Valley Water District - Victorville, CA, Water and Wastewater Utility Rate Study, 1988 - Study objectives included determining total annual revenue requirements, capital revenue requirements, and cost of service recovery analysis to provide adequate, fair and equitable rates.

Township of Royal Oak, MI, Water and Sewer Rate Study, Year 1987 - This project consisted of data collection and field observation involving a statistical sample of customer billing information to identify water consumption and sewer flow patterns; development of and programming a computer model for rate analysis.

Villages of Rushville and West Rushville, OH, Water and Sewer Utility Rate Study, Year 1987 - The scope of service included a cost of service and total annual revenue requirement analysis with allocation and distribution to existing customer class and outside-the-service-area customers. A life cycle cost analysis was performed for new water storage and system expansion.

Village of Peebles - Peebles, OH, Sanitary Sewer Utility Rate Study, Year 1987 - Technical analysis was performed on a study involving determination of total annual revenue requirements, three different cost of service alternatives, and a rate structure design and analysis. Impacts upon the capital improvements program were analyzed and incorporated into the study.

City of Springfield, OH, Cost Allocation Review and Study, Years 1989 - 1990 - Study Objectives included allocating costs based on the Circular A-87 federal guidelines for Cost Allocation Plans. Administrative costs and charges were identified such as the City Manager's Office, Accounting Department, Data Processing, Human Resources and Legal, and were allocated back to direct receiving departments such as the utilities enterprise fund, police and fire, and special revenue funds for property allocation.

Cost Allocation Review and Study, Hamilton County, Lucas County, Montgomery County, and Franklin County, OH, Year 1990 - Study Objectives included allocating costs based on the Circular A-87 federal guidelines for Cost Allocation Plans.
Geographic Information System (GIS) Projects:

GIS Cost/Benefit Analysis, Hamilton County, Tennessee, Year 1997 - Study Objectives include allocating costs and benefits based on the GIS accepted standards.
FEMA Community Rating System (CRS) Program Projects:

Storm Water Utility Projects

Wood County, OH, Regional Storm Water 6117 District, Year 2019 - As Project Manager, this is a current project consisting of performing a regional multi-jurisdictional storm water utility feasibility study. The project will include collecting all appropriate data, face to face meetings with the county and townships, performing a Rate Structure Analysis, performing a current level of stormwater services analysis, developing a range of stormwater rates and charges for the program, meeting with 17 township staffing to collect all of the stormwater costs of services and meeting with the Board of County Commissioners to present the results and to determining the next steps action plan for the stormwater utility district for Wood County.

Dallas Area Municipal Authority, PA, Storm Water Authority Program Implementation, Year 2019 – As Project Manager, this current project consists of developing and implementing a Storm Water Authority for the Dallas Area Municipal Authority. This project includes developing a Business Plan for the three municipalities that will be included in the Authority program. ERC will develop and determine a temporary rate structure to be implemented in 2019, and then convert to a permanent rate structure billing method in 2020. Tasks include analyzing and evaluating the billing and GIS datasets, developing and selecting a temporary and permanent stormwater rate structure, identifying the current and required minimum levels of service and costs of service and projected rates and revenues, measuring the impervious areas for non-residential properties (GIS), for the newly formed stormwater authority. The second phase of the project will include developing a stormwater business plan, cost of service analysis, rate study, cash flow analysis, determining an ERU, measuring all of the non-residential impervious areas, developing 15 billing policy papers, developing frequently asked questions for the Authority website, a stormwater authority brochure and two presentation updates to the Authority Board. Phase 3 will consist of rolling out an aggressive public education plan, developing a stormwater credits program, meeting a stormwater advisory key stakeholder committee (SWAC), and meeting with homeowner's associations, business owners, churches and schools. ERC will also develop legal documents including the program ordinance and stormwater rate ordinance and assist with a final rate public hearing.

City of Bowling Green, KY Storm Water Utility "Fee in Lieu" Development, Years 2019 – This is a current project and as Project Manager for the Financial aspects of the project, ERC as a sub-contractor, will assist the Prime contractor with developing a short-term and permanent stormwater fee in lie charge for the City of Bowling Green Kentucky.

City of Sandusky, OH, Storm Water Utility Program Development and Implementation, Year 2019 - This current project consists of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, level of service costs of service, rate study and cash flow analysis, institutional, legal, organizational, engineering,

NPDES Phase II permit, public information, GIS development, and billing system database and impervious area development.

City of Zanesville OH, Storm Water Utility Program Revision, Year 2019 - This past project consisted of creating a legally defensible stormwater utility program utilizing the existing stormwater fee and program. The project includes all aspects of the developing a stormwater business plan, defining 6 levels of services and costs of services, cash flow analysis, final stormwater rate, meeting with a SWAC / key stakeholder committee for input into the process, GIS development, and billing system database, ERU development and impervious area measurements and development for all non-residential parcels, a credits program and a public education program and plan.

City of Lancaster, OH, Storm Water Utility Program Business Plan Revision, Year 2018 - As Project Manager, this current project includes revising and updating the existing Business Plan for the existing Storm Water Utility Program that has been in place since 2004. Additionally, this is the fourth business plan development project for this community. The storm water utility program is entering its eighteenth year of existence / fourth five- year rate period and the business plan will be updated for the next 10-year rate period 2019 through 2028.

City of Chattanooga, TN, Water Quality Program Rate Study Analysis, Year 2018 - As Project Manager, this past project consisted of performing a stormwater rate study for the City of Chattanooga water quality program. The previous rate study was also performed by ERC in 2007 and 2013.

City of Oberlin, OH, Storm Water Utility Program Development and Implementation, Year 2018 - This past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, level of service costs of service, rate study and cash flow analysis, institutional, legal, organizational, engineering, NPDES Phase II permit, public information, GIS development, and billing system database and impervious area development. The City of Oberlin will be part of the Lorain County 6117 Storm Water District. The initially stormwater rates will be processed and mailed January 2019.

Upper Uwchlan Township, PA, Storm Water Authority Program Implementation Study – Year 2017 – As Project Manager, this project consisted of developing a Phase 1 storm water feasibility study and for the Township that included analyzing and evaluating the billing and GIS datasets, selecting a stormwater rate structure, identifying the current levels and current costs or service and projected rates and revenues for the feasibility of establishing a stormwater authority for Upper Uwchlan Township. The phase 2 project recently concluded with developing a stormwater business plan, cost of service analysis, rate study, cash flow analysis, determining an ERU, measuring all non-residential impervious areas, developing 15 billing policy papers, developing frequently asked questions for the Township website, a stormwater brochure and two presentation updates to the Township Board. Phase 3 will consist of rolling out an aggressive public education program plan, developing a stormwater credits program, meeting a stormwater advisory key stakeholder committee (SWAC), and meeting with home owner's association, developing the legal documents including the program ordinance and stormwater rate ordinance, and a final rate public hearing.

City of Forest Park, OH, Storm Water Utility Program Business Plan Revision, Year 2017 - As Project Manager, this current project includes developing a Business Plan revising the

program ordinance and development of next steps for the existing Storm Water Utility Program that has been in place since 1994.

City of Cold Spring, KY, Year 2016 - This past project consisted of managing and administering all of the MS4 (KPDES Phase II Permit) 6 minimum Control Measure aspects for the City of Cold Spring, including developing the Storm Water Quality Management Plan that was submitted to the Kentucky Division of Water (KDOW) for the first five years of the program. The annual reporting requirements were tracked and developed and documented in the annual report and submitted to KDOW. All aspects of the MS4 program were developed for the City of Cold Spring.

City of Frankfort, KY, Storm Water Utility Program Development and Implementation, Year 2014 - This past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, level of service costs of service, rate study and cash flow analysis, institutional, legal, organizational, engineering, NPDES Phase II permit, public information, GIS development, and billing system database and impervious area process aspects of a storm water utility implementation project. This project will include implementing a storm water utility and dedicated funding source for the City.

City of Georgetown, KY, Storm Water Utility Program Development and Implementation, Year 2014 - As Project Manager, this past project consisted of performing a storm water needs analysis / feasibility study for the City of Georgetown, Kentucky to determine the feasibility of implementing a storm water utility program including holding four key stakeholder meetings and discussions with Toyota Manufacturing, the community's largest stormwater user meetings to solicit input on the storm water utility program.

Louisville/Jefferson County, KY MSD, Year 2013 - As Project Manager, this past project consisted of contacting over 20 communities that have a stormwater utility funding mechanism in place to determine the amount of mowing services provided by these communities.

Louisville/Jefferson County, KY MSD, Year 2011 - As Project Manager, this past project consisted of analyzing assisting in writing a financial opinion and analysis to evaluate the financial feasibility of utilizing the Kentucky Clean Water State Revolving Fund (SRF) program to finance the costs for some or all of the capital improvements projects (CIP) considered by the MSD.

Franklin County, KY, Storm Water Utility Program Development and Implementation, Year 2013 - This current project consists of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, level of service costs of service, rate study and cash flow analysis, institutional, legal, organizational, engineering, NPDES Phase II permit, public information, GIS development, and billing system database and impervious area development process aspects of a storm water utility implementation project. This project will include implementing a storm water utility and dedicated funding source for both the City and County simultaneously.

Oldham County, KY, Storm Water Utility Program Implementation, Year 2009 - This past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan financial, institutional, legal, organizational, engineering and public information aspect. The storm water program analysis includes the facilitation and consensus building of a key stakeholder Technical Advisory Committee (TAC) through creating a strategic plan and decision making process to identify all issues to be resolved and identify a program mission and goals; a financing alternative study, rate structure analysis,

gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for new storm water utility service charge rates and a storm water management utility billing system.

City of Bowling Green, KY Storm Water Utility Development, Years 2003 - As Project Manager, this past project consisted of performing a funding options analysis for the storm water utility program development.

Jefferson County/City of Louisville Storm Water Drainage Master Plan, Jefferson County/City of Louisville, KY, Year 1987 - Served as Financial and Billing System Manager for this project for URS, which included development of the master account file for the Metropolitan Sewer District (MSD) utility billing system. The MSD service area includes over 250,000 customer accounts that were modified and updated in the process. During this engagement, interviewed, hired, trained, and supervised 20 temporary project staff technicians; managed work flow and productivity; and verified quality of the impervious area measurements for all of the non-residential properties and the measurement of the residential properties that comprised the ERU. Also responsible for coordinating the transfer of data with the Louisville Water Company, the billing system agent for MSD.

Erie County, OH, Storm Water District Program Feasibility Study – Year 2016 – As Project Manager, this past project consisted of developing a storm water feasibility study for the seven Storm Water Coalition communities. This study included identifying the current levels and current costs or service and projected rates and revenues.

City of Elyria, OH, Storm Water Utility Program Development and Implementation, Year 2015 - As Project Manager, this past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, level of service costs of service, rate study and cash flow analysis, institutional, legal, organizational, engineering, NPDES Phase II permit, public information, GIS development, and billing system database and impervious area process aspects of a storm water utility implementation project.

City of Delta, CO, Storm Water Utility Program Development and Implementation, Year 2014 - As Project Manager, this past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, level of service costs of service, rate study and cash flow analysis, institutional, legal, organizational, engineering, NPDES Phase II permit, public information, GIS development, and billing system database and impervious area process aspects of a storm water utility implementation project.

City of Lancaster, OH, Storm Water Utility Program Business Plan Revision, Year 2013 - As Project Manager, this past project included revising and updating the existing Business Plan for the existing Storm Water Utility Program that has been in place since 2004. This is a mature storm water utility program and this phase of work included "promoting" the successes of the utility, developing a CIP and Maintenance map online, improved the storm water web site and moved toward developing an interactive web-based map for public access for the program. Additionally, this is the third business plan development project for this community. The storm water utility program is entering into its eleventh year of existence / third five-year rate period and the business plan was developed for the next 10 year rate period 2013 through 2024.

City of Columbia, MO, Storm Water Utility Program Business Plan Revision, Year 2011 - As Project Manager, this past project included revising and developing a Business Plan for the existing Storm Water Utility Program that has been in place since 1994. This project included performing a level of service costs of service analysis, a rate study and cash flow analysis, meeting legal staff, and evaluating the conditions of the storm water GIS and existing utility billing system database for future expansion.

City of Baltimore, MD, Storm Water Utility Program Development and Implementation, Year 2010 - As Project Manager for ERC, this past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, level of service costs of service, rate study and cash flow analysis, institutional, legal, organizational, engineering, NPDES Phase I permit, public information, GIS development and billing system database merging and analysis.

City of Lima, OH, Storm Water Utility Program Development and Implementation, Year 2010 - As Project Manager, this past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, level of service costs of service, rate study and cash flow analysis, institutional, legal, organizational, engineering, NPDES Phase II permit, public information, GIS development, and billing system database and impervious area development process aspects of a storm water utility implementation project.

City of Chattanooga, TN, Perform and Develop the Storm Rate Study and Business Plan - Year 2010 - As Project Manager, this past project consisted of revising the current rates and charges, revising the current BMP credits program based on the more fair and equitable and more legally defensible impervious area rate structure method.

City of Chattanooga, TN, Revising the Storm Water Rate Structure - Year 2009 - As Project Manager, this past project consisted of revising the current intensity of development rate structure to the more fair and equitable and more legally defensible impervious area rate structure method.

City of Lancaster, OH, Revised and Updated the Storm Water Business Plan and Rate Study, Year 2008 - As Project Manager, this past project consisted of updating and revising the storm water rates and developing a business plan originally created by ERC in 2004.

City of Titusville, FL, Revising an Existing Storm Water Utility Program, Years 2007 - 2008 - As Project Manager, this past project consisted of developing a storm water utility business plan program including evaluating their current intensity of development rate structure, facilitating and consensus-building for financial, institutional, legal, organizational, engineering, policies and procedures manual revision and development, and public involvement aspects. The storm water program analysis includes: developing a "Storm Water Business Plan" through a strategic planning process to identify all issues to be resolved and identify a program mission and goals; rate structure analysis, gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for the revised storm water utility service charge rates.

City of Greenville, OH, Storm Water Utility Program Development and Implementation, Years 2007 – 2008 - As Project Manager, this past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, financial, institutional, legal, organizational, engineering and public information aspects.

The storm water program analysis includes the facilitation and consensus building of a key stakeholder Technical Advisory Committee (TAC) through creating a strategic plan and decision-making process to identify all issues to be resolved and identify a program mission and goals; a financing alternative study, evaluating the intensity of development versus impervious area rate structures, gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for new storm water utility service charge rates and a storm water management utility billing system.

City of Chattanooga, TN, Revision of the Rate Structure Analysis, Year 2009 - As As Project Manager, this past project consisted of modifying the current intensity of development rate structure to a revised, legally defensible impervious area rate structure method.

City of Chattanooga, TN, Funding Options Analysis, Year 2007 - As Project Manager, this past project consisted of developing revenue requirements and evaluating all potential and viable funding sources for the storm water / water quality program. The analysis identified four specific six-year scenarios to choose from, and the Technical Advisory Committee selected scenario 2 which includes four rate increases over a four-year period, as the committee recommendation that was carried forward to the elected officials for implementation over the next 6 years.

City of Chattanooga, TN, Level of Service and Cost of Service Analysis, Years 2006 - 2007 - As Project Manager, this past project consisted of developing a Level of Service Cost of Service Business Plan in the amount of $21M for both water quality and water quantity activities, achieving consensus with the SWAC regarding the business plan, meeting with the Storm water Board to achieve consensus, and then meeting individually and face to face with each city council member to present the results of the $21M business plan and each City Council member to gain their acceptance into the plan that lead to the funding options analysis project.

Village of Woodridge, IL, Storm Water Utility Program Feasibility Study, Years 2005 – 2006 - As Project Manager, this past project consisted of performing a Storm Water Program Feasibility Study including developing a Storm Water Utility Business Plan.

City of Chattanooga, TN, performing a Storm Water Utility Program Audit, Years 2002 - 2003 - As Financial Task Manager, this past projected consisted of performing an audit of all of the financial aspects of the storm water utility program including financial, accounting, legal, billing and collection and all aspects of the NPDES Phase I permit activities. ERC then created an interactive user-friendly computer model for the City staff to comply with TDEC requests as related to the consent order.

City of Newark, OH, Storm Water Utility Program Development and Implementation, Years 2005 – 2006 - As Project Manager, this past project consisted of all phases of implementing a storm water utility program including developing a Storm water Utility Business Plan, financial, institutional, legal, organizational, engineering and public information aspects. The storm water program analysis includes the facilitation and consensus building of a key stakeholder Technical Advisory Committee (TAC) through creating a strategic plan and decision-making process to identify all issues to be resolved and identify a program mission and goals; a financing alternative study, rate structure analysis, gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for new storm water utility service charge rates and a storm water management utility billing system.

City of Suffolk, VA, Storm Water Utility Program Development and Implementation, Years 2004 – 2006 - This past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, financial, institutional, legal, organizational, engineering and public information aspects. The storm water program analysis includes the facilitation and consensus building of a key stakeholder Technical Advisory Committee (TAC) through creating a strategic plan and decision-making process to identify all issues to be resolved and identify a program mission and goals; a financing alternative study, rate structure analysis, gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for new storm water utility service charge rates and a storm water management utility billing system.

City of Davenport, IA, Storm Water Utility Program Development and Implementation, Years 2004 – 2005 - As Project Manager, this past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, financial, institutional, legal, organizational, engineering and public information aspects. The storm water program analysis includes the facilitation and consensus building of a key stakeholder Technical Advisory Committee (TAC) through creating a strategic plan and decision-making process to identify all issues to be resolved and identify a program mission and goals; a financing alternative study, rate structure analysis, gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for new storm water utility service charge rates and a storm water management utility billing system.

City of Lancaster, OH Storm Water Utility Program Development and Implementation, Years 2002 – 2004 - As Project Manager, this past project consisted of all phases of implementing a storm water utility program including developing a Storm Water Utility Business Plan, financial, institutional, legal, organizational, engineering and public information aspects. The storm water program analysis includes the facilitation and consensus building of a key stakeholder Technical Advisory Committee (TAC) through creating a strategic plan and decision making process to identify all issues to be resolved and identify a program mission and goals; a financing alternative study, rate structure analysis, gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for new storm water utility service charge rates and a storm water management utility billing system.

City of Milford, OH Storm Water Utility Development, Years 2003 - 2004 - As Project Manager, this past project consisted of all facets of creating a storm water utility program including developing a Storm water Utility Business Plan and a storm water credits program.

City of Toledo, OH, Storm Water Utility Implementation, Year 2000 - As Prime Consultant and Project Manager, this past project consisted of all phases of implementing a storm water management utility program including developing a Storm Water Utility Business Plan, facilitating, consensus building through a stakeholder group, financial, institutional, legal, organizational, engineering, policies and procedures and public information aspects. The storm water program analysis includes: a strategic planning process to identify all issues to be resolved and identify goals and objectives; a financing alternative study, rate structure analysis, gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for new storm water utility service charge rates and a storm water management utility billing system. Also responsible for coordinating with the billing system upgrade CIS billing system and incorporating the Lucas County Auditors GIS into the City CIS database for billing purposes.

City of Columbus, OH, Storm Water Management Utility Development, Year 1995 - As Project Manager, this past project consisted of all phases of implementing a storm water management utility program including developing a Storm Water Utility Business Plan, financial, institutional and engineering aspects. The storm water program analysis included a financing alternative study, rate structure analysis, gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for new storm water utility service charge rates and a storm water management utility billing system. Also responsible for coordinating with the billing system upgrade to the SCT Banner System administered by the Division of Water, a separate billing agent for the storm water program.

City of Fort Wayne, IN, Storm Water Management Utility Development, Year 1995 - As Project Manager, this past project consisted of all phases of implementing a storm water management utility program including developing a Storm Water Utility Business Plan financial, institutional and engineering aspect. The storm water program analysis included a financing alternative study, rate structure analysis, gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for new storm water utility service charge rates and a storm water management utility billing system. Also responsible for coordinating with the billing system upgrade to the CUBIS administered by the Division of Water.

City of Norman, OK, Storm Water Management Utility Development, Year 1997 - As Financial Manager, the past project included performing a comprehensive Cost of Service Analysis, a Revenue Study, a Rate Study and a Financing Alternative Analysis. The analysis was performed to identify and determine any deficiency in the current procedure of providing storm water service to the customers.

City of Tulsa, OK, Storm Water Management Program, Year 1996 - Billing System Manager for this past project, which included development of the billing system, and master account file for the City of Tulsa, Department of Storm Water Management. The service area included over 250,000 customer accounts. Also responsible for coordinating with the water and sewer customer service and billing department, the billing agent for the storm water utility.

City of Tulsa, OK, Storm Water Management Program, Year 1996 - This project was a separate contract to the Storm Water Utility Department. Serving as Project Manager, the study objectives included managing all telephone customer service and complaints immediately following the bills being sent for the storm water utility.

City of Bloomington, IN, Storm Water Management Utility Development, Year 1990 - As Financial Manager, this past project consisted of development of all financial, institutional and engineering aspects of a storm water management utility. Phases of the project included a financing alternative study; rate base and rate structure analysis; cost of service analysis; designing, testing and implementing new storm water utility service charge rates; and a storm water management utility billing system.

City of Beavercreek, OH, Storm Water Needs Analysis, Year 1990 - Financial Manager for a storm water utility feasibility analysis. Analysis included Mayor and Council education, complaint and problem area evaluation, institutional review, cost of service analyses and rate study, revenue analyses and financial alternative analysis.

South Carolina Land Resources Conservation Commission, Storm water Utility Implementation Manual, March 1993 - Program Manager for the development of the Implementation Manual that is "How to" document on the startup and implementation of a storm water utility. The state of South Carolina has developed legislation for the implementation of a Storm water Utility through the Storm water Management and Sediment Reduction Act of 1991. This manual is being used throughout the state of South Carolina by communities to develop and implement storm water programs.

City of Greenwood, IN, Storm Water Management Utility Development, Year 1990 - As Financial Manager, this past project consisted of development of all financial, institutional and engineering aspects of a storm water management utility. Phases of the project included a financing alternative study; rate base and rate structure analysis, gross revenue requirement analysis; cost of service analysis; designing, testing and implementing new storm water utility service charge rates; and a storm water management utility billing system.

City of Delaware, OH, Storm Sewer Utility Implementation, Year 1988 - This past project consisted of development of all financial and institutional aspects including: financing alternative study; rate base and rate structure analysis; gross revenue requirement analysis; cost of service; allocation to customer class analysis; and designing, testing, and implementing new storm water utility service charge.

Erie County, OH Regional Storm Water 6117 District, Years 2014 - This is a past project that consisted of performing a Needs Analysis to determine the feasibility of creating a county-wide storm water district program. The project will include evaluating all datasets such as the Erie County Auditors Property Tax database and GIS to determine the quality for developing a 6117 Storm Water District. A current cost of service analysis and revenue projections will conclude with a presenting the results of the study to the Erie County.

Lorain County, OH Regional Storm Water 6117 District, Year 2018 - This is a current and annual project consisting preparing the annual storm water database file that is reviewed, reconciled and updated and uploaded to the Lorain County Auditor's Office for the annual January Property Tax billings every year.

Lorain County, OH Regional Storm Water 6117 District, Years 2013 - This is a past project that consisted of creating a County-wide storm water utility District program that includes developing a Storm water Utility Business Plan and developing a financial strategy and plan, assisting the County in reviewing the NPDES Phase II permit plan, and public involvement aspects for the newly created Ohio Revised Code (ORC) 6117 Storm water District. ERC also prepares the annual storm water database file uploaded to the Lorain County Auditor's Office for the annual January Property Tax billings every year.

Hamilton County, OH, Regional Storm Water 6117 District, Year 2002 - As Project Manager, this project consisted of creating a regional multi-jurisdictional storm water utility program that includes developing a financial strategy and plan, facilitating and achieving consensus through a key stakeholder steering committee, creating a set of regional standards, developing policies and procedures for this newly created 6117 organization, developing regional master planning guidelines, assisting the region in submitting a single NPDES Phase II permit and many public workshops, and public involvement aspects of the regional project. This was

one of the first District programs in the State Of Ohio implemented to manage storm water on a watershed basis.

Lucas County, OH, Regional Storm Water 6117 District, Years 2008 – 2011 - As Project Manager, this past project consisted of creating a regional multi-jurisdictional storm water utility program that includes developing a Storm water Utility Business Plan and developing a financial strategy and plan, facilitating a key stakeholder and steering committee, creating a set of regional standards, developing regional master planning guidelines, assisting the County in submitting a single NPDES Phase II permit and many public workshops, and public involvement aspects for the newly created Ohio Revised Code (ORC) 6117 Storm water District.

Delaware County, PA, Watershed Project, Year 2008 - As Project Manager, this past project consisted of a regional multi-jurisdictional program that includes developing a Storm Water Utility Business Plan and facilitating a key stakeholder and steering committee, creating a set of regional standards, developing a single NPDES Phase II permit for the multi-jurisdictional organization and many public workshops, and public involvement aspects the Watershed group.

Gwinnett County, GA, Storm Water Utility Program Development and Implementation, Years 2003 – 2006 - This past project consisted of all phases of implementing a storm water utility program including developing a Storm water Utility Business Plan financial, institutional, legal, organizational, engineering and public information aspect. The storm water program analysis includes the facilitation and consensus building of a key stakeholder Technical Advisory Committee (TAC) through creating a strategic plan and decision making process to identify all issues to be resolved and identify a program mission and goals; a financing alternative study, rate structure analysis, gross revenue requirement analysis, comprehensive cost of service analysis, an organizational review, recommendations for new storm water utility service charge rates and a storm water management utility billing system.

Lucas County, OH, Year, Storm Water Utility Program Needs Analysis, Years 2006 – 2007 - As Project Manager, this past project consisted of performing a Storm Water Program Needs Analysis including developing a Storm water Utility Business Plan and performing a Telephone Survey to identify the public perception on all aspects of storm water management problems throughout the County.

Clermont County, OH, Regional Storm Water 6117 District, Years 2005 – 2007 - As Project Manager, this past project consisted of performing a regional multi-jurisdictional storm water utility feasibility study. The project consisted of developing a Storm Water Utility Business Plan, performing a Rate Structure Analysis and Rate Study Analysis and action plan.

Butler County, OH, Regional Storm Water 6117 District, Year 2002 - As Financial Advisor, this past project consisted of creating a regional multi-jurisdictional storm water utility program that included developing a Storm water Utility Business Plan developing a financial strategy and plan, facilitating a key stakeholder and steering committee, creating a set of regional standards, developing regional master planning guidelines, assisting the County in submitting a single NPDES Phase II permit and many public workshops, and public involvement aspects for the newly created Ohio Revised Code (ORC) 6117 Storm water District. This was the first District program in the State of Ohio implemented to manage storm water on a watershed basis.

Butler County, OH, Storm Sewer Billing System Implementation, Years 2003 - 2004 - As Project Manager, this project consisted of creating a regional storm water billing system for all

communities and county properties located within the newly created District. A public relations program and credits program are also included.

Butler County, OH, Storm Sewer Credit Program, Year 2004 - As Project Manager, this project consisted of creating a non-residential credits program.

Hamilton County, OH, Regional Storm Water 6117 District Year 2004 - As Project Manager, this project consisted of Verification of Existing Data Base Information for the potential of a storm water billing system for the Hamilton County Storm Water District.

Lucas and Wood Counties, OH, Toledo Metropolitan Area Council of Governments (TMACOG) Year 2002 - As Prime Consultant and Project Manager, this is a past project that consisted creating a regional multi-jurisdictional storm water utility program that includes developing a financial strategy and plan, creating a set of regional standards, developing regional master planning guidelines, assisting the region in submitting 1 NPDES Phase II permit and many public workshops, telephone opinion survey and public involvement aspects of the regional project. The regional plan includes creating a legal framework and district under Ohio Revised Code 6119.

Collier County, FL, Storm Water Management Utility Program and Rate Study Year 1990 - As Project Manager, the project included updating a cost of service analysis, a rate study and rate structure design by determining total annual revenue and capital revenue requirements. An analysis was performed to identify and determine any deficiencies in the current practices of providing storm water service to the customers of Collier County.

Polk County, FL, Storm Water Management Utility Program and Rate Study Year 1989 - Study objectives included determining total annual revenue and capital revenue requirements. Allocations of cost components were made to basic storm water functions and to the various customer classes to result in a fair and equitable rate structure for recovering cost of service. An institutional and management review study was also performed.

CRS Program Annual Certification and Application, Metropolitan Sewer District, Louisville, Jefferson County, Kentucky, Year 1998 - Project Manager for annual application (re-certification).

Publications and Training Seminars

1. Damico, John F., A Presentation Workshop and Training Conference titled "Forming a Stormwater Authority….what you need to know at a Stormwater Summit for MS4 communities sponsored by Lycoming County PA Planning Commission. Held on Wednesday October 29, 2014.

2. Damico, John F., A Presentation Workshop and Training Conference titled "How to Fund Municipal Stormwater Costs" In conjunction with T&M Engineers and LaFayette College. Held Thursday May 8, 2014 at the Valley Forge Crown Plaza, King of Prussia.

3. Damico, John F., A Presentation Workshop and Training Conference titled "Forming a Stormwater Authority. what you need to know" In conjunction with T&M Engineers. Held Monday October 21, 2013.

4. Damico, John F., A Presentation titled "Will your storm water utility withhold a legal challenge?" The 2012 Annual Kentucky Stormwater Association in held in Florence, Kentucky August 9, 2012.

5. Damico, John F., A Presentation titled "Stormwater Elected Official Champion - An Important Key To Success". The 2012 Annual Ohio Stormwater Association Annual Conference held in Toledo, Ohio June 8, 2012.

6. Damico, John F., A Presentation titled "Stormwater Utility Implementation in Kentucky" discussing 3 keys aspects of establish a legally defensible storm water utility program, including (1) the Process,) the 3 phased approach, (3) and how to begin. The 2011 Annual Kentucky Stormwater Association in held in Frankfort, Kentucky September 28, 2011.

7. Damico, John F., and Denise Crews, City of Lancaster, Ohio, "The City of Lancaster Ohio Storm Water utility withstands a legal challenge and trial". A Presentation discussing how to prepare from day 1 for a legal challenge and how the storm water program ordinance is key to a successful storm water utility program. The 2011 Ohio Storm Water Association Conference held in Columbus, Ohio May 13, 2011.

8. Damico, John F., "A Storm Water Utility - The Five-Year Payoff". A Presentation Discussing Developing a Business Plan for an existing storm water utility program for the City of Lancaster, Ohio. APWA 2009 International Public Works Congress & Exposition Conference Columbus, Ohio September 13, 2009.

9. Damico, John F., "Impervious Area versus Intensity of Development Rate Structure". A Presentation discussing the 2 Major Rate Structures Used in Developing a Storm Water Program. StormCon Orlando, Florida July 19, 2005.

10. Damico, John F., "Funding Techniques For Implementing Municipal Storm water Utility Programs". A Presentation at the 16th Annual Environment Virginia – "Environmental Strategies For ONE Virginia. Virginia Military Institute, Lexington, Virginia, April 12, 2005.

11. Damico, John F., "What Type of Rate Study Does My Community Need?" An Article Published in the February 2005 APWA Monthly Reporter.

12. Damico, John F., Who's Going to Pick Up the Tab? A Storm Water Funding Options Training Seminar. The Training Seminar Was Offered at the "2004 APWA International Public Works Congress and Exposition" Pre-Congress Workshop in Atlanta, Georgia in 2004.

13. Damico, John F., APWA Reporter September 2004 Published Article – Who's Going to Pick Up the Tab? The Article Discussed the Topics to be Covered at the "2004 APWA International Public Works Congress and Exposition" Pre-Congress Workshop.

14. Damico, John F., "A Comprehensive and Affordable Public Involvement Program for an NPDES Phase II Community". StormCon Palm Desert, California July 28, 2004.

15. Damico, John F., "Storm Water Changes In Technology". A Presentation discussing the 3 Major Rate Structures Used in Developing a Storm Water Program. StormCon Palm Desert, California July 28, 2004.

16. Damico, John F., "Click Listen and Learn APWA Internet Presentation" – Case Studies in Storm water NPDES Phase II Communities. This CD and documentation can be purchased as the APWA website for $45.00.

17. Damico, John F., Financing Storm water Facilities, A Utility Approach. This document can be purchased as the APWA website for $15.00. Publication completed August 2003.

18. Damico, John F., Give Credit Where Credit is Due. Paper was presented at the 2003 Stormcon North American Surface Water Quality Conference and Exposition July 29, 2003 for Storm Water Magazine.
19. Damico, John F., Four Required Ingredients That Will Guarantee a Successful Storm Water Utility Program Implementation. Paper was presented at the 2003 StormCon North American Surface Water Quality Conference and Exposition 2003 Conference July 29, 2003.

20. Damico, John F., Regional Approach in Hamilton County, Ohio to Phase II Permitting Encourages Cooperation and Reduces Cost, for the Center for Watershed Protection. Paper was presented in Chicago on February 19th, 2003 at the Urban Storm water: Enhancing Programs at the Local Level Conference.

21. Damico, John F., "Storm water Management Programs: An Accountant's Perspective", Cities and Villages, The Journal of the Ohio Municipal League, December 1990.

22. Damico, John F., Louisville Jefferson County Storm Water Program Billing System Implementation Process, 1988.

EXHIBIT – 5

CHAPTER 12. - WATER AND SEWERAGE

Footnotes:

*--- (**22**) ---*

Case law annotation—City had governmental immunity from common law tort claims from contractor who was responsible for project on renovation and upgrading of City water and sewerage's instrumentation, control, and computer systems. Elsag Bailey Inc v City of Detroit, Mich, 975 F Supp 981 (ED Mich, 1997). (This case construed similar language in this chapter contained in the 1974 Detroit City Charter.)

City Code reference—Water, § 48-1-1 et seq.; sewers and drains, § 48-2-1 et seq.

***State Law reference—** Authority to establish and maintain water and sewage systems, MCL 117.4f.*

Sec. 7-1201. - Department.

The Water and Sewerage Department is headed by a seven (7) member board known as the Board of Water Commissioners. The members of the Board shall be appointed by and serve at the pleasure of the Mayor. No member of the Board shall be a City official or employee, or a principal or employee of a contractor of the City. The term of membership on the Board is four (4) years and not more than two (2) terms expire each year.

A member must be a citizen of the United States and a resident of Michigan. At least four (4) members of the Board must be residents of Detroit.

The Board shall appoint, with the approval of the Mayor, a Director and a Deputy Director for the Department. The Director and Deputy Director serve at the pleasure of the Board.

Sec. 7-1202. - Powers.

Under the direction of the Board, the Department shall supply water, drainage and sewerage services within and outside of the City.

The Board shall periodically establish equitable rates to be paid:

1. By the owner or occupant of each house or building using water, drainage, or sewerage services; and
2. By any person, municipality, or public or private agency making a wholesale purchase of water, drainage or sewerage services from the City.

Unless otherwise provided by contract or state law, the unpaid charges for water, drainage, and sewerage services, with interest, shall be a lien of the City upon the real property using or receiving them.

The Board may make all necessary adjustments in the collection of water, drainage or sewerage charges. The Board may be given additional authority to establish rates by ordinance.

Upon the request of the Mayor, the Board shall advise the various agencies of the City on matters involving water resource management.

Case law annotations—Absent specific statutory authority, a City may not make charges for water a lien on the property served, notwithstanding provisions for doing so in a home rule charter. *Home Owners' Loan Corp* v *City of Detroit,* 292 Mich 511; 290 NW 888 (1940).

(1) Statute governing sale of water by municipal corporations outside their territorial limits does not render reasonable, as matter of law, rates within maximum and minimum provisions in face of contractual provision which states that rates shall be reasonable in relation to costs; (2) determination of reasonableness of rate charged by municipal seller of water to customers outside its territorial limits does not require, as matter of law, application of cost-of-capital methodology; and (3) municipalities failed to carry their burden of establishing rate charged by City of Detroit was unreasonable. *City of Plymouth* v *City of Detroit,* 423 Mich 106; 377 NW2d 689 (1985).

Sec. 7-1203. - Limitation on Funds.

All moneys paid into the City treasury from fees collected for water, drainage or sewerage services shall be used exclusively for the payment of expenses incurred in the provision of these services, including the interest of principal of any obligations issued to finance the water supply and sewerage disposal facilities of the City, and shall be kept in separate funds.

Case law annotation—City Charter forbids the City from profiting from the sale of water and requires that all revenues therefrom be used only to fund the activity itself, therefore, operation of the Water Department is not a proprietary activity. *Davis* v *City of Detroit,* 269 Mich App 376; 711 NW2d 462 (2005).

Sec. 7-1204. - Limitation on Sale of Assets.

The following limitations shall apply relative to water and sewerage:

1. The City shall not sell or in any way dispose of any property needed to continue the operation of any City-owned public utility furnishing water and sewerage service, unless approved by a majority of City voters voting on the question at a regular or special election.
2. The City shall not grant any public utility franchise for water and sewerage services which is not subject to revocation at the will of the City Council unless the proposition is first approved by three-fifths (⅗) of City voters voting on the question at a regular or special election.
3. All contracts, franchises, grants, leases or other forms of transfer in violation of this section shall be void and of no effect against the City.

EXHIBIT – 6

Neutral
As of: September 2, 2025 8:02 PM Z

Mackinaw Area Tourist Bureau, Inc. v. Vill. of Mackinaw City

Court of Appeals of Michigan

May 23, 2024, Decided

No. 361625

Reporter
2024 Mich. App. LEXIS 4029 *; 2024 LX 58029; 2024 WL 2484550

MACKINAW AREA TOURIST BUREAU, INC., doing business as MACKINAW AREA VISITORS BUREAU, AMERICAN BOUTIQUE INN, AMERICA'S BEST VALUE, BAYMONT INN & SUITES, BAYSIDE HOTEL MACKINAC, BEACHCOMBER MOTEL, BEST WESTERN DOCKSIDE, BRIDGE VISTA BEACH HOTEL, BRIGADOON BED & BREAKFAST, BUDGET INN MACKINAW, CABINS OF MACKINAC, CAPRI MOTEL, CLARION HOTEL BEACHFRONT, COMFORT INN—LAKESIDE, COURT PLAZA INN & SUITES, CROWN CHOICE INN & SUITES, DAYS INN—LAKEVIEW, ECONO LODGE BAYVIEW, FAIRVIEW BEACHFRONT INN, GREAT LAKES INN, HAMILTON INN SELECT, KNIGHTS INN, LAMPLIGHTER MOTEL, LIGHTHOUSE VIEW MOTEL, MACKINAW BEACH & BAY MOTEL, PARKSIDE INN—BRIDGEVIEW, QUALITY INN & SUITES, RAINBOW MOTEL, RAMADA INN WATERFRONT, STARLITE BUDGET INN, SUPER 8—BEACHFRONT MOTEL, SUPER 8—BRIDGEVIEW MOTEL, THUNDERBIRD INN MACKINAW, TRAILSEND MOTEL, VINDEL MOTEL, WATERFRONT INN, WELCOME INN, MACKINAC BAY TRADING COMPANY, MACKINAW CROSSINGS, MACKINAW COFFEE, INC., FRANK & STUFF, INC., DIXIE SALOON, INC., RUM RUNNERS ISLAND, INC., ANNA LIEGHIO, INC., MACKINAC BAY WATER, INC., MACKINAC BAY WATER PARK, INC., TBWC RESTAURANT, INC., and MACKINAW DEPOT, INC., Plaintiffs-Appellees/Cross-Appellants, v VILLAGE OF MACKINAW CITY, Defendant-Appellant/Cross-Appellee.

Notice: THIS OPINION IS UNCORRECTED AND SUBJECT TO REVISION BEFORE FINAL PUBLICATION IN THE MICHIGAN COURT OF APPEALS REPORTS.

Subsequent History: Motion granted by *Mackinaw Area Tourist Bureau, Inc. v. Vill. of Mackinaw City, 2024 Mich. LEXIS 1639, 2024 WL 4101723 (Sept. 6, 2024)*

Motion granted by *Mackinaw Area Tourist Bureau, Inc. v. Vill. of Mackinaw City, 2025 Mich. LEXIS 574 (Apr. 2, 2025)*

Leave to appeal denied by *MacKinaw Area Tourist Bureau, Inc. v. Vill. of MacKinaw City, 2025 Mich. LEXIS 847 (May 21, 2025)*

Prior History: **[*1]** Cheboygan Circuit Court. LC No. 19-008746-CZ.

Mackinaw Area Tourist Bureau v. Vill. of Mackinaw City, 2022 Mich. App. LEXIS 5134 (Mich. Ct. App., Aug. 26, 2022)

Core Terms

Village, rates, water and sewer, users, Bolt, rate increase, user fee, infrastructure, funding, regulatory purpose, proportionate, water tower, costs, rate structure, trial court, charges, usage, tower, additional water, ratepayers, parcels, serves, storm water, Headlee Amendment, caissons, capital improvement, summary disposition, high-volume, sewer, raising of revenue

Case Summary

Overview
HOLDINGS: [1]-Village's increased water and sewer rates were a valid user fee, not a tax under Const. 1963, art 9, § 31, because nothing in the record suggested the rates were disproportionate to the cost of providing the services, nor was there any evidence in the record rebutting the presumption that the Village's increased rates were reasonable.

Outcome
Reversed and remanded.

LexisNexis® Headnotes

Constitutional Law > State Constitutional Operation

Governments > Local Governments > Finance

HN1 **Constitutional Law, State Constitutional Operation**

Application of Const. 1963, art 9, § 31 is triggered by the levying of a tax. Section 31, prohibits units of local government from levying any new tax or increasing any existing tax above authorized rates without the approval of the unit's electorate. But § 31 does not prohibit a local unit of government from instituting a user fee without voter approval.

Evidence > Burdens of Proof > Allocation

Governments > Public Improvements > Sanitation & Water

HN2 **Burdens of Proof, Allocation**

Plaintiffs bear the burden of proving that an increased water and sewer rates charge constituted a tax in violation of the Headlee Amendment, Const. 1963, art 9, § 31.

Constitutional Law > Income Tax

Constitutional Law > Congressional Duties & Powers > Raising Revenue

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

HN3 **Constitutional Law, Income Tax**

There is no bright-line test for distinguishing between a valid user fee and a tax that violates the Headlee Amendment, Const. 1963, art 9, § 31. At the most basic, a fee is exchanged for a service rendered or a benefit conferred, and some reasonable relationship exists between the amount of the fee and the value of the service or

benefit, whereas a tax is designed to raise revenue. The Michigan Supreme Court has identified three primary criteria for courts to consider when distinguishing a user fee from a tax: (1) a user fee primarily serves a regulatory purpose, (2) a user fee is proportionate to the necessary cost of the service, and (3) a user fee is voluntary. These criteria are not to be considered in isolation, but rather in their totality, such that a weakness in one area would not necessarily mandate a finding that the charge is not a fee.

Governments > Local Governments > Property

Governments > Public Improvements > Sanitation & Water

HN4 **Local Governments, Property**

The ultimate determination of whether any increased water and sewer rates charge is a valid user fee or a tax does not turn on whether the charge will be used to fund new infrastructure. Rather, courts apply the three primary criteria to distinguish between a fee and a tax identified in Bolt v. City of Lansing.

Constitutional Law > Congressional Duties & Powers > Raising Revenue

HN5 **Congressional Duties & Powers, Raising Revenue**

Courts are to consider whether a charge primarily serves a regulatory or a revenue-raising purpose. If the charge primarily serves a regulatory purpose, it tends to support that the charge is a user fee. If the charge primarily serves a revenue-raising purpose, it tends to support that the charge is a tax.

Governments > Public Improvements > Financing

Governments > Public Improvements > Sanitation & Water

HN6 **Public Improvements, Financing**

Generally speaking, it is beyond dispute that water and sewer rates serve the regulatory purpose of providing water and sewer services to ratepayers. Such rates fund the operational and capital expenses of the water and sewer systems, which likewise serves the primary function of providing water and sewer services to ratepayers.

Governments > Public Improvements > Financing

HN7 **Public Improvements, Financing**

A fee can raise money as long as it is in support of the underlying regulatory purpose.

Administrative Law > Judicial Review > Reviewability > Jurisdiction & Venue

Governments > Public Improvements > Financing

HN8 **Reviewability, Jurisdiction & Venue**

Categorically, obligations arising out of administrative-agency regulations serve a regulatory purpose.

Governments > Public Improvements > Financing

Governments > Public Improvements > Sanitation & Water

HN9 **Public Improvements, Financing**

Using funds generated by water and sewer rates to pay for the operation and maintenance of the water and sewer systems, including using the funds to increase capital and operational reserves, serves a regulatory purpose.

Governments > Local Governments > Employees & Officials

Governments > Public Improvements > Financing

HN10 **Local Governments, Employees & Officials**

The second criterion identified in Bolt v. City of Lansing looks to the proportionality of the charge; it asks courts to consider whether the charge is proportionate to the necessary cost of the service provided. If so, it supports that the charge is more likely a user fee.

Energy & Utilities Law > Regulators > Public Utility Commissions > Ratemaking Procedures

Governments > Public Improvements > Sanitation & Water

HN11 **Public Utility Commissions, Ratemaking Procedures**

Municipal utility rates, such as water and sewer rates, are presumed reasonable. This presumption can be overcome by a proper showing of evidence. The reasonableness of municipal utility rates is relevant when considering the second Bolt v. City of Lansing criterion. This is because a reasonable rate is more likely to be proportionate to the cost of providing the service. The proportionality of a charge is not a question of mathematic precision. When a charge reflects actual use, metered with relative precision, it may properly be viewed as a utility service for which usage-based charges are permissible.

Evidence > Burdens of Proof > Allocation

HN12 **Burdens of Proof, Allocation**

Plaintiffs must offer evidence to support their position.

Governments > Local Governments > Employees & Officials

Governments > Public Improvements > Financing

HN13 **Local Governments, Employees & Officials**

The third criterion identified in Bolt v. City of Lansing considers the voluntariness of a charge. If the charge is compulsory, then it is more likely a tax. If the charge is only compulsory for those who use the service, and if the user can choose how much of the service to use, then the charge is more likely a user fee.

Governments > Public Improvements > Financing

HN14 **Public Improvements, Financing**

The water rates paid by consumers are in no sense taxes, but are nothing more than the price paid for water as a commodity, just as similar rates are payable to gas companies, or to private water works, for their supply of gas or water. No one can be compelled to take water unless he chooses. The price of water is left to be fixed by the board in their discretion, and the citizens may take it or not as the price does or does not suit them. Each individual user decides the amount and frequency of usage, i.e., each user decides how much water to draw from the tap.

Civil Procedure > ... > Costs & Attorney Fees > Attorney Fees & Expenses > Reasonable Fees

Governments > Public Improvements > Financing

HN15 **Attorney Fees & Expenses, Reasonable Fees**

Just because a charge is voluntary does not necessarily mean it is a user fee. The Bolt v. City of Lansing criteria are to be considered in their totality, and a finding that a charge is voluntary does not necessitate finding that the charge is a fee.

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For VILLAGE OF MACKINAW CITY, Defendant - Appellant - Cross-Appellee: GREG LONGWORTH.

For MICHIGAN MUNICIPAL LEAGUE, Amicus Curiae: SONAL H. MITHANI.

For DEPARTMENT OF ENVIRONMENT GREAT LAKES AND ENERGY, Amicus Curiae: NATHAN A. GAMBILL.

Judges: Before: O'BRIEN, P.J., and K. F. KELLY and M. J. KELLY, JJ. K. F. KELLY, J. (dissenting).

Opinion by: Colleen A. O'Brien

Opinion

O'BRIEN, P.J.

Defendant, Village of Mackinaw City (the Village), was informed by the Michigan Department of Environmental Quality (DEQ)[1] that it was out of compliance with the *Michigan Safe Drinking Water Act, MCL 325.1001 et seq.* (Act 399), due to insufficient water storage capacity, and that the Village's current funding structure for its water and sewer systems was not sufficient to adequately support the systems' needs. To remedy these deficiencies, the Village increased its water and sewer rates. This led plaintiffs, Mackinaw Area Tourist Bureau, doing business as

[1] Shortly before this lawsuit commenced, the DEQ was renamed the Department of Environment, Great Lakes, and Energy, see EO 2019-06, but this opinion will refer to the department as the DEQ for consistency.

Mackinaw Area Visitors Bureau,[2] to file suit, claiming that the water- and sewer-rate increases were a disguised tax levied without voter approval contrary to *Const 1963, art 9, § 31 of the Headlee Amendment*.[3] The Village **[*2]** filed a motion for summary disposition, and plaintiffs responded by arguing that the trial court should deny the Village's motion and grant summary disposition in plaintiffs' favor. The trial court sided with plaintiffs. It reasoned that the Village's rate increases constituted a tax because a portion of the water-rate increase would be used to fund the construction of a new water tower. The court believed that "new infrastructure" could never be funded through a user fee, so the water-rate increase must be a tax. This was error. Increasing water and sewer rates to generate revenue to fund necessary capital improvements to the systems serves a regulatory purpose. There is no bright-line rule prohibiting water rates from being increased to fund "new infrastructure" necessary for the water-supply system's continued safe operation. Applying the three-factor test from *Bolt v City of Lansing, 459 Mich 152; 587 NW2d 264 (1998)*, we conclude that the disputed rates did not constitute a tax. We accordingly reverse the trial court's order granting plaintiff's motion for summary disposition and remand for the trial court to enter an order granting summary disposition in favor of the Village.

I. BACKGROUND

The Village was established under the *Michigan General Law Village Act, MCL 61.1 et seq.* and operates **[*3]** a municipal water and sanitary sewer system. The Village was not required to operate a water system,[4] but by electing to do so, it became a "supplier of water,"[5] subject to Act 399.[6]

In 2014, the Village entered into a Stormwater, Asset Management, and Wastewater (SAW) grant agreement with the DEQ and the Michigan Finance Authority under which the state provided 90 percent of the total cost for the Village to obtain a storm and wastewater asset management plan. The agreement provided, in part:

> SAW grant recipients for wastewater system management are required to make significant progress on the funding structure. Significant progress is defined as a 5-year plan to eliminate the gap with a minimum initial rate increase to close at least 10 percent of the funding gap. The first rate increase must be implemented within three years of the executed grant. The applicant will need to certify that all grant activities have been completed at the end of three years. Asset management plans for stormwater systems are to be implemented.[7]

On May 15, 2015, the DEQ, after conducting a sanitary survey and evaluating the Village's water system with respect to the regulatory requirements in Act 399, notified the Village's **[*4]** interim manager of a deficiency with respect to finished water storage.[8] The DEQ said that the following deficiency constituted a violation of Act 399 and "must be resolved in order to return the water system to compliance":

> 1. The Village has deficient storage capacity. Part 11, *Distribution Systems and Storage Tanks*, of Act 399 requires the Village to have sufficient distribution system capacity to meet peak flows and emergency conditions while maintaining minimum pressures throughout the entire distribution system. Page 7 of the enclosed Sanitary Survey form provides more detailed information. Also, the Village's March 2012 Reliability

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[2] The Mackinaw Area Tourist Bureau is a domestic nonprofit corporation comprising the named privately owned businesses.

[3] The Headlee Amendment is the popular name for *Const 1963, art 9, §§ 25-34*.

[4] See *MCL 71.1*.

[5] *MCL 325.1002*

[6] *MCL 325.1003*.

[7] A rate study was conducted as part of the asset management plan, which is referenced later in this opinion.

[8] *MCL 325.1003 of Act 399* provides in relevant part that "[t]he director may enter upon the waterworks system of a supplier of water at reasonable times for the purpose of inspecting the system and carrying out this act and rules promulgated under this act."

> Study discusses this deficiency in greater depth. Please provide a compliance schedule to address this on-going deficiency.

The DEQ also made recommendations in the "financial" area. The DEQ stated that "the following recommendations will prove useful in enhancing the operation and maintenance of the Village's water supply":

> 1. The Village needs to evaluate its staffing plan to ensure continued compliance with Act 399. The Village has a good preventative maintenance program started for valves and hydrants, is collecting data for its Asset Management Program, and working on a comprehensive cross-connection control program. **[*5]** All of these programs take staff hours to keep them updated and functioning. The DEQ highly encourages the Village to continue all of these programs to continue to provide high quality drinking water to its residents and visitors.
> 2. The Village needs to evaluate its current security plan for effectiveness in keeping water system facilities safe and deterring malicious activity. DEQ staff recommends the Village consider adding fencing and signage around source and tower facilities. The Village needs to ensure adequate security is provided for all of its facilities.
>
> 3. Provide a detailed 20-year Capital Improvements Plan along with budget information by no later than December 31, 2015, to meet the requirements of Act 399; specifically, *Rule 1606*, *publicly owned or operated community water supplies; additional general plan requirements*.

Later, in a May 4, 2017 letter to the Village's interim manager, the DEQ addressed the Village's "aging water supply system" and the "complexity" of the Village's service area. The letter stated in relevant part:

> [T]he census population remains relatively constant. The [V]illage has four wells, a firm treatment capacity of 1.7 million gallons per day, and one elevated tank **[*6]** with a proposal for a second tank. In addition, it currently serves a commercial district with 3,300 hotel rooms in 38 different hotels. Based on this information, the [DEQ] Drinking Water and Municipal Assistance Division (DWMAD), is reclassifying the distribution level from an S-4 to S-3. The S-3 classification covers distribution systems serving a population of less than 4,000. This reclassification shall be effective on November 5, 2017. The Village's operator-in-charge is certified to one level above this classification. So, no action is needed by the [V]illage.
> . . . The Village is also working with its engineering firm and Michigan Rural Water Association [MRWA] staff to revise its water and sewer rate structure and Asset Management Program. Based on the complexity of the Village's water supply system, and the fact it routinely serves a population greater than 1,000, the Village is required to have an Asset Management Program in place beginning January 1, 2018.

The letter included an attachment—DEQ's "Asset Management Guidance." The attachment referenced *Mich Admin Code, R 325.11606*, which requires a community water supply that serves more than 1,000 people to implement an asset management program as defined **[*7]** in *Rule 325.10102* beginning January 1, 2018. The rule stated that asset management plans shall include, among other requirements:

> (d) A capital improvements plan that identifies waterworks system needs for 5-year and 20-year planning periods. . . .
> (e) A summary detailing the funding structure and rate methodology that provides sufficient resources to implement the asset management program.

On September 12, 2017, the DEQ sent yet another letter to the Village's manager summarizing the DEQ's review of the Village's water-supply facilities for compliance with Act 399. The DEQ acknowledged that the Village had addressed some of the deficiencies and recommendations since the DEQ's last sanitary study, but identified two deficiencies that amounted to continuing violations of Act 399—"Finished Water Storage" and "Financial." The DEQ explained these deficiencies as follows:

> 1. The Village needs to expand upon its current water storage capacity. The current capacity is in violation of Act 399; specifically, *Rule 1105*, as it is not of sufficient capacity to provide for the fire flow needs of the service

> area while continuously maintaining acceptable pressure levels throughout the system. The Village council will need to increase revenue **[*8]** to address the water storage capacity deficiency.
>
> 2. The rates need to be reviewed and increased in order to adequately support the water supply. Act 399 requires that a community water supply have adequate technical, financial, and managerial capacity to maintain compliance with the act. The issue of inadequate funding can further infringe on Part 12, Reliability, of Act 399, which establishes the requirements for maintaining the reliability of public water supply systems to assure a continuous supply of water, including the system capacity, number of wells, and equipment meant to protect against interruptions in service. Current rates are too low to meet the required financial needs to sustainably operate the system. Rate increases are recommended to allow for the current Capital Improvement Plan to be actionable.

The DEQ offered the following recommendation to "enhance the operation and maintenance of the Village's water supply":

> Part of the Village's responsibility is ensuring a secure financial future for the operation of the water supply. The current rate structure does not allow for this. The Village council needs to take action to increase revenue to ensure proper financial and managerial capacity is available to operate, **[*9]** maintain, and replace the Village's existing infrastructure, as well as add new infrastructure when needed. Both the revision of the rate structure and pursuit of additional funding opportunities are recommended.

The DEQ concluded the September letter by asking the Village to submit a plan to address the identified deficiencies in its water-supply system.

An engineering firm, C2AE, prepared a capital improvement plan for the Village in October 2017. The plan concluded that, although existing rates were sufficient to pay for some short-term improvements and repairs of the wastewater and stormwater systems, a rate adjustment was needed to fund the replacement of equipment and some capital improvements for the Village wastewater system.

Rate expert John Holland of the MRWA assisted the Village in the creation of a rate structure for its water and sewer rates. At some point early in the process, the MRWA gave a rate-structure presentation to the Village council in which the MRWA sought to "receive direction from [the council] as to how to further proceed in the development of the rate structure for the Village."[9] The MRWA noted that, while the current population of the village was 860, the **[*10]** system was sized for a population of 12,000 to 13,000 because of the tourist industry. It explained that three or four hotel rooms are the equivalent of one house and that there were an estimated 2,800 to 3,000 hotel rooms in the village. "The large hotels require the community to have a large capacity for flows and fire protection," the MRWA claimed. Turning to how the Village could determine rates, the MRWA explained that rates in general should consider asset management, budget (including day-to-day operation and maintenance costs), payroll, debt payments and reserves (for both present and future), and capital improvements. For the customer base that would be charged the rates, the MRWA focused on (1) the number of meters and the size of those meters for both water and sewer and (2) the amount of water sold and to whom that water was sold. According to the MRWA, the Village sold 23,312,199 gallons of water per year to customers using less than 50,000 gallons per quarter, and 45,706,282 gallons of water per year to customers using more than 50,000 gallons per quarter. Using one quarter as an example, the MRWA claimed that there were 654 customers; 534 customers used less than 50,000, **[*11]** and 120 customers used more than 50,000 gallons. "This means that 18% of your customers use 66% of your water," the MRWA explained. Turning to ways in which the Village could structure its rates, the MRWA stated that the Village could use an ascending rate—which "is a rate where the commodity charge increases as the customer usage increases"—or a non-ascending rate. The MRWA noted that an ascending-rate structure "pushes the cost of the large system to the larger users." For the preliminary meeting, the MRWA used a 50,000-gallon cutoff and a 50% markup as an example. At the end of the presentation, the MRWA stated that it needed to know whether the Village council wanted the MRWA to use an ascending or non-ascending rate structure in its rate study and, if an

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[9] This quote and the remaining discussion of the MRWA's presentation come from a PowerPoint presentation included in the record. The details of the actual discussions that occurred during and following the presentation are not included in the lower court record.

ascending rate structure was desired, whether the MRWA should "use 50% mark up on commodity charge over 50,000 gallons."

After this meeting but before recommending a new rate structure, Holland considered all of the future capital improvements recommended in the capital improvement plan. Then, according to minutes from a Village council meeting on January 4, 2018, Holland gave a presentation to the Village council "summarizing **[*12]** the conclusion of the rate study and asset management they performed for the Village along with engineering firm C2AE." The minutes from the meeting stated:

> Mr. Holland noted every community has unique circumstances to address when providing safe water and sewer services. The Village has to have infrastructure in place for not only the 850 year-round residents but to service the demand of thousands of seasonal visitors. On hand to explain the need for a second water tank to accommodate water suppression assurance for firefighting multiple story buildings was MI DEQ District Supervisor, Brian Thurston, P.E.

Following this presentation, the Village council voted to approve the rate structure as presented and a two percent increase. The January 4, 2018 resolution resulted in a tiered (or ascending) rate structure—water and sewage charges per 1,000 gallons up to 50,000 gallons were charged one rate, and water and sewer charges per 1,000 gallons over 50,000 were charged at a higher rate.

A. THE ENSUING LITIGATION

Plaintiffs' complaint, while not a model of clarity, challenged the water and sewer rates adopted on January 4, 2018, claiming that the increase in rates was "actually a disguised **[*13]** tax" implemented without voter approval in violation of the *Headlee Amendment, Const 1963, art 9, § 31*. Plaintiffs alleged that the rate increase was to fund a "capital improvement plan for necessary infrastructure improvements and/or replacements." Citing *Bolt*, plaintiffs claimed that this rendered the rate increase "a disguised tax because it is disproportionate to the necessary cost of providing service, involuntary, and imposed to raise revenue rather than for a regulatory purpose."

Following discovery, the Village moved for summary disposition under *MCR 2.116(C)(10)*, arguing that plaintiffs could not meet their burden of proving that the Village's increased water and sewer rates contained a charge that qualified as a tax. According to the Village, the increased rates constituted user fees because they satisfied all three of the criteria from *Bolt*—the rates (1) served a regulatory purpose, (2) were proportionate to the necessary cost of the services, and (3) were voluntary.

As to the first *Bolt* factor, the Village argued that the operation of water and sewer systems is a regulatory activity, and that the Village's increased water and sewer rates are a valid user fee because they serve the regulatory purpose of providing water and sewer **[*14]** service to the Village's residents. That the water and sewer rates generated revenue "doesn't matter," according to the Village, because the revenue generated from the rates was used for the underlying regulatory purpose of operating and maintaining the water and sewer systems. The Village claimed that all revenue generated from the water and sewer rates was allocated solely to the operation of the water and sewer system, and that plaintiffs had not suggested otherwise.

Turning to the second *Bolt* factor, the Village contended that its increased rates were reasonable, which was "highly relevant" to whether the rates were proportionate. Caselaw, the Village said, requires courts to start with a presumption that municipal utility rates are reasonable. Plaintiff bore the burden of overcoming this presumption, and the Village argued that plaintiff had not presented any evidence to rebut the presumption. "Plaintiff's bare and speculative assertions that the rates are unreasonable are without weight," the Village contended.

Contrasting itself to plaintiff, the Village said that it had engaged an independent expert in ratemaking, Mark Beauchamp, who analyzed the Village's water and sewer rates. **[*15]** Beauchamp testified that the Village's choice to charge high-volume users of water a higher rate was justified based on the Village's "very unusual pattern" of water usage, where the summer peak usage was 2.8 times the average usage; in most communities, according to Beauchamp, summer usage is only 1.2 to 1.7 time higher than the average use. Beauchamp further opined that both (1) using a break point of 50,000 gallons for the step-up pricing and (2) the stepped-up rate of a 50-percent

increase were reasonable. In fact, Beauchamp thought that the 50-percent step-up amount should be higher. The Village additionally directed the court's attention to community comparison charts, which showed, according to the Village, that "the Village's rate structure puts its customer in the middle of the pack" because customers of all meter sizes "would have paid more in total charges in at least one third of the other communities." All of this evidence, the Village argued, refuted plaintiffs' "unsubstantiated assertion that the Village's rates are unreasonable."

The Village acknowledged that, in response to interrogatories, plaintiffs had contended that the Villages water and sewer rates were unreasonable **[*16]** because the rates raised money for future capital improvements. The Village argued that this did not make the rates unreasonable because (1) the Court of Appeals had held that revenue generated by water and sewer rates could be used to fund future capital improvements, (2) Beauchamp testified that using revenue generated by water rates to fund necessary capital improvements was standard, not only based on his experience but according to the main ratemaking manual for water and sewer systems, (3) the DEQ required the Village to generate capital reserves through increased rates, and (4) plaintiffs' argument was based on the misconception that the capital improvements were only necessary if the Village sought to expand the system, when in reality, "[t]he capital improvements are required for the continued operation of the system for the current users."

Lastly, regarding the third *Bolt* factor, the Village relied on established caselaw to argue that water and sewer charges are voluntary because users can control how much water they use.

In response, plaintiffs clarified that, in their opinion, the Village violated the Headlee Amendment because a portion of the water- and sewer-rate increase **[*17]** was "for the express purpose of funding construction of new infrastructure," namely an additional water tower. Plaintiffs argued that, with this understanding of the Village's purpose for increasing water and sewer rates, application of the *Bolt* criteria showed that (1) the purpose of the new rates was to raise revenue for future improvements; (2) the rates were not proportional to the current costs of service; and (3) the rates were compulsory upon users.

For the first *Bolt* factor, plaintiffs argued that increasing the water and sewer rates to raise revenue for future improvements, as opposed to defraying the costs of a regulatory activity, amounted to a revenue-raising purpose. Plaintiffs emphasized that the "crux of the Village's Headlee violation" was the "distinction between construction of infrastructure improvements and operation/maintenance of improved infrastructure[.]" The deficiency in the Village's water-storage capacity, according to plaintiffs, could only be addressed by "adding to the existing infrastructure, i.e. making capital improvements," which was distinct from any "operational costs for existing infrastructure." Plaintiffs summarized that the increase in the water **[*18]** and sewer rates crossed the line from a regulatory fee to a revenue-raising tax because the increase was intended to generate revenue to pay for the construction of new infrastructure, but "fees can only be used to cover current costs of operating a regulated activity."

Turning to the second *Bolt* factor, plaintiffs claimed that the Village's concession that a portion the revenue generated from the increase in water and sewer rates would "be used to pay for future capital improvements" amounted to "per se proof of a disproportionate rate scheme." They maintained that the increased rates "cannot be said to be proportionate to the current necessary costs because, by definition, they serve to afford the cost of future servicing." Plaintiffs additionally argued that the tiered rate structure was disproportionate because the high-volume users did not receive a greater benefit, despite being charged a higher rate.

Regarding the third *Bolt* factor, plaintiffs argued that the Village's contention that users can control how much water they use and its recommendations on how plaintiffs could reduce water consumption "contrast with the spirit of *Bolt*, and the assertion within that forcing a utility **[*19]** user to sacrifice the full potential of a property to avoid unreasonable fees is a de facto deprivation of property rights." They argued that "where every resident . . . bears the right to reap the maximum possible benefit of their property, water and sewer usage is compulsory."

In their request for relief, plaintiffs asked the court to deny the Village's motion for summary disposition, grant summary disposition to plaintiffs under *MCR 2.116(I)(2)*, and declare that the Village's increased water and sewer rates represented a tax on users in violation of *§ 31 of the Headlee Amendment*.

At a hearing on the parties' competing motions, the trial court noted that caselaw supported that some costs for capital improvements were allowed to be included in user fees without the fees "being a tax." It said, however, that a "very important question in this case" was whether that caselaw would allow "recouping money through user fees to build newly constructed infrastructure beyond just repair and replacing the existing" systems.

After this hearing, the court ordered supplemental briefing to address the following questions: "(1) what portion of the rate increase is allocated to finance the construction of an additional water tower; (2) what portion **[*20]** of the costs of construction of the additional water tower are financed by the rate increase; [and] (3) when the costs of construction of the additional water tower are fully paid, for what purposes will that portion of the rate increase that had been allocated to finance those costs be thereafter allocated[.]"

With respect to the first question, the Village in a supplemental brief represented that the portion of the rate increase allocated to finance the construction of the additional water tower was "approximately 13.9% annually for the first five years the new rate is in effect and none of the rate increase will be specifically allocated to the additional water tower thereafter." It estimated that the rate increase would generate additional water revenue of over $363,000 per year and additional sewer revenue of over $97,000 per year. Beginning with fiscal year 2018, the Village put over $50,000 of those revenues toward the cost of the additional water tower. The Village said that after five years of such reserves, no portion of the rate increase would be allocated toward the additional water tower.

As to the court's second question, the Village estimated that it would pay 14.3 percent **[*21]** of the anticipated cost of the new water tower with increased revenue from the new rate structure. According to the Village, the DEQ was requiring it to create additional storage capacity of 150,000 gallons, as long as additional power generators were installed at municipal wells. The cost of this project was $1.4 million. The Village said that it recently secured a community block grant of $1,350,000, of which $1,160,000 was allocated to the new water tower, but the grant required a $450,000 contribution from the Village. The Village intended that $200,000 of its contribution would come from water revenue generated by the increased rate.

In answer to the court's third question, the Village said that the revenues generated by the increased rate would be used for a reserve fund for other capital-improvement needs once the additional water tower was completed. With respect to water revenue, the Village anticipated that revenue would be used to pay the Village's loan obligations for 40 years at the approximate rate of $220,000 per year. It said that revenue would also be used for various projects and expenses not addressed with loan proceeds. The Village provided a detailed description **[*22]** of the projects.

B. THE TRIAL COURT'S OPINION

The court issued a 12-page opinion and order in which it denied the Village's motion for summary disposition and granted summary disposition in favor of plaintiffs. The court said that the question before it was limited to determining whether the increased water and sewer rates were a user fee or a tax, which necessitated an analysis of the *Bolt* criteria.

For the first *Bolt* factor, the court observed that it was undisputed that one of the reasons for the rate increase was the need to construct an additional water tower to increase the water storage capacity of the system. The court, citing *Shaw v Dearborn, 329 Mich App 640, 643; 944 NW2d 153 (2019)*, reasoned that "[a] unit of local government may not fund a public works project through increased user fees under the Headlee Amendment." With this understanding of the law, the court believed that the Village's increase to its water and sewer rates had "a flaw embedded in it, in that it was intended for and used for the funding of construction of new infrastructure . . . , that being an additional, second water tower." In short, because some of the revenue generated from the increased water and sewer rates was intended to fund the construction of an additional **[*23]** water tower, the court concluded that the increase to the water and sewer rates had a primarily revenue-raising purpose, so the first *Bolt* factor favored plaintiffs.

Addressing the second *Bolt* factor, the court thought it "yield[ed] mixed results." On the one hand, the court agreed with plaintiffs that "[t]he tiered rate structure may well be problematic in that the high-volume users do not receive a

greater benefit proportionate to their greater rate." On the other hand, the court agreed with the Village that the high-volume users drive the need for the additional water. But the court found two faults with the Village's argument: (1) the court believed that "charging a user fee to fund the construction of that water tower [was] itself impermissible" and (2) the Village did not explain "how the high-volume users drive the necessary costs of the water and sewer system in a way that would make the tiered rate structure proportionate as to those users." Still, the court credited the Village's argument that, even after the increases, its rates were reasonable compared to other similar utility systems in Michigan. Ultimately, while this factor "yield[ed] mixed results," the court concluded **[*24]** that it favored finding that the increased rates were a tax.

For the third *Bolt* factor, the court found that, based on caselaw, water and sewer rates are generally voluntary because each user decides the amount and frequency of the usage, and variable rates based on usage generally satisfy the voluntariness factor. This caselaw, the court explained, did not support plaintiffs' argument that the fees were involuntary because high-volume users would have to alter their use of their properties to avoid paying the stepped-up fees. The court accordingly concluded that the third *Bolt* factor favored a finding that the rate structure was a user fee and not a disguised tax.

Overall, the court found that the first and second *Bolt* factors weighed heavily because the Village

> is funding new construction by charging ratepayers rather than taxpayers. The increased rate will continue long after the new construction is completed, and the stepped-up rate that high-volume users are charged will continue long after the justification for that tiered structure (the need for the second water tower) has passed. However, one of the major reasons for adopting the increased rate was to fund the construction of **[*25]** an additional water tower. This violates *Shaw*'s admonition that a fee may not be used to raise revenue to finance a public works project.

While the court believed that "this is not a clear-cut case one way or the other," it concluded that the Village's rate increase constituted a tax because a portion of the revenue generated by the increased water and sewer rates was intended "to fund *new infrastructure*." This, the court reasoned, was "impermissible under *Shaw* and a violation of the Headlee Amendment's taxpayer protections." The court accordingly held that the Village violated the Headlee Amendment by increasing its water and sewer rates.

II. STANDARD OF REVIEW

The principal issue on appeal is whether the increase to the Village's water and sewer rates as part of its January 4, 2018 resolution constitutes a valid user fee or a tax. This presents a question of law, reviewed de novo. See *Bolt, 459 Mich at 158*.

III. ANALYSIS

The Village argues that the trial court misread *Shaw*. This Court in *Shaw*, according to the Village, simply did not reach the issue of whether "new infrastructure" could be funded through user fees. And with the misunderstanding of *Shaw* out of the way, the Village continues, plaintiff cannot **[*26]** establish that the increase to the Village's water and sewer rates constituted a tax in violation of the Headlee Amendment. The Village is correct.

A. HEADLEE VIOLATIONS GENERALLY

Const 1963, art 9, § 31 of the Headlee Amendment states in relevant part:

> Units of Local Government are hereby prohibited from levying any tax not authorized by law or charter when this section is ratified or from increasing the rate of an existing tax above that rate authorized by law or charter when this section is ratified, without the approval of a majority of the qualified electors of that unit of Local Government voting thereon.

HN1 Application of *§ 31* is triggered by the levying of a tax. *Jackson Co v City of Jackson, 302 Mich App 90, 98; 836 NW2d 903 (2013)*, citing *Bolt, 459 Mich at 158-159*. "*Section 31* prohibits units of local government from levying any new tax or increasing any existing tax above authorized rates without the approval of the unit's electorate."

Durant v Michigan, 456 Mich 175, 182-183; 566 NW2d 272 (1997). But *§ 31* does not prohibit a local unit of government from instituting a user fee without voter approval. *Wheeler v Shelby Charter Twp, 265 Mich App 657, 664; 697 NW2d 180 (2005)*. See also *Bolt, 459 Mich at 159*. The central question in this case is whether the charge that resulted from the increased water and sewer rates constituted a valid user fee or a tax. ***HN2*** Plaintiffs bear the burden of proving that the charge constituted a tax in violation of the Headlee Amendment. *Shaw, 329 Mich App at 653*.

HN3 "There is no bright-line **[*27]** test for distinguishing between a valid user fee and a tax that violates the Headlee Amendment." *Bolt, 459 Mich at 160*. At the most basic, "a fee is exchanged for a service rendered or a benefit conferred, and some reasonable relationship exists between the amount of the fee and the value of the service or benefit," whereas "[a] tax . . . is designed to raise revenue." *Id. at 161*. The seminal case addressing this distinction is *Bolt*, in which our Supreme Court identified "three primary criteria" for courts to consider when distinguishing a user fee from a tax: (1) a user fee primarily serves a regulatory purpose, (2) a user fee is proportionate to the necessary cost of the service, and (3) a user fee is voluntary. *Id. at 161-162*. "These criteria are not to be considered in isolation, but rather in their totality, such that a weakness in one area would not necessarily mandate a finding that the charge is not a fee." *Shaw, 329 Mich App at 653* (quotation marks and citation omitted).

B. *SHAW*

In *Shaw*, the city of Dearborn had operated a combined sewer system whereby the raw sewage from homes and businesses entered the same pipes as stormwater. *Shaw, 329 Mich App at 644*. The combined sewage was sent to the Detroit Water and Sewerage Department for treatment before it could be released **[*28]** back into the environment. *Id.* Sometimes, a heavy rainstorm resulted in a combined-sewage-overflow event, releasing the combined sewage into a natural waterway before treatment. *Id.* As federal and state environmental regulations became more "stringent," the city was required "to plan and implement measures to reduce combined-sewage-overflow events." *Id.* The city's initial plan—funded by a millage with voter approval—was to construct 12 retention facilities, called caissons, that could store combined sewage. *Id. at 644-645*. Difficulties arose during the construction of the planned caissons, however, and only four caissons were in operation, serving a fraction of the city. *Id. at 645*. In some areas not served by the caissons, the city was undertaking a different abatement plan—it was separating the sewer system by providing separate pipes for sewage and stormwater. *Id.* Some of the areas had already been separated, while in the areas not yet separated, "the city is either installing a new pipe for stormwater and using the existing one for sewage or vice versa." *Id. at 645-646*. Coincident with the construction project required to separate the sewer system, the city chose to repair and replace some existing underground infrastructure, **[*29]** such as replacing old or deteriorated water and sewer lines. *Id. at 646*. The city scheduled this ancillary work at the same time as the sewer separation project to save money. *Id.* Some of the cost of this ancillary work was paid with revenue generated from the water and sewer rates the city charged its water and sewer customers. *Id.*

The plaintiff brought suit, arguing that hidden charges in the city's water and sewer rates were being used to fund these various projects, and that these charges amounted to taxes instituted without voter approval in violation of the Headlee Amendment. As relevant to the instant case, the plaintiff in *Shaw* argued that the city was using revenue generated by its water and sewer rates to fund some of the infrastructure costs of the city's sewer-separation project (what the plaintiff called the "CSO-capital charge"). *Id. at 648*. The trial court rejected the plaintiff's challenge, and the plaintiff appealed. *Id. at 650-651*.

This Court affirmed. This Court, accepting plaintiff's terminology, defined the CSOcapital charge as "the imposition on water and sewer ratepayers of some of the infrastructure costs of the city's sewer-separation project." *Id. at 656*. Rejecting the plaintiff's claim related to the **[*30]** CSO-capital charge, this Court reasoned that the plaintiff had failed to carry her burden of proving that the city used revenue generated by its water and sewer rates to pay for the city's sewer-separation project. The plaintiff, we explained, "simply has not presented evidence establishing that any funds obtained from water and sewer rates were used to pay for the mandatory sewer-separation project itself." *Id. at 663*. See also *id. at 657* ("[A]fter ample time and significant discovery, plaintiff has presented no evidence that the city actually charged the costs of the sewer-separation work to its ratepayers . . . .").

C. "NEW INFRASTRUCTURE"

Relying on *Shaw*, the trial court in the present case held that user fees cannot be used to raise revenue to finance "new infrastructure."[10] As recounted above, *Shaw* held no such thing.

Concluding differently, the trial court reasoned:

> [I]n other areas of Dearborn, the city constructed retention facilities, called caissons, to store the combined sewage to avoid overflow events during heavy storms. *Id. at 645*. The manner of financing this project is noteworthy here. The panel in *Shaw* described it as follows: "Although the city funded the construction of the caissons through the millage, **[*31]** it currently pays the cost of operating and maintaining the caissons with revenue generated by sewer rates charged to the city's sewer customers. *In other words, taxpayers built the four caissons, ratepayers operate and maintain them.* *Id. at 645* (emphasis added). This suggests that the initial construction of the new infrastructure, *even when performed in response to regulatory requirements*, could not be funded through increased rates to taxpayers. Rather, the funding of such new constructions involves taxes. In Dearborn's case, they submitted a millage proposal to the voters to approve the city to incur debt and use the increased millage rate to service the debt. *Id. at 644-645*. Such an option was available and open to defendant in this case. Instead, defendant is funding new construction through increased rates.

The portions of *Shaw* relied on by the trial court were in the opinion's statement of facts. See *Shaw, 329 Mich App at 643-647*. While *Shaw*'s facts are obviously relevant to understanding that case, there is no basis to think that *Shaw* was declaring a rule of law by recounting the facts of the case before it. That "taxpayers built the four caissons [and] ratepayers operate and maintain them," *id. at 645*, was a fact. It did not "suggest" **[*32]** anything. And, as previously explained, *Shaw* did not reach the issue of whether the water and sewer rates at issue could be used to fund "new infrastructure." Rather, this Court concluded that the plaintiff did not present evidence establishing that the city used funds obtained from water and sewer rates to pay for the sewer-separation project. *Id. at 663*. In short, the trial court misread *Shaw* to conclude "that it is impermissible under *Shaw* to fund *new infrastructure*." *Shaw* simply did not address that issue.

Still, *Shaw* did say, "The purpose of the amendment would be thwarted if a local authority could charge higher utility rates to raise revenue and then use some of the excess funds to finance a public-works project." *Shaw, 329 Mich App at 643*. Rather than parsing this statement (made in *Shaw*'s introductory paragraph) to decipher precisely what *Shaw* meant, it is enough to observe that the statement can be true. For instance, if the plaintiff in *Shaw* had been able to establish that the city was using funds obtained from water and sewer rates to pay for the sewer-separation project, she may well have been able to establish a Headlee violation—a sewer-separation project like the one in *Shaw* tends to benefit the general **[*33]** public instead of only those paying water and sewer rates. Accord *Bolt, 459 Mich at 166*; *Jackson Co, 302 Mich App at 108-109*. But this statement from *Shaw* should not be read as standing for the proposition that a user fee can never be used to fund "new infrastructure" or "capital improvements."

Doing so would contradict caselaw decided both before and after *Shaw*. *Bolt* itself states, "Where the charge for either storm or sanitary sewers reflects the actual costs of use, metered with relative precision in accordance with available technology, *including some capital investment component*, sewerage may properly be viewed as a utility service for which usage-based charges are permissible, and not as a disguised tax." *Bolt, 459 Mich at 164-165* (emphasis added, citation omitted).[11] Shortly after *Bolt* was decided, this Court in *Graham v Kochville Twp, 236*

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[10] The trial court used the term "new infrastructure" synonymously with "new construction," "public works project," and "capital improvements." Plaintiffs do the same on appeal, saying for instance, "That deficiency could only be addressed by adding to the existing infrastructure i.e., making capital improvements. Capital improvements create new elements of infrastructure, they are not operational costs for existing infrastructure."

[11] *Bolt* also said that the charge at issue in that case "constitute[d] an investment in infrastructure as opposed to a fee designed simply to defray the costs of a regulatory activity," *Bolt, 459 Mich at 163*, but this statement does not support the trial court's rule. First, *Bolt* itself recognized that a valid user fee could include a capital-investment component, as noted above. *Id. at 165*.

Mich App 141, 152; 599 NW2d 793 (1999), held that a charge constituted a valid user fee even though the charge would "pay for an investment in infrastructure." This Court explained that this did not render the charge a special assessment[12] because (1) the infrastructure that the charge was used to build would "not benefit the general public" and (2) the purpose of the charge was mainly regulatory. *Id. at 152-153*. More recently, this Court in *Youmans v Charter Twp of Bloomfield, 336 Mich App 161, 229; 969 NW2d 570 (2021)*, held that an increase to water and sewer rates intended to, **[*34]** among other things, increase revenue to fund "necessary capital improvements" served a primarily regulatory purpose and did not violate the Headlee Amendment. See *id. at 233*. The statement from *Bolt* and the holdings in *Graham* and *Youmans* all support that revenue generated by a user fee can be used to fund new infrastructure or capital improvements. ***HN4*** That said, the ultimate determination of whether any charge is a valid user fee or a tax does not turn on whether the charge will be used to fund "new infrastructure." Rather, courts apply the "three primary criteria" to distinguish between a fee and a tax identified in *Bolt, 459 Mich at 161-162*.

D. APPLYING THE *BOLT* CRITERIA

1. FIRST *BOLT* CRITERION

The first criterion identified in *Bolt* looks to a charge's purpose. ***HN5*** Courts are to consider whether the charge primarily serves a regulatory or a revenue-raising purpose. *Id. at 161*. If the charge primarily serves a regulatory purpose, it tends to support that the charge is a user fee. If the charge primarily serves a revenue-raising purpose, it tends to support that the charge is a tax.

HN6 Generally speaking, "it is beyond dispute" that water and sewer rates serve the regulatory purpose of providing water and sewer services to ratepayers. **[*35]** *Shaw, 329 Mich App at 666*. Such rates "fund the operational and capital expenses" of the water and sewer systems, which likewise "serves the primary function of providing water and sewer services" to ratepayers. *Youmans, 336 Mich App at 228*.

It is undoubtedly true, as plaintiffs contend, that the increase to the Village's water rates was intended in part to raise revenue to partially fund the construction of a new water tower. ***HN7*** But a fee can "raise money as long as it is in support of the underlying regulatory purpose." *Graham, 236 Mich App at 151*, citing *Merrelli v St Clair Shores, 355 Mich. 575, 583; 96 N.W.2d 144 (1959)*. Raising money for the construction of the second water tower plainly served the underlying regulatory purpose of providing water services to ratepayers. The Village's water-supply system was out of compliance with Act 399, as demonstrated by the correspondences from the DEQto the Village. To bring its water-supply system into compliance with Act 399 and ensure that it could continue delivering potable water to ratepayers, the Village needed to increase its water storage capacity. It sought to accomplish this by constructing an additional water tower. The construction of the additional water tower was thus done in an effort to comply with the Village's obligations under Act 399 and the DEQ's regulation of that act. Raising money **[*36]** to partially fund this construction, in turn, served the underlying regulatory purpose of providing water services to ratepayers. ***HN8*** "Categorically, obligations arising out of administrative-agency regulations serve a regulatory purpose." *Youmans, 336 Mich App at 228-229*.[13]

Second, the charge in *Bolt* had a substantial capital-investment component—the city intended to fund 50 percent of a $176 million project through the disputed charge, and 63 percent of that cost "constitute[d] capital expenditures." *Id. at 163*. Lastly, and most importantly, the charge in *Bolt* was a tax not solely because some portion of it constituted an investment in infrastructure but because, among other things, the charge (1) had a revenue-raising purpose, (2) was not proportionate to the cost of the service provided, and (3) was involuntary. *Id. at 163-169*.

[12] The issue in *Graham* was not whether the charge was a user fee or a tax but whether it was a user fee or a special assessment. See *Graham, 236 Mich App at 150-151*.

[13] The Village on appeal repeatedly asserts that the DEQ ordered the Village to construct the additional water tower, while plaintiffs and the DEQ in an amicus brief dispute this characterization. Regardless of whether the Village was ordered or simply encouraged to construct the second water tower, the fact remains that the Village needed to construct the second water tower to bring its water-supply system into compliance with Act 399.

The amount of revenue from the increased rates going to fund the second tower, moreover, represented a mere fraction of the revenue generated by the increased water and sewer rates. According to the Village, only 13.9 percent of the revenue generated by the increased water rates would go towards the second water tower for the first five years, and then none of the rate increase would be allocated to the water tower thereafter.[14] The remainder of the revenue generated was intended to be used for various projects, fund capital and operational reserves, and pay for maintenance and operational expenses related to the systems. Plaintiffs do not appear to dispute that the use of the rate revenue in this way served a regulatory purpose. Even if they did, the argument would be meritless. ***HN9*** This Court has repeatedly held that using funds generated by water and sewer rates to pay for the operation and maintenance of the water and sewer systems, including using the **[*37]** funds to increase capital and operational reserves, serves a regulatory purpose. *Shaw, 329 Mich App at 666*; *Youmans, 336 Mich App at 229*. On this record, the Village's act of increasing water and sewer rates to, among other things, pay for necessary capital improvements to those systems (including the construction of a second water tower), primarily served a regulatory purpose.

Plaintiffs insist that the rate increases must serve a revenue-raising purpose because high-volume users in the tiered (or ascending) rate structure do not receive a greater corresponding benefit. High-volume users, plaintiffs say, will generate most of the new revenue under the increased water and sewer rates but "will not realize any greater benefit from the infrastructure improvements than any other member of the general public." This argument is unpersuasive. As the Villages rightly observes, high-volume users burden the system more, contributing to its wear and tear and driving the need to invest in capital. It is not serving a revenue-raising purpose to ask users of a system to pay for capital infrastructure that will directly benefit those users. That the high-volume users will bear a greater portion of this cost reflects the fact that such users use the **[*38]** system more.[15] Those users will, contrary to plaintiffs' suggestion, certainly realize a greater benefit from infrastructure improvements to the Village's water and sewer systems compared to the general public. Not all members of the general public use the Village's water and sewer systems, whereas the high-volume users, as users of those systems, benefit from the systems directly. For these reasons, application of the first *Bolt* factor clearly favors concluding that the Village's increased water and sewer rates constituted a valid user fee because the rates were increased primarily to serve a regulatory purpose.

2. SECOND *BOLT* CRITERION

HN10 The second criterion identified in *Bolt* looks to the proportionality of the charge; it asks courts to consider whether the charge is proportionate to the necessary cost of the service provided. *Bolt, 459 Mich at 161-162*. If so, it supports that the charge is more likely a user fee.

HN11 Municipal utility rates, such as water and sewer rates, are presumed reasonable. *City of Novi v City of Detroit, 433 Mich 414, 428; 446 NW2d 118 (1989)*. This presumption can be "overcome by a proper showing of evidence." *Trahey v City of Inkster, 311 Mich App 582, 594; 876 NW2d 582 (2015)*. The reasonableness of municipal utility rates is relevant when considering the second *Bolt* criterion. *Youmans, 336 Mich App at 227*. This is because a reasonable rate is more **[*39]** likely to be proportionate to the cost of providing the service. See *Jackson Co, 302 Mich App at 109*. The proportionality of a charge is not a question of mathematic precision. *Shaw, 329 Mich App at 667*. When a charge reflects actual use, "metered with relative precision," it "may properly be viewed as a utility service for which usage-based charges are permissible." *Bolt, 459 Mich at 164-165*. See also *Shaw, 329 Mich App at 667*.

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[14] There is no suggestion that the Village planned to use revenue generated by the increased sewer rates to pay for the water tower. The construction of the second water tower, according to the Village, was to be funded with revenue generated by the increased water rates.

[15] Relatedly, it bears remembering that every user of the Village's water and sewer systems is subject to the same rates—everyone pays one rate up to 50,000 gallons per quarter, and then a stepped-up rate for every gallon over 50,000. That high-volume users pay the increased rates reflects that they choose to use more water, which relates to the third *Bolt* factor—voluntariness.

Plaintiffs bore the burden of establishing that the Village's water and sewer rates were not proportionate to the necessary cost of providing those services, which included overcoming the presumption that the Village's utility rates were reasonable. Attempting to carry their burden, plaintiffs observe that the Village's water and sewer rates were intended to partially fund the construction of the second water tower.[16] From this, plaintiffs conclude that "the costs of the new rates cannot be said to be proportionate to the current necessary costs of service because, by definition, they serve to afford the cost of future servicing."

Besides being factually wrong,[17] plaintiffs' argument attempts to make a distinction between "current" and "future" costs when it is not apparent that such a distinction is relevant. It would be absurd to conclude that the Village could **[*40]** never plan for "future servicing" without rendering its rates disproportionate. Planning for the future health of water and sewer systems is plainly part of providing those services. Caselaw supports this conclusion. For instance, in *Youmans*, the rates were increased in part to fund (1) additional capital and operational reserves and (2) necessary capital improvements, and this Court held that the rates were proportionate. *Youmans, 336 Mich App at 229-230*. More generally, plaintiffs' argument is unconvincing because they do not point to a shred of evidence suggesting that the Village's rates were unreasonable or disproportionate, regardless of whether the rates were funding "current" or "future servicing."

The trial court, for its part, found the Village's tiered rate structure problematic when considering the proportionality of the increased rates. The court faulted the Village for "not explain[ing] how the high-volume users drive the necessary costs of the water and sewer system in a way that would make the tiered rate structure proportionate to those users." But this reasoning flips the burden on its head. The Village did not need to establish that its rate structures were proportionate; plaintiff bore the burden **[*41]** of establishing both that the Village's rates were unreasonable and disproportionate. While the trial court may have questioned the wisdom of the Village's tiered rate structure, it was not the court's "role to determine whether a municipal government has chosen the best, wisest, most efficient, or most fair system for funding a municipal improvement or service." *Shaw, 329 Mich App at 668*. The mere fact that the Village used a tiered rate structure is not per se evidence that the rate is disproportionate. ***HN12*** Plaintiffs must offer evidence to support their position, and they failed to do so. *Id.*

Even putting all of this aside, the only evidence in the record related to the reasonableness of the Village's rates supports that the rates were reasonable. The Village presented a comprehensive rate study, a review of the rates by a ratemaking expert (Beauchamp), and a comparison of water rates from other northern Michigan municipalities. Beauchamp testified that the Village's tiered rate structure was justified based on the Village's "very unusual pattern" of water usage, where the summer peak usage was 2.8 times the average usage. Beauchamp also opined that the break-point of 50,000 gallons and the stepped-up rate of **[*42]** a 50-percent increase were reasonable. And the Village's community comparison charts, which were not disputed, showed that the Village's rate structure was in the average among similarly situated communities—the Village's ratepayers of all meter sizes "would have paid more in total charges in at least one third of the other communities." Plaintiffs presented no evidence to dispute any of this or to rebut the presumption that the Village's water and sewer fees were reasonable and proportionate to the costs of service.

As one final point, it is uncontested that the Village determines its water and sewer rates based on metered-water usage. Plaintiffs have not argued, nor does any evidence in the record suggest, that plaintiffs' water usage is not accurately metered. This distinguishes this case from *Bolt* and *Jackson*. In those cases, the local units of government charged a stormwater fee to residential parcels of two acres or less a flat rate rather than a rate based on the parcel's individual characteristics. See *Bolt, 459 Mich at 156*; *Jackson Co, 302 Mich App at 110*. This case is

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[16] Both plaintiffs and the trial court focused on this fact when considering the second *Bolt* factor. As explained in Part III.C of this opinion, however, there is no bright-line rule that that a user fee can never be used to fund "new infrastructure" or "capital improvements."

[17] The Village's water-supply system needed additional water storage capacity to bring it into compliance with Act 399, so constructing an additional water tower was part of "the current necessary cost" of providing water to ratepayers.

more akin to *Shaw*. There, this Court reasoned that the city's water and sewer rates were proportionate to the necessary cost of the services in part because it **[*43]** was uncontested that the city "determine[d] its water and sewer rates based on metered-water usage," and nothing in the record suggested that the metered-water usage was "an insufficiently precise measurement of the actual costs of using the city's water and sewer systems . . . ." *Shaw, 329 Mich App at 667*.

For all of these reasons, the Village is correct that application of the second *Bolt* criterion "decisively" weighs in favor of concluding that the disputed portion of the rates was a user fee rather than a tax. The only evidence in the record supports that the Village's water and sewer rates are proportionate to the necessary cost of providing the services.

3. THIRD *BOLT* CRITERION

HN13 The third criterion identified in *Bolt* considers the voluntariness of a charge. If the charge is compulsory, then it is more likely a tax. *Bolt, 459 Mich at 167*. If the charge is only compulsory for those who use the service, and if the user can choose how much of the service to use, then the charge is more likely a user fee. *Id.*

Our Supreme Court has repeatedly explained:

> The water rates paid by consumers are in no sense taxes, but are nothing more than the price paid for water as a commodity, just as similar rates are payable to gas companies, or to **[*44]** private water works, for their supply of gas or water. No one can be compelled to take water unless he chooses, and the lien, although enforced in the same way as a lien for taxes, is really a lien for an indebtedness, like that enforced on mechanics' contracts, or against ships and vessels. ***HN14*** The price of water is left to be fixed by the board in their discretion, and the citizens may take it or not as the price does or does not suit them. [*Bolt, 459 Mich at 162*, quoting *Ripperger v City of Grand Rapids, 338 Mich 682, 686; 62 NW2d 585 (1954)*, quoting *Jones v Detroit Water Com'rs, 34 Mich 273, 275 (1876)* (quotation marks omitted).]

Here, like in *Shaw, 329 Mich App at 669*, "[e]ach individual user decides the amount and frequency of usage, i.e., each user decides how much water to draw from the tap." This in turn supports that the charges at issue are voluntary because each user of the Village's water and sewer system can control how much water they use. See *id.*

Plaintiffs resist this conclusion. They argue that concluding that water and sewer rates are voluntary goes against "the spirit of *Bolt*" and would "forc[e] a utility user to sacrifice the full potential of a property to avoid unreasonable fees,"[18] amounting to a "de facto deprivation of property rights." This argument misses the mark. Water and sewer rates are voluntary *because* users like plaintiffs **[*45]** have the option of limiting how much they use the services. They retain full control of their property rights, including how much water they use. The only caveat is that they have to pay for that usage. ***HN15*** But just because a charge is voluntary does not necessarily mean it is a user fee. See *Bolt, 459 Mich at 162 n 12* (explaining that *Ripperger* does not "stand[] for the proposition that sewage charges are always user fees" but "articulated relevant criteria for determining whether a charge is a fee or a tax"). The *Bolt* criteria are to be considered in their totality, and a finding that a charge is voluntary does not necessitate finding that the charge is a fee. See *Shaw, 329 Mich App at 653*. The problem for plaintiffs is that, after applying the *Bolt* criteria, nothing suggests that the Village's increased water and sewer rates constituted a tax.

IV. CONCLUSION

The Village was informed by the DEQ that its water-supply system was in violation of Act 399 due to insufficient water storage capacity, and that the Village's current rate structure was inadequate to support its water and sewer systems. The DEQ explained that the inadequate funding could affect the reliability of the systems if the Village was unable to pay for expenses needed to "sustainably operate **[*46]** the system," which included operational,

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[18] As explained above, plaintiffs have not presented any evidence in support of their assertion that the water and sewer rates are unreasonable.

maintenance, and replacement expenses, as well as "new infrastructure when needed." To remedy these deficiencies, the Village increased its water and sewer rates.

The increased rates primarily served the regulatory purpose of providing reliable and sustainable water and sewer services to ratepayers. True, the water-rate increase was intended to partially fund the construction of an additional water tower. But the construction of that water tower served the underlying regulatory purpose of providing water services—the additional water storage capacity was needed to bring the Village's water-supply system into compliance with Act 399. Ensuring that water delivered to ratepayers is and remains potable serves a regulatory purpose. The construction of the second water tower was a necessary cost to continue delivering this service, so raising money to partially fund that construction served the underlying regulatory purpose. The increased water and sewer rates were also necessary to fund various projects and increase operational and capital reserves, as well as pay for maintenance and operational expenses related to the water and sewer systems. All of this **[*47]** served the regulatory purpose of providing water and sewer services to ratepayers.

Nothing in the record suggests that the increased water and sewer rates were disproportionate to the cost of providing the services, nor is there any evidence in the record rebutting the presumption that the Village's increased water and sewer rates were reasonable. In fact, all of the record evidence supports finding that the Village's increased water and sewer rates were reasonable and proportionate. While the Village uses a tiered rate structure for its water and sewer rates, that was a policy choice to ensure that users who burden the system more bear the brunt of the cost for maintaining the system. It does not per se render the rates disproportionate or unreasonable; plaintiffs must still present evidence to that effect, and there is no such evidence in the record. The Village, moreover, ensures that users only pay for what they actually use through metered-water usage. And finally, the Village's water and sewer rates are only compulsory for those who choose to use the services, and those users can choose how much of the service to use.

All of this, taken together, makes clear that the Village's **[*48]** increased water and sewer rates constituted a valid user fee, not a tax.[19] The trial court's order granting plaintiffs' motion for summary disposition is reversed, and the case is remanded for the trial court to enter an order granting summary disposition in favor of the Village.

Reversed and remanded. We do not retain jurisdiction.

/s/ Colleen A. O'Brien

/s/ Michael J. Kelly

Dissent by: Kirsten Frank Kelly

Dissent

K. F. KELLY, J. (*dissenting*).

I respectfully dissent. In 2018, the Village of Mackinaw City (the "Village") passed a resolution that raised water and sewer rates for all users of the Village's water and sanitary sewer services. The rates developed in the resolution were in response to numerous assessments performed by the Michigan Department of Environmental Quality ("DEQ") after DEQ, the Michigan Finance Authority, and the Village entered into a grant agreement in 2014. It is undisputed that part of the increased revenue obtained from the rate increases was to be used for constructing a new water tower to increase the Village's water capacity.

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[19] In light of this conclusion, it is unnecessary to address plaintiffs' cross-appeal that the trial court abused its discretion by denying monetary damages to plaintiffs.

In plaintiffs' lawsuit challenging the legality of the rates under the *Headlee Amendment, Const 1963, art 9, § 31*, the trial court determined that defendant's rate structure for water use fees contained **[*49]** a hidden tax levied without voter approval, contrary to Headlee. Relying on *Shaw v Dearborn, 329 Mich App 640; 944 NW2d 153 (2019)*, the court granted summary disposition in favor of plaintiffs because the Village violated the "admonition that a fee may not be used to raise revenue to finance a public works project." Because I agree that the trial court correctly granted summary disposition in plaintiffs' favor, I would affirm the trial court's order.

I. APPLICABLE LAW

The *Headlee Amendment, Const 1963, art 9, § 31*, in relevant part, states:

> Units of Local Government are hereby prohibited from levying any tax not authorized by law or charter when this section is ratified or from increasing the rate of an existing tax above that rate authorized by law or charter when this section is ratified, without the approval of a majority of the qualified electors of that unit of Local Government voting thereon.

The Amendment was "proposed as part of a nationwide 'taxpayer revolt' in which taxpayers were attempting to limit legislative expansion of requirements placed on local government, to put a freeze on what they perceived was excessive government spending, and to lower their taxes both at the local and the state level." *Youmans v Bloomfield Twp, 336 Mich App 161, 225; 969 NW2d 570 (2021)*; see also *Shaw, 329 Mich App at 652* ("The ultimate purpose [of the Headlee Amendment] was to **[*50]** place public spending under direct popular control.") (quotation marks and citation omitted; alteration in original). The application of *§ 31* is triggered by the levying of a tax, *Bolt v Lansing, 459 Mich 152, 158; 587 NW2d 264 (1998)*, and the Amendment "prohibits units of local government from levying any new tax or increasing any existing tax above authorized rates without the approval of the unit's electorate . . . ." *Bate v St Clair Shores, Mich App , ; NW3d ; 2023 Mich. App. LEXIS 5858, *6 (2023) (Docket Nos. 364536 & 364537)* (quotation marks and citation omitted). Charges by the government that are properly considered user fees, however, are not "taxes" affected by the Headlee Amendment. *Bolt, 459 Mich at 159*.

"There is no bright-line test for distinguishing between a valid user fee and a tax that violates the Headlee Amendment." *Id. at 160*. "Generally, a fee is exchanged for a service rendered or a benefit conferred, and some reasonable relationship exists between the amount of the fee and the value of the service or benefit. A tax, on the other hand, is designed to raise revenue." *Id. at 161* (quotation marks and citation omitted). Thus, when analyzing whether a particular charge is a fee or tax for purposes of the Headlee Amendment, our courts have looked to three factors, which are whether the charge: (1) serves a regulatory purpose; (2) is proportionate to the costs of the service; **[*51]** and (3) is voluntary. *Id. at 161-162*; see also *Jackson Co v Jackson, 302 Mich App 90, 101; 836 NW2d 903 (2013)*. "Although the levying of a new tax without voter approval violates the Headlee Amendment, a charge that constitutes a user fee does not, and the party challenging a given municipal utility charge under *§ 31* bears the burden of establishing the unconstitutionality of the charge at issue." *Youmans, 336 Mich App at 226* (quotation marks and citation omitted).

Under the first *Bolt* factor, the charge "must serve a regulatory purpose rather than a revenue-raising purpose" to be considered a valid fee under the Headlee Amendment. *Bolt, 459 Mich at 161*. Thus, a charge may validly raise money and retain its identity as a fee so long as the money supports the underlying purpose. *Merrelli v St Clair Shores, 355 Mich 575, 583; 96 NW2d 144 (1959)*. Moreover, a "regulatory fee may confer a benefit on both the general public and the particular individuals who pay the fee and still maintain its regulatory character . . . ." *Jackson Co, 302 Mich App at 108*.

The second *Bolt* factor requires analysis of whether the charge "serve[s] a regulatory purpose rather than a revenue-raising purpose." *Bolt, 459 Mich at 161*. "The determination of 'reasonableness' is generally considered by courts to be a question of fact." *Trahey v Inkster, 311 Mich App 582, 594; 876 NW2d 582 (2015)* (quotation marks and citation omitted). "[M]athematic precision is not required," *id. at 597*, and "the fee need not generate an amount equal **[*52]** to that required to support the services the ordinance regulates in order to survive scrutiny . . . ."

Jackson Co, 302 Mich App at 109. "[H]owever, where the revenue generated by the 'fee' exceeds the cost of regulation, the 'fee' is actually a tax in disguise." *Id.*

The third *Bolt* factor considers voluntariness, i.e., the idea that "fees generally are voluntary, while taxes are not." *Bolt, 459 Mich at 162*. In other words, "[i]f a charge is 'effectively compulsory,' it is not voluntary" and is a tax. *Youmans, 336 Mich App at 232*. For example, in circumstances where users have "no choice whether to use the service" and are "unable to control the extent to which the service is used," courts will view such circumstances as indicating a compulsory tax. See *Bolt, 459 Mich at 167-168*.

In *Jackson Co, 302 Mich App at 93*, the Court addressed a city council ordinance that "created a storm water utility and imposed a storm water management charge on all property owners within the city to generate revenue to pay for the services provided by the utility, which include, among others, street sweeping, catch basin cleaning, and leaf pickup and mulching." The resulting charge was computed by use of a formula that would estimate the amount of storm water runoff from each parcel. *Id. at 95*. Under the first *Bolt* factor, the Court concluded the storm **[*53]** water charge served dual purposes. *Id. at 105*. A regulatory purpose was furthered by financing the protection of local waterways from solid pollutants carried in storm water discharged from properties, and a general revenue-raising purpose was served by shifting the funding of preexisting government activities from declining general and street fund revenues to a storm water charge. *Id.* The Court concluded that "the minimal regulatory purpose served by the ordinance and the related management charge is convincingly outweighed by the revenue-raising purpose of the ordinance." *Id.* The ordinance "contain[ed] few provisions of regulation and no provisions that truly regulate the discharge of storm and surface water runoff, with the exception of the provision that allows for credits against the management charge for the use of city-approved storm water best management practices." *Id.* The ordinance "fail[ed] to require either the city or the property owner to identify, monitor, and treat contaminated storm and surface water runoff and allow[ed] untreated storm water to be discharged into the Grand River." *Id.*

The Court also noted that "the lack of a correspondence between the charge imposed and any **[*54]** particularized benefit conferred by the charge supports a conclusion that the charge is a tax and not a utility user fee." *Id. at 108*. The defendant stated that the storm water charge helped to protect public health and safety, but ameliorating such concerns "benefit[s] not only the property owners subject to the management charge, but also everyone in the city in roughly equal measure . . . ." *Id. at 109*. "This lack of a correspondence between the management charge and a particularized benefit conferred to the parcels supports our conclusion that the management charge is a tax." *Id.*

Turning to the proportionality of the charge, the Court noted that "residential parcels measuring two acres or less are charged a flat rate based on the average EHA of all single family parcels, and not on the individual measurements of each parcel's impervious and pervious areas." *Id. at 110*. Single-family parcels comprised over 80% of the parcels within the city. *Id.* By contrast, residential parcels in excess of two acres, as well as commercial, industrial, and institutional parcels of all sizes, were charged on the basis of individual measurements of each parcel's area. *Id.* The Court stated:

> This method of apportioning the management **[*55]** charges among all urban properties emphasizes administrative convenience and ease of measurement and, thereby, suggests an absence of a close proportional relationship between the amount of runoff attributable to a particular parcel and the management charge, as does the fact that the method of calculating the charge fails to consider property characteristics relevant to runoff generation, such as a parcel's location in reference to storm gutters and drains and soil grade. This lack of proportionality is further demonstrated by the fact that the charge generates sufficient revenue to allow the city to maintain a working capital reserve of 25 to 30 percent of the storm water utility's total expenses. Although maintaining a capital reserve is a common practice amongst rate-based public utilities that provides a degree of fiscal stability to utilities, those reserves are funded by true user fees closely calibrated to the actual use of the service or a price paid for a commodity. The management charge at issue in these cases is not such a fee. For these reasons, the actual use of the storm water sewer system by each parcel is not accounted for with the requisite level of precision necessary **[*56]** to support a conclusion that the charge is proportionate to the costs of the services provided. [*Id. at 110-111* (citation omitted).]

Lastly, the Court concluded that the defendant's storm water charge was compulsory. *Id. at 111*. Although credits were available if property owners reduced runoff, allowing a full credit for all property owners would have undermined the purpose of the storm water charge, to generate funding for the water management system. *Id.* Failure to pay the charge had the possibility of resulting in discontinuation of water service, and the defendant could collect past-due charges through liens and civil actions, further demonstrating the lack of voluntariness and supporting the conclusion the charge was a tax. *Id. at 112*.

In contrast, in *Shaw, 329 Mich at 648*, the Court considered the plaintiff's challenge to the defendant's water and sewer rates that the plaintiff claimed contained "hidden charges that qualified as unlawful taxes because they were imposed without authorization." The project at issue involved mandatory sewer separation-work combined with other ancillary sewer maintenance work, for which the defendant used money generated from sewer rates to fund. *Id. at 646-647*. Although the Court concluded that the plaintiff failed **[*57]** to demonstrate that there was a hidden capital charge in the sewer and water rates, it was "undisputed that a portion of the city's utility rates is used to fund operation and maintenance of the caissons," triggering application of *Bolt*. *Shaw, 329 Mich App at 665*.

Addressing the first factor, the Court held that the rates comprised a valid fee "because the rates serve the regulatory purpose of providing water and sewer service to the city's residents." *Id. at 666*. The Court found there to be a "significant regulatory component" missing in *Jackson Co*, namely that of "the treatment of combined sewage, comprised of storm water and wastewater, in conformance with regulatory requirements." *Id.* The Court explained:

> [T]he alleged CSO-O&M charge, i.e., the cost of operating and maintaining the caissons, is part of the cost of providing sewer service to the city's ratepayers. Dearborn must provide sewer service in conformance with state and federal regulatory requirements, and keeping the caissons functional helps ensure that sewage is properly treated before it is released into the environment. [*Id.*]

Considering the second *Bolt* factor, the Court reasoned that the disputed water and sewer rates

> constitute[d] a valid user fee because users **[*58]** pa[id] their proportionate share of the expenses associated with the operation and maintenance of the water and sewer systems. Mathematic precision is not required when reviewing the reasonable proportionality of a utility fee. Where the charge for either storm or sanitary sewers reflects the actual costs of use, metered with relative precision in accordance with available technology, including some capital investment component, sewerage may properly be viewed as a utility service for which usage-based charges are permissible, and not as a disguised tax. [*Shaw, 329 Mich App at 666-667* (quotation marks and citation omitted).]

Lastly, under the third factor, the Court found the charge to be a valid fee because it had voluntary characteristics. The Court explained that "[e]ach individual user decides the amount and frequency of usage, i.e., each user decides how much water to draw from the tap." *Id. at 669*. Thus, because the users could "control how much water they use," the charges were "voluntary." *Id.*

II. ANALYSIS

Although I acknowledge that this case presents a close question, the trial court did not err when it granted plaintiffs' motion for summary disposition. While the Village's water rates serve a regulatory purpose, **[*59]** the rates are also designed to raise revenue for the construction of a new water tower, and the purpose of the new water tower is to increase the water storage capacity for the Village as a whole, not to simply replace the existing water tower. In *Shaw, 329 Mich App at 666*, the Court held that the defendant's water and sewer rates were regulatory in nature because they "serve[d] the regulatory purpose of providing water and sewer service to the city's residents." But as the Court recognized in *Jackson Co, 302 Mich App at 105*, when a charge serves a dual purpose, as most do, the Court must look closer at the respective purposes.

The Village's new rates were estimated to use $50,000 of the $363,000 yearly revenues from the disputed fees to directly fund the construction of the second water tower. Defendant also estimated that it will use approximately

$200,000 from the fees to pay for the Village's contribution to a block grant provided that is intended to assist with funding the project. According to defendant, after five years of collecting the fees, the Village will no longer need to use them to fund the water tower's construction. Once funding for the new water tower is complete, defendant claims that it will use the revenue generated **[*60]** by the fees to fund other capital improvements and that the increased rate will otherwise remain.

There is no question that the Village's water and sewer rates serve some regulatory purpose. See *Youmans, 336 Mich App at 228* ("[T]he contested rates are assessed to fund the operational and capital expenses of the Township's water and sewer system, which serves the primary function of providing water and sewer services to the Township's ratepayers."). However, the overriding purpose for the imposition of the new rates was the determination by DEQ that the Village's water capacity was insufficient and the Village needed to obtain increased revenue to fund the construction of a new water tower. "The purpose of [Headlee] would be thwarted if a local authority could charge higher utility rates to raise revenue and then use some of the excess funds to finance a public-works project," *Shaw, 329 Mich App at 643*; but that is precisely, in my view, what has occurred here. The Village was tasked with increasing its water capacity and building a new tower, and did so by incorporating those capital construction costs into the rate structure for water in the Village. Moreover, like *Jackson Co*, the Village's resolution had little to do with the nuts and **[*61]** bolts of regulation and more to do with raising revenue.

The majority determined that the trial court misinterpreted *Shaw* when it concluded that water rates could never be used to fund new construction projects, and that the overriding precedent permits local municipalities to use revenue from its rates to fund new projects. Referring to *Shaw*, the trial court stated:

> Moreover, in other areas of Dearborn, the city constructed retention facilities, called caissons, to store the combined sewage to avoid overflow events during heavy storms. *Id. at 645*. The manner of financing this project is noteworthy here. The panel in *Shaw* described it as follows: "Although the city funded the construction of the caissons through the millage, it currently pays the cost of operating and maintaining the caissons with revenue generated by sewer rates charged to the city's sewer customers. *In other words, taxpayers built the four caissons, ratepayers operate and maintain them*." *Id. at 645* (emphasis added). This suggests that the initial construction of the new infrastructure, *even when performed in response to regulatory requirements*, could not be funded through increased rates to taxpayers. Rather, the funding of such new constructions **[*62]** involves taxes. In Dearborn's case, they submitted a millage proposal to the voters to approve the city to incur debt and use the increased millage rate to service the debt. *Id. at 644-645*. Such an option was available and open to defendant in this case. Instead, defendant is funding new construction through increased rates.

The majority is correct insofar as the Court in *Shaw* did not reach the issue of whether the defendant's rates unlawfully included the capital infrastructure costs of separating its sewer system, because the plaintiff did not present any evidence that funds obtained from water and sewer rates were used to pay for the sewer separation. In this case, however, plaintiffs did present evidence, which is undisputed, that the Village intended to use a portion of the revenue from its water and sewer rates to fund the construction of the water tower. Putting *Shaw* aside, *Bolt, 459 Mich at 163*, instructs that where a significant portion of a particular fee or charge is used for "investment in infrastructure as opposed to a fee designed simply to defray the costs of a regulatory activity," such a fee or charge violates the Headlee Amendment. Here, approximately $50,000 of the $360,000 collected annually will **[*63]** be used for capital construction costs. This is "significant," and therefore, in my view, the trial court did not err when it concluded that the Village's rates were not predominately regulatory in nature and served to support a finding that the rates violated the Headlee Amendment.

Concerning whether the rates in question were proportional to the costs of the service, the trial court, for its part, stated its analysis yielded "mixed results" but ultimately determined that because the water tower was itself impermissible, and because the Village could not explain how the tiered-rate structure was proportional, the balance tipped in favor of finding the charge to be a violation of Headlee. I agree. Since 2015, the Village was in communication and discussion with DEQ regarding its view that the Village's water storage capacity was insufficient. In 2017, DEQ sent a letter to the Village specifically noting that the Village "needs to expand upon its

current water storage capacity," and the "Village council will need to *increase revenue* to address the water storage capacity deficiency." (Emphasis added.) In response to DEQ's demands, the Village conducted a rate study that ended with the **[*64]** rates in question. Thus, any suggestion that addressing the Village's water storage issues was not the primary purpose of the rate increase is not supported by the record.

While it is true that courts are not to use mathematical precision when analyzing the proportionality of a particular rate, and rates are presumed proportional and, therefore, legal, *Trahey, 311 Mich App at 594, 597*, the Village failed to justify why a 50% increase in rates for the high-use owners was proportional to the increased demands those users have on the overall system. Similar to *Jackson Co, 302 Mich App at 110*, in which the defendant charged property owners a flat rate for parcels under two acres and a variable rate for larger parcels, the lack of proportionality reveals that the Village's fees are a disguised tax. In addition, it is undisputed that after the water tower is constructed, the Village intends to continue to collect the same rates and use the revenue for future projects. If the rate increase for high-volume users was predicated on their disproportionate need for more water than the average user, the continued increase in rates for unknown future capital projects cannot be similarly justified. See *Bolt, 459 Mich at 164* ("The revenue to be derived from the charge is clearly in **[*65]** excess of the direct and indirect costs of actually using the storm water system over the next thirty years and, being thus disproportionate to the costs of the services provided and the benefits rendered, constitutes a tax.") (quotation marks and citation omitted).

Finally, the third *Bolt* factor requires examination of the voluntariness of the Village's rates because "fees generally are voluntary, while taxes are not." *Bolt, 459 Mich at 162*. The trial court concluded that the Village's water and sewer rates were voluntary because users could decide whether and how much water they used. Indeed, such rates have generally been held to be voluntary for the very fact that users can decide "the amount and frequency of usage." *Shaw, 329 Mich App at 669*. Although plaintiffs contend that the rate structure will alter their use habits and therefore deprive them of their property rights, citing *Bolt*, I agree with the majority that the rates are voluntary. The issue in *Bolt* involved fees for storm water runoff, which was justified, in part, by the defendant arguing that such a fee would be voluntary because property owners could choose not to build on the property, thereby reducing the costs. *Bolt, 459 Mich at 168*. Incentivizing users to conserve water is different **[*66]** from incentivizing them to refrain from constructing buildings or paving property.

However, the fact that the charges are voluntary does not save the Village. As explained above, the primary purpose of the new rates was to raise revenue to construct a second water tower. While the purpose of the water tower itself undoubtedly had regulatory features, such a fact cannot save the Village's rates. The rates were not proportionate in that there was no justification for why high-volume users needed to pay 50% more, and why they needed to do so even after the new water tower was constructed. Thus, I would conclude that the trial court did not err when it granted summary disposition in plaintiffs' favor.

/s/ Kirsten Frank Kelly

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EXHIBIT – 7

Caution
As of: September 2, 2025 8:04 PM Z

Capistrano Taxpayers Assn., Inc. v. City of San Juan Capistrano

Court of Appeal of California, Fourth Appellate District, Division Three

April 20, 2015, Opinion Filed

G048969

Reporter
235 Cal. App. 4th 1493 *; 186 Cal. Rptr. 3d 362 **; 2015 Cal. App. LEXIS 330 ***

CAPISTRANO TAXPAYERS ASSOCIATION, INC., Plaintiff and Respondent, v. CITY OF SAN JUAN CAPISTRANO, Defendant and Appellant.

Subsequent History: Modified by, Request granted *Capistrano Taxpayers Assn., Inc. v. City of San Juan Capistrano, 2015 Cal. App. LEXIS 429 (Cal. App. 4th Dist., May 19, 2015)*

Request denied by *Capistrano Taxpayers Assn., Inc. v. City of San Juan Capistrano, 2015 Cal. LEXIS 8331 (Cal., July 9, 2015)*

Request denied by *Capistrano Taxpayers Assn., Inc. v. City of San Juan Capistrano, 2015 Cal. LEXIS 5268 (Cal., July 22, 2015)*

Related proceeding at *Daneshmand v. City of San Juan Capistrano, 2021 Cal. App. Unpub. LEXIS 303 (Cal. App. 4th Dist., Jan. 20, 2021)*

Prior History: [*1]** Appeal from a judgment of the Superior Court of Orange County, No. 30-2012-00594579, Gregory Munoz, Judge.

Disposition: Affirmed in part; reversed in part and remanded.

Core Terms

tiers, customers, rates, recycling, usage, cost of services, costs, parcel, water district, calculate, pricing, incremental, budgets, conservation, voters, users, ccf, levels, plant, trial court, ascertained, beneficial use, rate structure, water rate, proportional, charges, water service, actual cost, irrigation, riparian

Case Summary

Overview
HOLDINGS: [1]-Water rate fees to fund capital costs of improvements to provide additional increments of water, such as building a recycling plant, do not contravene Cal. Const., art. XIII D, § 6, subd. (b)(4), but the record was unclear whether low use customers might be paying for a recycling operation made necessary only because of high use customers, which would be inconsistent with subd. (b)(4); [2]-The city water agency did not meet its burden to show that a tiered rate based on volume of use complied with the requirement under art. XIII D, § 6, subd. (b)(3), that fees not exceed the cost of service attributable to a parcel because the agency did not try to calculate the cost of actually providing water at its various tier levels; tiered rate structures and Proposition 218 are compatible so long as the rates reasonably reflect the cost of service attributable to each parcel.

Outcome
Affirmed in part, reversed in part, and remanded.

LexisNexis® Headnotes

Governments > Local Governments > Finance

Governments > Public Improvements > General Overview

HN1 **Local Governments, Finance**

See Cal. Const., art. XIII D, § 6, subd. (b)(4).

Governments > Public Improvements > Sanitation & Water

HN2 **Public Improvements, Sanitation & Water**

As applied to water delivery, the phrase "a service" cannot be read to differentiate between recycled water and traditional, potable water. Water service is already immediately available to all customers, and continued water service is assured by such capital improvements as water recycling plants. That satisfies the constitutional and statutory requirements.

Governments > Local Governments > Finance

Governments > Public Improvements > Sanitation & Water

HN3 **Local Governments, Finance**

Proposition 218 requires public water agencies to calculate the actual costs of providing water at various levels of usage. Cal. Const., art. XIII D, § 6, subd. (b)(3), provides that water rates must reflect the cost of service attributable to a given parcel. While tiered, or inclined rates that go up progressively in relation to usage are perfectly consonant with art. XIII D, § 6, subd. (b)(3), the tiers must still correspond to the actual cost of providing service at a given level of usage.

Governments > Local Governments > Finance

Governments > Public Improvements > Sanitation & Water

HN4 **Local Governments, Finance**

Tiered water rate structures and Proposition 218 are thoroughly compatible so long as those rates reasonably reflect the cost of service attributable to each parcel.

Governments > Local Governments > Finance

Governments > Public Improvements > General Overview

HN5 **Local Governments, Finance**

See Cal. Const., art. XIII D, § 6, subd. (b)(4).

Governments > Local Governments > Finance

Governments > Public Improvements > Sanitation & Water

HN6 **Local Governments, Finance**

When each kind of water is provided by a single local agency that provides water to different kinds of users, some of whom can make use of recycled water (for example, cities irrigating park land) while others, such as private residences, can only make use of traditional potable water, providing each kind of water is providing the same service. Both are getting water that meets their needs. Non-potable water for some customers frees up potable water for others. And where water service is already immediately available to all customers, there is no contravention of Cal. Const., art. XIII D, § 6, subd. (b)(4) in including charges to construct and provide recycled water to some customers.

Governments > Local Governments > Finance

Governments > Public Improvements > Sanitation & Water

HN7 **Local Governments, Finance**

Under *Gov. Code, § 53750, subd. (m)*, water is part of a holistic distribution system that does not distinguish between potable and non-potable water. Wat. Code, § 53756, contemplates time frames for water rates that can be as much as five years. Rates to pay for a recycling plant do not have to be figured on a month-to-month basis.

Governments > Public Improvements > Sanitation & Water

HN8 **Public Improvements, Sanitation & Water**

See *Gov. Code, § 53750, subd. (m)*.

Governments > Local Governments > Finance

Governments > Public Improvements > Sanitation & Water

HN9 **Local Governments, Finance**

See *Gov. Code, § 53756*.

Governments > Public Improvements > Sanitation & Water

HN10 **Public Improvements, Sanitation & Water**

Wat. Code, § 31020, gives local water agencies power to do acts to furnish sufficient water for any present or future beneficial use.

Governments > Local Governments > Finance

Governments > Public Improvements > General Overview

HN11 **Local Governments, Finance**

Proposition 218 protects lower-than-average users from having to pay rates that are above the cost of service for them because those rates include capital investments their levels of consumption do not make necessary.

Governments > Local Governments > Finance

HN12 **Local Governments, Finance**

See Cal. Const., art. XIII D, § 6, subd. (b)(1), (3).

Governments > Local Governments > Finance

HN13 **Local Governments, Finance**

See Cal. Const., art. XIII D, § 6, subd. (b)(5).

Constitutional Law > State Constitutional Operation

HN14 **Constitutional Law, State Constitutional Operation**

The court must enforce the provisions of the California Constitution and may not lightly disregard or blink at a clear constitutional mandate. In so doing, the court is obligated to construe constitutional amendments in a manner that effectuates the voters' purpose in adopting the law.

Governments > Local Governments > Finance

Governments > Legislation > Interpretation

HN15 **Local Governments, Finance**

Proposition 218 specifically states that its provisions shall be liberally construed to effectuate its purposes of limiting local government revenue and enhancing taxpayer consent.

Governments > Local Governments > Finance

HN16 **Local Governments, Finance**

Cal. Const., art. XIII D, § 6, subd. (b)(3), assumes that there really is an ascertainable cost of service that can be attributed to a specific—hence that little word "the"—parcel.

Constitutional Law > State Constitutional Operation

HN17 **Constitutional Law, State Constitutional Operation**

Provisions of the California Constitution, particularly when enacted in the same measure, should be construed together and read as a whole.

Governments > Local Governments > Finance

Governments > Public Improvements > Sanitation & Water

HN18 **Local Governments, Finance**

The "proportional cost of service" language from Cal. Const., art. XIII D, § 6, subd. (b)(3), is part of a general subdivision (b), and there is an additional reference to costs in subd. (b)(1). Subdivision (b)(1) provides that the total revenue from fees shall not exceed the funds required to provide the property related service. To comply with the constitution, a water agency imposing tiered rates has to do more than merely balance its total costs of service with its total revenues—that's already covered in subd. (b)(1). To comply with subd. (b)(3), the water agency also has to correlate its tiered prices with the actual cost of providing water at those tiered levels.

Administrative Law > Judicial Review > Standards of Review > De Novo Standard of Review

Governments > Local Governments > Finance

HN19 **Standards of Review, De Novo Standard of Review**

In Proposition 218 challenges to agency action, the agency had to bear the burden of proof of demonstrating compliance with Proposition 218, and both trial and reviewing courts are to apply an independent review standard, not the traditional, deferential standards usually applicable in challenges to governmental action. It is not enough that the agency have substantial evidence to support its action. That substantial evidence must itself be able to withstand independent review.

Governments > Local Governments > Finance

Governments > Public Improvements > Sanitation & Water

HN20 **Local Governments, Finance**

There is no conflict between Proposition 218 and *Cal. Const. art. X, § 2*, so long as *art. X, § 2* is not read to allow water rates that exceed the cost of service. *Article X, § 2* is not at odds with *Cal. Const., art. XIII D*, so long as, for example, conservation is attained in a manner that shall not exceed the proportional cost of the service attributable to the parcel. art. XIII D, § 6, subd. (b)(3). *Art. X, § 2*, certainly does not require above-cost water rates. *Art. X, § 2*

and art. XIIID, § 6, subd. (b)(3), work together to promote increased supplies of water. The California Constitution allows tiered pricing, but it must be done in a particular way.

Governments > Local Governments > Finance

Governments > Public Improvements > Sanitation & Water

HN21 **Local Governments, Finance**

Cal. Const. art. XI, § 9, obviously does not require municipal corporations to establish fees in excess of their costs, so there is no incompatibility between it and the later enacted Proposition 218.

Tax Law > State & Local Taxes > Administration & Procedure > Collection of Taxes

HN22 **Administration & Procedure, Collection of Taxes**

Cal. Const., art. XIII C, § 1, subd. (e)(5), defines the word "tax" to exclude fines imposed by a local government as a result of a violation of law.

Governments > Local Governments > Finance

HN23 **Local Governments, Finance**

The calculations required by Proposition 218 may be complex, but such a process is now required by the California Constitution.

Governments > Local Governments > Finance

Governments > Public Improvements > Sanitation & Water

HN24 **Local Governments, Finance**

Water rate fees to fund the costs of capital-intensive operations to produce more or new water, such as a recycling plant, do not contravene Cal. Const., art. XIII D, § 6, subd. (b)(4). While that provision precludes fees for a service not immediately available, both recycled water and traditional potable water are part of the same service—water service.

Governments > Local Governments > Finance

Governments > Public Improvements > Sanitation & Water

HN25 **Local Governments, Finance**

Nothing in Cal. Const., art. XIII D, § 6, subd. (b)(3), is incompatible with water agencies passing on the true, marginal cost of water to those consumers whose extra use of water forces water agencies to incur higher costs to

supply that extra water. However, above-cost-of-service pricing for tiers of water service is not allowed by Proposition 218.

Headnotes/Summary

Summary

CALIFORNIA OFFICIAL REPORTS SUMMARY

A taxpayers association challenged a city water district's decision to impose a tiered rate that went up progressively in relation to usage and impose charges for recycling within the rate structure. The trial court found that the rates did not comply with *Cal. Const., art. XIII D*. (Superior Court of Orange County, No. 30-2012-00594579, Gregory Munoz, Judge.)

The Court of Appeal affirmed the judgment in part, reversed in part, and remanded the matter for further proceedings. Water rates to fund the costs of capital-intensive operations to produce more or new water, such as the recycling plant at issue, do not contravene Cal. Const., art. XIII D, § 6, subd. (b)(4). While that provision precludes fees for a service not immediately available, both recycled water and traditional potable water are part of the same service—water service—which was immediately available to customers. However, the record was unclear whether low-usage customers might be paying for a recycling operation made necessary only because of high-usage customers, which would be inconsistent with art. XIII D, § 6, subd. (b)(4). The court also held that the agency did not meet its burden to show that the tiered rate complied with the requirement that fees not exceed the cost of service attributable to a parcel (art. XIII D, § 6, subd. (b)(3)). The agency did not try to calculate the cost of actually providing water at its various tier levels and merely allocated all its costs among the price tier levels based on predetermined usage budgets. Tiered water rate structures and Prop. 218 are compatible so long as those rates reasonably reflect the cost of service attributable to each parcel. (Opinion by Bedsworth, Acting P. J., with Moore and Thompson, JJ., concurring.)

Headnotes

CALIFORNIA OFFICIAL REPORTS HEADNOTES

CA(1) **(1)**

Waters § 184—Public Utilities Selling Water—Rates.

When a single local agency provides water to different kinds of users, some of whom can make use of recycled water (for example, cities irrigating parkland) while others, such as private residences, can only make use of traditional potable water, providing each kind of water is providing the same service. Both are getting water that meets their needs. Nonpotable water for some customers frees up potable water for others. And where water service is already immediately available to all customers, there is no contravention of Cal. Const., art. XIII D, § 6, subd. (b)(4) in including charges to construct and provide recycled water to some customers. Under *Gov. Code, § 53750, subd. (m)*, water is part of a holistic distribution system that does not distinguish between potable and nonpotable water. *Gov. Code, § 53756*, contemplates timeframes for water rates that can be as long as five years. Rates to pay for a recycling plant do not have to be figured on a month-to-month basis.

CA(2) **(2)**

Waters § 176—Public Utilities Selling Water—Powers.

Wat. Code, § 31020, gives local water agencies power to do acts to furnish sufficient water in the district for any present or future beneficial use.

CA(3) **(3)**

Municipalities § 98—Public Utilities—Rates.

Prop. 218 protects lower-than-average water users from having to pay rates that are higher than the cost of water service for them because such rates cover capital investments their levels of consumption do not make necessary.

CA(4) **(4)**

Constitutional Law § 10—Construction—Voter Intent.

The court must enforce the provisions of the California Constitution and may not lightly disregard or blink at a clear constitutional mandate. In so doing, the court is obligated to construe constitutional amendments in a manner that effectuates the voters' purpose in adopting the law. Provisions of the California Constitution, particularly when enacted in the same measure, should be construed together and read as a whole.

CA(5) **(5)**

Constitutional Law § 11—Construction—Liberality—Local Government Revenue.

The provisions of Prop. 218 shall be liberally construed to effectuate its purposes of limiting local government revenue and enhancing taxpayer consent.

CA(6) **(6)**

Municipalities § 98—Public Utilities—Rates.

Cal. Const., art. XIII D, § 6, subd. (b)(3), assumes that there really is an ascertainable cost of service that can be attributed to a specific parcel.

[*1495] *CA(7)* **(7)**

Municipalities § 98—Public Utilities—Rates.

The "proportional cost of the service" language from Cal. Const., art. XIII D, § 6, subd. (b)(3), is part of a general subdivision (b), and there is an additional reference to costs in subd. (b)(1). Subdivision (b)(1) provides that the total revenue from fees shall not exceed the funds required to provide the property-related service.

CA(8) **(8)**

Waters § 184—Public Utilities Selling Water—Rates—Tiered—Usage—Correlation to Cost.

A city water agency did not meet its burden to show that a tiered rate based on usage complied with the requirement that water fees not exceed the cost of service attributable to a parcel because the agency did not try to

calculate the cost of actually providing water at its various tier levels. A water agency imposing tiered rates has to do more than merely balance its total costs of service with its total revenues. To comply with Cal. Const., art. XIII D, § 6, subd. (b)(3), the agency also has to correlate its tiered prices with the actual cost of providing water at those tiered levels.

[*Cal. Forms of Pleading and Practice (2015) ch. 540, Taxes and Assessments, § 540.91*; 9 Witkin, Summary of Cal. Law (10th ed. 2005) Taxation, § 143.]

CA(9) **(9)**

Waters § 184—Public Utilities Selling Water—Rates.

There is no conflict between Prop. 218 and *Cal. Const. art. X, § 2*, so long as *art. X, § 2* is not read to allow water rates that exceed the cost of service. *Art. X, § 2* is not at odds with *Cal. Const., art. XIII D*, so long as, for example, conservation is attained in a manner that shall not exceed the proportional cost of the service attributable to the parcel (art. XIII D, § 6, subd. (b)(3)). *Art. X, § 2*, certainly does not require above-cost water rates. *Art. X, § 2* and art. XIII D, § 6, subd. (b)(3), work together to promote increased supplies of water. The California Constitution allows tiered pricing, but it must be done in a particular way.

CA(10) **(10)**

Taxation § 1—Definition of Tax—Exclusion—Fines—Violation of Law.

Cal. Const., art. XIII C, § 1, subd. (e)(5), defines the word "tax" to exclude fines imposed by a local government as a result of a violation of law.

CA(11) **(11)**

Municipalities § 98—Public Utilities—Rates.

The calculations required by Prop. 218 may be complex, but such a process is now required by the California Constitution.

CA(12) **(12)**

Waters § 184—Public Utilities Selling Water—Rates—Capital Improvements—Recycling Plant.

Water rates to fund the costs of capital-intensive operations to produce more or new water, such as a recycling **[*1496]** plant, do not contravene Cal. Const., art. XIII D, § 6, subd. (b)(4). While that provision precludes fees for a service not immediately available, both recycled water and traditional potable water are part of the same service—water service.

CA(13) **(13)**

Waters § 184—Public Utilities Selling Water—Raters—Tiered.

Nothing in Cal. Const., art. XIII D, § 6, subd. (b)(3), is incompatible with water agencies passing on the true, marginal cost of water to those consumers whose extra use of water forces water agencies to incur higher costs to

supply that extra water. However, above-cost-of-service pricing for tiers of water service is not allowed by Prop. 218.

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Judges: Bedsworth, Acting P. J. Moore, J., Thompson, J., concurring. **[***2]**

Opinion by: Bedsworth, Acting P. J.

Opinion

[364] BEDSWORTH, Acting P. J.—**

I. INTRODUCTION

Southern California is a "semi-desert with a desert heart."[1] Visionary engineers and scientists have done a remarkable job of making our home habitable, and too many of us south of the Tehachapis never give a thought to **[*1497]** its remarkable reclamation. In his brilliant—if opinionated—classic Cadillac Desert, the late Marc Reisner laments how little appreciation there is of "how difficult it will be just to hang on to the beachhead they have made."[2]

In this case we deal with parties who have an acute appreciation of how tenuous the beachhead is, and how desperately we all must fight to protect it. But they disagree about what steps are allowable—or required—to accomplish that task. We are called upon to determine not what is the right—or even the more reasonable—approach to the beachhead's preservation, but what is the one chosen by the state's voters.

We hope there are future scientists, engineers, and legislators with the wisdom to envision and enact water plans to keep our beloved Cadillac Desert habitable. **[***3]** But that is not the court's mandate. Our job—and it is daunting enough—is solely to determine what water plans the voters and legislators of the past have put in place, and to determine whether the trial court's rulings complied with those plans.

We conclude the trial court erred in holding that Proposition 218 does not allow public water agencies to pass on to their customers the capital costs of improvements to provide additional increments of water—such as building a recycling plant. Its findings were that future water provided by the improvement is not immediately available to customers. (See *HN1* Cal. Const., art. XIII D, § 6, subd. (b)(4) [no fees "may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question"].) But, *HN2* as applied

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[1] Webb, *The American West, Perpetual Mirage* (May 1957) Harper's Magazine.

[2] Reisner, Cadillac Desert: The American West and Its Disappearing Water (1986) page 6.

to water delivery, the phrase "a service" cannot be read to differentiate between recycled water and traditional, potable water. Water *service* is already "immediately available" to all customers, and *continued* water service is assured by such capital improvements as water recycling plants. That satisfies the constitutional and statutory requirements.

[365]** However, the trial court did not err in ruling that *HN3* Proposition 218 requires **[***4]** public water agencies to calculate the actual costs of providing water at various levels of usage. Article XIII D, section 6, subdivision (b)(3) of the California Constitution, as interpreted by our Supreme Court in *Bighorn-Desert View Water Agency v. Verjil (2006) 39 Cal.4th 205, 221 [46 Cal.Rptr.3d 73, 138 P.3d 220]* (*Bighorn*) provides that water rates must reflect the "'cost of the service attributable'" to a given parcel.[3] While tiered, or inclined rates that go up progressively in relation to usage are perfectly **[*1498]** consonant with article XIII D, section 6, subdivision (b)(3) and *Bighorn*, the tiers must still correspond to the actual cost of providing service at a given level of usage. The water agency here did not try to calculate the cost of actually providing water at its various tier levels. It merely allocated all its costs among the price tier levels, based not on costs, but on predetermined usage budgets. Accordingly, the trial court correctly determined the agency had failed to carry the burden imposed on it by another part of Proposition 218 (art. XIII D, § 6, subd. (b)(5))[4] of showing it had complied with the requirement water fees not exceed the cost of service attributable to a parcel at least without a vote of the electorate. That part of the judgment must be affirmed.

II. FACTS

Sometimes cities are themselves customers of a water district, the best example in the case law being the City of Palmdale, which successfully invoked Proposition 218 to challenge the rates *it* was paying to a water district. (See *City of Palmdale v. Palmdale Water Dist. (2011) 198 Cal.App.4th 926 [131 Cal. Rptr. 3d 373]* (*Palmdale*).) And sometimes cities are, as in the present case, their own water district. As amicus curiae Association of California Water Agencies (ACWA) points out, government water suppliers in California are a diverse lot that includes municipal water districts, irrigation districts, county water districts, and, in some cases, cities themselves. To focus on its specific role in this case as a municipal water supplier—as distinct from its role as the provider of municipal services which consume water such as parks, city landscaping or public golf courses—we will refer to appellant City of San Juan Capistrano as "City Water."

In February 2010, City Water adopted a new water rate structure recommended by a consulting firm. The way City Water calculated the new rate structure is well described in City Water's supplemental brief of November 25, 2014.[5] City Water followed a pattern generally recommended **[**366]** by a manual used by public water agencies throughout the western United States known as the "M-1" manual. It first ascertained its total costs, including things like debt service on previous infrastructural improvements. It then **[*1499]** identified components of its costs, such as the cost of billing and the cost of water treatment. Next it identified classes of customers, differentiating, for example, between "regular lot" residential customers and "large lot" residential customers, and between construction customers and agricultural customers. Then, in regard to each class, City Water calculated four

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[3] Until *Bighorn*, there was a question as to whether Proposition 218 applied at all to water rates. In 2000, the appellate court in *Howard Jarvis Taxpayers Assn. v. City of Los Angeles (2000) 85 Cal.App.4th 79, 83 [101 Cal. Rptr. 2d 905]* (*Jarvis v. Los Angeles*), held that a city's water rates were not subject **[***5]** to Proposition 218, reasoning that water rates are mere commodity charges. *Bighorn*, however, formally disapproved *Jarvis v. Los Angeles* and held that water rates *are* subject to *article XIII D of the California Constitution*. (*Bighorn, supra, 39 Cal.4th at p. 217, fn. 5*.)

[4] For reader convenience, we will occasionally refer in this opinion in shorthand to "subdivision (b)(1)," "subdivision (b)(3)," "subdivision (b)(4)," **[***6]** and "subdivision (b)(5)," and sometimes even just to "(b)(1)" "(b)(3)," "(b)(4)" or "(b)(5)." Each time those references refer to article XIII D, section 6, subdivision (b) of the California Constitution. Also, all references to any "article" are to the California Constitution.

[5] We requested supplemental briefing prior to oral argument to clarify the nature of the issues and precisely what was in, and not in, the administrative record. We are indebted to able counsel on all sides for giving us their best efforts to answer our questions.

possible budgets of water usage, based on historical data for usage patterns: low, reasonable, excessive and very excessive. **[***7]**

The four budgets were then used as the basis for four distinct "tiers" of pricing.[6] For residential customers, tier 1, the low budget, was assumed to be exclusively indoor usage, based on World Health Organization guidelines concerning the "minimum quantity of water required for survival," with adjustments for things like "low-flush toilets and other high-efficiency appliances." Tier 2, the reasonable budget, included an outdoor allocation based on "typical landscapes," and assumed "use of native plants and drought-tolerant plants." The final two tiers were based on budgets of what City Water considers excessive usages of water or overuse volumes. Using these four budgets of consumption levels, City Water allocated its total costs in such a way that the anticipated revenues from all four tiers would equal its total costs, and thus the four-tier system would be, taken as a whole, revenue neutral, and City Water would not **[***8]** make a profit on its pricing structure. City Water did not try to calculate the incremental cost of providing water at the level of use represented by each tier, and in fact, at oral argument in this court, admitted it effectively used revenues from the top tiers to subsidize below-cost rates for the bottom tier.

Here is the rate structure adopted, as applied to residential customers:

[367]**

Tier	Usage	Price
1	Up to 6 ccf[7]	$2.47 per ccf
2	7 to 17 ccf[8]	$3.29 per ccf

[*1500]

3	18 to 34 ccf[9]	$4.94 per ccf
4	Over 34 ccf[10]	$9.05 per ccf

City Water obtains water from five separate sources: a municipal groundwater recovery plant, the Metropolitan Water District, five local groundwater wells, recycled water wells, and the nearby Moulton Niguel Water District. With the exception of water obtained from the Metropolitan Water District, City Water admits in its briefing that the record does not contain any breakdown as to the relative cost of each source of supply.

The breakdown of cost from each of its various sources of water is, in percentage terms:

[368]**

Source	Percent of Supply	Cost to Supply
Groundwater Recovery Plant	51.95%	Not ascertained
Metropolitan Water District	28.54%	$1,007 per-acre foot[11]

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[6] Such rate structures are sometimes called "inclining" as in the pre-Proposition 218 case *Brydon v. East Bay Mun. Utility Dist. (1994) 24 Cal.App.4th 178, 184 [29 Cal. Rptr. 2d 128]* (*Brydon*). Amicus curiae ACWA estimates that over half its members now have some sort of tiered water rate system. As we will say numerous times in this opinion, ***HN4*** tiered water rate structures and Proposition 218 are thoroughly compatible "so long as"—and that phrase is drawn directly from *Palmdale*—those rates reasonably reflect the cost of service attributable to each parcel. (*Palmdale, supra, 198 Cal.App.4th at p. 936.*)

7 Ccf stands for one hundred cubic feet, which translates to 748 gallons. (See Brydon, supra, 24 Cal.App.4th at p. 184.)

8 A precise figure for the usage is complicated by an attempt in the rate structure to distinguish indoor and outdoor use. Technically, tier 2 is tier 1 + [***9] 3 extra ccfs, plus an outdoor allocation that is supposed to average out to a total of 17 ccfs, i.e., 8 ccfs are allocated (on average) for outdoor use.

9 Technically, tier 3 is defined as up to 200 percent of tiers 1 and 2, which, given City Water's projected 17 ccf average, works out to be 34 ccf.

10 While the consultants distinguished between regular and large lot residential customers, the final structure made no distinction between the two.

Source	Percent of Supply	Cost to Supply
Local Wells	7.79%	Not ascertained
Recycled Wells	6.11%	Not ascertained
Moulton Niguel Water District	5.61%	Not ascertained **[*** 10]**

Various percentages of City Water's overhead—or fixed costs in the record—were allocated in percentages to some of the sources of water, so the price per tier reflected a percentage of fixed costs and costs of some sources.

This chart reflects those allocations:

Tier	Price	Percentage Allocation
1	$2.47	$1.78 to fixed costs, $0.62 to wells
2	$3.29	$1.78 to fixed, $1.46 to wells
3	$4.94	$1.53 to fixed, $0.69 to wells, $0.17 to the Metropolitan Water District, and $2.50 to the groundwater recovery plant
4	$9.05	0 to fixed, 0 to wells, $0.53 to groundwater recovery plant, $2.53 to recycled, $3.32 to the Metropolitan Water District, and $2.64 to penalty set-aside

[*1501]

There is no issue in this case as to the process of the adoption of the new rates, such as whether they should have been voted on first under the *article XIII C* part of Proposition 218. For purposes of this appeal it is enough to say City Water adopted them.[12]

[369]** In August 2012, the Capistrano Taxpayers Association, Inc. (CTA), filed this action, challenging City Water's new rates as violative of Proposition 218, specifically article XIII D, section 6, subdivision (b)(3)'s limit on fees to the "cost of the service attributable to the parcel." After a review of the administrative record and hearing, the trial court found the rates were not compliant with *article XIII D*, noting it "could not find any specific financial cost data in the [record] to support the substantial rate increases" in the progressively more expensive tiers. In particular the trial judge found a lack of support for the inequality between the tiers.

The statement of decision also concluded that the imposition of charges for recycling within the rate structure violated the "immediately available" provision in article XIII D, section 6, subdivision (b)(4), because **[***12]**

11 In 2010, City Water was paying $719 per acre-foot for water from the Metropolitan Water District, and that cost was projected to increase incrementally each year until it reached $1,007 per acre-foot by 2014. One acre-foot equals 435.6 ccf.

12 With a minor qualification that, given our disposition, it need not [***11] be addressed in too much detail. A minor issue in the briefing is whether City Water should have made its consultants' report available for taxpayer scrutiny prior to the public hearing contemplated in article XIII D, section 6, subdivision (c). Since City Water is not able to show its price structure correlates with the actual cost of providing service at the various incremental levels even with the consultants' report, we need not get bogged down in this issue.

recycled water is not used by residential parcels. (City Water concedes that when the recycling plant comes on line, it will supply water to some, but not all, of its customers. Residences, for example, are not typically plumbed to receive nonpotable recycled water.) City Water has timely appealed from the declaratory judgment, challenging both determinations.

III. DISCUSSION

A. *Capital Costs and Proposition 218*

We first review the constitutional text. ***HN5*** Article XIII D, section 6, subdivision (b)(4) provides: "No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question. Fees or charges based on potential or future use of a service are not permitted. Standby charges, whether characterized as charges or assessments, shall be classified as assessments and shall not be imposed without compliance with Section 4."

The trial court ruled City Water had violated this provision by "charging certain ratepayers for recycled water that they do not actually use and that is **[*1502]** not immediately available to them." The trial judge specifically found, in his statement of decision, that "City [Water] imposed a fee on all ratepayers for recycled water services and delivery **[***13]** of recycled water services, despite the fact that not all ratepayers used recycled water or have it immediately available to them or would ever be able to use it."

CA(1) **(1)** But the trial court assumed that providing recycled water is a fundamentally different kind of service from providing traditional potable water. We think not. ***HN6*** When each kind of water is provided by a single local agency that provides water to different kinds of users, some of whom can make use of recycled water (for example, cities irrigating park land) while others, such as private residences, can only make use of traditional potable water, providing each kind of water is providing the *same* service. Both are getting water that meets their needs. Nonpotable water for some customers frees up potable water for others. And since water service is already immediately available to all customers of City Water, there is no contravention of subdivision (b)(4) in including charges to construct and provide recycled water to some customers.

On this point, *Griffith v. Pajaro Valley Water Management Agency (2013) 220 Cal.App.4th 586 [163 Cal. Rptr. 3d 243]* (*Griffith*) is instructive. *Griffith* involved an augmentation fee on parcels that had their own wells. An objection to the augmentation fee by the well owners was that the fee included **[***14]** a charge for delivered water, **[**370]** even though some of the properties were outside the area and not actually receiving delivered water. The *Griffith* court said that even if some parcel owners were not receiving delivered water, revenues from the augmentation fee still benefited those parcels, since they funded "activities required to prepare or implement the groundwater management program for the common benefit of all water users." (*Id. at p. 602*.) In *Griffith* the augmentation fee was thus intended to fund aggressive capital investments to increase the general supply of water, including some customers receiving delivered water when other customers did not. It was undeniable that by funding delivered water to some customers, water was *freed up* for all customers. (See *Griffith, supra, 220 Cal.App.4th at p. 602*; accord, *Paland v. Brooktrails Township Community Services Dist. Bd. of Directors (2009) 179 Cal.App.4th 1358 [102 Cal. Rptr. 3d 270]* [customer in rural area who periodically went inactive still had water immediately available to him].)

In the present case, there is a Government Code definition of water, which shows ***HN7*** water to be part of a holistic distribution system that does not distinguish between potable and nonpotable water: ***HN8*** "'Water' means any system of public improvements intended to provide for the production, storage, supply, treatment, or distribution **[***15]** of water from any source." (*Gov. Code, § 53750, subd. (m)*.)
[*1503]

A recycling plant, like other capital improvements to increase water supply, obviously entails a longer timeframe than a residential customer's normal one-month billing cycle. As shown in *Morgan v. Imperial Irrigation Dist. (2014) 223 Cal.App.4th 892 [167 Cal. Rptr. 3d 687]*, the timeframe for the calculation of the true cost of water can be, given

capital improvements, quite long. (See *id. at p. 900* [costs amortized over a six-year period].) And, as pointed out by amicus curiae Howard Jarvis Taxpayers Association, *Government Code section 53756* contemplates timeframes for water rates that can be as long as five years.[13] There is no need, then, to conclude that rates to pay for a recycling plant have to be figured on a month-to-month basis.

CA(2) **(2)** The upshot is that within a five-year period, a water agency **[***16]** might develop a capital-intensive means of production of what is effectively *new* water, such as recycling or desalinization, and pass on the costs of developing that new water to those customers whose marginal or incremental extra usage requires such new water to be produced. As amicus curiae Mesa Water District points out, ***HN10*** *Water Code section 31020* gives local water agencies the power to do acts to "furnish sufficient water in the district for any present or *future* beneficial use." (*Wat. Code, § 31020*, italics added.) The trial court thus erred in concluding the inclusion of charges to fund a recycling operation was, by itself, a violation of subdivision (b)(4).

CA(3) **(3)** However, the record is insufficient to allow us to determine at this level whether residential ratepayers who only use six ccf or less—what City Water considers the superconservers—are being required to pay for recycling facilities that **[**371]** would not be necessary but for above-average consumption. ***HN11*** Proposition 218 protects lower-than-average users from having to pay rates that are *higher than the cost of service for them* because those rates cover capital investments their levels of consumption do not make necessary. We note, in this regard, that in *Palmdale*, one of the reasons the court there **[***17]** found the tiered pricing structure to violate subdivision (b)(3) was the perverse effect of affirmatively penalizing conservation by some users. (See *Palmdale, supra, 198 Cal.App.4th at pp. 937–938*; accord, *Brydon, supra, 24 Cal.App.4th at p. 202* ["To the extent that certain customers overutilize the resource, they contribute disproportionately to the necessity for conservation, and the requirement that the District acquire new sources for the supply of domestic water."].)
[*1504]

There is a case with an analogous lacuna, the Supreme Court case of *California Farm Bureau Federation v. State Water Resources Control Bd. (2011) 51 Cal.4th 421 [121 Cal. Rptr. 3d 37, 247 P.3d 112]* (*Farm Bureau*). In *Farm Bureau*, the record was also unclear as to the issue of apportionment between a regulatory activity's fees and its costs. (*Id. at p. 428*.) Accordingly, the high court directed the matter to be remanded to the trial court for such necessary findings.

That seems to us the appropriate way to complete the record in our case. Following the example of *Farm Bureau*, we remand the matter for further findings on whether charges to develop City Water's nascent recycling operation have been improperly allocated to users whose levels of consumption are so low that they cannot be said to be responsible for the need for that recycling.

B. *Tiered Pricing and Cost of Service*

1. *Basic Analysis*

We begin, as we did with the capital cost **[***18]** issue, with the text of the Constitution. In addition to subdivision (b)(3), the main provision at issue in this case, we also quote subdivision (b)(1), because it throws light on subdivision (b)(3). Subdivision (b) describes "Requirements for Existing, New or Increased Fees and Charges," and provides that ***HN12*** "A fee or charge shall not be extended, imposed, or increased by any agency unless it meets all of the following requirements: [¶] (1) Revenues derived from the fee or charge *shall not exceed the funds required to provide the property related service*. [¶] … [¶] (3) *The amount of a fee or charge* imposed upon any parcel or person as an incident of property ownership *shall not exceed the proportional cost of the service attributable to the parcel*." (Italics added.)

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13 Government Code section 53756 provides in relevant part: HN9 "An agency providing water, wastewater, sewer, or refuse collection service may adopt a schedule of fees or charges authorizing automatic adjustments that pass through increases in wholesale charges for water, sewage treatment, or wastewater treatment or adjustments for inflation, if it complies with all of the following: "(a) It adopts the schedule of fees or charges for a property-related service for a period not to exceed five years pursuant to Section 53755." (Italics added.)

In addition to these two substantive limits on fees, article XIII D, section 6, subdivision (b)(5) puts an important procedural limit on a court's analysis in regard to the burden of proof: HN13 "In any legal action contesting the validity of a fee or charge, the burden shall be on the agency to demonstrate compliance with this article." The trial court found City Water had failed to carry its burden of proof under subdivision (b)(5) of showing its 2010 tiered water **[***19]** fees were proportional to the cost of service attributable to each customer's parcel as required by subdivision (b)(3).

As respondent CTA quickly ascertained, the difference between tier 1 and tier 2 is a tidy one-third extra, the difference between tier 2 and 3 is a similarly exact one-half extra, and the difference between tier 3 and tier 4 is precisely five-sixths extra. This fractional precision suggested to us that City Water did **[*1505]** not attempt to correlate its rates with **[**372]** cost of service. Such mathematical tidiness is rare in multidecimal-point calculations. This conclusion was confirmed at oral argument in this court, when City Water acknowledged it had not tried to correlate the incremental cost of providing service at the various incremental tier levels to the prices of water at those levels.

In voluminous briefing by City Water and its amici curiae allies, two somewhat overlapping core thoughts emerge: First, they contend that when it comes to water, local agencies do not have to—or should not have to—calculate the cost of water service at various incremental levels of usage because the task is simply too complex and thus not required by our Constitution. The second core thought is that even if **[***20]** agencies are required to calculate the actual costs of water service at various tiered levels of usage, such a calculation is necessarily, as City Water's briefing contends, a legislative or quasi-legislative, discretionary matter, largely insulated from judicial review. We cannot agree with either assertion.

CA(4) **(4)** The appropriate way of examining the text of Proposition 218 has already been spelled out by the Supreme Court in *Silicon Valley Taxpayers' Assn., Inc. v. Santa Clara County Open Space Authority (2008) 44 Cal.4th 431, 448 [79 Cal. Rptr. 3d 312, 187 P.3d 37]* (*Silicon Valley*): HN14 "We '"'must enforce the provisions of our Constitution and "may not lightly disregard or blink at … a clear constitutional mandate."'" [Citation.] In so doing, we are obligated to construe constitutional amendments in a manner that effectuates the voters' purpose in adopting the law. [Citation.] [¶] CA(5) **(5)** HN15 Proposition 218 specifically states that '[t]he provisions of this act shall be *liberally construed to effectuate its purposes of limiting local government revenue and enhancing taxpayer consent.*' (Ballot Pamp., [Gen. Elec. (Nov. 5, 1996)] text of Prop. 218, § 5, p. 109; see Historical Notes, [2A West's Ann. Const. (2008 supp.) foll. *Cal. Const., art. XIII C.*] at p. 85.) Also, as discussed above, the ballot materials explained to the voters that Proposition 218 was designed to: constrain local governments' ability to impose assessments; place extensive requirements on local governments charging **[***21]** assessments; shift the burden of demonstrating assessments' legality to local government; *make it easier for taxpayers to win lawsuits; and limit the methods by which local governments exact revenue from taxpayers without their consent.*" (*Silicon Valley, supra, 44 Cal.4th at p. 448*, italics added.)

CA(6) **(6)** If the phrase "proportional cost of the service attributable to *the* parcel" (italics added) is to mean anything, it has to be that HN16 article XIII D, section 6, subdivision (b)(3) assumes that there really *is* an ascertainable cost of service that can be attributed to a specific—hence that little word "the"—parcel. Otherwise, the cost of the service language would be meaningless. Why use the phrase "cost of the service to the parcel" if a local agency doesn't actually have to ascertain a cost of service to that particular parcel?
[*1506]

CA(7) **(7)** The presence of subdivision (b)(1) of section 6, article XIII D, just a few lines above subdivision (b)(3), confirms our conclusion. HN17 Constitutional provisions, particularly when enacted in the same measure, should be construed together and read as a whole. (*Bighorn, supra, 39 Cal.4th at p. 228.*) HN18 The "proportional cost of the service" language from subdivision (b)(3) is part of a general subdivision (b), and there is an additional reference to costs in subdivision (b)(1). Subdivision (b)(1) provides that the total revenue from fees **[***22]** "shall not exceed the funds required to provide *the property* related service." (Italics added.)

[373]** CA(8) **(8)** It seems to us that to comply with the Constitution, City Water had to do more than merely balance its total costs of service with its total revenues—that is already covered in subdivision (b)(1). To comply with subdivision (b)(3), City Water also had to correlate its tiered prices with the actual cost of providing water at those tiered levels. Since City Water didn't try to calculate the actual costs of service for the various tiers, the trial court's ruling on tiered pricing must be upheld simply on the basis of the constitutional text.

We find precedent for our conclusion in the *Palmdale* case. There, a water district obtained its water from two basic sources: 60 percent from a reservoir and the state water project, and the 40 percent balance from the district's own area groundwater wells. Most (about 72 percent) of the water went to single-family residences, with irrigation users accounting for 5 percent of the distribution. (*Palmdale, supra, 198 Cal.App.4th at p. 928*.) For the previous five years, the district had spent considerable money to upgrade its water treatment plant ($56 million) but revenues suffered from a "'decline **[***23]** in water sales,'" so its reserves were depleted. The district wanted to issue more debt for "future capital projects." (*Id. at pp. 928–929*.) Relying on consultants, the water district adopted a new, five-tiered rate structure, which progressively increased rates (for the top four tiers) for three basic categories of customers: residences, businesses, and irrigation projects. The tiered budgets for irrigation users were more stringent than for residential and commercial customers. (*Id. at p. 930*.) The way the tiers operated, all three classes of customers got a tier 1 budget, but irrigation customers had less leeway to increase usage without progressing to another tier. Thus, for example, the tier 2 rates for residential customers did not kick in until 125 percent of the budget, but tier 2 rates for irrigation customers kicked in at 110 percent of the budget. The tiered rate structure was itself based on a monthly allocated water budget. (*Ibid.*)

Two irrigation users—the city itself and its redevelopment agency—sought to invalidate the new rates. The trial court had the advantage of the newly decided Supreme Court opinion in *Silicon Valley*, which had clarified the **[*1507]** standard of review for Proposition 218 cases. **[***24]** There, the high court made it clear that ***HN19*** in Proposition 218 challenges to agency action, the agency had to bear the burden of proof of demonstrating compliance with Proposition 218, and both trial and reviewing courts are to apply an independent review standard, not the traditional, deferential standards *usually* applicable in challenges to governmental action. (*Silicon Valley, supra, 44 Cal.4th at p. 448*.) More directly, said *Silicon Valley*, it is not enough that the agency have substantial evidence to support its action. That substantial evidence must itself be able to withstand independent review. (See *id. at pp. 441, 448–449* [explaining why substantial evidence to support the agency action standard was too deferential in light of Prop. 218's liberal construction in favor of taxpayer feature].)

With this in mind, the *Palmdale* court held the district had failed to carry its burden of showing compliance with Proposition 218. (*Palmdale, supra, 198 Cal.App.4th at pp. 937–938*.) The core of the *Palmdale* court's reasoning was twofold. First, there was discrimination against irrigation-only customers, giving an unfair price advantage to those customers in other classes who were inclined to inefficiently use—or, for that matter, waste—outdoor water. (The opinion noted the perfect exemplar of **[***25]** water waste: hosing off a parking lot.) Thus an **[**374]** irrigation user, such as a city providing playing fields, playgrounds and parks, was disproportionately impacted by the inequality in classes of users. (*Palmdale, supra, 198 Cal.App.4th at p. 937*.) Second, the discrimination was gratuitous. The district's own consultants had proposed a "cost of service" option that they considered Proposition 218 compliant, but the district did not choose it because it preferred a "fixed" option providing better "'rate stability.'" (*Palmdale, supra, 198 Cal.App.4th at pp. 937, 929*.) In fact the choice had the perverse effect of entailing a "'*weaker* signal for water conservation'" for "'small customers who *conserve* water.'" (*Id. at pp. 929, 937*, some italics added.)[14]

We recognize that *Palmdale* was primarily focused on inequality between classes of users, as distinct from classes of water rate tiers. But, just as in *Palmdale* where the district never attempted to justify the inequality "in the cost of providing water" to its various classes of customers at each tiered level (*Palmdale, supra, 198 Cal.App.4th at p. 937*), so City Water has never attempted to justify its price points as based on *costs **[***26]** of service for those tiers*. Rather, City Water merely used what it thought was its legislative, discretionary power to attribute percentages

14 As described by the court, the fixed cost option was really a "fixed/variable" option, with fixed charges being 60 percent of total costs, the balance being variable. (Palmdale, supra, 198 Cal.App.4th at p. 929, capitalization omitted.)

of total costs to the various tiers. While an interesting conversation might be had about whether this was **[*1508]** reasonable or wise, we can find no room for arguing its constitutionality. It does not comply with the mandate of the voters as we understand it.

2. *City Water's Arguments*

a. *Article X, Section 2*

In supplemental briefing prior to oral argument, this court pitched a batting practice fastball question to City Water, intended to give the agency its best chance of showing that the prices for its various usage tiers, particularly the higher tiers (e.g., $4.94 for all usage over 17 ccf to 34 ccf, and $9.05 for usage over 34 ccf) corresponded with its actual costs of delivering water in those increments. We were hoping that, maybe, we had missed something in the record that would demonstrate the actual cost of delivering water for usage over 34 ccf per month really is $9.05 per ccf, and City Water would hit our question into the upper deck.

What we got back was a rejection of the very idea behind the question. As would later be confirmed at oral argument, City Water's **[***27]** answer was that there does not have to be a correlation between tiered water prices and the cost of service. Its position is that the "cost-of-service principle of Proposition 218" must be "balance[d]" against "the conservation mandate of *article X, section 2*." In short, City Water justifies the lack of a correlation between the marginal amounts of water usage represented by its various tiers and the actual cost of supplying that water by saying the lack of correlation is excused by the subsidy for low usage represented by tier 1, on the theory that subsidized tier 1 rates are somehow *required* by *article X, section 2*. While we agree that low-cost water rates do not, in and of themselves, offend subdivision (b)(3) (see *Morgan v. Imperial Irrigation Dist., supra, 223 Cal.App.4th at p. 899*), we cannot adopt City Water's constitutional extrapolation of that point.

We quote the complete text of *article X, section 2* **[**375]** in the footnote.[15] *Article X, section 2* was enacted in 1928 in reaction to a specific Supreme Court case **[*1509]** decided two years earlier, *Herminghaus v. South. California Edison Co. (1926) 200 Cal. 81 [252 P. 607]* (*Herminghaus*). The *Herminghaus* decision, as Justice Shenk wrote in his dissent there, allowed downstream riparian landowners—basically farmers owning land adjacent to a river—to claim 99 percent of the flow of the San Joaquin River even though they were actually using less than 1 percent of that flow. **[***28]** [16] To compound that anomaly, the downstream riparian landowners' claims came at the expense of the efforts of an electric utility company to generate electricity for general, beneficial use by building reservoirs at various points upstream on the river. (See *Herminghaus, at p. 109*.) In the process of upholding the downstream landowners' "riparian rights" over the rights of the electric company to use the water to make electricity, the *Herminghaus* majority invalidated legislation aimed at preserving water in the state for a reasonable beneficial use, thereby countenancing what Justice Shenk perceived to be a plain waste of good water. (*Herminghaus, supra, 200 Cal. at p. 123* (dis. opn. of Shenk, J.).) As our Supreme Court would describe *Herminghaus* about half a century later: "we held not only that riparian rights took priority over appropriations authorized by the Water Board, a point which had always been clear, but that as between the riparian and the appropriator, the former's use of water was not limited by the doctrine of reasonable use." (*National Audubon Society v. Superior Court (1983) 33 Cal.3d 419, 442 [189 Cal. Rptr. 346, 658 P.2d 709]*.)

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15 "It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the [***29] fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water. Riparian rights in a stream or water course attach to, but to no more than so much of the flow thereof as may be required or used consistently with this section, for the purposes for which such lands are, or may be made adaptable, in view of such reasonable and beneficial uses; provided, however, that nothing herein contained shall be construed as depriving any riparian owner of the reasonable use of water of the stream to which the owner's land is riparian under reasonable methods of diversion and use, or as depriving [***30] any appropriator of water to which the appropriator is lawfully entitled. This section shall be self-executing, and the Legislature may also enact laws in the furtherance of the policy in this section contained."

16 "In order to have the beneficial use of less than one per cent of the maximum flow of the San Joaquin River on their riparian lands the plaintiffs are contending for the right to use the balance in such a way that, so far as they are concerned, over ninety-nine per cent of that flow is wasted. This is a highly unreasonable use or method of the use of water." (Herminghaus, supra, 200 Cal. at p. 123 (dis. opn. of Shenk, J.).)

The voters overturned *Herminghaus* in the 1928 election by adopting *article X, section 2*, then denoted *article XIV, section 3*. (See *Gin S. Chow v. City of Santa Barbara (1933) 217 Cal. 673, 699 [22 P.2d 5]* (*Gin Chow*).) In the 1976 constitutional revision, old *article XIV, section 3*, was recodified *verbatim* as *article X, section 2*. (See Gray, *"In Search of Bigfoot": The Common Law Origins of Article X, Section 2 of the California Constitution* (1989) **[**376]** 17 Hastings Const. L.Q. 225 (hereinafter *Origins of Article X, Section 2*).[17]

The purpose of *article X, section 2* was described in *Gin Chow*, the first case to reach the Supreme Court in the wake of the adoption of what is now **[*1510]** *article X, section 2*, in 1928. Justice Shenk, having been vindicated by the voters on the point of a perceived need to prevent the waste of **[***31]** water by letting it flow to the sea, summarized the new amendment in terms emphasizing beneficial use: "The purpose of the amendment was stated to be 'to prevent the waste of waters of the state resulting from an interpretation of our law which permits them to flow unused, unrestrained and undiminished to the sea', and is an effort 'on the part of the state, in the interest of the people of the state, to conserve our waters' without interference with the beneficial uses to which such waters may be put by the owners of water rights, including riparian owners. That such purpose is reflected in the language of the amendment is beyond question. Its language is plain and unambiguous. In the main it is an endeavor on the part of the people of the state, through its fundamental law, to conserve a great natural resource, and thereby render available for beneficial use that portion of the waters of our rivers and streams which, under the old riparian doctrine, was of no substantial benefit to the riparian owner and the conservation of which will result in no material injury to his riparian right, and without which conservation such waters would be wasted and forever lost." (*Gin Chow, supra, 217 Cal. at p. 700*.)

The emphasis in **[***32]** the actual language of *article X, section 2* is thus on a policy that favors the beneficial use of water as against the waste of water for nonbeneficial uses. That is what one would expect, consistent with both Justice Shenk's dissent in *Herminghaus* and his majority opinion in *Gin Chow*. (See *Origins of Article X, Section 2*, *supra*, 17 Hastings Const. L.Q. at p. 263 [noting emphasis in text on beneficial use].) The word "conservation" is used in the introductory sentence of the provision in the context of promoting beneficial uses: "'the conservation of such waters is to be exercised *with a view to the reasonable and beneficial use thereof* in the interest of the people and for the public welfare.'" (*Origins of Article X, Section* 2, at p. 225, italics added.)

CA(9) **(9)** But nothing in *article X, section 2*, requires water rates to exceed the true cost of supplying that water, and in fact pricing water at its true cost is compatible with the article's theme of conservation with a view toward reasonable and beneficial use. (See *Palmdale, supra, 198 Cal.App.4th at pp. 936–937* [reconciling *art. X, § 2* with Prop. 218]; accord, *Brydon, supra, 24 Cal.App.4th at p. 197* [noting that incremental rate structures create an incentive to reduce water use].) Thus it is hard for us to see how *article X, section 2*, can be read to trump subdivision (b)(3). We would note here that in times of drought—which looks increasingly like the **[***33]** foreseeable future—providing water can become very pricey indeed.[18] And, we emphasize, there **[*1511]** is **[**377]** nothing at all in subdivision (b)(3) or elsewhere in Proposition 218 that prevents water agencies from passing on the incrementally higher costs of expensive water to incrementally higher users. That would seem like a good idea. But subdivision (b)(3) does require they figure out the true cost of water, not simply draw lines based on water budgets. Thus in *Palmdale*, the appellate court perceived ***HN20*** no conflict between Proposition 218 and *article X, section 2*, *so long as* *article X, section 2* is not read to allow water rates that exceed the cost of service. Said *Palmdale:* "*California Constitution, article X, section 2* is not at odds with *article XIII D* *so long as, for example, conservation is attained in a manner that 'shall not exceed the proportional cost of the service attributable to the parcel*.' (Art. XIII D, § 6, subd. (b), par. (3).)" (*Palmdale, supra, 198 Cal.App.4th at pp. 936–937*, italics added.) And as its history, and the demonstrated concern of the voters in 1928 demonstrates, *article X, section 2* certainly does not require above-cost water rates.

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17 Professor Gray's article is an exceptionally valuable source on the origins of article X, section 2.

18 It was recently noted that Santa Barbara is dusting off a desalinization plant built in the 1990's to provide additional water for the city in the current drought. (See Covarrubias, Santa Barbara Working to Reactivate Mothballed [***34] Desalinization Plant, L.A. Times (Mar. 3, 2015) <http://www.latimes.com/local/california/la-me-santa-barbara-desal-20150303-story.html> (as of Apr. 20, 2015) [noting, among other things, that desalinization can be expensive].)

In fact, if push came to shove and article X, section 2 really were in irreconcilable conflict with article XIII D, section 6, subdivision (b)(3), we might have to read article XIII D, section 6, subdivision (b)(3) to have carved out an *exception* to article X, section 2, since Proposition 218 is both more recent and more specific. (Greene v. Marin County Flood Control & Water Conservation Dist. (2010) 49 Cal.4th 277, 290 [109 Cal. Rptr. 3d 620, 231 P.3d 350] ["'As a means of avoiding conflict, a recent, specific provision is deemed to carve out an exception to and thereby limit an older, general provision.'"]; Izazaga v. Superior Court (1991) 54 Cal.3d 356, 371 [285 Cal. Rptr. 231, 815 P.2d 304] [same].)

Fortunately, that problem has not arisen. We perceive article X, section 2 and article XIIID, section 6, subdivision (b)(3) to work *together* to promote increased supplies of water—after all, the main reason article X, section 2 was enacted in the first place was to ensure the *capture and beneficial use* of water and prevent its wasteful draining into the ocean. As a pre-Proposition 218 case, Brydon, supra, 24 Cal.App.4th 178 observed, one of the benefits of tiered rates is that it is reasonable to assume people will not waste water as its price goes up. (See id. at p. 197 [noting that incremental rate structures create an incentive to reduce water use].) Our courts have made it clear they interpret the Constitution to allow tiered pricing; but the voters have made it clear they **[***35]** want it done in a particular way.

b. Brydon *and* Griffith

We believe the precedent most on point is Palmdale, and we read *Palmdale* to support the trial court's conclusion City Water did not comply **[*1512]** with the subdivision (b)(3) requirement that rates be proportional to cost of service. The two cases City Water relies on primarily for its opposite conclusion, *Brydon* and *Griffith*, do not support a different result.

Brydon was a pre-Proposition 218 case upholding a tiered water rate structure as against challenges based on 1978's Proposition 13 rational basis and equal protection challenges. Similar to the case at hand, the water district promulgated an "inclining block rate structure." (Brydon, supra, 24 Cal.App.4th at p. 182; see p. 184 [details of four-tier structure].) Proposition 218 had not yet been enacted, so the opponents of the block rate structure did not have the "proportional cost of the service attributable to the parcel" language in subdivision (b)(3) **[**378]** to use to challenge the rate structure. They relied, rather, on the theory that Proposition 13 made the rate structure a "'special tax,'" requiring a vote. (Brydon, at p. 182.) As backup they made traditional rational basis and equal protection arguments. They claimed the rate structure **[***36]** was "arbitrary, capricious and not rationally related to any legitimate legislative or administrative objective" and, further, that the structure unreasonably discriminated against customers in the hotter areas of the district. (Brydon, supra, at p. 182.) The *Brydon* court rejected both the Proposition 13 and rational basis/equal protection arguments.

But *Brydon*—though it might still be read as evidence that tiered pricing not otherwise connected to cost of service would survive a rational basis or equal protection challenge—simply has no application to post-Proposition 218 cases. In fact, the construction of Proposition 13 applied by *Brydon* was based on cases Proposition 218 was designed to overturn.[19] The best example of such reliance was *Brydon*'s declining to follow Beaumont Investors v. Beaumont-Cherry Valley Water Dist. (1985) 165 Cal.App.3d 227 [211 Cal. Rptr. 567] (*Beaumont*) on the issue of the burden of proof. *Beaumont* had held it was the agency that had the burden of proof to show compliance with Proposition 13. *Brydon*, however, said the burden was on the taxpayers to show lack of compliance. In coming to its conclusion, *Brydon* invoked Knox v. City of Orland (1992) 4 Cal.4th 132 [14 Cal. Rptr. 2d 159, 841 P.2d 144]. *Knox*, said *Brydon*, had "cast substantial doubt" on the "propriety of shifting the burden of proof to the agency." (Brydon, supra, 24 Cal.App.4th at ***1513*** p. 191.) But, more than a decade later, our Supreme **[***37]** Court in *Silicon Valley* recognized that *Knox* itself was one of the targets of Proposition 218. (See Silicon Valley, supra, 44 Cal.4th

19 Two examples of early, post-Proposition 13 cases that took a strict constructionist view of the provision are Los Angeles County Transportation Com. v. Richmond (1982) 31 Cal.3d 197, 199 [182 Cal. Rptr. 324, 643 P.2d 941] (Los Angeles County v. Richmond) (strictly construing Prop. 13's voting requirements to avoid finding a transportation commission was a "'special district'") and City and County of San Francisco v. Farrell (1982) 32 Cal.3d 47, 54 [184 Cal. Rptr. 713, 648 P.2d 935] (strictly construing words "special tax[]" used in § 4 of Prop. 13 as ambiguous to avoid finding municipal payroll and gross receipts tax was a "special tax".) Brydon expressly relied on Los Angeles County v. Richmond. (See Brydon, supra, 24 Cal.App.4th at p. 190.) Proposition 218 effectively reversed these cases with a liberal construction provision. (See Silicon Valley, supra, 44 Cal.4th at p. 445.)

at p. 445.)[20] In the wake of *Knox*'s fate (see in particular subd. (b)(5) [changing burden of proof]), it seems safe to say that *Brydon* itself was part of the general case law which the enactors of Proposition 218 wanted replaced with stricter controls on local government discretion.

As the *Silicon Valley* court observed, Proposition 218 effected a paradigm shift. Proposition 218 was passed by the voters in order to *curtail* discretionary models of local agency fee determination. (See *Silicon Valley, supra, 44 Cal.4th at p. 446* ["As further evidence that the voters sought to curtail local agency discretion in raising **[**379]** funds … ."].)[21] Allocation of water rates might indeed have been a purely discretionary, legislative task when *Brydon* was decided, but not after passage of Proposition 218.

The other key case in City Water's analysis of this point is *Griffith*. There, the fee itself varied according to the location of the property, e.g., whether the parcels with wells were coastal and metered, noncoastal and metered, or residential and nonmetered. Objectors to the fee asserted certain tiers in the fee, *based on the geographic differences in the parcels covered* by the fee, were not proportional to the cost they were paying. One objector in particular complained the fee was improperly established by working backwards from the overall amount of the project, subtracting other revenues, the balance being the augmentation charge, which was then apportioned among the users. (*Griffith, supra, 220 Cal.App.4th at p. 600*.) This objector argued that the proportional **[***40]** cost of service had to be calculated prior to setting the rate for the charge.
[*1514]

The court noted the M-1 industry manual recommends such a work-backwards-from-total-cost methodology in setting rates, and held that the objectors did not attempt to explain why such an approach "offends Proposition 218 proportionality." (*Griffith, supra, 220 Cal.App.4th at p. 600*.) The best the objectors could do was to point to what *Silicon Valley* had said about *assessments*, namely, agencies cannot start with "'an amount taxpayers are likely to pay'" and *then* determine their annual spending budget from that. (*Ibid.*, quoting *Silicon Valley, supra, 44 Cal.4th at p. 457*.) The *Griffith* court distinguished the language from *Silicon Valley*, however, by saying the case before it did not entail any what-the-market-will-bear methodology. (*Griffith, supra, 220 Cal.App.4th at p. 600*.)

The objectors had also relied on *Palmdale* for the proposition that "… Proposition 218 proportionality compels a parcel-by-parcel proportionality analysis." (*Griffith, supra, 220 Cal.App.4th at p. 601*.) The *Griffith* court rejected that point by stating, "Apportionment is not a determination that lends itself to precise calculation," for which it cited a pre-Proposition 13, pre-Proposition 218 case, *White v. County of San Diego (1980) 26 Cal.3d 897, 903 [163 Cal. Rptr. 640, 608 P.2d 728]*, without any explanation. (*Griffith, supra, 220 Cal.App.4th at p. 601*.)

When read in context, *Griffith* does not excuse water agencies from ascertaining the true costs **[***41]** of supplying water to various tiers of usage. Its comments on proportionality **[**380]** necessarily relate only to variations in property location, such as what side of a water basin a parcel might fall into. That explains its citation to *White*, which itself was not only pre-Proposition 218, but pre-Proposition 13. Moreover, while the *Griffith* court may have noted that the M-1 manual generally recommends a work-backwards approach, we certainly do not read *Griffith* for the proposition that a mere manual used by utilities throughout the western United States can trump the plain language of the California state Constitution. The M-1 manual might show working backwards is reasonable, but it cannot excuse utilities from ascertaining cost of service now that the voters and the Constitution have chosen cost of service.

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20 Here is the relevant passage from Silicon Valley: "As the dissent below points out, a provision in Proposition 218 shifting the burden of demonstration was included in reaction to our opinion in Knox. The drafters of Proposition [***38] 218 were clearly aware of Knox and the deferential standard it applied based on Dawson [v. Town of Los Altos Hills (1976)] 16 Cal.3d 676 [129 Cal. Rptr. 97, 547 P.2d 1377]." (Silicon Valley, supra, 44 Cal.4th at p. 445.)

21 Here and there in City Water's briefing there are references to a discretionary, legislative power in regard to local municipal water agencies conferred by article XI, section 9, which was a 1970 amendment to the Constitution, though one can trace it back to the Constitution of 1879. Basically, article XI, section 9 gives cities the right to go into the water supply business. We quote its text, unamended since 1970: "(a) A municipal corporation may establish, purchase, and operate public works to furnish its inhabitants with light, water, power, heat, transportation, or means of communication. It may furnish those services outside its boundaries, [***39] except within another municipal corporation which furnishes the same service and does not consent. [¶] (b) Persons or corporations may establish and operate works for supplying those services upon conditions and under regulations that the city may prescribe under its organic law." HN21 Article XI, section 9 obviously does not require municipal corporations to establish fees in excess of their costs, so there is no incompatibility between it and the later enacted Proposition 218.

To the extent *Griffith* does apply to this case, which is on the (b)(4) issue, we find it helpful and have followed it. But trying to apply it to the (b)(1) and (b)(3) issues is fatally flawed.

c. *Penalty Rates*

A final justification City Water gives for not tying tier prices to cost of service is to say it doesn't make any difference because the higher tiers can be justified as penalties **[***42]** not within the purview of Proposition 218 at all. (In **[*1515]** the context of *art. X, § 2*, City Water euphemistically refers to its higher tiered rates as conservation rates as if such a designation would bring them within *art. X, § 2* and exempt them from subd. (b)(3), but as we have explained, *art. X, § 2*, does not require what art. XIII D, § 6, subd. (b)(3) forbids) and designating something a "conservation rate" is no more determinative than calling it an "apple pie" or "motherhood" rate.

CA(10) **(10)** City Water's theory of penalty rates relies on article XIII C, section 1, subdivision (e)(5). *HN22* This subdivision defines the word "tax" to exclude fines "imposed by" a local government "as a result of a violation of law."[22] That is hardly a revelation, of course. We may take as a given that Proposition 218 was never meant to apply to parking tickets.

But City Water's penalty rate theory **[***43]** is inconsistent with the Constitution. It would open up a loophole in article XIII D, section 6, subdivision (b)(3) so large it would virtually repeal it. All an agency supplying *any* service would need to do to circumvent article XIII D, section 6, subdivision (b)(3), would be to establish a low legal base use for that service, pass an ordinance to the effect that any usage above the base amount is illegal, and then decree that the penalty for such illegal usage equals the incrementally increased rate for that service. Such a methodology could easily yield rates that have no relation at all to the actual cost of providing the service at the penalty levels. And it would make a mockery of the Constitution.

IV. CONCLUSION

All of which leads us to the conclusion City Water's pricing violates the constitutional requirement that fees "not exceed the proportional cost of the service attributable to the parcel." (Art. XIII D, § 6, subd. (b)(3).) This is not to say City Water must calculate a rate for 225 Elm Street and then calculate another for the house across the street at 226. Neither the voters nor the Constitution say **[**381]** anything we can find that would prohibit tiered pricing.

The way Proposition 218 operates, water rates that exceed the cost of service operate as a tax, similar to the way a 'carbon tax' might be imposed on use of energy. But, we should emphasize: Just because such above-cost rates are a tax does not mean they cannot be imposed—they just have to be submitted to the relevant electorate and approved by the people in a vote. There is no reason, for example, why a water district or local government cannot, consistent with Proposition 218, seek the approval of the voters to **[*1516]** impose a tax on water over a given level of usage—as we indicated earlier, that might be a good idea. However, if a local government body chooses to impose tiered rates unilaterally without a vote, those tiers must be based on cost of service for the incremental level of usage, not predetermined budgets. (For the moment, of course, we need not decide whether such a proposed tax would constitute a general tax or special tax.)

CA(11) **(11)** Having chosen to bypass the electorate, City Water's *article X, section 2* position kept it from explaining to us *why* it cannot anchor rates to cost of service. Nothing **[***44]** in our record tells us why, for example, they could not figure out the costs of given usage levels that require City Water to tap more expensive supplies, and then bill users in those tiers accordingly. Such computations would seem to satisfy Proposition 218, and City Water has not shown in this record it would be impossible to comply with the constitutional mandate in this way or some other. As the court pointed out in *Howard Jarvis Taxpayers Assn. v. City of Fresno (2005) 127 Cal.App.4th 914, 923 [26 Cal.Rptr.3d 153]*,*HN23* the calculations required by Proposition 218 may be "complex," but "such a process is now required by the California Constitution."

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22 The relevant text from article XIII C, section 1, subdivision (e)(5) is: "(e) As used in this article, 'tax' means any levy, charge, or exaction of any kind imposed by a local government, except the following: [¶] … [¶] (5) A fine, penalty, or other monetary charge imposed by the judicial branch of government or a local government, as a result of a violation of law."

CA(12) **(12)** HN24 Water service rates to fund the costs of capital-intensive operations to produce more or new water, such as the recycling plant at issue in this case, do not contravene article XIII D, section 6, subdivision (b)(4). While that provision precludes fees for a service not immediately available, both recycled water and traditional potable water are part of the same service—water service. And water service most assuredly is immediately available to City Water's customers now.

But, because the record is unclear whether low usage customers might be paying for a recycling operation made necessary only because of high usage customers, we must reverse the trial court's judgment that the rates **[***45]** here are *necessarily* inconsistent with subdivision (b)(4), and remand the matter for further proceedings with a view to ascertaining the portion of the cost of funding the recycling operation attributable to those customers whose additional, incremental usage requires its development.

CA(13) **(13)** By the same token, we see HN25 nothing in article XIII D, section 6, subdivision (b)(3) that is incompatible with water agencies passing on the true, marginal cost of water to those consumers whose extra use of water forces water agencies to incur higher costs to supply that extra water. Precedent and common sense both support such an approach. However, we do hold that above-cost-of-service pricing for tiers of water service is not allowed by Proposition 218 and in this case, City Water did not carry its burden of proving its higher tiers reflected its costs of service. In fact it has **[*1517]** practically admitted those tiers do not reflect cost of service, as shown by their tidy percentage increments and City Water's refusal to defend the calculations. And so, on the subdivision (b)(3) issue, we affirm the trial court's judgment.

Given the procedural posture the case now finds itself in, the issue of who is the prevailing party is premature. That question should **[***46]** be first dealt with by the trial court only after all proceedings as to City Water's rate structure are final. Accordingly, we do not make an appellate cost order now, but reserve that matter for future adjudication in the trial court. (See *Neufeld v. Balboa Ins. Co. (2000) 84 Cal.App.4th 759, 766 [101 Cal. Rptr. 2d 151]* [deferring question of appellate costs in case being remanded until litigation was final].)

Moore, J., and Thompson, J., concurred.

On May 19, 2015, the opinion was modified to read as printed above.

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EXHIBIT – 8

Caution
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Patz v. City of San Diego

Court of Appeal of California, Fourth Appellate District, Division Two

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Reporter
113 Cal. App. 5th 225 *; 2025 Cal. App. LEXIS 489 **; 2025 LX 339053; 2025 WL 2158329

DANIEL PATZ et al., Plaintiffs and Appellants, v. CITY OF SAN DIEGO, Defendant and Appellant.

Subsequent History: Modified by *Patz v. City of San Diego, 2025 Cal. App. LEXIS 546 (Aug. 27, 2025)*

Prior History: [1]** APPEAL from the Superior Court of San Diego County, No. 37-2015-23413-CU-MC-CTL, Eddie C. Sturgeon, Judge.

Disposition: Affirmed with directions.

Core Terms

tier, customer, peak, refund, calculate, proportional, trial court, usage, defendant's, class member, water rate, statement of decision, parcel, substantial evidence, consume, court's, uniform rate, cost of services, breakpoint, the, burden of proof, user, property-related, phase, rate structure, provide water, irrigate, undercharge, certificate, methodology

Case Summary

Overview

HOLDINGS: [1]-A city failed to prove, with substantial evidence withstanding independent review, that its tiered water rates for single-family residential customers complied with the Cal. Const., art. XIII D, § 6, subd. (b)(3), proportional costs requirement for property-related fees and charges because it did not present evidence supporting its claims about source of supply and peak demand; [2]-Class certification under *Code Civ. Proc., § 382*, was proper because the class had a predominant common interest in the rate structure, and even if some customers had not overpaid, typicality was shown and the class had no conflicts of interest; [3]-Undercharges were properly considered in the refund calculation because they were not a *Code Civ. Proc., § 431.70*, unpled and unproven offset; [4]-The refund award had to be credited against future fees because *Gov. Code, § 53758.5*, so required.

Outcome
Affirmed and remanded.

LexisNexis® Headnotes

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Governments > Public Improvements > Assessments

Evidence > Burdens of Proof > Allocation

HN1 Congressional Duties & Powers, Spending & Taxation

Under Cal. Const., art. XIII D, § 6, subd. (b)(3), a governmental fee or charge imposed on a parcel of property or as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel. In any legal action challenging the validity of the fee or charge, the government has the burden of showing it complies with the article. Cal. Const., art. XIII D, § 6, subd. (b)(5).

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Governments > Public Improvements > Assessments

HN2 Congressional Duties & Powers, Spending & Taxation

Cal. Const., art. XIII C, concerns voter approval for many types of local taxes other than property taxes, while *Cal. Const., art. XIII D*, imposes distinct procedural and substantive limitations on property-related assessments, fees, and charges. Cal. Const., art. XIII D, § 6, imposes procedural and substantive limitations on property-related fees and charges, as opposed to Cal. Const., art. XIII D, § 4, which governs assessments.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Governments > Public Improvements > Assessments

HN3 Congressional Duties & Powers, Spending & Taxation

Cal. Const., art. XIII D, § 6, subd. (a), sets forth the procedures an agency must follow before imposing a property-related fee or charge. The agency must hold a public hearing and send written notice of the hearing to the owner of each affected parcel, specifying the amount of the proposed fee or charge, the basis of its calculation, the reason for it, and the date, time, and location of the hearing. Cal. Const., art. XIII D, § 6, subd. (a)(1). At the hearing, the agency shall consider all protests, and shall not impose the fee or charge if a majority of the property owners present written protests. Cal. Const., art. XIII D, § 6, subd. (a)(2)).

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Governments > Public Improvements > Assessments

HN4 Congressional Duties & Powers, Spending & Taxation

Cal. Const., art. XIII D, § 6, subd. (b), sets forth substantive limitations on property-related fees and charges. The substantive proportionality requirement of Cal. Const., art. XIII D, § 6, subd. (b)(3), provides that the amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel. Cal. Const., art. XIII D, § 6, subd. (b)(3), concerns the method used to allocate a property-related service's aggregate cost among fee payors and ensures that the aggregate fee collected on all parcels is in proportion to the cost of service for each parcel. These costs of service include all the required costs of providing service, short-term and long-term, including operation, maintenance,

financial, and capital expenditures. In a legal action challenging the validity of a fee or charge under Cal. Const., art. XIII D, Cal. Const., art. XIII D, § 6, subd. (b)(5), places the burden of proof on the agency to show that the fee or charge complies with the article.

Constitutional Law > State Constitutional Operation

Governments > Public Improvements > Assessments

Governments > Local Governments > Finance

HN5 **Constitutional Law, State Constitutional Operation**

Substantive limitations of Cal. Const., art. XIII D, § 6, subd. (b), other than the substantive proportionality requirement are as follows: (1) revenues from fee shall not exceed the funds required to provide the service, (2) the revenues shall not be used for any purpose other than that for which the fee was imposed, (3) the fee or charge may be imposed unless the service is actually used by, or is immediately available to the property owner, and (4) the fee or charge may not be imposed for general governmental services, where the service is available to the public at large in substantially the same manner as property owners.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Real Property Law > Water Rights > Beneficial Use

Constitutional Law > State Constitutional Operation

HN6 **Congressional Duties & Powers, Spending & Taxation**

Cal. Const., art. X, § 2, which prohibits the waste or unreasonable use of water, is not at odds with *Cal. Const., art. XIII D*, so long as, for example, conservation is attained in a manner that shall not exceed the proportional cost of the service attributable to the parcel.

Constitutional Law > State Constitutional Operation

Governments > Public Improvements > Sanitation & Water

HN7 **Constitutional Law, State Constitutional Operation**

When water customers are charged based on their levels of usage, Cal. Const., art. XIII D, § 6, subd. (b)(3), requires public water agencies to calculate the actual costs of providing water at these various levels of usage. That is, Prop. 218 (approved 1996) requires water agencies to figure out the true cost of water, not simply draw lines based on water budgets. Cal. Const., art. XIII D, § 6, subd. (b)(3), allows agencies to pass on the true, marginal cost of water to those consumers whose extra use of water forces water agencies to incur higher costs to supply that extra water.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Real Property Law > Water Rights > Beneficial Use

Constitutional Law > State Constitutional Operation

HN8 **Congressional Duties & Powers, Spending & Taxation**

Pricing water at its true cost in accordance with Cal. Const., art. XIII D, § 6, subd. (b)(3), is compatible with the *Cal. Const., art. X, § 2*, theme of conservation with a view toward reasonable and beneficial use.

Evidence > Burdens of Proof > Allocation

Governments > Public Improvements > Assessments

Governments > Local Governments > Finance

HN9 **Burdens of Proof, Allocation**

In any legal action concerning the validity of a property-related fee or charge, Cal. Const., art. XIII D, § 6, subd. (b)(3), places the burden of proof on the agency to show that the fee or charge complies with *Cal. Const., art. XIII D*.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Evidence > Burdens of Proof > Allocation

HN10 **Congressional Duties & Powers, Spending & Taxation**

The standard of review in Cal. Const., art. XIII D, § 6, subd. (b)(3), cases, both at trial and on appeal, is the independent judgment standard. In Prop. 218 (approved 1996) challenges to agency action, the agency bears the burden of demonstrating compliance with Prop. 218, and both trial and reviewing courts apply an independent review standard, not the traditional, deferential standard usually applicable in challenges to government action.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Governments > Public Improvements > Assessments

HN11 **Congressional Duties & Powers, Spending & Taxation**

An agency does not meet its burden of proof under Cal. Const., art. XIII D, § 6, subd. (b)(3), by showing that the fee or charge is reasonably allocated among property owners.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Constitutional Law > State Constitutional Operation

HN12 **Congressional Duties & Powers, Spending & Taxation**

Cal. Const., art. XIII D, § 6, subd. (b)(3), demands something more than the reasonable basis standard under *Cal. Const., art. XIII* A. To satisfy Cal. Const., art. XIII D, § 6, subd. (b)(3), it is not enough for a water agency to show it

uses a reasonable allocation method. Rather, an agency must show that the method produces rates that are proportional to costs.

Administrative Law > Judicial Review > Standards of Review > Substantial Evidence

Governments > Local Governments > Finance

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

HN13 **Standards of Review, Substantial Evidence**

The burden of proof under Cal. Const., art. XIII D, § 6, subd. (b)(3), is not reasonableness. Rather, it is to show, with substantial evidence withstanding independent review, that the agency's water rates are proportional to the ascertainable costs of service that can be attributed to specific parcels.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Evidence > Burdens of Proof > Allocation

HN14 **Congressional Duties & Powers, Spending & Taxation**

An agency has the burden of proving that a fee or charge for a property-related service is cost proportional, in that it does not exceed the cost of providing the service. Cal. Const., art. XIII D, § 6, subd. (b)(3). It is not enough that the agency show it used a reasonable cost allocation method and relied on reasonably accurate data—particularly when substantial evidence, credited by the trial court and withstanding independent review, shows the agency's cost allocation method or supporting data is unreliable as a measure of the costs of the service.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Constitutional Law > State Constitutional Operation

HN15 **Congressional Duties & Powers, Spending & Taxation**

The cases show (1) there is not necessarily only one reasonable or acceptable method of cost apportionment in Cal. Const., art. XIII D, § 6, subd. (b)(3), cases, and (2) agencies are not required to rely on perfect data. Rather, the Cal. Const., art. XIII D, § 6, subd. (b), fee or charge must reasonably represent the cost of providing service.

Administrative Law > Judicial Review > Standards of Review > Substantial Evidence

Civil Procedure > ... > Standards of Review > Substantial Evidence > Sufficiency of Evidence

Evidence > Weight & Sufficiency

HN16 **Standards of Review, Substantial Evidence**

An appellate court, in applying the standard of substantial evidence sufficient to withstand independent judgment, is not at liberty to reweigh the evidence and reach a different factual conclusion than the trial court.

Evidence > ... > Presumptions > Particular Presumptions > Regularity

HN17 Particular Presumptions, Regularity

The presumption that official duty has been regularly performed, as set forth in *Evid. Code, § 664*, encompasses applying the proper standard of proof.

Administrative Law > Judicial Review > Standards of Review > Substantial Evidence

HN18 Standards of Review, Substantial Evidence

Like the trial court's, the appellate court's task under the independent judgment standard is to determine whether substantial evidence—not just any substantial evidence, but substantial evidence sufficient to withstand its independent judgment—shows that the property-related fee or charge complies with the Cal. Const., art. XIII D, § 6, subd. (b)(3), proportionality requirement. Whether the entire record contains sufficient substantial evidence to show compliance with Cal. Const., art. XIII D, § 6, subd. (b)(3), is a legal question that is decided de novo, meaning the appellate court defers neither to the agency's nor the trial court's determinations of this question.

Administrative Law > Judicial Review > Standards of Review > De Novo Standard of Review

Civil Procedure > Appeals > Standards of Review > De Novo Review

Administrative Law > Judicial Review > Standards of Review > Substantial Evidence

HN19 Standards of Review, De Novo Standard of Review

Even when the appellate court exercises its independent judgment in reviewing the record, it does not take new evidence or decide disputed issues of fact. Although the appellate court uses a de novo standard of review in determining the legal question of an agency's Cal. Const., art. XIII D, § 6, subd. (b)(3), compliance, the appellate court does not transform into a trial court. The independent review standard does not change the substantial evidence standard of review and does not allow the appellate court to resolve issues of disputed fact already decided by the trial court. If an appellant challenges a finding of fact, the appellate court must employ the substantial evidence standard of review. As such, the appellate court is not concerned about a conflict in the evidence, but simply whether there is substantial evidence in favor of the respondent. If this substantial evidence is present, no matter how slight it may appear in comparison with the contradictory evidence, the judgment must be upheld.

Administrative Law > Judicial Review > Standards of Review > Substantial Evidence

Evidence > Inferences & Presumptions > Inferences

HN20 Standards of Review, Substantial Evidence

Even in cases where the evidence is undisputed or uncontradicted, if two or more different inferences can reasonably be drawn from the evidence, the appellate court is without power to substitute its own inferences or deductions for those of the trier of fact, which must resolve such conflicting inferences in the absence of a rule of

law specifying the inference to be drawn. The appellate court must accept as true all evidence and all reasonable inferences from the evidence tending to establish the correctness of the trial court's findings and decision, resolving every conflict in favor of the judgment.

Administrative Law > Judicial Review > Standards of Review > Substantial Evidence

Civil Procedure > ... > Standards of Review > Substantial Evidence > Sufficiency of Evidence

HN21 **Standards of Review, Substantial Evidence**

The independent judgment standard of review requires the appellate court to (1) uphold the trial court's findings on disputed issues of fact if substantial evidence supports them, and (2) determine, independently of the trial court, whether the record contains sufficient substantial evidence.

Civil Procedure > Appeals > Standards of Review > Questions of Fact & Law

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

HN22 **Standards of Review, Questions of Fact & Law**

Whether an agency's water rates comply with Cal. Const., art. XIII D, § 6, subd. (b)(3), is a mixed question of fact and law implicating constitutional rights. The legal question of Cal. Const., art. XIII D, § 6, subd. (b)(3), compliance is reviewed de novo. But when the resolution of the mixed question of law and fact requires an inquiry that is essentially factual, the trial court's determination should be classified as one of fact reviewable under the clearly erroneous standard. If, on the other hand, the question requires the reviewing court to consider legal concepts in the mix of fact and law and to exercise judgment about the values that animate legal principles, then the question should be classified as one of law and reviewed de novo.

Administrative Law > Judicial Review > Standards of Review > Substantial Evidence

Evidence > Burdens of Proof > Allocation

Civil Procedure > ... > Standards of Review > Substantial Evidence > Sufficiency of Evidence

HN23 **Standards of Review, Substantial Evidence**

On appeal, the judgment is presumed correct, and the appellant has the burden of demonstrating error. In considering substantial evidence claims, appellate courts view the record in the light most favorable to the judgment, resolving all conflicts in the evidence in favor of the judgment.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Constitutional Law > State Constitutional Operation

HN24 **Congressional Duties & Powers, Spending & Taxation**

Cal. Const., art. XIII D, § 6, subd. (b)(3), does not require agencies to base their cost of service allocations on perfect data, particularly when such data is unavailable or impractical to obtain.

Governments > Local Governments > Administrative Boards

Governments > Local Governments > Finance

HN25 **Local Governments, Administrative Boards**

If a local government body chooses to impose tiered rates unilaterally without a vote, those tiers must be based on cost of service for the incremental level of usage.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Evidence > Inferences & Presumptions > Inferences

HN26 **Congressional Duties & Powers, Spending & Taxation**

Rate differentials between groups, whether customer classes or tiers, support an inference of disproportionality—and, to be constitutional, must be supported by evidence of costs justifying the differences.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Governments > Public Improvements > Sanitation & Water

Constitutional Law > State Constitutional Operation

HN27 **Congressional Duties & Powers, Spending & Taxation**

There is not necessarily only one way to calculate and allocate the cost of providing water service to various parcels, and future costs of such services must be projected, or estimated. But this does not mean that trial courts must accept an agency's cost projections, or cost allocations, particularly when other evidence shows the agency's projections or allocations are based on faulty assumptions or insufficient data. Cal. Const., art. XIII D, § 6, subd. (b)(3), theoretically permits agencies to impose either uniform rates or tiered rates, but it does not follow that agencies must necessarily be allowed to impose tiered rates.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Governments > Public Improvements > Sanitation & Water

HN28 **Congressional Duties & Powers, Spending & Taxation**

The agency's burden of proof in a Prop. 218 (approved 1996) case is straightforward: the agency must show that the fee or charge for the property-related service does not exceed the proportional cost of delivering the service to the parcel. Cal. Const., art. XIII D, § 6, subd. (b)(3). As to how water agencies are to meet this burden in defending tiered water rates, it is best that water agencies not impose tiered rates (without a vote), where substantial evidence shows the tiered rates are not cost proportional, despite the agency's purportedly reasonable cost projections,

allocation methods, and data. In such cases, water agencies risk violating Cal. Const., art. XIII D, § 6, subd. (b)(3), if they impose tiered rates. Further, tiered rates are not necessarily constitutional.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Constitutional Law > State Constitutional Operation

HN29 **Congressional Duties & Powers, Spending & Taxation**

Gov. Code, § 53750.6, merely allows, but does not require, fees or charges for water services governed by *Cal. Const., art. XIII D*, to include the incrementally higher costs of water service due to a parcel's higher water usage demand, maximum potential water use, and projected peak water usage. *§ 53750.6, subd. (a)*. The statute allows such higher costs to be allocated (1) using any method that reasonably assesses the cost of serving the parcels, and (2) among or within customer classes, or both, based on meter size or peaking factors. *§ 53750.6, subds. (b)(1)*, *(2)*. The statute is declaratory of existing law. *§ 53750.6, subd. (c)*.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Constitutional Law > State Constitutional Operation

HN30 **Congressional Duties & Powers, Spending & Taxation**

Gov. Code, § 53750.6, does not excuse agencies from complying with Cal. Const., art. XIII D, § 6, subd. (b)(3), nor could it.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Constitutional Law > State Constitutional Operation

HN31 **Congressional Duties & Powers, Spending & Taxation**

Cal. Const., art. XIII D, § 6, subd. (b)(3), mandates that, if an agency imposes tiered water rates, it must show that the rates do not exceed the proportionate cost of delivering water at the tiered usage levels. Cal. Const., art. XIII D, § 6, subd. (b)(3), does not require or bar use of any particular type of supporting data, so long as it meaningfully reflects cost of service to the parcel.

Civil Procedure > Special Proceedings > Class Actions > Certification of Classes

HN32 **Class Actions, Certification of Classes**

Code Civ. Proc., § 382, authorizes class suits in California when the question is one of a common or general interest, of many persons, or when the parties are numerous, and it is impractical to bring them all before the court. Generally, a class action suit is appropriate when numerous parties suffer injury of insufficient size to warrant individual action and when denial of class relief would result in unjust advantage to the wrongdoer. But because group action also has the potential to create injustice, trial courts are required to carefully weigh respective benefits and burdens and to allow maintenance of the class action only where substantial benefits accrue to both litigants and the courts.

Civil Procedure > ... > Class Actions > Prerequisites for Class Action > Adequacy of Representation

Civil Procedure > Special Proceedings > Class Actions > Certification of Classes

Civil Procedure > ... > Class Actions > Prerequisites for Class Action > Typicality

HN33 **Prerequisites for Class Action, Adequacy of Representation**

A party seeking certification as a class representative must establish the existence of an ascertainable class and a well-defined community of interest among the class members. The community of interest requirement embodies three factors: (1) predominant common question of law or fact; (2) class representatives with claims or defenses typical of the class; and (3) class representatives who can adequately represent the class.

Civil Procedure > Special Proceedings > Class Actions > Appellate Review

Civil Procedure > Special Proceedings > Class Actions > Certification of Classes

Civil Procedure > Special Proceedings > Class Actions > Judicial Discretion

HN34 **Class Actions, Appellate Review**

Trial courts are afforded great discretion in granting or denying class certification. In the absence of other error, a trial court ruling supported by substantial evidence generally will not be disturbed unless (1) improper criteria were used; or (2) erroneous legal assumptions were made. Under this standard, an order based upon improper criteria or incorrect assumptions calls for reversal even though there may be substantial evidence to support the court's order. Accordingly, the appellate court must examine the trial court's reasons for denying class certification. Any valid pertinent reason stated will be sufficient to uphold the order. When a class certification motion depends on the evaluation of disputed evidence, the appellate court reviews the trial court's factual determinations under the substantial evidence standard. That is, the appellate court upholds the trial court's express or implied factual findings if substantial evidence supports them.

Civil Procedure > Special Proceedings > Class Actions > Certification of Classes

Civil Procedure > ... > Class Actions > Prerequisites for Class Action > Predominance

HN35 **Class Actions, Certification of Classes**

The requirement of a community of interest does not depend upon an identical recovery, and the fact that each member of the class must prove a separate claim to a portion of any recovery by the class is only one factor to be considered in determining whether a class action is proper. Predominance is a comparative concept, and the necessity for class members to individually establish eligibility and damages does not mean individual fact questions predominate. Thus, a common monetary recovery is not required in order to establish a community of interest. Nor is it a bar to certification that individual class members may ultimately need to itemize their damages.

Civil Procedure > ... > Class Actions > Prerequisites for Class Action > Typicality

HN36 **Prerequisites for Class Action, Typicality**

Typicality refers to the nature of the claim or defense of the class representative, and not to the specific facts from which it arose or the relief sought. The test of typicality is whether other members have the same or similar injury, whether the action is based on conduct which is not unique to the named plaintiffs, and whether other class members have been injured by the same course of conduct.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Governments > Public Improvements > Assessments

Constitutional Law > State Constitutional Operation

HN37 **Congressional Duties & Powers, Spending & Taxation**

Cal. Const., art. XIII D, § 6, subd. (b)(3), ensures that the aggregate fee collected on all parcels is distributed among those parcels in proportion to the cost of service for each parcel. Thus, Cal. Const., art. XIII D, § 6, subd. (b)(3), concerns the method used to allocate a property-related service's aggregate cost among fee payors.

Civil Procedure > ... > Class Actions > Prerequisites for Class Action > Adequacy of Representation

Civil Procedure > Special Proceedings > Class Actions > Certification of Classes

HN38 **Prerequisites for Class Action, Adequacy of Representation**

A conflict of interest among class members will defeat certification when the conflict goes to the very subject matter of the litigation. Such a conflict of interest undermines the adequacy of representation, an element of the community-of-interest requirement. When the party opposing certification presents evidence that indicates widespread antagonism to the class suit, the adequacy of representation is called into question. It is axiomatic that a putative representative cannot adequately protect the class if his interests are antagonistic to or in conflict with the objectives of those he purports to represent. But only a conflict that goes to the very subject matter of the litigation will defeat a party's claim of representative status.

Civil Procedure > ... > Class Actions > Prerequisites for Class Action > Adequacy of Representation

Civil Procedure > Special Proceedings > Class Actions > Certification of Classes

HN39 **Prerequisites for Class Action, Adequacy of Representation**

For a conflict of interest to defeat the adequacy requirement for class certification, that conflict must be fundamental. A conflict is not fundamental when all class members share common objectives and the same factual and legal positions and have the same interest in establishing the liability of the defendants. Defendants cannot defeat class certification based on a conflict on the ground that some proposed class members favor the continuation of unlawful conduct.

Civil Procedure > Special Proceedings > Class Actions > Certification of Classes

Civil Procedure > ... > Class Actions > Certification of Classes > Decertification

HN40 Class Actions, Certification of Classes

Before judgment, a class should be decertified only where it is clear there exist changed circumstances making continued class action treatment improper.

Civil Procedure > Appeals > Standards of Review > Abuse of Discretion

Civil Procedure > Appeals > Standards of Review > De Novo Review

Civil Procedure > Remedies > Damages > Compensatory Damages

HN41 Standards of Review, Abuse of Discretion

An appellant's challenge to damages, depending upon its specific nature, may be subject to a substantial evidence, abuse of discretion, or de novo standard of review. Whether a certain measure of damages is permissible given the legal right the defendant has breached, is a matter of law, subject to de novo review. The trial court's choice among several legally permissible measures of damages is a matter of discretion. The scope of discretion always resides in the particular law being applied, i.e., in the legal principles governing the subject of the action. Additionally, the amount of damages awarded must, in all cases, be reasonable, that is, no more than reasonable damages can be recovered. *Civ. Code, § 3359*.

Constitutional Law > Congressional Duties & Powers > Spending & Taxation

Governments > Public Improvements > Assessments

Constitutional Law > State Constitutional Operation

HN42 Congressional Duties & Powers, Spending & Taxation

Under Cal. Const., art. XIII D, § 6, subd. (b)(3), a fee or charge for a property-related service may not exceed the government's proportional costs of providing the service to the parcel.

Civil Procedure > Remedies > Damages > Compensatory Damages

Civil Procedure > ... > Defenses, Demurrers & Objections > Affirmative Defenses > Setoffs

HN43 Damages, Compensatory Damages

Setoff is a defense founded on the equitable principle that either party to a transaction involving mutual debts and credits can strike a balance, holding itself owing or entitled only to the net difference. *Code Civ. Proc., § 431.70*, which codifies setoff, authorizes a party who has been sued and has a cross-demand for money against the plaintiff to assert in the answer the defense of payment. In the context of a refund award that considers both undercharges and overcharges to assess net damages, case law has rejected an argument that the right to offset applies when the parties have mutual debts and credits and may assert cross-demands for money. The undercharges are best understood as part of the refund calculation, rather than as debts that could be used to offset the refund award.

Governments > Local Governments > Finance

HN44 **Local Governments, Finance**

Gov. Code, § 53750, subd. (h), provides the term "increased," when applied to a property-related fee or charge, means a decision by an agency that either increases any applicable rate used to calculate the fee or charge, or revises the methodology by which the fee or charge is calculated, if that revision results in an increased amount being levied on any person or parcel.

Tax Law > State & Local Taxes > Administration & Procedure > Credits, Overassessments & Refunds

HN45 **Administration & Procedure, Credits, Overassessments & Refunds**

Gov. Code, § 53758.5, requires agencies to credit refund awards in Prop. 218 (approved 1996) cases against future increases in or impositions of the property-related charge, unless the refund award is explicitly provided for by statute. *§ 53758.5, subd. (a)*. Thus, the statute does not allow agencies in Prop. 218 cases to pay a refund award as a money judgment, unless a statute explicitly allows the agency to do so.

Civil Procedure > Appeals > Reviewability of Lower Court Decisions > Preservation for Review

HN46 **Reviewability of Lower Court Decisions, Preservation for Review**

An appellate court is more likely to consider, for the first time on appeal, an issue involving undisputed facts and important questions of public policy or public concern, if the parties have had a reasonable opportunity to address the issue.

Governments > Legislation > Interpretation

HN47 **Legislation, Interpretation**

In construing statutes, a court's fundamental task is to ascertain the Legislature's intent so the court may effectuate the Legislature's purpose in enacting the statute. To ascertain intent, the court looks first to the words of the statute. If the language is clear and unambiguous, its plain meaning governs, and it is unnecessary to consider the legislative history of the statute to determine its meaning.

Tax Law > State & Local Taxes > Administration & Procedure > Assessments

Tax Law > State & Local Taxes > Administration & Procedure > Credits, Overassessments & Refunds

HN48 **Administration & Procedure, Assessments**

The language of *Gov. Code, § 53758.5*, is clear and unambiguous: If a court finds that a fee or charge violates Prop. 218 (approved 1996), then in the next procedure to impose or increase the fee or charge, the agency must credit the amount of the fee or charge attributable to the violation against the amount of the revenues required to provide the property-related service unless a refund is explicitly provided for by statute. *§ 53758.5, subd. (a)*.

Governments > Legislation > Interpretation

HN49 **Legislation, Interpretation**

When the Legislature enacts a statute with relevant constitutional prescriptions clearly in mind, the statute represents a considered legislative judgment as to the appropriate reach of the constitutional provision. Although the ultimate constitutional interpretation must rest with the judiciary, a focused legislative judgment on the question enjoys significant weight and deference by the courts.

Governments > Local Governments > Claims By & Against

Tax Law > State & Local Taxes > Administration & Procedure > Credits, Overassessments & Refunds

Governments > Local Governments > Finance

HN50 **Local Governments, Claims By & Against**

By its terms, *Gov. Code, § 53758.5*, applies to all refund awards in Prop. 218 (approved 1996) cases, except as explicitly provided by statute. Neither the *Government Claims Act, Gov. Code, § 810 et seq.*, nor the mandate statutes, *Code Civ. Proc., §§ 1087-1097*, explicitly provide that a refund award in a Prop. 218 case does not have to be credited against future fees but is, rather, enforceable as a money judgment.

Constitutional Law > ... > Fundamental Rights > Procedural Due Process > Scope of Protection

Tax Law > State & Local Taxes > Administration & Procedure > Credits, Overassessments & Refunds

HN51 **Procedural Due Process, Scope of Protection**

If a state places a taxpayer under duress promptly to pay a tax when due and relegates the taxpayer to a postpayment refund action in which the taxpayer can challenge the tax's legality, the due process clause of U.S. Const., 14th Amend., obligates the state to provide meaningful backward-looking relief to rectify any unconstitutional deprivation. In this context, "meaningful backward-looking relief" means giving the taxpayer a fair opportunity to challenge the accuracy and legal validity of their tax obligation, as well as a clear and certain remedy for the erroneous or unlawful tax collection.

Civil Procedure > Appeals > Costs & Attorney Fees

Governments > Courts > Authority to Adjudicate

HN52 **Appeals, Costs & Attorney Fees**

Although the appellate court has the power to fix attorney fees on appeal, the better practice is to have the trial court determine such fees.

Headnotes/Summary

Summary

[*225] CALIFORNIA OFFICIAL REPORTS SUMMARY

Following a bifurcated trial on liability, the trial court ruled a city failed to show that its tiered water rates for single-family residential customers complied with the proportional costs requirement for property-related fees and charges (Cal. Const., art. XIII D, § 6, subd. (b)(3)). In the later trial on damages, the court awarded a refund of the amount all class members overpaid for water services. (Superior Court of San Diego County, No. 37-2015-23413-CU-MC-CTL, Eddie C. Sturgeon, Judge.)

The Court of Appeal affirmed the judgment and remanded with directions to amend the judgment to ensure the refund award would be appropriately credited against future fees (*Gov. Code, § 53758.5*). The court held the city did not meet its burden of proof to show its tiered rate structures were proportional to the costs of delivering water because the applicable standard in Prop. 218 (approved 1996) cases is substantial evidence sufficient to withstand independent review, which requires more than showing a reasonable cost allocation method, and the city failed to present evidence supporting its claims about source of supply and peak demand. Class certification (*Code Civ. Proc., § 382*) was properly granted because the class had a predominant common interest in a constitutional water rate structure, and even if some customers had not overpaid, typicality was shown and the class had no conflicts of interest. In assessing reasonable damages (*Civ. Code, § 3359*), undercharges were properly considered because they were part of the refund calculation, not an unpled and unproven offset (*Code Civ. Proc., § 431.70*). (Opinion by Fields, J., with McKinster, Acting P. J., concurring. Dissenting opinion by Menetrez, J. (see p. 311).)

Headnotes

CALIFORNIA OFFICIAL REPORTS HEADNOTES

CA(1) **(1)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Procedural and Substantive Limitations.

Cal. Const., art. XIII C, concerns voter approval for many types of local taxes other than property taxes, while *Cal. Const., art. XIII D*, imposes distinct procedural and substantive limitations on property-related assessments, fees, and charges. Cal. Const., art. XIII D, § 6, imposes procedural and substantive limitations on property-related fees and charges, as opposed to Cal. Const., art. XIII D, § 4, which governs assessments.

CA(2) **(2)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Procedures.

Cal. Const., art. XIII D, § 6, subd. (a), sets forth the procedures an agency must follow before imposing a property-related fee or charge. The agency must hold a public hearing and send written notice of the hearing to the owner of each affected parcel, specifying the amount of the proposed fee or charge, the basis of its calculation, the reason for it, and the date, time, and location of the hearing (Cal. Const., art. XIII D, § 6, subd. (a)(1)). At the hearing, the agency shall consider all protests, and shall not impose the fee or charge if a majority of the property owners present written protests (Cal. Const., art. XIII D, § 6, subd. (a)(2)).

CA(3) **(3)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality.

Cal. Const., art. XIII D, § 6, subd. (b), sets forth substantive limitations on property-related fees and charges. The substantive proportionality requirement of Cal. Const., art. XIII D, § 6, subd. (b)(3), provides that the amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel. Cal. Const., art. XIII D, § 6, subd. (b)(3), concerns the method used to allocate a property-related service's aggregate cost among fee payors and ensures that the aggregate fee collected on all parcels is in proportion to the cost of service for each parcel. These costs of service include all the required costs of providing service, short-term and long-term, including operation, maintenance, financial, and capital expenditures. In a legal action challenging the validity of a fee or charge under *Cal. Const., art. XIII D*, Cal. Const., art. XIII D, § 6, subd. (b)(5), places the burden of proof on the agency to show that the fee or charge complies with the article.

CA(4) **(4)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Substantive Limitations Other than Proportionality.

Substantive limitations of Cal. Const., art. XIII D, § 6 **[*227]** , subd. (b), other than the substantive proportionality requirement are as follows: (1) revenues from fee shall not exceed the funds required to provide the service, (2) the revenues shall not be used for any purpose other than that for which the fee was imposed, (3) the fee or charge may not be imposed unless the service is actually used by, or is immediately available to, the property owner, and (4) the fee or charge may not be imposed for general governmental services, where the service is available to the public at large in substantially the same manner as property owners.

CA(5) **(5)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Water Rates—Consistency with Water Conservation.

Cal. Const., art. X, § 2, which prohibits the waste or unreasonable use of water, is not at odds with *Cal. Const., art. XIII D*, so long as, for example, conservation is attained in a manner that shall not exceed the proportional cost of the service attributable to the parcel.

CA(6) **(6)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Water Rates—Calculating Actual Costs at Various Levels of Usage.

When water customers are charged based on their levels of usage, Cal. Const., art. XIII D, § 6, subd. (b)(3), requires public water agencies to calculate the actual costs of providing water at these various levels of usage. That is, Prop. 218 (approved 1996) requires water agencies to figure out the true cost of water, not simply draw lines based on water budgets. Cal. Const., art. XIII D, § 6, subd. (b)(3), allows agencies to pass on the true, marginal cost of water to those consumers whose extra use of water forces water agencies to incur higher costs to supply that extra water.

CA(7) **(7)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Water Rates—Consistency with Water Conservation.

Pricing water at its true cost in accordance with Cal. Const., art. XIII D, § 6, subd. (b)(3), is compatible with the *Cal. Const., art. X, § 2*, theme of conservation with a view toward reasonable and beneficial use.

CA(8) **(8)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Burden of Proof—Allocation.

In any legal action concerning the validity of a property-related fee or charge, Cal. Const., art. XIII D, § 6, subd. (b)(3), places the burden of proof on the agency to show that the fee or charge complies with *Cal. Const., art. XIII D*.

[*228] *CA(9)* **(9)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Standard of Review—Independent Judgment.

The standard of review in Cal. Const., art. XIII D, § 6, subd. (b)(3), cases, both at trial and on appeal, is the independent judgment standard. In Prop. 218 (approved 1996) challenges to agency action, the agency bears the burden of demonstrating compliance with Prop. 218, and both trial and reviewing courts apply an independent review standard, not the traditional, deferential standard usually applicable in challenges to government action.

CA(10) **(10)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Burden of Proof.

An agency does not meet its burden of proof under Cal. Const., art. XIII D, § 6, subd. (b)(3), by showing that the fee or charge is reasonably allocated among property owners.

CA(11) **(11)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Burden of Proof—Water Rates.

Cal. Const., art. XIII D, § 6, subd. (b)(3), demands something more than the reasonable basis standard under *Cal. Const., art. XIII A*. To satisfy Cal. Const., art. XIII D, § 6, subd. (b)(3), it is not enough for a water agency to show it uses a reasonable allocation method. Rather, an agency must show that the method produces rates that are proportional to costs.

CA(12) **(12)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Burden of Proof—Water Rates.

The burden of proof under Cal. Const., art. XIII D, § 6, subd. (b)(3), is not reasonableness. Rather, it is to show, with substantial evidence withstanding independent review, that the agency's water rates are proportional to the ascertainable costs of service that can be attributed to specific parcels.

CA(13) **(13)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Burden of Proof.

An agency has the burden of proving that a fee or charge for a property-related service is cost proportional, in that it does not exceed the cost of providing the service (Cal. Const., art. XIII D, § 6, subd. (b)(3)). It is not enough that the agency show it used a reasonable cost allocation method and relied on reasonably accurate data—particularly when substantial evidence, credited by the trial court and withstanding independent review, shows the agency's cost allocation method or supporting data is unreliable as a measure of the costs of the service.

[*229] *CA(14)* **(14)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Cost Apportionment and Supporting Data.

The cases show (1) there is not necessarily only one reasonable or acceptable method of cost apportionment in Cal. Const., art. XIII D, § 6, subd. (b)(3), cases, and (2) agencies are not required to rely on perfect data. Rather, the Cal. Const., art. XIII D, § 6, subd. (b), fee or charge must reasonably represent the cost of providing service.

CA(15) **(15)**

Administrative Law § 133—Judicial Review—Scope and Extent—Independent Judgment—Role of Appellate Court.

An appellate court, in applying the standard of substantial evidence sufficient to withstand independent judgment, is not at liberty to reweigh the evidence and reach a different factual conclusion than the trial court.

CA(16) **(16)**

Administrative Law § 115—Judicial Review—Scope and Extent—Presumption of Regularity—Trial Court's Application of Standard of Proof.

The presumption that official duty has been regularly performed (*Evid. Code, § 664*) encompasses applying the proper standard of proof.

CA(17) **(17)**

Administrative Law § 133—Judicial Review—Scope and Extent—Independent Judgment—Role of Appellate Court.

Like the trial court's, the appellate court's task under the independent judgment standard is to determine whether substantial evidence—not just any substantial evidence, but substantial evidence sufficient to withstand its independent judgment—shows that the property-related fee or charge complies with the Cal. Const., art. XIII D, § 6, subd. (b)(3) proportionality requirement. Whether the entire record contains sufficient substantial evidence to show compliance with Cal. Const., art. XIII D, § 6, subd. (b)(3), is a legal question that is decided de novo, meaning the appellate court defers neither to the agency's nor the trial court's determinations of this question.

CA(18) **(18)**

Administrative Law § 133—Judicial Review—Scope and Extent—Independent Judgment—Role of Appellate Court.

Even when the appellate court exercises its independent judgment in reviewing the record, it does not take new evidence or decide disputed issues of fact. Although the appellate court uses a de novo standard of review in determining the legal question of an agency's Cal. Const., art. XIII D, § 6, subd. (b)(3) compliance, the appellate court does not transform into a trial court. The independent review standard does not change the substantial evidence standard of review and does not allow the appellate court to resolve issues of disputed fact already decided by the trial court. If an appellant challenges a finding of fact, the appellate court must **[*230]** employ the substantial evidence standard of review. As such, the appellate court is not concerned about a conflict in the evidence, but simply whether there is substantial evidence in favor of the respondent. If this substantial evidence is present, no matter how slight it may appear in comparison with the contradictory evidence, the judgment must be upheld.

CA(19) **(19)**

Administrative Law § 131—Judicial Review—Scope and Extent—Substantial Evidence—Inferences.

Even in cases where the evidence is undisputed or uncontradicted, if two or more different inferences can reasonably be drawn from the evidence, the appellate court is without power to substitute its own inferences or deductions for those of the trier of fact, which must resolve such conflicting inferences in the absence of a rule of law specifying the inference to be drawn. The appellate court must accept as true all evidence and all reasonable inferences from the evidence tending to establish the correctness of the trial court's findings and decision, resolving every conflict in favor of the judgment.

CA(20) **(20)**

Administrative Law § 133—Judicial Review—Scope and Extent—Independent Judgment—Role of Appellate Court.

The independent judgment standard of review requires the appellate court to (1) uphold the trial court's findings on disputed issues of fact if substantial evidence supports them, and (2) determine, independently of the trial court, whether the record contains sufficient substantial evidence.

CA(21) **(21)**

Administrative Law § 121—Judicial Review—Scope and Extent—Mixed Questions of Law and Fact—Constitutionality of Water Rates.

Whether an agency's water rates comply with Cal. Const., art. XIII D, § 6, subd. (b)(3), is a mixed question of fact and law implicating constitutional rights. The legal question of Cal. Const., art. XIII D, § 6, subd. (b)(3) compliance is reviewed de novo. But when the resolution of the mixed question of law and fact requires an inquiry that is essentially factual, the trial court's determination should be classified as one of fact reviewable under the clearly erroneous standard. If, on the other hand, the question requires the reviewing court to consider legal concepts in the mix of fact and law and to exercise judgment about the values that animate legal principles, then the question should be classified as one of law and reviewed de novo.

CA(22) **(22)**

Administrative Law § 131—Judicial Review—Scope and Extent—Substantial Evidence—Resolving Conflicts in Favor of Judgment.

On appeal, the judgment is presumed correct, and the appellant **[*231]** has the burden of demonstrating error. In considering substantial evidence claims, appellate courts view the record in the light most favorable to the judgment, resolving all conflicts in the evidence in favor of the judgment.

CA(23) **(23)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Cost Apportionment and Supporting Data.

Cal. Const., art. XIII D, § 6, subd. (b)(3), does not require agencies to base their cost of service allocations on perfect data, particularly when such data is unavailable or impractical to obtain.

CA(24) **(24)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Cost Apportionment and Supporting Data—Water Rates—Tiered Rates.

Based on a city's failure to present evidence supporting a source-of-supply justification, the trial court found the city's tiered rates did not comply with Cal. Const., art. XIII D, § 6, subd. (b)(3). That conclusion was correct. The lack of evidence tying the lower Tier 1 rate to its purported justification of lower-cost, local water supplies, undermined the integrity of the entire Tier 1 through 4 rate structure, insofar as all of the tiers purported to be based, in part, on the lower cost, local water supplies underlying the lower Tier 1 rates. Thus, the lack of evidence justifying the lower Tier 1 rates, standing alone, showed the city's tiered rate structures were not proportional to the costs of delivering water to single-family residential customers at those tiered usage levels, as Cal. Const., art. XIII D, § 6, subd. (b)(3), requires.

[*Cal. Forms of Pleading and Practice (2025) ch. 540, Taxes and Assessments, § 540.51*.]

CA(25) **(25)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Tiered Rates.

If a local government body chooses to impose tiered rates unilaterally without a vote, those tiers must be based on cost of service for the incremental level of usage.

CA(26) **(26)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Cost Apportionment and Supporting Data.

Rate differentials between groups, whether customer classes or tiers, support an inference of disproportionality—and, to be constitutional, must be supported by evidence of costs justifying the differences.

[*232] *CA(27)* **(27)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Cost Apportionment and Supporting Data—Water Rates—Tiered Rates.

There is not necessarily only one way to calculate and allocate the cost of providing water service to various parcels, and future costs of such services must be projected, or estimated. But this does not mean that trial courts must accept an agency's cost projections, or cost allocations, particularly when other evidence shows the agency's projections or allocations are based on faulty assumptions or insufficient data. Cal. Const., art. XIII D, § 6, subd. (b)(3), theoretically permits agencies to impose either uniform rates or tiered rates, but it does not follow that agencies must necessarily be allowed to impose tiered rates.

CA(28) **(28)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Cost Apportionment and Supporting Data—Water Rates—Tiered Rates.

The agency's burden of proof in a Prop. 218 (approved 1996) case is straightforward: the agency must show that the fee or charge for the property-related service does not exceed the proportional cost of delivering the service to the parcel (Cal. Const., art. XIII D, § 6, subd. (b)(3)). As to how water agencies are to meet this burden in defending tiered water rates, it is best that water agencies not impose tiered rates (without a vote), where substantial evidence shows the tiered rates are not cost proportional, despite the agency's purportedly reasonable cost projections, allocation methods, and data. In such cases, water agencies risk violating Cal. Const., art. XIII D, § 6, subd. (b)(3), if they impose tiered rates. Further, tiered rates are not necessarily constitutional.

CA(29) **(29)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Cost Apportionment and Supporting Data—Water Rates.

Gov. Code, § 53750.6, merely allows, but does not require, fees or charges for water services governed by *Cal. Const., art. XIII D*, to include the incrementally higher costs of water service due to a parcel's higher water usage demand, maximum potential water use, and projected peak water usage (*Gov. Code, § 53750.6, subd. (a)*). The statute allows such higher costs to be allocated (1) using any method that reasonably assesses the cost of serving the parcels, and (2) among or within customer classes, or both, based on meter size or peaking factors (*§ 53750.6, subd. (b)(1)*, *(2)*). The statute is declaratory of existing law (*§ 53750.6, subd. (c)*).

CA(30) **(30)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Cost Apportionment and Supporting Data—Water Rates.

Gov. Code, § 53750.6, does not **[*233]** excuse agencies from complying with Cal. Const., art. XIII D, § 6, subd. (b)(3), nor could it.

CA(31) **(31)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Cost Apportionment and Supporting Data—Water Rates—Tiered Rates.

Cal. Const., art. XIII D, § 6, subd. (b)(3), mandates that, if an agency imposes tiered water rates, it must show that the rates do not exceed the proportionate cost of delivering water at the tiered usage levels. Cal. Const., art. XIII D, § 6, subd. (b)(3), does not require or bar use of any particular type of supporting data, so long as it meaningfully reflects cost of service to the parcel.

CA(32) **(32)**

Parties § 6.5—Class Certification—Discretion of Trial Court and Review—Weighing Benefits and Burdens.

Code Civ. Proc., § 382, authorizes class suits in California when the question is one of a common or general interest, of many persons, or when the parties are numerous, and it is impractical to bring them all before the court. Generally, a class action suit is appropriate when numerous parties suffer injury of insufficient size to warrant individual action and when denial of class relief would result in unjust advantage to the wrongdoer. But because group action also has the potential to create injustice, trial courts are required to carefully weigh respective benefits and burdens and to allow maintenance of the class action only where substantial benefits accrue to both litigants and the courts.

CA(33) **(33)**

Parties § 6.3—Class Certification—Community of Interest—Factors.

A party seeking certification as a class representative must establish the existence of an ascertainable class and a well-defined community of interest among the class members. The community of interest requirement embodies three factors: (1) predominant common question of law or fact, (2) class representatives with claims or defenses typical of the class, and (3) class representatives who can adequately represent the class.

CA(34) **(34)**

Parties § 6.5—Class Certification—Discretion of Trial Court and Review—Standard of Review.

Trial courts are afforded great discretion in granting or denying class certification. In the absence of other error, a trial court ruling supported by substantial evidence generally will not be disturbed unless (1) improper criteria were used; or (2) erroneous legal assumptions were made. Under this standard, an order based upon improper criteria or incorrect assumptions calls for reversal even though there may be substantial evidence to support the court's order. Accordingly, the appellate court must examine the trial court's reasons for **[*234]** denying class certification. Any valid pertinent reason stated will be sufficient to uphold the order. When a class certification motion depends on the evaluation of disputed evidence, the appellate court reviews the trial court's factual determinations under the substantial evidence standard. That is, the appellate court upholds the trial court's express or implied factual findings if substantial evidence supports them.

CA(35) **(35)**

Parties § 6.3—Class Certification—Community of Interest—Predominance—Individual Proof of Damages.

The requirement of a community of interest does not depend upon an identical recovery, and the fact that each member of the class must prove a separate claim to a portion of any recovery by the class is only one factor to be considered in determining whether a class action is proper. Predominance is a comparative concept, and the necessity for class members to individually establish eligibility and damages does not mean individual fact questions predominate. Thus, a common monetary recovery is not required in order to establish a community of interest. Nor is it a bar to certification that individual class members may ultimately need to itemize their damages.

CA(36) **(36)**

Parties § 6.3—Class Certification—Community of Interest—Typicality.

Typicality refers to the nature of the claim or defense of the class representative, and not to the specific facts from which it arose or the relief sought. The test of typicality is whether other members have the same or similar injury, whether the action is based on conduct which is not unique to the named plaintiffs, and whether other class members have been injured by the same course of conduct.

CA(37) **(37)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality—Cost Apportionment.

Cal. Const., art. XIII D, § 6, subd. (b)(3), ensures that the aggregate fee collected on all parcels is distributed among those parcels in proportion to the cost of service for each parcel. Thus, Cal. Const., art. XIII D, § 6, subd. (b)(3), concerns the method used to allocate a property-related service's aggregate cost among fee payors.

CA(38) **(38)**

Parties § 6.2—Class Certification—Adequacy of Representation—Conflict of Interest.

A conflict of interest among class members will defeat certification when the conflict goes to the very subject matter of the litigation. Such a conflict of interest undermines the adequacy of representation, an element of the community-of-interest requirement. When the party opposing certification presents evidence that indicates widespread antagonism to the class suit, the adequacy of representation is called into question. It is axiomatic that a putative representative cannot **[*235]** adequately protect the class if his interests are antagonistic to or in conflict with the objectives of those he purports to represent. But only a conflict that goes to the very subject matter of the litigation will defeat a party's claim of representative status.

CA(39) **(39)**

Parties § 6.2—Class Certification—Adequacy of Representation—Conflict of Interest.

For a conflict of interest to defeat the adequacy requirement for class certification, that conflict must be fundamental. A conflict is not fundamental when all class members share common objectives and the same factual and legal positions and have the same interest in establishing the liability of the defendants. Defendants cannot defeat class certification based on a conflict on the ground that some proposed class members favor the continuation of unlawful conduct.

CA(40) **(40)**

Parties § 6—Class Certification—Decertification—Changed Circumstances.

Before judgment, a class should be decertified only where it is clear there exist changed circumstances making continued class action treatment improper.

CA(41) **(41)**

Damages § 35—Procedure—Review—Standards.

An appellant's challenge to damages, depending upon its specific nature, may be subject to a substantial evidence, abuse of discretion, or de novo standard of review. Whether a certain measure of damages is permissible given the legal right the defendant has breached, is a matter of law, subject to de novo review. The trial court's choice among several legally permissible measures of damages is a matter of discretion. The scope of discretion always resides in the particular law being applied, i.e., in the legal principles governing the subject of the action. Additionally, the amount of damages awarded must, in all cases, be reasonable, that is, no more than reasonable damages can be recovered (*Civ. Code, § 3359*).

CA(42) **(42)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Proportionality.

Under Cal. Const., art. XIII D, § 6, subd. (b)(3), a fee or charge for a property-related service may not exceed the government's proportional costs of providing the service to the parcel.

CA(43) **(43)**

Cross-complaints and Setoffs § 11—Nature and Applicability of Setoffs—Refund Calculation.

Setoff is a defense founded on the equitable principle that either party to a transaction involving mutual debts and credits can strike a balance, holding itself owing or entitled only to the net difference. *Code Civ. Proc., § 431.70*, which codifies setoff, authorizes a party who has been sued and has a cross-demand for money against the plaintiff to assert in the answer the defense of payment. In the context of **[*236]** a refund award that considers both undercharges and overcharges to assess net damages, case law has rejected an argument that the right to offset applies when the parties have mutual debts and credits and may assert cross-demands for money. The undercharges are best understood as part of the refund calculation, rather than as debts that could be used to offset the refund award.

CA(44) **(44)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—What Constitutes Increase.

Gov. Code, § 53750, subd. (h), provides the term "increased," when applied to a property-related fee or charge, means a decision by an agency that either increases any applicable rate used to calculate the fee or charge, or revises the methodology by which the fee or charge is calculated, if that revision results in an increased amount being levied on any person or parcel.

CA(45) **(45)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Crediting Refund Awards Against Future Increases.

Gov. Code, § 53758.5, requires agencies to credit refund awards in Prop. 218 (approved 1996) cases against future increases in or impositions of the property-related charge, unless the refund award is explicitly provided for by statute (*Gov. Code, § 53758.5, subd. (a)*). Thus, the statute does not allow agencies in Prop. 218 cases to pay a refund award as a money judgment, unless a statute explicitly allows the agency to do so.

CA(46) **(46)**

Appellate Review § 55—Presenting and Preserving Questions in Trial Court—Adherence to Theory of Case—Exceptions—Undisputed Facts and Important Public Issues.

An appellate court is more likely to consider, for the first time on appeal, an issue involving undisputed facts and important questions of public policy or public concern, if the parties have had a reasonable opportunity to address the issue.

CA(47) **(47)**

Statutes § 30—Construction—Language—Plain Meaning Rule—Clear and Unambiguous Words.

In construing statutes, a court's fundamental task is to ascertain the Legislature's intent so the court may effectuate the Legislature's purpose in enacting the statute. To ascertain intent, the court looks first to the words of the statute. If the language is clear and unambiguous, its plain meaning governs, and it is unnecessary to consider the legislative history of the statute to determine its meaning.

CA(48) **(48)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Crediting Refund Awards Against Future Increases.

The language of *Gov. Code, § 53758.5*, is clear and unambiguous: If a court finds that a fee or charge violates Prop. 218 (approved **[*237]** 1996), then in the next procedure to impose or increase the fee or charge, the agency must credit the amount of the fee or charge attributable to the violation against the amount of the revenues required to provide the property-related service unless a refund is explicitly provided for by statute (*Gov. Code, § 53758.5, subd. (a)*).

CA(49) **(49)**

Constitutional Law § 10—Construction—Deference to Legislative Judgment—Enactment of Statute Addressing Constitutional Issue.

When the Legislature enacts a statute with relevant constitutional prescriptions clearly in mind, the statute represents a considered legislative judgment as to the appropriate reach of the constitutional provision. Although the ultimate constitutional interpretation must rest with the judiciary, a focused legislative judgment on the question enjoys significant weight and deference by the courts.

CA(50) **(50)**

Property Taxes § 7.2—Real Property Tax Limitation—Property-related Fee or Charge—Crediting Refund Awards Against Future Increases.

By its terms, *Gov. Code, § 53758.5*, applies to all refund awards in Prop. 218 (approved 1996) cases, except as explicitly provided by statute. Neither the *Government Claims Act (Gov. Code, § 810 et seq.)* nor the mandate statutes (*Code Civ. Proc., §§ 1087–1097*) explicitly provide that a refund award in a Prop. 218 case does not have to be credited against future fees but is, rather, enforceable as a money judgment.

CA(51) **(51)**

Taxpayers' Remedies § 11—Proceedings and Actions to Recover Taxes Paid—Due Process—Meaningful Backward-looking Relief.

If a state places a taxpayer under duress promptly to pay a tax when due and relegates the taxpayer to a postpayment refund action in which the taxpayer can challenge the tax's legality, the due process clause of *U.S. Const., 14th Amend.*, obligates the state to provide meaningful backward-looking relief to rectify any unconstitutional deprivation. In this context, "meaningful backward-looking relief" means giving the taxpayer a fair opportunity to challenge the accuracy and legal validity of their tax obligation, as well as a clear and certain remedy for the erroneous or unlawful tax collection.

CA(52) **(52)**

Costs § 34—Attorney Fees—Fees on Appeal—Determination by Trial Court.

Although the appellate court has the power to fix attorney fees on appeal, the better practice is to have the trial court determine such fees.

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Judges: Opinion by Fields, **[**2]** J., with McKinster, Acting P. J., concurring. Dissenting opinion by Menetrez, J.

Opinion by: Fields, J.

Opinion

FIELDS, J.—

I. INTRODUCTION

In 1996, voters enacted Proposition 218, adding *article XIII D to the California Constitution*. (*Cal. Const., art. XIII D.*) *HN1* Under section 6, subdivision (b)(3) (§ 6(b)(3)) of article XIII D,[1] a governmental fee or charge imposed on a parcel of property or as an incident of property ownership, "shall not exceed the proportional cost of the service attributable to the parcel." In any legal action challenging the validity of the fee or charge, the government has the burden of showing it complies with the article. (§ 6(b)(5).)

[1] Undesignated article and section references are to *article XIII D of the California Constitution*. We refer to subdivisions of section 6 in shorthand, e.g., section 6(b)(3).

Plaintiffs Daniel Patz and Joan Mann Chesner are the representative members of plaintiffs, a certified class of "'[a]ll single-family residential customers of the City of San Diego who received water service after August **[*239]** 14, 2014.'" In their operative complaint, plaintiffs claim the City of San Diego's (City) tiered water rates for single-family residential (SFR) customers, which increase with higher levels of consumption, violate section 6(b)(3) because they exceed City's proportionate cost of delivering water to SFR customers at the usage levels in the higher tiers. City charges non-SFR customers uniform (nontiered) rates for their water usage.

Following a bifurcated trial on City's liability (Phase I), the trial court ruled City failed to show that its **[**3]** tiered rates for SFR customers complied with section 6(b)(3). In the later trial on damages (Phase II), the court awarded class (Class) a refund of $79,541,880—the amount all Class members (SFR customers) overpaid for water services from August 14, 2014, through March 31, 2022, increasing by $643,750 each per month thereafter, "until the City imposes water rates consistent with" section 6(b)(3). Both City and Class appeal from the judgment.

City claims the trial court applied incorrect standards of proof and disregarded undisputed evidence that City's tiered SFR rates comply with section 6(b)(3). City also claims the trial court abused its discretion in certifying plaintiffs' action as a class action. In its appeal, Class claims the trial court erroneously awarded City an unpled and unproven offset of $27,583,091, against what should have been a refund award of $107,124,971, not $79,541,880. Class also claims it is entitled to attorney fees on appeal. We affirm the judgment with directions.

II. FACTS AND PROCEDURE

A. *City's Water System, Customer Classes, and Water Rates*

City owns and operates a water utility system, which, as of 2015, provided potable water to a population of over 1.4 million, through approximately 280,000 residential, commercial, **[**4]** industrial, and wholesale customer accounts. The water system is self-supporting, and its revenues and expenditures are segregated from other City operations. City obtains water from two primary sources: (1) local groundwater and reservoir sources, and (2) the San Diego County Water Authority. These sources are comingled in City's reservoirs before being delivered to customers. In a normal year, City's local water supply meets 10 to 15 percent of City's aggregate customer demand.

City designs, builds, and maintains its water system at a size sufficient to meet "peak demand," the highest level of demand that could be placed on the system at a given time by all of City's customers. For billing purposes, City divides its customers into five "classes": (1) SFR; (2) Other Domestics or **[*240]** Multifamily Residential (MFR); (3) Commercial/Industrial; (4) Temporary Construction; and (5) Irrigation.

City's potable water charges have two parts: a fixed monthly charge and a commodity charge. As City explains, "The monthly service charge is an amount based on water meter size and is designed to recover fixed costs. Fixed costs do not vary with the volume of water used by a **[**5]** customer, and include meter reading, customer billing, and debt service. The commodity charge is an amount based on units of consumption measured by the number of hundred cubic feet (HCF) of water consumed during the billing cycle. Included in the commodity charge are the costs associated with water purchases and system capacity, including components such as maintaining and operating the reservoirs, pump stations, and transmission and distribution lines. The commodity charge differs by customer class."

For SFR customers, the commodity charge "contains a tier structure that charges a different commodity charge for different tiers of water consumption." That is, SFR customers are charged higher rates for each HCF of water they consume, as their consumption increases above specified HCF levels or tier "breakpoints."

Effective January 1, 2014, SRF customers were charged the followed tiered rates: Tier 1, zero to four HCF ($3.64); Tier 2, five to 12 HCF ($4.08); Tier 3, 13 to 18 HCF ($5.82); Tier 4, 19 HCF and over ($8.19). The Tier 4 rate is exactly 2.25 times the Tier 1 rate ($3.64 x 2.25=$8.19). The other customers classes were charged a uniform rate for each HCF of water consumed: MFR **[**6]** ($4.34); Commercial & Industrial ($4.17); Temporary Construction ($4.62); and Irrigation ($4.62).

Thus, in 2014, an SFR customer who used 19 HCF during a month was charged $3.64 for the first four HCF, $4.08 for the next eight HCF, $5.82 for the next six HCF, and $8.19 for the 19th HCF, for a total commodity charge of $90.31. In contrast, an irrigation customer who used 19 HCF was charged $4.62 for each HCF, for a total commodity charge of $87.78.[2]

Effective January 1, 2016, City imposed new tiered rates for SFR customers: Tier 1, $4.24; Tier 2, $4.75; Tier 3, $6.23; and Tier 4, $8.77. City retained uniform rates for all other customer classes.
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B. *City's Ratemaking Processes*

1. *City's 2013 and 2015 Cost of Service Studies and Rate Designs*

Every two to five years, City retains a consultant to prepare a COSS, including a financial plan, cost of service analysis, rate structure design, and rate recommendations for City's water system. In setting the rates that went into effect in 2014 and 2016, City retained the consulting firm Black & Veatch (B&V). B&V prepared a "2013 COSS" for the 2014 rates and an updated "2015 COSS" for the 2016 rates. These cost-of-service studies show how City, in setting the **[**7]** rates, allocated the costs of providing water to the five customer classes.

City's expert, Ann Bui, led B&V's preparation of the 2013 COSS and 2015 COSS for City, as managing director of the water advisory and planning business in B&V's management consulting division. Bui also wrote opening and rebuttal expert reports for City for the Phase I trial. Much of our discussion of City's 2013 and 2015 ratemaking processes is taken from the 2013 and 2015 COSSs, Bui's reports, and Bui's deposition testimony.

In her opening report, Bui explained that the American Water Works Association (AWWA), "the industry organization tasked with providing guidance on the operation and management of water utilities," publishes a manual on water rates called M1 Principles of Water Rates, Fees and Charges (the M1 Manual). In preparing the 2013 and 2015 COSSs, B&V used the "three-part rate setting framework" described in the M1 Manual. That is, B&V calculated City's total revenue requirement for a given year (part one), conducted a "cost of service analysis" (apportioned costs to the customer classes) (part two), and designed rate structures for each customer class (part three).

The total revenue requirement (part **[**8]** one) "is the total receipts" City "must recover from its rates to pay all operating and capital expenses during a given year." City's total revenue requirement was $407,452,200 for the 2014 fiscal year. In conducting the cost of service analysis for the 2013 COSS and 2015 COSS (part two), B&V allocated City's total revenue requirement (costs) to City's five customer classes using the "base-extra capacity method" outlined in the M1 Manual. In part three, rate design, City directed B&V to continue City's tiered rate structure for SFR customers, and uniform, flat rates for the other customer classes.

In the following parts, we describe the data and methodology underlying B&V's use of the "base-extra capacity [allocation] method" and "'peaking factors'" in calculating City's 2014 and 2016 rates, and City's decision to **[*242]** continue using tiered rates for SFR customers, and uniform rates for other customers. City claims its tiered rates do not violate section 6(b)(3) because the base-extra capacity method, with peaking factors, "'calculate[d] the actual costs of service'" for the SFR tiers and other customer classes.

2. *The Base-extra Capacity Cost Allocation Method and Peaking Factors*

The base-extra capacity **[**9]** method allocates the total revenue requirement (i.e., the total cost of service) to the customer classes based on the types and amounts of costs each customer class places on the water system. City explains: "The base-extra capacity method focuses on average and above-average demand, as they relate to the size of the system's operations and facilities used to meet that demand. Average demand is the demand on the

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[2] Before 2014, City had "a single commodity rate for all nonSFR customer classes" and a "three-block increasing rate structure" for SFR customers.

system when every customer uses water at the same rate every hour of every day of the year. Above-average demand is demand on the system when customers use above the amount established as average demand. A customer's water use may be below-average, average, or above-average when measured [in] each billing cycle. A customer with above-average demand uses water at an above-average rate during the billing cycle, which places above-average demand on the system. Further, each customer class demonstrates recognized patterns of average and above-average demand."

In applying the base-extra capacity method, B&V first allocated City's total revenue requirement to "functional costs components," that is, to costs associated with an identifiable activity. For example, the activity "source **[**10]** of supply" could include costs associated with reservoir management, water quality testing, water level maintenance, and handling water inflow and outflow. These functional cost categories were then divided into (1) operation and maintenance costs, and (2) capital asset costs, before they were allocated to four "basic functional cost components: base, extra-capacity, customer and fire protection."

Bui explained: "Base costs include the purchase of water, regulatory fees, debt service costs, water treatment, energy, administration, and operating and maintenance costs of the water system that are associated with the amount of water produced and a portion of capacity that meets average day demand." "Extra-capacity costs represent those operating costs incurred to meet demands that exceed average day demand and capital related costs for additional … capacity beyond that required for the average rate of use. These costs reflect the peak demands imposed on the system by the different customer classes. They are identified as maximum day and maximum hour demands.
[*243]

"Maximum Day Demand (Max Day) is the demand put on the water system to have the capacity [to] deliver the largest volume of water **[**11]** in a single day within a given year. [¶] Maximum hour demand (Max Hour) is the demand put on the water system to have the capacity to deliver the largest volume of water in a single hour within a given year." Customer costs are costs associated with serving customers regardless of their water consumption, and include billing, customer service, accounting, collections, meter reading, and maintenance. Fire protection costs are associated with public fire protection and include (1) hydrant testing and maintenance, and (2) designing and operating the system to meet fire flow demands.

After B&V allocated City's functional cost components to Base-Extra Capacity, Customer, and Fire Protection, B&V allocated the portion allocated to Base-Extra Capacity to Base, Max Day, and Max Hour, "based on the nature of the cost function." B&V also applied "demand factors" or "peaking factors" in allocating Extra Capacity costs to Base, Max Day, and Max Hour costs.[3]

As noted, the Base "cost bucket" includes, among other things, the operations and maintenance (O&M) and capital costs associated with the portion of the system's facilities used to meet average demand. City explains: the "Max Day cost bucket **[**12]** includes costs—*above Base Costs*—to build and operate the system sized at Max Day Size—1.5 times larger than the system would be to meet average demand. The Max Hour cost bucket includes costs—*above Base and Max Day costs*—to build and operate the system size at Max Hour Size—2.25 times larger than the system would be to meet average demand."

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[3] City explains: "'Base,' 'Max Day,' and 'Max Hour' are terms of art in the water utility industry that refer to how large a water system must be designed, built, and operated to meet maximum possible demand and guarantee uninterrupted service. Importantly, Max Hour and Max Day ***do not*** refer to a specific day or hour in a billing cycle when total usage is above average." "The base-extra capacity method recognizes that above-average demand on a system causes the system to incur significantly more costs, including capital and operating expenses, than would be incurred if the system were built and operated at the size sufficient to only meet average demand. The base-extra capacity method separates the incremental extra costs to upsize the system from average use size (Base) to the maximum required size by allocating these incremental extra costs to the Max Day and Max Hour cost buckets. Where appropriate, this separation allows the system to recover a larger portion of the incremental costs to upsize the system to meet above-average demand from customers when they place above-average demand on the system."

B&V used "1.5 Max Day" and "2.25 Max Hour" peaking factors to calculate the portion of each functional cost category allocated to City's Base, Max Day and Max Hour cost buckets. Bui explained that the 1.5 Max Day factor is the sizing factor set forth in City's water master plan and is based on "historic operating data." The 2.25 Max Hour demand factor "is a multiplier **[*244]** of the Max Day factor that is used by [City] engineers for system sizing when planning to meet maximum possible demand." These ratios are within the ranges typically experienced by other water utilities nationwide. For 2014, B&V allocated the O&M and capital cost categories (i.e., City's total revenue requirement of $407,452,200) to Base, Max Day, Max Hour Meters, Billing, and Fire Protection "cost buckets," as follows: "Base $242,610,200; Max Day $38,680,800; Max Hour $32,978,500; Billing **[**13]** $31,678,300; and Fire Protection $5,072,600."

Next, B&V used the "units of service approach" to allocate a portion of each cost bucket to the five customer classes, "in proportion to each class's respective service requirements." For example, billing and accounting costs were allocated to the classes based on the number of bills in each class. B&V also used "annual usage data" for each customer class "to set the average daily usage" for each customer class as a whole.

B&V then calculated each class's units of service for the Max Day and Max Hour cost buckets, using "unique customer class peaking factors," rather than the 1.5 and 2.25 peaking factors used to "size the system." City calculated the class peaking factors based on its historic billing data. The irrigation and temporary construction classes have "the highest class peaking factors" because the billing data showed these classes have the "most peaking behavior."

City then calculated "the unit costs for each cost bucket" by dividing the total costs in each cost bucket by the corresponding units for that bucket, and apportioning each cost bucket's total revenue allocation to the customer classes. Last, B&V calculated the revenue **[**14]** requirement for each customer class, by cost bucket, by multiplying the units of service for each cost bucket for each customer class by the unit cost for each cost bucket. Under this calculation, the SFR total revenue requirement for 2014 was $169,157,700.

3. *The 2014 and 2016 Rate Designs*

(a) *City's Tiered and Uniform Rates*

For all customer classes, the commodity charge is based on the number of HCF the customer uses, and is designed "to recover costs associated with" the Base, Max Hour, and Max Day cost buckets (i.e., average and above-average use) for the entire customer class. In designing City's 2014 and 2016 rates, City instructed B&V to continue using a tiered rate structure for the SFR customer class and uniform, flat rates for the other customer classes.

City explains it chose uniform rates for the non-SFR customer classes because non-SFR customers "vary greatly in both size and the nature of their **[*245]** operations," while the SFR customer class is "relatively homogenous." City posits that no SFR unit is "exponentially" larger or smaller than any other SFR unit; thus, usage among SFR units does not vary greatly, even though SFR units have varying numbers of residents, lot sizes, and **[**15]** landscaping (e.g., drought resistant plants, swimming pools). Consumption data (billing records) for City's SFR customer class showed that an SFR unit used an average of 12 HCF per month. Thus, City argues, "[u]sage above [12 HCF] in a billing cycle represented above-average usage for an SFR customer" and "contributed to the City's need to upsize the system to meet above-average demand."

In contrast, City claims "there was no reasonable way for B&V to document one single average monthly HCF usage amount" for the non-SFR customer classes due to the varying sizes and operations of non-SFR customers. Bui explained: "If an inclining block rate structure is used, small customers in these customer classes (corner store, 10-unit apartment complex, one-acre irrigated lot) would likely remain in the bottom block paying at the lowest rate, while large customers that use more water simply because they are larger operations (Walmart, 200-unit apartment complex, an irrigated golf course) would pay for most of their water at the highest tiered rate. This would be inequitable because the larger sized customers would always pay rates in the highest tiers even when they use

water efficiently for their **[**16]** size. Therefore, inclining block tiered rate structures are not used for nonSFR customer classes."

Regarding peak usages, the 2013 COSS postulated that "residential customers place a higher peak demand on the water system than nonresidential customers" because SFR customers "typically would have high water use in the morning due to shower and other morning chores," and "high usage in the evening when residents are usually back home … ." In contrast, "commercial customers have steady [usage] during business hours and very low demand during nonbusiness hours," while industrial customers usually have low peaking factors due to their "very stable pattern of water usage" throughout the day. As noted, City's data also showed that City's irrigation and temporary construction classes had the "highest class peaking factors" because the billing data showed they had the "most peaking behavior."

(b) *The Tier Breakpoints*

The 2013 COSS states that B&V's proposed tiered rates for City's SFR customers, "reflect general usage patterns of San Diego's single-family residential customers, as well as rate setting industry standards and AWWA household usage survey data." This "AWWA survey data indicate[d] **[**17]** that typical indoor residential water consumption is roughly 50 to 60 gallons per person per day," and "[d]epending on typical residential family sizes of two **[*246]** to three persons per household, approximate monthly residential water use can range from 3,000 gallons per month to over 5,000 gallons per month (or 4 HCF to 7 HCF per month)." The 2013 COSS notes that the lower, Tier 1 "range would serve to recognize water efficiency within [the SFR] customer class."

The 2013 COSS set Tier 2 at seven to 12 HCF because 12 HCF was the average amount a typical SFR unit used in a month. In her opening report, Bui explained that 12 HCF "would provide a single-family residential household with average indoor usage with enough water for outdoor irrigation to maintain an average-sized green lawn." The 2013 COSS set Tier 3 at 12 to 18 HCF, explaining that this level of usage "represents an outdoor irrigation or landscape allowance," and usage beyond 18 HCF "would represent high use for this class." City set the Tier 4 breakpoint at 19 HCF effective January 1, 2014, rather than B&V's recommended 18 HCF.

After establishing the tier breakpoints, B&V used City's billing data "to project the volume of consumption **[**18]** by tier" and used these amounts "in the final rate calculation for each tier." B&V calculated that less than 17 percent of water usage by SFR customers as a whole fell into the proposed Tiers 3 and 4; over 45 percent of usage was in Tier 2; and over 38 percent was in Tier 1.

Next, B&V allocated the Base, Max Day, and Max Hour cost buckets for the SFR customer class to the four tiers. Specifically, Max Hour costs were allocated 30 percent to Tier 3 and 70 percent to Tier 4; no portion of Max Hour costs were allocated to Tiers 1 or 2. Max Day costs were allocated 15 percent to Tier 1, 45 percent to Tier 2, 30 percent to Tier 3, and 10 percent to Tier 4. Base Costs were allocated 40 percent to Tier 1, 50 percent to Tier 2, 10 percent to Tier 3, and 0.00 percent to Tier 4. City claims the total Base, Max Hour, and Max Day costs allocated to each tier represent "the total cost to provide water service at the consumption levels represented by each tier."

Last, B&V calculated the rate for each tier. At this stage, B&V adjusted the Base, Max Hour, and Max Day costs allocated to each tier based on several factors. For example, water usage in Tier 1 was priced "at the lowest rate" because usage **[**19]** at that level "represent[ed] the City's least expensive source of water—local supply." B&V followed the same cost allocation methods in the 2015 COSS. Additional details concerning City's water rates are discussed below in connection with our analysis of City's claims on appeal.

C. *Procedural History*

This action was originally filed in July 2015 as part of the class action complaint in *Coziahr v. Otay Water Dist. (2024) 103 Cal.App.5th 785 [323 **[*247]** **[*248]** Cal. Rptr. 3d 441]*, review denied October 23, 2024, *S286596* (*Coziahr*). The action by the plaintiff Mark Coziahr against Otay Water District (Otay) was later severed from this action by plaintiffs Patz and Chesner against City. (*Coziahr, at p. 792 & fn. 3.*) In April 2019, Patz and Chesner filed their operative fifth amended complaint, alleging City's tiered water rates violate section 6(b)(3) and seeking a writ

of mandate, declaratory and injunctive relief, and damages, including a refund award. In June 2019, the trial court certified plaintiffs' suit as a class action by "[a]ll single-family residential customers of the City of San Diego who received water service after August 21, 2014."

Trial proceeded in two phases: Phase I on liability; Phase II on remedies. In Phase I, the parties submitted extensive pretrial briefing and relied on **[**20]** expert witness testimony, reports, and other evidence. Class's expert was Rodney T. Smith. As noted, City's expert was Ann Bui. On June 21, 2021, the parties presented their Phase I oral argument.

On September 13, 2021, the trial court issued its Phase I statement of decision, ruling City's tiered water rates for SFR customers did not comply with section 6(b)(3). The court concluded the tiered rates had similar defects to the rate structures in *Capistrano Taxpayers Assn., Inc. v. City of San Juan Capistrano (2015) 235 Cal.App.4th 1493 [186 Cal. Rptr. 3d 362] (Capistrano)* and *City of Palmdale v. Palmdale Water Dist. (2011) 198 Cal.App.4th 926 [131 Cal. Rptr. 3d 373] (Palmdale)*. At the Phase II trial on remedies, the parties agreed, assuming City's liability, that Class was entitled to a refund but disputed whether City was entitled to a credit or offset.

On March 30, 2022, the court entered judgment in favor of Class, finding City "failed to demonstrate by substantial evidence that the tiered water rates imposed on … Class by the City's 2013 and 2015 ratemakings did not exceed the City's proportional cost of providing water service to each class member's parcel, as required by Proposition 218." The judgment orders City "to impose new water rates consistent with the requirements" of *article XIII D* "by the later of (a) January 1, 2023, or (b) not more than 9 months after the City fully exhausts its right to appeal the judgment." The judgment awards Class **[**21]** a refund of $79,541,880 for August 14, 2014, through March 31, 2022, plus $643,750 for each month thereafter, "until the City imposes water rates consistent with" section 6(b)(3).

Both Class and City appealed. Two groups have filed amicus curiae briefs supporting City's appeal: (1) California Water Agencies, California State Association of Counties, and League of California Cities (Municipal Amici), and (2) California Coastkeeper Alliance and Los Angeles Waterkeeper (Water **[*248]** Alliance Amici). Mesa Water District has filed an amicus curiae brief supporting Class's opposition to City's appeal. The parties have filed answering briefs.[4]

In March 2024, the parties' appeals were transferred from Division One of this court to this division, Division Two. On July 15, 2024, Division One issued its decision in *Coziahr*. *Coziahr* addressed many of the issues raised in this case, including (1) whether the agency's standard of proof in section 6(b)(3) litigation is "reasonableness," and, more generally, (2) why Otay did not meet its burden of showing that *its* tiered rates for SFR customers—which were based on data and methods similar to those used here—complied with section 6(b)(3). (*Coziahr, supra, 103 Cal.App.5th at pp. 800–819*.) The trial judge in this case, Eddie C. Sturgeon, was **[**22]** the trial judge in *Coziahr*. (*Coziahr, at p. 785*.)

In September 2024, the Governor signed Assembly Bill No. 1827 (2023–2024 Reg. Sess.) and Senate Bill No. 1072 (2023–2024 Reg. Sess.), adding *sections 53750.6* and *53758.5* to the Government Code, effective January 1, 2025. In October 2024, after our Supreme Court denied review in *Coziahr (S286596*, Supreme Ct. Mins., Oct. 23,

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[4] In granting Mesa leave to file its amicus curiae brief, we deferred considering to this appeal City's evidentiary objections to a declaration, other materials, and related content in Mesa's brief. City objects that the declaration and materials are not part of the trial or appellate record, lack foundation, were not subjected to adversarial processes, and do not qualify for judicial notice. Although we decline to strike the declaration, materials, and related content in Mesa's brief, we have not considered them in our decision. (*Bily v. Arthur Young & Co. (1992) 3 Cal.4th 370, 405, fn. 14 [11 Cal. Rptr. 2d 51, 834 P.2d 745]* [Courts are not inclined to strike the contents of amicus curiae briefs but may disregard untested or irrelevant material.]; *People v. Davis (2022) 75 Cal.App.5th 694, 725 [290 Cal. Rptr. 3d 661]* [""'Amicus curiae must accept the issues made and propositions urged by the appealing parties,'"" and ""'any additional questions presented in a brief filed by an amicus curi[a]e will not be considered.'""].) Nonetheless, Mesa's brief assists this court "by broadening its perspective on the issues raised by the parties." (*Bily, at p. 405, fn. 14*.)

2024), we granted City's motion for leave to file, and City filed, a supplemental brief addressing the relevance of *Coziahr* and *Government Code sections 53750.6* and *53758.5* to the parties' appeals. In November 2024, Class filed a response.[5]

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III. CITY'S APPEAL

City claims the trial court held City to an incorrect substantive burden or standard of proof in showing that its tiered rates satisfy section 6(b)(3). City claims an agency's burden of proof under section 6(b)(3) is to show that its rates reasonably reflect its costs of service, and here, *undisputed* evidence shows City's tiered rates do not exceed its costs of providing water at the tiered levels of usage.

Before we address City's claims, we provide further background on Proposition 218, and the two seminal water rate cases the trial court relied on in its Phase I statement of decision, *Palmdale* and *Capistrano*. We then summarize the trial court's Phase I statement of decision, and the subsequent decision in *Coziahr*.

A. *Additional **[**23]** Background*

1. *Proposition 218, Relevant Provisions*

Approved by voters in 1996, Proposition 218 is one of a series of voter initiatives restricting the ability of the state and local governments to impose taxes and fees. (*Plantier v. Ramona Municipal Water Dist. (2019) 7 Cal.5th 372, 380 [247 Cal. Rptr. 3d 619, 441 P.3d 870] (Plantier)*.) The first of these measures was Proposition 13, approved by voters in 1978, which limited ad valorem property taxes to 1 percent of a property's assessed valuation, and limited annual increases in valuation to 2 percent without a change in ownership. (*Ibid.*; *Jacks v. City of Santa Barbara (2017) 3 Cal.5th 248, 258–259 [219 Cal. Rptr. 3d 859, 397 P.3d 210]*; *art. XIII A, §§ 1*, *2*.) In the years following Proposition 13, local government agencies were able to circumvent Proposition 13's limitations by labeling a levy a "'special assessment,'" rather than "'special tax.'" (*Plantier, at p. 381*; see *Jacks, at p. 258*; *Apartment Assn. of Los Angeles County, Inc. v. City of Los Angeles (2001) 24 Cal.4th 830, 839 [102 Cal. Rptr. 2d 719, 14 P.3d 930]*.) To address these and related concerns, voters approved Proposition 218, which added *articles XIII C* and *XIII D to the California Constitution* in 1996. (*Plantier, at p. 381*.)

HN2 ***CA(1)*** **(1)** "*Article XIII C* concerns voter approval for many types of local taxes other than property taxes," while *article XIII D* "imposes distinct procedural **[*250]** and substantive limitations" on property-related assessments, fees, and charges. (*Plantier, supra, 7 Cal.5th at p. 381*.) We are concerned with section 6 of article XIII D, which imposes procedural and substantive limitations on property-related fees and charges, as opposed to section 4 of the article, which governs assessments. (*Plantier, at p. 381*.)

HN3 ***CA(2)*** **(2)** Section 6(a) sets forth the procedures an agency **[**24]** must follow before "imposing" a property-related fee or charge. (*Plantier, supra, 7 Cal.5th at p. 381*.) The agency must hold a public hearing and send written notice of the hearing to the owner of each affected parcel, specifying the amount of the proposed fee or charge, the

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[5] Concurrent with its response to City's supplemental brief, Class filed a motion asking this court to take judicial notice of City's October 14, 2024 letter to the California Supreme Court in support of Otay's petition for review in *Coziahr, supra, 103 Cal.App.5th 785*, review denied October 23, 2024, *S286596*. City does not oppose the request, and we grant it. (*Evid. Code, §§ 452, subd. (d)*, *459*; *Brosterhous v. State Bar (1995) 12 Cal.4th 315, 325 [48 Cal. Rptr. 2d 87, 906 P.2d 1242]* [appellate court may take judicial notice of matters not before the trial court]; *Deveny v. Entropin, Inc. (2006) 139 Cal.App.4th 408, 418 [42 Cal. Rptr. 3d 807]* [party requesting judicial notice must show the matter is "both relevant to and helpful toward resolving the matters" before the court].) Class argues City's letter "directly contradicts" City's argument in its supplemental brief that *Coziahr* "'has little relevance to this case'" because, in the letter, City argues "the legal standards and rulings applied" in *Coziahr* and this case are similar. Although the letter is of marginal relevance because it echoes the arguments City makes in its supplemental brief, the letter is helpful to our understanding City's arguments, and thus, to resolving the issues on appeal. We therefore judicially notice the letter but not the truth of its factual assertions. (*Ragland v. U.S. Bank National Assn. (2012) 209 Cal.App.4th 182, 193–194 [147 Cal. Rptr. 3d 41]*.)

basis of its calculation, the reason for it, and the date, time, and location of the hearing. (§ 6(a)(1); *Plantier, at p. 381*.) At the hearing, the agency "shall consider all protests," and "shall not impose the fee or charge" if a majority of the property owners present written protests. (§ 6(a)(2); see *Plantier, at p. 381*.)

HN4 *CA(3)* **(3)** Section 6(b) sets forth substantive limitations on property-related fees and charges. At issue here is "the substantive proportionality requirement" of section 6(b)(3), which provides: The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership "'*shall not exceed the proportional cost of the service attributable to the parcel*.'" (*Plantier, supra, 7 Cal.5th at p. 382*.) Section 6(b)(3) "concerns the *method* used to allocate a property-related service's aggregate cost among fee payors" and "'ensures that the aggregate fee collected on all parcels is … in proportion to the cost of service for each parcel.'" (*Plantier, at p. 382*.) These costs of service "includes all the required costs of providing service, short-term and long-term, **[**25]** including operation, maintenance, financial, and capital expenditures." (*Howard Jarvis Taxpayers Assn. v. City of Roseville (2002) 97 Cal.App.4th 637, 648 [119 Cal. Rptr. 2d 91]*.) In a legal action challenging the validity of a fee or charge under article XIII D, section 6(b)(5) places the burden of proof on the agency to show that the fee or charge complies with the article.

HN5 *CA(4)* **(4)** The other substantive limitations are as follows: (1) "revenues from fee 'shall not exceed the funds required to provide the … service,'" (2) the revenues "'shall not be used for any purpose other than that for which [the] fee … was imposed,'" (3) the fee or charge "'may [not] be imposed' unless [the] 'service is actually used by, or [is] immediately available to'" the property owner, and (4) the fee or charge may not be "'imposed for general governmental services,'" where the "'service is available to the public at large in substantially the same manner' as property owners." (*Coziahr, supra, 103 Cal.App.5th at p. 795, fn. 6*.)
[*251]

2. Palmdale *and* Capistrano

(a) Palmdale

In *Palmdale*, the City of Palmdale sued the Palmdale Water District (PWD), claiming the PWD's water rates violated section 6(b)(3) in several respects. (*Palmdale, supra, 198 Cal.App.4th 926*.) The PWD served a population of 145,000 with 26,000 service connections, and its customers used water in the following percentages: **[**26]** SFR (72 percent); commercial/industrial (10 percent); MFR (9 percent); irrigation (5 percent), and construction and other customers, including schools and municipalities (4 percent). (*Id. at p. 928*.)

Based on a rate study, the PWD adopted a rate structure designed to recover 75 percent of the PWD's costs of providing water service from a fixed monthly service charge and to recover the other 25 percent from a "per unit commodity charge" based on the volume of water used. (*Palmdale, supra, 198 Cal.App.4th at pp. 928–930*.) The amount of the commodity charge depended upon the customer's adherence to the PWD's "allocated water budget" for a member of the customer's class. (*Id. at p. 930*.) All customers paid "tier 1" rates at the same price for up to 100 percent of the customer's budget allocation. (*Ibid.*) Thereafter, the commodity charges increased, at varying amounts, depending on the customer class. (*Palmdale, at pp. 929, 937*.) Irrigation customers were charged higher per unit rates, beginning at 130 percent of their budget allocation, while SFR and MFR customers were not charged the higher rates until their usages exceeded 175 percent of their budget allocations, and commercial customers were charged the higher rates after they exceeded 190 percent of their **[**27]** budget. (*Ibid.*)

In the litigation, the PWD did not attempt to show that the disparities in rates between the customer classes, at the levels of usages stated, were attributable to "*a corresponding disparity in the cost of providing water to these customers at such levels*." (*Palmdale, supra, 198 Cal.App.4th at p. 937*, italics added.) *Palmdale* noted that the PWD's irrigation customers were designated "'irrigation only' users," but the PWD did not "segregate the recognized outdoor and irrigation usage of its other customers such as residential or commercial users." (*Ibid.*, italics omitted.) As a result, residential (SFR and MFR) and commercial users "(constrained only by [their] historical three-year average usage) could waste or inefficiently use water … without the same proportional cost because of the significant disparity in tiered rates for water use in excess of the customer's allotted water budget." (*Ibid.*) Under this

rate structure, an "irrigation-only" user was paying higher rates for "maintaining playing fields, playgrounds, and parks, for example … without a corresponding showing" that the higher rates were based on higher costs. (*Ibid.*)
[*252]

CA(5) **(5)** Thus, *Palmdale* held the PWD did not meet its burden of showing that its rates complied with **[**28]** section 6(b)(3). (*Palmdale, supra, 198 Cal.App.4th at pp. 936–937*.) *Palmdale* also rejected the PWD's claim that *article X, section 2*, which prohibits "'the waste or unreasonable use'" of water, excused the PWD's failure to comply with section 6(b)(3). HN6 *Article X, section 2*, "is not at odds with *article XIII D* so long as, for example, conservation is attained in a manner that 'shall not exceed the proportional cost of the service attributable to the parcel.'" (*Palmdale, at pp. 935, 936–937*.)

(b) Capistrano

In *Capistrano*, the City of San Juan Capistrano, like City here, served as its own municipal water district, and was referred to in the case as "'City Water.'" (*Capistrano, supra, 235 Cal.App.4th at p. 1498*.) City Water adopted a rate structure, recommended by B&V and Ann Bui, City's consultant and expert in this case, based on "a pattern generally recommended" in the M1 manual. (*Ibid.*) City Water first identified its customer classes (e.g., residential, construction, agricultural); then, for each class, City Water calculated four usage budgets: low, reasonable, excessive, and very excessive. (*Ibid.*) The four usage budgets were based on "historical data for usage patterns" and served as the "basis for four distinct 'tiers' of pricing." (*Id. at p. 1499*.)

For residential customers, tier 1, the low budget, was assumed to be for indoor usage only; tier 2, the reasonable budget, included "an outdoor allocation **[**29]** based on 'typical landscapes'"; and tiers 3 and 4 were for excessive and very excessive usages of water. (*Capistrano, supra, 235 Cal.App.4th at p. 1499*.) The tiered rates were designed to make the rate structure revenue neutral; that is, to ensure that total revenues would not exceed the total costs of providing water service to all customers. (*Ibid.*; § 6(b)(1).)

Capistrano held City Water did not meet its burden of showing that its tiered rates for SFR customers satisfied section 6(b)(3) because City Water "did not try to calculate the cost of actually providing water at its various tier levels. It merely allocated all its costs among the price tier levels, *based not on costs, but on predetermined usage budgets*." (*Capistrano, supra, 235 Cal.App.4th at p. 1498*, italics added; see *id. at pp. 1516–1517*; § 6(b)(3).)

CA(6) **(6)** *Capistrano* observed that, HN7 when water customers are charged based on their levels of usage, section 6(b)(3) "requires public water agencies to calculate the actual costs of providing water at [these] various levels of usage." (*Capistrano, supra, 235 Cal.App.4th at p. 1497*; see *Bighorn-Desert View Water Agency v. Verjil (2006) 39 Cal.4th 205, 221 [46 Cal. Rptr. 3d 73, **[*253]** **[*254]** 138 P.3d 220]*.) That is, Proposition 218 requires water agencies to "figure out the true cost of water, not simply draw lines based on water budgets." (*Capistrano, at p. 1511*.) *Capistrano* also recognized that section 6(b)(3) allows agencies to "pas[s] on the true, marginal cost of water to those consumers **[**30]** whose extra use of water forces water agencies to incur higher costs to supply that extra water." (*Capistrano, at p. 1516*.) But the "fractional precision" between the four tiers in *Capistrano*—the difference between tier 1 and tier 2 was "a tidy one-third extra"—indicated that *the tiers were not based on the costs* of providing water service at the usage levels represented in the tiers. (*Id. at p. 1504*.)

Like *Palmdale*, *Capistrano* also rejected City Water's argument that "the 'cost-of-service principle of Proposition 218' must be 'balance[d]' against 'the conservation mandate of *article X, section 2*.'" (*Capistrano, supra, 235 Cal.App.4th at pp. 1508, 1510* ["[N]othing in *article X, section 2*, requires water rates to exceed the true cost of supplying that water, and in fact pricing water at its true cost is compatible with the article's theme of conservation with a view toward reasonable and beneficial use."].)

3. *The Trial Court's Phase I Statement of Decision*

In its Phase I statement of decision, the trial court concluded based on its "independent review" of the record that City's tiered rates for SFR customers suffered from "the same constitutional flaws identified" in *Palmdale* and

Capistrano. The court noted *Capistrano* "held that water rates that do not **[**31]** correlate with the actual cost of providing water at those tiered levels violate Proposition 218," and *Palmdale* held that, "water districts cannot discriminate against certain classes of customers by charging them less, and others more, when the inequality cannot be justified by the cost of providing water to those classes."

Regarding City's burden of proof, the court said City had the burden of proving "by substantial evidence that withstood the trial court's independent review," that City charged SFR customers "the actual cost of providing water at those tiered levels for a given parcel." (See *Capistrano, supra, 235 Cal.App.4th at p. 1507* ["[I]t is not enough that the agency have substantial evidence to support its action. That substantial evidence must itself be able to withstand independent review."]; see § 6(b)(5).) The court found City did not meet this "demanding standard for the straightforward reason that it never did the work necessary to base its pricing methodology on actual customer data. Indeed, the City's expert [(Bui)] (the same consultant as in *Capistrano*) admits that the City never did that work because it would have cost the City more money. It's apparently far more cost effective for the City **[**32]** to follow an industry manual than to obtain and use customer data. And that is what City **[*254]** did here, even after *Capistrano* rejected that approach. To be sure, water districts may use the M1 manual as a resource, but mere adherence to national guidelines do not prove compliance with California's substantive proportionality requirement."

The court concluded there was "no evidence in the record to substantiate that the City's particular tiered rates actually reflect the costs of delivery to a given parcel." The court made several factual findings, which we discuss by category.

City's Conservation Goals. The court found the record showed that City's purpose in imposing tiered rates for SFR customers, in 2014 and 2016, was to "'encourage conservation'" rather than to base rates on costs. The court pointed to Bui's admission in her deposition testimony that the purpose of City's SFR tiered rate structure was not to "recoup the variable costs" of different levels of water use but to "'encourage conservation.'" Bui also testified that City instructed B&V to "maintain" tiered rates for SFR customers in the 2013 and 2015 COSSs, and that City "'did not want to change'" from tiered rates for SFR customers. **[**33]** Bui also confirmed that the purpose of the new, zero to four HCF tier 1, in the 2013 COSS, was "to provide an 'incentive for those who conserve.'"

Tier 1 Is Not Based on the Lower Cost of Local Water Supplies. The court also found no evidence to support the statements in the 2013 and 2015 COSSs that the lower, zero to four HCF tier 1, first imposed in 2014, was based on City's lower cost of obtaining water from City's local supply sources, as opposed to City's more expensive supplies from other sources. Bui conceded, in her rebuttal report and deposition, that City's local supplies were "not enough to cover all tier 1 water use." And, even if it was, the court reasoned, "because the City commingles all of its water and delivers it to customers using the same infrastructure, the City cannot ensure that higher-cost 'alternative sources of supply' are being delivered to customers whose use led to the City's 'greater investments' in those sources of supply."

The court noted Bui agreed with Class's expert, Smith, that "tying tiered pricing to the cost of source of supply 'would be impossible'—especially with regard to the City's local water supply, which is unpredictable and 'may provide **[**34]** anywhere between 0 percent and 15 percent of City's [aggregate] water needs in any given year.'" Bui also admitted City had "never" delivered local supplies of water "to tier 1 SFR customers only." Based solely on City's failure to present evidence supporting City's "source-of-supply justification" for its 2014 and 2016 Tier 1 rate, the court found City's 2014 and 2016 tiered rates did not comply with section 6(b)(3).
[*255]

The Tier Breakpoints Are Based on Usage Budgets, Not Costs. The court also found that the breakpoints between the SFR tiered rates were not based on costs but on usage budgets and "the assumed use of water" by SFR customers, as in *Capistrano*. The court noted Bui admitted the "'AWWA household usage survey data,'" which estimated "'typical'" indoor, outdoor, and excessive usages for an SFR of two persons, was "not specific to San Diego's [SFR] customers," and City pointed to "no evidence" that the 19th and 20th HCF of water delivered to an SFR customer cost "over 200 percent more than the cost of delivering the first and second HCF to that same customer." Further, B&V looked to "the *irrigation class's* usage patterns" in setting the rates for Tiers 3 and 4

because B&V "assumed" that usage **[**35]** in Tiers 3 and 4 was "for landscaping." But City pointed to "no evidence" to support this assumption, and "worse still," City charged SFR customers "more for water above 12 HCF" than irrigation customers. The court observed that, in 2014, the Tier 4 rate was "precisely" 2.25 times the Tier 1 rate; and, in 2016, this multiplier was "almost exactly" 2.25, indicating that the rates were not based on costs. Under the 2014 and 2016 rate structures, SFR customers were charged 225 percent more for usage in Tier 4 than in Tier 1, while all other customer classes were charged "approximately the Tier 2 rate for all usage, regardless of volume."

Unsupported Peaking Factor Analysis. Next, the court found the record did not support City's claim that B&V's use of the "M1 Manual's base-extra capacity peaking factor method" in allocating costs to the SFR tiers, and to set the tiered rates, showed that the tiered rates did not exceed the costs of delivering water at the tiered usage levels. (§ 6(b)(3).) The court wrote: "City's justification for using this method is that the City incurs 'greater costs' to size its water system to meet customers' demands at peak times—on the day and at the hour of highest **[**36]** use—'than it would if all customers always received water at a uniform rate of use,' and that the customers who cause that peak demand should be made to bear the cost of sizing the system to meet it. [Citation.]

"The base-extra capacity method, which provides for calculating 'peaking factors' based upon 'maximum day' and 'maximum hour' usage—that is, the amount of water used on the day and at the hour of maximum usage for the water system—purports to 'allocate these higher peak demand costs to those customers who exhibit the greatest peaking behavior,' and are thus responsible for causing the City to incur those extra costs. [Citation.] For example, as [Bui] explains, '[r]esidential customers typically would have high water usage in the morning due to shower and other morning chores … .' … 'Max Day extra capacity consumption … typically occurs on the hottest day of the year.' … Peak use, therefore, depends on *when* the water is used, not on the overall volume used in a monthly or bi-monthly period, and relies on the assumption that water costs more to deliver at different times."
[*256]

The court reasoned: "The problem with this theory is that the peaking factor ratios and the **[**37]** cost allocations are not based on actual data." Bui admitted City "did not know when customers used water," and City "did not perform the studies necessary to collect that information." City's "explanation for its lack of data" was that it is "'very expensive to do customer demand studies to determine Max Day and Max Hour Extra Capacity factors.'" Although, in 2021, City was in the process of implementing "Advanced Metering Infrastructure which would enable it to track customer [time of] use," at the time of the 2013 and 2015 ratemakings, City did not track customers' hourly and daily usage (i.e., City did not have "time-of-use data"). Bui testified, "At the time of the studies [(the 2013 COSS and 2015 COSS)], *we did not have that level of granularity*, no … . [¶] … [W]e did not have the metering capability." (Italics added.)

Bui also admitted that the "'peak factors' in the City's Master Plan are simply the historical maximum day and maximum hour usage ever observed at each facility for *all* users." But the master plan did not "break down" Max Day or Max Hour data by customer class and, because all customers use water from the same facilities, City did not know "whether or how **[**38]** much" SFR customers "contributed to those peak usage levels." Thus, the court found that City did not, and could not, "know whether the demand levels it used to set the [SFR] rates even came from [SFR] customers" and not from other customer classes. "Despite" the lack of supporting data, B&V used peaking factors of 1.5 for Max Day and 2.25 for Max Hour "demand" set forth in City's master plan. "[B&V] then used these peaking factors to allocate nearly half of peak day costs, and all of peak hour costs to [SFR] customers in Tiers 3 and 4."

The court found City's justification for the Tier 3 and Tier 4 rates appeared to be the "assumption that those users are 'more likely' to be using water at peak times than average and below average users because they use a higher total volume of water in a given period." But the court found the record did not support this assumption: Bui admitted Tier 1 and Tier 3 SFR customers, and all other customers, "also used water during peak day and peak hour times, thus contributing to the need for the maximum system capacity." Yet, the City did not charge non-SFR customers tiered rates. Bui conceded that MFR customers exhibited the same peaking factors **[**39]** as SFR customers, and that irrigation and construction customers exhibited "*much higher* peaking factors" than SFR customers; thus, these customers "contribut[ed] *more* to the need for maximum system capacity" than SFR customers.

In sum, the court found "the peaking factors do not reflect the actual cost of service to a given parcel given that *all* [SFR] users," and non-SFR customers, used water at peak times. City did not "produce any evidence" **[*257]** that SFR users in Tiers 3 and 4 were any more "responsible for peak" use than SFR users in Tiers 1 and 2, or other customers. That is, City's pricing differentials, both between customer classes, and among the SFR tiers, were not "explained by time of use."

Price Discrimination Against the SFR Customer Class. Last, the court found City's tiered rates for SFR customers discriminated against SFR customers in favor of irrigation customers, in violation of *Palmdale*. The court found City did not articulate "an adequate cost-based justification for using a tiered-rate structure for [SFR customers] and a flat rate" for other customer classes. The court rejected City's claim that tiered rates for SFR customers were justified because SFR customers were relatively **[**40]** homogenous in size and usage. The court noted SFR customers "using more than 12 HCF of water per month because they have large homes and large families are charged for water services at Tier 3 or 4 rates—even if 'they use water efficiently for their size'"; thus, City was not justified in charging other customers lower, flat rates for unlimited usage based on the assumption they used water efficiently for their size. The court concluded that "City impose[d] these disproportionate rates on [SFR] Tier 3 and 4 users, 'without any showing … of a corresponding disparity in the cost of providing to these customers at such levels.'" (See *Palmdale, supra, 198 Cal.App.4th at p. 937*.)

Conclusion. In sum, the court found, based on its "independent review of the evidence," that City's 2014 and 2016 tiered water rates were not "proportional to the cost of service attributable to each customer's parcel, as required by Proposition 218." The court elaborated: "[T]he record shows plainly that the City charges [SFR] customers more for the same water that it delivers to all other customer classes, regardless of the time of day or the burdens their use places on the system. This practice, the court finds, fails to show compliance with the requirements of Proposition 218."

4. **[**41]** Coziahr

Coziahr involved a section 6(b)(3) challenge to the Otay Water District's tiered rates for SFR customers. (*Coziahr, supra, 103 Cal.App.5th at pp. 789, 803*.) The plaintiffs comprised a certified class of "'[a]ll [SFR] customers of the Otay Water District who received water service' after July 14, 2014." (*Id. at pp. 792–793*.) In 2013, Otay adopted tiered rates based on a 2013 rate study by WS Atkins (Atkins), which followed the "best management practices" of the M1 Manual and the California Urban Water Conservation Council. (*Id. at p. 803*.) These practices promote "'water conservation rate structures'" and recommend that water agencies recover no more than 30 percent of their revenues from fixed charges in order to "'achieve conservation pricing,'" which "'provides economic incentives (a price signal) to **[*258]** customers to use water efficiently.'" (*Id. at pp. 803–804*.) Under these practices, agencies seek to recover 70 percent of their revenues from tiered rates, at increasing price levels, and the higher the rate, the stronger the conservation incentive (price signal). (*Ibid.*)

Based on a "'water usage analysis'" of Otay customer usage during the prior year, the Atkins 2013 rate study calculated winter and summer month usage averages for Otay's SFR customers. (*Coziahr, supra, 103 Cal.App.5th at p. 804*.) The winter average of **[**42]** 10 HCF was for "'estimated interior water usage'" and was used as the Tier 1 breakpoint. (*Ibid.*) The summer average, 22 HCF, "'equate[d] to normal interior plus exterior water usage'" and became the Tier 2 breakpoint. The Tier 3 breakpoint of over 22 HCF was "'considered to be excessive and for irrigation.'" (*Ibid.*) With these breakpoints, 14 percent of SFR water usage was in the Tier 3 category. (*Ibid.*)

Next, the Atkins 2013 rate study established a price for each tier, using the "'base-extra capacity cost allocation methodology'" and AWWA guidelines. (*Coziahr, supra, 103 Cal.App.5th at p. 804*.) This method divided "'consumption-related cost … into the base, maximum-day, and maximum-hour cost of service.'" (*Ibid.*) "Block 1" or Tier 1 pricing was set just below the average cost of water; Tier 2 pricing was set just above the average cost, and Tier 3 pricing was "'set at a higher price differential.'" (*Ibid.*) The Atkins's 2013 rate study "elaborated that above-average users use a 'larger portion of the … system' and should pay for the 'extra capacity to serve their needs,' noting '[a]ll water systems must be designed for peak … use, not average use.'" (*Ibid.*) The Atkins 2013 rate study stated that, according to **[**43]** the AWWA, "'block 2 should be set at a level 30 percent higher than block 1 to

reflect the cost incurred for increased capacity costs and supply purchases. Block 3 is then set at a price differential of 2 times the rate of block 1 because the capacity requirement is twice that of block 2 (e.g., single family block 1 breakpoint is 10 HCF and block 3 begins at 23 HCF.)'" (*Ibid.*)

Otay's board of directors approved the proposed rates at meetings in early 2013. (*Coziahr, supra, 103 Cal.App.5th at p. 804*.) In those meetings, Otay's finance manager said the tiers were "'created to promote conservation,'" and an Atkins representative said, "'You wish to have 10 to 15 [percent] of your users within tier III, top water users, to encourage conservation.'" (*Id. at p. 805*.) When asked "if Otay gave 'any thought to those customers with larger lots who have implemented efficient landscaping, but are still paying the highest tier,'" Otay's chief financial officer responded that, "'customers on larger lots will pay the higher water rate due to their consumption. It is a lifestyle choice.'" (*Ibid.*)

In 2017, Otay hired HDR Engineering, Inc. (HDR), to review Otay's water rates "in light of 'recent court decisions' and the 'need to continue to **[*259]** maintain cost-based **[**44]** water rates.'" (*Coziahr, supra, 103 Cal.App.5th at pp. 792, 805*.) HDR asserted that its approach did not consider "'noncost-based goals,' like conservation," and HDR had developed "'peaking factors' to capture demand" for each customer class and SFR tier. (*Id. at p. 805*.) In a 2017 rate study, HDR eliminated Tier 1 for SFR customers, noting it was "'put in place to encourage efficient use'" but "'non-cost based pricing tiers [had] recently [been found] to be illegal,'" and the tier 1 rate "resulted in 'two different prices for essentially the same volume of water … .'" (*Ibid.*) But HDR concluded that the sizes of the other tiers "'remained relevant and appropriate'" based on "'consumption data'" and the 2013 Atkins rate study. (*Ibid.*) HDR noted "'additional cost detail was needed … to justify the cost-basis' for the tiered rates" and concluded that Otay's Tier 1 and Tier 3 pricing was too high, and its Tier 2 pricing was below cost. (*Ibid.*) Thus, HDR recommended revised tier pricing, and noted that "'high-use customers'" would see lower bills, mainly due to "'the reduction of the tail block price to a cost-based level.'" (*Id. at p. 806*.) HDR also recommended moving commercial and irrigation customers to **[**45]** uniform rates. (*Ibid.*) At an April 2017 meeting of Otay's board of directors, an HDR representative indicated that SFR customers were not moved to uniform rates because their rates "'should encourage efficient use'" and conservation. (*Ibid.*) Otay's board later approved HDR's recommended rate structure. (*Ibid.*)

As noted, in its 2017 rate study, HDR stated it had "developed 'peaking factors' to capture [maximum day and hour] demand for each customer class and SFR tier." (*Coziahr, supra, 103 Cal.App.5th at p. 805*.) The "'key assumption'" of HDR's peaking factor analysis was that the water system "'must be built to … meet the demand of higher use customers.'" (*Ibid.*) At trial in *Coziahr*, the parties presented competing expert testimony.

Otay's expert, Jason Mumm, an executive consultant at a firm specializing in municipal water rate development, opined that the 2013 and 2017 rates studies showed that the tiered SFR rates "'result[ed] in a proportional allocation of costs among classes based on customer and demand-related factors.'" (*Coziahr, supra, 103 Cal.App.5th at pp. 793, 806*.) As evidence that the SFR tier prices were cost-based, Mumm cited "the 'difference in peak requirements'" and Mumm's "'independent analysis'" finding **[**46]** that the rates were materially "proportional to costs." (*Id. at pp. 806–807*.) The plaintiffs' expert, David Vondle, "a management consultant with experience in utility-related matters," disagreed with Mumm's claim that the 2013 rate study used "a peaking factor concept"; noted that Mumm's analysis "focused primarily" on the 2017 HDR rate study, not the 2013 Atkins study; and disagreed with Mumm's conclusion that Otay's rates were cost-proportional in compliance with section 6(b)(3). (*Coziahr, at pp. 793, 807*.)
[*260]

The trial court in *Coziahr* found that "Otay did not provide substantial evidence that its 2013 and 2017 tiered water rates were proportional to the cost of providing water service." (*Coziahr, supra, 103 Cal.App.5th at p. 807*.) In setting the tiered rates, the trial court noted Otay "merely 'followed AWWA guidelines'" in setting, for example, Tier 2 "'exactly 30 [percent] higher than Tier 1.'" (*Ibid.*) The trial court noted that adherence to the AWWA industry standards did not show that the tiered rates did not exceed the proportional costs of delivering water at the tiered usage levels. (*Ibid.*)

The trial court also noted that Atkins "'candidly acknowledge[d]'" that dividing costs into base and extra capacity costs, and setting the tiers below and above those costs, was to **[**47]** "'promote conservation.'" (*Coziahr, supra, 103 Cal.App.5th at p. 807*, italics omitted.) HDR admitted that "'higher-use customers had been charged more than the cost of service'"; and the 2017 rate study was "'also based on non-cost objectives such as conservation.'" (*Ibid.*) The trial court found that, although Otay addressed "'the admittedly below-cost conservation tier,'" Otay did not address "'the underlying flaws' in the rate structure," and "'kept the other tiers'" while failing to address whether the other tiers were "'proper based on the cost of … service.'" (*Ibid.*) The trial court found HDR "'worked backwards to try to justify' the tiers with 'AWWA's "peaking factors" methodology,'" but as plaintiffs' expert Vondle noted, HDR did not develop "'"additional cost detail"'" through studies of the Otay system. (*Ibid.*)

Applying the independent judgment standard of review, *Coziahr* concluded that Otay did not show that its tiered rates for SFR customers, and uniform rates for other customers, were cost based, and substantial evidence supported the trial court's findings on disputed issues of fact. (*Coziahr, supra, 103 Cal.App.5th at pp. 798–800, 808–819*.) In rejecting Otay's claims, *Coziahr* made six points relevant to City's **[**48]** section 6(b)(3) claims here. First, *Coziahr* held the record supported the trial court's finding that Otay failed "'to correlate its tiered prices with the actual cost of providing water at those tiered levels.'" (*Coziahr, at p. 808*; see § 6(b)(3), (b)(5).) Citing *Capistrano*, *Coziahr* agreed that "Otay's SFR tiered rate structure rested on nonspecific data and assumptions, rather than on the actual cost of providing water service to the parcel." (*Coziahr, at p. 808*.) The court noted Atkins "'followed AWWA guidelines in setting Tier 2 exactly 30 percent higher than Tier 1, and Tier 3 at exactly 100 [percent] more than Tier 1.'" (*Id. at p. 809*.) As in *Capistrano*, these "precise percentages" indicated that Otay's 2013 SFR tiered rates were not cost based. (*Ibid.* ["'fractional precision' between the tiers 'suggested … [the agency] did not attempt to correlate its rates with cost of service,' as 'mathematical tidiness is rare in multidecimal-point calculations'"]; see *Capistrano, supra, 235 Cal.App.4th at pp. 1504–1505*.) **[*261]** Otay also had "'"no objective evidence"' based on Otay['s] system data" to support the precise percentage differentials between the tiers. (*Coziahr, at p. 809*.)

CA(7) **(7)** Second, following *Palmdale* and *Capistrano*, *Coziahr* rejected Otay's reliance on the water conservation mandate **[**49]** of *California Constitution, article X, section 2*, in defending Otay's rate structures. (*Coziahr, supra, 103 Cal.App.5th at pp. 810–811*.) *Coziahr* stressed that ***HN8*** pricing water "'at its true cost'" in accordance with section 6(b)(3), is "'compatible with'" article X, section 2's "'theme of conservation with a view toward reasonable and beneficial use.'" (*Coziahr, at p. 810*.)

Third, *Coziahr* rejected Otay's argument that its consultants properly relied on the M1 Manual in setting Otay's 2013 and 2017 rate structures. In contrast to *Capistrano*, where the agency made no attempt to tie its tiered rates to its cost of service, Otay used the M1 Manual's "'engineering principles to identify and allocate' costs, based on peak demands." (*Coziahr, supra, 103 Cal.App.5th at p. 812*.) In sum, *Coziahr* held the record supported the trial court's finding that the 2013 and 2017 rate studies did not show that Otay's tiered rates for SFR customers were based on costs of service to SFR customers. (*Id. at pp. 811–812* ["The trial court properly recognized that under California law, reliance on the M1 Manual [to establish water rates], without more, is insufficient."].)

Fourth, *Coziahr* concluded that Otay's tiered rates "discriminated against SFRs, in violation of *Palmdale*." (*Coziahr, supra, 103 Cal.App.5th at p. 812*.) In *Palmdale*, irrigation customers were charged higher tiered rates "without a 'corresponding disparity' in costs." (*Ibid.*) Otay offered no "'cogent **[**50]** reason for this differential treatment.'" (*Id. at pp. 813–814*.) The "'only explanation'" for the disparity in rates between customer classes was Otay's decision "'to keep non-cost-based rates'" for SFR customers "'to "encourage efficient use."'" (*Id. at p. 814*.)

Fifth, *Coziahr* rejected, as unsupported by the record, Otay's argument that Atkins and HDR used peaking factors (i.e., ratios meant to capture peak versus average demand) to justify Otay's tiered rates for SFR customers. (*Coziahr, supra, 103 Cal.App.5th at pp. 814–815*.) The Atkins 2013 rate study "did not expressly apply a peaking factor analysis" and "did not identify peaking factors or describe any allocation of costs to base or extra capacity categories." (*Id. at p. 815*.) And, although the HDR 2017 rate study indicated that it applied peaking factors "at both the cost of service and ratesetting steps," "there was no evidence Otay 'determined actual peaking costs' and allocated them to 'customers actually causing' increased system costs." (*Ibid.*) Vondle opined that HDR "'arbitrar[ily]

misallocat[ed]' expenses as extra **[*262]** capacity costs, such as bulk water purchases, and that 'without time-of-use-meters,' [and] Otay had no way to identify customers with higher use periods." (*Id. at p. 815*; see *id. at pp. 793, 814–815*.) Vondle contrasted this with electrical utilities, **[**51]** where there was a "'legitimate higher cost of "peak" use,' and they used time-of-use meters to allocate costs based on particular customers' energy use." (*Id. at pp. 815–816*.)

Coziahr agreed with the trial court that HDR's peaking factor analysis was "'flawed for two main reasons.'" (*Coziahr, supra, 103 Cal.App.5th at pp. 816–818*.) One, there was no evidence in the record that "'there is a difference in the cost of water used during high-use or low-use times.'" (*Id. at p. 816*.) That is, the record did not show that "the costs characterized as extra capacity, such as water purchase[d] and infrastructure," were disproportionately greater for larger volumes or uses of water. (*Ibid.*) Two, Otay did not collect "'time-of-use data'"; thus, Otay could not have charged customers more based on their peak demand, or *when* they used water. (*Ibid.*) Citing *Capistrano*, *Coziahr* noted that "'peak use depends on *when* the water is being used,' not [the] '*overall quantity* [of water used] … .'" (*Ibid.*) Thus, *Coziahr* held that Otay did not establish that peaking-related costs existed, and if they did, Otay did not have the time-of-use data needed to allocate such costs. (*Id. at p. 817*.)

Coziahr rejected Otay's claim that Otay's "use of 'data connecting customers' seasonal patterns of use to **[**52]** peak demands' and 'reasonable estimates' [were] sufficient to support its peaking analyses … ." (*Coziahr, supra, 103 Cal.App.5th at p. 817*.) *Coziahr* emphasized that the trial court was entitled to accept Vondle's opinion that there was "*no evidence … , not simply no time-of-use data*," showing that HDR's 2017 rate study and peaking analysis properly allocated costs based on peak usages, and therefore, that Otay's rate structure was cost based. (*Ibid.*, some italics added.)

Coziahr also rejected Otay's claim that the trial court erroneously credited Vondle's opinion that Otay "could not use a peaking justification without time-of-use data," reasoning that Otay was asking the court to "reweigh the evidence and reach a different factual conclusion" than the trial court, which the court could not do. (*Coziahr, supra, 103 Cal.App.5th at p. 817*.) Vondle opined that Mumm's independent analysis did "'not show that HDR's cost allocation method [was] correct; it only show[ed] that Mr. Mumm's cost allocation methodology [was] the same as HDR's,' and because they both 'use the same flawed cost allocation … both are incorrect.'" (*Id. at p. 818*.) *Coziahr* reasoned, "[t]he trial court's key findings" that Mumm "replicated the flawed HDR study, and provided an unsupported, post hoc rationalization **[**53]** … are consistent with the record, and support the court's rejection of his analysis without more." (*Id. at p. 819*.) Thus, *Coziahr* concluded Otay did not **[*263]** establish that the SFR tiered rates Otay set during its 2013 and 2017 ratemaking processes complied with section 6(b)(3). (*Coziahr, at p. 819*.)

B. *The Standard and Burden of Proof Under Section 6(b)(3) Is Not Reasonableness*

HN9 ***CA(8)*** **(8)** In any legal action concerning the validity of a property-related fee or charge, section 6(b)(3) places the burden of proof on the agency to show that the fee or charge complies with *article XIII D*. City claims the *standard of proof* that is required of an agency to meet its burden of proof under section 6(b)(3)) is "reasonableness," and here, the trial court held City to an unspecified higher "quantity and quality of proof" than reasonableness. We find no merit to this claim.

First, under the reasonableness standard of proof, an agency would meet its burden of proving that a property-related fee does "not exceed the proportional cost of the service attributable to the parcel" (§ 6(b)(3)) if it shows (1) there is a reasonable basis for the fee, and (2) the fee is reasonably allocated among the fee payors or parcels. (See *California Building Industry Assn., v. State Water Resources Control Bd. (2018) 4 Cal.5th 1032, 1050–1053 [232 Cal.Rptr.3d 64, 416 P.3d 53] (California Building Industry Assn.)* [distinguishing reasonableness burden of proof for regulatory fees under *art. XIII A* from **[**54]** burden of proof for property-related fees under *art. XIII D*].) Thus, as applied here, the reasonableness standard of proof would mean that City met its burden of proof under section 6(b)(3) if it showed (1) there was a reasonable basis for its SFR tiered rates, and (2) City's costs of service attributable to the SFR customer class was allocated among the class members in a reasonable manner.

CA(9) **(9)** Second, City does not dispute that *HN10* the standard of *review* in section 6(b)(3) cases, both at trial and on appeal, is the independent judgment standard. (*Silicon Valley Taxpayers' Assn., Inc. v. Santa Clara County Open Space Authority (2008) 44 Cal.4th 431, 448–449 [79 Cal. Rptr. 3d 312, 187 P.3d 37] (Silicon Valley)* [independent judgment standard applies in reviewing Prop. 218 determinations]; *Coziahr, supra, 103 Cal.App.5th at p. 797*; *Capistrano, supra, 235 Cal.App.4th at p. 1507*.) As *Capistrano* explained: "*Silicon Valley* … clarified the standard of review for Proposition 218 cases" and "made it clear that in Proposition 218 challenges to agency action, the agency … bear[s] the burden of … demonstrating compliance with Proposition 218, and both trial and reviewing courts are to apply an independent review standard, not the traditional, deferential standards *usually* applicable in challenges to governmental action." (*Capistrano, at pp. 1506–1507* [To prove compliance with § 6(b)(3), it is not enough that the agency has substantial evidence to support its action; **[**55]** that evidence must "withstand independent review."].)
[*264]

City argues that, even though *Silicon Valley* established the standard of *review* for agency determinations under Proposition 218, it did not establish the substantive standard of proof under section 6(b)(3). City claims City satisfied this standard by showing it relied on "reasonably accurate data and reasonable assumptions" in setting the tiered SFR rates. That is, City claims there is a reasonable basis for its tiered rates, and those rates were reasonably allocated among SFR customers. To support its claim that the reasonableness standard (and burden) of proof applies in section 6(b)(3) cases, City relies on post-Proposition 218 cases, discussed below, in which City claims the Courts of Appeal, "clearly defined the standard of proof that the City must meet in this case as reasonableness." City argues: "Under this line of cases, the City meets its burden of proof if it puts forth evidence, satisfying this court's independent judgment, that the agency reasonably allocated the costs of service to each tier and then calculated tiered rates that reasonably reflect the City's cost of providing water service … at each tier."

City's claim that the standard or burden of proof under section 6(b)(3) is reasonableness was expressly **[**56]** rejected by the trial court here and later by the appellate court in *Coziahr*. We find *Coziahr*'s analysis of the reasonableness claim persuasive. As *Coziahr* explained, none of the cases City relies on here, which are the same cases Otay relied on in *Coziahr*, support the proposition that the standard of proof under section 6(b)(3) is reasonableness. (*Coziahr, supra, 103 Cal.App.5th at pp. 801–803*, discussing *Griffith v. Pajaro Valley Water Management Agency (2013) 220 Cal.App.4th 586, 600–601 [163 Cal. Rptr. 3d 243] (Griffith)*, *Morgan v. Imperial Irrigation Dist. (2014) 223 Cal.App.4th 892 [167 Cal. Rptr. 3d 687] (Morgan)*, *Capistrano, supra, 235 Cal.App.4th 1493*, and *Moore v. City of Lemon Grove (2015) 237 Cal.App.4th 363 [188 Cal. Rptr. 3d 130] (Moore)*.) We discuss these cases in turn.

In *Griffith*, the court affirmed a judgment that a water agency's groundwater augmentation charges were proportional to the agency's cost of service. (*Griffith, supra, 220 Cal.App.5th at pp. 600–601, 606*; § 6(b)(3).) City relies on language in *Griffith* that, "[a]pportionment is not a determination that lends itself to precise calculation," and "'[t]he question of proportionality is not measured on an individual basis. Rather, it is measured collectively, considering all rate payors.'" (*Griffith, at p. 601*.) *Griffith* also said: "Given that Proposition 218 prescribes no particular method for apportioning a fee or charge other than that the amount shall not exceed the proportional cost of the service attributable to the parcel, defendant's method of grouping similar users together for the same augmentation rate and charging the users according to usage is a reasonable way to apportion the **[**57]** cost of service. That there may be other methods favored by plaintiffs does not render defendant's method unconstitutional. Proposition 218 does not require a more finely calibrated apportion." (*Ibid.*)
[*265]

Capistrano addressed the reasonableness standard-of-proof claim before *Coziahr*. *Capistrano* concluded *Griffith* did not establish a reasonableness standard of proof under section 6(b)(3), if that standard would excuse the agency from complying with the proportionality mandate of section 6(b)(3): "When read in context, *Griffith* does not excuse water agencies from ascertaining the true costs of supplying water to various tiers of usage." (*Capistrano, supra, 235 Cal.App.4th at p. 1514*.) *Capistrano* explained that *Griffith* relied in part on inapposite, pre-Proposition 218 case law, and its comments on proportionality "necessarily relate[d] only to variations in property location, such

as what side of a water basin a parcel might fall into," and do not excuse water agencies from basing water charges on the "true costs of supplying water to various tiers of usage." (*Ibid.*; see *Coziahr, supra, 103 Cal.App.5th at p. 801* [accord].)

In *Morgan*, rate payers challenged an agency's water rates under section 6(b)(3), claiming among other things that the cost-of-service study upon which the rates were based **[**58]** was "based on poor quality data." (*Morgan, supra, 223 Cal.App.4th at p. 915*.) *Morgan* affirmed the judgment for the agency, concluding substantial evidence showed the agency's data was "reliable" because it was "reasonably dependable and adequate." (*Id. at pp. 915–918* ["In reviewing the record, it is clear that the adequacy of the data was a vehemently disputed factual issue at trial."].) On appeal, the plaintiffs "fail[ed] to articulate why the evidence [was] insufficient. Instead, they merely cite[d] to evidence they believe[d] show[ed] the District's data was inadequate … ." (*Id. at p. 916*.) The trial court found the agency's explanation of its data "more persuasive." (*Id. at pp. 916–918*.) *Morgan* noted that an agency's showing under section 6 "does not require perfection" (*id. at p. 918*), and the plaintiffs were "essentially asking [the court] to reweigh" conflicting evidence concerning the adequacy of the agency's data (*id. at p. 916*).

Similarly, in *Moore*, the plaintiffs claimed that a district's sewer service charges did not comply with section 6(b)(3) because the city, whose employees performed "most functions required for [the district] to operate," did not use "a reasonable methodology" in apportioning the city's costs attributable to providing the sewer services. (*Moore, supra, 237 Cal.App.4th at pp. 369–373*.) The trial court found the district and city **[**59]** adduced "ample evidence" that the sewer charges were "'based on [r]eliable estimates of time spent by City workers on sanitation issues,'" and that the methods used to apportion the city's costs were "'reasonable under the circumstances.'" (*Id. at pp. 372–374*.)

Moore agreed with the trial court's conclusion that the charges complied with section 6(b)(3). (*Moore, supra, 237 Cal.App.4th at pp. 373–375*.) As in **[*266]** *Morgan*, the plaintiffs in *Moore* did not present any evidence that the cost allocation methods were "illegal or otherwise improper," or violated section 6(b)(3). (*Id. at pp. 374–375*.) Instead, the plaintiffs argued the allocation methods were "unreasonable," "'too ad hoc,'" and "'not subject to any kind of objective criteria.'" (*Id. at p. 371*.) Based on its independent review of the record, *Moore* found the plaintiffs' arguments unpersuasive, and upheld the trial court's determination of no section 6(b)(3) violation. (*Moore, at pp. 373–375*.)

City also relies on *KCSFV I, LLC v. Florin County Water Dist. (2021) 64 Cal.App.5th 1015 [279 Cal. Rptr. 3d 678] (KCSFV)* for the undisputed principle that "'the section 6(b) fee or charge must reasonably represent the cost of providing service.'" (*Id. at p. 1029*, quoting *Howard Jarvis Taxpayers Assn. v. City of Roseville, supra, 97 Cal.App.4th at p. 648*; *Coziahr, supra, 103 Cal.App.5th at p. 801*; *Moore supra, 237 Cal.App.4th at p. 368*.) *KCSFV* held that the defendants did not meet their burden of showing that their rate increases did not "exceed what it costs to provide the water service," where the defendants relied solely on a *conclusory statement* in the notice of the proposed rate **[**60]** increases that the rates were based on the cost of service. (*KCSFV, at p. 1029*.)

Here, as in *Coziahr*, City "appears to derive its '[reasonableness] standard from select quotations'" from *Griffith*, *Morgan*, *Capistrano*, *Moore*, and *KCSFV*, and other "'Proposition 218 decisions that used the word "reasonable."'" (*Coziahr, supra, 103 Cal.App.5th at p. 801*.) "But the courts were not using the term 'reasonable' in defining a standard of proof. Rather, they were discussing the nexus between the rate and cost of service, or describing the record while reviewing it for substantial evidence." (*Ibid.*)

CA(10) **(10)** Moreover, in *California Building Industry Assn.*, a case involving *article XIII A*, our Supreme Court recognized that ***HN11*** an agency does not meet its burden of proof under section 6(b)(3) by showing that the fee or charge is "'reasonably allocated'" among property owners. (*Coziahr, supra, 103 Cal.App.5th at p. 800*, discussing *California Building Industry Assn., supra, 4 Cal.5th 1032, 1049–1053*.) In *California Building Industry Assn.*, an industry group claimed that the state's storm water permit fees, a regulatory fee governed by *article XIII A*, were not "allocated in a reasonable manner" among fee payors as *article XIII A* requires. (*California Building Industry Assn., at p. 1050*.) The court disagreed, holding the storm water permit fees were reasonably allocated among the fee payors, and explaining that a regulatory fee does not "'require a precise cost-fee ratio'" but "must bear a fair **[**61]**

or reasonable relationship to the fee payers' burdens on or benefits from the regulatory activity." (*Id. at p. 1052*.) The court noted that, in this context, "'flexibility'" is an "'inherent component of reasonableness,'" and a regulatory fee will not be an unconstitutional tax under *article XIII A* "[s]o long **[*267]** as 'there is a reasonable basis in the record for the manner in which the fee is allocated … .'" (*California Building Industry Assn., at p. 1052*.)

In rejecting the plaintiff's reliance on *Capistrano*, the court in *California Building Industry Assn.* distinguished the proportionality burden of proof for property-related fees under article XIII D, section 6(b)(3), from the reasonableness burden of proof for regulatory fees under *article XIII A*: "[T]he restrictions on property-related fees in *article XIII D* … are different from those imposed on regulatory fees by *article XIII A*. *Article XIII D* provides that the amount of a property-related fee 'shall not exceed the proportional cost of the service attributable to the parcel.' [Citation] … . Under *article XIII A*, all that is required is that the record demonstrate a reasonable basis for the manner in which the fee is allocated among those who pay it." (*California Building Industry Assn., supra, 4 Cal.5th at p. 1053*.)

CA(11) **(11)** Thus, the court in *California Building Industry Assn.* "made clear" that ***HN12*** section 6(b)3) "demands something *more* than the reasonable basis **[**62]** standard under *article XIII A*. To satisfy [s]ection 6(b)(3), … it is not enough for a water agency to show it uses a reasonable allocation method. Rather, an agency must show that the method produces rates that are proportional to costs." (*Coziahr, supra, 103 Cal.App.5th at p. 801*, discussing *California Building Industry Assn., supra, 4 Cal.5th at p, 1053*; see *City of San Buenaventura v. United Water Conservation Dist. (2022) 79 Cal.App.5th 110, 118–119 [294 Cal. Rptr. 3d 491] (San Buenaventura)* [The independent judgment standard that applies in Prop. 218 cases also applies in Prop. 26 (*art. XIII C*) cases].)

CA(12) **(12)** In sum, ***HN13*** the burden of proof under section 6(b)(3) is not reasonableness. Rather, it is to show, with substantial evidence withstanding independent review, that the agency's "water rates are proportional to the 'ascertainable cost[s] of service that can be attributed to … specific … parcel[s].'" (*Coziahr, supra, 103 Cal.App.5th at p. 800*; *Capistrano, supra, 235 Cal.App.4th at pp. 1505, 1516* [Section 6(b)(3) prohibits "above-cost-of-service pricing for tiers of water service," and City Water "did not [meet] its burden of proving its higher tiers reflected its costs of service."].)

CA(13) **(13)** Our dissenting colleague argues *Coziahr* created a split of authority with pre-*Coziahr* case law on the question of whether "reasonableness" is the standard of proof under section 6(b)(3), that our majority opinion "deepens" that split by following *Coziahr*, and that *Coziahr* and our majority opinion "fail to articulate any standard to replace the **[**63]** reasonableness standard … ." (Dis. opn., *post*, at pp. 312–313, 319–322.) Respectfully, we disagree with the dissent's interpretation of the pre-*Coziahr* case law, including *Griffith*, *Morgan*, and *Moore*. Under all of these cases, as under *Coziahr* and our majority **[*268]** opinion, ***HN14*** the agency has the burden of proving that a fee or charge for a property-related service is cost proportional, in that it does not exceed the cost of providing the service. (§ 6(b)(3).) It is not enough that the agency show it used a "[reasonable] cost allocation method" and relied on "reasonably accurate data"—particularly when, as in *Coziahr* and here, substantial evidence, credited by the trial court and withstanding independent review, shows the agency's cost allocation method or supporting data is unreliable as a measure of the costs of the service. (*Coziahr, supra, 103 Cal.App.5th at pp. 818, 801, 819* [upholding trial court's determination that Otay provided "an unsupported, post hoc rationalization" to support its tiered rates]; see *Capistrano, supra, 235 Cal.App.4th at p. 1514* [water rates must be based on the "true costs of supplying water to various tiers of usage"].)

CA(14) **(14)** Applying the same cost-proportionality standard of review applied in *Coziahr* and here, the courts in *Griffith, **[**64]** Morgan*, and *Moore* concluded that the challenged fees or charges complied with section 6(b)(3), given that substantial evidence sufficient to withstand independent review supported the trial courts' conclusions that the fees or charges were in fact cost proportional. (*Griffith, supra, 220 Cal.App.4th at p. 601*; *Morgan, supra, 223 Cal.App.4th at pp. 915–916*; *Moore, supra, 237 Cal.App.4th at pp. 369–373*.) As the dissent indicates, ***HN15*** these cases also show (1) there is not necessarily only one reasonable or acceptable method of cost apportionment in section 6(b)(3) cases, and (2) agencies are not required to rely on "perfect" data. (*Morgan, at p. 918* [§ 6 "does

not require perfection"].) Rather, "'the section 6(b) fee or charge must reasonably represent the cost of providing service.'" (*KCSFV, supra, 64 Cal.App.5th at p. 1029*.)

CA(15) **(15)** But here and in *Coziahr*, the substantial evidence shoe is on the other foot. That is, substantial evidence sufficient to withstand our independent appellate review supports the trial courts' (Judge Sturgeon's) conclusions that Otay's and City's tiered water rates for SFR customers were *not* cost proportional; rather, the rates exceeded the costs of delivering water to SFR customers using water at the higher-tier usage levels. (*Coziahr, supra, 103 Cal.App.5th at p. 819*.) Like the courts in *Griffith*, *Morgan*, *Moore*, and *Coziahr*, ***HN16*** we are not at liberty to "reweigh the evidence and reach a different factual conclusion" than **[**65]** the trial court. (*Coziahr, at p. 817*.) In brief, the trial court credited substantial evidence showing City imposed the tiered rates to encourage conservation among SFR customers using above-average amounts of water, and that City's use of the base-extra capacity method, detailed in the 2013 and 2015 COSSs, was, as in *Coziahr*, an "unsupported, post hoc rationalization" for the tiered rates. (*Id. at p. 819*.)

We discuss the substantial evidence supporting the judgment in part D, below, following our discussion in parts B and C of City's claims regarding **[*269]** (1) the quantum of proof the trial court required, and (2) the independent judgment standard of review.

C. *The Trial Court Did Not Impose an Incorrect Quantum of Proof on City*

City further suggests the trial court required City to meet its substantive burden of proof under section 6(b)(3) with higher *quantum* of proof than section 6(b)(3) requires. City argues the trial court's Phase I statement of decision "jumbled the question of the applicable standard of proof with two undisputed points: (1) the City bears the *burden of proof*; and (2) the applicable *standard of review* is the Court's independent judgment." City complains the court "misstated" that City was arguing its burden of proof was "minimal"; **[**66]** that the "*standard of review*" was "'reasonableness'"; and that the court "mischaracterize[d]" City's reasonableness claim "as an argument that the trial court should apply 'rational-basis review.'"

City does not demonstrate error. First, the Phase I statement of decision shows the trial court correctly understood City's *claim* that City's substantive burden of proof under section 6(b)(3) was reasonableness. With reasoned analysis, the court rejected the claim and correctly required City to prove, with substantial evidence withstanding the court's independent review, that City's tiered rates for SFR customers did not exceed the cost of providing water at the tiered usage levels. (*Silicon Valley, supra, 44 Cal.4th at pp. 448–449*; *Capistrano, supra, 235 Cal.App.4th at pp. 1505–1506, 1516*; *KCSFV, supra, 64 Cal.5th at pp. 1022–1023*.) The trial court did not impose an incorrect, substantive burden of proof on City.

CA(16) **(16)** Second, to the extent City suggests the trial court required City to meet its burden of proof with an inapplicable *quantum* of proof, such as proof by clear and convincing evidence or beyond a reasonable doubt, the record does not support this claim. That is, the record does not indicate that the trial court required City to prove its case by a quantum of proof higher than proof by **[**67]** a preponderance of the evidence, the default standard in civil cases and the applicable standard in this case. (*Evid. Code, § 115*; *Baxter Healthcare Corp. v. Denton (2004) 120 Cal.App.4th 333, 364–365 [15 Cal. Rptr. 3d 430]*.) Thus, we presume the court required City to prove its case by the correct, preponderance of the evidence standard. (*Coziahr, supra, 103 Cal.App.5th at p. 802*; *People v. Castellano (1983) 140 Cal.App.3d 608, 612 [189 Cal. Rptr. 692]* ***HN17*** [The presumption that "official duty has been regularly performed" (*Evid. Code, § 664*) encompasses applying "proper standard of proof."].)[6]

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D. *City's Claims Regarding the Independent Judgment Standard of Review*

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[6] The record also does not support City's claim that the court required City to "present precise and granular customer-by-customer data to prove that the tiered water rates comply with section 6(b)(3)." (See *Coziahr, supra, 103 Cal.App.5th at pp. 802–803*; *Morgan, supra, 223 Cal.App.4th at p. 918* [§ 6 "does not require perfection"].) We address City's "granular, precise data" argument in part D., *post*, in addressing City's substantial evidence-related claims.

Throughout its briefings, City claims that the independent judgment standard of review, as it applies in this case, requires us to conclude, based on the *undisputed contents* of City's 2013 and 2015 COSSs and Bui's opening report, that City's SFR tiered rates comply with section 6(b)(3). City's argument assumes, mistakenly, that this evidence (City's evidence) permits only one factual inference: that City's tiered rates comply with section 6(b)(3). City's argument overlooks the parties' conflicting expert evidence, on the question of whether City's SFR tiered rates comply with section 6(b)(3). (See *Coziahr, supra, 103 Cal.App.5th at pp. 802–803* [appellate courts presume all facts and inferences in favor of the judgment, and Otay's argument rested "on a one-sided, incomplete view of the record and [the] trial court['s] decision"].) **[**68]**

1. *The Liability Issues Here Are Primarily Factual and Disputed, Not Legal*

CA(17) **(17)** Since *Silicon Valley*, our trial courts and Courts of Appeal have applied the independent judgment standard of review in section 6(b)(3) cases. (*Silicon Valley, supra, 44 Cal.4th at pp. 441, 447–448*; *Palmdale, supra, 198 Cal.App.4th at pp. 928, 933*; see *Griffith, supra, 220 Cal.App.4th at pp. 600–601*; *Morgan, supra, 223 Cal.App.4th at pp. 912, 915–919*; *Capistrano, supra, 235 Cal.App.4th at pp. 1505, 1512–1513*; *Moore, supra, 237 Cal.App.4th at pp. 368–369*; *KCSFV, supra, 64 Cal.App.5th at p. 1023*; *Coziahr, supra, 103 Cal.App.5th at pp. 798–799*.) ***HN18*** Like the trial court's, our task under the independent judgment standard is to determine whether substantial evidence—not just any substantial evidence, but substantial evidence sufficient to withstand our independent judgment—shows that the property-related fee or charge complies with section 6(b)(3)'s proportionality requirement. (*Silicon Valley, at pp. 441, 447–448*.) Whether the entire record contains sufficient substantial evidence to show compliance with section 6(b)(3) is a legal question we decide de novo, meaning we defer neither to the agency's nor the trial court's determinations of *this* question. (*KCSFV, at p. 1023*; *Moore, at p. 368*.)

CA(18) **(18)** But ***HN19*** "'[e]ven when we exercise our independent judgment in reviewing the record, we do not take new evidence or decide disputed issues of fact.'" (*Coziahr, supra, 103 Cal.App.5th at p. 798*, quoting *Morgan, supra, 223 Cal.App.4th at p. 912* [distinguishing de novo standard of review on appeal from agency's burden of proof at trial].) Although we use a de novo standard of review **[**69]** in determining the legal question of the agency's section **[*271]** 6(b)(3) compliance, "we do not transform into a trial court." (*Morgan, at p. 913*.) "*Silicon Valley*'s independent review standard 'does not change the substantial evidence standard of review and does not allow us to independently resolve issues of disputed fact already decided by the trial court. If an appellant challenges a finding of fact, we must employ the substantial evidence standard of review. As such, we are not concerned about a conflict in the evidence. "… Rather, it is simply whether there is substantial evidence in favor of the respondent. If this 'substantial' evidence is present, no matter how slight it may appear in comparison with the contradictory evidence, the judgment must be upheld."'" (*San Buenaventura, supra, 79 Cal.App.5th at pp. 119–120*, quoting *Morgan, supra, 223 Cal.App.4th at p. 917*.)

HN20 ***CA(19)*** **(19)** "Even in cases where the evidence is undisputed or uncontradicted, if two or more different inferences can reasonably be drawn from the evidence this court is without power to substitute its own inferences or deductions for those of the trier of fact, which must resolve such conflicting inferences in the absence of a rule of law specifying the inference to be drawn. We must accept as true all evidence and all reasonable inferences from the evidence tending to **[**70]** establish the correctness of the trial court's findings and decision, resolving every conflict in favor of the judgment." (*Howard v. Owens Corning (1999) 72 Cal.App.4th 621, 631 [85 Cal. Rptr. 2d 386]*.)

City argues that, in this case, the *contents* of the 2013 and 2015 COSSs and Bui's opening report are *undisputed*, whereas in *Coziahr*, "the trial court was asked to rule on disputes as to foundational facts, *such as arguments about the reliability of cost of service data and the factual credibility of their analyses.*" (See *Coziahr, supra, 103 Cal.App.5th at pp. 806–807*.) Thus, City claims "the substantial evidence standard that governed much of *Coziahr's* analysis does not apply here because this court is asked to review the trial court's *legal decisions* and analysis" under section 6(b)(3).

City's argument misunderstands the disputed nature of City's evidence and the additional evidence in this case. Here, as in *Coziahr*, the liability issues are primarily factual, not legal. (*Coziahr, supra, 103 Cal.App.5th at pp. 798–*

799 ["To the extent Otay is suggesting the liability issues here are primarily legal, rather than factual, we do not agree"].) Here, as in *Coziahr*, "[t]he parties strongly disagreed at trial about whether [City's] evidence was adequate to prove compliance with [s]ection 6(b)(3), presenting disputed facts and inferences whose resolution **[**71]** we review for substantial evidence." (*Id. at p. 799*.) The parties here and in *Coziahr* also "produced considerable [conflicting] expert evidence to support their positions," which we also review for substantial evidence. (*San Buenaventura, supra, 79 Cal.App.5th at p. 121*.)
[*272]

To be sure, there is no factual dispute concerning *what* data, assumptions, and methods B&V and City relied on and used in calculating and designing City's 2014 and 2016 rates. City used the base-extra capacity method, and City's cost calculations are well documented in the 2013 and 2015 COSSs. But contrary to City's assumption, this evidence, City's evidence, does not *indisputably show* that City's tiered rates comply with section 6(b)(3). This issue was very much in dispute at trial, as it was in *Coziahr*. (See *Coziahr, supra, 103 Cal.App.5th at pp. 799, 803*.) And here, as in *Coziahr*, substantial evidence, credited by the trial court and discussed below, shows City's tiered rates are not cost-proportional. (*Coziahr, at p. 803*, quoting *Capistrano, supra, 235 Cal.App.4th at p. 1505* [""proportional cost"' means 'there really *is* an ascertainable cost of service that can be attributed to a specific … parcel'"].)

City attempts to distinguish *Coziahr* on the ground that the parties' experts here, Bui **[**72]** and Smith, both relied on City's "undisputed" evidence, whereas *Coziahr* involved disputed issues of fact concerning "the reliability" of Otay's data, and "multiple," conflicting expert reports. But this case, too, involved multiple disputed issues of fact concerning the reliability or adequacy of City's evidence (City's data, assumptions, and methods) as a means of calculating rates for the SFR customer class that did not exceed the proportional cost of service to SFR customers. (§ 6(b)(3); *Howard v. Owens Corning, supra, 72 Cal.App.4th at p. 631* [undisputed evidence may permit differing reasonable inferences]; cf. *Silicon Valley, supra, 44 Cal.4th at pp. 453–458* [assessment invalid as a matter of law based on undisputed contents of engineer's report]; *Morgan, supra, 223 Cal.App.4th at p. 917* ["[T]he challenge to the report [in *Silicon Valley*] was not that its data was flawed or otherwise unreliable, but that [the report] did not show the special benefits that were tethered to the proposed assessment."].)

CA(20) **(20)** Here, as in *Coziahr*, the parties submitted conflicting expert evidence on whether the data, assumptions, and methods B&V and City used in calculating and designing City's SFR tiered rates adequately *showed* that the rates did not exceed the proportional cost of delivering water to SFR customers at the above-average usage levels reflected **[**73]** in the higher tiers. (§ 6(b)(3).) ***HN21*** The independent judgment standard of review requires us to (1) uphold the trial court's findings on these disputed issues of fact if substantial evidence supports them, and (2) determine, independently of the trial court, whether the record contains sufficient substantial evidence to show that City's rates comply with section 6(b)(3). (*Coziahr, supra, 103 CalApp.5th at pp. 802–803*.)[7]
[*273]

2. *City's Briefings Misunderstand the Independent Judgment Standard of Review*

Throughout its briefing, City argues that because City's evidence is undisputed, and the reasonableness standard of proof applies, the independent judgment standard of review compels this court to conclude, as a matter of law and based on City's undisputed evidence, that City's tiered rates comply with section 6(b)(3). For example, City argues "City's evidence *substantially* proved that the City reasonably relied on available data and information to

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[7] ***CA(21)*** **(21)** To be sure, ***HN22*** whether an agency's water rates comply with section 6(b)(3) is a mixed question of fact and law implicating constitutional rights. (*Silicon Valley, supra, 44 Cal.4th at pp. 448–449*.) As our cases have noted, the legal question of section 6(b)(3) compliance is reviewed de novo. (*Moore, supra, 237 Cal.App.4th at p. 368*; see *Silicon Valley, at pp. 448–450*.) But when, as here, the resolution of the mixed question of law and fact """requires an inquiry that is "essentially factual," [citation] … and the [trial] court's determination should be classified as one of fact reviewable under the clearly erroneous standard. If, on the other hand, the question requires us to consider legal concepts in the mix of fact and law and to exercise judgment about the values that animate legal principles, then … the question should be classified as one of law and reviewed de novo."""" (*Ghirardo v. Antonioli (1994) 8 Cal.4th 791, 800–801 [35 Cal. Rptr. 2d 418, 883 P.2d 960]*.)

calculate the tiered water rates for the SFR customer class, such that the rate for each tier reflects the City's cost to deliver water service at the consumption level represented by each tier." City argues the 2013 and 2015 COSSs, and Bui's reports explaining them, "*were robust and more than sufficient to support the tiered* ***[**74]*** *water rates for the [SFR] customer class.*"

As Class summarizes it, "City's principal argument on appeal is that the weight of the evidence before the trial court demonstrated the City had a reasonable basis for its actions. The City asks this court to reverse based on its independent review of that evidence." Indeed, City, joined by Water Alliance Amici and Municipal Amici, ask this court to analyze City's SFR tiered rate structure in depth, and place our constitutional imprimatur on the rate structure, in all of its particulars, as sufficiently reasonable and adequate to comply with section 6(b)(3). This we cannot do. (*Coziahr, supra, 103 CalApp.5th at pp. 802–803*; *Morgan, supra, 223 Cal.App.4th at p. 917* [court would not "engage in a detailed review 'at a word and phrase level' of the Cost of Service Study" for water rates, where the plaintiffs challenged the reliability of the data underlying the study, and the trial court credited the agency's conflicting substantial evidence, showing the data was reliable].)[8]
[*274]

As Class argues, City is improperly seeking a "do over" of the Phase I liability trial because City believes the dispositive, liability-related evidence (City's evidence) is undisputed. But **[**75]** as noted, the liability issues are primarily factual, not legal; they turn on disputed factual inferences permitted by City's evidence, together with the additional evidence presented at trial, including the relative strengths of the parties' conflicting expert opinion evidence. It is not our function to reweigh this evidence in determining whether substantial evidence supports the trial court's determination that City's evidence did not adequately (or indisputably) show that City's tiered rates for SFR customers comply with section 6(b)(3). (*Coziahr, supra, 103 Cal.App.5th at pp. 799–803, 818 & fn. 15*; *San Buenaventura, supra, 79 Cal.App.5th at pp. 120–121*; *Morgan, supra, 223 Cal.App.4th at pp. 898, 916–917*.)

3. *City Has Forfeited Its Substantial Evidence Claims*

Although City couches its argument as legal, not factual, City is challenging the sufficiency of the evidence supporting the trial court's contrary determination that City's tiered rates *do not* comply with section 6(b)(3) by arguing City's evidence, standing alone, is sufficient to prove and indisputably proves that City's tiered rates comply with section 6(b)(3). (*Morgan, supra, 223 Cal.App.4th at p. 916* [challenge to trial court's § 6(b)(3) determination challenges the sufficiency of the evidence supporting it].) As Class argues, City has forfeited this substantial evidence claim by failing to address the proper standard **[**76]** of review and by discussing only City's evidence, while disregarding the evidence supporting the trial court's Phase I statement of decision on City's liability.

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[8] City argues *Coziahr* "misapplies the substantial evidence standard of appellate review because it applied the standard to *all legal* and factual findings in the trial court's liability decision." (Italics added.) Thus, City argues we should "distinguish *Coziahr* and review the primary legal question of the City's compliance with section 6(b)(3) independently and without deference to the trial court's legal findings." As explained, however, and contrary to City's assumptions, City's evidence is *disputed*, and the question of City's compliance is primarily *factual*, not legal.

City also argues C*oziahr* missed the "second step" of the independent judgment standard of review, by failing to "independently examine whether the rates comply with section 6's substantive requirements" and "rubber-stamping the trial court's legal conclusion that the rates violated section 6(b)(3) because substantial evidence supported the underlying factual findings." *Coziahr*'s analysis did not miss this "second step." In sum, *Coziahr* concluded that substantial evidence, including the plaintiffs' expert evidence explaining the data, assumptions, and methods used in calculating Otay's tiered rates, showed that Otay's tiered rates did not comply with section 6(b)(3). (*Coziahr, at pp. 803–819*.) Thus, *Coziahr* "independently examined" whether Otay's tiered rates complied with section 6(b)(3). (See *Coziahr, at pp. 803–819*.)

We also disagree with City's criticism of *Coziahr* as "unhelpful to this court" due to what City calls its "cursory analysis of key legal questions" (based in part on forfeiture) and "cursory evaluation of most arguments." *Coziahr* thoroughly discussed the issues presented. (*Coziahr, at pp. 803–819*.)

In its extensive original and supplemental briefings, City does not address the substantial evidence standard or seek to apply it. That is, City does not attempt to explain how the evidence the trial court relied on does not support the trial court's Phase I statement of decision on liability. Instead, City discusses the evidence favorable to City, and argues, as it did in the trial court, that City's evidence compels the conclusion that City's tiered rates comply with section 6(b)(3). (*Hauselt v. County of Butte (2009) 172 **[*275]** Cal.App.4th 550, 563 [91 Cal.Rptr.3d 343]* [substantial evidence claim forfeited where appellant only cites evidence favorable to him]; *Oliver v. Board of Trustees (1986) 181 Cal.App.3d 824, 832 [227 Cal. Rptr. 1]* [substantial evidence claim forfeited where appellant did not "fairly state all of the evidence as is required" and "merely" challenged respondent and court to "find the evidence" supporting the judgment]; *Bates v. Rubio's Restaurants, Inc. (2009) 179 Cal.App.4th 1125, 1135 [102 Cal. Rptr. 3d 206]* [appellant who fails to address proper standard of review "fail[s] to meet its burden to show reversible error"].)

Nonetheless, we exercise our discretion to address City's claims related to the evidence supporting the trial court's Phase I liability decision. **[**77]** (*People v. Denard (2015) 242 Cal.App.4th 1012, 1030, fn. 10 [195 Cal. Rptr. 3d 676]* [appellate court has discretion to review otherwise forfeited claim presenting important question of constitutional law].) In addressing City's substantial evidence claims, *post*, we explain why substantial evidence supports the trial court's liability decision and requires us to affirm it.

E. *Substantial Evidence Shows City's SFR Tiered Rates Are Not Cost Proportional*

In the following discussion, we conclude, based on our independent judgment, that the substantial evidence the trial court credited in its Phase I statement of decision shows that City's tiered rates for SFR customers are not cost proportional, and thus do not comply with section 6(b)(3). City did not meet its burden of showing otherwise.

1. *City's Burden To Show Error on Appeal*

HN23 ***CA(22)*** **(22)** On appeal, the judgment is presumed correct, and the appellant, here City, has the burden of demonstrating error. (*Jameson v. Desta (2018) 5 Cal.5th 594, 608–609 [234 Cal. Rptr. 3d 831, 420 P.3d 746]*.) In considering City's substantial evidence claims, we view the record in the light most favorable to the judgment, resolving all conflicts in the evidence in favor of the judgment. (*Coziahr, supra, 103 Cal.App.5th at pp. 802–803*; *Nolte Sheet Metal, Inc. v. Occupational Safety & Health Appeals Bd. (2020) 44 Cal.App.5th 437, 442–443 [257 Cal. Rptr. 3d 671]* [trial court findings may not be set aside on appeal unless they are so lacking in evidentiary support to be unreasonable].) As discussed, City's **[**78]** burden of proof at trial was to show that its SFR tiered rates did not exceed City's cost of providing water to SFR customers at the tiered usage levels. (*Capistrano, supra, 235 Cal.App.4th at pp. 1506, 1516*.)
[*276]

2. *"Granular" and "Precise" Data Including "Time-of-use" Data*

We begin with City's claim that section 6(b)(3) does not require agencies to show that their "ratesetting decisions relied upon or are supported by: (a) granular and precise data regarding usage by customer class, and (b) time-of-use data on a class by class and customer by customer basis." City argues, "section 6(b)(3) and the applicable case law do not require *exact precision and voluminous granular data* to prove that tiered rates comply." Rather, City claims *Griffith*, *Morgan*, and *Moore* only required City to show City "used 'reasonably accurate' available data to reasonably apportion the cost of service to customers."

City's argument is based on the erroneous premise that the standard of proof under section 6(b)(3) is reasonableness. As discussed, reasonableness is not the standard of proof under section 6(b)(3); cost proportionality is. (*Coziahr, supra, 103 Cal.App.5th at pp. 800–803*.) But apart from City's reliance on the inapplicable reasonableness standard, City claims the trial court held City to a standard of *substantive* ***[**79]*** proof, not required under *Griffith*, *Morgan*, and *Moore*, by requiring City to present "granular time-of-use data to support" City's SFR tiered rates.

City argues, "[u]nder *Griffith*, a water agency does not need to allocate the incremental costs to meet peak demand on a customer-by-customer and hour-by-hour basis in order to use a tiered rate structure. Additionally, *Morgan* and *Moore* make clear that detailed data and mathematical precision are not required to demonstrate that cost allocations and rate structures are reasonable and comply with section 6(b)(3)." City says *Griffith*, *Morgan* and *Moore* "acknowledge the necessarily imperfect nature of data used in the cost allocation and ratesetting processes."

CA(23) **(23)** We agree with City that HN24 section 6(b)(3) does not require agencies to base their cost of service allocations on "perfect" data, particularly when such data is unavailable or impractical to obtain. That is the salient point of the cases City relies on. (*Morgan, supra, 223 Cal.App.4th at p. 918* ["[S]ection 6 does not require perfection."]; *Moore, supra, 237 Cal.App.4th at p. 368*; see *id. at pp. 372, 374* [upholding cost allocations "'based on [r]eliable estimates'" of time spent on sanitation issues were "'reasonable under the circumstances.'"]; *Griffith, supra, 220 Cal.App.4th at p. 601* ["method of grouping similar [well] users together for the same augmentation rate and charging **[**80]** the users according to usage [was] a reasonable way to apportion the cost of service"].) But, as discussed, the trial courts in *Griffith*, *Morgan*, and *Moore*, found that the agencies' data, though not perfect, was sufficient to show that the charges complied with section 6(b)(3), and the plaintiffs did not show that the agencies' data was unreliable or otherwise insufficient to show cost **[*277]** proportionality. Thus, these courts affirmed the judgments for the agencies. (*Griffith, at pp. 600–601*; *Morgan, at pp. 914–919*; *Moore, at pp. 368, 371–375*.) Here, as we have also noted, the substantial evidence shoe is on the other foot. The trial court concluded based on substantial evidence, and on independent review we agree, that the data, assumptions, and methods B&V and City relied on in designing City's SFR tiered rates (e.g., the base-extra capacity method, historical billing records) did not adequately show that the tiered rates comply with section 6(b)(3). Like the plaintiffs in *Griffith*, *Morgan*, and *Moore*, City has not shown that any of the substantial evidence the trial court relied on in support of its Phase I liability decision is unreliable or does not support the decision.

3. *City's Lower-cost Local Water Supplies Do Not Support the Tiered Rates*

The 2013 and 2015 COSSs explain that the **[**81]** "'pricing differentials between the tiers'" for SFR customers were based in part "'on local and nonlocal water supply costs' " and "'changing the mix of water supplies through the tiers.'" The 2013 and 2015 COSSs attempted to justify the "units of water included in Tier 1" being charged at the "'lowest rate'" by stating that those units "represent[ed]" City's least expensive source of water—local supply.[9] That is, City told its customers that Tier 1 was priced at the lowest rate because Tier 1 represented lower cost, local supply, whereas Tiers 2 through 4 were priced higher because consumption in those tiers required City to acquire more expensive sources of water. Bui restated these claims in her opening report.

But as the trial court found, no evidence showed that the units of water consumed by SFR customers in Tier 1 came from City's lower cost, local water supplies. Rather, City commingled all of its water sources in reservoirs before delivering the water to customers. Thus, City was unable to tie its local water supplies, and lower costs, to Tier 1 usage. As the trial court put it, "because the City commingles all its water and delivers it to customers using the same infrastructure, **[**82]** the City cannot ensure" as City had claimed, that City's "higher-cost 'alternative sources of supply' [were] being delivered to customers whose use led to the City's 'greater investments' in those sources of supply."

In addition, Bui conceded, in her rebuttal report and deposition, that City's local water supplies were "not enough to cover all tier 1 water use" in a given **[*278]** year, and even if they were, City's commingling of its water sources meant that lower cost supplies could not be traced to Tier 1 usage. Bui agreed with Class's expert, Smith, that "tying tiered pricing to the cost of source of supply 'would be impossible,'" especially for City's local water supply, which may provide between 0 percent and 15 percent of City's total water needs in a given year. Bui also admitted City had "never" delivered local supplies of water "to Tier 1 [SFR] customers only."

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[9] The 2013 and 2015 COSSs stated: "Because water resource supply in San Diego is limited and expensive, it is reasonable to base the Tier 1 breakpoint at 3–4 HCF per month [(2013 COSS); 4 HCF per month (2015 COSS)]. This range would serve to recognize water efficiency within this customer class."

CA(24) **(24)** Based on City's failure to present evidence supporting City's "source-of-supply justification" for its 2014 and 2016 Tier 1 rate, the court found City's 2014 and 2016 tiered rates did not comply with section 6(b)(3). We agree with this conclusion. The lack of evidence tying the lower Tier 1 rate to its purported justification of lower-cost, **[**83]** local water supplies, undermines the integrity of the entire Tier 1 through 4 rate structure, insofar as all of the tiers purport to be based, in part, on the lower cost, local water supplies underlying the lower Tier 1 rates. Thus, the lack of evidence justifying the lower Tier 1 rates, standing alone, shows City's entire 2014 and 2016 tiered rate structures are not proportional to the costs of delivering water to SFR customers at those tiered usage levels, as section 6(b)(3) requires. CA(25) **(25)** (*Capistrano, supra, 235 Cal.App.4th at pp. 1506, 1516* [HN25 "[I]f a local government body chooses to impose tiered rates unilaterally without a vote, those tiers must be based on cost of service for the incremental level of usage."].) Affirmance of the liability portion of the judgment is proper on this ground alone.

4. *City's "Peaking Factor" Analysis Also Lacks Evidentiary Support*

At two stages of its 2013 and 2015 ratemaking processes, City applied "demand factors" or "peaking factors" in allocating costs, first to the five customer classes using "unique customer class peaking factors differ[ent] from the demand peaking factors used to size the system," and second, to the tiers in the SFR customer class, "based on the **[**84]** peaking characteristics of users in those tiers." The trial court found City failed "to point to any evidence in the record that shows that these allocations were based upon actual calculations of cost of service for water to be provided to a particular parcel, as required by Proposition 218 and *Capistrano*." We agree with the trial court.

(a) *The Trial Court's Findings*

The trial court found that City's justification for using peaking factors in allocating costs was that "City incurs 'greater costs' to size its water system to meet customers' demand at peak times—on the day and at the hour of highest use—'than it would if all customers always received water at a uniform rate of use,' and that the customers who cause that peak demand **[*279]** should be made to bear the cost of sizing the system to meet it." Thus, City used the base-extra capacity method in allocating costs, "which provides for calculating 'peaking factors' based on 'maximum day' and 'maximum hour' usage—that is, the amount of water used on the day and at the hour of maximum usage for the water system . …" The base-extra capacity method "purports to 'allocate these higher peak demand costs to those customers who exhibit the greatest peaking **[**85]** behaviors' and are thus responsible for causing the City to incur those extra costs."[10]

The trial court found: "The problem with this theory is that the peaking factor ratios [1.5 for Max Day; 2.25 for Max Hour] and the cost allocations are not based on actual data." The record supports this finding.

First, as the trial court found, City did not have "time-of-use data" for any of its customers, showing *when* those customers used water. Bui admitted City "did not know when customers used water," and City "did not perform the studies necessary to collect that information." City also did not have the metering capability necessary to track "granular" customer time-of-use. Bui explained it was "very expensive to do customer demand studies," and the Public Utilities Department did not "conduct such studies."

In her opening report, Bui further explained that, because City did not have time-of-use data or customer demand studies, B&V established the Max Day and Max Hour extra capacity factors using "'industry guidelines,' '[i]n accordance with M1 standards' and 'peak factors' that it obtained from the City's 2011 'Water Facilities Master Plan' and the 'City Engineering Department.'" That is, **[**86]** Bui said B&V examined "historical data and usage patterns for the customer classes to estimate the Max Day and Max Hour Extra Capacity factors." But Bui later admitted that

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[10] As explained, *ante*, "base costs" are attributable to average demand, and to building and operating the system to meet average demand, while "extra capacity costs" are capital and operating costs attributable to above-average demand, needed to build and operate the system to meet above-average demand. Extra capacity costs include Max Day and Max Hour costs, respectively defined as costs attributable to building and operating the system at Max Day Size (1.5 times base size, to meet Max Day demand) and Max Hour Size (2.25 times base size, to meet Max Hour demand).

the 1.5 and 2.25 system sizing "peak factors" in City's master plan (which B&V and City used in allocating Max Hour and Max Day costs to all customer classes and to the SFR tiers) were "simply the historical maximum day and maximum hour usage ever observed at each facility for *all* users." The master plan did not "break down" Max Day or Max Hour data by customer class, and all customers used water from the same facilities. Based on this evidence, the trial court found B&V and City "had no usage data for the [SFR] customer class (or any other customer class) … ." Thus, as the trial court found, "City did not know whether the demand levels it used to set the [SFR] rates even came from **[*280]** [SFR] customers … ." "Despite lacking the necessary data" B&V "adopted" the 1.5 Max Day and 2.25 Max Hour peaking factors "'set forth in the City's Master Plan.'" B&V then used these 1.5 and 2.25 peaking factors "to allocate nearly half of peak day costs, and all peak hour costs, to [SFR] customers in Tiers 3 and 4." The court **[**87]** found City had no data to support *these* allocations, given that City had no time or use data, or other data, showing SFR customers using water in Tiers 3 and 4 during a given billing cycle *used more water at peak times* than SFR customers in Tiers 1 and 2.

The court accordingly found that "City's sole justification for charging Tier 3 and 4 users much higher rates appears to be an assumption that those users are 'more likely' to be using water at peak times than average and below average users because they use a higher total volume of water in a given billing cycle." The court pointed to City's Phase I trial brief, in which City argued, "It is a reasonable assumption that proportionally higher rates of consumption have correspondingly higher contribution to peak demand and, therefore, peak demand costs. Customers with usage at Tier 3 and Tier 4 are far more likely to be consuming more water at peak times than average and below average users." But, as the trial court found, no evidence showed that Tier 3 and 4 users (SFR customers using above average amounts of water during a given billing cycle) were "far more likely," or even at all likely, to consume more water at peak times than average **[**88]** and below average SFR users in Tiers 1 and 2, or non-SFR customers. Bui admitted that Tier 1 and Tier 2 users, and other customer classes, *also use water* during peak day and peak hour times, "thus contributing to the need for the maximum system capacity." Bui also conceded that non-SFR customers, whose uniform rates were lower than the Tier 4 rates, contributed "*more* to the need for maximum system capacity" than SFR customers.

In sum, the trial court found City did not show that City's "use of peaking factors" in setting the SFR tiered rates complied with section 6(b)(3). We agree. The evidence the trial court relied on in its Phase I statement of decision shows City had *no cost-based justification* for charging SFR customers more for using water in Tiers 3 and 4 than in Tiers 1 and 2.

(b) *City's Arguments*

City argues the trial court's liability decision is contrary to *Griffith*, *Morgan*, and *Moore*, to the extent the court faulted City for not adducing what City calls "granular" time-of-use data to support City's SFR tiered rates. We disagree. The liability decision is not contrary to *Griffith*, *Morgan*, or *Moore*. The trial court did not require City to adduce unnecessarily "precise" or "granular" data to **[**89]** show the tiered rates were cost based. Rather, the court properly found that, because City chose to base its tiered pricing "on the **[*281]** supposition that it costs the City more to deliver water at certain peak times," coupled with the theory that Tier 3 and Tier 4 users use more water at peak times than Tier 1 and 2 users (and other customer classes), City had an obligation to support its "pricing regime" with "actual observed data" from San Diego SFR customers. But City did not adduce *any evidence* that City's Tier 3 and 4 rates did not exceed the cost of delivering water to SFR customers using water in those higher tiers. [11]

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[11] The trial court did not demand that City adduce "perfect" evidence to support City's SFR tiered rates; it only required City to prove that the peaking factors City used in allocating costs to arrive at those tiered rates were based on substantial evidence that SFR customers using water in Tiers 3 and 4 cause City to incur correspondingly higher costs to deliver that water. The City did not do so.

City claims *Coziahr* "carries little weight" here because its "demand for time of use data" likewise conflicts with *Griffith*, *Morgan*, and *Moore*. We disagree. Like the trial court here, *Coziahr* concluded Otay did not adduce any evidence to support its SFR tiered rates, including time of use data. (*Coziahr, supra, 103 Cal.App.5th at pp. 815–819* ["the record supports the trial court's

City argues "[t]he undisputed evidence demonstrates that B&V reasonably relied on data and information obtained from the City regarding system sizing and functions to set the demand peaking factors. Likewise, B&V reasonably used the Base-Extra Capacity Method to allocate the cost categories to the functional cost buckets using demand peaking factors." In the same vein, City argues, "[t]he undisputed evidence demonstrates that B&V used demand factors from the City's Water Master Plan, historic operating data, and information **[**90]** gathered from City's engineers responsible for sizing the system. Therefore, B&V based the demand factors on reasonably accurate information."

These arguments do not demonstrate error. They do not address the substantial evidence supporting the trial court's liability decision or attempt to explain why that evidence does not support the decision. (*Shenouda v. Veterinary Medical Bd. (2018) 27 Cal.App.5th 500, 514 [238 Cal. Rptr. 3d 195]* ["[W]hen the substantial evidence standard of review applies, the appellant is required '"to demonstrate that there is *no* substantial evidence to support the challenged findings."'"].) In sum, substantial evidence, detailed here, supports the trial court's liability decision and belies City's "undisputed" evidence arguments. [12] (See *Coziahr, supra, 103 Cal.App.5th at pp. 807, 816–819* [Otay adduced no time-of-use data or other evidence showing that its peaking **[*282]** factor analysis justified its SFR tiered rates]; *Capistrano, supra, 235 Cal.App.4th at p. 1499* ["City Water did not try to calculate the incremental cost of providing water at the level of use represented by each tier … ."].) As the trial court found, City's failure to justify charging SFR Tiers 3 and 4 users more for water than Tiers 1 and 2, with time-of-use data, users shows that City's SFR tiered rates are not cost proportional, **[**91]** as section 6(b)(3) requires. This ground, alone, justifies affirming the trial court's liability decision against City. [13]

5. *The Breakpoints in City's SFR Tiers Are Also Not Cost Based*

Additional evidence shows that City set the breakpoints for its SFR tiers based on budgets designed to encourage conservation by penalizing above-average excessive use, rather than on the cost of building and operating City's water system, or delivering water to SFR customers at the tiered usage levels. These usage budgets were based on historical data, including City's billing records, showing that an SFR unit used an average of 12 HCF per month. (*Capistrano, supra, 235 Cal.App.4th at pp. 1498–1499*; *Coziahr, supra, 103 Cal.App.5th at pp. 811–812*.)

City argues—and its tiered breakpoints are based on the assumption—that "usage above [12 HCF] in a billing cycle represent[s] above-average usage for an SFR customer"; *therefore*, usage above 12 HCF "contributed to the City's need to upsize the system to meet above-average demand." Although City's billing records show that 12 HCF is the average amount an SFR unit *in City* uses in a billing cycle, it does not follow, and no evidence shows, that above-

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finding that Otay lacked data to allocate peaking costs"].) Like City's SFR tiered rates here, Otay's SFR tiered rates were based on the unsupported assumption that SFR customers using water in higher tiers caused Otay to incur correspondingly higher costs to upsize its water system. (*Id. at pp. 816–819*.) Thus, *Coziahr* did not demand "perfection" from Otay, and *Coziahr* appropriately rejected Otay's reliance on *Morgan*. (*Id. at pp. 802–803*.)

[12] City also argues, "[i]t is undisputed that the City's incremental cost (above Base costs) to design, build, and operate upsized facilities to meet above-average demand are a significant portion of the total revenue requirement." But as Class points out, City adduced no evidence to support this assertion.

[13] City argues *Capistrano* "mandates that when customers use water at below average or average levels in a billing cycle (Tiers 1 and 2) they cannot be charged for upsizing facilities to meet demand that they do not place on the system," and "customers who have above-average usage in a billing cycle should be charged rates that recover most of the incremental costs to upsize the system to meet above-average demand." (See *Capistrano, supra, 235 Cal.App.4th at pp. 1503–1504*.) This argument takes *Capistrano*'s observations about charging higher users for correspondingly higher costs out of context. *Capistrano* was discussing City Water's recycling program and remanded the matter for further findings on whether City Water's charges to develop its "recycling operation have been improperly allocated to users whose levels of consumption are so low that they cannot be said to be responsible for the need for that recycling." (*Id. at p. 1504*.) Thus, in *Capistrano*, the record before the court contained no evidence to justify charging lower water users for the recycling program. (*Ibid.*) Similarly here, City adduced no evidence to justify charging SFR users more for water in Tiers 3 and 4 than in Tiers 1 and 2. Likewise, in *Capistrano*, "City water did not carry its burden of proving its higher tiers reflected its costs of service." (*Id. at p. 1516*.)

average *usage* by SFR units (in Tiers 3 and 4) correlates **[**92]** to above-average *costs* of "upsizing" City's water system.

Further, as the trial court found, City pointed to "no evidence" that the 19th and 20th HCF of water delivered to an SFR customer cost "over 200 percent **[*283]** more than the cost of delivering the first and second HCF to that same customer." (See *Capistrano, supra, 235 Cal.App.4th at pp. 1505, 1516* [tiered pricing must correlate to cost of service].) City's reliance on the usage patterns of the irrigation customer class as "a proxy" for City's Tier 3 and Tier 4 pricing is unsupported. In setting the pricing for Tiers 3 and 4, City *assumed* that usage in Tiers 3 and 4 was for landscaping. But contrary evidence shows that SFR above-average usage may be attributable to larger families (more than two people) living in an SFR. Further, City never correlated the usage for which Tier 3 and Tier 4 water is put, whether landscaping *or larger families,* to the costs of delivering water at those usage levels, *or* to "upsizing" the system.

The fractional precision between City's 2014 and 2016 tiered rates also indicates that the SFR tiered rates are not correlated to costs. (*Capistrano, supra, 235 Cal.App.4th at pp. 1504–1505* ["fractional precision" between **[**93]** shares suggested City Water did not attempt to correlate its rates with cost of service]; *Coziahr, supra, 103 Cal.App.5th at p. 809* ["trial court could impliedly find Otay's SFR rates reflected questionable consistency"].) For 2014, City's Tier 4 rate was "precisely" 2.25 times the Tier 1 rate, and in 2016, this multiplier was "almost exactly" 2.25. And under these rate structures, SFR customers were charged 225 percent more for usage in Tier 4 than in Tier 1, while all other customer classes were charged "approximately the Tier 2 rate for all usage, regardless of volume." City's instruction to B&V to retain tiered rates for SFR customers in the 2013 and 2015 ratemaking processes further indicates City wanted B&V to find a way to justify City's SFR tiered rates based on costs, rather than to actually base those rates on costs.

6. Palmdale *Discrimination*

CA(26) **(26)** "*Palmdale* stands for the proposition that ***HN26*** rate differentials between groups, whether customer classes or tiers, support an inference of disproportionality—and, to be constitutional, must be supported by evidence of costs justifying the differences." (*Coziahr, supra, 103 Cal.App.5th at p. 814*; see *Palmdale, supra, 198 Cal.App.4th at p. 934*.)

The trial court found City's SFR tiered rates discriminated against SFR customers in favor of irrigation customers, in violation **[**94]** of *Palmdale*, because City did not articulate "an adequate cost-based justification" for using a tiered-rate structure for SFR customers and uniform rates for all other customer classes. It is indisputable that City charged SFR customers far more for "the same water" than other customer classes. To use the trial court's example, in 2014, an SFR customer would have paid $8.19 for every HCF over 18 used in a billing cycle, while a "dry cleaner next door would have **[*284]** been charged [a flat rate of] only $4.17 for the same water," and an MFR unit using the "same amount of water would have been charged only $4.34 per HCF." "Worse still," this rate structure resulted in SFR customers being charged more for usage above 12 HCF than irrigation customers. The court found City failed to support these price differentials. (§ 6(b)(3).) We agree.

First, the price differentials cannot be explained by higher costs in Tiers 3 and 4, based on peaking factors or time of use. As explained, City's evidence showed that all customers used water at peak times, and *did not show* that SFR customers (as a whole, or in any tiers) used more water at peak times than other customer classes. To the contrary, the record **[**95]** shows that both irrigation and construction customers exhibited "much higher peaking factors" than SFR customers. Yet, only SFR customers were charged tiered rates, and were charged more than other customers in the higher tiers, "based on their alleged [but unsupported] peak use."

Second, City attempted to justify the price differentials between the SFR customers and other customer classes based on the assumption that SFR customers using over 12 HCF per month (above average use for an SFR customer) were using water *inefficiently for their size* in comparison to non-SFR customers. But as the trial court found, this rationale is unsound. City claims "there was no reasonable way for B&V to document one single average monthly HCF usage amount" for the non-SFR customer, given that non-SFR customers vary greatly in size and

operations. As a result, under a tiered rate structure larger non-SFR customers (e.g., Walmart stores, apartment complexes, golf courses) would pay the highest tiered rates for *most of their water, even* though they used water efficiently *for their size*. Bui explained that this would be "inequitable" to large non-SFR customers, and for this reason City did not adopt tiered **[**96]** rates for the non-SFR customer classes.

But as the trial court explained, SFR customers using more than 12 HCF in a billing cycle "because they have large homes and large families are charged for water services at Tier 3 or 4 rates"—higher than the flat rates other customers are charged—even if these SFR customers are using water efficiently. Thus, we agree with the trial court that City's rationale for using tiered rates for SFR customers and flat rates for other customers is unsound. City adduced no other evidentiary support for the rate disparities between the SFR class and other customer classes. In sum, substantial evidence, credited by the trial court, showed that City's SFR tiered rates price-discriminate against City's SFR customer class, including SFR customers using water in Tiers 3 and 4, in favor of City's other customer classes. (*Palmdale, supra, 198 Cal.App.4th at p. 937* [unjustified prices between customer classes violate **[*285]** § 6(b)(3)]; *Capistrano, supra, 235 Cal.App.4th at pp. 1507–1508* [unjustified prices between tiers violate § 6(b)(3)].) [14]

7. *Conclusion*

City did not establish that City's SFR tiered rates, which went into effect in 2014 and 2016 pursuant to City's 2013 and 2015 ratemaking processes, **[**97]** were compliant with section 6(b)(3). Thus, we affirm the trial court's Phase I liability decision.

The dissent agrees with City's arguments (including that the standard of review is reasonableness, which we have addressed above) and concludes that City's evidence is both indisputable and legally sufficient to show that City's SFR tiered rates comply with section 6(b)(3). (Dis. opn., *post*, at pp. 311–313.). The dissent argues there are no material disputed factual issues, our majority opinion does not identify any, and judgment must therefore be entered in favor of City. (Dis. opn., *post*, at pp. 311, 345.) But as we have attempted to explain in addressing City's claims, the record as a whole does not permit only one reasonable inference—in favor of City. Rather, substantial evidence, credited by the trial court, shows City's SFR-tiered rates are not cost proportional; rather, they *exceed* the costs of delivering water to SFR customers using water in Tiers 3 and 4 (more than 18 HCF) in a billing cycle and therefore violate section 6(b)(3). As discussed, City presented no evidence that SFR Tiers 3 and Tier 4 users were "far more likely," or at all likely, to consume more water at peak times than SFR customers whose usage remained within Tiers 1 and 2, or **[**98]** City's other customers, and, therefore, that Tier 3 and 4 users contributed more to the need to upsize the system to meet Max Day and Max Hour demand on the system. Yet, City allocated all of the SFR's class's estimated Max Hour costs to SFR Tiers 3 and 4.

CA(27) **(27)** We agree that *HN27* there is not necessarily only one way to calculate and allocate the cost of providing water service to various parcels, and that future costs of such services must be projected, or estimated. (Dis. opn., *post*, at pp. 314–315, 318.) But this does not mean that trial courts must accept an agency's cost projections, or cost allocations, particularly when other evidence shows the agency's projections or allocations are based on faulty assumptions or insufficient data. (*Coziahr, supra, 103 Cal.App.5th at p. 803* **[*286]** ["[H]aving rate studies, and an expert who agrees with them, [was] not enough." Rather, "Otay still had to substantiate the analysis with data that meaningfully captured the cost of service to the parcel for Otay's SFRs," and "[w]hether [Otay] did so was for the trial court to decide in the first instance."].) We also agree that section 6(b)(3) theoretically *permits* agencies to impose either uniform rates or tiered rates (dis. opn., *post*, at p. 316), but it does not follow that agencies must **[**99]** necessarily be allowed to impose tiered rates (see dis. opn., *post*, at pp. 316–318).

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[14] Given our conclusion that the disparities in rates between customer classes are unsupported by the record, it is unnecessary to address Class's claim that City violated *Palmdale* in a second way, by using unsupported peaking factors in allocating City's total revenue requirement to the customer classes, thus "tainting" (by unduly inflating) the total SFR revenue requirement. *Coziahr* also declined to consider this issue. (*Coziahr, supra, 103 Cal.App.5th at p. 814, fn. 14.*)

CA(28) **(28)** The dissent faults *Coziahr* and our majority opinion for not explaining "how a defendant agency is supposed to carry its burden in a section 6(b)(3) suit." (Dis. opn., *post*, at pp. 320, 329.) But HN28 the agency's burden of proof is straightforward: the agency must show that the fee or charge for the property-related service does not exceed the proportional cost of delivering the service to the parcel. (§ 6(b)(3).) As to how water agencies are to meet this burden in defending tiered water rates, we suggest that water agencies not impose tiered rates (without a vote), where substantial evidence shows the tiered rates are not cost proportional, despite the agency's purportedly "reasonable" cost projections, allocation methods, and data. In such cases, water agencies risk violating § 6(b)(3) if they impose tiered rates. Further, tiered rates are not necessarily constitutional. (§ 6(b)(3).) Although *Capistrano*, in dictum, called tiered rates "a good idea" (*Capistrano, supra, 235 Cal.App.4th at p. 1511*), section 6(b)(3) does not necessarily permit them. Contrary to the dissent's argument, California courts have *not* "repeatedly held that tiered water rates can be made consonant **[**100]** with Proposition 218." (Dis. opn., *post*, at p. 329.)

The dissent discredits and dismisses the substantial evidence, credited by the trial court, showing that City's SFR tiered rates are not cost proportional. (Dis. opn., *post*, at pp. 328–341.) Regarding City's claim that Tier 1 was based on the lower costs of local water supplies, the dissent argues City has never claimed "that water billed at tier 1 rates comes exclusively from local supply," or if it did, the claim would be "outlandish," and in any event, "the alleged claim that tier 1 water comes from local supply" is irrelevant because it played "no role" in City's cost calculation and allocation. (Dis. opn., *post*, at pp. 332–335, italics omitted.) But the 2013 and 2015 COSSs stated that "'the pricing differentials between the tiers'" were "based in part 'on local and nonlocal water supply costs'" and "'changing the mix of water supplies through the tiers.'" Bui later conceded that Tier 1 pricing was not based on the lower costs of local supply. The relevance of this is that it discredits City's original justifications for the SFR tiered pricing and shows that City's cost allocations amounted to "an unsupported, post hoc rationalization" for the tiered rates. City's lack **[**101]** of time-of-use data, and any other evidence showing that SFR customers who use water in Tiers 3 and 4 contribute more **[*287]** to Max Day and Max Hour costs than other water customers, further undermines City's analysis.

F. *Government Code Section 53750.6 Does Not Assist City's Argument*

City argues this court should disregard *Coziahr*'s peaking factor analysis (*Coziahr, supra, 103 Cal.App.5th at pp. 808–812*) because it does not consider and conflicts with newly enacted *Government Code section 53750.6*. (Stats. 2024, ch. 359, § 1, eff. Jan. 1, 2025.) There is no conflict.

CA(29) **(29)** *Coziahr* concluded that Otay did not show that Otay's tiered rates did not exceed Otay's cost of service (§ 6(b)(3)), in part because Otay presented insufficient evidence that it incurred higher costs for delivering water to SFR customers on peak days and during peak hours. (*Coziahr, supra, 103 Cal.App.5th at pp. 815–819*.) HN29 *Government Code section 53750.6* merely allows, but does not require, fees or charges for water services governed by *article XIII D* to include "the incrementally higher costs of water service due to" a parcel's "higher water usage demand" "maximum potential water use," and "[p]rojected peak water usage." (*Gov. Code, § 53750.6, subd. (a)*.) The new statute also allows such higher costs to be allocated (1) "using any method that reasonably assesses" the cost of serving the parcels, and (2) among or within customer classes, or both, "based on meter size or peaking **[**102]** factors … ." (*Gov. Code, § 53750.6, subd. (b)(1)–(2)*.) The statute is declaratory of existing law. (*Id.*, *subd. (c)*.) [15]

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[15] The full text of *Government Code section 53750.6* states: "(a) The fees or charges for property-related water services imposed or increased pursuant to Section 6 of Article XIII D of the California Constitution may include the incrementally higher costs of water service due to any of the following: [¶] (1) The higher water usage demand of parcels. [¶] (2) The maximum potential water use. [¶] (3) Projected peak water usage. [¶] (4) Any combination of paragraphs (1) to (3), inclusive. [¶] (b) (1) The incrementally higher costs of water service associated with higher water usage demands, the maximum potential water use, or projected peak water usage may be allocated using any method that reasonably assesses the water service provider's cost of serving those parcels that are increasing potential water usage demand, maximum potential water use, or projected peak water usage. [¶] (2) In addition to any other method consistent with Section 6 of Article XIII D of the California Constitution, the incrementally higher costs of water service associated with higher water usage demand, maximum potential water use, or projected peak water

HN30 *CA(30)* **(30)** *Government Code section 53750.6* does not excuse agencies from complying with section 6(b)(3), nor could it. (*Wright v. Compton Unified Sch. Dist. (1975) 46 Cal.App.3d 177, 183 [120 Cal. Rptr. 115]* [statutes inconsistent **[*288]** with or contrary to constitutional provisions cannot stand].) *HN31* *CA(31)* **(31)** Section 6(b)(3) mandates that, if an agency imposes tiered water rates, it must show that the rates do not exceed the proportionate cost of delivering water at the tiered usage levels. (*Coziahr, supra, 103 Cal.App.5th at pp. 808, 819*.) "Section 6(b)(3) does not require or bar use of any particular type of supporting data, so long as it meaningfully reflects cost of service to the parcel." (*Coziahr, at p. 818, fn. 15*; see *Capistrano, supra, 235 Cal.App.4th at p. 1516* [section 6(b)(3) does not allow "above-cost-of-service pricing for tiers of water service"].) The water agency in *Coziahr*, Otay, did not meet this burden. (*Coziahr, at pp. 809–819*.) Neither did City here. [16]

G. *Class Certification Was Properly Granted*

City claims the trial court abused its discretion in certifying Class, defined as "all single-family residential customers of the City of San Diego who received water service after August 21, 2014." City claims certification should have been denied for two reasons: first, Class was "fatally overbroad" because **[**103]** it includes "uninjured" members, namely, SRF customers who are not entitled to a refund; second, Class members had "inherent and irreconcilable conflicts of interest in the outcome" of Class's section 6(b)(3) claim. We conclude certification was properly granted.

1. *Additional Background*

Plaintiffs moved for class certification in July 2019, following the filing of their fifth amended complaint in April 2019. Following a hearing, the court granted the motion in an August 16, 2019 minute order, but deferred defining the class period, temporarily defining Class as "All single-family residential customers of the City … who received water service after a date to be determined … based on the applicable limitations period." In a December 6, 2019 order, the court granted Class's motion to define the class period as beginning August 21, 2014, one year before Patz filed his administrative claim.
[*289]

In its August 16 order granting certification, the court noted that plaintiffs were seeking a judicial declaration that City's "overall water rate structure operates as an illegal tax, fee, or charge in violation of *article XIII D*," and, if the rate structure was unconstitutional for the named plaintiffs, it was unconstitutional **[**104]** for everyone in the proposed class. Thus, the court found "the common legal issue" was whether City's rate structure was constitutional.

In its December 6 order defining the class period, the court elaborated on its reasons for certifying the class: "[P]laintiffs are challenging a uniform policy both in this suit, and in the severed action *Coziahr*. … [P]laintiffs seek a declaration the overall water rate structure operates as an illegal tax, fee, or charge in violation of *article XIII D* … and that the revenues defendant derives from its water rates exceed the funds required to provide the property related service … . [¶] Notwithstanding defendant's position that plaintiffs are challenging the rate of the increase,

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usage may be allocated among customer classes, within customer classes, or both, based on meter size or peaking factors, as those methods reasonably assess the water service provider's cost of serving parcels that increase water usage demand, maximum potential water use, or projected peak water usage. [¶] (c) This section is declaratory of existing law."

[16] The Senate Rules Committee Analysis of Assembly Bill No. 1827 (Off. of Sen. Floor Analyses, Rep. on Assem. Bill No. 1827 (2023–2024 Reg. Sess.), as amended Apr. 4, 2024, at pp. 2–3), mentions the pending appeal in *Coziahr*, and the 2021 trial court decision in this case, and comments: "'Recent trial courts' imposition of increasing degrees of granularity and precision, instead of well accepted methods for cost allocation, have made the allocation of costs to higher water users nearly impossible. AB 1827 affirms that existing law allows water suppliers to use reasonable and well-accepted methods of assessing the incremental costs associated with higher water usage demands to high water users; thereby, confirming what Proposition 218 requires for water rates and charges.'" (*Id.* at p. 4.) The bill "ensures, if someone is using enough water to increase the costs of operating a water system, the higher water user pays for those costs, not those who are making efforts to conserve water." (*Id.* at p. 5.) Thus, the analysis confirms what *Government Code section 53750.6* allows: agencies *can* impose tiered rates, provided the rates are based on and do not exceed higher costs of service, if any, for higher usage. (§ 6(b)(3).)

plaintiffs are primarily challenging the *method* of assessment." The court cited Plantier, supra, 7 Cal.5th 372, where our Supreme Court observed that section 6(b)(3) "concerns the *method* used to allocate a property-related service's aggregate cost among fee payors," given that the provision, "'ensures that the aggregate fee collected on all parcels is distributed among those parcels in proportion to the cost of service for each parcel.'" (Plantier, at p. 382.)

2. *City's Argument Supporting Denial of Certification*

City offers **[**105]** the following evidence in support of its claims that Class had (1) a large portion of "uninjured" members, and (2) members with conflicts of interest in whether Class prevailed on its section 6(b)(3) claim: "[W]ater ratesetting is a zero-sum game. As [City] explained to the trial court, … [plaintiffs] must prove that the City set SFR rates that charged some SFR customers more than they should pay for water while charging other SFR customers less. Therefore, [plaintiffs] necessarily contend that in each billing cycle the City charged some SFR customers (those paying Tier 3 and/or Tier 4 rates) more for water than the City's cost to provide those customers with water (Overpayers). If [plaintiffs] are correct, then the other SFR customers in that billing period necessarily paid less for water than the City's cost to provide water to those customers (Underpayers)." Thus, City argues that, although an SFR customer "may be an Overpayer in one billing cycle and an Underpayer in the next billing cycle," "only those class member[s] calculated to have a net overpayment for water *during the entire class period* are entitled to a refund."

City next points out that, in opposing certification, "City presented **[**106]** evidence that at least 68.8 percent of the proposed class members were Net **[*290]** Underpayers who underpaid for water during the class time period and would not be entitled to a refund if [plaintiffs] prevailed." Further, during the Phase II trial on damages, City's expert determined that "only about 20 percent of class members [were] Net Overpayers entitled to a refund. The remaining 80 percent of class members [were] Net Underpayers who will receive no refund" if the judgment for plaintiffs is upheld. City argues this Phase II trial evidence "backs up the City's earlier evidence demonstrating that the proposed class was grossly overbroad because at least 68.8 percent of class members were unharmed and would not be entitled to a refund."

City claims its "evidence and the expert's analysis" showed that "the new SFR rates adopted by the City [in the judgment] will necessarily reduce water charges for approximately 20 percent of current SFR customers" and increase water charges for the other 80 percent of current SFR customers. City claims its evidence showed that the 80 percent of the class members who will not receive a refund, but who will remain City water customers, "will be forced to pay **[**107]** higher water rates in the future to fund the refund payments to the 20 percent of the class members entitled to a refund—a large portion of whom are no longer customers and will not face rate increases." Thus, City argues, "not only will class members who are continuing customers face increased rates" due to City's adoption of new rates compliant with section 6(b)(3), these class members "and all new system customers will be required to pay dramatically higher rates for years into the future to fund the more than $79 million in refund payments" the City will be required to make to only 20 percent of the Class.

3. *Legal Principles*

HN32 ***CA(32)*** **(32)** "Section 382 of the Code of Civil Procedure authorizes class suits in California when 'the question is one of a common or general interest, of many persons, or when the parties are numerous, and it is impractical to bring them all before the court.'" (Linder v. Thrifty Oil Co. (2000) 23 Cal.4th 429, 435 [97 Cal. Rptr. 2d 179, 2 P.3d 27] (Linder).) Generally, "a class [action] suit is appropriate 'when numerous parties suffer injury of insufficient size to warrant individual action and when denial of class relief would result in unjust advantage to the wrongdoer.' [Citations.] But because group action also has the potential to create injustice, trial courts are required to '"carefully weigh respective benefits **[**108]** and burdens and to allow maintenance of the class action only where substantial benefits accrue both to litigants and the courts."'" (*Ibid.*)

HN33 ***CA(33)*** **(33)** "The party seeking certification as a class representative must establish the existence of an ascertainable class and a well-defined community of interest among the class members. [Citation.] The community of **[*291]** interest requirement embodies three factors: (1) predominant common question of law or fact; (2) class representatives with claims or defenses typical of the class; and (3) class representatives who can adequately

represent the class." (*Richmond v. Dart Industries, Inc. (1981) 29 Cal.3d 462, 470 [174 Cal. Rptr. 515, 629 P.2d 23] (Richmond)*.)

HN34 ***CA(34)*** **(34)** Trial courts are "afforded great discretion in granting or denying [class] certification. … [I]n the absence of other error, a trial court ruling supported by substantial evidence generally will not be disturbed 'unless (1) improper criteria were used [citation]; or (2) erroneous legal assumptions were made [citation]' [citation]. Under this standard, an order based upon improper criteria or incorrect assumptions calls for reversal '"even though there may be substantial evidence to support the court's order."' [Citations.] Accordingly, we must examine the trial court's reasons for denying class certification. **[**109]** 'Any valid pertinent reason stated will be sufficient to uphold the order.'" (*Linder, supra, 23 Cal.4th at pp. 435–436*.) When a class certification motion depends on the evaluation of disputed evidence, we review the trial court's factual determinations under the substantial evidence standard. (*Sav-On Drug Stores, Inc. v. Superior Court (2004) 34 Cal.4th 319, 328 [17 Cal.Rptr.3d 906, 96 P.3d 194] (Sav-On)*.) That is, we uphold the trial court's express or implied factual findings if substantial evidence supports them. (*People v. Memro (1995) 11 Cal.4th 786, 805 [47 Cal.Rptr.2d 219, 905 P.2d 1305]*.)

4. *City's Overbreadth Claim Lacks Merit*

City claims Class is "fatally overbroad" because it includes "uninjured" members, namely, SFR customers who are net "overpayers" and will not receive a refund. City relies on *Sevidal v. Target Corp. (2010) 189 Cal.App.4th 905 [117 Cal. Rptr. 3d 66] (Sevidal)*, where class certification was denied on the grounds the class was (1) unascertainable (*id. at pp. 920–923*), and (2) "overbroad because a substantial portion of the class would have no right to recover on the asserted legal claims" (*id. at p. 923*). [17] *Sevidal* is inapposite because, here, all Class members had a "right to recover" declaratory and injunctive relief on Class's predominate claim that City's method of calculating water rates for SRF customers was unconstitutional under section 6(b)(3). *Sevidal*, in contrast, did not involve a classwide injury.
[*292]

In *Sevidal*, the proposed class was comprised of people who purchased clothing items from Target's website that were misidentified **[**110]** as "'Made in the USA.'" (*Sevidal, supra, 189 Cal.App.4th at pp. 909–911*.) The representative *primarily sought monetary relief* on behalf of all class members, under the *unfair competition law (UCL) (Bus. & Prof. Code, § 17200 et seq.)* and *false advertising law (FAL) (Bus. & Prof. Code, § 17500 et. seq.)*. (*Sevidal, at pp. 910, 923*.) A plaintiff is not entitled to restitution under the UCL or the FAL without "'"individualized proof of deception, reliance, and injury."'" (*Sevidal, at p. 925*.) Thus, a plaintiff who was "'not exposed'" to the alleged misrepresentation cannot show injury and is not entitled to restitution. (*Ibid.*, italics omitted.)

Although the class representative in *Sevidal* clarified at the certification stage that the class was only to include "those who purchased an item *when the country of origin was misidentified*," the proposed definition of the class included "consumers who purchased an item from Target.com without selecting the '"Additional Info."' icon, and thus who were never exposed to the country-of-origin information." (*Sevidal, supra, 189 Cal.App.4th at pp. 920–921*.) Target's statistical evidence showed that around 80 percent of the proposed class did not have a restitution claim because they had purchased an item without viewing the country-of-origin information. (*Id. at pp. 921, 925–926*.) Thus, the *Sevidal* court concluded the proposed class was "'overbroad'" because there was no "classwide injury." (*Id. at pp. 925–926, 928*.)

City argues that here, as in *Sevidal*, "80 percent of the **[**111]** class [the underpayers] were unharmed and would have no claim for liability." We disagree. Substantial evidence supports the trial court's finding that one classwide

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[17] Class construes City's reliance on *Sevidal* as arguing Class's certification should have been denied because Class was not ascertainable. (*Sevidal, supra, 189 Cal.App.4th at pp. 918–923* [upholding denial of class certification on the ground the proposed class was not ascertainable].) But City does not argue the Class was not ascertainable. Rather, City argues Class was overbroad because it included uninjured members, namely SFR members who were "underpayers" and therefore not entitled to a refund for overpaid water rates.

issue predominated among all proposed class members: whether City's method of calculating water rates for SFR customers satisfied the proportionality requirement. (§ 6(b)(3).) As Class points out, "all class members were subject to a tiered system that was not based on the cost of service for the incremental level of usage in violation of article XIII D of the Constitution. The remedy for this classwide injury was classwide injunctive relief ordering the City to comply with the Constitution." The remedy also includes classwide declaratory relief: the court's decree that City failed to meet its burden of proving that the tiered water rates imposed on Class based on City's 2013 and 2015 ratemakings complied with section 6(b)(3).

City's reliance on Mazur v. eBay, Inc. (N.D.Cal. 2009) 257 F.R.D. 563, 567 and Junod v. NWP Services Co. (C.D.Cal., July 18, 2016, 8:14-cv-1734-JLS (JCGx)) is similarly misplaced. In these cases, as in Sevidal, certification was properly denied because no classwide injury was shown. (Mazur, at p. 567; Junod, at pp. *7–*12; Pfizer Inc. v. Superior Court (2010) 182 Cal.App.4th [*293] 622, 633–634 [105 Cal. Rptr. 3d 795].) In contrast here, all class members have been injured by City's unconstitutional water rate methodology and **[**112]** structure.

CA(35) **(35)** Further, and as Class points out, that only some Class members may be entitled to a refund does not defeat Class's common interest in its Proposition 218 claim. HN35 "The requirement of a community of interest does not depend upon an identical recovery, and the fact that each member of the class must prove his separate claim to a portion of any recovery by the class is only one factor to be considered in determining whether a class action is proper." (Vasquez v. Superior Court (1971) 4 Cal.3d 800, 809 [94 Cal. Rptr. 796, 484 P.2d 964], superseded by statute as stated in Flores v. Southcoast Automotive Liquidators, Inc. (2017) 17 Cal.App.5th 841, 851 [226 Cal. Rptr. 3d 12].) "Predominance is a comparative concept, and 'the necessity for class members to individually establish eligibility and damages does not mean individual fact questions predominate.'" (Sav-On, supra, 34 Cal.4th at p. 334.) Thus, a common monetary recovery is not required in order to establish a community of interest. (Daar v. Yellow Cab Co. (1967) 67 Cal.2d 695, 707 [63 Cal. Rptr. 724, 433 P.2d 732].) "Nor is it a bar to certification that individual class members may ultimately need to itemize their damages." (Sav-On, at p. 334.) Here, all Class members had a common interest seeing that City corrected its unconstitutional method of calculating water rates for SFR customers, going forward, even if some Class members were not "overpayers" and entitled to a refund.

Schwartz v. Citibank, N.A. (9th Cir. 2002) 50 Fed.Appx. 832 is instructive. In upholding class certification, the court explained that, **[**113]** "[r]egardless of the potential differences in damages suffered by class members, all of their claims stem from Citibank and Universal's failure to credit payments to consumers' accounts as of the date on which they were received, unless the payments were received before 10:00 AM that day. … [T]he named class representatives adequately and fairly represent[ed] the interests of the class … . There is no inherent conflict of interest between the named plaintiffs, all of whom actually suffered late fees or finance charges as a result of defendants' policies, and those class members who suffered no similar injury. [Citation.] The overarching goal of this litigation was to reimburse cardholders for finance charges and late fees actually incurred as a result of the defendants' early cut-off policy, *and to change that policy*. Each of the class plaintiffs, regardless of whether a monetary loss was suffered, had a similar interest in obtaining relief from the defendants' policy." (Id. at p. 835, italics added.)

Similarly here, the overarching goal of this litigation has been to obtain relief from City's unconstitutional tiered rate structure for SFR customers, by **[*294]** enjoining City from continuing with the rate **[**114]** structure and reimbursing SFR customers who were overcharged for water services after August 14, 2014. All Class members have a common interest in having City adopt water rates that comply with section 6(b)(3). That Patz and Chesner may be entitled to refunds as "overpayers," while other Class members who did not overpay for water service may not be entitled to refunds, does not undermine the predominant, common interest of all Class members in having City adopt a constitutional water rate structure, going forward.

CA(36) **(36)** Thus, as Class argues, its representatives' claims are "typical" of Class's claims. HN36 "'"Typicality refers to the nature of the claim or defense of the class representative, and not to the specific facts from which it arose or the relief sought.'" [Citations.] The test of typicality "is whether other members have the same or similar

injury, whether the action is based on conduct which is not unique to the named plaintiffs, and whether other class members have been injured by the same course of conduct."'" (*Seastrom v. Neways, Inc. (2007) 149 Cal.App.4th 1496, 1502 [57 Cal. Rptr. 3d 903] (Seastrom)*.) The test of typicality was met here. Class's action against City is not based on a course of conduct that uniquely affects the representative members, or other members who are or may **[**115]** be entitled to a refund. Rather, all Class members have been injured by City's adoption of an unconstitutional method of calculating water rates for SRF customers.

City argues Class members who were not entitled to a refund (i.e., who were not charged for water service in an amount that exceeded City's "proportional cost of the service attributable to the parcel" (§ 6(b)(3))) did not suffer a constitutional violation and were therefore uninjured. City argues Class's alleged "constitutional injury … is clearly defined by section 6(b)(3) as paying a 'fee or charge' for water that 'exceed[s] the [City's] proportional cost of the service attributable to the parcel.'"

City's argument disregards Class's predominant, classwide interest in enjoining City's unconstitutional rate structure. As Class argues, "every class member risks an unexpected event catapulting them into an exorbitant bill detached from the actual cost of their water service. … [S]omething as simple as a leak could push even the most conservation-minded [SRF] customer into higher-tier usage." Thus, Class was awarded declaratory and injunctive relief, while members who suffered economic loss were *additionally* awarded refunds.[18]
[*295]

CA(37) **(37)** City's **[**116]** argument is also at odds with section 6(b)(3). As noted in *Plantier*, *HN37* section 6(b)(3) "'ensures that the aggregate fee collected on all parcels is distributed among those parcels in proportion to the cost of service for each parcel.'" (*Plantier, supra, 7 Cal.5th at p. 382*, quoting *Morgan, supra, 223 Cal.App.4th at p. 908*.) Thus, section 6(b)(3) "concerns the *method* used to allocate a property-related service's aggregate cost among fee payors." (*Plantier, at p. 382*.) Here, Class's predominate, section 6(b)(3) claim concerns the method City used to calculate its tiered rates for SFR customers, and the constitutionality of this method concerns all Class members.

5. *City's Conflict of Interest Claim Lacks Merit*

HN38 *CA(38)* **(38)** A conflict of interest among class members will defeat certification when the conflict "'goes to the very subject matter of the litigation.'" (*Richmond, supra, 29 Cal.3d at pp. 470–471*.) Such a conflict of interest undermines the adequacy of representation, an element of the community-of-interest requirement. (*Id. at p. 470*; see *J. P. Morgan & Co., Inc. v. Superior Court (2003) 113 Cal.App.4th 195, 213 [6 Cal. Rptr. 3d 214] (J.P. Morgan)*.) As *Richmond* explained: "when the party opposing certification presents evidence that indicates widespread antagonism to the class suit, the adequacy of representation is called into question. 'It is axiomatic that a putative representative cannot adequately protect the class if his interests are antagonistic to or in conflict with the objectives of those he purports to represent. **[**117]** But only a conflict that goes to the very subject matter of the litigation will defeat a party's claim of representative status.'" (*Richmond, at p. 470*.)

As detailed above, City claims it presented evidence, in the Phase II damages trial (after certification), that 80 percent of class members "will not receive a refund but will be forced to pay higher water rates in the future to fund the refund payments to the 20 percent of the class members entitled to a refund—a large portion of whom are no longer customers and will not face rate increases." On this basis, City argues "the named class members and

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[18] City further argues that, by seeking to certify Class as an "opt-out" class, Class "admitted that the monetary refund claim is [Class's] predominate goal," and "the declaratory and injunctive relief claims are incidental." City observes that mandatory class actions are appropriate when "indivisible" injunctive or declaratory relief is appropriate for the entire class, and "[i]ndividualized monetary claims" do not predominate. (*Carter v. City of Los Angeles (2014) 224 Cal.App.4th 808, 823–824 [169 Cal. Rptr. 3d 131]*.) Thus, City argues, if Class's declaratory relief claim was its "overarching goal" and its refund claim "incidental," then Class "should have sought certification [as] a mandatory class," and because Class did not seek certification as a mandatory class "Class admitted that the monetary refund claim is the predominant goal … , and the declaratory and injunctive relief claims are incidental." We disagree. Class was not required to seek certification as a mandatory class, and its failure to do so does not indicate that its claims for declaratory and injunctive relief did not predominate over its refund claim.

similar Net Overpayers (only about 20 percent of the class members) had an interest in prevailing on the section 6(b)(3) legal claims *at the heart of the dispute* so that they can obtain lower water rates in the future and the largest possible refund amount. In contrast, the interests of the Net Underpayers **[*296]** (about 80 percent of the class members) who benefited under the current rate structure would be best served if the named class members fail on the section 6(b)(3) legal claim." This is so, City argues, because the Net Underpayers "will be required to pay significantly higher rates for years into the future to fund the $79 million in **[**118]** refund payments due to the other 20 percent of class members [the Net Overpayers]."

Class disputes City's conflict-of-interest theory on several grounds. One is dispositive: Class shared a common, classwide interest in remedying City's unconstitutional method of calculating water rates for SFR customers. (§ 6(b)(3).) As Class points out, "[t]here simply is no 'zero-sum game' within the class here—*all* class members faced a rate structure designed to recover a portion of the revenue requirement that the City failed to prove … was cost-justified," that is, was based on City's cost of delivering water services to SFR customers as a whole.

Moreover, City did not prove, during the Phase II trial on damages and remedies, that the money portion of the judgment ($79 million) "must be satisfied by rate increases" on SFR customers, as opposed to being paid from City's water fund reserves. During Phase II, City submitted an expert report from City's consultant, Mark Hildebrand, stating that any refunds to the Class "must be paid using ratepayer funds and assets," and that these funds and assets would, in turn, have "to be recovered through future rate increases in order for rate increases to **[**119]** keep pace with the water enterprise's operating, capital, and debt obligations." Thus, Hildebrand opined that Class's proposed refund remedy would, "only penalize current and future ratepayers for the benefit of a small portion of past and present ratepayers." But, when asked about these statements in his report during his deposition, Hildebrand admitted he did not "actually know" that City would have to raise rates to pay a judgment in favor of Class. Hildebrand also said he did know whether City had insurance or a fund that could cover a refund award to Class. Thus, as Class argues, "any purported conflict on the theory that a judgment here would require the City to raise its rates is speculative and cannot support decertification." (See *Vogt v. State Farm Life Ins. Co. (8th Cir. 2020) 963 F.3d 753, 767–768*.)

CA(39) **(39)** Further, any future rate increase on SFR customers to pay the judgment in favor of Class, would not create a conflict of interest between net overpayers and net underpayers, sufficient to predominate over Class members' common, classwide interest in seeing that City adopts a ratemaking methodology and rate structure that complies with section 6(b)(3). As discussed, all Class members are at risk of paying higher, noncost-based water rates in Tier 3 and Tier **[**120]** 4, under City's current, unconstitutional ratemaking methodology and rate structure. (*Ward v. Dixie National Life Ins. Co. (4th Cir. [*297] 2010) 595 F.3d 164, 180* [*HN39* "For a conflict of interest to defeat the adequacy requirement, 'that conflict must be fundamental,'" and "[a] conflict is not fundamental when, as here, all class members 'share common objectives and the same factual and legal positions [and] have the same interest in establishing the liability of [defendants].'"]; *Sav-On, supra, 34 Cal.4th at pp. 329–332* [certification upheld where substantial evidence supported trial court's determination that common issues predominated over questions affecting individual class members].)

The premise of City's conflict argument—that Class members not entitled to refunds would prefer continuing City's unconstitutional rate system—is that many courts have rejected the argument that an individual can object to class certification on the ground they would prefer not to remedy the unlawful circumstance the class seeks to remedy. (*Scanlan v. American Airlines Group, Inc. (E.D.Pa. 2021) 567 F.Supp.3d 521, 532* ["Defendants cannot defeat class certification based on a conflict on the ground that some proposed class members favor the continuation of unlawful conduct."]; *Ruggles v. Wellpoint, Inc. (N.D.N.Y. 2011) 272 F.R.D. 320, 338* ["Adequacy is not undermined where the opposed class members' position requires continuation of an allegedly unlawful **[**121]** practice."]; *Capital People First v. State Dept. of Development Services (2007) 155 Cal.App.4th 676, 699 [66 Cal.Rptr.3d 300]* ["Interveners have no legitimate interest in furthering any continuing violations of the law, or in preventing other class members from seeking systemic relief to correct any violations found by the court."].)

CA(40) **(40)** In sum, City has not shown the trial court disregarded evidence of a conflict of interest among Class members, based on whether a Class member is entitled to a refund or would prefer to continue with City's ratemaking methodology and rate system—either at the time the Class was certified or at the Phase II trial. Further, City never moved to decertify Class based on City's Phase II trial evidence or other evidence. HN40 "Before judgment, a class should be decertified 'only where it is clear there exist changed circumstances making continued class action treatment improper.'" (*Green v. Obledo (1981) 29 Cal.3d 126, 148 [172 Cal. Rptr. 206, 624 P.2d 256]*.) City's Phase II evidence did not show that the original certification was improper, or that continued certification would be improper.

City's reliance on *J.P. Morgan, supra, 113 Cal.App.4th 195* and *Seastrom, supra, 149 Cal.App.4th 1496* is unavailing. In *Seastrom*, the proposed class representatives and the plaintiffs were themselves "potential *defendants*" because they were seeking to retain profits that their complaint alleged were illegal and that other class members had an interest **[**122]** in suing them to disgorge. (*Seastrom, at p. 1502*.) Thus, *Seastrom* involved an "insurmountable" conflict that went "to the very subject matter of the litigation," rendering the proposed **[*298]** representatives unable to adequately represent the interests of the class. (*Seastrom, at p. 1502*; see *Richmond, supra, 29 Cal.3d at p. 470*.)

J.P. Morgan involved insurmountable conflicts among class members regarding the class's predominate legal claim. (*J.P. Morgan, supra, 113 Cal.App.4th 195, 214–215*.) The plaintiffs in *J.P. Morgan* and its companion case, *Global Minerals & Metals Corp. v. Superior Court (2003) 113 Cal.App.4th 836 [7 Cal. Rptr. 3d 28]*, "were purchasers of copper products who alleged that the defendants had manipulated the price of copper … causing an artificial inflation of prices" (*In re Cipro Cases I & II (2004) 121 Cal.App.4th 402, 415 [17 Cal. Rptr. 3d 1]*). Nationwide class certification was denied in both cases, based on, among other things, "potential conflicts of interest among the proposed class members because they acted in different capacities as both buyers and sellers of copper products in various transactions, and there was a question whether the overcharges were passed on to the next purchaser… ." (*Ibid.*) In contrast here, there is no conflict of interest among class members regarding Class's Proposition 218 claim or refund claims, the subject matters of this class action. Thus, City's conflict of interest claim lacks merit.

IV. CLASS'S APPEAL

In the judgment, City was ordered to pay Class $79,541,880 to **[**123]** refund the amount class members paid for water in excess of the City's proportional cost of providing water service to each class member's parcel from August 14, 2014, through March 31, 2022, with the amount to increase by $643,750 each month thereafter until City imposes water rates consistent with section 6(b)(3).[19]

In its appeal, Class challenges the amount of its refund award, claiming it should have been $107,124,971, or $27,583,091 more than the $79,541,880 the court awarded. Class argues that the $27,583,091 difference is an unpled "setoff," that has no legal or equitable basis, and amounts to retroactive, "impermissible shadow ratemaking" in violation of the procedural requirements of Proposition 218. We reject these claims of error and conclude, on independent review, that City's method of calculating the refund award complies with section 6(b)(3).
[*299]

A. *Class Fails To Establish That City's Method for Calculating the Refund Award Violates Section 6(b)(3)*

1. *Additional Background*

For the Phase II trial, the parties submitted extensive briefing and evidence on the amount of the refund due to Class. At the Phase II trial, the parties told the court they had "narrowed" their dispute to whether the principal amount of the refund award should be $107,124,971, as Class claimed, or $79,541,880, as City argued. City's experts calculated **[**124]** the $79,541,880 refund in what we will describe as four parts.

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[19] The judgment also awards Class prejudgment interest and postjudgment interest, and orders City "to impose new water rates consistent with the requirements of … section 6(b)(3) by the later of (a) January 1, 2023, or (b) not more than 9 months after City fully exhausts its right to appeal the judgment."

In part one, City calculated a series of flat, uniform rates, one rate for each "rate period" during the "refund time period" of August 14, 2014, through September 30, 2021. There were seven rate periods during the RTP, one for each period City imposed a distinct set of tiered rates. The initial uniform rate of $4.28 per HCF for the rate period of January 1 through December 31, 2014, was calculated by dividing City's proportionate cost of providing water services to all SFR customers during the rate period, less the costs of service City recovered from SFR customers through fixed charges, by the number of HCF of water the SFR customer class used during the rate period.[20] Thus, each uniform rate is based on City's proportionate cost of delivering one HCF of water to an SFR customer during the rate period, and excludes the customer's proportionate share of City's fixed costs of delivering water services to all SFR customers.[21]

In part two, City calculated how much City billed "each [SFR] class member for all water delivered to the class member's parcel" during each billing period in the RTP, by multiplying the number of HCF of water **[**125]** the SFR customer used by the tiered rates charged. For example, a customer who used 26 HCF in one billing period was charged tiered rates of $5.257 in Tier 1 for the first eight HCF; $5.888 in Tier 2 for the next 16 HCF; and $8.412 in Tier 3 for the last two HCF, for a total of $153.09 for the 26 HCF. In comparison, if the customer had been charged a uniform rate of $6.068 for the 26 HCF, the customer would have been charged $157.77 (26 x $6.068 equals $157.77).

In part three, City calculated the refund amount, if any, due to each Class member for each billing cycle during the over seven-year RTP. For each bill **[*300]** City issued during the RTP, City subtracted (1) the amount the SFR customer was actually charged for all HCF used in the billing cycle, using the tiered rates ($153.09, in the above example) from (2) the amount the customer would have been charged using the applicable uniform rate ($157.77, same). A negative amount means the customer was "undercharged" in the billing cycle; that is, the customer was charged *less* for each HCF of water used than City's cost of delivering the HCF to the customer, as reflected in the uniform rate. In the above example, the customer was undercharged a total **[**126]** of $4.68 for the 26 HCF of water the customer used in the billing cycle, the $4.68 being the difference between (1) the $153.09 the customer was charged using tiered rates, and (2) the $157.77 the customer would have been charged using the applicable uniform rate. The City performed these calculations for each SFR customer, for each billing cycle during the RTP. The "data set" for the RTP "contained nearly 10 million records covering more than 413,000 customer accounts."

In part four, City calculated the refund amount, if any, due to each Class member during the RTP, by totaling the member's overcharges and undercharges during the RTP. In the trial court, City presented slides showing how it calculated the refunds due to two hypothetical Class members, Customer No. 4 and Customer No. 5. Each customer received water service from City in six billing cycles, from December 2019 to November 2020. Customer No. 4 was undercharged in the first two cycles but overcharged in the last four. Customer No. 4's undercharges and overcharges totaled a positive number, $534.58, making Customer No. 4 a "Net Overpayer," due a refund of $534.58.

In contrast, Customer No. 5 was undercharged in five of **[**127]** the six billing periods, and the five undercharges totaling $40.72, exceeded the customer's single overcharge, in one billing period of $11.74, making Customer No. 5 a "Net Underpayer" of $28.98, with no refund due, despite being overcharged $11.74 in one billing cycle. Likewise, if Customer No. 4's undercharges had not been credited against Customer No. 4's overcharges, Customer No. 4 would have been owed an *additional* refund of $12.79, the total of the two undercharges.

Using the above methodology, City calculated that the refund due to Class for the period August 14, 2014, through March 31, 2022 (including the RTP ending Sept. 30, 2021) totaled $79,541,880, after adjusting the amount to reflect uniform rates without peaking cost allocations. The undercharges for the period of August 14, 2014, through March

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[20] This was the same process that consultant B&V used to calculate the uniform rates imposed on City's non-SFR customer classes in 2014 and 2016.

[21] For rate periods after 2014, the uniform rates were calculated based on "the increases adopted by the City" for the tiered rates; thus, for example, the uniform rate for the rate period year 2015 was 7 percent higher than in 2014.

31, 2022, totaled $27,583,091. At the Phase II trial, Class agreed that City's method of calculating the refund award, which "zeroed out" the undercharges, resulted in a refund of $79,541,880.
[*301]

Following the Phase II trial, the trial court did not issue a statement of decision, but the judgment shows the court accepted City's refund calculation. As noted, the March 30, 2022 judgment **[**128]** orders City to pay Class "$79,541,880 to refund the amount class members paid for water in excess of the City's proportional cost of providing water service to each class member's parcel from August 14, 2014 through March 31, 2022, with the amount to increase by $643,750 each month [thereafter] until City imposes water rates consistent with … section 6(b)(3)."

2. *Standards of Review*

HN41 *CA(41)* **(41)** "'An appellant's challenge to damages, depending upon its specific nature, may be subject to a substantial evidence, abuse of discretion, or de novo standard of review.'" (*Coziahr, supra, 103 Cal.App.5th at p. 820*.) "[W]hether 'a certain measure of damages is permissible given the legal right the defendant has breached, is a matter of law, subject to de novo review.'" (*JMR Construction Corp. v. Environmental Assessment & Remediation Management, Inc. (2015) 243 Cal.App.4th 571, 583 [198 Cal. Rptr. 3d 47]*; see *Greene v. Marin County Flood Control & Water Conservation Dist. (2010) 49 Cal.4th 277, 287 [109 Cal. Rptr. 3d 620, 231 P.3d 350]* [questions of law about the meaning of Prop. 218 are reviewed de novo].)

"The trial court's choice among several legally permissible measures of damages … is a matter of discretion." (*New West Charter Middle School v. Los Angeles Unified School Dist. (2010) 187 Cal.App.4th 831, 843 [114 Cal. Rptr. 3d 504]*.) "The scope of discretion always resides in the particular law being applied, i.e., in the 'legal principles governing the subject of [the] action … .'" (*City of Sacramento v. Drew (1989) 207 Cal.App.3d 1287, 1297 [255 Cal. Rptr. 704]*.) Additionally, the amount of damages awarded "must, in all cases, be reasonable," that is, "no more **[**129]** than reasonable damages can be recovered." (*Civ. Code, § 3359*; see *Coziahr, supra, 103 Cal.App.5th at p. 821*.)

3. *City's Method of Calculating the Refund Complies with Section 6(b)(3)*

CA(42) **(42)** City argues Class's appeal presents the legal question of whether City's method of calculating the refund amount complies with section 6(b)(3). *HN42* Under section 6(b)(3), a fee or charge for a property-related service may not "exceed" the government's proportional costs of providing the service to the parcel. On de novo review, we conclude City's method of calculating the refund complies with section 6(b)(3).

As we have explained, City calculated the $79,541,880 refund by crediting each SFR customer's undercharges against overcharges (the differences between the tiered rates the customer was charged and the uniform rates the **[*302]** customer could have been charged) for each billing cycle during the RTP. City's method of calculating the refund complies with section 6(b)(3) because it ensures that each Class member who is a "net overpayer" (whose overcharges exceeded their undercharges for the entire RTP) will receive a refund for the member's net overpayment, that is, for the amount the member was overcharged for water usage under the City's tiered rate structure, from and after August 14, 2014. **[**130]**

City's method accounts for how much each SFR customer or Class member was both *undercharged and overcharged* for water usage during the RTP, and awards a Class member a refund only if the member was a "net overpayer," that is, if the member was overcharged more than the member was undercharged under City's tiered rate structure, measured by the uniform rates the member could have been charged during the remedy period. As City's expert explained, "Overpayment in the upper tiers necessarily demonstrates underpayment in lower tiers. … Any refund calculation for individual customers must reflect both the underpayment in lower tiers and overpayment in upper tiers, netting the two to arrive at a make-whole remedy. Any proposed remedy that ignores this fact would be granting a windfall by refunding high tier overpayments to a customer without accounting for the customer's lower-tier underpayments." City's evidence illustrates that *only a net overpayer* was charged more than City's proportional cost of providing water services to the member's parcel. If only the overcharges were counted in

calculating the refund award, each Class member would, to the extent of the member's uncounted undercharges, **[**131]** receive a refund *in excess* of City's proportionate cost of providing water service to the member SFR customer.[22]

4. *The Undercharges Are Not an Unproven, Unpled Setoff*

Class claims the $27,583,091 in undercharges was "an unpled and unproven offset," without legal or equitable basis. *Coziahr* considered and rejected the same claim, finding the plaintiffs did not show that including the undercharges in the refund calculation was error, or "involved an unpled offset." (*Coziahr, supra, 103 Cal.App.5th at pp. 827–828*, capitalization & italics omitted.) The same is true here.

CA(43) **(43)** The refund award in *Coziahr*, like the refund award here, "considered both undercharges and overcharges, to assess net damages." (*Coziahr, supra, 103 Cal.App.5th at p. 829*.) Like Class here, the plaintiffs in *Coziahr* claimed the undercharges were "an unpled offset without legal or equitable **[*303]** justification." (*Id. at p. 827*.) In rejecting the plaintiffs' setoff claim, Coziahr began by noting that ***HN43*** "[s]etoff is a defense 'founded on the equitable principle that "either party to a transaction involving mutual debts and credits can strike a balance, holding himself owing or entitled only to the net difference … ."'" (*Id. at p. 828*, quoting *Granberry v. Islay Investments (1995) 9 Cal.4th 738, 744 [38 Cal. Rptr. 2d 650, 889 P.2d 970] (Granberry)*.)

Regarding pleading the **[**132]** defense of setoff, the court observed that "*Code of Civil Procedure section 431.70*, which now codifies setoff, 'authorizes a party who has been sued and has a "cross-demand[] for money" against the plaintiff to "assert in the answer the defense of payment."'" (*Coziahr, supra, 103 Cal.App.5th at p. 828*.)

Coziahr rejected the plaintiffs' argument that "the right to an offset applies when the parties have 'mutual debts and credits' and 'may assert cross-demands for money,' summarizing offset principles from *Granberry* and elsewhere." (*Coziahr, supra, 103 Cal.App.5th at p. 828*, citing *Granberry, supra, 9 Cal.4th at pp. 741–744*.) In sum, *Coziahr* found no merit to the plaintiffs' "attempt to label parts of the court's Phase II refund calculation as 'debts' and 'credits'" or as "cross-demand[s] for money." (*Coziahr, at pp. 828, 829*.)

Here, as in *Coziahr*, the undercharges are best understood as part of City's refund calculation, rather than as debts that Class members owed City, which City could use to offset the refund award. (*Coziahr, supra, 103 Cal.App.5th at p. 829 & fn. 22* [noting that cases involving improper, unpled setoffs were inapposite].) As in *Coziahr*, City did not assert a right to recover the undercharges as offsets against the refund award, and the trial court did **[**133]** not find City was "'owed a credit'" for the undercharges, that is, for amounts "'charged … below the proportional cost of service.'" (*Id. at p. 828*.) Indeed, Class admits City "ha[s] never had a legal right to assert a cross-demand for money from any class member" based on the undercharges, given that City billed class members (SFR customers) for water usage based on the tiered rates.

Thus, as in *Coziahr*, the undercharges and overcharges were not "cross-demand[s] for money" within the meaning of *Code of Civil Procedure section 431.70*. (*Coziahr, supra, 103 Cal.App.5th at p. 829*.) As such, the undercharges were not an improper, unpled setoff.[23]
[*304]

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[22] As in *Coziahr*, we need not and do not address whether City's method of calculating the refund was the only method that complies with section 6(b)(3). (*Coziahr, supra, 103 Cal.App.5th at p. 830, fn. 23*; *Griffith, supra, 220 Cal.App.4th at p. 601* [there may be more than one method of apportioning costs of service under Prop. 218].)

[23] Class argues City has waived its right to credit the undercharges against the overcharges because City failed to plead setoff as an affirmative defense. (*California Academy of Sciences v. County of Fresno (1987) 192 Cal.App.3d 1436, 1442 [238 Cal. Rptr. 154]* ["A party who fails to plead affirmative defenses waives them."].) But because the undercharges were not a setoff against the refund award, City's failure to plead the undercharges as an offset does "waive" the undercharges. (*Coziahr, supra, 103 Cal.App.5th at p. 829*.)

Class argues *Coziahr* "incorrectly found that the trial court did not improperly grant an unpled and unproven offset" and, in reaching this conclusion, "*Coziahr* gave short shrift" to *Title Ins. Co. v State Bd. of Equalization (1992) 4 Cal.4th 715, 731 [14 Cal. Rptr. 2d 822, 842 P.2d 121] (Title Ins.)*. *Coziahr* cited *Title Ins.* in a footnote as one of several "inapposite" cases the plaintiffs relied on in asserting their refund amount involved an unpled, improper offset. (*Coziahr, supra, 103 Cal.App.5th at p. 829, fn. 22*.)

Title Ins. is inapposite here, as it was in *Coziahr*. In *Title Ins.*, several title insurers sued the State Board of Equalization (Board) for tax refunds. As a setoff to the refund claims, the Board claimed the insurers should not receive **[**134]** a refund for taxes they paid "on the claims that the underwritten title companies paid pursuant to the[ir] underwriting agreements" with the insurers because "the insurers should have paid taxes on the full amount of the premiums received by the underwritten title companies, rather than only on the portion passed on to them by the title companies." (*Title Ins., 4 Cal.4th at p. 729*.) *Title Ins.* held the Board could not assert the setoff, both because (1) it did raise the setoff defense in the administrative proceedings on the insurers' refund claims, and (2) it did not plead the setoff in its answer in the insurers' refund action. (*Id. at pp. 730–731*.)

Title Ins. observed that allowing the Board to assert the setoff in the refund action, without having pled the setoff in its answer, "would place an unacceptable burden on taxpayers seeking refunds." (*Title Ins., supra, 4 Cal.4th at p. 732*.) The court said these "taxpayers would be forced to prepare for trial and conduct discovery in ignorance of any possible setoffs or defenses the state might assert. Taxpayers cannot prepare for unknown attacks on their refund claims." (*Ibid.*) The court said this burden was "particularly severe" in the insurers' refund case because the insurers "could not have expected" the setoff to be at issue. (*Ibid.*)

[135]** Relying on *Title Ins.*, Class argues, "[t]he burden that unpleaded offset defenses places on ratepayers is 'particularly severe' here" because Class members "paid their bills in full on the City's promise that the rate system complied with the Constitution. By raising the defense of offset [i.e, setoff] at trial, but not in its answer, the City deprived … Class of a fair opportunity to respond, including to develop an argument that the City's offset defense is barred by laches, unclean hands, or estoppel." For this reason, Class argues, the trial court abused its discretion in awarding City an "offset," by accepting City's refund calculation with undercharges, despite City's failure to plead the undercharges as setoff in its answer.
[*305]

Class's claim that it did not have "a fair opportunity to respond" to City's refund calculation or to "develop" the defenses of laches, unclean hands or estoppel, is unsupported by the record. In the Phase II trial, the parties fully litigated whether the $27,583,091 in undercharges should have been credited against the overcharges in calculating the refund award. Indeed, the parties ultimately "narrowed" their dispute to this issue. Thus, Class had every opportunity **[**136]** to litigate, and did litigate, the undercharges issue in the trial court. Class also had every opportunity to "develop" claims of laches, unclean hands, and estoppel, in opposing the undercharges, and its failure to do so means it has forfeited these claims. (*Wittenberg v. Bornstein (2020) 51 Cal.App.5th 556, 567 [265 Cal. Rptr. 3d 192]*.) In sum, the undercharges were not an improper, unpled setoff against the refund award.

5. *The Undercharges Are Not "Shadow Ratemaking"*

Like the plaintiffs in *Coziahr*, Class claims City's refund calculation amounts to an "'impermissible shadow ratemaking,'" which violates the notice and hearing procedures an agency must follow in "'imposing or increasing any fee or charge.'" (*Coziahr, supra, 103 Cal.App.5th at p. 829*, quoting art. XIII D, § 6(a) [setting forth procedures agencies must follow "in imposing any fee or charge" including notice, public hearing, and consideration of protests].) Class reasons that Class members entitled to a refund, the net overpayers, are being retroactively charged the higher, uniform rates for their usage in the lower tiers, while the net underpayers remain charged under the lower tiered rates because they do not have to reimburse City for their underpayments. Class argues, "holding some class members accountable **[**137]** for rates that were not in place [during the refund period] circumvents the notice and hearing requirements of Proposition 218 by allowing the City to engage in an impermissible shadow ratemaking."

CA(44) **(44)** In rejecting this claim, *Coziahr* pointed out that, under Otay's refund calculation, Otay was not "increasing" any fees or charges, and no levy was being imposed on any person or parcel. (*Coziahr, supra, 103 Cal.App.5th at pp. 829–830*, citing HN44 *Gov. Code, § 53750(h)* [the term "increased," when applied to a property-related fee or charge, "'means a decision by an agency'" that either "'increases any applicable rate'" used to calculate the fee or charge, or "'[r]evises the methodology'" by which the fee or charge is calculated, "'if that revision results in an increased amount being levied on any person or parcel'"]; *Plantier, supra, 7 Cal.5th at p. 385* ["[A] change to the method for calculating a fee is considered an increase in the fee for purposes of Proposition 218 [only] if it results in an increased amount being levied on *any* person or parcel."].) Here as in *Coziahr*, City's refund calculation, and Class's refund award, does not involve any person or parcel being "levied on" for an increased fee. Thus, City's refund calculation and the **[*306]** refund award is not "impermissible **[**138]** shadow ratemaking" in violation of the notice, hearing, and protest requirements of section 6(b).[24]

B. *Remand Is Necessary for the Trial Court To Consider Whether Newly Enacted Government Code Section 53758.5 Applies to the Refund Award*

CA(45) **(45)** On September 20, 2024, the Governor signed Senate Bill No. 1072 (2023–2024 Reg. Sess.), adding *section 53758.5* to the Government Code, effective January 1, 2025. (*Cal. Const., art. IV, § 8, subd. (c)(1)*; *Gov. Code, § 9600, subd. (a)*; *People v. Camba (1996) 50 Cal.App.4th 857, 865–866 [57 Cal. Rptr. 2d 907]* [""a statute enacted at a regular session of the Legislature generally becomes effective on January 1 of the year following its enactment … ."""].) HN45 The statute requires agencies to credit refund awards in Proposition 218 cases against future increases in or impositions of the property-related charge, unless the refund award is explicitly provided for by statute. (*Gov. Code, § 53758.5, subd. (a)*.)[25] Thus, the statute does not allow agencies in Proposition 218 cases to pay a refund award as a money judgment, unless a statute explicitly allows the agency to do so. (Cf. *Code Civ. Proc., § 1095* [writ applicant's award of "damages and costs" is enforceable "in the manner provided for money judgments generally"].)

CA(46) **(46)** City asks this court to "apply" *Government Code section 53758.5* by reversing the refund award and remanding the matter so the trial court "can craft a remedy compliant" with the statute. City relies on the principle that HN46 an appellate court is more likely to consider, for the first time on appeal, **[**139]** an issue involving undisputed facts and important questions of public policy or public concern, if the parties have had a reasonable opportunity to address the issue. (*Duran v. Obesity Research Institute, LLC (2016) 1 Cal.App.5th 635, 646 [204 Cal. Rptr. 3d 896]*; *Saurman v. Peter's Landing Property Owner, LLC (2024) 103 Cal.App.5th 1148, 1167 [324 Cal. Rptr. 3d 59]*.) City argues these standards are present here: the refund award is "undisputed and fixed," "no additional facts are required to decide" whether *Government Code section 53758.5* applies to the refund award, and the question of whether the new statute applies involves important questions of public policy and public **[*307]** concern, namely, "the fiscal health of one of the state's largest water agencies and the refund's burden on current and future customers." In addition, the parties have addressed the issue in their supplemental briefs. For these reasons, we agree it is appropriate for us to determine, in the first instance, whether *Government Code section 53758.5* applies to Class's refund award. We conclude it does. However, we disagree with the City's proposed disposition that we reverse the Class's refund award.

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[24] Because we reject Class's claims of error regarding City's refund calculation and the refund award, it is unnecessary for us to address, and we do not address, City's claim that Class is judicially estopped from arguing that only overpayments should be considered in calculating the refund award.

[25] *Government Code section 53758.5, subdivision (a)* provides: "If a court determines that a fee or charge for a property-related service, including water, sewer, and refuse collection, violates Section 6 of Article XIII D of the California Constitution, then the local agency shall, in the next procedure to impose or increase the fee or charge, credit the amount of the fee or charge attributable to the violation against the amount of the revenues required to provide the property-related service unless a refund is explicitly provided for by statute." (Stats. 2024, ch. 323, § 1.)

HN47 *CA(47)* **(47)** In construing statutes, our fundamental task is to ascertain the Legislature's intent so we may effectuate the Legislature's purpose in enacting the statute. (*In re Brownlee (2020) 50 Cal.App.5th 720, 724 [264 Cal. Rptr. 3d 169]*; *People v. Velasco (2015) 235 Cal.App.4th 66, 74 [185 Cal. Rptr. 3d 94]*.) To ascertain intent, we look first to the words of the statute. If the language is clear and unambiguous, its **[**140]** plain meaning governs, and it is unnecessary to consider the legislative history of the statute to determine its meaning. (*People v. Baltazar (2020) 57 Cal.App.5th 334, 341 [271 Cal. Rptr. 3d 296]*; *People v. Lopez (2003) 31 Cal.4th 1051, 1056 [6 Cal. Rptr. 3d 432, 79 P.3d 548]*; see *Safety-Kleen of California, Inc. v. Department of Toxic Substances Control (2024) 100 Cal.App.5th 172, 184–185 [319 Cal. Rptr. 3d 74]* ["Generally, courts do not consult the legislative history where, as here, the relevant statutory language is unambiguous"].)

HN48 *CA(48)* **(48)** The language of *Government Code section 53758.5* is clear and unambiguous: If a court finds that a fee or charge violates Proposition 218, then "in the next procedure to impose or increase the fee or charge," the agency must "credit the amount of the fee or charge attributable to the violation against the amount of the revenues required to provide the property-related service unless a refund is explicitly provided for by statute." (*Gov. Code, § 53758.5, subd. (a)*.) By its terms, the statute applies to Class's refund award for City's Proposition 218 violation.

If there could be any doubt that the statute applies to City's refund award, that doubt is dispelled by the statute's legislative history which shows the statute was enacted with the refund awards in this case and in *Coziahr* specifically in mind. (Sen. Rules Com., Off. of Sen. Floor Analyses, Rep. on Sen. Bill No. 1072 (2023–2024 Reg. Sess.) amended June 17, 2024, pp. 2–5 [discussing the trial court refund awards in *Coziahr* and in this case].) The most recent Senate Floor Analysis of Senate Bill 1072 (2023–2024 Reg. Sess.) states: "This bill prevents ratepayers that a court found overpaid for a property-related service from getting **[**141]** a refund. Instead of refunding these ratepayers, any excess fees collected would go to reduce the cost for the local agency to provide that service moving forward. On the one hand, the ratepayers that overpaid would not get their money back. On the other hand, all ratepayers, including those that overpaid, would pay less for that service moving forward." (*Id.* at p. 4.)
[*308]

Regarding the refund award in *Coziahr*, the Senate Floor Analysis asks, "Should the Legislature intervene before the appeal has played out in court?" and, for all such refund awards, "Does this bill achieve the right balance of fairness for both ratepayers a court has found overpaid and everyone else?" (Sen. Rules Com., Off. of Sen. Floor Analyses, Rep. on Sen. Bill No. 1072, *supra*, at pp. 4–5.) In passing Senate Bill 1027, the Legislature answered these questions in the affirmative. In the uncodified section of the bill the Legislature found and declared, among other things, that "Proposition 218 does not contain any affirmative intent to authorize a refund remedy"; "lawsuits seeking refunds for property-related service rate determinations threaten to compromise the financial stability of water and sewer agencies and local governments providing property-related services"; and "any refund would need to be funded **[**142]** by raising rates on future ratepayers, further reducing the affordability of essential public services." (Stats. 2024, ch. 323, § 2.)

CA(49) **(49)** This legislative history fully supports our conclusion that *Government Code section 53758.5* applies to City's Proposition 218 refund award. *HN49* When the Legislature enacts a statute "'with the relevant constitutional prescriptions clearly in mind,'" the "'statute represents a considered legislative judgment as to the appropriate reach of the constitutional provision. Although the ultimate constitutional interpretation must rest, of course, with the judiciary [citation], a focused legislative judgment on the question enjoys significant weight and deference by the courts.'" (*Greene v. Marin County Flood Control & Water Conservation Dist. (2010) 49 Cal.4th 277, 291 [109 Cal. Rptr. 3d 620, 231 P.3d 350]*.)

Class argues *Government Code section 53758.5* does not apply because Class's refund award is "explicitly provided for by statute." (*Gov. Code, § 53758.5, subd. (a)*.) Class relies on *Coziahr*, which rejected Otay's claim that monetary relief was unavailable for a constitutional, section 6(b)(3) violation. (*Coziahr, supra, 103 Cal.App.5th at pp. 820–825*.) *Coziahr* reasoned that a monetary award for a constitutional violation may be available in a mandate

proceeding, and that such a refund is also "consistent with" the *Government Claims Act (Gov. Code, § 810 et seq.)* (the Act) (*Coziahr, at pp. 821–825*, discussing *Katzberg v. Regents of University of California (2002) 29 Cal.4th 300 [127 Cal. Rptr. 2d 482, 58 P.3d 339]*.) Moreover, Otay offered "no substantive argument that the trial **[**143]** court was unable to grant" the refund award; thus, Otay forfeited "any" claim that the class was not entitled to a refund for Otay's section 6(b)(3) violation. (*Coziahr, at p. 823*.)

Class argues *Government Code section 53758.5* "does not take away the right to a refund that *Coziahr* recognized is explicitly available under the Government Claims Act or writ of mandate." But, *Coziahr* did not involve a **[*309]** statute that "explicitly provided" that a refund award in a Proposition 218 case may be enforced as a money judgment. (*Coziahr, supra, 103 Cal.App.5th at pp. 821–825*; *Gov. Code, § 53758.5, subd. (a)*.) Thus, *Coziahr* does not support Class's argument *Government Code section 53758.5* does not apply to Class's refund award.[26]

CA(50) **(50)** Class does not point to any statute that "explicitly provides" that a refund award in a Proposition 218 case may be enforced as a money judgment. (*Gov. Code, § 53758.5, subd. (a)*.) ***HN50*** By its terms, *Government Code section 53758.5* applies to all refund awards in Proposition 218 cases, except as "explicitly provided for by statute." Neither the Act nor the mandate statutes (*Code Civ. Proc., §§ 1087–1097*) explicitly provide that a refund award in a Proposition 218 case does not have to be credited against future fees but is, rather, enforceable as a money judgment. (See *Coziahr, supra, 103 Cal.App.5th at pp. 824–825*; cf. *Code Civ. Proc., § 1095* [writ applicant's "damages and costs" award enforceable as money judgment].) Thus, Class **[**144]** has not shown that *Government Code section 53578.5, subdivision (a)* does not apply to Class's refund award.

CA(51) **(51)** Class argues that applying *Government Code section 53758.5* to the refund award "would raise significant constitutional concerns." Class claims: "To satisfy due process requirements of the United States and California Constitutions, a meaningful post-deprivation remedy—a refund—is necessary when a taxpayer successfully challenges an unconstitutionally levied and collected tax." But the cases Class relies on stand for a different principle: ***HN51*** "If a State places a taxpayer under duress promptly to pay a tax when due and relegates him to a postpayment refund action in which he can challenge the tax's legality, the *[D]ue Process Clause of the Fourteenth Amendment* obligates the State to provide meaningful backward-looking relief to rectify any unconstitutional deprivation." (*McKesson Corp. v. Florida Alcohol & Tobacco Div. (1990) 496 U.S. 18, 31 [110 L. Ed. 2d 17, 110 S. Ct. 2238], fn. omitted*; see *River Garden Retirement Home v. Franchise Tax Bd. (2010) 186 Cal.App.4th 922, 938–939 [113 Cal. Rptr. 3d 62] (River Garden)*.)

In this context, "'meaningful backward-looking relief'" means giving the taxpayer "both a 'fair opportunity to challenge the accuracy and legal validity **[*310]** of their tax obligation' [citation], as well as a '"clear and certain remedy"' for the erroneous or unlawful tax collection." (*River Garden, supra, 186 Cal.App.4th at p. 938*.) Class does not explain how applying *Government Code section 53758.5* to the refund award, by requiring City to credit the refund award against future rate increases and impositions, would **[**145]** deny Class "'meaningful backward-looking relief'" in the form of a "'clear and certain remedy'" for City's section 6(b)(3) violation. (*River Garden, at p. 938*.) Thus, Class has not shown that applying the statute to the refund award will deny Class due process.

Although we conclude that *Government Code section 53758.5* applies to Class's refund award, the proper disposition is not to reverse the refund award, as City argues. In their respective appeals, neither party has shown that the *amount* of the refund award is in error. However, remand is necessary so the trial court may, as City

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[26] Class also argues City has forfeited its right to claim that Class is not entitled to a monetary refund because, like Otay in *Coziahr*, City offered "no substantive argument" that the trial court was unauthorized to grant a refund under the Act or *Code of Civil Procedure section 1095*. There is no forfeiture. Unlike Otay in *Coziahr*, City does not challenge Class's entitlement to a refund award. (*Coziahr, supra, 103 Cal.App.5th at pp. 821–825*.) Rather, City argues *Government Code section 53758.5* applies to Class's refund award. City has not forfeited its right to raise *this* question on appeal, given that City could not have raised the question in the trial court. (Cf. *Wittenberg v. Bornstein (2020) 51 Cal.App.5th 556, 565 [265 Cal. Rptr. 3d 192]* [Generally, issues not raised in the trial court cannot be asserted for the first time on appeal.].)

argues, "craft a remedy" to ensure that the refund award is credited in accordance with *Government Code section 53758.5*. This means the judgment must be amended to require City to credit an award in accordance with *Government Code section 53758.5*, and to not allow Class to enforce the refund award as a money judgment. (Cf. *Code Civ. Proc., § 1095*.)

C. *Class's Request for Attorney Fees on Appeal Is Denied Without Prejudice*

Class claims it is entitled to attorney fees under the common fund doctrine and *Code of Civil Procedure section 1021.5*. Class requests that, in our disposition, we direct the trial court to award Class appellate attorney fees and costs when it determines trial court fees and costs.[27] We decline the request, without prejudice.

HN52 ***CA(52)*** **(52)** "'Although this court has the power to fix attorney **[**146]** fees on appeal, the better practice is to have the trial court determine such fees … .'" (*Moore v. Teed (2020) 48 Cal.App.5th 280, 299 [261 Cal. Rptr. 3d 642]*.) It is appropriate to allow the trial court to determine whether Class is entitled to attorney fees on appeal, given that the trial court has not yet addressed Class's entitlement to attorney fees, and Class did not prevail in its cross-appeal. (*Coziahr, supra, 103 Cal.App.5th at p. 833*.)

V. DISPOSITION

The March 30, 2022 judgment is affirmed with directions. On remand, the trial court is directed to amend the judgment to allow City to satisfy the **[*311]** refund award pursuant to *Government Code section 53758.5*. (Stats 2024, ch. 323, § 1.) The parties shall bear their respective costs on appeal. (*Cal. Rules of Court, rule 8.278*.)

McKinster, Acting P. J., concurred.

Dissent by: Menetrez, J.

Dissent

MENETREZ, J., Dissenting.—This is an appeal from a $79 million judgment that is based on nothing. Plaintiffs' briefing in the trial court and on appeal relentlessly misrepresents the record and the law, and the trial court's statement of decision—drafted by plaintiffs' counsel and adopted virtually without alteration by the court—does as well. We should reverse with directions to enter judgment for the defense, and I therefore respectfully dissent.

Plaintiffs Daniel Patz and Joan Mann Chesner brought this class **[**147]** action on behalf of all single-family residential customers (SFRs) of defendant City of San Diego's water service. Plaintiffs alleged that defendant's water rates for SFRs violated subdivision (b)(3) of section 6 of article XIII D of the California Constitution (§ 6(b)(3)), which provides that fees charged by a local public entity for a property-related service cannot exceed the proportional cost of providing the service. Defendant charged tiered rates for SFRs, meaning that when a customer's water consumption increases beyond a certain threshold, the customer is charged a higher rate for water above that threshold. Defendant charged all customers other than SFRs a uniform rate, meaning that the rate charged per unit of water is the same for all levels of consumption. Plaintiffs challenged only the rates charged to SFRs.

Defendant provided a detailed calculation and allocation of the costs of providing its water service, using the best available methodology for performing such an accounting. Defendant properly applied that methodology to vast amounts of historical data concerning its own operations and customers and, where appropriate, data concerning customers around the state and across the nation. Defendant's calculation and allocation of costs showed that the **[**148]** rates charged to SFRs (as well as the rates charged to all other customers) did not exceed proportional

[27] At the parties' requests, the trial court retained jurisdiction in the judgment to award costs and attorney fees following the parties' appeals.

costs. But the trial court agreed with plaintiffs anyway and entered judgment against defendant for $79 million, increasing by $643,750 per month until defendant adopts lawful rates.

This case presents a legal question of broad importance: What standard of proof does a defendant in a section 6(b)(3) suit need to meet? What does the defendant need to do to prove that its rates do not exceed proportional costs? Until recently, the case law provided a clear answer: The defendant must provide a *reasonable* calculation and allocation of costs, according to which rates do not exceed proportional costs. (*Capistrano Taxpayers Assn., Inc. v. **[*312]** City of San Juan Capistrano (2015) 235 Cal.App.4th 1493, 1499, fn. 6 [186 Cal. Rptr. 3d 362] (Capistrano)*; *Griffith v. Pajaro Valley Water Management Agency (2013) 220 Cal.App.4th 586, 601 [163 Cal. Rptr. 3d 243] (Griffith)*; *Moore v. City of Lemon Grove (2015) 237 Cal.App.4th 363, 368 [188 Cal. Rptr. 3d 130] (Moore)*; *KCSFV I, LLC v. Florin County Water Dist. (2021) 64 Cal.App.5th 1015, 1030 [279 Cal. Rptr. 3d 678] (KCSFV)*; *Howard Jarvis Taxpayers Assn. v. City of Fresno (2005) 127 Cal.App.4th 914, 923 [26 Cal. Rptr. 3d 153]*.) That standard makes sense, because there is not just one correct way to calculate and allocate the costs of operating a water system. A defendant consequently cannot be required to prove that it calculated and allocated its costs in the one correct way, because there is no such thing as the one correct way. All that a defendant can be required to prove—all that it is in principle possible for a defendant to prove—is that its cost calculation and allocation were reasonable.

That sensible standard **[**149]** was rejected, however, in *Coziahr v. Otay Water Dist. (2024) 103 Cal.App.5th 785, 800 [323 Cal. Rptr. 3d 441] (Coziahr)*, which held that in a section 6(b)(3) challenge to water rates "reasonableness is not the standard of proof." (Italics & capitalization omitted.) *Coziahr* thereby created a split of authority on the issue. Today's majority opinion deepens that split by following *Coziahr*. (Maj. opn., *ante*, at pp. 263–268.) In addition, both *Coziahr* and today's majority opinion fail to articulate any standard to replace the reasonableness standard that they reject. Both opinions consequently leave section 6(b)(3) defendants and trial courts in the dark about what standard a defendant must meet in order to defend its rates.

Beyond deepening that split and failing to articulate a new standard of proof, today's majority opinion has sweeping and severe consequences for all public water utilities in California. Published cases have long held that tiered water rates are not prohibited by section 6(b)(3). (See, e.g., *Capistrano, supra, 235 Cal.App.4th at p. 1511*.) But this case upends that well-established rule. As defendant explained to the trial court, if defendant's "tiered water rates cannot be sustained on the record and expert evidence presented in this case, then no tiered water rates in California are lawful." Defendant is right.

Defendant used the only known methodology **[**150]** for setting tiered rates and properly applied it to all of the appropriate data. Plaintiffs have never suggested an alternative methodology. But defendant's rates were still found to violate section 6(b)(3), and the majority opinion affirms. The result is that, contrary to long-standing case law, today's majority opinion now makes it impossible for a public water utility in California to set tiered rates without violating section 6(b)(3).

In part I of this dissent, I describe the legal background and some general features of cost calculation and allocation, and I explain why *Coziahr*'s and **[*313]** the majority opinion's rejection of the reasonableness standard is mistaken. In part II, I describe defendant's cost calculation and allocation and rate-setting methodology. In part III, I address the criticisms of defendant's methodology and explain that they are based on nothing but misrepresentations and red herrings.

On an accurate reading of the record and a proper understanding of the law, defendant has more than proved its case, and plaintiffs have proved nothing. There is no basis to impose any liability whatsoever. I therefore respectfully dissent.

I. *Proposition 218, cost calculation and rate setting, and the standard of **[**151]** proof*

A. *Legal framework*

California voters passed Proposition 218, the Right to Vote on Taxes Act, in 1996. (*City of Palmdale v. Palmdale Water Dist. (2011) 198 Cal.App.4th 926, 931 [131 Cal. Rptr. 3d 373] (Palmdale)*.) Proposition 218 added *article XIII D* (among other provisions) to the California Constitution. (Subsequent references to articles are to the California Constitution.)

"*Article XIII D* sets forth procedures, requirements and voter approval mechanisms for local government assessments, fees and charges." (*Palmdale, supra, 198 Cal.App.4th at p. 931*.) Under *Bighorn-Desert View Water Agency v. Verjil (2006) 39 Cal.4th 205, 226 [46 Cal.Rptr.3d 73, 138 P.3d 220]*, water rates charged by local public water utilities constitute such a property-related fee or charge.

Section 6(b)(3) provides that "[t]he amount of a fee or charge imposed [by a local government] upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel." (See art. XIII D, § 2, subds. (a), (e).) That is the provision that defendant is alleged to have violated: According to plaintiffs, defendant's water rates for SFRs exceed the proportional cost of providing water service to those customers' parcels.

Article XIII D also provides that "[i]n any legal action contesting the validity of a fee or charge, the burden shall be on the agency to demonstrate compliance with this article." (Art. XIII D, § 6, subd. (b)(5).) And "both trial and reviewing courts are to apply an independent review standard" in determining whether **[**152]** the agency has carried its burden. (*Capistrano, supra, 235 Cal.App.4th at p. 1507*.)
[*314]

In sum: Plaintiffs alleged that defendant's water rates for SFRs exceeded the proportional cost of providing water service to those customers' properties and therefore violated section 6(b)(3). Defendant bore the burden of proving that its rates comply with section 6(b)(3). The trial court was required to apply its independent judgment in determining whether defendant carried its burden, and we must exercise our independent judgment as well.

B. *Cost calculation and rate setting*

Is there only one correct way to calculate and allocate the costs of providing water service? Is there only one correct answer to the question, "What is the proportional cost of providing water service to a parcel?" Case law has long recognized that the answer to both questions must be: No.

In a section 6(b)(3) challenge to water rates, the Court of Appeal has observed that cost "[a]pportionment is not a determination that lends itself to precise calculation." (*Griffith, supra, 220 Cal.App.4th at p. 601*.) And in a different rate-setting context (i.e., a *takings clause* challenge to regulation of car insurance rates), the Supreme Court has observed that "'[t]he economic judgments required in rate proceedings are often hopelessly complex and do not admit of a single correct result.'" **[**153]** (*20th Century Ins. Co. v. Garamendi (1994) 8 Cal.4th 216, 293 [32 Cal. Rptr. 2d 807, 878 P.2d 566] (20th Century)*.)

Brief reflection on the mechanics of water rate setting illustrates why that must be so. Because rates must be set before service is provided, the cost calculation and allocation that underlie rate setting must involve forecasts and projections. For example, the 2015 cost of service study (COSS) that defendant used to set its rates was based on a forecast of defendant's costs for the next five years. As a result, it involved "annual projections of the number of customers, water use, revenues, and expenditures based on historical data and estimates for the next five years." There cannot be just one correct answer to any of those forecasting questions. Five years later, one can look back and see how many customers there actually were, how much water was actually delivered, and so on. But in advance, the best one can do is make projections based on historical data, and there will always be multiple ways of doing that. (See *California Building Industry Assn. v. State Water Resources Control Bd. (2018) 4 Cal.5th 1032, 1052–1053 [232 Cal. Rptr. 3d 64, 416 P.3d 53] (California Building)* [recognizing "the imprecision inherent in predictions" and, in particular, "the imprecise nature of projecting future permit fee revenues and expenditures"].)

Some specific examples from the 2015 COSS further illustrate the point. On the basis of recent historical **[**154]** trends, the COSS "assumed a nominal water **[*315]** connection growth rate of approximately 0.65% annually over the five-year study period." Should it have been 0.6 percent? Or 0.7 percent? Or 0.55 or 0.75 percent? Also, because of state-mandated water use restrictions, the 2015 COSS assumed a drop in consumption in the next year followed by a gradual increase in subsequent years. Should the study have assumed a smaller drop, or a larger one, or none? The same COSS also had to utilize inflation rates for various cost components. For example, it assumed inflation rates of 1 percent for "Personnel Services," 3.5 percent for "Operating Supplies," and 9 percent for "Energy & Utilities," among others. Were all of those inflation projections exactly right, or were some a little high or a little low? The COSS also had to include projected future construction costs under defendant's "long-term Capital Improvement Program," which "is a constantly evolving program," so construction "projects may shift out in time or drop off" entirely, while other projects may also be added "as the need arises." Was there exactly one correct way to project defendant's construction costs for the next five years?

Similar **[**155]** examples could be multiplied at great length. They pervade all of defendant's COSSs. And all of them show that of course there is not only one right answer to the question, "What is the proportional cost of providing water service to a parcel?"

But there is an additional kind of indeterminacy that is also central to understanding the issues in this case. One approach to calculating and allocating costs would be to calculate a uniform (or flat) cost per unit of service. For example, a water utility could (1) calculate the total projected cost of operating the entire water system for the next five years, (2) determine the total projected water consumption, in hundreds of cubic feet (HCF), by the system's customers for those years, and (3) divide the first number by the second to arrive at the cost per HCF. If the rate charged to all customers per HCF were set at that cost per HCF, then the rate would not violate section 6(b)(3), because it would not exceed the proportional cost of providing the service.

But another approach would be to try to calculate and allocate costs in a more fine-grained way, so as to attribute the "marginal cost of water to those consumers whose extra use of water forces water **[**156]** agencies to incur higher costs to supply that extra water." (*Capistrano, supra, 235 Cal.App.4th at p. 1516*.) Put another way, a tiered (as opposed to uniform) cost calculation would seek to allocate "the incrementally higher costs of expensive water to incrementally higher users." (*Id. at p. 1511*.) Such a cost calculation would seek to quantify the way in which the cost per unit of water is higher at higher levels of use, because higher levels of use create the need to build and operate larger facilities, to purchase more expensive sources of supply, and so forth.
[*316]

Such a tiered cost calculation and allocation could then be used to set tiered rates without violating section 6(b)(3), as long as the tiered rates do not exceed the tiered costs. As a result, "[o]ur courts have made it clear they interpret the Constitution to allow tiered pricing." (*Capistrano, supra, 235 Cal.App.4th at p. 1511*.) It follows that uniform rates, based on uniform cost calculation and allocation, are not required by section 6(b)(3)—tiered rates based on tiered cost calculation and allocation are permissible.

But by the same token, tiered rates based on tiered cost calculation and allocation are not required by section 6(b)(3) either—uniform rates based on uniform cost calculation and allocation are permissible as well. *Capistrano* noted that the Association **[**157]** of California Water Agencies estimated that "over half its members now have some sort of tiered water rate system." (*Capistrano, supra, 235 Cal.App.4th at p. 1499, fn. 6*.) And although the court described tiered rates as "a good idea" (*id. at p. 1511*), it never suggested that section 6(b)(3) *requires* any water agency to adopt tiered rates. I am not aware of any authority for the proposition that it does. Rather, all of those water agencies using tiered rates could instead have used uniform rates, based on uniform cost calculation and allocation, without violating section 6(b)(3).

Moreover, it is *always* possible to do a uniform allocation—just divide total projected cost by total projected consumption. It follows that whenever it is possible to do a tiered allocation it is possible to do both. That is, anytime the facts will support a tiered cost allocation, they will support *both* a tiered allocation and a uniform allocation. In

such a situation, neither tiered nor uniform rates will be either required or prohibited by section 6(b)(3), which requires only that rates not exceed proportional costs.

A few more examples will further illustrate the variability in permissible methods of cost allocation and rate setting. First, recall the initial hypothetical of a uniform cost and uniform rate per unit **[**158]** of service. A utility could modify that approach as follows: Instead of including *all* projected system costs when calculating the cost (and consequent rate) per HCF, the utility could first separate out the cost components that do not vary significantly with levels of water consumption, such as billing and metering—every customer needs a meter to be read regardless of how much water they use; every customer gets a bill regardless of how much water they use; and so on. Call those "fixed costs," and call the remaining costs "variable costs" (because they vary with levels of consumption). The utility could then divide the projected fixed costs by the projected number of customers to get a fixed cost per customer, and the utility could divide the projected variable costs by the projected total consumption to get a uniform cost per HCF. If rates were set at those two different costs—so that each bill included both a fixed charge **[*317]** that did not vary with the amount of water consumed and a variable charge that did—then they would not violate section 6(b)(3), because again they would not exceed the proportional cost of providing the service.

Second, suppose that after calculating a uniform cost per HCF (with **[**159]** or without separating out fixed costs), the utility set the uniform rate per HCF at that cost, but with the following exception: For SFRs only, the rate charged per HCF for the first four HCF consumed each month is 10 cents lower than the otherwise uniform rate. That is, all customers other than SFRs are charged the same uniform rate for every HCF they consume, but SFRs are charged a two-tiered rate: the same uniform rate as everyone else for any consumption above four HCF, but a 10-cent lower rate for consumption up to four HCF. The utility might do this for any number of reasons, such as to reward SFRs for low levels of consumption or to give SFRs a break during difficult economic times. But whatever the utility's reasons for implementing such a rate system, *it would not violate section 6(b)(3)*, because no customer would be charged more than the proportional cost of providing the service. Section 6(b)(3) does not require the utility to provide a cost-based justification for charging a tiered rate to SFRs while charging a uniform rate to everyone else. All that section 6(b)(3) requires is a cost calculation and allocation according to which no customer is being charged a rate that exceeds proportional cost.

Third, another **[**160]** variation will illustrate another important point about section 6(b)(3). Suppose that instead of setting the tier breakpoint (i.e., the level of consumption above which the rate per HCF changes) at four HCF, the utility set it at three HCF, or five HCF. Would that affect the section 6(b)(3) analysis? No. Regardless of where the utility sets the breakpoint, no customer is charged more than the proportional cost of providing the service, so section 6(b)(3) is not violated. What this shows is that section 6(b)(3) does not require a cost-based justification for *where* a tier breakpoint is set. Again, all that is required is a cost calculation showing that, wherever the breakpoints are set, each customer's rates do not exceed proportional costs.

Because the utility's rates in those last versions of the hypothetical are, in the aggregate, below cost, the hypotheticals might seem unrealistic and hence irrelevant. But the record in this case demonstrates the opposite: Before 2013, the cost of defendant's major source of supply increased, but defendant chose to "absorb[]" those increased costs and did not pass them on to customers. That is, in order to give its customers a break, defendant chose to charge rates that were, in the aggregate, below cost. In 2013, **[**161]** defendant raised its rates to begin to recoup those costs, but even then it "elected to only recover a portion of these past increases" in costs. As a result, even after the 2013 rate increases, defendant's rates were still, in the aggregate, below cost. And defendant's conduct in that regard is not unique. In *Morgan v. Imperial [*318] Irrigation Dist. (2014) 223 Cal.App.4th 892 [167 Cal. Rptr. 3d 687]*, rates were set below cost and therefore did not violate section 6(b)(3). (*Morgan, at p. 923* ["We find nothing in section 6 that prohibits an agency from charging less than the proportional cost of service. The fees simply cannot exceed the proportional cost"].)

Fourth, suppose that it were possible to do an extremely fine-grained tiered cost calculation and allocation, according to which costs increase incrementally at every HCF. If the utility chose to set tiered rates, would it be *required* to set the breakpoints at every HCF, charging the lowest rate for one HCF, a higher rate for the next HCF,

and so on? Again, the answer is no. Just as the utility is allowed to use a uniform cost allocation and set a uniform rate even if the utility is capable of doing a tiered cost allocation, the utility is also allowed to use a relatively coarse-grained tiered cost allocation even if the utility is capable of doing a more fine-grained **[**162]** one. In a sense, a uniform allocation is just an ultra-coarse-grained tiered allocation in which all costs are aggregated into a single tier. And if that is permissible—as it must be—even when it is possible to do an allocation with multiple tiers, then it must be similarly permissible to aggregate costs into a relatively small number of tiers (e.g., two) even when it is possible to do a more fine-grained allocation that has more tiers (e.g., six). Thus, to return to the hypothetical, even if it is possible to do a tiered cost allocation according to which costs increase at every HCF, the utility would not have to set breakpoints for tiered rates at every HCF. The utility could set a uniform rate, or set just one breakpoint (e.g., at five HCF), or two (e.g., at four and eight HCF), or three (e.g., at three, six and nine HCF) without violating section 6(b)(3) as long as it could produce a cost calculation and allocation showing that the rate for each tier does not exceed the costs for that tier. The upshot is that *section 6(b)(3) does not require a cost-based justification for where the tier breakpoints are set*. As long as rates do not exceed proportional costs, section 6(b)(3) is satisfied.

To summarize the results of the foregoing discussion: There **[**163]** is not and cannot be only one correct answer to the question, "What is the proportional cost of providing water service to a parcel?" All of the cost calculations that underlie rate setting are based on forecasts, and *ex ante* there cannot be only one correct forecast of the myriad components that go into such a calculation. Moreover, cost calculation and allocation can be very coarse grained (yielding a uniform cost per unit) or increasingly fine grained (by separating fixed from variable costs and/or by determining the increased cost per unit at higher levels of use). But there is no single level of granularity that yields the single correct cost per unit of service, because there is no such thing as the single correct cost per unit of service. (Again, *Capistrano* recognizes that tiered rates are common but not universal, and the opinion never suggests that **[*319]** one form of rate structure—uniform or tiered—is either required or prohibited, even though it is always *possible* to set a uniform rate.) And if a water utility performs a tiered allocation in order to set tiered rates or to set them for some but not all classes of customers, section 6(b)(3) does not require cost-based justifications for where the **[**164]** tier breakpoints are set or which classes get uniform rates and which get tiered rates. All that section 6(b)(3) requires is a cost calculation showing that each customer's rates do not exceed proportional costs.

C. *The standard of proof*

Again, in a suit alleging that the rates charged for water service violate section 6(b)(3), the defendant water utility bears the burden of proof, and the courts exercise independent review. But given that there is no such thing as the single correct cost per unit of service, the utility cannot be required to prove that it calculated that single correct cost and set its rates at that level or lower. There are numerous ways of calculating and allocating costs. So what exactly does the defendant utility have to prove?

Until recently, case law generally recognized that the standard of proof in this context is reasonableness. That is, the defendant utility must prove that, under a reasonable calculation and allocation of costs, rates do not exceed proportional costs. (*Capistrano, supra, 235 Cal.App.4th at p. 1499, fn. 6* [tiered rates are permissible if "those rates reasonably reflect the cost of service attributable to each parcel"]; *Griffith, supra, 220 Cal.App.4th at p. 601* [the defendant prevailed because it used "a reasonable way to apportion the cost of service"]; *Moore, supra, 237 Cal.App.4th at p. 371* [the plaintiff **[**165]** claimed that the defendants "did not use a reasonable methodology" "to estimate and allocate their costs"]; *KCSFV, supra, 64 Cal.App.5th at p. 1030* [the plaintiff prevailed because the defendants "failed to show the rate increase reasonably represents the cost of providing service to the affected properties"]; *Howard Jarvis Taxpayers Assn. v. City of Fresno, supra, 127 Cal.App.4th at p. 923* [a defendant must "reasonably determine" costs in order to prove compliance with § 6(b)(3)].)

Courts' long-standing application of a reasonableness standard does not constitute abdication of the duty to exercise independent judgment. Rather, it reflects judicial recognition of the indeterminacy inherent in the issue under review. There is no single correct method for calculating and allocating costs, so a defendant cannot be required to prove that it used the (nonexistent) single correct method. The defendant need only prove that, among the various possible methods, there is a reasonable method according to which rates do not exceed proportional costs.

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Last year, however, *Coziahr, supra, 103 Cal.App.5th at pages 800–802*, rejected the reasonableness standard. The majority opinion adopts *Coziahr*'s analysis. (Maj. opn., *ante*, at p. 264.) For several reasons, the analysis is unsound.

First, *Coziahr* never acknowledges that the predictive cost calculation and allocation involved **[**166]** in rate setting "'do not admit of a single correct result.'" (*20th Century, supra, 8 Cal.4th at p. 293*; see also *California Building, supra, 4 Cal.5th at p. 1053* [recognizing "the imprecision inherent in predictions"].) Consequently, *Coziahr* never explains how a defendant agency is supposed to carry its burden in a section 6(b)(3) suit. The agency must prove that its rates do not exceed proportional costs, but *what* proportional costs? According to what method of calculation and allocation? *Coziahr* never says. That is, *Coziahr* rejects the only standard articulated in the section 6(b)(3) case law but provides no alternative. That omission creates chaos in this area of the law. Not only is there now a split of authority on the standard of proof, but one side of the split—consisting of *Coziahr* and today's majority opinion—states no standard at all. Under *Coziahr*, public water utilities faced with section 6(b)(3) suits do not know what standard they need to meet in order to carry their burden of proof.

Second, *Coziahr* claims that the Supreme Court rejected the reasonableness standard in *California Building* (*Coziahr, supra, 103 Cal.App.5th at pp. 800–801*), but that is incorrect. *California Building* was not a section 6(b)(3) case or even an *article XIII D* case. Rather, it concerned *section 3 of article XIII A*, which imposes restrictions on state taxes. (*California Building, supra, 4 Cal.5th at p. 1045*.) *California Building* concerned fees for certain permits, and the *article XIII A* restrictions on state *taxes* do **[**167]** not apply to such *fees* as long as the fees meet various requirements, including that they "must be allocated in a reasonable manner." (*California Building, at p. 1050*; see *id. at pp. 1047–1048*.) The Supreme Court concluded that the fees in question "were reasonably allocated among fee payers" and met the other requirements, so the *article XIII A* restrictions on state taxes did not apply. (*California Building, at p. 1052*; see *id. at pp. 1049–1053*.)

In the last two paragraphs of the opinion, the Supreme Court noted that "[i]n challenging the allocation of permit fees," the plaintiffs relied in some unspecified manner on *Capistrano*. (*California Building, supra, 4 Cal.5th at p. 1053*.) But the court found *Capistrano* "distinguishable" because it involved *article XIII D*, not *article XIII A*. (*California Building, at p. 1053*.) In particular, section 6(b)(3) of article XIII D "provides that the amount of a property-related fee 'shall not exceed the proportional cost of the service attributable to the parcel,'" but *article XIII A* contains no such requirement. (*California Building, at p. 1053*.) Rather, "[u]nder *article XIII A*, all that is **[*321]** required is that the record demonstrate a reasonable basis for the manner in which the fee is allocated among those who pay it." (*California Building, at p. 1053*.) Thus, a fee could be allocated in a reasonable manner (and hence meet the requirements of *art. XIII A*) even if it exceeds proportional cost (and hence violates the requirements of *art. XIII D*), **[**168]** because *article XIII A* does not require that fees not exceed proportional cost. For example, a defendant in an *article XIII A* suit could concede that its fees exceed proportional cost but still argue that the fees are allocated in a reasonable manner—perhaps because they are allocated partially on the basis of ability to pay instead of wholly on the basis of cost—and hence meet the requirements of *article XIII A*.

California Building says nothing about the standard of proof for a suit under section 6(b)(3) of article XIII D. More precisely, it says nothing about what a public entity needs to do to carry its burden of proving that its rates do not exceed proportional costs under section 6(b)(3). That issue was not presented, so the Supreme Court never discussed it. *California Building* never mentions that Court of Appeal cases have articulated and applied the reasonableness standard in section 6(b)(3) litigation. The Supreme Court did not even mention that *Capistrano* itself articulates the reasonableness standard (*Capistrano, supra, 235 Cal.App.4th at p. 1499, fn. 6* [tiered rates must "reasonably reflect the cost of service attributable to each parcel"]), because, again, the issue was not presented. "'[I]t is axiomatic that cases are not authority for propositions not considered.'" (*Sonic-Calabasas A, Inc. v. Moreno (2013) 57 Cal.4th 1109, 1160 [163 Cal. Rptr. 3d 269, 311 P.3d 184]*.) For all of these reasons, *Coziahr*'s claim (echoed by the majority opinion) **[**169]** that *California Building* constitutes a sub silentio repudiation of the reasonableness standard for section 6(b)(3) litigation is both wholly unsupported and contrary to law.

Third, *Coziahr* dismisses the cases articulating and applying the reasonableness standard on the ground that they "were not using the term 'reasonable' in defining a standard of proof" but rather "were discussing the nexus between the rate and the cost of service, or describing the record while reviewing it for substantial evidence." (*Coziahr, supra, 103 Cal.App.5th at p. 801*.) All of that is incorrect. *Capistrano* states the reasonableness standard and does not apply substantial evidence review; the court mentioned substantial evidence review only to distinguish it from independent review. (*Capistrano, supra, 235 Cal.App.4th at pp. 1499, fn. 6* [stating the reasonableness standard], *1507* [distinguishing independent review].) The court had no occasion to apply the reasonableness standard, because the defendant expressly declined to try to defend its rates in terms of proportional costs. (*Id. at p. 1505*.) *Griffith* and *Moore* apply the reasonableness standard and do not even mention substantial evidence review. (*Griffith, supra, 220 Cal.App.4th at p. 601*; *Moore, supra, 237 Cal.App.4th at pp. 371–375*.) *Moore* actually **[*322]** frames the dispute *in the trial court* as focused on whether "the method used by [the defendants] to estimate and allocate **[**170]** their costs was unreasonable" (*Moore, supra, 237 Cal.App.4th at p. 371*); it was not a matter of substantial evidence review on appeal. And *KCSFV* applies the reasonableness standard and mentions substantial evidence review only in connection with administrative exhaustion. (*KCSFV, supra, 64 Cal.App.5th at p. 1030* ["defendants have failed to show the rate increase reasonably represents the cost of providing service to the affected properties"]; *id. at p. 1034* [discussing administrative exhaustion].)

Like *Coziahr*, the majority opinion purports to distinguish *Griffith* and *Moore* on the ground that "the substantial evidence shoe is on the other foot" because the trial courts in those cases rejected the section 6(b)(3) challenges to the defendants' rates. (Maj. opn., *ante*, at p. 268; see *id.* at pp. 276–277; *Coziahr, supra, 103 Cal.App.5th at p. 802*.) But also like *Coziahr*, the majority opinion fails to acknowledge that neither *Griffith* nor *Moore* ever mentions substantial evidence review at all.

Coziahr also criticizes *Griffith* for citing a pre-Proposition 218 case for the claim that "[a]pportionment is not a determination that lends itself to precise calculation" (*Griffith, supra, 220 Cal.App.4th at p. 601*), and *Coziahr* notes that *Capistrano* expressed a similar criticism. (*Coziahr, supra, 103 Cal.App.5th at p. 801*; see *Capistrano, supra, 235 Cal.App.4th at p. 1514*.) But the criticism is empty, because the passage of Proposition 218 did not and could not change the fact that **[**171]** there is not just one way to calculate and allocate the predicted costs of operating a water system. It was true both before and after passage of Proposition 218 that the predictive cost calculation and allocation involved in rate setting "'do not admit of a single correct result.'" (*20th Century, supra, 8 Cal.4th at p. 293*.) And again, *Capistrano* itself articulates the reasonableness standard, acknowledges that tiered rates and uniform rates are common, and does not suggest that either form of rate structure is prohibited or required. (*Capistrano, at p. 1499, fn. 6*.)

For all of the foregoing reasons, I conclude that defendants are correct that the standard of proof in a section 6(b)(3) suit is reasonableness. That is, for the defendant to carry its burden of proof, it must show that under a reasonable method of calculating and allocating costs, the defendant's rates do not exceed proportional costs.[1]
[*323]

II. *Defendant's calculation and allocation of costs*

The rates at issue in this case were set on the basis of COSSs prepared by an outside consultant in 2013 and 2015. The appellate record contains both studies. The studies are detailed and intricate, but much of that

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[1] The majority opinion asserts without explanation that "under the reasonableness standard of proof," a defendant in a section 6(b)(3) action must prove only that "(1) there is a reasonable basis for the fee, and (2) the fee is reasonably allocated among the fee payors or parcels." (Maj. opn., *ante*, at p. 263.) That is incorrect. Defendant has never advocated such an interpretation of the reasonableness standard, the cases articulating and applying the reasonableness standard have not interpreted it that way, and there is no reason to do so. Such an interpretation would erase the requirement that rates not exceed proportional costs. The reasonableness standard does not effect such an erasure. Rather, it merely acknowledges that there are different ways of calculating and allocating costs, some are reasonable, and some are not. Consequently, a defendant in a section 6(b)(3) suit must prove only that, based on a reasonable calculation and allocation of costs, rates do not exceed proportional costs.

complexity is not necessary for analysis of the issues on this appeal. For simplicity, **[**172]** I will focus on the 2015 COSS, but the 2013 COSS is not materially different.

The 2015 COSS began by using historical data to project the total annual revenue required to operate defendant's water system for the next five years. The total cost included operations and maintenance, capital costs, debt service, and other components. It was a calculation of total system cost for all customers combined, not just for SFRs.

The study then focused on the upcoming year (fiscal year 2016) for purposes of allocating costs and setting rates. The study determined the total revenue to be recovered *from rates* by starting with the total revenue requirement and deducting revenue generated by other sources.

The next part of the study's analysis used a cost-allocation methodology known as the "base-extra capacity" method. The methodology comes from the leading water industry manual on cost calculation and rate design, "M1 Principles of Water Rates, Fees and Charges" (M1), which is published by the American Water Works Association (AWWA). The M1 explains the base-extra capacity method and identifies it as one of the two most commonly used methods of cost allocation; the other is the "commodity-demand method." **[**173]** Plaintiffs' expert, Rodney Smith, conceded that he has not seen a rate study that does not use the M1 methodology. Smith is not aware of any alternatives to the base-extra capacity method and the commodity-demand method, and he could not recall any California water utilities that use the commodity-demand method.

The rationale for the base-extra capacity method derives from the need to design and build a water system large enough to accommodate fluctuations in demand. For example, the projected total demand on defendant's system for 2016 was 64,545,546 HCF of water, which yields an average demand rate of 7,368 HCF per hour. If demand on the water system were uniform and constant at that average rate throughout the entire year, then a relatively small **[*324]** system would be capable of meeting total demand. That system size, which would be sufficient to meet total demand if demand were constant, is referred to as "base" capacity.

But demand is not constant. It fluctuates from month to month and day to day and hour to hour. In order to accommodate the resulting peaks in demand, one needs a bigger system, even though the total amount of water delivered over the course of the year (in this instance **[**174]** 64,545,546 HCF) remains the same. The increased system size that is required to accommodate day-to-day fluctuations is referred to as "Max Day" extra capacity. Defendant's water system has been designed and built on the assumption that in order to meet day-to-day fluctuations in demand, the system must be 1.5 times the size of base capacity. So the max day "demand factor" used in the COSS is 1.5.

But hour-to-hour fluctuations are even bigger than day-to-day fluctuations. That is, hourly demand deviates even further from average demand than daily demand does. The increased system size that is required to accommodate those hourly fluctuations is "Max Hour" extra capacity. Defendant's water system was designed and built on the assumption that in order to meet hour-to-hour fluctuations in demand, the system must be 2.25 times the size of base capacity. So the max hour "demand factor" used in the COSS is 2.25. Together, the 1.5 max day and 2.25 max hour demand factors are referred to as "peaking factors," because they describe the increased system size that is required to meet peak demand (in contrast to average or below-average demand).[2]

The COSS did not arbitrarily invent the 1.5 max day **[**175]** and 2.25 max hour peaking factors or pull them out of the M1. On the contrary, the M1 itself states that the factors must "be determined on the basis of the actual operating history or design criteria for each system," and when the M1 gives examples of max day and max hour peaking factors, they are not 1.5 and 2.25. The COSS got its peaking factors from defendant's "Water Facilities Master Plan," "historical data," and "discussions with [Public Utilities Department] staff." Defendant's engineers use

[2] The commodity-demand method also uses peak demand concepts like max day and max hour. The base-extra capacity method and the commodity-demand method generally yield similar results, but the commodity-demand method tends to allocate a greater share of costs to max day and max hour.

the 1.5 max day factor "to plan and design infrastructure for" defendant's water system, and "[i]t is based on historic operating data records." Although defendant does not have access to similar data with respect to max hour demand, defendant's engineers use the 2.25 max hour factor "for planning purposes." Both factors are reflected in defendant's "Water Facilities Master Plan" and "are within the ranges typically experienced by other utilities across the nation."
[*325]

Under the base-extra capacity method, the various components of system costs—such as water supply, pumping, and treatment—are apportioned among base, max day, max hour, "customer" costs, and "fire protection." Customer costs **[**176]** are those "that tend to vary in proportion to the number of customers," such as metering and billing. And fire protection includes things like fire hydrants and the need to design and build the system "to accommodate relatively large flows of water for short durations at suitable pressure" for fire suppression. Thus, the COSS would take a particular cost component, such as "Finance & Information Technology," and apportion it among base, max day, max hour, customer, and fire protection, depending on the extent to which the cost was attributable to the need to accommodate fluctuations in demand or the need to provide for fire protection or varied with the number of customers. The COSS based those cost allocations "on an analysis of employee timecard data, historical information and discussions [with] agency Staff."

Having apportioned costs among those categories, the COSS next looked at the various customer classes—SFR, multifamily residential, commercial/industrial, construction, and irrigation—to determine how much of each cost category (base, max day, etc.) to attribute to each class. Thus, the COSS had to determine how much each customer class contributed to max day and max hour demand. **[**177]** Those determinations were made by examining "historical data and usage patterns for the customer classes to estimate the [class-specific] Max Day and Max Hour Extra Capacity factors." Those factors were then checked against "typical" class-specific extra capacity factors provided in the M1, which are "determined from studies conducted throughout the nation, some of which reflect the outcomes of demand studies."[3]

The COSS then used those class-specific factors to allocate to each customer class (SFR, multifamily residential, etc.) its portion of each cost category (base, max day, etc.). The COSS then added up those portions for each class to arrive at the share of total system costs allocated to each class.

Finally, the COSS used the results of all of the foregoing calculations and allocations to design rates. It adopted a two-part rate structure for all customers: Each customer would be charged both a fixed monthly charge **[*326]** based on meter size (the service charge) and a variable monthly charge based on the number of HCF of water consumed (the commodity charge).

For every customer class other than SFR, the commodity charge used a uniform rate. That is, within each non-SFR customer **[**178]** class, every HCF of water consumed was billed at the same rate, though that rate differed from one class to another (so, for example, construction customers paid a higher rate than irrigation customers). The reason for setting uniform rather than tiered rates for those classes was that "[c]ustomers other than SFR vary considerably in size which makes it impractical and inequitable" to use tiered rates. If tiered rates were used for those non-SFR classes, then "small customers (corner store, 10-unit apartment complex, 1 acre irrigated lot) would likely remain in the bottom block paying at the lowest rate, while large customers that use water because they are larger (Walmart, 200-unit apartment complex, an irrigated golf course) would pay for most of their water at the higher rates. This would be inequitable because the larger sized customers would always pay rates in the highest

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[3] The COSSs thus relied on two different types of "peaking factors." First, there are the 1.5 max day and 2.25 max hour factors, which describe the increased size of the system needed to meet peak demand; those factors came from the city's master plan. Second, there are the class-specific peaking factors, which describe different customer classes' peaking behaviors and consequent contributions to demand peaks; those factors came from historical data and usage patterns and were then checked against typical class-specific peaking factors in the M1, which are based on studies across the nation. The statement of decision conflates those two different types of factors, as discussed in part III.B., *post*.

tiers even when they use water efficiently for their size." The M1 agrees that tiered rates are not appropriate for all customer classes and should be used only for "a small, highly homogeneous customer base," and the manual cautions that a tiered rate applied indiscriminately to all customers would actually **[**179]** be "more difficult to justify on a cost-of-service basis."

For SFRs, however, the commodity charge was a four-tiered rate. More precisely, each month every SFR customer paid the lowest rate for the first four HCF consumed, a higher rate for the next eight HCF (i.e., for the fifth through 12th HCF of total consumption), a still higher rate for the next six HCF (13th through 18th HCF), and the highest rate for any consumption above 18 HCF.

The tier breakpoints for the SFR class were all based on variation above and below average use, and they were set on the basis of analysis of historical data. Defendant's historical billing records indicate that "about 50 percent of billed usage" by SFR customers was 12 HCF. The COSS consequently set the tier 2 breakpoint (i.e., the breakpoint between tiers 2 and 3) at 12 HCF. As a result, "approximately half of SFR customers will pay for usage only in Tiers 1 and 2"; "[t]hese customers have average or less than average usage."

The tier 1 breakpoint was set as follows: "[A] typical single-family residential size varies from 2 to 3 people per household." According to AWWA survey data, "the typical indoor residential water consumption is between 50 to 60 **[**180]** gallons per person per day," which works out to "3,000 gallons to over 5,000 gallons per month (or 4 HCF to 7 HCF per month)" for a household of two to three people. On that basis, the tier 1 breakpoint was **[*327]** set at four HCF, reflecting below-average use, i.e., use below what a two-person household would typically require for indoor use alone.

The tier 3 breakpoint (i.e., the dividing line between tiers 3 and 4) was set to distinguish between merely above-average use and high-level use. Defendant determined that six HCF would be "enough water for outdoor irrigation to maintain an average-sized green lawn." The COSS then set the tier 3 breakpoint at 18 HCF, i.e., six HCF above average. Thus, any use above that level would exceed average use *plus* enough water to maintain an average lawn. Projections based on historical billing data (and taking into account factors such as conservation measures adopted to address statewide drought) indicated that only 6.31 percent of SFR use would be above the tier 3 breakpoint. In contrast, SFR use billed at tier 1 and tier 2 rates would account for over 80 percent of use.

Having set the tier breakpoints to create four tiers—below average, average, above average, **[**181]** and very high—the COSS again employed the base, max day, and max hour concepts to allocate SFR costs to each tier in order to set SFR rates. Thus, the base capacity costs that had been allocated to the SFR customer class as a whole were apportioned among the tiers on the basis of analysis of defendant's customers' historical usage data. The same process was then repeated to apportion SFR max day and max hour costs among the tiers. The aim of the process was to allocate to each level of use the costs for which that level of use was causally responsible. So, for example, max hour costs were allocated entirely to tiers 3 and 4, and that makes sense—hourly fluctuations above average would be caused by above-average use, so it makes sense to allocate the costs of sizing the system to accommodate such fluctuations to above-average use, i.e., tiers 3 and 4. The COSS states that base costs are "the majority of costs for the" SFR class, and tiers 1 and 2 "recover the majority" of those costs. That is an understatement. Putting aside meters and billing (which are not included in the per-HCF rate at all), SFR base costs were 79.9 percent of total SFR costs, and 90 percent of SFR base costs were **[**182]** allocated to tiers 1 and 2.

Next, "[a]s a check on the reasonableness of proposed pricing differentials for the tiers," the COSS compared the ratio of the tier 4 and tier 1 rates to the ratio of the cost of defendant's most and least expensive sources of supply. Defendant obtains water from two primary sources: local supply and purchased water from the San Diego County Water Authority (CWA). The purchased water includes treated water, which goes straight into defendant's distribution system, and raw water, which goes to defendant's treatment plants. Treated CWA water is defendant's most expensive source of supply and costs four to five times as much as local water, which is the cheapest source. The tier 4 rate "is approximately 2.07 times" the tier 1 rate, well below the ratio of most to least expensive sources of supply.
[*328]

Finally, it is worth emphasizing that although SFRs were the only customer class with a tiered commodity charge, SFRs were *not* the only class to which peaking costs (i.e., max day and max hour costs) were allocated. Rather, such costs were allocated to *every* customer class before rates were set. In fact, the proportion of peaking costs allocated to SFRs was *less* than **[**183]** SFRs' proportion of total consumption.

There are at least two ways to illustrate that point. First, one can compare SFRs with irrigation. Even though the total projected consumption of irrigation customers (about nine million HCF) was *less* than half the total projected consumption of SFRs (about 24 million HCF), the max day and max hour costs allocated to irrigation were *more* than half the max day and max hour costs allocated to SFRs, because irrigation customers exhibit greater peaking behavior. That is, irrigation customers were allocated a proportionally higher share of peaking costs than SFRs, precisely because irrigation customers were more responsible for peaks. Irrigation customers paid their share of peaking costs via a uniform rate, and SFRs paid their share via a tiered rate. But both classes paid their share of peaking costs.

Second, one can compare SFRs' share of peaking costs with SFRs' share of total consumption. SFRs' total projected consumption (24,100,457 HCF) was 37.3 percent of total projected consumption for all classes combined (64,545,546 HCF). But the max day and max hour costs allocated to SFRs ($24,582,900) were 35 percent of total max day and max hour costs for **[**184]** all classes combined ($70,032,200). Thus, the share of peaking costs paid by SFRs was actually smaller than SFRs' share of total consumption. Again, SFRs paid their share of peaking costs via a tiered rate, and other classes paid their shares of peaking costs via a uniform rate. But every class paid its share of peaking costs, and SFRs' share was (proportionally) smaller than others.

III. *The trial court's erroneous critique*

Given the foregoing summary of defendant's cost allocation and rate setting, it might be difficult to imagine how they could be impermissible. *Capistrano* and prior cases acknowledge that section 6(b)(3) does not prohibit tiered cost allocation and consequent tiered rates. (*Capistrano, supra, 235 Cal.App.4th at p. 1511*.) *Capistrano* actually says it is "a good idea" to "pass[] on the incrementally higher costs of expensive water to incrementally higher users." (*Ibid.*) Defendant used the more conservative of the two known methodologies for doing exactly that, and plaintiffs' own expert is not aware of any alternatives to those two methodologies and is not aware of anyone in California who uses the one that defendant did not use. Defendant properly applied that canonical methodology **[**185]** to all of the appropriate data. What else was defendant supposed to do? If that is not a permissible way to set tiered rates, then how do you do it?
[*329]

Plaintiffs have never answered that question, and the trial court's statement of decision, which plaintiffs drafted, is similarly silent. To make sure I had not missed something, I asked plaintiffs' counsel the question at oral argument: How is a water utility supposed to do a tiered cost allocation and set tiered rates without violating section 6(b)(3)? Counsel's only answer was to refer to Amicus Curiae Mesa Water District, but counsel conceded that Mesa Water District charges uniform (not tiered) rates. In effect, counsel had no answer at all.

That should be sufficient confirmation of the claim I made at the outset: If the rates in this case are unlawful, then no tiered water rates in California are lawful.

In the following parts, I explain how plaintiffs' critique of defendant's rate setting—a critique that the trial court adopted in its entirety—is based on nothing but red herrings and misrepresentations of the facts and the law. But it is worth noting at the outset two examples of the kinds of misrepresentations that pervade the trial court's statement **[**186]** of decision, because they illustrate how baseless plaintiffs' claims are.

First, the statement of decision states the following: "It is [defendant's] position that it is not required to prove that its rates reflect the actual cost of delivering water to a parcel, including at a particular tiered level of usage. Indeed, in its briefing and at oral argument, [defendant] conceded that it cannot make this showing." Both of those sentences are false. That has never been defendant's position, and defendant has never made any such concession. Defendant has never denied that in order to prevail it must prove that its rates do not exceed proportional cost. And

defendant has contended throughout this case that its COSSs show that its rates do not exceed proportional cost and that they therefore comply with section 6(b)(3). For example, defendant argued in its trial brief that "[e]ach COSS employs detailed analyses of [defendant's] revenues, expenses and usage data to calculate SFR tiered rates that are based on [defendant's] costs to provide water service at the different consumption levels represented by the tiers." The trial brief went on to argue that "[i]f [defendant's] tiered water rates cannot be sustained **[**187]** on the record and expert evidence presented in this case, then no tiered water rates in California are lawful. However, California courts have repeatedly held that tiered water rates can be made consonant with Proposition 218. [Citations.] Here, the Court has the opportunity to provide a concrete example of how tiered water rates may do so." Defendant has never wavered from that position.[4]
[*330]

Defendant objected to the baseless claims in plaintiffs' proposed statement of decision about defendant's supposed concession, pointing out that defendant "makes no such admission." But the trial court adopted plaintiffs' claims without alteration. That is not a trivial misstatement or oversight. The result is that the trial court's statement of decision falsely asserts, on no basis whatsoever, that defendant conceded the central issue in the case.

Second, defendant's COSSs were prepared by a firm called Black & Veatch. Defendant's expert in this litigation, Ann Bui, is a managing director at Black & Veatch, and she was the project manager for the 2013 and 2015 COSSs. The trial court's statement of decision claims that the same methodology (the base-extra capacity method, or peaking factors) **[**188]** used by the same individual (Bui) at the same firm (Black & Veatch) for defendant's COSSs was rejected by the *Capistrano* court. The statement of decision says: "[T]he Court in *Capistrano* rejected the same peaking factor analysis from Black & Veatch and consultant Ann Bui that [defendant] relies on here. (See Pl. Class's Trial Presentation at pp. 67–68.) Moreover, in both the 2013 and 2015 COSS, used a base/extra capacity method similar to the one used (and rejected by the Court) in *Capistrano* to allocate a disproportionate amount of [defendant's] costs to higher volume users." (Original grammatical error.) Like the claims about defendant's putative concession, those claims about *Capistrano* make the case look easy—the same methodology used by the same individual at the same firm has already been found constitutionally inadequate by published case law. The statement of decision expressly recognized that the extensive parallels with *Capistrano* make the case easier: The court said that it did not have to "break new ground" in deciding this case, because "[t]he allocation methods at issue bear striking resemblance to those that the California Court of Appeal has already determined violate **[**189]** Proposition 218," and the court then cited *Capistrano* and *Palmdale*.

Plaintiffs' counsel has enthusiastically developed this theme throughout this litigation. Plaintiffs' opening briefs in the trial court and on appeal begin with the sentence, "This case is 'déjà vu all over again,'" with a citation to Yogi Berra. The briefs proceed to describe how defendant's COSSs, prepared by Bui and Black & Veatch, used the same analysis that Bui and Black & Veatch had provided to the defendant in *Capistrano*—defendant "followed the *Capistrano* playbook to the letter." As a result, plaintiffs contend that "[t]his case is *Capistrano* all the way down."

The problem with all of this is that the *Capistrano* opinion never mentions Bui or Black & Veatch or the base-extra capacity method or peaking factors, **[*331]** and *Capistrano* did not reject *any* cost-based rate-setting methodology, because *the defendant in Capistrano did not attempt to defend its rates in terms of costs*. Instead, the defendant in *Capistrano* took the position that it did not have to show that its rates did not exceed proportional cost, so it declined to try. (*Capistrano, supra, 235 Cal.App.4th at p. 1505* [the defendant claimed "local agencies do not have to—or should **[**190]** not have to—calculate the cost of water service at various incremental levels of usage"].) The *Capistrano* court disagreed, holding that a defendant in a section 6(b)(3) suit must prove that its rates do not exceed proportional cost. (*Capistrano, at pp. 1504–1511*.) There was no occasion to disapprove any cost-allocation

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[4] The majority opinion disagrees with defendant's claim that "California courts have repeatedly held that tiered water rates can be made consonant with Proposition 218." (See maj. opn., *ante*, at p. 286.) That would appear to be a disagreement between the majority opinion and *Capistrano*. (See *Capistrano, supra, 235 Cal.App.4th at pp. 1497–1498* [tiered rates "are perfectly consonant with" section 6(b)(3) as long as the rates do not exceed proportional costs]; *id. at p. 1511* ["courts have made it clear they interpret the Constitution to allow tiered pricing"].)

or rate-setting methodology, because none was offered. The *Capistrano* court did not reject the base-extra capacity method or peaking factors or in any way disapprove the work of Bui or Black & Veatch. Again, the opinion never mentions any of them.

That is not a subtle or complex or reasonably debatable point—all you have to do is pull up the case and search for "Bui" or "Black" or "Veatch" or "base" or "extra" or "capacity" or "peak." But that did not stop plaintiffs' counsel from writing the following misrepresentation of the case law into the statement of decision, or stop the trial court from signing it: "[T]he Court in *Capistrano* rejected the same peaking factor analysis from Black & Veatch and consultant Ann Bui that [defendant] relies on here."[5]

The entire statement of decision is like that. To anyone acquainted with the record and the relevant legal authorities, **[**191]** it reads like a work of fiction.

A. *Tier 1 and local supply*

The statement of decision adopts plaintiffs' contention that defendant's COSSs claimed that water that was billed at the tier 1 rate came from local supply. Local supply is defendant's cheapest source of supply, and plaintiffs contended that was defendant's justification for the low tier 1 rate—defendant charged its lowest rate for water that came from the cheapest source of supply, and defendant charged higher rates (tiers 2 through 4) for water that came from more expensive sources. But the statement of decision explains that "over the course of this litigation" defendant has "abandoned this position," conceding that the water system "commingles all of its water and delivers it to customers using the same infrastructure." That is, contrary to the assertions in the COSSs (as interpreted by plaintiffs and the statement of decision), water billed at the tier 1 rate does not come exclusively from local **[*332]** supply, and water billed at higher rates does not come exclusively from other, more expensive sources. The majority opinion concludes that this point by itself is sufficient to affirm the trial court's liability determination. (Maj. **[**192]** opn., *ante*, at p. 278 ["Affirmance of the liability portion of the judgment is proper on this ground alone"].)

That analysis is meritless. The first thing to note is that it is far from clear that defendant has ever claimed that water billed at tier 1 rates comes exclusively from local supply and water billed at higher rates comes from other sources. The relevant passage from the 2015 COSS reads as follows: "[T]he units of water included in Tier 1 are priced at the lowest rate since it represents the City's least expensive source of water—local supply. As water consumption increases beyond the base tier, water supplies to meet this demand lead to greater investments by the City in alternate sources of supply, yet at much higher costs per acre foot. The use of peaking factors reasonably represents the relationship between higher water consumption and increasing water supply costs."

There are at least two possible interpretations of that passage. One would be that because higher levels of water use require defendant to purchase water from more expensive sources of supply, the use of a tiered cost allocation and associated tiered rates (based on the base-extra capacity method or, equivalently, **[**193]** peaking factors) makes sense. Higher levels of use are causally responsible for the need to purchase water from more expensive sources—if everyone's consumption were limited to four HCF per month, defendant could meet demand with a cheaper mix of sources. So higher levels of use should be charged higher rates. That is exactly the approach that *Capistrano* encourages: The elevated costs of additional supply should be passed on "to those customers whose marginal or incremental extra usage requires" that additional supply, and "lower-than-average users" should not have to bear the costs of additional supply that "their levels of consumption do not make necessary." (*Capistrano, supra, 235 Cal.App.4th at p. 1503*.) None of this requires that water billed at a lower rate actually comes from a cheaper source. The point, rather, is that higher levels of use create the need to purchase supply from more expensive sources, so higher levels of use should be billed at higher rates.

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[5] Tellingly, the statement of decision does not cite the *Capistrano* opinion as support for that sentence. Instead, it cites two slides from plaintiffs' PowerPoint presentation at trial: "(See Pl. Class's Trial Presentation at 67–68.)" Those slides are in the appellate record, and they too provide no page citations to the *Capistrano* opinion.

Another theoretically possible interpretation of the passage is the one adopted by the statement of decision: Water billed at tier 1 rates comes from local supply, and that is why the tier 1 rate was set where it was. It is **[**194]** worth pausing to recognize just how outlandish a claim that would be. Recall that for each SFR customer, the tier 1 rate applies to the first four HCF of water consumed each month, and higher rates apply to water consumed in excess of four HCF. Different customers use different amounts of water and at different **[*333]** paces, so one customer might be on their third HCF at the same time that their neighbor is on their fifth or sixth HCF. But both neighboring customers get their water from service lines connected to the same water main. Thus, the claim attributed to defendant by the statement of decision is that if both neighbors are running baths at the same time, somehow the neighbor who has used less than four HCF that month manages to draw only local supply water from the water main, but the neighbor who has used more than four HCF manages to draw only nonlocal supply water at the same time from the same water main. To my knowledge, no water system on earth could do that.

It is unsurprising, then, that in one of Bui's reports for this litigation, she clarified that defendant was not making the patently absurd claim that water billed at tier 1 rates comes exclusively from local supply, water billed at **[**195]** higher rates comes from other sources, and the tiered rates are set on that basis. It "would be impossible" for defendant to set its rates that way for several reasons, including (1) defendant would need to have different reservoirs, distribution pipes, and treatment plants for each different source of supply, and (2) the amount of local supply varies from year to year, making it impossible to set rates prospectively if they were tied to specific sources of supply. Rather, Bui explained, the COSSs' statements about the tier 1 rate and local supply should be interpreted in the way I suggested above: Defendant was doing just what *Capistrano* recommends, namely, creating a tiered cost allocation that passes on the elevated costs of additional supply "to those customers whose marginal or incremental extra usage requires" that additional supply, so that "lower-than-average users" do not have to bear the costs of additional supply that "their levels of consumption do not make necessary." (*Capistrano, supra, 235 Cal.App.4th at p. 1503*.) Thus, as the COSS puts it, "[t]he use of peaking factors reasonably represents the relationship between higher water consumption and increasing water supply **[**196]** costs." That is, higher levels of consumption are causally responsible for higher per-unit supply costs—if consumption were lower, then defendant would be able to purchase less supply, and defendant would presumably reduce its purchases of the most expensive sources first. Tiered rates that are higher for higher levels of consumption are therefore a reasonable reflection of that causal relationship—higher levels of consumption cause higher per-unit costs—*even though the tiered rates themselves are calculated on the basis of peaking factors and not on the basis of the different costs of different sources of supply*. In effect, the different costs of different sources of supply provide an additional justification for charging tiered rates, even though the actual costs of different sources of supply are not used in the calculation of those rates.

According to the statement of decision, however, Bui's discussion was not a clarification of defendant's position but rather was an abandonment of the claim that water billed at the tier 1 rate comes from local supply. There are at least two problems here.
[*334]

First, even if the statement of decision is correct, and Bui's description of the relationship **[**197]** between tier 1 and local supply is merely her fallback position after abandoning the claim that water billed at tier 1 rates comes from local supply, *the statement of decision never addresses that fallback position*. The statement of decision does not even acknowledge the *existence* of that position. Instead, the statement of decision just focuses on the (supposed) abandonment of the claim that water billed at the tier 1 rate comes from local supply and leaves it at that.[6]

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[6] *Coziahr* suggests, and the majority opinion agrees, that "'post-hoc rationalization'" cannot be used to defend rates against a section 6(b)(3) challenge. (*Coziahr, supra, 103 Cal.App.5th at p. 819*; see maj. opn., *ante*, at pp. 268, 286.) That is incorrect. Section 6(b)(3) requires only that rates not exceed proportional costs. If reasonable cost calculation and allocation developed after the fact show that rates do not exceed proportional costs, then the rates do not violate section 6(b)(3). It does not matter that the cost calculation and allocation are post hoc.

Second, suppose that the statement of decision is right that the COSSs claimed that water billed at the tier 1 rate comes from local supply, and suppose the statement of decision is right that defendant (through Bui) subsequently abandoned that claim. How does that show that defendant's rates exceed proportional cost?

The answer is straightforward: It does not. Defendant has provided an elaborate and detailed cost calculation and allocation according to which the tiered rates for SFRs do not exceed proportional costs. *The alleged claim that tier 1 water comes from local supply plays no role in that cost calculation and allocation*. The COSSs do not even contain separate cost projections for different **[**198]** sources of supply. That is, neither COSS says specifically how much local supply costs, how much raw CWA water costs, or how much treated CWA water (the most expensive source) costs. Instead, each COSS presents a single aggregate figure for total supply costs. Thus, the alleged (and allegedly abandoned) claim that tier 1 water comes from local supply did not play any role in the calculation or allocation of any costs or the consequent setting of any rates.

Rather, as I explained in part II., *ante*, the relative cost of different sources of supply served only as a final "'check on the reasonableness of proposed pricing differentials for the tiers.'" Defendant's most expensive source of supply costs four to five times as much as its cheapest source, but the tier 4 rate "is approximately 2.07 times" the tier 1 rate, well below the ratio of most **[*335]** to least expensive sources of supply. The statement of decision never mentions that point, even though it is the only use that the COSSs actually make of the different costs of different sources of supply, and even though it occurs in the same paragraph of the COSSs on which the statement of decision relies to attribute to defendant the claim that tier **[**199]** water 1 comes from local supply.[7]

The course of the argument on this point could therefore be summarized as follows: Plaintiffs attributed a preposterous claim to defendant, namely, that water billed at the tier 1 rate comes exclusively from local supply. When defendant clarified that it was never making that claim, plaintiffs responded, "Gotcha. You're abandoning your claim. Therefore, your rates are unconstitutional." The trial court agreed. And the majority opinion concludes that "[a]ffirmance of the liability portion of the judgment is proper on this ground alone." (Maj. opn., *ante*, at p. 278.)

I disagree. This entire line of argument is, in my view, based on a misrepresentation of defendant's position—of course defendant never made the (obviously false) claim that it operated a byzantine water system (designed by Willy Wonka? Rube Goldberg?) with multiple pipes running to each SFR customer for every different source of supply, which were shut off or turned on individually for each customer whenever they reached a tier breakpoint. But even if the argument is not based on a misrepresentation, and defendant really did make that absurd claim, the entire line of argument is still a red **[**200]** herring. It has no tendency to prove that defendant's rates exceed proportional cost, which is the only issue in the case. Defendant has provided a detailed cost calculation and allocation according to which defendant's rates do not exceed proportional cost, and *defendant's cost calculation*

The majority opinion also asserts that defendant's "use of the base-extra capacity method, detailed in the 2013 and 2015 COSSs, was, as in *Coziahr*, an 'unsupported, post hoc rationalization' for the tiered rates." (Maj. opn., *ante*, at p. 268.) Nothing in the 2013 and 2015 COSSs could be a post-hoc rationalization—it is undisputed that both COSSs were produced before the rates were set and were used to set the rates.

[7] The relevant paragraph from the 2015 COSS reads as follows: "For the study period, the units of water included in Tier 1 are priced at the lowest rate since it represents the City's least expensive source of water—local supply. As water consumption increases beyond the base tier, water supplies to meet this demand lead to greater investments by the City in alternate sources of supply, yet at much higher costs per acre foot. The use of peaking factors reasonably represents the relationship between higher water consumption and increasing water supply costs. As a check on the reasonableness of proposed pricing differentials for the tiers, Black & Veatch estimated the cost of local water and the cost of treated Tier I CWA water. These figures only reflect treatment costs and do not include such expenses as distribution and pumping. Roughly speaking, the cost of treated Tier I CWA water, which is the most expensive water that the City purchases is roughly 4 to 5 times the cost of local supply. Thus, Black & Veatch has limited the pricing differential between Tier 1 and Tier 4 to less than these figures." Again, assuming that tier 1 water does not come exclusively from local supply and assuming that defendant claimed it does, how does anything in that paragraph show that defendant's rates exceed proportional cost? The statement of decision provides no answer.

and allocation do not in any way depend upon the proposition that tier 1 water comes exclusively from local supply. Plaintiffs and the statement of decision (and the majority opinion) do not articulate any argument to the contrary.
[*336]

B. *Peaking factors and time-of-use data*

The statement of decision's next criticism concerns the COSSs' use of peaking factors and the base-extra capacity method. But before summarizing what the statement of decision says about that issue, it is important to acknowledge the actual meaning of plaintiffs' argument, which the trial court adopted and the majority opinion approves: It is a generalized rejection of the base-extra capacity method.

Plaintiffs never directly say that, and they attempt to conceal it in various ways, such as by claiming that the problem is just that defendant did not use actual data, or did not use the data that plaintiffs think defendant should have **[**201]** used. But the arguments that plaintiffs' counsel wrote into the trial court's statement of decision show that plaintiffs got the trial court to reject the base-extra capacity method itself. For example, the statement of decision criticizes defendant's use of the "'base-extra capacity peaking factor method'" on the ground that it "'relies on the assumption that water costs more to deliver at different times'" (or "'the supposition that it costs [defendant] more to deliver water at certain peak times'"), but "'[t]he record provides no evidence that it actually costs more to deliver water at peak times,'" and defendant actually "'concedes that the cost of delivering water *does not* vary based on time of use.'" Putting those pieces together: The court determined (incorrectly) that the base-extra capacity method presupposes that it costs more to deliver water at certain peak times, but that presupposition is concededly false. It follows that *the base-extra capacity method itself is unsound*. The majority opinion endorses that analysis: It states that the trial court "'properly found that"' defendant "'chose to base its tiered pricing "on the supposition that it costs [defendant] more to deliver water **[**202]** at certain peak times."'" (Maj. opn., *ante*, at pp. 280–281.)

The consequence of the trial court's reasoning and the majority opinion's affirmance of it is that it is impossible to set tiered water rates in California. The base-extra capacity method is the only known method for setting tiered rates,[8] and both the trial court and the majority opinion have found that the entire method is based on a false premise. The analysis is based on a clear error: The base-extra capacity method is not based on the assumption that it costs more to deliver water at certain peak times. But the trial court and the majority opinion have determined that it is based on that assumption, and that is a general result that is not limited to the record in this case. The method is set forth in the M1 and is what it is and assumes what it assumes. None of that will vary with the facts of any particular case.
[*337]

The rest of the trial court's discussion of the issue can be summarized as follows: After describing the 1.5 max day and 2.25 max hour peaking factors used in the COSSs, the statement of decision asserts: "'The problem with this theory is that the peaking factor ratios and the cost allocations are not based on actual **[**203]** data.'" In fact, as the City's expert conceded, at the time of the 2013 and 2015 rate studies, the City simply "'did not know when customers used water.'" The statement of decision goes on to explain that the max day and max hour "figures are not based on actual observed data from San Diego single-family residential customers," but rather were drawn from "'industry guidelines' '[i]n accordance with M1 standards' and … the City's 2011 'Water Facilities Master Plan' and the 'City Engineering Department.'" But "because the Master Plan does not break down the maximum day or hour data by customer class," defendant "simply did not know whether or how much single-family residential customers contributed to those peak usage levels." Consequently, defendant "did not know whether the demand levels it used to set the single-family residential rates even came from single-family residential customers and not from commercial customers or any other customer class." But "[d]espite lacking the necessary data," defendant "'adopted' the demand or peaking 'factors of 1.5 for the max-day demand and 2.25 for the max-hour demand' that

[8] More precisely, plaintiffs' own expert knows of no alternatives to the base-extra capacity method and the commodity-demand method and knows of no one who uses the commodity-demand method, and both methods rely on the same peaking concepts like max day and max hour.

were 'set forth in the City's master plan.'" Defendant "then used these **[**204]** peaking factors to allocate nearly half of peak day costs, and all peak hour costs, to customers in Tiers 3 and 4." But defendant "does not have data to support these allocations, because in addition to having no way of knowing the total maximum day or maximum hour use for single-family customers," defendant "had no time-of-use data" and "therefore did not know whether a particular customer was using water on a peak day or at a peak hour." As a result, defendant "allocated a disproportionate amount of the City's revenue requirements to Tier 3 and Tier 4 customers" on the ground that "Tier 3 and Tier 4 customers are using water during times of peak day and peak hour use, thus requiring the system to be sized larger to accommodate higher volumes of water." But Bui "conceded that Tier 1 and Tier 2 customers *also* use water during peak day and peak hour times, thus contributing to the need for the maximum system capacity," as do "other classes of customers—irrigation, construction, and multi-family residential—whom the City does *not* charge tiered rates." Bui even "conceded that customer classes other than single family residential customers contribute *more* to the need for maximum system **[**205]** capacity than do single-family residential customers." Defendant "simply failed to produce evidence indicating that single-family residential users in Tier 3 and 4 were any more responsible for peak use than any other single-family residential user—or that they were any more responsible than customers in any other customer class." In sum, "[t]he record provides no evidence that it actually costs more to deliver water at peak times, which the City candidly admits. But even if it did, the City does not know how much more it costs, or which customers are **[*338]** responsible for causing the system to peak, and thus which customers purportedly caused the City to expend costs to size the system to meet peak demand."

The analysis is meritless because it is just a tangle of confusion, misrepresentation of defendant's methodology, and omission of the data that defendant actually used. To begin at the end, in a sense it is true that there is "no evidence that it actually costs more to deliver water at peak times"—the record does not (to my knowledge) contain evidence that, *once the system has been designed and built to meet peak demand*, it costs more on a per-gallon basis to run the system at peak times **[**206]** than at off-peak times. But the claim is irrelevant, because defendant's cost allocation and rate setting do not assume any such cost disparity. Rather, defendant's methodology assumes that (1) in order to meet day-to-day fluctuations in demand, the system needs to be built 1.5 times larger than it would have to be if demand were constant, (2) in order to meet hour-to-hour fluctuations in demand, the system needs to be built 2.25 times larger than it would have to be if demand were constant, and (3) building a bigger system costs more than building a smaller one.

The statement of decision says that the 1.5 max day and 2.25 max hour factors "are not based on actual data" and "are not based on actual observed data from San Diego single-family residential customers," because they came from defendant's master plan instead of being derived somehow from time-of-use data that identifies how much water each customer is using on an hourly basis. But again, this is confusion. The master plan is exactly where those factors must come from, and the 1.5 max day and 2.25 max hour factors have nothing to do with how much water any individual customer is using in a particular day or hour. Rather, as **[**207]** explained in part II., *ante*, those factors are engineering and design principles used by defendant's engineers for planning, design, and construction—the engineers project how much total demand will be, from that they can project average demand and the correspondingly necessary base capacity, and they use the 1.5 max day and 2.25 max hour factors to plan and build the system accordingly. There is no role for hourly time-of-use data to play. The statement of decision's argument that the 1.5 max day and 2.25 max hour factors "are not based on actual data" because they are not based on hourly time-of-use data is therefore meritless. The supposedly missing data is actually irrelevant data.

Another point of confusion that runs through the statement of decision's analysis is its conflation of the systemic 1.5 max day and 2.25 max hour factors—which reflect the increased system size needed to accommodate fluctuations in demand—with both the class-specific peaking factors—which reflect the extent to which different customer classes contribute to those fluctuations—and the analysis of customers' historical usage data that was **[*339]** used to apportion the SFR class's costs among the tiers. (See pp. 323, **[**208]** 325–326, *ante*.) The statement of decision never recognizes that those are three different things and play different roles in defendant's methodology. Again, the 1.5 max day and 2.25 max hour factors come from defendant's master plan and are used at an early stage of the cost allocation process, when different cost components (e.g., pumping, treatment, metering) are allocated to base, max day, customer, and so forth. The class-specific factors, which are used at a later step in the

cost allocation process, are based on "historical data and usage patterns for the customer classes" and are then checked against "typical" class-specific extra capacity factors provided in the M1, which in turn were "determined from studies conducted throughout the nation," including "demand studies." The statement of decision never mentions that. Those class-specific factors are used to apportion the base, max day, max hour, and other costs among the classes, so that each class bears its share of each of those cost categories. And finally, to set rates for the SFR class, defendant allocated the SFR class's costs to the different tiers by analyzing customers' historical usage data (including proxy data from **[**209]** other customer classes). The statement of decision never mentions that either.

Thus, the statement of decision's claim that defendant used the 1.5 max day and 2.25 max hour "peaking factors to allocate nearly half of peak day costs, and all peak hour costs, to customers in Tiers 3 and 4" actually manages to conflate three different steps in defendant's methodology. In reality, the 1.5 max day and 2.25 max hour peaking factors were neither used to allocate max day and max hour peaking costs to the SFR customer class nor used to allocate the SFR customer class's peaking costs among the tiers. And the statement of decision's sweeping conclusion that defendant's cost allocations were not based on data is completely unsupported—the statement of decision simply fails to mention the data that defendant actually used.

In a similar vein, the statement of decision conflates *paying for peaking costs* with *paying tiered rates*. For example, the statement of decision disparages defendant's methodology on the grounds that customer classes other than SFRs use water at peak times but are "*not* charge[d] tiered rates," that non-SFR classes pay uniform rates but "contribute *more* to the need for maximum system **[**210]** capacity than do single-family residential customers," and that there is no evidence that tier 3 and tier 4 use by SFR customers is "any more responsible for peak use" than use by "customers in any other customer class." All of those criticisms manifest confusion about how defendant's cost allocation actually works. As explained in part II., *ante, defendant allocated peaking costs to every customer class*, and *the share of peaking costs allocated to SFRs was smaller than SFRs' share of total consumption*. As a result, every customer class paid its share of peaking costs, and SFRs' share was *smaller* than SFRs' share of total consumption. The non-SFR classes paid their peaking costs via uniform rates, but they still paid them. Thus, when the **[*340]** statement of decision criticizes defendant's rates on the ground that other classes "contribute *more*" to peaks than SFRs, it confirms yet again that the statement of decision has lost the plot. In reality, defendant's rates reflect that other classes contribute more to peaks. As a result, what the statement of decision takes to be a criticism is actually a confirmation that defendant's rates are appropriately cost based.

The statement of decision also **[**211]** claims that defendant "allocated a disproportionate amount of the City's revenue requirements to Tier 3 and Tier 4 customers" because defendant allocated "nearly half of peak day costs, and all peak hour costs, to customers in Tiers 3 and 4." But the statement of decision fails to acknowledge that the SFR customer class's *base* costs ($97.5 million) were about four times larger than the SFR customer class's max day and max hour costs *combined* ($24.5 million), and *90 percent of SFR base costs were allocated to tiers 1 and 2*, with *none* allocated to tier 4. The statement of decision's conclusion that "a disproportionate amount of the City's revenue requirements" was allocated to tiers 3 and 4 is consequently unsupported by the statement of decision's own analysis, because the statement of decision never accounts for the fact that SFR base costs dwarf SFR peak costs and were overwhelmingly allocated to tiers 1 and 2.[9]

The statement of decision's persistent use of ill-defined terms further confuses the issues. The statement of decision repeatedly refers to "Tier 3 and Tier 4 customers," contrasting them with "Tier 1 and Tier 2 customers," but never explains what those terms mean. **[**212]** In reality, the tiers refer not to customers but to levels of water consumption: For every SFR customer, the first 4 HCF are billed at the tier 1 rate, the next 8 HCF are billed at the tier 2 rate, the next 6 HCF are billed at the tier 3 rate, and anything above that is billed at the tier 4 rate. What, then,

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[9] What made the tier 4 rate high was not that an inordinate amount of costs were allocated to tier 4 but that there is so little *consumption* at the tier 4 level. Only about 6 percent of SFR use was projected to be in tier 4. And that confirms the reasonableness of defendant's rate setting—tier 4 really is an outlier, representing exceptionally high-level use.

is a "Tier 4 customer," as opposed to a "Tier 1 customer"? Literally every customer who pays the tier 4 rate for any water in any billing cycle also pays the tier 1 rate, the tier 2 rate, and the tier 3 rate in the same billing cycle.

The statement of decision's references to "Tier 3 and Tier 4 customers" contribute to its misleading treatment of the issues. The statement of decision's argument is that there is a certain group of individuals—"Tier 3 and Tier 4 customers"—who are being charged high water rates that defendant cannot justify, because defendant lacks hourly time-of-use data and consequently does not know how much water those individuals are using at specific times. But once we recognize that tiers 3 and 4 do not refer to **[*341]** particular *individuals* but rather to particular levels of *use*, and specifically to *above-average* use, the argument collapses. Above-average use contributes **[**213]** more to above-average demand than average or below-average use does, so it is allocated a greater share of the costs of sizing the system to accommodate above-average demand. Defendant may not know what any particular individual (a "Tier 4 customer"?) is doing at any particular time, but defendant does know that tier 4 use is far above average use and hence contributes more to above-average demand than average or below-average use does. The statement of decision never addresses that point.

Once the confusion and misrepresentation and omission of defendant's actual methodology and data are eliminated, all that is left of the statement of decision's criticism is that defendant does not possess and consequently did not base its rates on hourly time-of-use data. But section 6(b)(3) does not require defendant to possess or base its rates on hourly time-of-use data. It requires only that rates not exceed proportional costs. Defendant has provided a reasonable calculation and allocation of costs according to which defendant's rates do not exceed proportional costs. The fact that defendant's cost calculation and allocation are based on data other than hourly time-of-use data does not render them unreasonable. **[**214]**

Moreover, if it were true that section 6(b)(3) requires hourly time-of-use data in order to set tiered rates, then it would be impossible for defendant (and most water utilities in California) to use tiered rates. Given the current physical infrastructure of defendant's water system, it is impossible for defendant to acquire hourly time-of-use data, because it would require sending someone out to read every meter of every customer every hour of every day. Deployment of new technology ("smart meters") may solve that problem in the future. But in the meantime, requiring hourly time-of-use data means prohibiting tiered rates across the board. And that cannot be correct, because *Capistrano* recognizes that tiered rates not only have long been constitutional but are actually "a good idea." (*Capistrano, supra, 235 Cal.App.4th at p. 1511*.)

C. *Other issues*

1. *Price discrimination*

The statement of decision concludes that defendant "discriminates" against SFRs in violation of section 6(b)(3) by charging tiered rates for SFRs but uniform rates for all other customer classes. (Boldface omitted.) The majority opinion agrees. (Maj. opn., *ante*, at pp. 283–285.) The conclusion is erroneous because section 6(b)(3) does not contain a nondiscrimination **[**215]** provision or otherwise prohibit treating different customer classes differently. Rather, it **[*342]** requires only that rates not exceed proportional costs. As long as defendant can provide a reasonable cost calculation and allocation according to which rates do not exceed proportional costs, defendant's rates do not violate section 6(b)(3). Defendant has done that, so it does not matter that SFRs are charged tiered rates while other customer classes are charged uniform rates. Every customer is charged rates that do not exceed proportional costs, so section 6(b)(3) is satisfied.

The statement of decision argues that defendant's use of the different rate structures is unlawful because defendant fails to provide "an adequate cost-based justification" for imposing tiered rates on SFRs while charging uniform rates to everyone else. The argument fails because section 6(b)(3) does not require a cost-based justification for the different treatment. As explained in part I., *ante*, there is not just one right way to calculate and allocate costs. It is always possible to do a uniform cost allocation by dividing total projected costs by total projected consumption. Thus, whenever it is possible to do a tiered cost allocation, it is possible to do both. **[**216]** As long as both allocations are reasonable, section 6(b)(3) allows a water utility to choose either of them, and section 6(b)(3) does not require a cost-based justification for the utility's choice.

The statement of decision relies on *Palmdale* for its discrimination analysis, but that reliance is misplaced. In *Palmdale*, all customers were charged tiered rates, but the rates were different for different customer classes, and the defendant water utility "admittedly target[ed]" certain users "to pay dramatically higher and disproportionate water rates." (*Palmdale, supra, 198 Cal.App.4th at p. 934*.) As a result, "[t]he record show[ed] that [the utility] intentionally seeks to recoup most of its costs from a relatively few … users … , so as to keep costs to the vast majority of … customers proportionately low." (*Ibid.*) The facts of *Palmdale* thus showed a straightforward violation of section 6(b)(3): Some customers were being charged rates that dramatically exceeded proportional costs.

Defendant has done nothing comparable in this case. Defendant has produced reasonable cost calculations and allocations showing that no customer's rates exceed proportional costs. Costs are not being disproportionately loaded onto one customer class in order to keep rates low for other **[**217]** customers. In particular, every customer class is bearing its share of peaking costs. SFRs are paying those costs via a tiered rate, and other customer classes are paying them via a flat rate, but all customer classes are paying them.

To whatever extent *Palmdale* could be interpreted as implying that section 6(b)(3) prohibits discriminating between customer classes by subjecting them **[*343]** to different rate structures without a cost-based justification for the different treatment, such an interpretation must be rejected, because section 6(b)(3) on its face does no such thing.[10] It requires only that rates not exceed proportional costs.

2. *Setting the breakpoints*

The statement of decision makes a similar error by criticizing defendant for setting "breakpoints between the tiers" that "are not based on cost." Just as section 6(b)(3) does not require a cost-based justification for choosing between uniform and tiered rates, it does not require a cost-based justification for the location of the tier breakpoints. Section 6(b)(3) requires only that wherever the breakpoints are set, rates do not exceed proportional costs. As explained in part I.B., *ante*, a water utility is never *required* to set tiered rates, even if the utility **[**218]** is capable of doing a reasonable tiered cost allocation. The utility can always use a (reasonable) uniform cost allocation instead. Similarly, even if a utility is capable of doing an extremely fine-grained tiered cost allocation—perhaps calculating and allocating tiered costs to the hundredth of a penny for each additional gallon of water consumed—the utility is never *required* to set such fine-grained rates. The utility can always use a (reasonable) more coarse-grained structure instead, just as it could use the (reasonable) ultra-coarse-grained structure of a uniform rate. In each instance, all that section 6(b)(3) requires is a reasonable cost calculation and allocation according to which rates do not exceed proportional costs.

It should be noted that even the statement of decision's description of the basis for defendant's tier breakpoints is inaccurate. As explained in part II., *ante*, the breakpoints were set to reflect average, below average, above average, and exceptionally high-level use. That is reasonable because the base-extra capacity method allocates costs based on deviations from average use. The tier 2 breakpoint was set at 12 HCF because analysis of defendant's billing records showed **[**219]** that about half of SFR monthly consumption was 12 HCF, so higher levels of use would be above average. The tier 1 breakpoint was set at 4 HCF because national survey data show that is less than what a two-person household would typically need for indoor use alone, so use below that level would be below average. The tier 3 breakpoint was set at 18 HCF because 6 HCF is enough water to maintain an average-sized green lawn, so use above 18 HCF would be above-average-plus-a-lawn, that is, very high-level use. Further analysis confirmed that use above the tier 3 breakpoint (i.e., use billed at the tier 4 rate) is indeed an outlier: Projections indicated it would be only 6.31 percent of total SFR use.
[*344]

Considered against that background, the statement of decision's account of the setting of the breakpoints is a barely recognizable caricature. According to the statement of decision, the tier 1 breakpoint was "based on …

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[10] *Coziahr* adopts such an erroneous interpretation of *Palmdale*. (*Coziahr, supra, 103 Cal.App.5th at p. 814* ["*Palmdale* stands for the proposition that rate differentials between groups, whether customer classes or tiers, support an inference of disproportionality—and, to be constitutional, must be supported by evidence of costs justifying the differences"].)

assumptions about what the water would be used for," because it was based on data concerning "'typical indoor residential water consumption' for a house of two persons." The tier 2 breakpoint was then set by "adding an allocation for (assumed) outdoor water use."[11] And the **[**220]** tier 3 breakpoint was then set by including "an additional 'outdoor irrigation or landscape allowance.'" In sum, each breakpoint was set on the basis of "the assumed use of the water": defendant "assumed that [tier 3 and tier 4] use was for landscaping" and that tier 1 consumption would be for indoor use. The majority opinion endorses the statement of decision's descriptions of the tier breakpoints. (See, e.g., maj. opn., *ante*, at p. 283 ["In setting the pricing for Tiers 3 and 4, City *assumed* that usage in Tiers 3 and 4 was for landscaping"].)

Thus, according to the statement of decision and the majority opinion, defendant assumed that when a household reached 12 HCF of consumption in a given month, the members of the household would stop flushing their toilets, bathing, washing dishes, doing laundry, and cooking with or even drinking tap water, and they would instead devote all of their water use for the remainder of the month to landscaping. But at the start of the next month, they would not use any water for landscaping until they had used 4 HCF for indoor consumption alone. The record, of course, reflects that defendant did not make any of those ridiculous assumptions.

In keeping **[**221]** with the statement of decision's false narrative that "the Court in *Capistrano* rejected the same peaking factor analysis from Black & Veatch and consultant Ann Bui that [defendant] relies on here," the statement of decision asserts that defendant's explanations of its breakpoints "echo the justifications" given by the defendant in *Capistrano*. But again, all of defendant's breakpoints were explained in terms of average use—which was determined by analyzing defendant's own customers' billing records—and deviations from it, and that is reasonable because the base-extra capacity method allocates costs based on deviations from average use. The breakpoints in *Capistrano*, even as described by the statement of decision itself, were not based on average use and deviations from it. (*Capistrano, supra, 235 Cal.App.4th at p. 1499*.)
[*345]

3. *Promoting conservation*

The statement of decision repeatedly refers to the fact that in setting the tiered rates for SFRs, one of the goals that defendant intended to promote was water conservation, as though defendant's intention to promote conservation had some tendency to show that defendant's rates violate section 6(b)(3). That is yet another red herring.

Section 6(b)(3) has no **[**222]** intent element. It requires only that rates not exceed proportional costs. If a water utility has produced a reasonable tiered cost allocation according to which the utility's tiered rates do not exceed proportional costs, then the utility has not violated section 6(b)(3), regardless of whether the utility intended to promote conservation by adopting those rates.

4. *Factual disputes and substantial evidence*

Like *Coziahr*, the majority opinion purports to limit its own consequences by claiming that "the liability issues are primarily factual." (Maj. opn., *ante*, at p. 271.) That is incorrect. The issues in the case are (1) what defendant did and (2) whether it complied with section 6(b)(3). The first issue is factual but undisputed—we have defendant's COSSs, with additional background and detail provided by Bui's reports. There are no material factual disputes about what defendant did. And the second issue is legal. As a result, there are no material factual disputes in the entire case.

The majority opinion argues that whether defendant's SFR rates exceed proportional costs is a mixed question of law and fact and that substantial evidence supports the trial court's determination that the rates do exceed proportional costs. **[**223]** (Maj. opn., *ante*, at pp. 272–273, fn. 7, 285–287.) The majority opinion accordingly

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[11] As far as I can tell, this is a pure fabrication. Defendant has never explained the setting of the tier 2 breakpoint in terms of an allocation for outdoor use. Defendant has always explained the tier 2 breakpoint in terms of average use, determined by analysis of defendant's customers' billing records.

suggests that water utilities should not set tiered rates if "substantial evidence shows the tiered rates" exceed proportional costs "despite the agency's purportedly 'reasonable' cost projections, allocation methods, and data," because as long as such evidence exists, the utility "risks violating section 6(b)(3)." (*Id.* at p. 286.)

That analysis confirms that under the majority opinion it is impossible for California public water utilities to set tiered rates. In this case, the only purported substantial evidence that defendant's rates exceed proportional costs is the opinion of plaintiffs' expert Smith, who rejects the base-extra capacity method because it is based on "a narrative that isn't factually correct," and who claims that tiered water rates based on peaking factors "would require [s]mart meters." That same evidence will be available in any section 6(b)(3) suit against any utility that uses the base-extra capacity **[*346]** method or does not have smart meters (or both)—counsel in those suits can just retain Smith or a like-minded expert.[12]

The result is that, short of universally deploying smart meters *and thereby imposing the costs of that* ***[**224]*** *deployment on customers*, there is nothing that California public water utilities can do to insulate themselves from section 6(b)(3) liability if they set tiered rates. That cannot be correct. The California Constitution does not require public water utilities with tiered rates to increase the cost of water for all of their customers in order to make plaintiffs' expert happy.[13]

IV. *Conclusion*

Defendant used the only known methodology for constructing a tiered cost calculation and allocation and setting tiered rates, and it applied that methodology to all of the appropriate data and the only data that defendant had, which is the only data that anyone has (with the possible exception of any utilities that use smart meters). Holding defendant liable for that is like holding an accountant liable for using generally accepted accounting principles.

The trial court's statement of decision is riddled with inaccuracies and fallacious reasoning, but two central errors—expressly adopted by the majority opinion—are particularly harmful. First, the statement of decision and the majority opinion reject the reasonableness standard articulated in pre-*Coziahr* case law. Moreover, having created that split of authority, **[**225]** *Coziahr* and the majority opinion do not say what the new standard is. The result is that public water utilities trying to defend section 6(b)(3) suits do not know what they need to prove in order to prevail. According to *Coziahr* and the majority **[*347]** opinion, it is not enough to provide a reasonable cost calculation and allocation according to which rates do not exceed proportional costs. What is enough? No one knows.

Second, the statement of decision and the majority opinion reject the base-extra capacity method. They say that the method assumes that it costs more to deliver water at certain peak times, and the method is unsound because there is no evidence (particularly no hourly time-of-use data) to support that assumption. That analysis creates a hurdle that no public water utility defending a section 6(b)(3) suit will be able to clear—the base-extra capacity method actually does not rest on that assumption, so no water utility is going to have evidence supporting an assumption it never actually used (and few utilities will have hourly time-of-use data until smart meters are widely

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[12] Smith has already been retained as an "economic consultant" in a challenge to tiered water rates in Los Angeles, California. Unsurprisingly, he has concluded that the tiered rates are "not defensible." He also has never evaluated a tiered water rate system in California in which he determined that the tier breakpoints were not arbitrary.

[13] Much more could be said about Smith's various opinions. For example, Smith testified that the 1.5 max day and 2.25 max hour factors used in defendant's COSSs "were just out of the manual" (i.e., taken from the M1) and "did not reflect all the facts of" defendant's actual water system. But the record reflects that the 1.5 max day and 2.25 max hour factors came from defendant's master plan and discussions with defendant's staff, and when the M1 gives examples of max day and max hour factors they are *not* 1.5 and 2.25. Smith's opinion does not constitute substantial evidence that the factors came from the M1, because he provides no support for it and we can see for ourselves that the manual does not contain those factors. (See *Conservatorship of O.B. (2020) 9 Cal.5th 989, 1006 [266 Cal. Rptr. 3d 329, 470 P.3d 41]* [substantial evidence must be "'reasonable in nature, credible, and of solid value'"]; *People ex rel. Brown v. Tri-Union Seafoods, LLC (2009) 171 Cal.App.4th 1549, 1567 [90 Cal. Rptr. 3d 644]* ["expert testimony does not constitute substantial evidence when based on conclusions or assumptions not supported by evidence in the record"].)

deployed). But litigants challenging tiered water rates will argue, as plaintiffs did in this case, that the method does rely on that **[**226]** assumption, and they will cite the majority opinion as providing definitive support. And without the base-extra capacity method, no California public water utility using tiered rates will be able to defend them. Again, it will be like asking accountants to defend their books without relying on generally accepted accounting principles.

Worse still, I fear that *Coziahr*'s and the majority opinion's errors will actually make it impossible for California public water utilities to defend even *uniform* rates. In setting its tiered rates, defendant was trying to do exactly what *Capistrano* describes as a "good idea": "pass[] on the incrementally higher costs of expensive water to incrementally higher users." (*Capistrano, supra, 235 Cal.App.4th at p. 1511*.) If, in the wake of this case and *Coziahr*, water utilities abandon that effort and adopt uniform rates across the board, they will be vulnerable to an argument that they are violating *Capistrano*. Why should customers whose use is far below average pay for having a water system that is far larger than their use makes necessary? (See *Capistrano, at p. 1503* ["Proposition 218 protects lower-than-average users from having to pay rates that are *higher than the cost* ***[**227]*** *of service for them* because those rates cover capital investments their levels of consumption do not make necessary"].) Without the shield of the reasonableness standard, water utilities will have no answer, and their uniform rates will be indefensible.

The Legislature evidently is aware of the crisis created by the litigation in this case and *Coziahr*. One way in which the Legislature has tried to limit the damage is by enacting a statute that appears to approve both the reasonableness standard and cost allocation based on peaking. *Subdivision (b)(1) of Government Code section 53750.6* now provides that "incrementally higher costs of water service associated with higher water usage demands, the **[*348]** maximum potential water use, or projected peak water usage may be allocated using any method that reasonably assesses the water service provider's cost of serving those parcels that are increasing potential water usage demand, maximum potential water use, or projected peak water usage."

The majority opinion concludes that the statute has no impact on this case (see maj. opn., *ante*, at pp. 287–288), and I am inclined to agree that it is of limited utility. Courts must decide for themselves, case by case, whether particular water utilities' rates comply **[**228]** with section 6(b)(3), and courts are constitutionally required to exercise their independent judgment in doing so. (*Capistrano, supra, 235 Cal.App.4th at p. 1507*.) A legislative attempt to tell courts how to decide such cases would therefore appear to raise separation of powers concerns. But in my view, *Government Code section 53750.6* has at least the following significance: If litigation against accounting firms were producing results that motivated the Legislature to enact a statute clarifying that accountants are *allowed* to use generally accepted accounting principles, then perhaps that should lead courts to consider whether we may have gotten something terribly wrong.

This appeal presented the opportunity to clarify the law in this area and thereby make it easier for trial courts to dispose of wholly meritless lawsuits like this one. Unfortunately, the majority opinion has not only missed that opportunity but also has achieved the opposite result, making it impossible for California public water utilities to defend tiered rates, and arguably impossible to defend any rates at all. For all of the foregoing reasons, I respectfully dissent.

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EXHIBIT – 9

In The Matter Of:

Ajax Metal Processing, Inc. v.
City of Detroit

Istakur Rahman
July 30, 2025

Judy Jettke
& Associates
COURT REPORTING AND VIDEO

Original File RAHMAN_250730.txt
Min-U-Script® with Word Index

STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF WAYNE

AJAX METAL PROCESSING, INC., a Michigan corporation, individually and as a representative of a class of similarly situated persons and entities,

Plaintiff,

Case No. 23-015314-CB

vs. Hon. Annette J. Berry

CITY OF DETROIT, a municipal corporation,

Defendant.

The Deposition of ISTAKUR RAHMAN
Taken via Zoom Videoconference
Commencing at 3:00 p.m.
Wednesday July 30, 2025
Before Pam Goletz, CSR-5097

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EXHIBITS

EXHIBIT# 4 - GLWA WATER SUPPLY SYSTEM 14
EXHIBIT #25 - SECTION 6.06 OF AICPA MANUAL 41

Via Zoom Videoconference
Wednesday, July 30, 2025
3:00 p.m.

ISTAKUR RAHMAN,
was thereupon called as a witness therein, and having first been sworn to testify to the truth, the whole truth and nothing but the truth, was examined and testified as follows:

EXAMINATION
BY MR. HANLEY:

Q. Good afternoon, Mr. Rahman. Am I pronouncing your last name correctly?
A. Yes.
Q. Okay. It's an important first step. My name is Greg Hanley and I represent a company called Ajax who's engaged in a lawsuit with the City relating to the water rate structure that was implemented back in 2022. Are you generally familiar with the existence of the lawsuit?
A. Yes, I am.
Q. Okay. And it's my understanding that you are the chief financial officer of the Water and Sewage Department.
A. Yes.
Q. And how long have you had that job?

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A. Since August of 2021.
Q. And were you employed by the City prior to that date?
A. Yes.
Q. And what were you doing before August of 2021?
A. I was the internal audit manager for the Water Department.
Q. And how long did you have that role?
A. That was for two years roughly.
Q. So 2019 to 2021?
A. Correct.
Q. And what were you doing before that?
A. I was the chief financial officer of the Wayne County Airport Authority.
Q. Are you a CPA?
A. Yes.
Q. Do you have any other professional designations or certifications?
A. Yes. I'm also the chief internal audit certification.
Q. Anything else?
A. Also the chartered accountancy certification.
Q. Anything else?
A. In addition to that there is a certification that I didn't sit for exams, but they just give it to me. It's called the chief risk management associate from the internal audit department and the AICPA which is the American Institute of Certified Public Accountants gave me a

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certification called CGMA. So these are not earned, but they conferred it on me maybe because time of experience.
Q. Okay, fair enough. How long have you been a CPA?
A. Since 1990.
Q. Okay. And have you ever spent any time in public accounting?
A. Yes, sir.
Q. For who?
A. For KPMG, LLP.
Q. What group were you in at KPMG?
A. I was in assurance.
Q. Okay. And for what approximate length of time? I'm not going to go into it.
A. Approximately six years.
Q. Okay. But you have consistently been the CFO of, can we call it DWSD, since August of 2021?
A. Yes.
Q. Okay. So would it be fair to say that you were in that position at the time that Stantec was doing its work on the new rate structure for the City's water and sewer functions?
A. Yes.
Q. Did you assist Stantec in any way?
A. Well, assist in providing data that they requested.
Q. Okay. That's exactly why I asked that question. Can you

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summarize the data that you gave to Stantec to assist in its activities?
A. I provided the budget for fiscal year 2021 as well as fiscal year 2022 was not final, I think, at that time, but all the information I had on the construction of the budget I provided and my team provided other information relating to billing data.
Q. What kind of billing data did you give Stantec?
A. Customer bill. Customer billing data.
Q. What was contained in that data?
A. That I don't know because that was supplied by my billing manager.
Q. And who would have that been?
A. That's Mihai Facaeanu.
Q. Okay. So is it pronounced Facaeanu?
A. Yeah. I struggle with that but it's Facaeanu.
Q. Facaeanu. Okay, I'll try and stick with that. But he would be more well versed in the specifics of the data that he provided to Stantec than you would. Is that fair to say?
A. That's fair.
Q. Okay. Anything else you provided to Stantec?
A. No.
Q. Okay. As a CFO with your extensive experience, you are familiar, are you not, with a concept called bad debt

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expense?
A. Yes, I am.
Q. Is bad debt expense another way to refer to uncollectable accounts?
A. Yes.
Q. All right. And are you aware that the City's water and sewer rates contain a component of cost that's called bad debt expense that is incorporated into the rates?
A. Yes, I am.
Q. And you would agree with me that from both the water and the sewer side the amount of bad debt expense is as a percentage of the total expenses is relatively high.
MS. SCOTT: Objection, form.
A. I would not agree with the statements that's it's exceptionally high.
BY MR. HANLEY:
Q. Okay. Should it be lower?
A. No, it should not be lower. It could be higher, but not lower.
Q. Okay. It should not be lower because what's in the rates, in your view, is reflective of your actual experience in terms of the bad debt?
MS. SCOTT: Objection, form.
A. It's because our collection history has been -- the collection pattern or history dictates that we should be

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incorporating higher bad debt percentage than what we did.
BY MR. HANLEY:
Q. Then what you are. So in your view the bad debt expense that was in the rates should have actually been higher than it actually was.
A. That's my personal view, yes.
Q. All right. But you would agree with me that by including bad debt expense in the water and sewer rates, the rates are higher than they would be if that expense was not included.
A. Yes.
Q. And as a result of that the people who pay their water and sewer bills are effectively covering the cost incurred by the City in servicing people who don't pay their bills.
MS. SCOTT: Objection, form.
A. Yeah, the bad debt rate is built into our rate system and it's across the board for all customers.
BY MR. HANLEY:
Q. Right. So if, for example, the water revenue requirement is 90 million, but because of the bad debt expense they have to increase that by ten million to 100 million, that means that rates are devised to generate 100 million because about ten million is not going to get paid. Is that fair to say?
A. That's fair to say.

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Q. All right. Now you would agree with me that the City has -- strike that.
Do you understand what accounting principles dictate concerning use of bad debt expense?
MS. SCOTT: Objection, form.
A. You mean what the accounting principles would dictate?
BY MR. HANLEY:
Q. Yes.
A. Yeah, accounting principles would dictate that we charge appropriate amount of, appropriate percentage of bad debt based on uncollectable history as part of doing business, it's part of operation.
Q. All right. But if a particular debt is collectable, you would agree with me that it can't be classified as bad debt, correct?
A. If it is deemed collectable, yes. But bad debt is calculated based on uncollectable accounts or what we deem to be uncollectable.
Q. Right. But by definition if it's collectable it's not bad debt, correct?
A. I wouldn't take that definition. Bad debt is based on my history of whatever I've been collecting and if my past history says I'm only collecting 80 percent or 85 percent, the difference is what I'm not collecting and that's what the percentage is based on.

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Q. Okay. But what I meant by my question is, let's take it out water and sewer world and put it in a different context. The bank makes you a loan to buy a house, it's secured by a mortgage. If you stop paying, the bank can't classify that as bad debt because it has a security interest in your home that it can foreclose upon and satisfy the debt, correct?
MS. SCOTT: Objection, foundation.
A. Yeah, if you have a security interest in an asset, of course.
BY MR. HANLEY:
Q. Okay. You're aware, are you not, that the DWSD has a number of enforcement mechanisms available to it to collect unpaid water and sewer bills.
A. Yes, I am aware.
Q. All right. One thing is that I know that there were times where the state of Michigan had forbid it, but the ordinances in the charter of the City of Detroit allowed the City to shut off water to someone who has a delinquent account, correct?
A. Correct.
Q. And you also know that under state law and under the City's charter that unpaid water bills can be put on the tax rolls after a certain amount of time, correct?
A. Correct.

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Q. And do you know that if a tax that's put on -- if a water -- strike that.
Do you know the process that the DWSD employs to place unpaid water and sewer bills onto the tax rolls?
A. Yes, I do. So any outstanding amount for a period of a year, which starts in April through March, if the amounts are not paid we transfer the amount to the City of Detroit under the tax roll caption for the City to collect. If the City cannot collect by March of the following year, then it's forwarded to Wayne County to collect on behalf of the City. Wayne County takes it from there and collects on our behalf whatever they collect.
Q. So when it's rolled onto the tax rolls it becomes the exact same thing as the tax. Like the property taxes on there and then the water bill would be on there if it was unpaid for a certain amount time.
MS. SCOTT: Objection, form.
A. I believe it's in the tall roll, meaning it's in the tax-- in the City's bill.
BY MR. HANLEY:
Q. Right. So one of two things can happen after that. Is the person who owns the property could pay it off before it went to Wayne County, correct?
A. Correct.
Q. Or it could get paid by Wayne County when Wayne County,

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every year, cuts that big check to the City of Detroit, correct?
MS. SCOTT: Objection, form.
A. Yeah, that is correct. The City collects. If the City cannot collect it goes to Wayne County. And then Wayne County writes us a check. And then they proceed with their collection efforts.
BY MR. HANLEY:
Q. All right. And so in your position as CFO, do you get involved in bond offerings?
A. The DWSD, per se, doesn't issue bonds. All our bonds are issued by Great Lakes Water Authority.
Q. Okay. But do you get involved in providing information to GLWA for purpose of including that information in what are called official statements?
A. I don't, per se, but my team, some members of my team do.
Q. Okay. But when GLWA issues bonds, those bonds could be for, for example, capital improvements within the City itself, correct?
A. If we request money for our capital program, yes, it could include our bonds that belong to DWSD.
Q. Right. And one of the things that GLWA does, and all bond issuers do, before they issue the bonds is they prepare something called an official statement. Have you seen any of those?

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A. Yes, I have.
Q. And would you agree that the official statement contains a lot of information that may be looked at by people who might buy the bonds to get an understanding of what they're for and what the risks are, et cetera, correct?
A. Correct.
Q. And it's very important to be truthful and accurate in the facts that are given in those official statements, correct?
A. That's correct.
Q. All right. Let me show you -- I'm going to share a document if I can.
MS. SCOTT: So he's going to show you documents on the screen. If you need him to scroll down and up so that you can get the context of the document, go ahead and request that from him.
BY MR. HANLEY:
Q. All right. I'm going to show what we've marked as Exhibit 4, which is an official statement for 207 million dollars and change of GLWA Water Supply System Revenue Bonds Series 2022. Do you remember this bond issuance?
A. Yes, I do. But this bond issuance happened before I started, but yes. It's labeled as 2022, but stuff happened before the preparation.
Q. Well, it's a lengthy document, but I'm only going to show

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you -- there's a description in here of what happens with collections and delinquencies.
MS. SCOTT: Greg, can you enlarge the font?
MR. HANLEY: Yeah, I will. I want to get to where I'm at, where I want to ask questions and then I will get it bigger.
MR. HANLEY: Is that better?
MS. SCOTT: No. And you may have to --
A. Unfortunately my eyesight is not very strong. If you don't mind reading it, I can --
BY MR. HANLEY:
Q. Well, Kim will correct me if I'm in any way --
MS. SCOTT: I can't see it from here either. I wonder if -- do you want to email it to me and then I can show him on my screen, on my laptop?
MR. HANLEY: What I'll do, I'll send you a link from the GLWA site because the way I'm working right now is -- hold on just a minute. I'm not able to do it in what I'm -- I'll email you a link. Okay, I just sent you a link to it.
MS. SCOTT: Okay, waiting for it. What page do you want us to turn to once I get it?
MR. HANLEY: I want you to turn to page -- the one that has 39 at the bottom.
MS. SCOTT: Okay.

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MR. HANLEY: Let me know when you're there.
MS. SCOTT: Yeah, I'm still waiting for the link to come through. Okay, this is page 39 at the top. All right, we're there, Greg.
BY MR. HANLEY:
Q. I'm sorry we have to belabor it, but I only want to ask about the paragraph in the middle that starts with the words, in the event.
A. Okay.
Q. And I just want -- I'll read you a couple sentences at a time and I just want to know whether this is an accurate statement of the process. So first it says, in the event that an account remains delinquent for more than six months, the Municipal Water Lien Act, MCL 123.161, provides that the charges for water and sewer service furnished to premises may become a lien on such premises when the service is provided and the lien may be placed on the property tax roll. Do you see that?
A. Yes.
Q. Is that accurate to your understanding?
A. Yes.
Q. Okay. And then it says, the lien may then be enforced in the same manner as the collection of property taxes and enforcement of a lien for property taxes assuming proper statutory notice to the party responsible for the payment

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of the charges. Do you see that?
A. Yes.
Q. And is that an accurate statement of the process?
A. Yes.
Q. And is it the practice of the City or DWSD to give notice to the delinquent property owner about the transfer to the tax rolls?
A. So the City handles that part of the process and I cannot tell you what they do in terms of sending out a letter or not.
Q. Okay.
A. That's the process.
Q. Okay. But then it says, the Department historically has transmitted delinquent accounts to the City Treasurer who places the delinquent amount on the winter tax bill. If the delinquent amounts are not collected by the City Treasurer by March 1st each year, the city transfers unpaid real property tax bills to Wayne County for collection in accordance with State Law. Do you see that?
A. Yes.
Q. And that's an accurate statement of the process, too, correct?
A. Correct.
Q. And then the City receives payment for such taxes from Wayne County's Delinquent Tax Revolving Fund and as of

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March 1st each year, which is funded by the issuance of Delinquent Taxes Anticipation Notes. Do you see that?
A. Yes.
Q. And is that an accurate statement of the process?
A. Yes.
Q. And finally, if the delinquent real property taxes remain uncollected after three years, the County charges the respective amount of such taxes back to the City. Do you see that?
A. Yes.
Q. And is that accurate as well?
A. Yes.
Q. Now do you, as CFO, get reporting of how that process is ongoing?
MS. SCOTT: Objection, form.
A. Yes. I have a clear understanding on a high level when the, you know, it's whatever money the City collects comes into our Finance Department and the amount is transferred to the County. We are informed about that. And then when we get the money from the County, our Finance Department gets it and records it.
BY MR. HANLEY:
Q. Okay. Let's break that up a little bit. So at some point I think you said -- at some point it's transferred to the property tax roll if it hasn't been paid in a certain

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amount time, correct?
A. Yes.
Q. Is there a report generated showing what the amounts in each year have been transferred to the tax rolls?
A. Yes. There's a detailed report of which accounts and how much money is owed.
Q. Okay.
A. That report --
Q. And that goes to the City Treasurer who's tasked with going to each of the accounts that are delinquent and adding the delinquent amount onto their winter tax bill.
MS. SCOTT: Object to form. Are you asking if the report goes to the City Treasurer?
MR. HANLEY: Yes.
A. Yes. We sent our report to the City Treasurer, correct.
BY MR. HANLEY:
Q. Okay. And is that done once a year?
A. Yes.
Q. Okay. And that would be -- because the winter tax bills go out on -- is it December 1st? That transmittal would be done before December 1st of each year.
A. Yes. We normally do it in October.
Q. Okay. So it's done in October, then it's on the tax bill starting in December and if it's not paid by March 1st of the following year, that's when it goes to the County.

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A. Correct.
Q. Okay. So the City provides a report to Wayne County that would include the amounts unpaid for water and sewer, correct?
A. I would imagine. I don't see that process. The main City Office does it, the Treasurer's Office.
Q. Okay. But if somebody were to pay their tax bill that has an unpaid water component to it between December of one year and March 1st of the next year when it goes to the County, that money would be recorded by the Treasurer?
A. It depends on if that person that customer is paying directly to the City or us. Sometimes they pay us and then we just reverse amount from that place.
Q. Okay. But if they pay the Treasurer, does the Treasurer give you an annual statement of how much of the taxes that were paid relating to unpaid water or sewer bills?
A. Yeah, they do send us a statement of collections.
Q. Okay. And then when the money comes from the County in March of each year, I'm assuming that the County pays the City Treasurer.
MS. SCOTT: Objection, form. Go ahead.
A. Yes.
BY MR. HANLEY:
Q. Okay. And then does the City Treasurer provide reporting to DWSD about how much of the payment from Wayne County

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should be for unpaid water bills or sewer bills?
A. Yeah.
Q. Okay. So each year you have two reports showing money received. One is money that's received before -- money that's received for unpaid water bills before it goes to the County and money received after it goes to the County, correct?
A. Correct.
Q. And then at that point the Treasurer has money with respect to unpaid water and sewer bills in the past, correct?
A. I didn't understand that part. Sorry?
Q. If they get check -- we established that the City Treasurer gets some payments before it goes to the County and then it gets another payment from the County for those taxes that are not paid by March 1st, right?
A. Right.
Q. So unpaid water and sewer bills are components of both of those reports, right?
A. Correct.
Q. And so the City Treasurer has funds that are supposed to be funds relating to water and sewer charges, correct?
A. Correct.
Q. And what does the City Treasurer do with the portion of the money that's associated with the previously unpaid

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water and sewer bills?
A. The City sends us the money to DWSD.
Q. Okay. Does it do that once a year?
A. Yes. When the City is in the process of collection they keep sending us money as they collect every month on a pay as you go basis. So if they collect money in January, they send us a check in January. If they collect in February, they send us a check in February. So up until March they send us money when they collect. And when it goes to the County, then we get a check at that point where, you know, the County just writes a check.
Q. But does the County write the check to the Water and Sewer Department or to the City Treasurer and then the City Treasurer has to part that out?
A. I believe it comes from the City.
Q. Okay. So ultimately, between those two sources, you know, people paying the City Treasurer directly and the County paying the City Treasurer after March 1st, those total up to a certain amount every year, correct?
A. Correct.
Q. And what does DWSD do with that money?
A. So when the money is transferred from -- initially when the money is transferred from DWSD to the City for tax or accounts, we create that accounts receivable title as tax roll.

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Q. Okay.
A. Eventually when we receive the money we credit the receivable as in when money is received.
Q. How does that flow of funds show up in your financial statements?
A. It's just normal collection.
Q. It just shows up as rate revenue?
A. No, no. It doesn't show up as rate -- it just shows up as collection against receivables.
Q. Right. But if we were looking at the financial statements, would there be a line item for that?
A. No. So when the money comes in we debit cash and we credit receivables. It does not impact revenues at all.
Q. Okay. And why does it not impact revenues at all?
A. Revenue is impacted when we make the sale. So when we sell water or sewer, at that point in time revenue is recognized. So we debit the AR and we credit revenue at that point in time.
Q. But isn't that -- I'm sorry, I didn't mean to interrupt you.
(Multiple Speakers)
MS. SCOTT: Let him finish. Go ahead.
A. So revenue is recognized only once, at the point of sale. So when I'm selling something and the customer buys it, at that point revenue is recognized regardless of payment.

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So I set up a receivable and I recognize the revenue. Over time that receivable needs to be paid and then the money comes in against that receivable, that receivable is reversed and the cash is recognized.
BY MR. HANLEY:
Q. Okay. But when you say it doesn't impact revenues later on, is that because you're using accrual accounting?
A. Yes, it is accrual accounting when we made the sale, we are debiting receivables. It's in an accrual concept. And then credit revenue.
Q. Okay. But do you know whether the accrual accounting that you're talking about is the way that the City's water and sewer rates are derived?
A. The City's rates are not derived by the accrual concept.
Q. Right.
A. The City's rates are determined via a concept called revenue requirements.
Q. Right. But my question is, you understand that -- we talked about it at the very beginning, that the rate structure includes bad debt expense, correct?
A. Correct.
Q. So on a cash basis what they're saying is we're going to bill 100 million, for example, but only, for example, 90 million is expected to be paid because ten million is bad debt expense, correct?

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MS. SCOTT: Objection, form.
A. I'm sorry, what do I respond to?
BY MR. HANLEY:
Q. You can answer.
MS. SCOTT: Do you need him to ask the question again?
A. Can you please repeat it? I lost it in the process.
BY MR. HANLEY:
Q. Right. So you just said that the rates are set on a cash basis. And so I'm saying when, for example, if you have 100 million dollars of water charges but there's ten million dollars of bad debt expense, that means that the rates are designed to generate 90 million dollars in cash as opposed to 100 million dollars in cash, correct?
A. Correct.
Q. Okay. So let's take this year, for example. In 2025 -- for the year that just ended, say fiscal year 2025. There was bad debt in the rates, correct?
A. In the budget -- yes.
Q. Yeah. And again, what that means is it represents the difference between the cash that you're asking for and the cash that you actually receive from your customers, correct?
MS. SCOTT: Objection, form.
A. Yes. What it means is when bad debt is calculated as

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percentage of revenue requirement and that translates to rates, we all understand that. But the revenue recognition takes place at the point of sale. And stop me if I'm going fast.
BY MR. HANLEY:
Q. Actually, it's not. The whole purpose of having the bad debt expense is that you're not recognizing all of the revenue at the time you bill because you're expecting, you have an intentional rate design that expects that ten percent of the amounts are not going to be paid, correct?
MS. SCOTT: Objection, form.
A. That is not correct in the sense like when we recognize revenue, it's based on individual customer sale. Whereas bad debt is set a global level for a whole year, for the entire fiscal year rate determination. When I'm talking about revenue recognition it's the point of sale to the customer. So I'm selling to Mr. A, I would recognize that portion of the revenue of sale to Mr. A and that has got nothing to do with bad debt. It's just a recognition of the sale.
BY MR. HANLEY:
Q. Okay. But my question is you may have -- you may send out ten bills for $100.00 each and that represents $1,000.00 of revenue. But if one person doesn't pay their bill, you're only going to recognize $900.00 of revenue, right?

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You're only going to realize, actually receive $900.00 of revenue, correct?
A. Right.
Q. Okay. And that's an intentional part of the rate design, correct?
MS. SCOTT: Objection, form.
A. Yeah. The rate design is based on the fact that we are not going to collect ten percent.
BY MR. HANLEY:
Q. Right. In the year for which you're making the rates, right? So if we're talking about fiscal year 2025, when those rates went into effect, they were based on an assumption that a certain percentage of the amounts were not going to be received because people weren't going to pay them, correct?
A. Correct.
Q. All right. But during fiscal year 2025, DWSD received monies in respect from either the County or the City in respect to bills that weren't paid in prior periods, correct?
A. Uh-hum. Yes.
Q. And those amounts were in addition to the revenues that were expected to be garnered through the rates for fiscal year 2025, correct?
MS. SCOTT: Objection, form.

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A. But those revenues are collection for prior debt, right, so it is not current year's revenue. It is set off against prior debt. So I have a receivable from previous years that keeps accumulating till you pay. And when you pay, it goes against the receivable and it's not counted as revenue anymore. Because those were recognized as revenue in previous years. So my current year revenue is not impacted by this collection. They're all set off against receivables from the past.
BY MR. HANLEY:
Q. You may or may not be correct as it relates to your financial statement accounting, but we're talking about rate making here and I just deposed, earlier today, the person at Stantec responsible for that and he told me that everything is done on a cash basis. So all the cash in in a certain year counts toward the rates and all the cash out in a certain year counts toward the rates. Do you understand that?
A. No, I don't.
Q. Okay. But who's right on this we can defer to another day, but it sounds to me like you're saying that when you get revenue in fiscal year 2025 with respect to monies that have been placed on the tax rolls for prior periods, that money does not go into determining what the revenue requirements are for that fiscal year, correct?

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MS. SCOTT: Objection, form.
A. Right. Because the revenue requirement for that fiscal year has already been determined and the rates have already been set.
BY MR. HANLEY:
Q. And all that is true for the prior years as well, correct?
A. So it impacts the AR from prior years, but that might impact your rate setting for the following year, but not for that fiscal year.
Q. Right. But the reality is the bad debt that you put in the rates in fiscal year 2025 is going to be, some amount is going to be collected through the process that we've just described somewhere down the road, correct?
A. If that happens, then the following year's bad debt estimate would be revised.
(Multiple Speakers)
Q. Because you're always doing the bad debt expense on a prospective basis, correct?
A. When we do bad debt, something called an allowance for (unintelligible) accounts, which is created corresponding to the amount of bad debt. So this is a balance sheet item that gets impacted as we collect money. The revenue and expense statement remains the same. The revenues that we set for revenue recognition is not changing for the fiscal year. We cannot because it will be complete

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chaos. The rates are set, we are collecting money. But we are collecting money for either that fiscal year or for the prior fiscal year.
Q. Right. And the problem I think we're having, sir, is, I'm asking questions based upon cash basis rate making and you're answering the question based upon how you treat it in your financial statements from an accrual basis. And the rates are set based upon expected revenues for the coming fiscal year, correct?
MS. SCOTT: Objection, foundation.
A. Yeah, the rates are set for the following fiscal year, you're correct.
BY MR. HANLEY:
Q. Right. And they're intended to include all of the revenues that are going to be received by DWSD within that fiscal year to be offset against the expenses, correct?
MS. SCOTT: Objection, form. Go ahead.
A. Correct.
BY MR. HANLEY:
Q. Okay. So if somebody doesn't pay their water bill today and the estimates of bad debt expense are correct, so it turns out that ten million dollars doesn't get realized in this fiscal year, it still is possible that those monies will be collected in later years and will be available to DWSD, correct?

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A. Could be.
Q. Well, how much did DWSD get in fiscal year 2025 through this process that we have been describing which is unpaid bills that have been put on the tax rolls?
A. How much has been collected or how much --
Q. How much did you receive?
A. Well, typically we receive around 65, 70 percent of what goes to the County.
Q. Okay. Can you translate that into millions of dollars?
A. I know the entire tax bill is about -- it depends on the fiscal year, but about 17 to 19 million dollars.
Q. Is that unpaid water and sewer bills?
A. Yes. That goes on the tax roll and then City collects whatever they collect, four, five million dollars. The rest goes to the County.
Q. But what is the total amount -- of that 17 to 19 million dollars a year, how much of that ultimately comes back to the City either from the -- comes back to DWSD through either the City or the County or a combination of both?
A. About 70, 70 percent. Maybe 75 at times. I mean depending on the fiscal year.
Q. All right. So just to be conservative, we can say it's at least ten million dollars a year that got put on the tax roll that gets returned at some point to DWSD.
MS. SCOTT: Objection, form. Go ahead.

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A. Yeah. But you also got to remember not the entire ten million dollars is what we get. Sometimes the County charges us back if they cannot collect within a three year period, they come back and charge back DWSD.
BY MR. HANLEY:
Q. Okay. So that could impact it, but it's still millions of dollars a year that DWSD receives for unpaid bills that have been placed on the tax rolls, correct?
A. Correct.
Q. And what happens to that money when DWSD gets it?
A. We credit the receivables.
Q. No, no. I understand that, but does the money go into a particular account? Does the money go into -- I've heard of something called the -- there's a master bond ordinance that dictates the flow of the funds for DWSD money, correct?
A. Yes. So it goes into the trust account.
Q. Okay.
A. It's a bank account, it's a separate bank account.
Q. Yeah. First of all, DWSD doesn't get any money, correct? It first goes to GLWA and then it's applied pursuant to a formula, like a waterfall of some sort.
A. Exactly. Everything goes to the trust account which is controlled by GLWA.
Q. Okay. So then that money would go to -- is there

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something called a receiving account or is that the same thing you're talking about?
A. It's the same thing, trust account.
Q. Okay. But that money that goes to that trust account is there for the support of DWSD's operations, correct?
A. Yes. So every month we get 1/12 of our budget transferred for us to support our operating expenses.
Q. Right. And at the end of the year there may be a true-up if you've gotten too much or there's a deficiency if you've gotten too little, correct?
A. Correct.
Q. Okay. But however you slice it and whatever period of time you allocate it to, the truth remains that there's money, revenues, that are realized separate from the normal rate paying process that become available for DWSD to use for its operations and for other purposes.
MS. SCOTT: Objection, form.
A. I respectfully disagree with that line of thinking because we do not recognize revenue twice, we just recognize it once. Whether it's --
(Multiple Speakers)
A. Or accrual basis, it doesn't matter. It's just recognized once in our budgeting system as well as in our financial statements.
BY MR. HANLEY:

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Q. All right. Again, that's because of your accrual accounting principles, correct?
A. Even for cash accounting, it's not recognized twice. It's just recognized once. When the cash comes in, there is no impact on revenue.
(Multiple Speakers)
Q. But, sir, when somebody doesn't pay in 2024 a bill, when ten percent of the bills -- you're not recognizing that ten percent of unpaid bills as actual cash revenues, correct?
A. No. I'm recognizing revenue at the point of sale.
Q. Right. But you're not recognizing it as cash because you haven't received the cash, correct?
MS. SCOTT: Objection, form.
A. Whether I receive the cash or not, I have to recognize revenue at the point of sale.
BY MR. HANLEY:
Q. Okay. But if you recognize revenue at the point of sale then that should be deemed to be inclusive to cover the City's revenue requirements, correct?
MS. SCOTT: Objection, form.
BY MR. HANLEY:
Q. Why is there a need for any bad debt expense at all if you're recognizing the revenue 100 percent once the bill is sent?

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MS. SCOTT: Objection, form.
A. So revenue recognized doesn't mean I'm going to collect the revenue, right? So if I recognize $100.00, it doesn't mean I'm going to collect $100.00. I probably, based on this I'll collect $90.00.
BY MR. HANLEY:
Q. Okay. And that's my point. My questions are not about recognizing revenue, that's an accrual concept. My point is recognizing cash. Do you understand the difference?
A. Yes.
Q. So from a cash flow statement standpoint, you didn't receive that cash if someone didn't pay their bill, right?
A. Correct.
Q. Okay. So from a cash flow statement standpoint, if it's a ten percent people not paying their bill, you might send out 100 million dollars' worth of bills but from a cash flow statement you're having 90 million dollars of revenues, correct?
A. 90 million dollar of cash collection.
Q. Of cash collection, okay.
A. Yes.
Q. And the other ten million dollars could possibly be collected in future years, correct?
A. The ten percent would be collected -- yes, it could be. And if it's collected, then that is reflected in the

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following year's budget.
Q. Right. But I'm not talking about budgets, I'm talking about rate making, okay?
A. Right.
Q. So if you get money in in 2025 as cash, that's cash that's available to cover the revenue requirements of the current period, correct?
A. Yes. But the rate has already been set and if I'm collecting towards the ten percent, that'll be considered in the following fiscal year where my bad debt adjustment would bring it down from ten to whatever, depending on the collection, and that'll impact future year's rates which would obviously go down because now I collected on the ten percent and, therefore, when I do my analysis in the following year it will show up there.
Q. And that may very well be true if we weren't talking about cash-based rate making. But my question is you're not saying that the bad debt expense that's in the City's rates is net of these tax roll collections, are you?
A. No.
Q. Okay. So all the bad debt expense that's in the rates are of these 100 million dollars of bills we're going to send out, only 90 million is going to get paid and so there's ten million dollars of cash that we would have if everybody paid their bill, but we don't, correct?

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MS. SCOTT: Objection, form. You can answer if you can.
BY MR. HANLEY:
Q. You can answer.
A. Yeah, it's the same. You know, I think we agree that yes, it's 100 million dollars, 90 is what we need. The difference is what we say is uncollectable or doubtful of collection.
Q. Right. But if it turned out that it's not doubtful of collection and you do get the money, then it would be inappropriate to include it as bad debt expense, correct?
MS. SCOTT: Objection, form.
A. No, it would not be because it's the -- the people that they are paying the money for, if they pay up that ten percent, that ten percent would then be reflected in the following year. The current year's rates are not going to be impacted or the revenues.
BY MR. HANLEY:
Q. But you're not saying that if you got ten million in 2025, fiscal year 2025, from the tax roll thing that when you made rates for 2026, you would reduce the amount of bad debt expense in 2026 from what it otherwise would be to reflect that ten million dollars came in the year before?
A. No. It's not taken on an individual basis of tax roll or customer class. We take the holistic approach of looking

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at the entire collection pattern and entire collection history. And if our collection rate improves from what we are today, it is possible that we review our bad debt expense percentage and make the adjustments accordingly.
Q. Right. It just means that more people are paying their bills and therefore, you can lower the percentage that you include, correct?
MS. SCOTT: Objection, form. Go ahead.
A. But the whole thing is our collection, even with the tax roll, is falling way below the 90 percent rate. So our bad debt expense that we have been assuming and charging to the rate payers is far less than what we should, even based on the collection from the tax rolls.
BY MR. HANLEY:
Q. But I understand, sir, that you're not sending residential unpaid bills to the tax roll and only sending commercial and industrial, is that true?
MS. SCOTT: Objection, form.
A. That is true.
BY MR. HANLEY:
Q. Okay. So you're not even attempting to use the tax process to get unpaid bills from residentials, correct?
A. Not through the tax roll. We have other options, other available options that we use to collect from residential customers.

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Q. But there were other periods of time that you weren't sending anything to the tax rolls, correct?
A. Yes. I believe there was a period of time and it was before my time. I cannot comment on that.
Q. But somebody made the policy decision not to do it, correct?
MS. SCOTT: Foundation.
A. I wouldn't know the answer to that question.
BY MR. HANLEY:
Q. Okay. But now you're saying that the City gets 17 to 19 million dollars a year which represents about 70 percent of the amounts that were rolled onto the tax rolls. When you say that, you're talking only you get 17 to 19 million relating to commercial and industrial accounts, correct?
MS. SCOTT: Objection, misstates his testimony. Go ahead.
A. Yeah, what I'm saying is we turn over around 17 to 19 million dollars. Of that total we collect only about 70 or 75 percent.
BY MR. HANLEY:
Q. Right. But all of the total that you turn over is for commercial and industrial because none of it is for residential, correct?
A. That's correct.
Q. So whatever bad debt expense there is for residential is

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not -- you're not utilizing the tax roll process to facilitate collection of those amounts, correct?
MS. SCOTT: Objection, form.
A. That would be correct at this point.
BY MR. HANLEY:
Q. And would you agree with me that your collection efforts, vis a vis, commercial and industrial properties improved when the unpaid amounts for commercial and industrial were placed on the tax rolls?
A. I have to do an analysis on that. I haven't done it.
Q. Okay. Do you know if anybody else has?
A. Not that I know of.
Q. All right. Have you compared the rate of unpaid bills in the City to the rates experienced by other municipal utilities around the country?
MS. SCOTT: Are you limiting this to water or are you asking for water and sewer?
MR. HANLEY: Let's limit it to water.
A. I have not done an analysis, but what I have seen is our rate of collection for all customer classes is below industry norm.
BY MR. HANLEY:
Q. So you're doing worse than other places is what --
A. Yeah.
Q. Okay. In your work as a CPA over the years you've

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encountered AICPA guidance, you know, documents.
A. Yes, AICPA is a CPA organization. We follow the generally accepted accounting principles.
Q. Right. And there's a hierarchy of those, correct?
A. Correct.
Q. And relevant to your work, are the GASB standards.
A. Correct.
Q. Have you ever consulted any of those standards to determine whether they inform at all the way the City is collecting or how the City is designating unpaid bills as bad debt expense?
MS. SCOTT: Objection, form.
A. So GASB does not provide recommendation or prescription in terms of how they should be accounted for. What they do is provide guidance in terms of financial reporting and our financial statements are audited by external auditors who comply with the GASB regulations and principles. They express an opinion on our financial statements to make sure it's in accordance with the accounting principles.
BY MR. HANLEY:
Q. Okay. Let me show you what I've marked as Exhibit 23.
MS. SCOTT: You want to send that to me?
MR. HANLEY: I can't. But I should be able to make it larger. The reason I can't is because it's an excerpt from a publication that I purchased and I'm not able to --

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the electronic version I'm not able to email.
MS. SCOTT: Hold on one second, let me see if I can do something here.
MR. HANLEY: Here, let me -- are you able to see this, 6.08?
MS. SCOTT: Can you see that?
THE WITNESS: I can't read it, but I can go closer.
MS. SCOTT: Greg, let me see if I can pull up the Zoom on my laptop and so he can use it for the documents. That might be an easier way to handle this. All right, go ahead. I think Greg has to make it bigger or can you do it?
THE WITNESS: I can do it.
A. Okay, 6.08?
BY MR. HANLEY:
Q. Yeah. And this is from an AICPA manual that is an audit and accounting guide that applies to state and local governments. And again, I'm not asking you to validate whether the guidance is accurate, I just want you to -- I'm going to read you some passages and I want you to just tell me whether you agree or disagree or you don't know. In 6.08 it says, like other entities, governments have revenue collectability concerns. In government, legal provisions often are designed to improve the collectability of certain revenues, particularly tax

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revenues. Do you see that?
A. Yes.
Q. It says, for example, real property taxes are often deemed to be fully collectable because of legal provisions that permit the government to place a delinquent tax lien against the property. Do you see that?
A. Yes.
Q. And so what ultimately would happen if a person doesn't pay their water bill, okay, and it goes on the tax bill and then it doesn't get paid to the City in time so it goes to the County and the County can't collect it from the person for three years, you understand that what ultimately happens is the County has the ability to foreclose and sell the property to the highest bidder, correct?
A. Correct.
Q. And so if you didn't pay your water bill for a certain length of time which is dictated by the legal statutes that apply, you would lose your home, correct?
MS. SCOTT: Objection, form.
A. Potentially.
BY MR. HANLEY:
Q. All right. And do you think that that would provide significant incentive for people to pay the water bill to avoid losing their home?

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A. I don't know.
Q. All right. But in any event, just to recap, there were periods of time when the City wasn't sending any unpaid bills to the tax rolls, correct?
MS. SCOTT: Foundation.
A. Again, it probably happened at a time that I cannot comment on.
BY MR. HANLEY:
Q. All right. But even now you're not sending unpaid residential water bills to the tax rolls, only commercial and industrial, correct?
A. That's correct.
Q. And why is the City not sending residential unpaid water bills to the tax rolls?
MS. SCOTT: I'm going to instruct the witness not to answer because that is -- his knowledge of that is based upon legal advice.
BY MR. HANLEY:
Q. Do you accept your counsel's advice?
A. Yes.
Q. Okay. I just had a couple more questions and I'll let you be on your way, but have you had any involvement in making decisions about sewer rates and charges?
MS. SCOTT: Objection, form.
THE WITNESS: Do I answer that question?

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MS. SCOTT: If you can.
A. Your question is, was I involved in sewer rate determination?
BY MR. HANLEY:
Q. Well, let me ask it this way. Are you aware that the City's sewer rates in the recent past have used something called average winter consumption, water consumption?
A. Yes.
Q. And can you explain how that works?
A. So the sewer bills are based on a three month average. So instead of billing customers for the whole year, when in winter actually you don't use outside water like, you know, watering your lawn or cleaning your car in the driveway. So the concept was to make it fairer so that you are charging for what is absolutely necessary in terms of water getting into our storm system. So by definition, it came down to okay, it's winter usage. That probably meets the definition of basic necessity and the industry practice was that we could use average winter consumption or winter consumption for a certain number of months, you take an average and then use that for billing purposes.
Q. Okay. And Mr. Burnham, who was deposed this morning from Stantec, told me that on an interim basis beginning in fiscal year '23 because of data gaps there was going to be a cap applied to the sewer charges at 1.2 Mcf per month.

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A. That's correct.
Q. Was that actually done?
A. Yes.
Q. For how long of a period of time?
A. It's probably for a fiscal year which would be the very first implementation of the AWC concept.
Q. All right, but that cap of 1.2 Mcf was applied only to residential customers, correct?
A. My understanding, yes.
Q. And do you know why it was only applied to residential customers?
A. I wouldn't be -- it was a decision by -- it was Stantec, I shouldn't say the word recommendation, but that's what they thought was the most appropriate way to do it.
Q. Okay. Did they tell you why?
A. I don't recall.
Q. That it had something to do with commercial and industrial users generally using more water so that capping at 1.2 might not generate the revenues from those types of user?
A. Honestly, I don't recall.
Q. Okay. But at some point the interim way of doing it was changed, correct?
A. Yeah, it changed to what the original concept was.
Q. Right. Which is that you'd look at each user's average water consumption during January and March, when no one's

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out watering their lawn and they're using water for, you know, indoor purposes. Would that be fair?
MS. SCOTT: Objection, foundation.
A. Yes. So it was January to March would be the period.
BY MR. HANLEY:
Q. Okay. And so now how does it work? Does every customer get charged differently because the rates look at what their last three, their January -- strike that.
So if ABC Company is using, you know, ten units a month for January, February and March, but 20 units a month for the rest of the year, the sewer charges are determined based upon ten units a month because that's what the average usage was in January to March?
A. Correct.
Q. Okay. So it looks at each individual user. Does it apply that January to March usage to all customers, including non-residential?
A. So first of all it's January through March, I think January through April billing. Consumption would be from December to March. Just to clarify that.
Q. Okay.
A. And the second part of your question was --
Q. Was does it apply to all customers or just residential?
A. It's residential customers.
Q. Okay. So the non-residential customers don't -- they're

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still being billed for sewer based upon whatever they use in that month, whether it be July, January or October.
MS. SCOTT: Objection, form.
A. Yes, that's true. But the non-residential customers are given the option to install a separate meter which would separate their regular uses of water versus what doesn't get into the storm system. So if a non-residential customer wanted to separate irrigation of their lawn versus, you know, anything in their absolute basic necessities or essential use, they could install a meter. We would go and install a meter, so they don't have to pay for water that doesn't get into our storm system.
BY MR. HANLEY:
Q. All right. So the idea is if the water doesn't get into the storm system it shouldn't be deemed sewage and they shouldn't have to pay for it.
A. Correct. And that option is given to all commercial and industrial customers.
Q. Okay. All right, fair enough. Do you know any of the circumstances respecting my client's water usage? Ajax.
A. No, I don't.
Q. So for example, you don't know how much water they use and whether they have a separate meter.
A. No, I don't.
Q. All right.

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MR. HANLEY: I don't think I have any further questions for you. I appreciate your time, sir, and I wish you the best of luck.

MS. SCOTT: Okay, I've got a few follow-up questions.

EXAMINATION

BY MS. SCOTT:

Q. I want to make sure the record is clear. When the City refers to revenue, what is it referring to for water?

MR. HANLEY: Object to form.

A. Revenue is what we bill the customer.

BY MS. SCOTT:

Q. And revenue is not the same as collection of water rates, correct?

A. They're two separate things.

Q. For fiscal year 2025, what was the percentage of uncollectable accounts for water service?

A. So on a system-wide basis, our collection has been around 85, 86 percent for all customer classes taken as a whole.

Q. So is it fair to say that the uncollectable accounts for fiscal year 2025 for water is approximately 15 to 14 percent?

A. That would be a fair statement.

Q. And then the same question for fiscal year 2024.

A. Similar percentages.

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Q. And for fiscal year 2023.

A. Same. Mid 80s I thought. Last I remember, yes.

Q. So closer to 20 percent of that uncollectable --

A. Yeah, closer to 20 percent has been the norm ever since I've started looking at financial operations.

Q. And then for the Stantec rate study, when it was developing the water rates, what percentage of uncollectable accounts did it use?

A. The bad debt assumption was ten percent.

Q. So it is much lower than what the actual bad debt expense is for water for the City of Detroit.

A. Correct, correct.

MR. HANLEY: Objection to form.

A. So we took a very conservative approach to rate setting. Even though our collection rate has been 80, 85 percent, we could have said 15 percent for bad debt. But that would have raised the rates and to keep the whole purpose of affordability or reasonableness.

BY MS. SCOTT:

Q. So it's accurate to say that for water, the City is not collecting the full bad debt expense through the calculation of the water rate, correct?

MR. HANLEY: Objection, form.

BY MS. SCOTT:

Q. Is that a yes?

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A. Yes.

Q. Turning to the questions that Mr. Hanley asked you about the County foreclosing on properties. When a property has an unpaid water bill, do you know if the County has a policy that it will not foreclose on properties if the only lien on the property is for unpaid water or sewage bills?

MR. HANLEY: Objection. Form, foundation.

A. I cannot answer that question.

BY MS. SCOTT:

Q. Okay. When it comes to collecting unpaid water bills for residential water users of Detroit, what tools does DWSD use to attempt to collect those bills?

A. So we have a few options. We could go shut off water service. We also offer payments plans like the one that we introduced a little over a year ago was EasyPay concept where you can put $10.00 down and spread your payments over 36 months. It's called M36 EasyPay Plan. So you have a chance to pay your outstanding bills over 36 months. If you don't and you fail to do that, we can go and shut you off.

Q. Is another tool that DWSD implements to collect water bills is to sue residential users if they don't pay?

A. We could. Yeah, we do at times depending on the amount of outstanding balances.

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Q. Since 2023 has the City of Detroit, as a matter of policy, taken the position that it is not going to attempt to collect residential water bills -- let me rephrase that. Since fiscal year 2023, has the City, in your opinion, implemented processes in order to obtain payment for water bills from residential users that haven't paid?

A. We have taken steps. Yes, we have started shutting accounts off. We have started, as I said, the program to give people a chance to pay and if you don't pay within the period you fall into that list of potential shots. Yeah, so we've made all efforts to collect residential customers.

Q. Does the City have a -- is there a reason why the City does not send residential unpaid water bills to the County for collection?

A. I can't answer that.

Q. I'm sure you can't, I'm sorry. Let me strike that question. Have you heard discussions about why the City doesn't seek payment for uncollectable accounts from residential water user that one of the reasons is they do not want residential users to be kicked out of their homes solely for failure to pay water and sewage bills?

MR. HANLEY: Objection to form, foundation. He said he doesn't know and you wouldn't let him answer when I asked.

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MS. SCOTT: Well, you asked a broader legal question. I'm asking him if he knows that, he's heard that.
A. No.
BY MS. SCOTT:
Q. Okay. So Mr. Hanley asked you some questions about the interim cap to sewer charge. Do you remember those?
A. Yes.
Q. And I think you testified that the cap was at 1.2 Mcf per month for residential users, correct? Do you have an understanding of why 1.2 Mcf per month was used?
A. This was, again, a conservative approach. Stantec did study our billing patterns and consumption patterns and figured out that 1.2 would be a high level, would be a high bar people could cross. Generally most of our customers fall below that 1.2. So we did give a cap, but the cap was high enough. Most of the people won't go across and over the cap.
Q. So in your response when you refer to customers, were you referring to residential customers?
A. All customers.
Q. All customers?
A. Yeah.
Q. And so if there's some customers that are -- okay, I'm going to stop there.

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MS. SCOTT: I have no further questions.
MR. HANLEY: I have nothing further. Oh, I have one thing.
RE-EXAMINATION
BY MR. HANLEY:
Q. You said something about 80 to 85 percent of your bills aren't paid. Is that what I heard?
A. Yeah.
Q. That's water?
A. Yes. It's a similar percentage for sewer as well.
Q. So that's not system-wide or that's not for all functions. Isn't the drainage charge collection rate significantly lower than the water and regular sewer rates?
A. I don't know if I would call it significantly, it's certainly lower.
Q. It's certainly lower, okay. Did you review the Stantec rate study that was going to be the basis for the rates that were going to be implemented in fiscal year 2023?
A. Yes.
Q. All right. Do you know that they used ten percent as the historical bad debt by customer class?
A. Yes.
Q. Okay.
A. That was not by customer class, I'm sorry. That was by ten percent across the board.

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Q. Right. Ten percent for water and wastewater rate revenues, correct?
A. Correct.
Q. Okay. Did you tell them they were wrong?
MS. SCOTT: Objection, form.
A. No.
MR. HANLEY: All right. I have nothing further, thank you.
MS. SCOTT: Thank you.

(Deposition concluded at 4:22 p.m.)
(signature of the witness was requested.)

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AJAX METAL PROCESSING,
Plaintiffs,
vs. Case No. 23-015314-CB
CITY OF DETROIT,
Defendant.
_____/

VERIFICATION OF DEPONENT

I, Istakur Rahman, having read the foregoing deposition consisting of my testimony at the aforementioned time and place, do hereby attest to the correctness and truthfulness of the transcript.

_____
Istakur Rahman
Dated:

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ERRATA SHEET

PAGE	LINE	CORRECTION

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CERTIFICATE OF NOTARY.

STATE OF MICHIGAN)
) SS
COUNTY OF MACOMB)

I, PAMELA GOLETZ, certify that this deposition was taken before me on the date hereinbefore set forth; that the foregoing questions and answers were recorded by me stenographically and reduced to computer transcription; that this is a true, full and correct transcript of my stenographic notes so taken; and that I am not related to, nor of counsel to, either party nor interested in the event of this cause.

_____

PAMELA GOLETZ, CSR-5097
Notary Public,
Macomb County, Michigan
My Commission expires: July 19, 2028

EXHIBIT – 10

STATE OF MICHIGAN
IN THE CIRCUIT COURT FOR THE COUNTY OF WAYNE

AJAX METAL PROCESSING, INC., a Michigan corporation, individually and as a representative of a class of similarly situated persons and entities,

Plaintiff,

v.

CITY OF DETROIT, a municipal corporation,

Defendant.

Case No. 23-015314-CZ

Hon. Kathleen M. McCarthy

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DECLARATION OF ANDREW BURNHAM

I, Andrew Burnham, declare the following:

1. The information contained in this declaration is based on my own personal knowledge. I am competent to testify as to the contents of this declaration if called as a witness.

2. I am currently a Vice President and Sector Leader of Management and Technology at Stantec Consulting Services Inc. ("Stantec"). I have been employed with Stantec (including companies it has acquired) since July of 2003. In my roles with Stantec, I have provided or overseen asset management, organizational performance, financial planning, capital funding,

economic and fiscal impact analysis, technology implementation, and data management consulting services to utilities and local governments across North America. I have assisted dozens of local governments and utilities with rate studies. I am also an active member of the American Water Works Association ("AWWA").

3. Stantec was retained by the Detroit Water and Sewerage Department ("DWSD") to perform a rate study for DWSD's water and combined sewer systems and develop rates for DWSD's customers that are in proportion to the cost of providing service, follow industry practices, and are reasonable and transparent.

4. With assistance from other Stantec employees, Carol Malesky, a Senior Principal at Stantec, and I performed the analysis detailed in the Rate Study Final Report ("Rate Study") dated September 19, 2022, and prepared that Rate Study. A truncated copy of the Rate Study is attached to the Complaint in this matter as Exhibit A. The portions of the Rate Study with colored graphics referenced in this declaration are attached hereto as Exhibit A.

5. In conducting the Rate Study (and as noted therein), Stantec relied upon several industry resources and guidance documents, including the Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, AWWA M1, Seventh Edition; Financing and Charges for Wastewater Systems, Water Environment Federation Manual of Practice 27, Fourth Edition; Sizing Water Service Lines and Meters, AWWA M22, Third Edition; and Water Utility Capital Financing, AWWA M29, Fourth Edition. (Rate Study, pp. 6, 18.)

6. As evidenced in the Rate Study, Stantec used a base/extra-capacity approach to allocate costs and develop water rates, by first allocating costs to system functions, then to cost components, and ultimately to customers reflecting their units of service. (Rate Study, pp. 7, 26-27, 30 ("The Study followed the AWWA and WEF industry best practices by allocating water

functional costs to the appropriate cost components … This links costs with the customer usage and service characteristics that drive costs and is called the base/extra-capacity approach for cost allocation.").)

7. The City allocates its system function costs for recovery through both fixed and volumetric charges. (Rate Study, pp. 37-42.) The Complaint challenges the calculation of volumetric charges. As shown in the Rate Study, volumetric charges recover treatment costs (wholesale treatment costs allocated to DWSD by the Great Lakes Water Authority ("GLWA")) and distribution costs (pre-bifurcation debt plus DWSD expenditures associated with distribution) not otherwise allocated to fire protection and included in fixed charges. (Rate Study, pp. 7 fig. 1-3, 30-31, 40-42.)

8. The costs recovered through the volumetric charges are broken down into three cost components: (1) average day, (2) maximum day, and (3) peak hour. (Rate Study, pp. 30-32.) "Average day" costs are the "base" costs in the base/extra-capacity method. (*See id.*, pp. 32 tbl. 4-7, 98-99.) These costs are referred to interchangeably throughout the Rate Study as "base costs," "average day costs," and "base average day costs." "Maximum day" and "peak hour" costs are the "extra capacity" costs—also called "peaking" costs—in the base/extra-capacity method. (*See id.*)

9. Costs are then allocated among DWSD's water customers based on their usage and the burden that usage places on the system. (Rate Study, pp. 9, 40-41.) The Rate Study refers to the City's commercial, industrial, and residential customers collectively as "retail" customers, consistent with the City's past practice. (*See id.*, pp. 31-33, 40-41.) All retail customers, including commercial, industrial, and residential, are charged one rate for usage up to and including 0.6 Mcf (thousands of cubic feet) per month—for FY 2023, that rate was $25.04. (*Id.*, pp. 11-12, 41-42,

112.) In the Rate Study, this is referred to as the "base rate," which is also referred to as "Tier One" in the Complaint (and which I will refer to as "Tier 1" in this declaration).

10. All retail customers, including commercial, industrial, and residential, are then charged a different rate for usage exceeding 0.6 Mcf per month—for FY 2023, that rate was $44.92. (Rate Study, pp. 11-12, 41-42, 112.) In the Rate Study, this is referred to as the "uniform rate," which is also referred to as "Tier Two" in the Complaint (and which I will refer to as "Tier 2" in this declaration).

11. As the Rate Study plainly shows, the two volumetric rates are based on Mcf usage (not customer classes). (Rate Study, p. 42, tbl. 5-5.) The two rates were established to promote affordability, equity, and conservation. (*Id.*, pp. 8, 40.) The usage volume associated with the Tier 1 rate reflects the observed volume of usage by *all* retail customers that is effectively constant throughout the year and does not place material burdens on the water system. (*Id.*, pp. 9, 40-41.)

12. As the Rate Study states, Stantec initially identified 0.6 Mcf as the relevant threshold for applying the Tier 1 rate by relying on data from The Water Research Foundation that supports 0.6 Mcf as the average monthly use for a four-person household. (Rate Study, pp. 9 n.9, 40 n.29.) Then, as further set forth in the Rate Study, Stantec used the volume usage reflected in the City's billing data from *all* retail customers for FY 2021 to verify its assumption that, if 0.6 Mcf were selected as the threshold, monthly water usage across *all* retail customers would stay consistent throughout the year. (*Id.*, pp. 10 fig. 1-8, 41 fig. 5-4.) Stantec performed this same analysis using other thresholds, both higher and lower than 0.6 Mcf, finding higher thresholds resulted in more variability among monthly water use, indicating inconsistent usage at those levels.

13. As plainly depicted in the Rate Study, Stantec proportionately allocated average day (i.e., base) costs to be recovered from *all* retail system users through both the Tier 1 and Tier

2 rates based upon the amount of billed volume in each tier. (Rate Study, pp. 11 fig. 1-9, 40-41, 42 fig. 5-5.) Peaking costs are similarly recovered from *all* retail system users through both Tier 1 and Tier 2 rates on a proportional basis, with peaking costs associated with usage of 0.6 Mcf or less being recovered through the Tier 1 rate and peaking costs associated with any usage above 0.6 Mcf being recovered through the Tier 2 rate. (*Id.*, pp. 11 fig. 1-9, 40-41 & n.30, 42 fig. 5-5.) The formula set forth in the Rate Study shows that the Tier 1 and Tier 2 rates are volume-driven rates, each designed to recover both base costs and allocated peaking costs proportionately. (*Id.*)

14. Under this rate structure, every rate payer pays the same rates for water services based on the volume consumed. (*See* Rate Study, p. 42, tbl. 5-5.) For example, if a residential customer uses 0.9 Mcf, they pay the same on a per-Mcf basis as a commercial customer using 0.9 Mcf (the Tier 1 rate up to 0.6 Mcf and the Tier 2 rate between 0.6 Mcf and 0.9 Mcf). And if a commercial customer uses 0.3 Mcf, they pay the same on a per-Mcf as a residential customer using 0.3 Mcf (the Tier 1 rate).

15. The water rate structure developed by Stantec is not a block rate or inclining block rate. Rather, it is a uniform rate with a base rate component. This is in contrast with the block rate adopted by the City of Ann Arbor that Plaintiff mentions in its Complaint. The rate structure that Stantec recommended for Ann Arbor included separate customers classes and considered types of water use (such as irrigation). Moreover, the residential rate structure recommended was a four block structure based on residential usage profiles that would not have been appropriate to apply to commercial or industrial customers. Detroit's water rate is not based on types of water users or how the water is used. Instead, the rate structure is more simply based on the volume of usage and consistently applied to all retail customers.

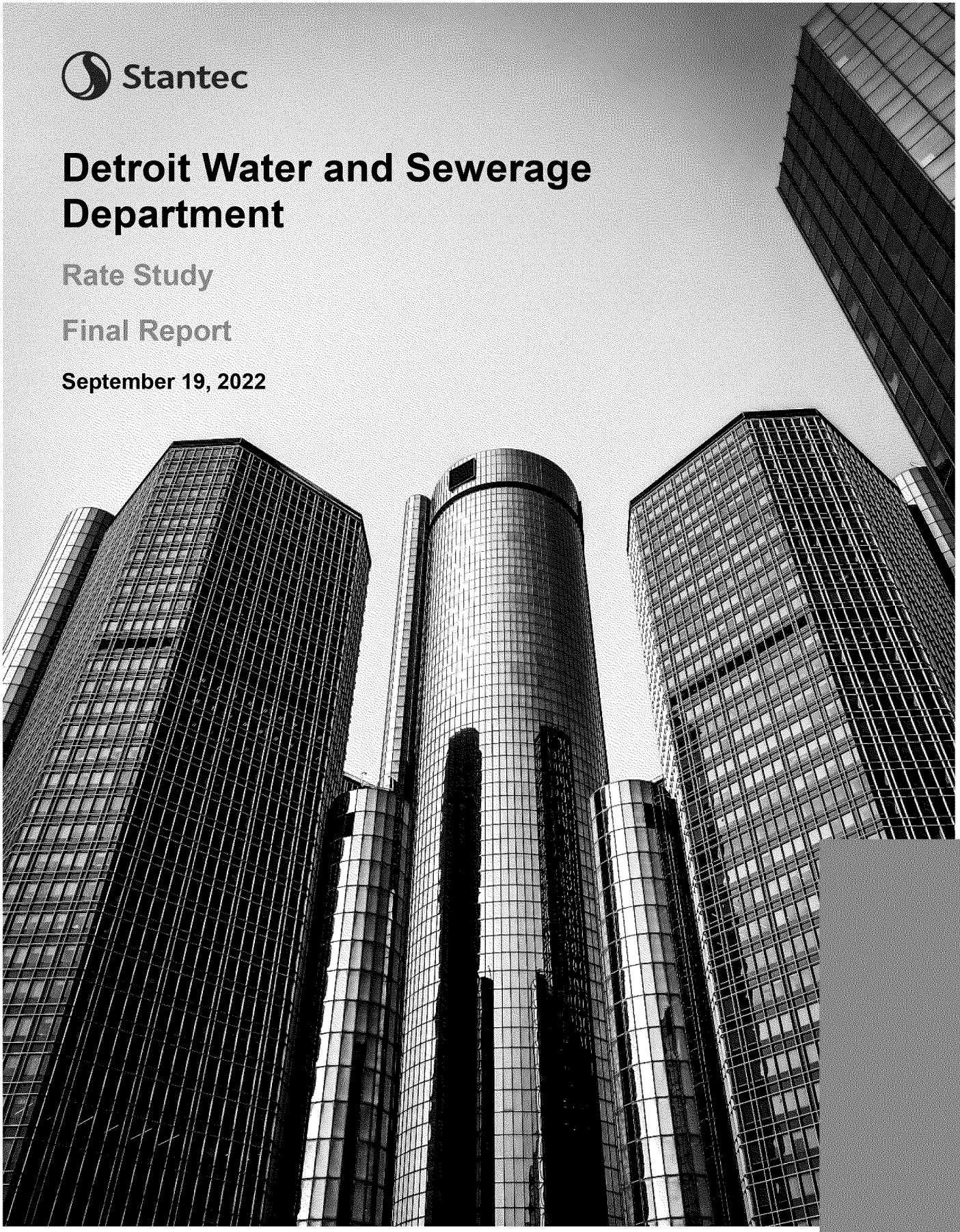
16. I am also aware that the Plaintiff in this case contends that Stantec's calculations are inaccurate because Stantec used an incorrect customer volume when designing the water rate. This appears to be a misunderstanding of Stantec's rate design process. Stantec did not use the number of water customers to calculate volumes as a basis for allocating costs or calculating rates because doing so would lead to an inaccurate per-unit cost. Rather, Stantec allocated costs and calculated rates based on actual customer and volume data provided by the City, with volume data being measured using the Mcf unit. (*See* Rate Study, pp. 9-11 fig. 1-9, 41-42, 98-99, 111-112.)

I declare under the penalties of perjury that this declaration has been examined by me and that its contents are true to the best of my information, knowledge, and belief.

Executed this 30th day of January, 2024.



Andrew Burnham



Stantec

Detroit Water and Sewerage Department

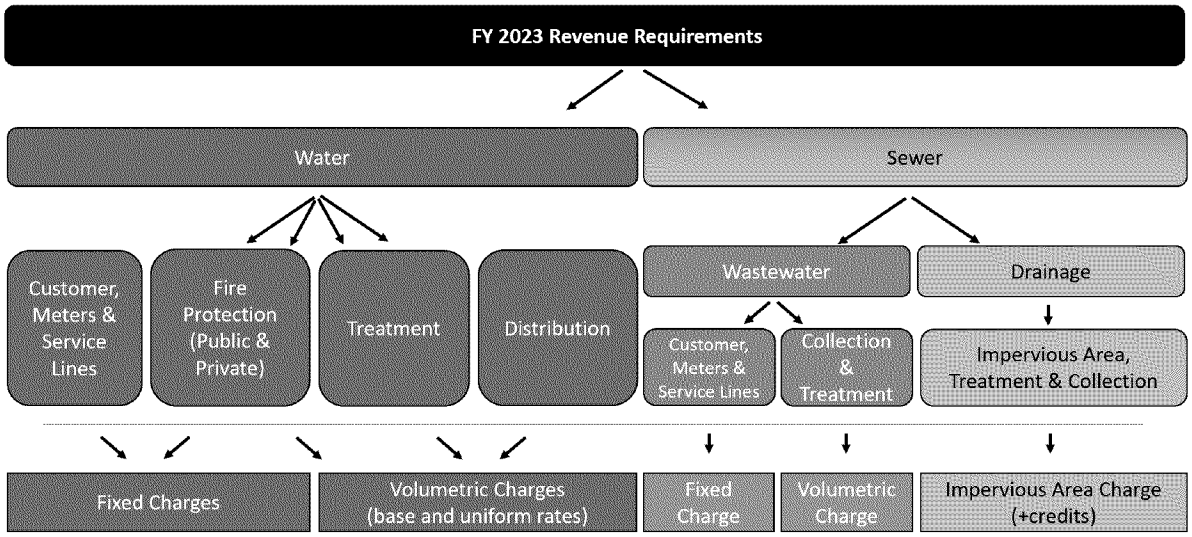
Rate Study

Final Report

September 19, 2022

were similarly allocated to wastewater functions. The bottom portion of the graphic shows how the cost allocation forms the cost basis for the development of water, wastewater, and drainage charges.

Figure 1-3: Cost Allocation Approach



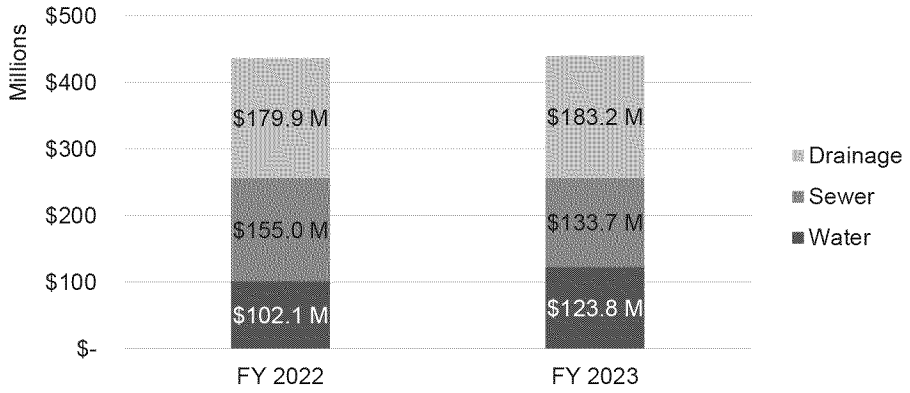
The Study followed the AWWA and WEF industry best practices by:

1. Allocating costs to water, wastewater, and drainage based on individual categories of costs and appropriate allocation criteria.
2. Allocating water and wastewater costs to individual functions or activities (such as supply, treatment, distribution, meters/services, etc.). This step is often called "functionalization" and it links costs with the functions utilities perform to meet customer demands.
3. Allocating water functional costs to the appropriate cost components (such as average use, maximum day demands, peak hour demands, customer service, etc.). This links costs with the customer usage and service characteristics that drive costs and is called the base/extra-capacity approach for cost allocation.[8]
4. Distributing each water cost component to customers in accordance with the demand and service characteristics placed on the system. This step identifies the units of service for customers based on meter size and billed volume.

The results of the cost allocation to water, wastewater, and drainage are depicted in Figure 1-4, showing the total revenue requirements by system in FY 2022 and FY 2023. The results demonstrate that current revenues are generally proportional to the rate revenue requirements from the cost-of-service analysis. FY 2023 rate revenues will reflect the cost-of-service allocation results, which represents a shift of about $20 million from wastewater to water and a small increase in drainage requirements (before credits).

[8] Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, AWWA M1, Seventh Edition, 2017.

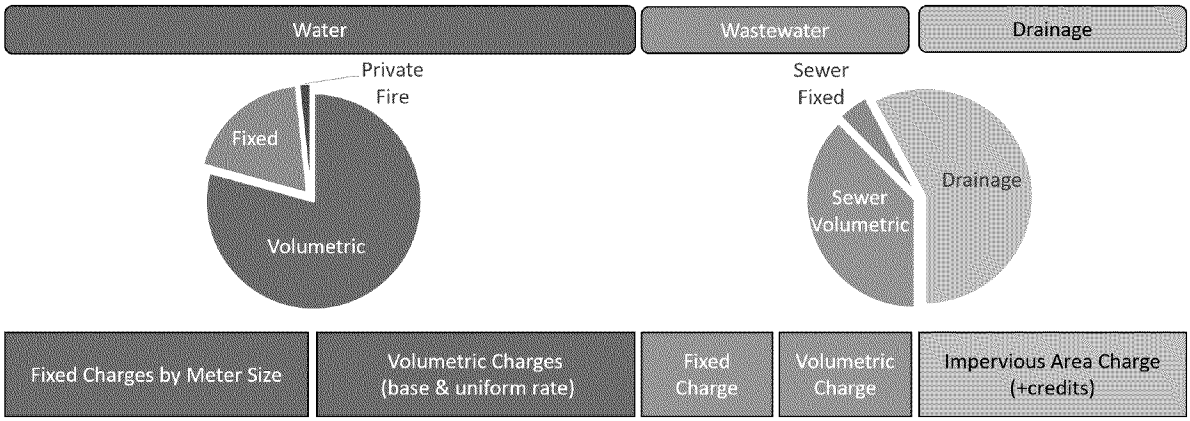
Figure 1-4: FY 2023 Rate Revenue Requirements vs. Current Revenue by System



1.4 RATE DESIGN

Stantec examined DWSD's current water, wastewater, and drainage rates and developed recommended rate structure modifications that 1) proportionally recover cost of service and revenue requirements from each system, 2) conform to accepted national and local industry best practices, and 3) promote affordability, equity, and conservation. The cost allocation analysis connects the types of cost drivers with rate structure components as shown in Figure 1-5. The following sub-sections describe the rate structures in more detail.

Figure 1-5: Rate Design Approach

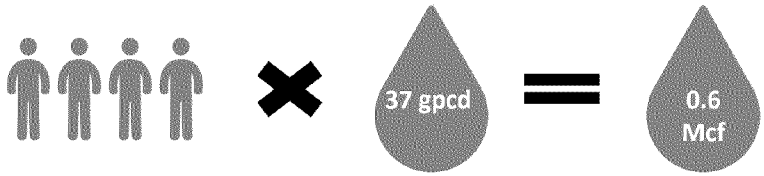


Water Fixed Charges – Water fixed charges are proposed to recover three types of costs through a monthly meter charge:

- Customer service costs are allocated uniformly to all meters.
- Meters and service line costs reflect replacement cost by meter size.
- A portion of public fire protection costs (capital, debt, and GLWA expenses) are scaled based on hydraulic capacity of each meter size.

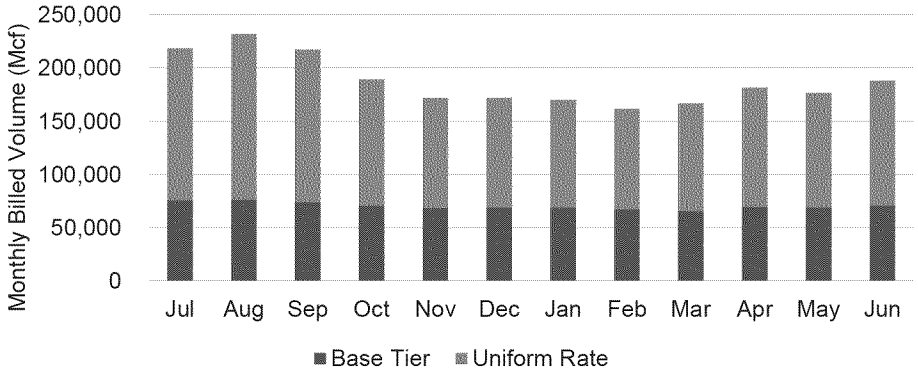
Figure 1-7 shows the calculation for the base tier size of 0.6 Mcf per month.

Figure 1-7: Base Tier Size Analysis



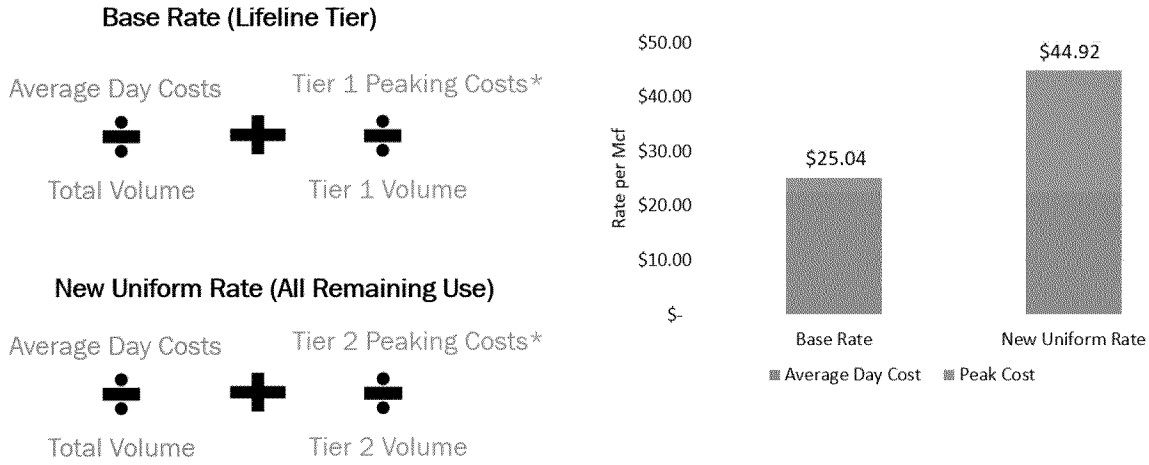
The following Figure 1-8 shows the resulting volume in each tier by month, based on DWSD's 2021 billing data. The chart demonstrates that there is minimal peaking in the base tier because the amount of water use in the base tier is consistent each month throughout the year.

Figure 1-8: Amount of Water Use that Falls in Each Tier



The following Figure 1-9 shows the calculation of the base rate and new uniform rate prices as well as the resulting rate per Mcf of the base tier and new uniform tier. The water system incurs additional costs to meet peak demands; therefore, allocating peak costs to tiers in this way shifts peak costs to the customers who contribute to increasing peak demands.

Figure 1-9: Water Volumetric Rates Pricing Analysis



*Peaking cost allocation based on proportional change in monthly volume from lowest month to highest month of the test year

Wastewater Fixed Charges and Volumetric Rates – Wastewater costs are recovered through a monthly customer charge and volumetric rate.

- Recover wastewater customer-related costs through a fixed monthly charge that applies equally to each customer bill.
- Proposed volumetric rate approach uses customer's monthly average winter consumption (AWC) or actual water use, whichever is lower, as basis for billing the volumetric rate.[11]
  - AWC is based on average water use from January through March.
  - AWC is applied to all customer classifications.
  - This change requires modifications to DWSD's billing system and will be implemented when feasible (see interim wastewater volumetric approach).
- Interim wastewater volumetric rate approach applies monthly cap of 1.2 Mcf on individually metered residential units.[12]
  - Continue using billed monthly water use for all other customers and allow deduct or water only metering configurations for other customers at their expense.

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[11] Winter months are typically representative of indoor water use only. Outdoor water use, such as irrigation, does not return to the sewer system. Therefore, using the lesser of actual water use or winter average water consumption is generally accepted as a more accurate method of determining wastewater flow for billing purposes.

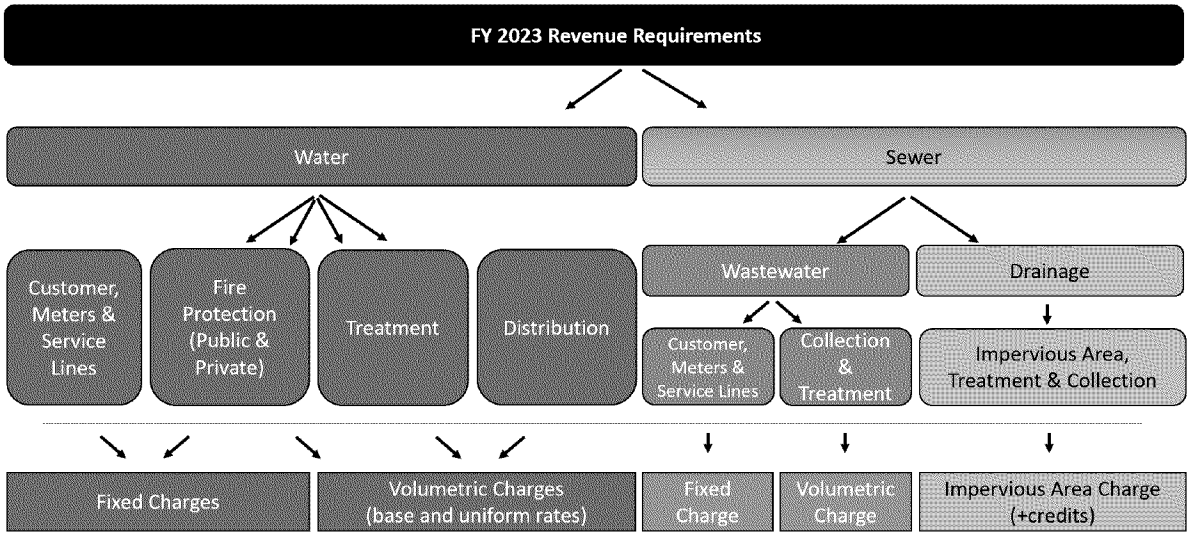
[12] Sewer caps are appropriate for residential customers that have relatively homogeneous usage profiles, compared to the wide variability of usage in commercial customers that make sewer caps problematic. That said, commercial customers can and do often utilize separate meters to capture water only demands not returning to the wastewater system.

4. COST ALLOCATION

The purpose of a cost-of-service analysis is to proportionally distribute identified revenue requirements among the various systems and customers served, based on accepted industry best practices. Such practices are documented by water industry publications such as the American Water Works Association's (AWWA) M1 Principles of Water, Rates, Fees, and Charges[19] and the Water Environment Federation's (WEF) Manual of Practice No. 27[20].

Figure 4-1 shows the cost-of-service allocation approach followed in this Study. Total FY 2023 Operating Fund revenue requirements were first allocated between the water and sewer systems, and sewer system costs were further allocated between wastewater and drainage. Water system costs were allocated to water functions, and wastewater costs were similarly allocated to wastewater functions. The bottom portion of the graphic shows how the cost allocation forms the cost basis for the development of water, wastewater, and drainage charges.

Figure 4-1: Cost of Service Approach



The Study followed AWWA and WEF industry practices and guidance by:

1. Allocating costs to water, wastewater, and drainage based on individual categories of costs and appropriate allocation criteria.

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[19] Principles of Water Rates, Fees, and Charges, Manual of Water Supply Practices, AWWA M1, Seventh Edition, 2017,

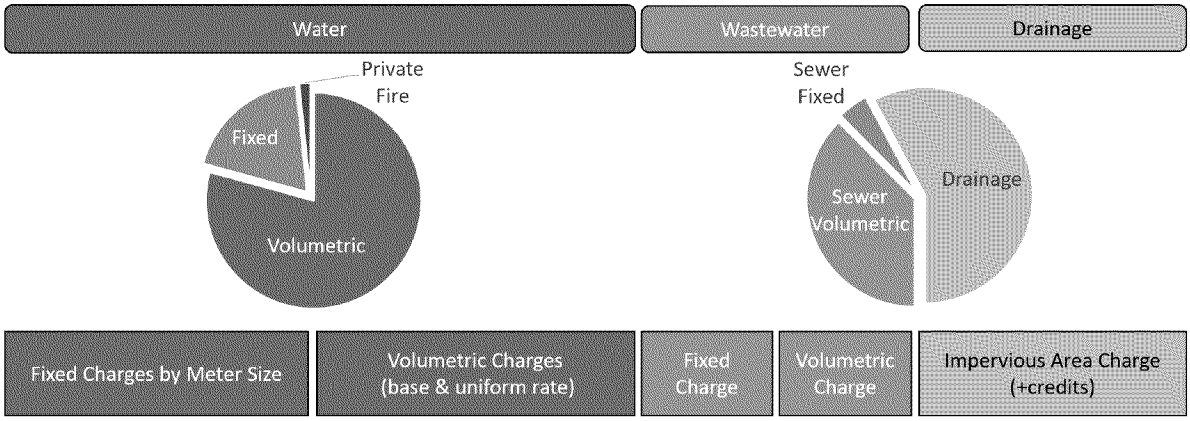
[20] Financing and Charges for Wastewater Systems, WEF Manual of Practice No. 27, 2019

5. RATE DESIGN

Stantec examined DWSD's current water, wastewater, and drainage rates and developed recommended rate structure modifications that 1) proportionally recover cost of service and revenue requirements from each system, 2) conform to accepted national and local industry best practices, and 3) promote affordability, equity, and conservation.

The cost allocation analysis presented previously connects the specific types of system costs with rate structure components as shown in Figure 5-1.

Figure 5-1: Rate Design Approach



The following sub-sections describe the Study's recommended rate structures in more detail.

5.1 WATER FIXED CHARGES

Water fixed charges are recommended to recover three types of costs through a monthly meter charge:

- Customer service costs, which are allocated uniformly to all meters.
- Meters and service line costs, which reflect replacement cost by meter size.
- A portion of public fire protection costs (capital, debt, and GLWA expense) that are scaled based on hydraulic capacity of each meter size determined using AWWA M22 Sizing Water Service Lines and Meters[27].

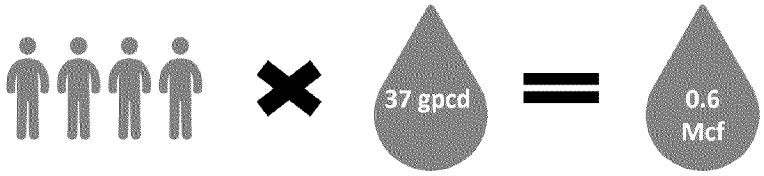
Figure 5-2 shows the allocation of costs recovered in the recommended water fixed charge and the approach for allocating each cost to the monthly meter charge for meter sizes up to 2". Larger meter sizes are not shown; however, all meter sizes follow the same approach.

[27] Sizing Water Service Lines and Meters, AWWA M22, Third Edition, 2014.

- Base tier rate was calculated by dividing average day costs by total usage volume, plus Tier 1 peaking costs[30], divided by Tier 1 volume. The base tier structure applies to all customers for the first 0.6 Mcf of water use each month.
- New uniform tier rate for all use above 0.6 Mcf calculated based on average day costs divided by total volume, plus Tier 2 peaking costs divided by Tier 2 volume. The higher tier reflects allocation of costs to the water users who impose increased burden on the system due to peak demand.

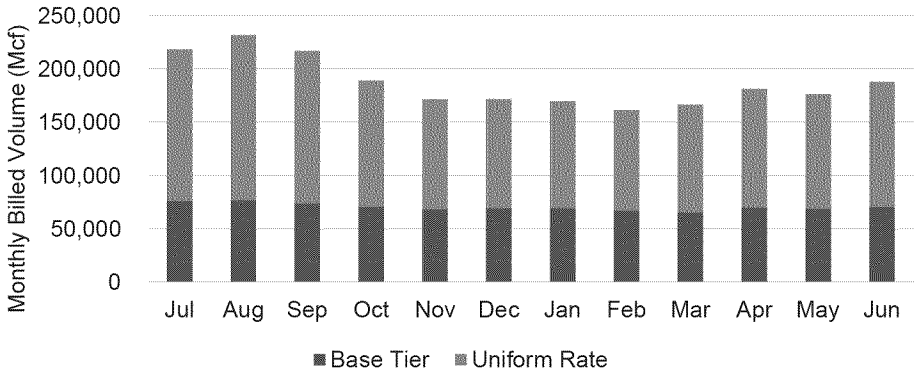
Figure 5-3 shows the calculation for the base tier size of 0.6 Mcf per month. Although this calculation is conceptually based on a residential profile of efficient indoor water use, it is applied to all retail customers.

Figure 5-3: Base Tier Size Analysis



The following Figure 5-4 shows the resulting volume in each tier by month, based on 2021 billing data for all retail customers. The chart demonstrates that there is minimal peaking in the base tier because the amount of water use stays consistent throughout the year. The water system incurs additional costs to meet peak demands; therefore, allocating peak costs to proportionally to the tiers results in peak-related costs being paid by the customers who contribute to increasing peak demands.

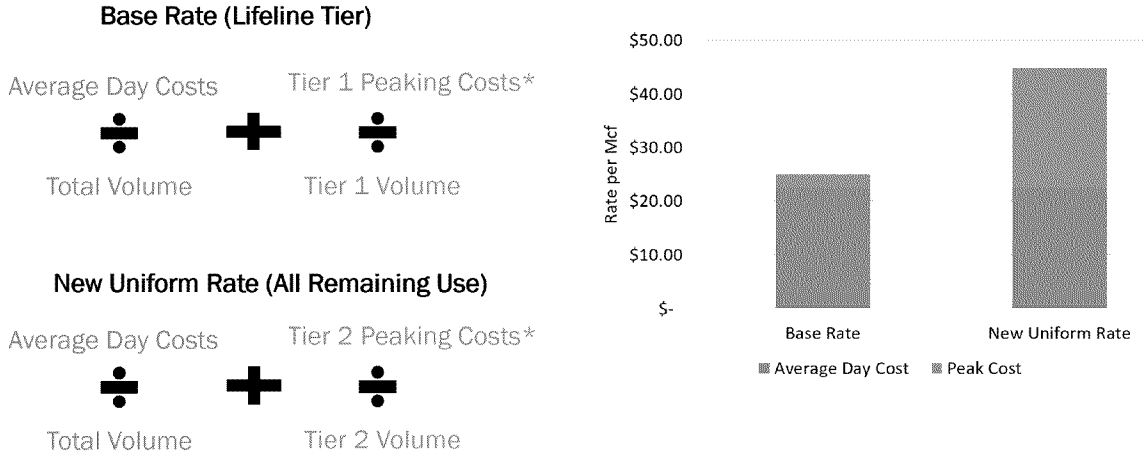
Figure 5-4: Amount of Water Use that Falls in Each Tier



The following Figure 5-5 shows the calculation of the base rate and new uniform rate as well as the resulting rate per Mcf of the base tier and new uniform tier.

[30] Peaking cost allocation between the tiers reflects the proportional change in monthly volume from lowest month to highest month for each tier based on DWSD FY 2021 billing data.

Figure 5-5: Water Volumetric Rates Pricing Analysis



*Peaking cost allocation based on proportional change in monthly volume from lowest month to highest month of the test year

The current and proposed water volumetric rates are shown in Table 5-5.

Table 5-5: Summary of Current and Proposed Water Volumetric Rates

Current Tier	Current Volumetric Rate (per Mcf)	Proposed Tier	Proposed Volumetric Rate (per Mcf)
All Use	$26.60	Base Tier (0-0.6 Mcf)	$25.04
		Uniform Tier (>0.6 Mcf)	$44.92

5.3 WASTEWATER FIXED CHARGES AND VOLUMETRIC RATES

Wastewater costs are recovered through a monthly customer charge and volumetric rate. Currently, the uniform volumetric rate is applied to each customer's monthly billed water usage to determine the volume component of the sewer bill. While this is not a unique practice within the wastewater industry, utilities will often make allowances for seasonal water demands such as outdoor irrigation that likely does not return to the wastewater system.

Alternative approaches to billing for total water use include average winter water consumption calculations for each customer that serve as the basis for sewer bills in the summer months. Implementation of a sewer cap on water usage for residential customers is another approach used in the industry. Applying a cap is appropriate for residential customers that have relatively homogeneous usage profiles, compared to the wide variability of usage in commercial customers that makes a uniform cap amount problematic. Moreover, many commercial customers will have separate metering configurations for water only demands. Regardless, both approaches better approximate actual water usage that returns through the wastewater system.

A summary of the recommended rate structure for wastewater is as follows.

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EXHIBIT – 11

Stantec

City of Ann Arbor, MI

Water and Sewer Cost of Service Study Final Report

June 27, 2018



EXHIBIT
Rothstein 12

Stantec

June 26, 2018

Ms. Lynne Chaimowitz
Budget and Finance Supervisor
City of Ann Arbor
301 E. Huron Street
Ann Arbor, Michigan 48104

Re: Water and Sewer Cost of Service Study – Final Report

Dear Ms. Chaimowitz,

Stantec Financial Services is pleased to present this Final Report for the Water and Sewer Cost of Service Study (Study) that we performed for City of Ann Arbor, Michigan (City). We appreciate the fine assistance provided by you and all of the members of the City staff and community stakeholders who participated in the Study.

If you or others at the City have any questions, please do not hesitate to call me at (813) 204-3331 or email me at andrew.burnham@stantec.com. We appreciate the opportunity to be of service to the City, and look forward to the possibility of doing so again in the near future

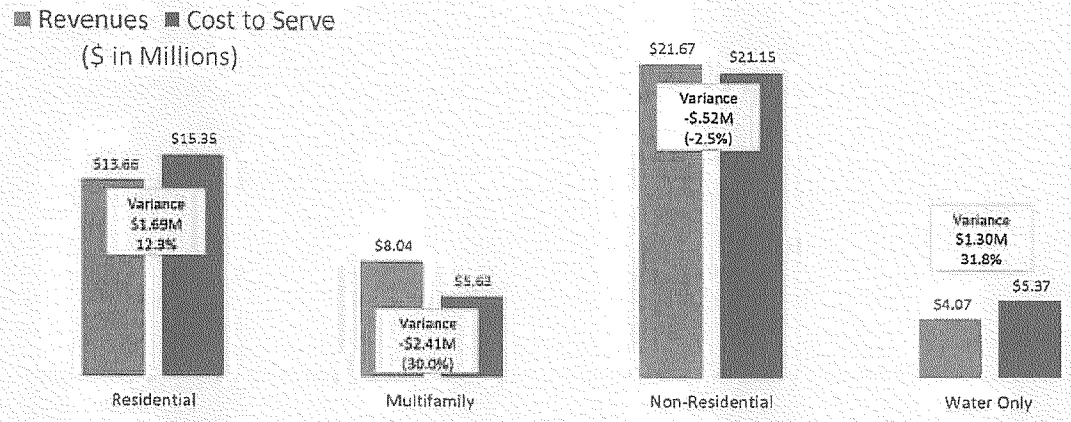
Sincerely,

Andrew J. Burnham
Vice President

777 S. Harbour Island Blvd., Suite 600
Tampa, Florida 33602
(813) 204-3331
andrew.burnham@stantec.com

Enclosure

E2 Combined water and sewer cost of service results



1.6 RATE CALCULATION

Stantec examined the Utility's current water and sewer rates and developed recommended rate structure modifications that i) fairly and equitably recover the Utility's current cost of service and revenue requirements from each rate or customer class, ii) conform to accepted local and national industry practices, iii) ensure fiscal stability and reasonable recovery of fixed costs, iv) minimize administrative burden and enhance the ability to be easily understood by residents and customers.

Common industry practice is to develop a two-part rate structure comprised of both fixed and variable charges. Generally accepted practice recovers a portion of system costs in a fixed charge, recognizing that utilities have substantial cost that are customer-specific, such as meter replacement, public fire protection, and customer service costs that are incurred year-round. Utilities incur these costs regardless of the level of customer water use. Failure to establish a proper level of fixed cost recovery subjects the Utility to revenue volatility in certain conditions, such as abnormal weather or economic events.

The Utility presently has a fixed quarterly charge based upon meter size that is applied for both water and sewer service, respectively. It is recommended that the Utility update its fixed charges to reflect the current cost for meter replacement, public fire protection, and administrative activities. Specifically, the fixed charge should recover administrative costs (such as customer service, billing and collection, meter reading, etc.) equally per meter, meter replacement cost based on the specific cost and useful life of each meter size, and public fire protection costs based upon meter size.

As it relates to the Utility's usage or metered volume-based rates, it is recommended that:

1. An a new tier is added to the inclining block water rate structure of the Residential class, and adjust the volume included in all tiers to reflect current usage profiles and local data (see Section 2).
2. The pricing of each tier of the Residential inclining block structure is adjusted to comport with the cost of service findings and enhance intra-class equity.

5. RATE CALCULATION

The Study included an examination of the City's current water and sewer rates and development of recommended rate structure modifications that i) fairly and equitably recover the City's identified cost to serve each respective rate class, ii) conform to accepted local and national industry practices, iii) ensure fiscal stability and reasonable recovery of fixed costs, and iv) minimize administrative burden and enhance the ability to be easily understood by stakeholders.

The Utility's existing rate structure is comprised of quarterly fixed charges by meter size and volumetric charges per CCF (commonly referred to as a "Unit" for billing purposes) that vary by rate classification. The existing volumetric water rates for Residential customers is a three-tier inclining block rate structure, while all other water rate classes have a unique uniform volumetric rate applied to all consumption. The Utility's sewer rates include the same quarterly fixed charges as water service, and a uniform volumetric rate applicable to all rate class for all billed sewer volume. Additionally, it is important to note that the Utility applies a 10% discount for prompt payment by the due date. *As such, all current and proposed bill calculations included in this section of the report include the 10% discount unless otherwise noted.*

The following page includes a summary of the current rates and charges of the Utility for each rate classification or customer class.

Current FY 2018 Water and Sewer Fixed Quarterly Charges by Meter Size:

Meter Size	Current
5/8	$ 11.25
3/4	$ 16.55
1	$ 30.30
1.5	$ 62.00
2	$ 97.00
3	$ 95.00
4	$ 308.00
6	$ 613.00
8	$ 1,225.00
10	$ 1,960.00

FY 2018 Water Volumetric Rates ($/CCF or Unit, Showing Quarterly Consumption in Each Tier):

- Residential[1]
  - Tier 1: up to 7 CCF, $1.55
  - Tier 2: over 7 to 28 CCF, $3.37
  - Tier 3: over 28 CCF, $5.89
- Commercial[2]
  - Peaking 1, $3.81
  - Peaking 2, $7.26
  - Peaking 3, $12.44
- Water Only
  - All Use $5.89

FY 2018 Sewer Volumetric Rate ($/CCF, Note: Residential Volume Based on Winter Quarter Average):

- All Customers
  - All Use, $4.58

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[1] Residential customers with a separate water only meter are classified RES 2 and only have the first 2 tiers apply to their consumption.

[2] Peaking 1: factor less than 5, Peaking 2; factor between 5 and 8, Peaking 3; factor greater than 8

5.1 QUARTERLY FIXED CHARGES

Common industry practice is to develop a two-part rate structure comprised of both fixed and variable charges. Generally accepted practice recovers a portion of system costs in a fixed charge, recognizing that utilities have substantial cost that are customer-specific such as meter replacement, public fire protection, and customer service costs that are incurred year-round. Utilities incur these fixed costs regardless of water use. Failure to establish a proper level of fixed cost recovery subjects the Utility to revenue volatility in certain conditions, such as abnormal weather or economic events.

During the conduct of the Study, several observations were made relative to level of the Utility's fixed charges. As part of preparing comparative rate surveys, it was noted that the City has some of the lowest fixed charges of the entities surveyed. Moreover, the current fixed charges only represent about 12% of the Utility's annual revenue, whereas rating agency guidance and observed industry practices target 30% of annual revenue from fixed service charges. Lastly, the Utility's current charges are the same for water and sewer services, whereas many utilities will establish separate fixed charges that are unique to the cost requirements of each respective system or service.

It is recommended that the Utility update its fixed charges to reflect the current cost for meter replacement, public fire protection, and administrative activities. Specifically, the fixed charge should recover administrative costs (such as customer service, billing and collection, meter reading, etc.) equally per meter, meter replacement costs based on the specific cost and useful life of each meter size, and public fire protection costs based upon meter size (in the water charge only). It is important to note that meter replacement costs have been split evenly between water and sewer fixed charges, recognizing that the meter provides the basis for billing both water and sewer service charges. The proposed fees presented below reflect the unique cost of service by meter size for each system, conform to industry practices, and are anticipated to comprise a slightly greater percentage of the Utility's annual revenue.

Table 5-1 Proposed Water and Sewer Quarterly Fixed Charges

WATER SERVICE		SEWER SERVICE	
5/8 " meter	$20.89	5/8" meter	$13.09
3/4" meter	22.43	3/4" meter	13.47
1" meter	25.26	1" meter	13.98
1½" meter	33.09	$1^1/_2$" meter	16.01
2" meter	41.90	2" meter	17.84
3" meter	88.47	3" meter	45.86
4" meter	115.48	4" meter	51.98
6" meter	176.75	6" meter	55.22
8" meter	257.21	8" meter	66.07
10" meter	343.11	10" meter	70.74

5.2 VOLUMETRIC CHARGES

As indicated, adjustments to the City's current inclining block rate structure (in number, size, and pricing of each block or tier) are recommended to conform to the current cost to serve, reflect current usage profiles, strengthen legal defensibility, and improve conformance to accepted industry practices.

Table 5-2 provides a summary of the residential water usage profile used to establish the recommended water use within each tier of the inclining block rate structure presented herein. The summary table illustrates the development of the initial tier at 9 CCF per quarter, which is sufficient to provide an allowance for typical indoor domestic use of 36.7 gallons per capita per day (per the Residential End Uses of Water, Version 2, published in April of 2016 by the Water Research Foundation), and an assumed 2.0 persons per household. Incorporating readily available industry data relative to residential per person indoor water use into the tier setting process enhances the ability of the tier structure to reflect current usage profiles. The next tier spans from 9 to 18 CCF per quarter, providing an additional allowance for the indoor domestic use of larger families (which may in some cases also represent modest amounts of outdoor use by smaller families).

The next tier (18 to 36 CCF quarterly) would accommodate reasonable amounts of discretionary irrigation for typical properties, based on a GIS analysis of typical residential lot sizes, irrigable area, and water requirements for normal landscape in the City. The existing top tier would then be revised to include all usage over 36 CCF quarterly. Based upon FY 2016 billing data, less than 10% of all residential bills issued have usage over 36 CCF per quarter.

Table 5-2 Residential Water Usage Profile

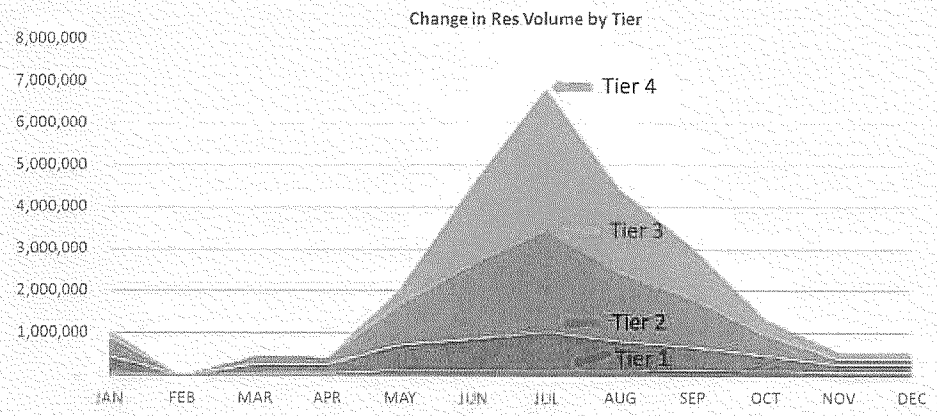
Tier 1	Value	Block Max	Current
People per Household	2.00		
Typical Indoor Use (Gallons per Capita per Day)	36.7		
Typical Essential Domestic Use (CCF/month)	2.98		
First Tier Usage Amount (CCF)	9	9	7

Tier 2	Value	Block Max	Current
People per Household	4.00		
Typical Indoor Use (Gallons per Capita per Day)	36.7		
Typical Essential Domestic Use (CCF/month)	5.97		
Second Tier Usage Amount (CCF)	18	18	28

Tier 3			
Typical parcel (sq. ft.)	10,890		
Square inches of area in 1/4 acre	2,090,880	*(calculated)*	
% of area that is irrigable	25%		
Reference ET (inches)	32.0		
Average annual rainfall	36.0	10%	
Crop Coefficient	75%		
Irrigation Efficiency	70%		
Water Budget (CF per month)	5.753	*(calculation)*	
Third Tier Usage Amount (CCF)	18	36	>28
Fourth Tier Usage Amount (CCF)	All Use	>36	

Once reasonable tiers were constructed using the most relevant and recent data, the rate structure analysis used the COS results to calculate the unit cost/rate for each tier. Connecting the cost of service to the volumes and seasonal demand patterns present within each tier creates a strong, proportional, and transparent relationship between the use of water and the cost of service. The following graphic displays the relative contribution of peak demands from the Residential class for each proposed tier.

Graphic 5-3 Residential Water Usage by Tier in Cubic Feet (CF)



It is very evident from the preceding graphic that the volumes in each tier are quite different in their contributions to peak demands, and generally reflect the usage profile employed to size each tier.

The pricing for each tier reflected the allocated proportion of the average day, maximum day, and peak hour costs for the demands in each respective tier as shown in Table 5-4 below. Max day and peak hour volumes shown are the proportional change in volume from February (system min) to July (system peak).

Table 5-4 Residential Units of Service & Cost Allocations by Tier

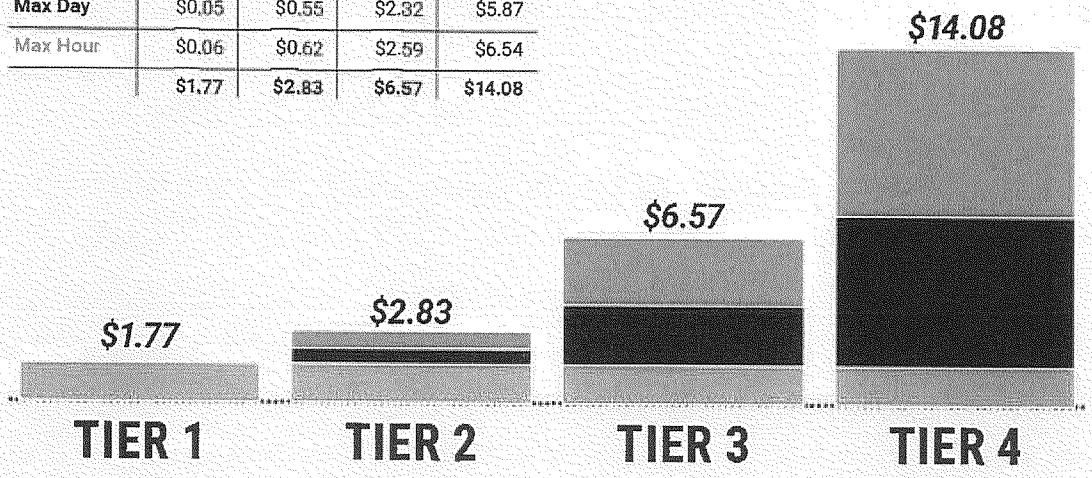
Units of Service by Tier CCF	Average Day	Max Day	Peak Hour
Tier 1	674,229	126,100	126,100
Tier 2	438,039	902,300	902,300
Tier 3	285,236	2,464,900	2,464,900
Tier 4	152,238	3,328,400	3,328,400

System Cost by Tier	Average Day	Max Day	Peak Hour
Tier 1	$1,010,380	$30,473	$33,963
Tier 2	$656,432	$218,045	$243,021
Tier 3	$427,447	$595,653	$663,883
Tier 4	$228,140	$804,322	$896,453

As can be seen from the summary graphic on the following page, tiers 3 and 4 have a larger allocation of system costs associated with serving maximum day and peak hour demands due to their significantly great contribution to the peak demands placed on the Utility.

Graphic 5-5 Residential Water Pricing per CCF

	TIER 1	TIER 2	TIER 3	TIER 4
Average Day	$1.67	$1.67	$1.67	$1.67
Max Day	$0.05	$0.55	$2.32	$5.87
Max Hour	$0.06	$0.62	$2.59	$6.54
	$1.77	**$2.83**	**$6.57**	**$14.08**



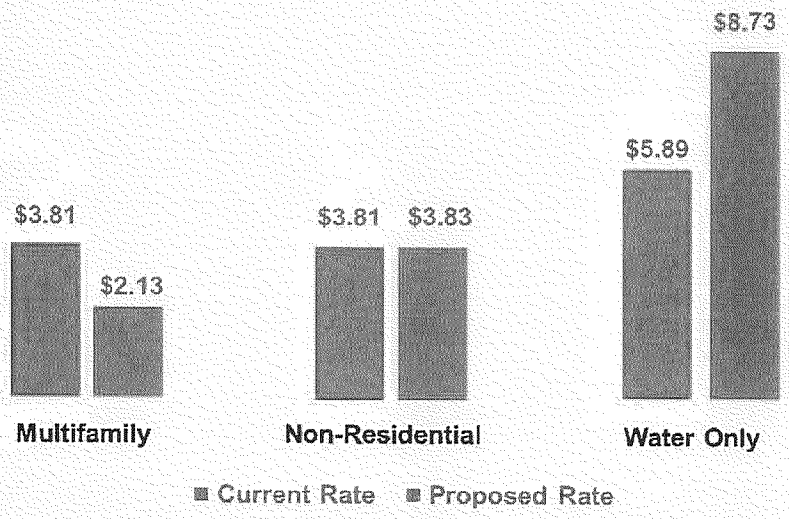
For all other rate classes, a uniform volumetric rate based on the cost to serve each respective class was determined to be the most appropriate rate structure, similar to what is effectively in place today. The Utility presently has a sub-classification system for Non-Residential customers based on peaking factors, whereby approximately 98% of users fall in the first classification, effectively rendering the current system a uniform rate structure (which is the most common industry practice for Non-Residential customers).

While the Non-Residential, Multifamily, and Water Only rate classes do place seasonal demands on the system, the cost of serving those respective demands will be paid via a charge per CCF or Unit of water used. As a class, it is well established and supported by data (as is the case here) that Residential customers use water differently than Non-Residential, Multifamily, and Water Only customers. However, for customers within a class, such as different types of Non-Residential customers, there needs to be a rationale, data, and system for developing and administering a structure that is fair and based on the cost to serve. Within the Non-Residential class, there is a wide variety of business types with different levels of water usage requirements and metering configurations, such that charging a tiered volumetric rate for this customer class as a whole would not be fair.

For example, a small office in the City may use about 20 CCF throughout the year, and a restaurant with the same square footage may use 100 CCF throughout the year. If a second tier rate were set at 50 CCF, that would be unfair to the restaurant to charge them more for 50 CCFs, even though they are not contributing to the cost that is driving the Non-Residential peak to the system. Because Non-Residential customers have no standard activity to determine a fair way to allocate the cost of service in the pricing structure, a flat rate is the most equitable in the absence of the data, system, and resources to establish and maintain individualized customer-specific tiers. Should the City desire to evaluate non-residential tiers in the future, data relative to property size, business type, irrigable area, and peak demands (daily and

hourly) should be collected and maintained for each customer. The same rationale holds true for the Multifamily class, because there are Multifamily customers that have 5 units on one meter, and others that have 50 units. Recognizing customer-specific data requirements and system limitations, a uniform rate is the most equitable method to have these classes (and Water Only) as a whole pay for the cost of service.

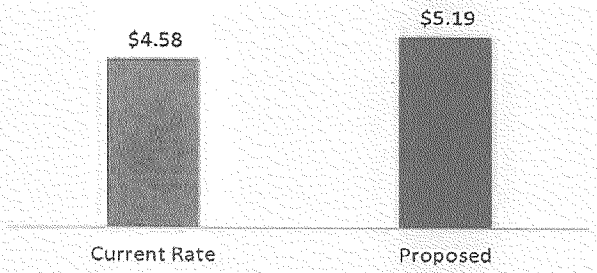
Table 5-6 Water Pricing Per CCF for Other Rate Classes



Rates shown before 10% on time payment discount, Current Non-Residential rate shown is Peak factor 1

The Utility currently has a uniform volumetric rate for sewer service applicable to all rate classes based on measured water consumption in each billing cycle, with the exception that winter average water use serves as the basis of billing in summer months for the Residential class. Doing so ensures that Residential seasonal water demands likely associated with outdoor irrigation are not charged sewer. No adjustments are recommended to the Utility's current sewer volumetric rate structure as the structure conforms to accepted industry practice. As such, this analysis only updated the volumetric rate per CCF or Unit to reflect the results of the COS analysis, including the distribution of revenue requirements between fixed and volumetric charges. The resulting rate is proposed at 5.19 per CCF used per quarter.

Table 5-7 Sewer Pricing per CCF for All Rate Classes



Rates shown before 10% on time payment discount

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EXHIBIT – 12

Stantec

James City Service Authority

Water and Sewer Rate Study – Final Report

March 21, 2020

JCSA
James City Service Authority



EXHIBIT
Rothstein 16

Stantec

March 21, 2020

Ms. Stephanie Luton
Assistant Manager – Treasurer
119 Tewning Road
Williamsburg, VA 23188

Re: Water and Sewer Rate Study – Final Report

Dear Ms. Luton,

Stantec Consulting Services Inc. is pleased to present this Final Report of the comprehensive Water and Sewer Rate Study that was performed for the James City Service Authority (JCSA). Stantec appreciates the fine assistance provided by you and all of the members of JCSA staff who participated in this Study.

If you or others at JCSA have any questions, please do not hesitate to call me at (813) 204-3331. Stantec appreciates the opportunity to be of service to JCSA and looks forward to doing so again in the near future.

Sincerely,



Andrew J. Burnham
Vice President
Direct: (813) 204-3331
andrew.burnham@stantec.com

Stantec
777 S. Harbour Island Blvd.
Suite 600
Tampa, FL 33602

Enclosure

assumptions used in this Study, a new water rate adjustment plan would be required in order to ensure JCSA's ongoing solvency in the water fund.

1.3 RATE STRUCTURE ANALYSIS

Stantec examined JCSA's current water and sewer rates and found them to be fair and equitable. The recommended rate structure modifications continue to advance JCSA's objectives of i) fairly and equitably recovering JCSA's current cost of service and revenue requirements from each customer class, ii) conformance to current national and local industry practices, iii) reflecting current customer usage characteristics and available data, iv) enhancing fiscal stability and recovery of fixed costs, v) maintaining affordability to low and average volume users to the greatest extent possible, vi) promoting water conservation and meeting environmental regulations, and vii) minimizing administrative burden while enhancing the ability to be easily understood.

It is common industry practice to maintain a two-part rate structure comprised of both fixed and variable (also referred to as "usage" or "volume-based") charges. Generally accepted practice recovers a portion of the system costs in a fixed readiness-to-serve charge, recognizing that utilities have substantial investments in capacity-related costs and other fixed costs that are incurred year-round to maintain a state of readiness to meet peak demands of their customers when they occur. JCSA's fixed cost for the water utility are 88% of overall cost, which is in line with the industry as a whole and reveals the general fixed nature of cost for providing utility service. JCSA implemented a modest fixed charge for water and sewer services as a result of the FY 2016 Water and Sewer Rate Study recommendations, which has provided the Utility with greater revenue stability.

Fixed Charge Recommendations

Based on the most recent fiscal year revenues (FY 2019), JCSA currently recovers approximately 11% of total water revenue from fixed water charges and 11% of total sewer revenue from fixed sewer charges. Stantec recommends that JCSA continue to work towards a long-term goal of increasing the level of cost recovery in fixed readiness-to-serve charges to at least 20% of annual revenue requirements. This level of fixed cost recovery would bring JCSA more in line with industry experience and the guidance of municipal ratings agencies. Stantec recommends increasing the fixed cost recovery of the water system to 15% in FY 2021. An increase in the level of fixed cost recovery will provide further financial stability to the Utility, buffering against further declining volumetric demands or abnormal volumetric demand periods.

Variable Charge Recommendations

As it relates to JCSA's usage or volume-based rates, Stantec recommends the following:

1. Adjust the pricing and tier structure of the single-family residential water rates to match current individually metered single-family residential usage profiles based on the most recent occupancy data, indoor use measurements, and estimates of efficient outdoor usage requirements. The

recommendation will result in four tiers for single-family customers that will better fit demand patterns in the community.

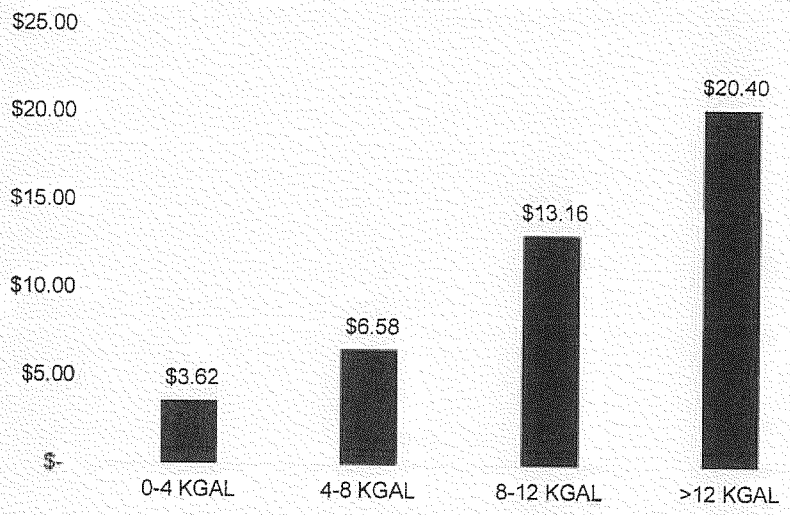
2. Continue to apply a single water usage rate to all use for multi-family residential and non-residential customers based on the portion of revenue required to be recovered in usage-based rates divided by total volume. A single usage rate is the best practice for this customer class given the significant difference in demand drivers from one customer to the next. For example, a car wash, restaurant and office are all contained in the non-residential customer class but have significantly different demand that they place on the utility system. Using a tiered structure, such as what's applied to single family customers, would create large inequalities between customers who are efficient in meeting their demands but happen to require more water and have no ability to curtail usage.

3. Continue to apply a single usage or metered volume-based rate for sewer service to all customers based on the portion of revenue required to be recovered in usage-based rates divided by total volume. A single usage rate is the best practice for sewer volume service given that customers in JCSA's service area have similar wastewater characteristics or strength as it is commonly referred to in the industry.

The following Figure 1-1 presents the monthly impact to an individually metered single-family residential customer based on the recommended rate structure for FY 2021. The graph demonstrates that the expected impact of the changes to single-family customer bills will be minimal at most usage levels. A schedule of the recommended FY 2021 water and sewer rates as well as additional customer impact tables are included in the Rate Structure Analysis Section (Section 4) of this report.

After sizing the single-family tiers to match with industry best practices based on the service area's most up-to-date local census data and residential usage profiles, pricing was attached to the tier ranges to encourage conservation and promote low volume affordability to the greatest extent possible. Figure 4-2 presents the updated rates attached to the new tiers calculated for JCSA.

Figure 4-2 – Single-Family Residential Water Variable Volume Tier Pricing

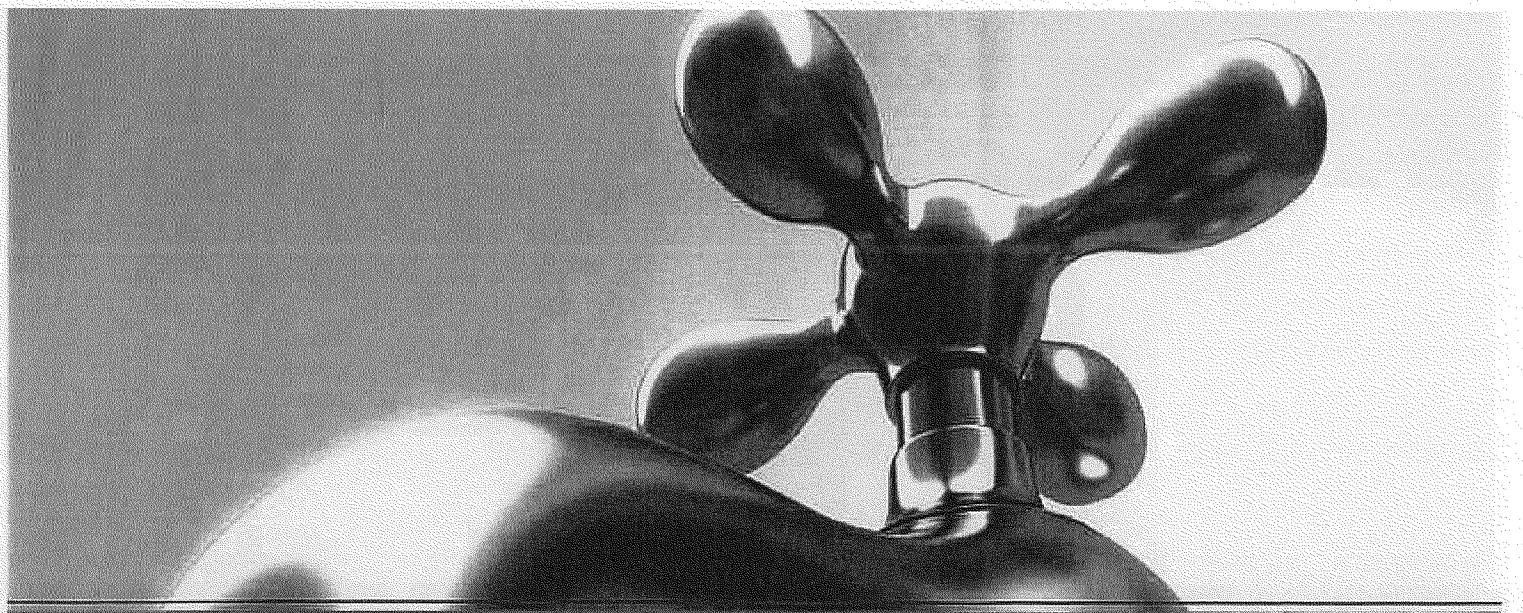


4.3.2 Non-Single-Family Residential & Commercial

For customer classes other than single-family residential, Stantec recommends the continuation of the uniform rate structure currently employed by JCSA. A uniform rate is the most common rate structure for this customer class in the water industry. Whereas single-family customers are generally similar to each other in their usage characteristics, other customer classes may have significant variation in types of customers, therefore it is much more difficult to estimate the usage allowances necessary for the use of tiers. The calculated rate per thousand gallons is less than the current rate, which is attributable to the increase in fixed costs, as shown in Figure 4-3. More revenue will be generated by monthly fixed charges and consequently, less revenue is needed from volume charges for all customer class.

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EXHIBIT – 13



Building Better Water Rates for an Uncertain World:

Balancing Revenue Management, Resource Efficiency, and Fiscal Sustainability



EXHIBIT

Rothstein 5

FINANCING SUSTAINABLE WATER

Rates. Revenue. Resources.

Alliance for Water Efficiency

FINANCING SUSTAINABLE WATER

Rates. Revenue. Resources.

Building Better Water Rates for an Uncertain World:

Balancing Revenue Management, Resource Efficiency, and Fiscal Sustainability

AUGUST 2014

Developed by the Alliance for Water Efficiency, in partnership with the California Urban Water Conservation Council

Alliance for Water Efficiency

California Urban Water Conservation Council

Alliance for Water Efficiency
300 West Adams Street, Suite 601
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** Available at www.FinancingSustainableWater.org*

Preface and Acknowledgements



The Alliance for Water Efficiency took on the challenge of producing this Handbook and rate model because of the alarming perception by utility managers throughout North America that conserving water and maintaining stable revenues are not compatible objectives. We wanted to prove this perception wrong, and to develop tools for all those involved in utility rate setting to foster a better understanding of how to successfully create water efficient communities with financially stable utilities.

The Handbook was produced under the direction of Thomas W. Chesnutt, Ph.D., CAP®, A&N Technical Services, Inc, with editing by Kenneth Mirvis, Ed.D., Principal of The Writing Company.

The primary authors of this Handbook and the accompany Sales Forecasting and Rate Model include:

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- John Farnkopf, P.E., HF&H Consultants, LLC

The following individuals contributed significant assistance, expertise, and content:

- Gary Fiske, MS, MPP, Gary Fiske and Associates
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- Boris Prokop, Ph.D., Borismetrics
- Sam Savage, Ph.D. CAP®, Stanford University

We also wish to express our gratitude to the water utilities that contributed expertise, experience, and data to this effort:

- California Water Services Company, San Jose, California
- Cobb County Water System, Marietta, Georgia
- Department of Water and Power, Los Angeles, California

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- Irvine Ranch Water District, Irvine, California
- Mesa Water, Costa Mesa, California
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- Tacoma Water, Tacoma, Washington
- City of Westminster, Westminster, Colorado
- Western Municipal Water District, Riverside, California

We gratefully acknowledge the members of the California-based Project Advisory Committee for their review and guidance during this project:

- Ronnie Cohen, California Water Foundation
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- Heather Cooley, Pacific Institute
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- Matthew Dickens, Valencia Water Company

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Lastly, we wish to recognize the California Urban Water Conservation Council for its seminal work on conservation rates since 1994, and particularly for its comprehensive examination of efficiency-oriented rate setting in its 1997 publication *Designing, Evaluating and Implementing Conservation Rate Structures,* also authored by Dr. Thomas Chesnutt. Our new work is meant to build on that important groundbreaking effort and would not have been possible without this foundational material, which is gratefully referenced throughout this Handbook.

Mary Ann Dickinson
President and CEO
Alliance for Water Efficiency

Megan Chery
Project Manager, Financing Sustainable Water
Alliance for Water Efficiency

COSA's focus on cost causation as the basis for equitable distribution of revenue responsibilities depends on effective customer classifications. Effective classifications enable utilities to impose differential rates based on differences in costs to serve different types of customers. Without them, COSA is largely limited to defining appropriate levels of fixed charges and volumetric rates on a system-wide basis.

Effective classification involves grouping customers with different usage characteristics into different classes. The traditional classifications of residential, commercial, industrial, and wholesale reflect these distinctions. In addition, some utilities also classify customers according to types of commercial operations or government sectors.

Classification helps address the principles cited by Bonbright, namely horizontal and vertical equity — horizontal equity meaning that similar customers are treated similarly, and vertical equity being that different customers are treated differently.[24]

Perhaps most importantly for this Handbook, classification is also a powerful mechanism for enabling water use efficiency-oriented rate setting. Utilities may segregate customers with similar consumption patterns and tailor price signals to the attributes of those customers and their consumption patterns. To the extent that residential customers exhibit similar usage patterns and peak-demand characteristics, carefully designed inclining block rate structures can provide price signals that reflect higher per unit costs of serving peak demands. On the other hand, imposing that same type of rate structure on customers that exhibit diverse consumption patterns, as is typical among general commercial classes — which is a heterogeneous class — may penalize larger customers for their relatively higher levels of consumption, irrespective of the relative efficiency of their water usage.

Advances in metering and billing technologies are creating a new platform for creating more discrete and precisely drawn classifications. These technologies even hold the promise of tailoring price signals at the individual customer level. Modern billing software systems, for example, can reference individual users' consumption histories to define the usage thresholds at which inclining block rate tiers should be imposed on that particular customer. This ability provides the basis for water budget-based rate structures mentioned below.

Design a Rate Structure

Building a better water rate structure requires an improved understanding of how different alternatives perform with respect to the desired objectives. Sadly, there are no simple, one-size-fits-all answers to the question "How should water rates be set?" Furthermore, establishing a one-size-fits-all approach would be impractical because rate objectives and rate performance relative to objectives differ so widely among utilities. As a result, this Handbook emphasizes the key principles and analytic tools needed to build better rate structures for individual utilities. When uncertainty is high and the stakes compelling — as is increasingly the case with emerging resource scarcities — the payoff of more active evaluation of rate alternatives can be profound.

24 H. Peyton Young (1994). *Equity: In Theory and Practice*. Princeton University Press.

Rate Structure vs. Rate Level

A foundational step in rate making is drawing the distinction between a rate structure and the rate level:

- **Rate Structure** — The form of the rates: differing combinations of fixed charges and volumetric rates that together form a shape, such as block rates, seasonal rates, or rates that differ by customer class.
- **Rate Level** — The magnitude or height of each specific component of the rate structure.

This distinction can help clarify controversy. The primary concerns address the *rate level*: what should be included in the set of water services offered by a water utility? What is an appropriate expenditure to secure that level of water service? What is the total level of rate revenue required to pay for those expenditures? The second-tier concerns address the *rate structure*: how to generate that level of revenue in a way that satisfies the multiple objectives of the utility and its customers?

Fixed vs. Variable Charges (Service Fees, Drought Surcharges, etc.)

When designing rates, utilities must determine whether to recover costs through commodity charges, which vary with usage, or fixed charges, which do not vary with usage. Revenue collected through commodity charges varies with the amount of water used by customers. Revenues from fixed charges, such as service charges and readiness-to-use charges, are not sensitive to use. Commodity charges send a message that consumers should conserve, while fixed charges provide no incentive to reduce water use. A common practice in rate design provides for recovery of costs that are sensitive to usage (such as pumping costs) from commodity charges, while recovering costs that are not caused by usage (such as connection costs) from the fixed charges.

Fixed charges have often been viewed as working in opposition to water conservation objectives by limiting the extent to which customers may reduce their bills through usage reductions. Nevertheless, when water utilities are facing revenue shortfalls, they sometimes turn to rate designs that recover a large share of their revenues through fixed charges. For an opposing point of view, see LaFrance (2011) "What to Do with Less." LaFrance argues that improved implementation of existing rate setting practices can correct many problems. He cites practices such as "truing up" revenues and costs with current water sales levels, developing more accurate sales revenue forecasts over a 3-5 year period, and empirically checking that reserves are sufficient to absorb risks. LaFrance concludes by stating "...raising fixed fees is not the only way to manage revenue risks—and perhaps is not the best way.[25]"

Three commonly used fixed charges are: service or customer charges, meter charges, and fixed charges with a quantity allowance. In occasional cases, fixed charges may be used to recover all of the utility's rate requirements.

1. **Service or Customer Charges**

   Service or customer charges recover costs associated with such activities as meter reading, billing costs, and other costs that the utility incurs equally per customer or per account. They are generally assessed uniformly to each account per billing period.

25 LaFrance (2011) *"What to do with Less,"* Journal AWWA, Nov. 2011, p. 6.

2. **Meter Charges**
   A meter charge is a fixed fee that generally increases with meter size. It typically recovers the customer-related costs that are a function of meter size, such as meter repairs. Meter charges and service charges may be combined in a utility rate schedule.

3. **Fixed Charge with Quantity Allowance**
   Fixed charges sometimes include a quantity allowance to recover the cost of a minimum amount of billable volume in each billing period in addition to the customer and meter costs. The usage allowance may be set at a level necessary for basic health and sanitary needs, typical indoor water use, or some other basis.

4. **Flat Rates**
   Flat rates recover annual revenue requirements without a volumetric component. They may be assessed uniformly system-wide, or they may vary by customer class.

Utilities can also create special charges for services, such as hook-up fees or system-development charges. These special charges can discourage system expansion in capacity-constrained water systems or encourage expansion in water systems with excess capacity.

The water demand of each individual utility – preferably broken down by well-defined customer classes – goes into determining the appropriate shares of total revenue recovery from fixed and volumetric charges. Utilities with seasonal demand may be able to advance load management objectives while also making revenue recovery more certain through higher fixed charges and strong volumetric price signals related to peak use. Utilities that face supply constraints and experience limited demand peaking may not reduce their revenue uncertainty by shifting shares of cost recovery between fixed and variable charges; rather, they should set price signals that reflect year-round supply scarcities.

Types of Efficiency-Oriented Rate Structures

There are a number of efficiency-oriented rate structures, each designed to incentivize more efficient water use by the customer. Choosing among the various rate structure options depends on the specific objectives to be achieved, and this directly relates to the attributes of water resource use found in the utility system. For example, inefficiencies may be the result of requirements to provide capacity to meet peak demands, which in turn might suggest an increasing block rate structure. To quote from the AWWA M1 *Manual of Water Supply Practices*:

> *"Because a system must be constructed to meet peak-day and peak-month water demands, system capacity is underutilized during non-irrigation seasons. Moreover, if the system were sized to meet the average demand or winter demand only, the resource and infrastructure demands could be much smaller. Consequently, an increasing block rate structure may be designed to recover the cost of constructing and maintaining extra capacity for the peak demands. Because this capacity is underutilized, the per unit cost of water is higher than for base capacity, which is used year round. In short, a block structure can remain consistent with, if not enhance, the relationship of rates to costs of service[26]."*

26 American Water Works Association (AWWA) *Manual of Water Supply Practices*, M1, *Principles of Water Rates, Fees and Charges, 6th Edition*, (2012), p. 112.

However, just implementing an increasing block rate may not be enough to incentivize water use efficiency. Poorly designed increasing block rates — those that do not consider exhibited water use characteristics — can frustrate water use efficiency objectives. By the same token, uniform volume rates for specific customer classes may send price signals that effectively convey the value of water.

Incentivizing water use efficiency through rate design involves three fundamental considerations:

1. The water demand patterns of concern.
2. The water usage characteristics of the ratepayers who are subject to the rate design.
3. The rate structure options available.

Depending on their demand patterns, there are significant differences in the strategies individual utilities may employ to stimulate water use efficiency under different supply and demand circumstances. If a utility with adequate water supplies faces acute peak demands, for example, the increasing block rate structure highlighted in the AWWA quote above may be compelling. It may not be compelling, however, for a utility with adequate peaking capacity but general supply challenges; instead, that utility might adopt uniform volume rates that reflect water supply development costs. Though one can make the case that promoting efficient water use is inherently beneficial since it supports stewardship of an environmental resource, the relative weight of this objective and the importance of ratemaking as a tool to achieve efficiency is likely to vary based on the level of water scarcity or other threats to water quantity.

Similarly, the importance of conveying water use efficiency price signals may increase in circumstances where water use patterns impose significant costs and delivery challenges. In this instance, there are important linkages between COSA and water use efficiency pricing. As a consequence, rate analysts should examine customer class water usage characteristics carefully, especially if certain levels of usage receive differential treatment. Where high volume residential users exhibit higher peaking factors than other residential users, for example, increasing block rates may convey the relatively higher unit costs of delivering water during peak demand patterns. However, if higher volume residential users do not exhibit higher peak period demands, they may be no more expensive to serve than lower volume residential users.

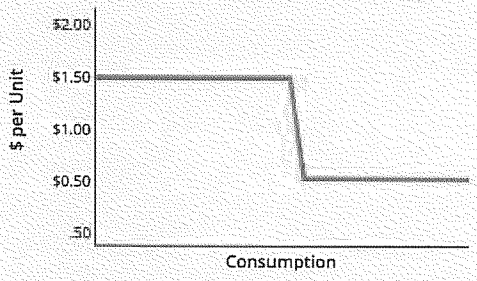
These complexities make it exceptionally important that the range of rate structure options and their relative advantages and disadvantages be known for advancing given policy objectives. Accordingly, provided below is a brief review of both traditional and emerging rate design options along with limited commentary on their merit for advancing the objectives of equity, water use efficiency, and financial resiliency.

Declining Block

In any examination of rate design options, it is also important to note the historic use of declining block structures, which still exist today in certain parts of the country.

Graph 1

Declining Block Comsumption Charge



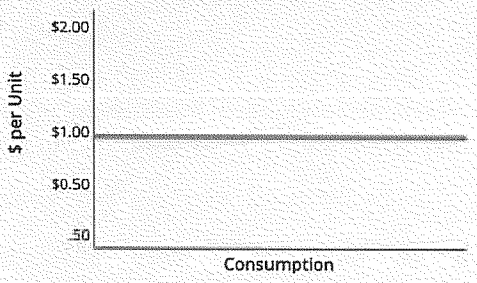
As displayed in **Graph 1**, declining block rates divide a customer's consumption into volume ranges or "blocks" and charge more for the initial units of consumption and less for later units of consumption. There is no standard limit to the number or size of blocks used in a declining block structure. Also, there is no standard for how steeply the blocks decline.

Declining block rates have often been regarded as anathema to water efficiency since they send a positive price signal for higher volumes of use. Interestingly, declining block rate structures had their origin in efficiency, as they presented an efficient rate for a declining cost industry. Economies of scale would reduce the average price if additional consumption could be encouraged. When there are no limiting factors, encouraging growth will encourage a lower average cost/price for all customers. Today, in what is recognized as an increasing cost industry, they provide an incorrect price signal to customers. As with any rate structure, the applicability of declining block rates must be assessed against the local conditions.

Uniform

Graph 2

Uniform Block Comsumption Charge



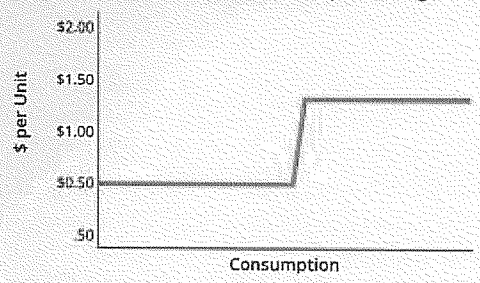
As displayed in **Graph 2,** a uniform rate is a single charge per unit of consumption. The charge remains constant for all metered consumption of water on a year-round basis. A customer's utility bill increases by a uniform amount for each additional unit of water consumed. Uniform volume rates can be an efficient water rate structure if the applicable rate conveys the full costs of water. Uniform rates are particularly appropriate when applied to customer classes composed of customers with relatively similar demand loads. Customer class-specific uniform rate designs that differ across classes based on cost-causative principles can have the effect of rendering more accurate, better tailored price signals that can promote water efficiency as opposed to system-wide inclining/ declining block rates that ignore cost-causation.

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Inclining Block

As displayed in **Graph 3**, increasing block rates also divide a customer's consumption into blocks but charge less for initial units of consumption and more for later units of consumption. As with the declining block rate structure, there is no standard number or size of the blocks, nor is there a standard for how steeply the blocks increase.

Graph 3
Inclining Block Comsumption Charge



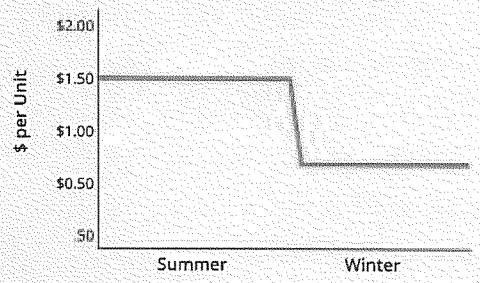
Inclining block rates have traditionally — and somewhat simplistically — been viewed as promoting efficiency because of the price signal that conveys higher costs for higher volumes of use. As noted in the AWWA M1 Manual, for utilities facing peak demand management, inclining block rates may indeed be appropriate, particularly for customer classes exhibiting relatively homogeneous demand patterns, such as residential users.[27]

However, in part because of the extent to which efficiency-oriented or conservation rates have been misinterpreted to equate to inclining block rates, it is important to recognize the limitations and appropriate applicability of this rate form. Poorly designed inclining block rates can be less effective in promoting efficiency than well-conceived declining or uniform volume rates, and they can impose profound inequities.

The crux of the matter lies in careful evaluation of the utility's exhibited demand patterns, most preferably by well-defined customer classes. Inclining block rates that provide meaningful incentives to alter usage levels within relevant ranges of use for the targeted customer group can be powerful for efficiency-oriented water rates. For example, inclining block residential rates that significantly increase the per unit cost of water that is associated with high irrigation demands can strongly incentivize customers to moderate their lawn watering practices. On the other hand, system-wide inclining block rates often have the effect of penalizing often relatively efficient large users simply for being large.

Seasonal

Graph 4
Seasonal Comsumption Charge



As displayed in **Graph 4**, seasonal rates impose different charges per unit of service based on the time of year. Generally, a utility will charge more per unit of consumption during the peak water demand season and less during the low demand season. Typically, utilities employ rates for summer and winter, but it is also possible to have more seasonal divisions.[28]

27 *American Water Works Association (AWWA) Manual of Water Supply Practices, M1, Principles of Water Rates, Fees and Charges, 6th Edition,* (2012)

28 Seasonal rates are generally not used for sewer service since billable wastewater flow contributions are generally invariant with changes in weather patterns.

Seasonal rates may be particularly appropriate, and they may promote efficiency in circumstances where the utility's sources of supply have differential availability on a seasonal basis and/or when exhibited demand patterns exhibit profound, cost-inducing, seasonal variations. For utilities seeking to extend efficiency signals to commercial and institutional users, seasonal rates are often more equitable than inclining block rate forms insofar as they reflect higher costs of seasonal use without imposing penalties simply on the basis of customer size.

All of these rate structures can be modeled and analyzed using the AWE *Sales Forecasting and Rate Model*.

Innovative Rate Structures

In addition to the traditional volumetric rate structure options, some communities are implementing rate structures — or components of rate structures — to send precise price signals to individual users and/or to reflect the economics of water services delivery. These rate structures or concepts include surcharges, water budget-based rates, marginal or incremental cost pricing, and value of service pricing.

1. **Surcharges**

   Surcharges may be added to fixed charges or to the base volumetric rates ($/hundred cubic feet) for some or all of a utility's customers for two general purposes. Surcharges may be assessed to collect a targeted amount of revenue for a specific purpose, or they may be designed to send a price signal to customers during a specified period of time, such as during a drought, to support water use efficiency programs, or to fund special water supply development initiatives. The effectiveness of surcharges in sending efficiency-related price signals depends on the clarity of the need.

2. **Water Budget-Based Rates.**[29]

   Water budget-based rates, which are also sometimes called goal billing, allocation-based rates, or customer-specific rates, establish rate blocks based on specific characteristics of each customer, such as persons per household, lot size, or evapotranspiration requirements of landscaping. Rates rise as usage exceeds the pre-established budget goal. The distinguishing characteristic of water budget-based rates is the way in which the rate block is defined rather than the pricing. These examples of water-budget-based rates offer an illustration:

   - **Evapotranspiration-based water budgets for separately metered irrigation-only customers:** The utility defines a goal for each irrigation-only account by combining a customer-specific estimate of landscaped area with an estimate of evapotranspiration requirements. The utility may visit the site or use commercially available real estate data to establish the area. Local weather data can provide the information needed to estimate evapotranspiration.

29 *"Water Budgets and Rate Structures — Innovative Management Tools,"* American Water Works Association Research Foundation, (Project 3094), 2007.

- **Water budget-based rates for single-family residential customers:** Single-family residential account water-use goals require consideration of both indoor and outdoor uses. Outdoor water use allotments may factor in irrigable area, house footprint area, driveways, and pools. Indoor water allotments may either be based on an amount per person or household.
- **Budget-based rates for nonresidential customers:** Commercial, Industrial, and Institutional (CII) users may have customer-specific rates established by analyzing their historical water use and their industrial processes. This analysis may require a relatively intensive information-gathering effort of surveys with follow-up. Historically, water budget-based rates have been difficult to enact for commercial customers.

Budget-based water rates were pioneered in communities facing limited water supplies or shortages. They require public education and communication efforts, ongoing customer service to address questions, complaints, and appeals, and they may put a demand on billing system capabilities.

That said, the concept of water budget-based rates has considerable appeal as a mechanism to encourage efficient water use practices and to distribute revenue responsibilities equitably within customer classes. In communities that have historically encouraged water conservation, budget-based rate structures may become successful aids to conserving water. These water budget rate structures are often more expensive to administer,[30] but for many utilities, the benefits they produce may outweigh their costs over time. They may have particular appeal because they convey precisely focused efficiency price signals, and they have been perceived by customers as being fairer than other rate structures.[31] When collected revenue exceeds goals, water budget-based rates have also been used to help fund dedicated water use efficiency or watershed programs.

30 With advances in water metering and billing technology, both the administrative cost and accuracy of water-budgeting is likely to make this form of rate more viable in future.

31 As noted in the WRF Report (op cit.) budget-based rates have been criticized as less than perfectly efficiency-oriented because they primarily aim to improve water use efficiency of current landscape (short-run efficiency). Budget-based rates may provide insufficient incentive to change to a more efficient landscape mix (long-run efficiency). Other critics have cited this and potentially more fundamental flaws. (Beecher, 2011) These rates represent a tradeoff that communities have made between administrative costs, equity of water shortage allocations, and short- and long-run water efficiencies.

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EXHIBIT – 14

February 24, 2016

Detroit City Council
DWSD Board of Water Commissioners
Detroit Water and Sewerage Department

The Detroit Blue Ribbon Panel on Affordability (BRPA) is pleased to submit the attached report on its findings and recommendations to address water affordability issues. Our report reflects our consideration of information on the circumstances in Detroit, the City's ongoing initiatives to improve Detroit Water and Sewerage Department (DWSD) customer service, and options that may be implemented by DWSD to address low-income customer needs.

We have developed recommendations that recognize the acute and immediate needs of low-income customers while also acknowledging practical limitations imposed by DWSD's antiquated billing, collection and customer service systems. Our recommendations also recognize that differences of opinion prevail about the legality of the income-indexed rate component of the proposed Water Affordability Program – and do not rely on resolution of that matter. Legislation to enhance options is recommended and may also rectify legal ambiguities.

In the short term, we recommend that customer assistance be expanded, to the extent practical, through allocation of non-rate sources of funding. These programs may help address the needs of Detroit's most economically disadvantaged. We also recommend that in-progress customer service initiatives be amplified in collaboration with community stakeholders. Longer term, we recommend implementation (as soon as practicable) of carefully designed increasing block water and sewer rate structures applicable to all residential users (rather than income-indexed rates applicable to income qualified customers). Though we understand that no set of water affordability measures may solve the problems of endemic poverty in Detroit, we assert that our recommendations can mitigate some of its most searing effects.

We would like to acknowledge the participation of DWSD's leadership team who provided invaluable insight into the Detroit context and substantive initiatives already in progress. We earnestly hope that our insights, findings and recommendations prove helpful in mitigating the City's daunting water affordability challenges and promoting universal access to water service for all Detroiters.

The Blue Ribbon Panel on Affordability:

Janice Beecher, Ph.D.

Julie Kavanagh

Scott Rubin

Mary Blackmon

Karla Marshall

Demeeko Williams

Julius Ciaccia

Robert Miller

Roger Colton

Eric Rothstein (Chair)

EXHIBIT
Rothstein 3

February 16

City of Detroit Blue Ribbon Panel on Affordability

FINAL REPORT

Prepared by Galardi Rothstein Group
Contract #CS-1787

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Executive Summary

One of the most acute consequences of the City of Detroit's historic decline has been the growth in the number of low-income customers encountering difficulties in paying their water and sewer bills. Over the years, these problems in one of the nation's poorest large cities have led to abysmal bill- collection rates and large numbers of service disconnections. In 2005, related concerns led to the proposal of a Water Affordability Program for the City of Detroit that featured an income-indexed rate proposal. Although that proposal was not implemented, in part because of potential challenges under Michigan law, persistent concerns about water affordability remained – and intensified in October 2014, when service disconnection protests gained international attention. Concurrent with these challenges, the southeastern Michigan region is embracing a new institutional structure for water and sewer service in the form of the Great Lakes Water Authority (effective January 1, 2016). The Authority is now responsible for providing water and sewage treatment and transmission service to wholesale customers and the City of Detroit, while the Detroit Water and Sewerage Department (DWSD) retains responsibility for delivering retail water and sewer service to its customers.

In May 2015, faced with meeting its financial obligations to the planned regional authority while also recognizing the financial struggles of Detroit residents, the Detroit City Council expressed renewed interest in investigating the feasibility of the Water Affordability Program originally proposed in 2005. In October 2015, the City of Detroit convened a Blue Ribbon Panel on Affordability (BRPA), composed of national experts and local stakeholders, to collectively identify and evaluate options to address low-income customers' challenges in paying water and sewer bills and the subsequent service disconnections. The panel met four times between October 2015 and December 2015 and made the following findings:

- No single rate design or assistance program can adequately address the diverse, multi-dimensional poverty and water affordability challenges that persist in Detroit, or elsewhere, though progress can be made through a multi-pronged, long-term affordability program. Implementing an array of options may reduce overall system costs and more equitably distribute cost responsibilities by avoiding selected billing and collection expenses and broadening the population of paying customers.
- Among the options considered, increasing-block rate designs for both water and sewer services would be an effective pricing structure for addressing water affordability issues in Detroit. By contrast, an income-indexed rate component, such as that included in the Water Affordability Program initially proposed to DWSD in 2005, would be more susceptible to legal challenge, more difficult to implement and administer, and less broadly based due to the income-qualification provision of this rate design.
- DWSD may be able to augment funding of bill payment and water conservation assistance programs for qualifying low-income customers by directing revenues from activities other

than water and sewer service sales (i.e., non-rate revenues) toward this purpose. These funding allocations require consideration of potential legal and financial implications.

- New DWSD leadership is appropriately prioritizing the improvement of its retail billing and collection systems and practices. These actions should result in improvements for all DWSD retail customers, especially those encountering payment challenges.
- Implementing alternative rate structures and selected changes to billing and collection practices that require billing software and data management changes will require approximately two years, and possibly longer.
- As acknowledged by new leadership, cultural change is needed in DWSD to emphasize responsive and compassionate retail customer service.
- Water affordability is significantly affected by the overall costs of service and the allocation of shares of cost responsibilities across system users.
- Community groups and activists have been instrumental in highlighting the plight of low-income customers in Detroit, and they should play a critical role in ongoing efforts to improve water affordability.

Centering on these and related findings, the BRPA identified a number of recommendations for short- and long-term actions that DWSD may take, as well as opportunities to advocate for state and federal policy measures to help address water affordability. These recommendations include:

- In the near term, DWSD should evaluate and, to the extent practical, expand funding of bill payment and water conservation assistance programs from non-rate funding sources. Expanded assistance program funding and outreach can help address the needs of the most economically disadvantaged customers.
- In the near term, DWSD should dedicate necessary financial and managerial resources to expedite improvement of billing, collection, and other customer services, placing a high priority on converting from address-based accounts to assigning accounts to financially responsible parties. DWSD should continue pursuing opportunities to enhance efficiency and customer service through partnerships with DTE Energy and other utility service providers.
- DWSD should carefully design and implement increasing-block rate structures for water and sewer services as soon as practical, recognizing the limitations of its existing billing system and customer service processes. The rate structures should be based on cost-of-service principles and promote end-use efficiency, while ensuring that minimum levels of service required for health and sanitary purposes are more broadly affordable. Rate structure revisions also must be designed to ensure Detroit continues to generate

adequate revenues to meet all of its obligations, including those to the GLWA as specified under the recently executed leases and service agreement.

- DWSD should address potential financial and legal constraints on expanding its assistance program offerings to provide water conservation and plumbing repair assistance, administered through third-party service providers.
- DWSD should pursue efficiencies in retail operations and advocate for GLWA to realize similar efficiencies. It should actively participate in forthcoming reviews of GLWA cost allocation methodologies and ensure equitable distributions of cost responsibilities.
- The City of Detroit and DWSD should actively engage in developing State of Michigan legislation that would establish new revenues (such as water withdrawal fees) to support water utility affordability programs.
- The City of Detroit and DWSD should actively endorse proposed federal legislation to establish a water and sewer equivalent to the federal Low-Income Home Energy Assistance Program (LIHEAP).

Detroit Blue Ribbon Panel on Affordability

The BRPA was convened in response to the concerns of Detroit City Council, new DWSD leadership, and the general public regarding water and sewer service affordability in the City of Detroit. Supported by DWSD, the BRPA comprised national experts and local stakeholders engaged in water affordability issues. The panel reviewed information about the nature and magnitude of the affordability problem in Detroit and identified a number of potentially responsive mitigating options. The BRPA and DWSD leadership evaluated these options through a structured decision process using well-defined evaluation criteria. They also acknowledged that water affordability measures would serve only to mitigate, and not solve, the plight of endemic poverty. The findings and recommendations of the panel reflect this evaluation process.

Affordability Challenges

Nationally, water and wastewater utilities face the dual challenges of: (1) generating revenues sufficient to support infrastructure development and renewal, and (2) advancing universal access[1] to services considered essential for human health and welfare. This dichotomy is amplified by economic conditions in Detroit, making it in some senses "ground zero" for the national water affordability challenge.[2] Detroit is ranked as among the poorest major metropolitan areas in the United States according to the U.S. Census Bureau (2015), with an exceptionally high poverty rate coupled with a substantial loss of population. Although housing in Detroit is relatively affordable, the city is also challenged by relatively poorly valued housing

[1] Universal access to service in this context includes not only the extension of service to all households within the service area seeking connection, but also reducing involuntary service disconnections.

[2] Selected BRPA members noted that water affordability challenges may be viewed as symptomatic of a larger set of problems arising from outmigration from urban centers by higher income populations, leaving fixed costs of municipal infrastructure and services to be borne by remaining, often less economically advantaged, populations.

stock. At the same time, charges for water and sewer (including drainage) services in Detroit are among the highest in Michigan, and relatively high when compared to other major metropolitan communities in the United States. Moreover, legal constraints on water and sewer service pricing, and on the use of system revenues to assist low-income households, are seen to be more acute in Michigan than in many other states.

Water Affordability Options

Options considered by the BRPA were divided into three general categories: rate structures, customer assistance, and billing and collection procedures. Rate structure options affect all customers depending on design, while customer assistance options are targeted and specially funded measures based on income qualification. Billing and collection options focus on improving practices to be responsive to low-income customer needs. The options that the BRPA reviewed and evaluated were:

Rate Structure Options

- Income-indexed rates (as proposed under the Water Affordability Program)
- Fixed charges including a quantity allowance
- Increasing-block rates (with an initial rate to make minimal levels of service more affordable)
- Property-value-based charges to reflect the cost and value of fire protection[3]

Customer Assistance Options (Income-Qualified)

- Bill assistance
    - General assistance
    - Amnesty program (as proposed by the Detroit Water Brigade)
- Water conservation and plumbing repair

Billing and Collection Options

- Payment plans with disconnection avoidance
- Payment plans with arrearage forgiveness
- Budget billing
- Alternative billing scheduling

Option Evaluation

The BRPA evaluated the identified options using a simple, multi-attribute scoring and ranking procedure. Evaluation criteria included:

- Risk of potential legal challenge

[3] A related option would be a property tax for fire protection, with the associated revenue stream dedicated to the utility and made available to fund low-income assistance programs. Another noted option involves limiting flow (through installation of a flow-restricting device) to reduce the effective service size and, therefore, rates and bills applicable to flow-restricted accounts. These concepts were mentioned but not discussed at length by the BRPA nor made subject to the option evaluation process.

- Extent of assistance in terms of the number of households reached
- Extent of assistance in terms of durability
- Water resource efficiency
- Overall fairness
- Practicality in terms of implementation and understanding

Based on the evaluation criteria, the highest-ranking options by category were: (1) increasing-block rates, (2) bill assistance programs, and (3) payment plans with disconnection avoidance. Water conservation assistance programs and budget billing also scored relatively highly. The above-listed findings and recommendations were informed, in part, by this option evaluation.

Acknowledgements

BRPA members and DWSD leadership team staff dedicated numerous hours and extensive effort to this process. Special thanks are extended to national experts Janice Beecher, Julius Ciaccia, and Robert Miller, who volunteered their time. Local insights and perspectives were particularly important to informing this work and were ably provided by Mary Blackmon, Julie Kavanagh, Karla Marshall, and Demeeko Williams. Scott Rubin and Roger Colton not only offered extraordinary insight from their national work on these issues but also, with local assistance, helped the panel understand the Michigan legal framework. Deputy Mayor Carol O'Cleireacain provided invaluable policy insight with regard to implementation practicalities. Meeting summaries and logistics were smoothly handled through the exceptionally capable assistance of the Project Innovations team of Charles Fleetham, Teresa Weed Newman, and JoAnna Trierweiler. Lastly, the participation of the DWSD leadership team staff – Gary Brown, Marcus Hudson, Palencia Mobley, and Robert Presnell with support from Renee Baker – was extremely valuable in informing and setting the stage for implementing the BRPA's recommendations.

Blue Ribbon Panel on Affordability

Background

The Detroit Blue Ribbon Panel on Affordability (BRPA) was proposed to the Detroit City Council in spring 2015 in the context of considering proposed FY 2015-16 retail water and sewer service rates. The concept, outlined by the City's then-Chief Operating Officer, was to convene a panel of both national experts and regional stakeholders to address continuing concerns regarding water affordability for low-income customers in the City of Detroit. Acceptance of the concept was signaled by the Detroit City Council's adoption, on May 12, 2015 of a resolution entitled: "Resolution Supporting Collection And Analysis Of Adequate Data To Evaluate Creation Of A Water Affordability Plan Before Resuming Residential Water Shutoffs."

The BRPA's review comes at a meaningful time in the history of water and sewer services in southeastern Michigan. On September 9, 2014, the Emergency Manager and the Mayor of the City of Detroit; the County Executives of Macomb, Oakland and Wayne counties; and the Governor of the State entered into a Memorandum of Understanding for the purpose of establishing a regional authority to operate, control and improve the water supply and sewage disposal systems operated by the Detroit Water and Sewerage Department (DWSD). On June 12, 2015, leases for these systems were approved by the Great Lakes Water Authority (GLWA) Board and Mayor of the City of Detroit that contemplate, among other things, for the GLWA to include in its revenue requirements a $50 million per year allocation to fund capital improvements in the City of Detroit, and a 0.5 percent allocation of GLWA and DWSD revenues to fund a Water Residential Assistance Program (WRAP) for low-income residents in the GLWA service area. The GLWA's Effective Date was January 1, 2016, initiating the conversion of DWSD to serve solely as a retail services provider to City of Detroit customers.

Detroit is required under the terms of the leases to meet all its financial obligations, and it is subject to greater scrutiny of its financial management than any GLWA wholesale customer. For some time, Detroit retail collection rates have been materially below those of other major metropolitan water and wastewater systems, many of which serve substantial low-income populations. Also in recent years, in the face of exceptionally high poverty rates, several plans and initiatives have been put forward to address the affordability of water and sewerage services for low-income customers in Detroit. These have included a number of donation-funded assistance programs, as well as a proposed Water Affordability Program[4] to redesign DWSD's rate structure.

[4] "A Water Affordability Program for The Detroit Water And Sewerage Department (DWSD)," prepared by Roger Colton, Fisher Sheehan & Colton, Public Finance and General Economics, January 2005. In a related development, on November 19, 2015, the Philadelphia City Council adopted legislation authorizing a process for creating a similar income-based billing and debt forgiveness program for the Philadelphia Water Department. The law took effect December 1, 2015, and has not yet been implemented by the Philadelphia Water Department. Information requested on the legal basis for and financial implications of these options in Philadelphia is not available at this time.

Given the acute needs in Detroit and prospective obligations to GLWA, the City of Detroit is interested in identifying and considering new and complementary approaches to making water more affordable that are practical and viable within the bounds of Michigan law.

Purpose and Scope

While the findings and recommendations of the BRPA may inform national and regional discussions on water affordability issues, the specific charge of the BRPA was to identify and evaluate the merits of options that may be used to mitigate water affordability challenges facing low-income residents of the City of Detroit. The BRPA's scope of inquiry was to:

- Assess the barriers to, and options for, implementing alternative water and wastewater rate structures to address affordability concerns – including, in particular, the income-indexed rate structure contemplated in the proposed Water Affordability Program considered by the Detroit City Council.
- Identify utility billing, collection and customer service enhancements that may render assistance for low-income customers' management of their water and sewer bill payments.
- Assess the existing array of programs available to Detroit residents, including the forthcoming GLWA Water Residential Assistance Program (WRAP), and identify options for modifying or complementing these assistance programs. Evaluate the viability of assistance programs and other measures used by other water and sewerage utilities across the United States in terms of their potential application in Detroit.
- Evaluate the available data and information sources to characterize the extent of low-income water and sewerage assistance needs in the Detroit (and GLWA) service area and identify future research needs.
- Identify options to enhance funding of available assistance programs through private donations and related fundraising activities.

The BRPA's findings and recommendations will be presented for consideration to the DWSD Board of Water Commissioners and Detroit City Council.

Membership and Review Process

With the intent to identify practical and legally sustainable options to address water affordability concerns for Detroit's low-income customers, BRPA members were selected to provide relevant national expertise and experience, and/or insight into local and regional dynamics. National experts, asked to represent their professional experience and provide their personal perspectives rather than that of their employers, included:[5]

[5] Paragraph summaries of these national experts' experience are provided as Appendix I. Howard Neukrug, Chief Executive of the Philadelphia Water Department (or a designee), was also asked to participate but was unable to attend the workshops due to scheduling conflicts.

- Janice Beecher, Director, Michigan State University Institute of Public Utilities
- Julius Ciaccia, Chief Executive Officer, Northeast Ohio Regional Sewer District
- Roger Colton, Co-Founder, Fisher, Sheehan & Colton
- Robert K. Miller, Deputy Director, Sewerage and Water Board of New Orleans
- Eric Rothstein, Principal, Galardi Rothstein Group (Chair)
- Scott Rubin, Attorney at Law

Regional members included:

- Mary Blackmon, DWSD Board of Water Commissioner
- Julie Kavanagh, Macomb County Community Services Agency
- Karla Marshall, Policy Analyst, Detroit City Council Member Scott Benson
- Demeeko Williams, Political Director, Detroit Water Brigade

The BRPA conducted its review through a series of four workshops held in downtown Detroit between mid-October and mid-December 2015. Workshop agendas are provided as Appendix II. These workshops featured a number of presentations by BRPA members and DWSD staff as well as facilitated discussions. The BRPA was provided background information, particularly with respect to Michigan law (see listing below).

The discussions centered on identifying and evaluating specific options that could be implemented by DWSD to address water affordability issues. Following initial discussions, options were grouped into three major categories: (1) Rate Structure Options, (2) Customer Assistance Options, and (3) Billing and Collection Options. Each set of options contemplates specific measures to address the plight of low-income customers.

In addition, BRPA members and DWSD staff echoed the point that a general and fundamental way to address water affordability is to effectively manage the overall costs of providing service through efficient operations. Also, for the City of Detroit, it is a fundamental requirement to ensure that their assigned allocation of GLWA cost responsibilities is reasonable, appropriate and reflective of GLWA's costs to provide services to the City of Detroit. This requirement underscores the importance of forthcoming reviews of GLWA cost allocation methodologies and the need to ensure equitable prospective distribution of costs of service across GLWA customers.

Information Reviewed

In light of the considerable advocacy related to the proposed Water Affordability Program and the Detroit City Council's resolution, the BRPA was provided selected legal opinions that have been developed regarding DWSD's ability under Michigan law to implement the proposed program. These opinions, as well as the Bolt vs. Lansing decision they reference, are listed below:

- Memorandum: "Legal authority for low-income affordability discount," by Roger Colton for Detroit Blue Ribbon Panel on Affordability, October 27, 2015
- Memorandum: "Legality of Water Affordability Plan (WAP)," by David Whitaker, Director, City of Detroit Legislative Policy Division, October 21, 2015
- Memorandum: "Whether the Detroit Water and Sewerage Department Has the Legal Authority: 1) To Establish a Water Rate for Low-Income Residents That Would be Lower Than the Cost of Service; and 2) To Raise the Water Rates of Other Customers to Cover the Revenue Shortfall Created by the Low-Income Rates," Detroit Law Department (Robert C. Walter, Senior Assistant Corporation Counsel), February 8, 2006
- Memorandum: "Constitutionality of Water Affordability Program for Detroit," Sean Flyn, Spiegel & McDairmid to Professor Lorray Brown, Michigan Poverty Law Center, September 26, 2005
- Memorandum Re: "Subsidy for Senior Citizen Water Bills," Richard J. McClear, Dykema Gossett PLLC, September 24, 2001
- Alexander BOLT, Plaintiff-Appellant, v. CITY OF LANSING, Defendant-Appellee, Docket No. 108511.Calendar No. 4 (455 Mich. 152 [1998])

The BRPA was also referred to, or provided, a number of other documents to offer more background information or fuller discussions of issues touched on in the panel's deliberations. These included:

- City of Philadelphia, Pennsylvania Ordinance (Bill No. 140607-AA), An ordinance amending the Philadelphia Code: §19-1605. Limitation on Action to Enforce Collection; Income-Based Water Rate Assistance Program
    - November 19, 2015 Press Release: "Philadelphia Water Proud to Create Water Affordability Program and Conservation Education for Low Income Customers"
- "Thirty Point Water Quality, Conservation Education & Affordability Policy Recommendations for Residential Customers in Single Family Homes & Apartment Complexes" (DRAFT), by Demeeko Williams, Political Director, Detroit Water Brigade
- "Cleaner Rivers for the National Capital Region: Sharing the Cost," by Carol O'Cleireacain, Brookings Institution Metropolitan Policy Program, May 2012
- Low-Income Rate Affordability Assistance: 25 Years of Independent Third Party Evaluations (December 2014), a bibliography compiled by Roger Colton
- John Cromwell, et al. (2010). Best Practices in Customer Payment Assistance Programs, Water Research Foundation: Washington D.C.

- U.S. Conference of Mayors, et al. (2013), Assessing the Affordability of Federal Water Mandates: An Issue Brief, U.S. Conference of Mayors/American Water Works Association/Water Environment Federation: Washington D.C.

As noted, several of the national experts on the BRPA, as well as DWSD staff, also presented information on a broad array of related subjects ranging from national rate trends to local billing and collection system constraints and initiatives. These presentations are collected and provided as Appendix V.

Affordability Challenges

The BRPA's efforts initially were framed by a discussion of the challenges related to water and wastewater service pricing and water affordability in the United States generally, and Michigan and Detroit specifically. Water and wastewater pricing challenges relate to historical underpricing of these services and rising infrastructure costs, while water affordability challenges stem from the danger of rate increases outstripping low-income customers' ability to pay for an essential service.

> Water Affordability – *a subjective term conveying customers' ability to pay their utility bills (and thereby meet the utility's financial needs) without undue hardship. For some, unaffordable bills may reflect a fundamental mismatch between the household's utility bill and available income.*

National Issue – The Affordability Dichotomy

Water and wastewater services have been, and continue to be, underpriced relative to both their actual cost and value in many U.S. communities. Federal subsidies, earlier through construction grants and currently through low-interest loan programs, offset system infrastructure costs. Asset renewal and replacement rates, though improving with the growing emphasis on asset management, continue to lag system depreciation rates. Prices based on cost accounting also do not reflect environmental and social externalities, negative and positive, in the absence of taxes or fees toward this end.[6]

For the water and wastewater sector to be financially sustainable over the long term, either governmental subsidy will need to continue and increase, or service pricing will need to match industry cost inflation rates (or both).[7] Given the continued trends of declining rather than increasing national investment in water and wastewater infrastructure, declining per capita

[6] Issues related to addressing market externalities are discussed in, for example, "Why Public Utilities Should Ignore Market Externalities," by Jan Beecher in United States Association of Energy Economics Dialogue, v19, (1) 2011 and "Financing Water Utilities' Sustainability Initiatives: Challenging Institutionalized Governance and Market Failures," by Eric Rothstein and Deborah Galardi, 2012 Water Sustainability Conference (AWWA).

[7] There are numerous discussions of the national water and wastewater infrastructure funding challenge available including, for example: *Buried No Longer: Confronting America's Water Infrastructure Challenge*, American Water Works Association: Washington D.C.; *Drinking Water Infrastructure Needs Survey and Assessment, Fifth Report to Congress*, USEPA, Office of Water (4606M) EPA 816-R-13-006, April 2013; *Opportunities & Challenges in Clean Water Utility Financing and Management*: Financial Survey Highlights, NACWA, February 2015.

usage, and ever-increasing operating costs (labor, energy, chemicals, and equipment) for water and wastewater systems, it is not unreasonable or necessarily inappropriate for water and wastewater rates to continue to rise for the foreseeable future.[8] Water rates that reflect the cost of service are considered appropriate in terms of sending price signals that encourage efficient usage.

However, the inexorable (and likely necessary) march toward higher water and wastewater service pricing portends a decline in the affordability of these vital services, particularly for low-income households. Indiscriminate rate increases without regard to water affordability will result in further economic dislocation for community residents, and billing and collection challenges that will compromise intended revenue recovery. Nationally, water and wastewater utilities are challenged with a dichotomy that on the one hand demands increasing revenue generation to support infrastructure development, renewal, and upgrade while on the other hand calls for advancing universal access to essential services.

Detroit Context

The national affordability dichotomy is amplified by circumstances in Detroit, making it in some senses "ground zero" for measures to address water affordability challenges. These circumstances include:

- **Poverty Rate**. U.S. census data show the City of Detroit's poverty rate at 39.3% for the period 2009-2013, over 2.5 times higher than the U.S. poverty rate and over 2.3 times higher than that for the State of Michigan. Detroit is ranked as the poorest major metropolitan area in the United States.
- **Housing Stock**. Though housing in Detroit is relatively affordable, the housing stock is poorly valued with the median value of owner-occupied housing units at $45,100 for the 2010-2014 period as compared to $175,700 nationally and $120,200 in Michigan. Despite these low values, home ownership lags in Detroit at 50.7% as compared to 64.4% nationally and 71.5% in Michigan.[9]
- **Water and Sewer Rates.**[10] Based on recent national survey data,[11] Detroit's water and sewer (including drainage) charges are among the highest in the United States. Detroit

[8] Water and wastewater rates have been increasing at roughly double the rate of inflation for at least the last decade and generally are projected to continue to increase at rates well above inflation. See, for example, the annual water and wastewater rate surveys conducted by the American Water Works Association (AWWA) or the National Association of Clean Water Agencies' (NACWA) bi-annual financial survey reports.

[9] Unless otherwise noted, all demographic statistics are drawn from: U.S. Census, American Community Survey, Quickfacts for the U.S., Michigan and City of Detroit.

[10] Water service rates include a meter charge ($6.61 for a standard 5/8-inch meter) and volumetric charges of $22.76 per 1000 cubic feet. Sewer charges include a charge per bill of $5.94 and volumetric charges of $50.21 per 1000 cubic feet. A drainage charge currently based on meter size is also in place and is $19.66 for residential customers served by a 5/8-inch meter. The drainage charge is to be revised in 2016 and based on impervious area.

[11] Water and Wastewater Rate Survey conducted by the American Water Works Association / Raftelis Financial Consultants (2014).

residential users using 500 cubic feet of water per month would be charged $824.34 annually, or approximately 3.16% of Detroit's median household income of $26,095 for the period 2010-2014.

- **Water Shut-Off / Payment Plan Experience**. Detroit has experienced a number of acute challenges with billing and collections, particularly over the last decade. Since (at least) 2005, concerns about service disconnections have given rise to different payment plan arrangements,[12] demonstrations and calls for shut-off moratoria, and associated litigation.

- **Prospective Obligations to / Support from the GLWA**. The water shut-off controversies are a symptom of billing and collection challenges that have resulted in Detroit experiencing atypically low collection rates. For FY 2016, service rates were calculated under an assumption of 85% collection on City of Detroit retail billings – imposing significant collection-related expenses that must be shouldered by paying customers. Prospectively, the leases of the City's regional water and sewer system assets are predicated on Detroit retail customers meeting all of their financial obligations to the GLWA. At the same time, eligible City retail customers (as well as other eligible GLWA customers outside the city) will be able to access the GLWA's forthcoming Water Residential Assistance Program (WRAP).

- **Michigan Legal Environment** – Legal constraints on water and sewer service pricing, and on the use of system revenues to render payment assistance, are seen to be more acute in Michigan than in many other states. The Headlee Amendment to the Michigan constitution and the Michigan Supreme Court's decision in *Bolt vs. Lansing*[13] generally have been interpreted to require that water services be priced based on the costs of service, and not on non-cost factors such as income or ability to pay. Also, Headlee and *Bolt* suggest that revenues collected from all utility customers should be used to pay system costs and may not be used to benefit a specific class of customers.

  There are differences of opinion as to the extent to which these attributes of Michigan's legal framework constrain Detroit's rate setting and customer assistance program funding options. For example, some contend that an income-indexed rate option would not sustain a challenge; others contend Michigan law is permissive. While it remains an open question, the reality of these differing viewpoints affects the potential for selected options to be subject to (potentially costly) legal challenge.

Cumulatively, these circumstances make Detroit's challenges more difficult and at the same time more important to address substantively. Approximately 100,000 of the 250,000 households in

[12] Information on the current 10-30-50 payment plan arrangements is available on the DWSD website at: http://www.dwsd.org/pages_n/homelinks.html#10_30_50.
[13] 459 Mich. 152, 587 N.W.2d 264 (1998).

Detroit are living below the federal poverty line; thousands of additional Detroit residents live with income exceeding the official poverty line, but below the level necessary to meet essential household needs without experiencing hardship. This essentially defines Detroit's water affordability challenge.

City of Detroit / DWSD Role

Though Detroit's water affordability challenge is undeniable and as daunting as anywhere in the United States, a fundamental question discussed by the BRPA relates to the appropriate role of the City, and by extension DWSD, in addressing the challenge. BRPA members generally concurred that water rates and shutoff policies cannot solve endemic problems of poverty in the region. However, the BRPA's national experts noted that utilities across the country have adopted different postures with respect to public water and wastewater utilities' social responsibilities. Some have asserted that utilities are in place to deliver services efficiently and effectively without regard to customers' economic or social standing. Others have adopted a view that working to advance universal access to essential life services in their communities is fundamental to their public role. In the case of Detroit, at least two factors suggest an expansive view toward DWSD's social responsibilities that would embed affordability considerations within DWSD's mission.

> "The people have a right to expect city government to provide for its residents, decent housing; job opportunities; reliable, convenient and comfortable transportation; recreational facilities and activities; cultural enrichment, including libraries and art and historical museums; clean air and waterways, **safe drinking water and a sanitary, environmentally sound city**."
> (emphasis added)
>
> - *Charter of the City of Detroit, Declaration of Rights*

First, the right to expect city government to provide safe drinking water and a sanitary environment is included in Detroit's City Charter. Second, the Mayor and Detroit City Council have consistently expressed water affordability concerns and instituted a variety of measures – including payment plan options, assistance programs, and creation of the BRPA itself – to help advance universal access to water services.

In addition, because past due and uncollectible billings represent a significant expense for DWSD, developing rate and programmatic approaches to address affordability may improve DWSD's overall financial performance. For FY 2016, retail water and sewer unit charges were set under an assumption of a 15% uncollectible rate – equivalent to approximately $55 million per year. DWSD budgeted approximately $1.6 million in FY 2016 for expenses directly related to delinquent account collections, specifically service disconnections, and additional costs for related administrative expenses (e.g., reconnection and late payment fee collections, payment plan administration). There is a business case for structuring rates and charges, assistance

programs, and collection policies to mitigate fundamental water affordability problems (in addition to ensuring the financial sustainability of system operations).[14]

DWSD Billing and Collection

Unfortunately, Detroit is hampered by a legacy of billing and collection processes, practices and systems that will constrain the emerging retail DWSD's ability to enhance customer service in a timely fashion. Perhaps the most problematic of these practices was the association of accounts in the DWSD billing system with the address location where services are provided, rather than with the party that has financial responsibility for payment. This disassociation has resulted in a host of problems too numerous to catalogue here.

> "[G]etting away from billing to 'resident' and billing by name directly to the property owner will shift the burden to where it belongs, which is consistent with most water and sewer utilities in this country."
> -Julius Ciaccia, NEORSD CEO and BRPA Member

In response, new retail DWSD leadership has established a number of major initiatives to rectify the systemic problems with DWSD billing and collection processes and procedures, and to improve customer service. These include the laborious processes of associating address-designated accounts with financially responsible parties, upgrading software, redesigning business processes, and ensuring consistent application of service disconnection rules. DWSD leadership is committed to staffing billing and collection operations with trained personnel, and expanding the scope of their responsibilities to render higher quality customer service. Selected customer service personnel will be trained to deliver customer service for low-income ratepayers who may need access not only to payment assistance programs, but also to other social services.

In addition, DWSD is working to enhance customer billing and collection data management and reporting to better assess the magnitude of payment challenges and effectiveness of initiatives. DWSD is looking to routinize diagnostic reporting on billing and collection activities (e.g., number of service disconnections, associated arrearages, number and timing of reconnections, payment plan statistics).

The BRPA, briefed about the challenges before DWSD staff, generally concurred with the priorities identified by DWSD leadership, and acknowledged that these improvements would take considerable time and effort to implement.

[14] The concept of fundamental water affordability problems may be further understood with recognition that, for some customers, there is a mismatch between income and the costs of water and sewer services. In these cases, measures to extend time to pay bills through payment plans, or to ease budgeting of payments, are ineffective. Imposing collection-related fees to recover service disconnection expenses exacerbates the problem. Water affordability for these customers requires practical solutions that recognize constraints on the ability to pay.

Water Affordability Options[15]

Though DWSD's billing and collection systems impose practical limitations on timing, and Michigan's legal framework imposes (at least uncertainties about) potential challenges, the BRPA identified a number of options that may provide short- and long-term relief to low-income customers in Detroit. As described below, these options may be placed in three broad categories:

- **Rate Structure Options**. Alternative methods of rates and charges that are used to calculate customers' water and sewer bills. The bills typically include fixed charges that are imposed each billing cycle irrespective of the amount of water delivered, and volumetric charges based on water usage or attributed wastewater flows.[16]
- **Customer Assistance Options.** These options include the array of programs specifically designed to render assistance to qualifying low-income customers struggling with water affordability challenges. Program types may be subdivided into direct bill assistance programs that help eligible customers by paying or forgiving their water and/or sewer bills. These programs cover all or a portion of customers' current bills and accumulated arrearages. Efficiency programs are designed to help low-income customers reduce their bills by helping them reduce their water usage. Some programs center on educational efforts and distribution and installation of low-cost water efficiency devices (e.g., low-flow showerheads, faucet aerators), while others may include minor plumbing repairs and replacement of leaking toilets and fixtures.
- **Billing and Collection Options.**[17] These options relate to the various practices and processes by which the water and sewer utility collects payments for services (and disconnects service for non-payment). Options range from making available payment plans in the event of customer arrearages, to timing and structuring of bill issuances (e.g., budget billing, customer selection of bill due dates), to measures that enable customers to avoid service disconnections and associated late payment and reconnection charges.

All of these options relate to restructuring the means by which costs are recovered from City of Detroit ratepayers. It was also acknowledged that a key to water affordability is overall water and wastewater system cost management, and ensuring the equity of cost-of-service allocations.[18] Utility executive management holds a responsibility to ensure efficiency of system operations

[15] Numerous articles and presentations on water affordability options are available to provide further, more detailed descriptions of the options noted here and associated implementation requirements. A brief bibliography of selected articles compiled by the Michigan State University Institute for Public Utilities is provided as Appendix VI.

[16] In addition, all customers pay a drainage charge that is $19.66 per month for the residential customer. The data to assess the drainage charge is being updated and the City plans for each customer to be charged based on the impervious area of the property effective August 1, 2016

[17] These options are intended to provide assistance to customers that exhibit a fundamental ability-to-pay by easing potential obstacles to effecting those payments. They may work in combination with other options for those absent adequate resources to make payments in full.

[18] See Appendix V, Workshop #3 DWSD Staff presentation: "Preliminary View on Affordability," pp. 3-9, for a discussion of issues related to prospective GLWA cost allocations.

and to establish a process for equitable allocation of cost responsibilities across system users. Given that City of Detroit ratepayers face relatively high service rates, a significant opportunity to address water affordability is through cost management of both GLWA and the retail DWSD system. However, though the BRPA noted the importance of ensuring equitable cost distributions to Detroit, for a variety of reasons,[19] the scope of the BRPA review of options specifically excluded assessment of overall cost-saving opportunities or cost-of-service allocations.

Recognizing the City of Detroit's duty to meet its financial obligations to the GLWA, and residents' charter-defined rights to safe drinking water and a sanitary environment, the BRPA identified the following options (and related implementation issues) to address water affordability within the three categories designated above.

Rate Structure Options

Given the current state of the DWSD billing system, customer account records and customer service processes, DWSD staff estimated that revisions to the Department's current rate structure would require two or more years to implement,[20] depending on the complexity of the adopted rate form. Rate structure changes would require modifications to automated billing routines and related customer account records, revised business processes and data collection procedures, customer service personnel training, and a host of other tasks (many of which depend on completion of planned and ongoing system improvements). Nevertheless, the BRPA viewed alternative rate designs as exceptionally important because of the breadth of their potential impact.

- **Income-Indexed Rate Option.** This rate option amounts to establishing a bill for water and sewer services for qualifying low-income customers based on their ability to pay – specifically in terms of a percentage of their established income level. This is the "rate affordability" component of the Water Affordability Program[21] referenced in the Detroit City Council's May 12, 2015 resolution. Implementation issues relate to setting the percentage of income limitation,[22] defining business processes for qualifying (and maintaining appropriate records on) eligible populations, and establishing a separate, income-designated customer class in the DWSD billing system.
- **Minimum Quantity Allowance.** This option incorporates delivery of minimum levels of service required for health and sanitation within the utility's fixed charge structure (while

[19] Reasons include the fact that DWSD has been subject to a number of operational reviews through the course of optimization initiatives and the GLWA mediation, as well as DWSD's extensive, stakeholder-engaged cost-of-service rate setting process.

[20] See, for example, Appendix III for a listing of the major steps involved in implementing the recommended increasing block rate structure.

[21] Colton (2005), pp. 5-7.

[22] BRPA discussions noted that while the originally proposed Water Affordability Program document advanced a concept of a 2% of income limitation on water and sewer billings, cited USEPA financial capability guidance employs a 2% of Median Household Income threshold for one or another service such that a combined water and sewer bill limitation would be in the 4% of income range.

not increasing fixed charges to unaffordable levels for low-income populations). Implementation involves less complex modifications to billing system routines and business processes. Because the quantity allowances are incorporated within fixed charges applicable to all customers, their benefit is universally applicable, obviating the need to establish a separate customer class or maintain eligibility data on low-income populations. By the same token, by including a specific usage allowance within DWSD's fixed charges, some customers may be disaffected because they have reduced, or could reduce, consumption below the allowance level. In these likely limited cases, these customers could be paying more for basic levels of service than under a rate that charges for all water used.

- **Increasing Block Rates**. Increasing block rates relate to volumetric rates within a water or sewer rate structure. They impose higher per-unit costs for higher levels of water use within predefined ranges (or blocks) of consumption. An affordability-structured increasing block rate will charge for minimal usage at levels that should be affordable for most low-income customers (for example, 4% to 8% of household income), and will charge for subsequent increments of usage in ways that not only encourage resource efficiency, but also allocate the recovery of costs to those who place more burdens on the system.[23] Implementation issues are substantial due to the relative complexity of the service pricing structure and attendant changes needed to billing system software routines, business processes and customer service protocols, particularly in the event that rates are differentiated by customer classes (residential, commercial, industrial).[24]

- **Property-Value-Based Fire Protection Charges**. This option would involve revising existing fixed charges, or adding separate fixed charges (with corresponding reductions in revenues from other rate components), to recover the costs of fire protection on the basis of property value protected. This could render water affordability benefits by shifting cost recovery responsibilities to those owning higher valued properties. Implementation issues would be substantial, particularly given that existing account information already must be supplemented to assign financial responsibility to property owners, and this option would further require a tie to property valuation data. In addition, existing cost-of-service

[23] The BRPA acknowledged the importance of several key dimensions of an increasing block rate structure to ensure that it improves, rather than impedes, affordability for low-income customers. In particular, care is required in defining the size (usage volume) and pricing of the initial rate block, the number of blocks, and the pricing differences among the blocks. While the same rate blocks are not necessarily required for sewer service pricing, an increasing block rate structure for water service will have limited impact on water affordability if a corresponding increasing block rate structure for sewer service is not also adopted.

[24] While DWSD would not be required to address income qualification, utility systems typically (though not always) establish different customer classifications if billing non-uniform volumetric rates. Rate blocks appropriate for residential use are unlikely to be appropriate for industrial accounts, for example. So, in addition to populating account information with financially responsible party data, effort may be required to assign accounts to typical customer classifications (e.g., residential, commercial, industrial), for which data is currently unavailable.

allocations would need to be revisited to establish the shares of allocated revenue requirements to be recovered through property-value-based charges.

Customer Assistance Options

In contrast to rate designs, which apply to all customers in a customer class subject to the designated rates and charges without requiring customers to enroll or apply, assistance programs are targeted measures that are made available to a limited number of qualifying, low-income customers. No changes to DWSD's basic water and sewer service pricing structure are required for an assistance program, and implementation requirements typically are less involved than altering rates (which require billing system software and process modifications). Like other utilities, DWSD would (continue to) partner with experienced third-party entities to identify, refer and income-qualify assistance program participants and administer such programs. In terms of an enhanced approach to water affordability, customer assistance options could supplement or supplant existing programmatic efforts.[25] The BRPA identified three types of assistance programs that could be used to render immediate relief for participants:

- **General Bill Payment Assistance.** Either through new or existing programs, or in collaboration with the forthcoming GLWA Water Residential Assistance Program (WRAP),[26] the City may put additional funding in place to provide direct bill payment assistance for qualifying low-income customers. Eligibility criteria and bill payment provisions – frequency, amounts paid, use for arrearages and/or current billings – may mirror or complement existing programs. Substantively different from prior external fundraising efforts, DWSD could, subject to legal and financial feasibility analyses, use selected non-rate funding sources (e.g., utility property lease receipts). Using such non-rate funding sources may address, in part, expressed concerns that available bill payment assistance programs are inadequately funded to provide substantive and sustained relief.
- **Amnesty Program (Detroit Water Brigade).**[27] A specific construct of a bill assistance program, presented to the BRPA by member Demeeko Williams, contemplates DWSD offering customers a 20% reduction of their combined past due and estimated bills upon signing up for a payment plan. Citizens with water bill balances over $5,000, and bills from before 2012, would receive a 70% reduction settlement arrangement. In addition, customers would receive a discount of 30% to 50% off the balance of their final payment. No one would be refused amnesty. The Detroit Water Brigade's information asserts,

[25] Detroit ratepayers have received, and continue to receive, assistance through a number of donation-funded assistance programs including the Detroit Water Fund and The Heat And Warmth (THAW) Fund. See http://liveunitedsem.org/pages/detroitwaterfund-about and http://www.thawfund.org.

[26] For more information on the GLWA WRAP program, see the WRAP Design Report accepted by the GLWA Board on October 7, 2015 (Resolution No. 2015-10-09) and the contract for WRAP Program Administrator services to be approved by the GLWA Board in February 2016.

[27] For more information on its amnesty program proposal, see the Detroit Water Brigade's Detroit Water Amnesty Program Proposal and Detroit Water Amnesty Fact Sheet. For more information on the Detroit Water Brigade, see: http://detroitwaterbrigade.org/latest-news/

without DWSD confirmation, that the system savings that result from shutting off water to vacant homes could pay for the program.

- **Water Conservation**. Similar to bill payment assistance programs, conservation assistance programs that expand or supplement the GLWA WRAP program could be funded, subject to legal and financial feasibility analyses, through DWSD non-rate revenues. Water conservation assistance has particular appeal as there is a relatively higher incidence of leaking or inefficient plumbing fixtures in the housing stock occupied by low-income customers, and remedial conservation education and measures can provide sustained, long-term assistance through associated reductions in participating customers' water and sewer bills. Water conservation may complement other assistance programs that address immediate bill payment and disconnection avoidance concerns, as conservation measures facilitate customers' long-term usage management and resultant bill levels. Conservation programs also can be coordinated with local energy utilities.

Billing and Collection Options

Beyond expansion of targeted assistance programs, DWSD could modify its billing and collection practices to enhance customer service, reduce the incidence of service disconnections, address tenant problems imposed by landlord delinquencies, and be more responsive to the needs of low-income customers. As noted, several initiatives are in progress; some involve relatively simple business process revisions and enhanced customer service personnel training, while others require billing system modifications and are therefore longer term in nature. Most of these initiatives are not applicable to low-income customers alone, but are anticipated to be particularly responsive to their circumstances. A special initiative, offered by DWSD Director Gary Brown, involves training a subset of customer service representatives to specialize in case management for low-income customers. Options identified by the BRPA amplify and suggest expansion of DWSD's ongoing efforts within prevailing resource constraints. The options the BRPA identified include:

- **Payment Plans with Disconnection Avoidance**. This is a feature of DWSD's current billing and collection practices. Customers with past due account balances may avoid shut-off if they enroll in payment plans and honor their provisions. While payment plans may not rectify situations where customers' income levels are simply insufficient to pay monthly bills, they can be instrumental in enabling customers to manage arrearages accrued due to one-time or unusual circumstances. Implementation issues are limited insofar as this option is already in place, yet DWSD may refine and enhance its business processes to better communicate customers' options to avoid shut-offs, and to help customers continue to meet their obligations and overcome adverse events.
- **Payment Plans with Arrearage Forgiveness**. Large arrearage balances are especially challenging for low-income customers who struggle to meet current billings. Payment plans may be structured to forgive (or convey non-customer funding of) these balances. These plans typically reduce the outstanding arrearage for each month of payment under

the payment plan, potentially eliminating a customer's past due balances over the course of 1 to 2 years of payment plan compliance. Arrearage forgiveness under the payment plans may place customers in more tenable positions and promote sustained payment of current billings, thereby potentially increasing DWSD revenue collections and reducing system costs associated with collections of past due balances.

- **Budget Billing.**[28] This option simply ensures that customers are not confronted by sharp changes in billings due to variable water usage month-over-month. Projected annual billings (based on past experience) are spread evenly over the year to help customers budget to meet their water and sewer bill-payment obligations. Budget billing avoids variability in billings and allows customers to know in advance what their bills will be so that they can budget accordingly.
- **Alternative Billing Scheduling**. This option may come in a number of different forms, ranging from customer selection of the day of the month when bills are due, to enabling customers to skip a month of billing (with the associated charges spread to other months), to tying billing days to the timing of customers' scheduled receipt of income. Each of these options can facilitate customers' budgeting for water and sewer bill payments, and help them avoid arrearage accruals that might ultimately threaten service disconnection.

In addition, several BRPA members noted that DWSD could expand its customer service roles to address needs of low-income customers. BRPA members generally endorsed the concept, offered by DWSD Director Gary Brown, of a skills-based customer service unit specially trained to handle calls from customers claiming an inability to pay. They noted the importance of enabling tenants to maintain service when landlord delinquency threatens service disconnection. Recognizing DWSD's perception as a creditor in low-income communities as it responds to unpaid bills, DWSD could work collaboratively through community-based organizations to help customers negotiate payment plans. DWSD also could reach out to customers in arrears to help them secure non-utility assistance such as Earned Income Tax Credits (EITC), recognizing that some taxpayers use these benefits to pay utility bills. A closer collaboration with community-based organizations could enable DWSD to be more responsive to demographics that rely on different resources for help with unpaid bills. DWSD can work with those who customers turn to as their first source of assistance to more effectively and rapidly address needs.[29]

BRPA Option Evaluation

These options generally are not mutually exclusive and, in fact, the BRPA highlighted that a substantive and effective approach to water affordability will require an array of measures that

[28] Consideration of budget billing does not imply that affordability issues would be surmounted if low-income users improved their household budgeting practices. Rather, it recognizes the impact of month-to-month bill variability, particularly for customers with fixed incomes or limited budget margins.
[29] National Regulatory Research Institute (April 2003), Where Consumers Go For Help Paying Utility Bills, NRRI: Columbus (OH) (presenting results from NRRI's Consumer Utility Benchmark Survey).

will evolve over time. In particular, given the current limitations of DWSD's billing and customer service functions, the BRPA identified both short- and long-term recommendations.

Evaluation Criteria

The BRPA evaluated the above-described options using a simple, multi-attribute scoring and ranking procedure. The evaluation criteria, discussed and agreed upon by BRPA members, were as follows:

- Risk of Potential Legal Challenge
- Extent of Assistance: Number of Households
- Extent of Assistance: Durability
- Resource Efficiency
- Fairness
- Implementability / Understandability

> "Program understandability is key to communication and implementation. Simplicity is best in the long term."
>
> Robert Miller, Deputy Director Sewerage and Water Board of New Orleans

Descriptions of these criteria and the performance scales relative to each are provided in Appendix IV. Member scoring was informed by the presentations and discussions held throughout the four BRPA workshops conducted between October and December 2015.[30] Several topics were considered particularly important, summaries of which are offered below:

- **Implications of the Michigan legal environment**. The BRPA recognized the importance of providing recommendations that fall within the framework of Michigan law. While not offering formal legal opinions, they evaluated legal constraints and the potential for legal challenges to be mounted in some detail.[31] Unsurprisingly, there are differences of opinion as to the permissibility of the options discussed, and what would sustain particular options in the face of a legal challenge. Specifically, with respect to the income-indexed rate design, at least two differing legal opinions have been developed[32] and were distributed to the BRPA. Given the objective of defining practical and implementable options, the evaluation criteria were structured to acknowledge that legal questions will remain open for the foreseeable future. Accordingly, the criterion relating to legality was cast in terms of the likelihood of legal challenge, recognizing that options subject to strong (and potentially sustained) legal challenge may be less able to deliver needed low-income relief, particularly in the near term, than options that are less likely to invite legal objections.
- **Culture Change**. The BRPA and DWSD staff addressed a number of concerns related to organizational culture change. DWSD leadership staff acknowledged that cultural

[30] Workshop agendas are provided in Appendix II, and presentations are provided in Appendix V.
[31] See Appendix III for a summary of selected BRPA members' discussions of the Michigan legal framework.
[32] Whitaker (2015) and Walter (2006) as listed in the *Information Reviewed* section.

change is needed in DWSD to place a higher emphasis on retail customer service. At the same time, there is recognition that past inconsistent and dysfunctional customer billing and collection practices, particularly regarding service disconnections, has precipitated a culture of non-payment among some segments of the customer population. Requisite cultural changes will require time, consistency, and demonstrated good faith on the part of both the Department and its customers.

- **Fairness.** BRPA members noted that cultural change would also be required should the City and DWSD leadership affirm that a fundamental objective of the Department is to advance universal access to essential water services. New fairness considerations would permit tailored responses to individual customers' circumstances – perhaps allowing for arrearage forgiveness or conservation assistance to enable economically strained customers to continue to pay for and receive services.
- **DWSD billing and collection**. DWSD's billing system constraints affect the viability and relative merit of selected options, particularly in defining short-term remedial measures. For example, while budget billing was generally viewed as a helpful potential enhancement, the BRPA found that it should not take precedence over other higher priority initiatives. Accordingly, BRPA recommendations are shaped by practical considerations in the Detroit context that may be different in other communities.

BRPA Member Evaluations

A structured option evaluation exercise was conducted to help achieve consensus on practical, implementable recommendations to address water affordability in Detroit in both the short and long term. Each option was scored by BRPA members and DWSD leadership staff against the criteria listed above on a 0 – 10 scale, with 0 representing the lowest and 10 representing the highest score. Composite scores and rankings were calculated for each BRPA member, across different criteria weightings, and averaged across BRPA members alone, across DWSD leadership staff alone, and across both BRPA members and DWSD staff.[33] Results were noteworthy, and are summarized in the following observations:

"A move to an increasing block rate, designed with affordability as one of its explicit objectives, is a reasonable and appropriate 'compromise' between those who argue for an explicit income-based affordability program and those who argue that any such explicit income-based affordability program is contrary to law."

- Roger Colton, co-Founder, Fisher Sheehan & Colton, and BRPA Member

Rate Structure Options

- Of the rate structure options evaluated, the Increasing block design was scored and ranked highest by all but two scorers. Across both BRPA members and DWSD staff, it scored and ranked highest among all evaluated water affordability options.

[33] A summary of BRPA and DWSD leadership team scoring and rankings is provided in Appendix IV

- Income-indexed rates were scored and ranked relatively poorly – among rate structure options and all options generally – by all but two scorers.
- The minimum quantity allowance rate option was evaluated as the second best rate structure by all but two scorers, generally scoring relatively closely to the highest ranked increasing block option.
- Property-value-based charges for fire protection were near uniformly scored and ranked least favorably, not only among rate design options but also across all options. These poor rankings generally were regarded as indicative of potential legal challenges to such charges as an unauthorized tax, and to acute implementation challenges.

Customer Assistance Options

- Bill payment and water conservation assistance programs scored and ranked closely across both BRPA members and DWSD staff. Bill payment assistance scored marginally higher due in large part to the relative ease of implementation and understandability. These types of programs scored closely to the preferred payment and collection practice options – signaling the conclusion that an array of options is needed to address water affordability.
- The proposed Amnesty Program scored and ranked relatively poorly across assistance program options, and more generally across all evaluated water affordability options. Averages of scoring across BRPA and DWSD staff placed it above only property-value-based charges for fire protection.

Billing and Collection Options

- Among the identified options, the two types of options requiring longer-term billing system routine modifications scored and ranked highest and lowest – with noteworthy differences between BRPA member and DWSD staff scoring. Budget billing ranked second among all options considered by BRPA members, yet sixth among DWSD staff – largely reflecting DWSD staff's relatively low scoring of this option in terms of implementation / understandability considerations. Alternative bill scheduling generally was less preferred by both BRPA and DWSD staff members.
- Between the two types of payment plan options considered, options featuring disconnection avoidance scored higher than those enabling arrearage forgiveness – generally reflecting higher scoring of disconnection avoidance with respect to the fairness and risk of potential legal challenge criteria.

In summary, BRPA members (and DWSD staff) concurred that no single measure can adequately mitigate Detroit's water affordability challenges. Moreover, DWSD may only contribute in small measure to addressing the larger, vexing problems presented by endemic poverty in Detroit. Unfortunately, DWSD's options that hold the most potential for sustained, broad-reaching relief (with more limited potential for legal challenge) require a longer time horizon for

implementation. A carefully crafted, increasing block rate design is recommended, as is eventual implementation of budget-based billing. In the shorter term, continuing and enhancing DWSD's current practices to enable disconnection avoidance through payment plan enrollment is critical. These plans, in combination with (adequately resourced) bill payment and water conservation assistance programs, potentially funded through selected non-rate revenue sources, are merited. Options that contemplate significant shifts in customer bill payment responsibilities (e.g., amnesty programs) are not favored.

These recommendations reflect, in part, a general assessment that the City of Detroit has, in recent months, taken positive steps toward addressing water affordability. Recent evolutions of payment plan provisions and shut-off policies, and pending billing and collection practice improvements, are important changes that can provide needed relief to customers with a general ability to pay for services. DWSD's current payment plan options, and assistance programs that are available to those lacking an ability to pay for services, are relatively generous compared to many other major metropolitan utilities across the country. However, Detroit's populations in poverty are daunting and DWSD, working with community groups, can and should do more.

Community Action

In pursuing improvements to DWSD's affordability programs, the BRPA notes that it is important for the City to continue to recognize and embrace the critical role of community groups and local advocates in seeding meaningful change. These groups have been instrumental in highlighting the trials and difficulties faced by low-income customers, have implemented assistance programs, and worked in partnership with social service agencies to deliver needed relief. These groups have bridged historical (real and perceived) constraints on the extent to which DWSD could design rates or fund assistance programs – and should play critical roles in a more expansive approach to water affordability.

DWSD's billing and collection practices and programs too often have suffered from byzantine procedural requirements and inadequate customer service engagement. Community groups and activists are positioned to enhance DWSD outreach about programs and procedures that are evolving to alleviate customer concerns and avoid service disconnections. They may continue to raise funds for customers in dire circumstances, which typically are not limited to water affordability issues, and to work directly with individual customers. They can help DWSD identify customers in acute circumstances, and they can hold DWSD to account through the slow process of culture change. DWSD should partner proactively with community groups and social service agencies to simplify delivering assistance, and to make relief more accessible to those in need.[34]

[34] While community-based organizations have a role to play in advancing and supporting water affordability measures, per the City's charter, the institutional obligation to deliver affordable service lies with the City and the Department.

Research Needs

The BRPA notes that community partnering can and should also extend to gaining a better understanding of water affordability issues through a number of research agendas. This includes efforts to quantify the magnitude of the problems, assess the effectiveness of individual options, and accurately project financial impacts. Understanding more about the vexing problems faced by those living in poverty, and the compounding impacts of water affordability challenges, is needed to better design and implement assistance programs. The questions calling for quantitative data – some of which is already available – and in some cases qualitative studies are identified below.

Demographics

- What are the numbers of customers (households, people) subject to a high burden in paying their water and sewer bills – not necessarily indicated by census data that does not capture adverse circumstances (e.g., medical costs, loss of employment)?
    - What are the characteristics of these customers (as compared to the DWSD service area population) in terms of age, ethnicity, household size, income level and security, and employment status?
    - How have these numbers changed over the last decade – what are the trends and what are the drivers / influences of these changes?
- What are the conditions of typical low-income (and general) DWSD customers' internal plumbing infrastructure (e.g., fixture water use efficiencies, plumbing leaks, lead fixtures, etc.)?

DWSD Customer Data[35]

- What is the distribution of customer water use – by month, by zip code or census tract, by household size?
- What are the characteristics of DWSD customer payment patterns – percentages of customers paying on time, with account arrearages (and the distribution of those arrearage balances), methods of payment (cash, check, credit card)?
- What are the numbers of customers with account balance arrearages greater than $200? What is the distribution and aging of these arrearage balances?

[35] Most of the customer data that can be retrieved from inquiries to billing system records is available or may be retrieved through customized data queries. Qualitative customer data regarding, for example, home water use infrastructure quality, will require extensive research.

- What percentages of customers are current with their plans? Are there noticeable differences in success by demographics?
- What is the distribution of payment amounts (and plan terms) under these payment plans?
- How do the terms of payment plans (e.g., downpayment, length, payment amount relative to current bill) affect the success or failure?
- What percentages of customers are under their first payment plan vs. repeat plan participants?

- Where do people turn for assistance in addressing unpaid bills?
- Why do people in arrears not respond to entreaties from DWSD to make contact with the Department for assistance prior to a service disconnection?
- What are the numbers of residential customers subject to service disconnections?
  - How many have enrolled and violated payment plans?
  - How many are first time vs. repeated disconnections?
  - How many are renters vs. homeowners?
  - What are the income demographics of those subject to service disconnections?

Option Evaluation

- What are the impacts of different rate structures on utility revenue collections, uncollectible rates, and service disconnection rates?
  - To what extent do increasing block rate structures enhance the affordability of water and sewer services for low-income customers?
  - To what extent does non-utility public assistance (e.g., EITC) result in payments to the utility?
- How effective are different assistance program designs in enabling customers to remain current on water and sewer billings, and in aiding customers' return to financial sustainability?
  - How effective are water conservation assistance programs in aiding low-income customers' ability to reduce their water bills? Do these bill reductions enable participating customers to pay their resultant bills without further assistance?
- What are the barriers to customer participation in assistance programs, and what strategies have been successful in reducing these barriers?

- Where do customers go when they need assistance? How do they get information and/or assistance with obtaining support?

- What are the characteristics of other utilities' assistance programs and results of evaluations of their effectiveness?
  - What are the specific attributes, and projected financial impacts, of the income-indexed rate structure approved by the Philadelphia City Council?[36]

Miscellaneous

- What are household bill payment priorities (by household types / demographics)? What bills would they skip one month, and what bills would not be missed?
- What are the water service characteristics (usage and bill payment behavior) of current energy assistance recipients?
- What are practical, successful strategies that have been used to engage community groups facilitate delivery of assistance to low-income customers – e.g., through serving as intermediaries in negotiating deferred payment arrangements?

BRPA Findings and Conclusions

The research needs cited above build on a foundation of understanding and insight gained through the BRPA workshop process, which included wide-ranging presentations and discussions. Through that process, the BRPA outlined a number of findings and conclusions that inform their recommendations for Detroit and hopefully contribute to state and national policy discussions centering on water affordability. These findings and conclusions include:

1. The Charter of the City of Detroit, Declaration of Rights, provides that "the people have a right to expect city government to provide for its residents . . . safe drinking water and a sanitary, environmentally sound city." DWSD, therefore, has a mandate to advance universal access to water and sewer services.
2. No single rate design or program can adequately address the diverse, multi-dimensional water affordability challenges that persist in Detroit. A substantive and effective approach to mitigate water affordability challenges requires an array of measures that will evolve over time. Options to mitigate water affordability will not, and cannot, fully address the problems of endemic poverty. Implementing an array of options may reduce overall system costs and more equitably distribute cost

[36] Information on the specific characteristics and projected financial impacts of Philadelphia Water's planned rate structure and water conservation program was requested but was not available at the time of report issuance.

responsibilities by avoiding selected billing and collection expenses and broadening the population of paying customers.

3. New retail DWSD leadership is appropriately prioritizing the improvement of its billing and collection systems and practices. These actions will render improvements for all DWSD retail customers, especially those encountering payment challenges. Recent payment plan and shut-off policy changes, as well as pending billing and collection improvements, will provide needed relief. In addition, DWSD's current payment plan options and available assistance programs are relatively generous compared to many other major metropolitan utilities across the country.
4. Alternative rate structures and selected changes to billing and collection practices that require billing software and data management changes will require approximately two years and possibly longer to implement.
5. DWSD may be able to enhance funding of bill payment and water conservation assistance programs for qualifying low-income customers by applying non-rate revenues. Different non-rate revenue sources may be more or less susceptible to legal challenge. Given timeframes required to implement different rate structures, building the legal and financial planning foundation for use of non-rate revenues to expand assistance program funding is a high priority.
6. Increasing block rate designs for both water and sewer services would provide an effective pricing structure (among considered alternatives) in addressing water affordability issues. By contrast, an income-indexed water affordability rate component, such as that included in the Water Affordability Program initially presented to DWSD in 2005, is more susceptible to legal challenge, would be more difficult to implement and administer, and would be less broadly based due to the income-qualification attribute of this rate design.
7. A culture change is needed within DWSD (as acknowledged by new DWSD leadership) to emphasize compassionate retail customer service. At the same time, there is recognition that past inconsistent and dysfunctional customer billing and collection practices, particularly regarding service disconnections, have precipitated a culture of non-payment among some segments of the customer population, which must be addressed over time.
8. Given that City of Detroit ratepayers face relatively high service rates, a significant opportunity to address water affordability may be through cost management – prospectively at both GLWA and the retail DWSD system. Equitable distribution of GLWA cost responsibilities across system users is paramount to effective management of DWSD service rate levels.
9. The City of Detroit is not unlike other U.S. cities in that it faces an affordability dichotomy, wherein continuing infrastructure investment and reinvestment needs

may require general pricing increases that, at the same time, impose significant challenges to low-income customers requiring access to essential services.

10. The legal framework in Michigan is particularly difficult for addressing water affordability issues, by virtue of the interpretations of *Bolt vs. Lansing* and the Headlee amendment. One opportunity for future advocacy may be in seeking new legislation that authorizes utility pricing and funding strategies that are responsive to water affordability issues, recognizing the time and resources required to effect new legislation and weather any subsequent legal challenges.
11. Community groups and activists have been instrumental in highlighting the trials and difficulties faced by low-income customers; these groups and individuals can play critical roles in a more expansive approach to water affordability.

Recommendations

The BRPA offers a number of specific recommendations, some of which may be implemented in the near term, while others will require multiple years to put in place. Several BRPA members offered additional comments and recommendations that were not discussed by the group and may be offered separately. Provided below are recommendations that reflect the discussions and consensus obtained during the BRPA workshops.

Near-Term / Immediate Actions

- The City / DWSD Board of Water Commissioners should affirm and explicitly state that their responsibilities include advancing universal access to water and sewer services, and pricing these services to help ensure that customers are able to afford minimum usage required to promote public health and sanitary conditions.
- DWSD should evaluate and, to the extent practicable, expand funding of bill payment and water conservation assistance programs through allocation of non-rate revenues. Expanded assistance program funding and outreach may help ensure availability of assistance for the most economically disadvantaged customers.
- DWSD should dedicate necessary resources and provide governance support to expedite billing and collection and customer service improvements. DWSD should maintain a high priority on converting from address-based account assignments to having accounts assigned to financially responsible parties.
- DWSD should refine and enhance its business processes to better communicate customers' options to avoid shut-offs and to help customers continue to meet their obligations.

- The City should continue to recognize and embrace the critical role of community groups and local advocates in seeding meaningful change. DWSD should work to establish and further collaborative relationships with these groups to improve customer communications and rebrand DWSD as an organization dedicated to compassionate customer service.
- DWSD should evaluate the implementation of a skills-based customer service unit to provide case management services to low-income customers as needed.

Long-Term Actions

- DWSD should carefully design and implement increasing block rate designs for water and sewer services taking into account cost-of-service principles, water use efficiency objectives, and affordability concerns. These designs should offer broadly affordable minimum levels of water and sewer service that are required for health and sanitary purposes.
- DWSD should continue to enhance billing practices, including offering budget billing and bill payment options in a manner that is responsive to low-income customer needs.
- DWSD should continue to enhance shutoff avoidance practices and options, including deferred payment plan options, in a manner that is responsive to low-income customer needs.
- DWSD should pursue achieving efficiencies in retail operations and help ensure the GLWA realizes similar efficiencies. It should actively participate in forthcoming reviews of GLWA cost allocation methodologies and ensure equitable distributions of cost responsibilities.
- DWSD should expand its assistance program offerings to include water conservation and plumbing repair assistance, administered through third-party service providers.

State / National Advocacy

- The City of Detroit / DWSD should participate – in collaboration with local community groups – in national and state policy discussions and advocacy to highlight increasing water affordability challenges.
- The City of Detroit / DWSD should continue to enhance its collaboration with local community groups and charitable organizations to raise funds for low-income water affordability assistance.
- The City of Detroit / DWSD should participate in the development of State of Michigan legislation that would establish new fee revenues (e.g., water withdrawal fees) to support water affordability programs.

- Additional legislative measures could address landlord-tenant bill payment responsibilities to, for example, help ensure that landlords may be compelled to repair leaking plumbing or pay their tenants bills.
- The City of Detroit / DWSD should actively endorse proposed federal legislation to establish a water and sewer equivalent to the federal Low-Income Home Energy Assistance Program (LIHEAP).

Appendix I: BRPA Member Information

National Experts

Janice A. Beecher, Ph.D, Director, Institute of Public Utilities at Michigan State University

Dr. Janice Beecher has served as Director of the Institute since 2002, bringing more than thirty years of applied research experience to the position. Established at MSU in 1965, the Institute's mission is to support informed, effective, and efficient regulation of the network industries providing essential utility services. Dr. Beecher's research areas include regulatory theory, institutions, principles, and concepts; regulatory commissions and jurisdiction; ratemaking methods; expenditures, price, and demand trends; regulatory adaptation; and ethics.

Julius Ciaccia, Chief Executive Officer, Northeast Ohio Regional Sewer District

Mr. Ciaccia served the City of Cleveland's Clerk of Courts office for two years before his appointment as Assistant Director of Public Utilities in 1977. He was promoted to Acting Water Commissioner in 1979, Assistant to the Commissioner in 1981, and eventually Commissioner in 1988. He was appointed Director of the city's Department of Public Utilities in 2004 and began his tenure as Regional Sewer District Executive Director in November 2007. Mr. Ciaccia's professional affiliations include the American Water Works Association and other state and national committees and organizations.

Roger Colton, Co-Founder, Fisher Sheehan & Colton

Mr. Colton provides services in a variety of areas including: regulatory economics, poverty law and economics, public benefits, environmental and natural resource economics, fair housing, community development, energy efficiency, utility law and economics (energy, telecommunications, water/sewer), government budgeting, health care economics, and planning and zoning. He has testified in state and federal courts in the United States and Canada, as well as before regulatory and legislative bodies in more than three dozen states. He is particularly noted for creative program design and implementation within tight budget constraints. Mr. Colton is the author of "A Water Affordability Program for The Detroit Water And Sewerage Department (DWSD)," January 2005.

Robert Miller, Deputy Director, Sewerage & Water Board of New Orleans

Robert K. Miller has more than 32 years experience in the water and wastewater utility field. Prior to his appointment as Deputy Director, Mr. Miller served as a consultant to that industry and municipal governments, following 17 years of executive leadership as Chief Financial Officer of the Louisville (Kentucky) Water Company (LWC). At Louisville he also served as vice president-treasurer and as corporate secretary. He has had responsibility over the years for financial management, information technology, risk management, business planning and human resources. Among his many achievements at LWC were financial management practices improvements, resulting in the upgrade of bond ratings to AA1/Aa+, development of a rate mechanism to support a water main replacement and renewal program and played a major role in establishing an award-winning minority business development program.

Eric Rothstein, Principal, Galardi Rothstein Group (Chair)

Eric Rothstein has established strategic financial plans and designed rates for some of the nation's largest, most complex infrastructure programs and has secured acceptance of major, multi-year rate increases in politically charged environments. He is an expert in regionalization, facilitation of complex decisions affecting diverse stakeholder groups, evaluation of public/private partnerships, and strategic business planning. Eric's professional affiliations include the Water Environment Federation (WEF), American Water Works Association (AWWA) and National Association of Clean Water Agencies (NACWA). He has authored numerous papers and presentations including "The Business Case for Low Income Affordability Programs," (AWWA-WEF, 2012), and "Affordability Tools," Section 8: Affordability Special Publication, (WEF, 2007). In 2013, Mr. Rothstein served as the Jefferson County (AL) Environmental Services Department's Municipal Advisor for its $1.7 billion financing to exit from bankruptcy. He is currently serving as the Great Lakes Water Authority Implementation Planning Program Manager.

Scott Rubin, Attorney at Law

Mr. Rubin is an attorney and consultant working exclusively on research and cases that affect the public utility industry. He worked for 10 years with the Pennsylvania Office of Consumer Advocate. He is the author of numerous articles and research projects including: "Thinking Outside the Bill: A Utility Manager's Guide to Assisting Low-Income

Water Customers," (American Water Works Association, 2005) and "The Relationship Between Household Financial Distress and Health: Implications for Drinking Water Regulation," (National Rural Water Association, 2007).

Regional Members

Mary Blackmon, DWSD Board of Water Commissioner

Mrs. Blackmon retired from Ameritech as a Director of Public Affairs. She also served 10 years as a citywide elected member of the Detroit Board of Education, serving as its Vice President and Chair of the Community Relations Committee. She is currently Vice President of the Wayne County Regional Educational Service Agency (WRESA) where she has served since 1981 and held all of its officer positions. Active in the National School Boards Association, she is the former Chair of the Central Region for the National School Boards Black Caucus. Mrs. Blackmon has achieved Master Platinum Award Status from the Michigan Association of School Boards.

Serving as a member of the Southeast Michigan Council of Governments (SEMCOG) Executive Board, where she is also a Past President, she is a member of the Metropolitan Affairs Coalition (MAC) Executive Board and is the former chair of SEMCOG's Education Advisory Committee.

Mrs. Blackmon has been a member of the City of Detroit's Board of Water Commissioners since 1988. She has served as its President and is now its Vice Chair.

Past affiliations include President of the Detroit Area Pre-College Engineering Program (DAPCEP); member of the Executive Board of the Detroit Branch NAACP and is a graduate of Metropolitan Detroit Chamber of Commerce's Leadership Detroit Program. In 1991, Mrs. Blackmon Co-Chaired the Detroit Branch NAACP Fight For Freedom Funder Dinner where the dinner raised over $1 million for the first time in its history.

Julie Kavanagh, Program Manager, Macomb County Community Services Agency

Julie Kavanagh has held several positions at Macomb County Community Services Agency, the Community Action Agency for Macomb County, over 14 years with the organization. She is currently a Program Manager overseeing the operations of emergency utility assistance, emergency housing assistance, and supportive services programs for low-income residents. Mrs. Kavanagh is chair of the board of directors for the Good Shepherd Coalition, a local non-profit. Mrs. Kavanagh also served on the Great Lakes Water Authority Water Residential Assistance Program Advisory Group in 2015.

Karla Marshall, Policy Analyst, Detroit City Council Member Scott Benson

Karla Marshall, JD acted as Policy Analyst for the office of Detroit Council Member Scott Benson in 2015. Having joined the Council Member in 2014 as a legislative analyst, her work has included researching redevelopment opportunities to increase economic value and improving accessibility and leverage adjacent to institutional/corporate assets. Her recent work with the Urban Land Institute's Larson Center for Leadership, in 2015, resulted in a technical assistance report for redevelopment in West Dearborn, MI, featured in Crain's Detroit Business. In addition to working for the Detroit City Council, Karla holds a Real Estate License, Public Adjusters License, and Residential Builders License. With these credentials, she founded an insurance remediation firm specializing in water remediation and structural restoration. Karla is also a Planning Commissioner with the City of Highland Park, Michigan. Karla holds a J.D. from the Brooklyn Law School and a B.A. in Bio-Anthropology from Indiana University.

Demeeko Williams, Chief Director, Detroit Water Brigade

DeMeeko Williams is a born-and-raised Detroiter from the North End neighborhood. A child of Woodward Avenue, Meeko worked for the Detroit Public School system in Parental Community Involvement, participating in various community events and engaging with the city of Detroit before committing himself full-time to social justice. With a High School diploma from Northern High School and currently attending Wayne County Community College pursuing a degree in business, Meeko believes education is very important while serving the community. Meeko is a writer, researcher, and community organizer while being featured as The Circle of Blue Water Warriors in 2014. Meeko has also been to Ireland as part of the Right2Water anti water charges movement speaking about Detroit experiences with water being shut off. Meeko is founder and chief director of the Detroit Water Brigade, a rapid relief organization providing emergency water, consultation and advocacy for citizens in the city of Detroit disconnected

from their water services. What motivates him to participate in the Detroit Water Brigade is his passion for saving the city of Detroit by waging love for those who have been disenfranchised and forgotten. Meeko believes water is an essential human right and that no individual should be refused or denied a resource that we are all blessed to share this vital resource to live. Meeko likes listening to funk music, going to the movies and traveling in his spare time.

Appendix II: Workshop Agendas

Workshop #1 October 13, 2015			
No.	**Timing**	**Agenda Item**	**Presenter**
1	9:00 – 9:30 a.m.	BRP Member Introductions	All
2	9:30 – 9:45 a.m.	BRPA Charge and Approach	Brown / Rothstein
3	9:45 – 10:00 a.m.	Communications Protocols / Definitions of Terms	All
4	10:00 – 10:15 a.m.	Detroit / GLWA Service Area Backgound	Brown / Rothstein
5	10:15 – 10:30 a.m.	Case Study: New Orleans	Bob Miller
	10:30 – 10:45 a.m.	BREAK	
5	10:45 – 11-15 a.m.	National Perspectives	Beecher / Rothstein
6	11:15 – 11-30 a.m.	National Advocacy	Ciaccia / Rubin
7	11:30 – Noon	U.S. / Michigan Legal Framework Bolt vs. Lansing Review	Wolfson / Hollowell
	Noon – 12:30	LUNCH	
8	12:30 – 1:15 p.m.	Proposed Detroit Water Affordability Plan	Roger Colton
9	1:15 – 1:40 p.m.	Local Perspectives: Case Studies / Assistance Providers' experience	TBD Representative
10	1:40 – 2:00 p.m.	Work Plan Review / Next Steps	Rothstein

Workshop #2 October 27, 2015			
No.	**Timing**	**Agenda Item**	**Presenter / Facilitator***
1	9:00 – 9:15 a.m.	Work Plan Overview - Structure	Rothstein
2	9:15 – 9:45 a.m.	Perspectives on Background Info	Rothstein*
3	9:45 – 10:00 a.m.	Legal Framework: Alternative Views	Colton*
4	10:00 – 10:30 a.m.	Rate Design Options Discussion	Beecher*
	10:30 – 10:45 a.m.	BREAK	
5	10:45 – 11:00 a.m.	GLWA WRAP and Other Assist Programs	Rothstein
6	11:00 – 11:30 a.m.	Proposal: Detroit Water Brigade	Williams
7	11:30 – Noon	Discussion: Assistance Program Options	Rothstein*
	Noon – 12:30	LUNCH	
8	12:30 – 12:45 p.m.	Detroit Billing & Collection, Payment Plans Customer Service initiatives	Brown / Presnell
9	12:45 – 1:15 p.m.	Discussion: Billing, Collection & Customer Service Options	All – Rubin*
10	1:15 – 1:45 p.m.	Decision Process: - Option Evaluation Criteria - Recommendation Development	Rothstein*
11	1:45 – 2:00 p.m.	Research Needs Discussion	Beecher*
** Indicates designated facilitator for group discussion*			

Workshop #3 November 17, 2015			
No.	**Timing**	**Agenda Item**	**Presenter / Facilitator***
1	9:00 – 9:15 a.m.	Option Evaluation Criteria Review	Rothstein*
2	9:15 – 9:45 a.m.	Legal Framework Review	Rubin
3	9:45 – 10:30 a.m.	Account - Service Area - Use Correlations	Hudson
	10:30 – 10:45 a.m.	BREAK	
4	10:45 – 11:15 a.m.	Rate Design Options: Legal / Implementation	Rothstein*
5	11:00 – 11:30 a.m.	Billing & Collection Options: Legal / Implementation Issues	Presnell*
6	11:30 – Noon	Assistance Options: Funding / Legal / Implementation Issues	Kavanaugh*
	Noon – 12:30	LUNCH	
7	12:30 – 12:45 p.m.	Option Evaluation Framework	Rothstein*
8	12:45 – 1:15 p.m.	Policy Discussion: Balancing Social Responsibilities and Business Imperatives	Colton / Brown*
9	1:15 – 1:45 p.m.	Water Affordability Issues Communications / Messaging	Brown / Ciaccia *
11	1:45 – 2:00 p.m.	Assistance Program Fund Raising	Blackmon / Marshall*
** Indicates designated facilitator for group discussion*			

Workshop #4 December 15, 2015			
No.	**Timing**	**Agenda Item**	**Presenter / Facilitator***
1	9:00 – 9:15 a.m.	Implementation Considerations: Options / Constraints / Priorities	Brown/Presnell
2	9:15 – 9:45 a.m.	Legal Framework Review: Options / Constraints / Michigan Issues	Rubin / Colton
3	9:45 – 10:30 a.m.	Option Evaluation Scoring & Ranking: Informing Findings & Recommendations	Rothstein
	10:30 – 10:45 a.m.	BREAK	
4	10:45 – 11:15 a.m.	Rate Design Options: Findings and Recommendations	Beecher / Colton
5	11:15 – 11:45 a.m.	Billing & Collection Options: Findings and Recommendations	Miller / Presnell
6	11:45-12:15	Assistance Options: Findings and Recommendations	Blackmon / Kavanaugh*
	12:15 – 12:45	LUNCH	
7	12:45 – 1:00 p.m.	Policy Discussion: Research Needs	Marshall / Beecher
8	1:00 – 1:15 p.m.	Policy Discussion: Leveraging Community Action	Williams / Mobley
9	1:15 – 1:45 p.m.	Communications / Messaging: BRPA Findings & Recommendations	Ciaccia / Brown
10	1:45 – 2:00 p.m.	Report Development / BRPA Process Review	Rothstein*
** Indicates designated facilitator for group discussion*			

Appendix III: Increasing Block Rate Structure Implementation

Implementation of the recommended Increasing Block Rate Structure is anticipated to require at least 2 years because of the need to implement several high priority initiatives and the complexities involved in designing and implementing the block rate structure. The high priority initiatives will provide the foundation for more effective billing and collections as noted in the BRPA report; the rate design complexities involve billing system programming, financial analyses and customer service training.

PRIORITY INITIATIVES:

- Interactive Voice Recognition (IVR) System
- Name (Responsible Party) Based Billing
- Customer Service Initiatives:
  - Development of Customer Service Scripts
  - Customer Service Representative Assessments
  - Customer Service Training
  - Collector Unit Additions and Upgrades
- Billing Data and (Enquesta) System Enhancements / Upgrades
  - Data Cleanup (Customer Reclassification, Billing cleanup, etc)
  - Reconcile Estimating Accounts vs Enquesta Billing Data
  - Credit and Collections Module implementation (Enquesta functionality)
  - Enquesta System Version Upgrades
  - Develop Data Dictionary for Billing System
  - Build in-house reporting capabilities in house

INCREASING BLOCK STRUCTURE REQUIREMENTS

- Analyze / verify customer classifications (residential, non-residential)
- Develop and test bill frequency distribution reporting by customer class
  - Enables customer segmentation by usage block
  - Customers into various structures
- Develop financial model to support increasing block rate structure
  - Develop revenue forecasting capability under alternative structures
    - Assess consumer price elasticity
  - Analyze relationship between cost of service and rate blocks
- Develop analyses of potential customer bill impacts by usage level
- Develop and test requisite modifications to billing system and business processes
  - Design and test reports on revenue performance under new rate structure
- Train customer service / financial management personnel
- Develop public / consumer information to provide foundation for implementation

EXHIBIT – 15

Explanation of Charges On Your Water Bill

(Residential Customers)

Water & Sewerage Department

Water Usage: The cost of service for each centrum cubic feet* (CCF) of water used during a billing period is recorded by the water meter and based on the DWSD Inclining Block Rates. Block 1 provides one rate for every water customer in Detroit that uses 4,500 gallons (6 CCF) of water or less per month, and Block 2 is a higher rate for usage above 4,500 gallons per month as higher volume users put more demand on the water system. Low-income households are eligible for a fixed rate – enroll by calling Wayne Metro at 313-386-9727 or waynemetro.org/DWSDlifeline.

Water Service Charge:** A fixed monthly amount based on meter size to cover the cost of the meter, billing, and customer service.

Sewerage Disposal: The cost to collect, treat and dispose of untreated sewage for each CCF of water used during a billing period. Single-family residential properties will not be charged for sewerage usage above 12 CCF.

Sewerage Service Charge:** A fixed monthly amount to cover the following:

Operations, Maintenance, and Repair Charges (OM&R): Amount for day-to-day customer service and maintenance operations.

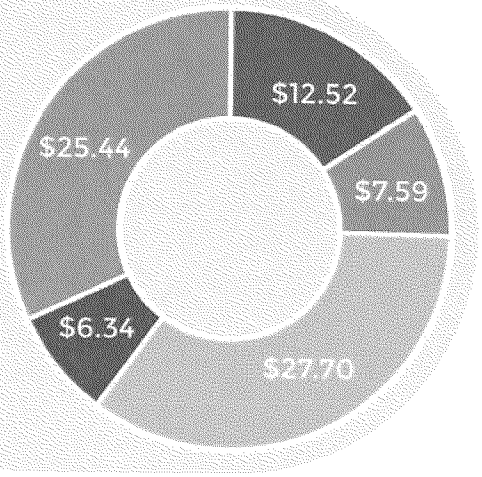
Capital Charges: Cost of improving and expanding meters, service centers, and equipment.

Drainage Charge*:** Monthly fee for the cost to collect and treat stormwater and snowmelt as required by the law, calculated by hard, impervious surface acreage. An automatic 25% credit for disconnected downspouts which flow onto the lawn and/or into a rain barrel is applied to bills for parcels subject to the fee.

Average Monthly Bill for Detroit Residential Customer****

$79.59

- Water Usage
- Water Service Charge
- Sewerage Disposal
- Sewerage Service Charge
- Drainage Charge



*CCF (Centrum Cubic Feet) equals 100 cubic feet or approximately 748 gallons of water.

**Amount is applicable whether or not water is used during the billing cycle.

***Amount is applicable whether or not water is used during the billing cycle. Parcels with less than 0.02 impervious acreage are not subject to the drainage charge.

****Based on 5 CCFs of water for an average family of three members using a 5/8-inch meter and 0.05 impervious acreage.

EXHIBIT – 16

Mayor, DWSD announce Detroit's first income-based water affordability plan

JUN 28 2022

WATER AND SEWERAGE DEPARTMENT

Mayor, DWSD announce Detroit's first income-based water affordability plan

- New fixed-rate plan reflects advocates' recommendation that water should be no more than 1.8% of the average household income.
- SNAP and Food Assistance Program enrolled households will have $18 monthly water bills beginning August 1.
- Qualifying Detroit households who enroll will also have their water bill balance erased.
- Income-eligible Detroiters apply through Wayne Metro at 313-386-9727 or waynemetro.org.
- DWSD will launch 60-day public education and listening session to hear feedback and identify improvements before January launch.

DETROIT – Today, Mayor Mike Duggan, Detroit Water and Sewerage Department (DWSD) Director Gary Brown, community leaders and water advocates announced the DWSD Lifeline Plan, Detroit's first-ever income-based water affordability plan. The plan was approved today by the Board of Water Commissioners.

The Detroit Lifeline Plan, developed in partnership with Detroit community advocates and water affordability experts, offers qualifying customers a fixed monthly rate as low as $18 per month and erases past debt on Detroiter's water bills. It also will help achieve advocates' long-standing goal of a system that charges low-income residents no more than 1.8% of their average monthly income for water service. City officials say the long-hoped-for plan will help thousands of Detroit residents facing water insecurity and is now possible due to regional, state and federal funding.

"When we announced the extension of the water shutoff moratorium through the end of this year, we committed to working toward solution to permanently end water shutoffs for low-income residents," said Mayor Mike Duggan. "The new Lifeline Plan is a major step toward that goal, and those enrolled will continue to participate in a moratorium. We are calling on all elected officials and community leaders to join us to ensure this new program is funded long-term by the state and federal dollars."

The plan approved by the Board of Water Commissioners includes a new inclining block rate structure for water usage that provides a lower water rate to all DWSD customers up to 4,500 gallons per month. Income-qualifying households will pay as little as $18 per month total for water, sewerage and drainage costs and no more than $56 per month. Currently, an average Detroit household with three people uses between 2,300 and 3,000 gallons of water per month and pays $81.62 per month for their water, sewerage and drainage.

"For nearly 10 years we have debated with water advocates whether Detroit could implement a true, income-based water affordability plan," said DWSD Director Gary Brown. "There were many differences of opinion on the subject, and in most cases we agreed on the need but not the path."

Former Detroit health director and national health advocate Dr. Abdul El-Sayed said, "For too long, low-income Detroiters have lived in fear of having their water shut off because they couldn't afford it. Solving water shutoffs vexed us when I served the city as health director between 2015 and 2017—but I'm honored to have been able to work with Mayor Duggan, DWSD leadership and the city's committed water advocates to develop a plan that guarantees an affordable rate for every low-income Detroiter. Losing water access because you can't afford to pay your water bill should forever and always be a thing of the past. And that's a testament to people working together. Now we need to do the same to secure funding from regional, state, and federal sources to ensure this program's future."

How the plan works

The DWSD Lifeline Plan provides qualifying Detroiters up to 4,500 gallons of water per month at a fixed rate based on their household income. The plan is divided into a three-tier system based the average monthly household income for that tier, which will determine precisely how much the household will pay if the household stays under the allotted 4,500 gallons of water per month.

The DWSD Lifeline Plan's three tiers:

- If you receive SNAP/FAP benefits – You pay $18 a month for water, sewer, and drainage services;
- If you are a low-income household (non-SNAP/FAP) – You pay $43 a month for your total DWSD bill; or
- If you are a moderate-income household (non-SNAP/FAP) – You pay $56 a month for your total DWSD bill.

DWSD has based the plan's tiers from a nationwide study of water affordability spearheaded by the Office of the People's Counsel (OPC) of the District of Columbia in Washington, D.C.

If water usage exceeds 4,500 gallons per month, the household will be charged for the additional usage based on DWSD's new inclining block rate structure. For example, under the rates approved today, if the household is enrolled in SNAP and the Lifeline Plan and they use 6,000 gallons of water their bill will then be $38.06 instead of $18. Therefore, there is incentive in monitoring water usage.

Under the DWSD Lifeline Plan, the total water bill will be 1.8% of the average monthly household income for each of the three tiers. This is a standard set by community advocates and water affordability experts. The program is funded by regional, state, and federal dollars including the Water Residential Assistance Program (WRAP) and the federal Low Income Household Water Assistance Program (LIHWAP).

When enrolled in the Lifeline Plan or DWSD's 10/30/50 payment plan, the Detroit household continues to participate in a shutoff moratorium. The moratorium will end for all residential water users on January 1, unless you are low-income and enrolled in a program.

Brown added, "WRAP, a compassionate program and with annual regional funding, helped get us to this point. WRAP funding will support the LIFELINE Plan, along with federal funding from LIHWAP. But WRAP is an assistance program. Whereas the DWSD Lifeline Plan is an affordability program that takes into account a household's income."

Who is eligible?

Income-eligible Detroit households include:

- The 2,500 households currently enrolled in WRAP will be auto-enrolled in the new plan beginning today;
- The 19,000-plus households who were previously in WRAP can immediately qualify and will be contacted by Wayne Metropolitan Community Action Agency;
- Low-income-eligible households; and
- Households receiving SNAP/FAP benefits.

Qualifying residents can enroll beginning July 1 by calling Wayne Metro to enroll now at 313-386-9727 or apply at www.waynemetro.org.

Sixty-Day Community Engagement Effort and Expanded outreach directly targeting eligible residents; DWSD to schedule fairs this summer

We the People of Detroit asked for a 30-45-day public comment period and DWSD is providing up to 60 days of community engagement to solicit feedback for the Board of Water Commissioners consider amendments later this year. DWSD, Wayne Metro and coalition members will host fairs this summer to enroll qualifying households and seek input on the Lifeline Plan that can be taken to the Board of Water Commissioners for future amendments

Director Brown is building an inclusive coalition of community leaders and activists who will directly engage with income-eligible Detroiters to educate them on the Detroit Lifeline Plan and get them enrolled.

In addition to fairs and outreach by coalition members, Detroit-based and minority-owned Human Fliers will canvass neighborhoods over the next several months, going door-to-door to more than 50,000 likely eligible households. This figure is based on Census tracts and DWSD billing data. A preliminary door-to-door effort started in May.

Wayne Metro to invest $50M to prevent household water leaks

If a residential customer's water usage exceeds 4,500 gallons per month, the water bill will reflect a charge in addition to the capped Lifeline rate. Overage of the 4,500 gallons per month can be caused by issues like faulty plumbing and leaky/running toilets.

After final approval from Governor Gretchen Whitmer, Wayne Metro will invest $10 Million in state funding per year for the next five years to help low-income residential customers repair leaks in their homes and keep their water usage under 4,500 gallons per month to maintain the DWSD Lifeline Rate.

Detroit water customers can monitor their real-time water usage through an existing mobile-friendly DWSD Customer Service Portal at https://csportal.detroitmi.gov; access to a mobile device and/or Wi-Fi service via a collaboration with Wayne Metro and other partners, and automated calls from the DWSD billing system when their usage nears 3,000 gallons.

Increased water shutoff prevention

No Detroit resident will face a water shutoff if enrolled in the Detroit Lifeline Plan or the 10/30/50 Plan. DWSD will continue working with Wayne Metro and coalition partners to ensure it offers eligible Detroiters the help they need.

For households at-risk of a Detroit water shutoff:

- Clear notice on DWSD bill;
- Door hanger notice with information on the DWSD Lifeline Plan;
- Personal outreach with sign-up at your doorstep; and
- 90-120 days of outreach effort per customer.

The new inclining block rate effective August 1

DWSD conducted a rate study this year with water and sewer rate expert Stantec. Today, the Board of Water Commissioners approved a new rate structure effective August 1. All Detroit water users will be charged a lower rate for usage at or below 4,500 gallons (6 CCF). The rate is $2.504 per each CCF per month at or below 6 CCF. Above 6 CCF, the uniform rate is $4.492 per CCF per month. There are approximately 748 gallons in each CCF. The sewage rate is $5.40 per CCF for all usage. The drainage rate went up slightly to $678.28 per impervious acreage (hard surface area) from $677 per month.

About the Detroit Water and Sewerage Department

The Detroit Water and Sewerage Department (DWSD) delivers clean water and collects sanitary sewage and stormwater from more than 230,000 accounts, representing a residential population of nearly 700,000. DWSD's water system consists of more than 2,700 miles of water main and 29,000-plus fire hydrants, and the combined sewer collection system has nearly 3,000 miles of sewer piping, more than 90,000 catch basins and 16 green stormwater infrastructure projects within the city of Detroit. Since June 2019, DWSD has committed $100 million per year to begin to address the aging infrastructure, including replacing lead service lines. To learn more about DWSD or to request water services, make payments, apply for affordability programs, or report water or sewer emergencies, call DWSD Customer Service at 313-267-8000, use the Improve Detroit mobile app, or visit www.detroitmi.gov/dwsd.

EXHIBIT – 17

In The Matter Of:

DWSD/Block Rates v.

Water Usage Impact

December 20, 2022



Judy Jettke

& Associates

COURT REPORTING AND VIDEO

Original File DMBWEB.txt

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TRANSCRIPTION OF DETROIT MEANS BUSINESS WEBINAR

Transcribed by Carolyn Grittini, CSR-3381

MR. ELHADY: Welcome everyone. Thank you for joining us for our monthly series of DMB Live. DMB Live is a DMB resource call hosted by district business liaisons, featuring city departments and other small business focused resource opportunities. We host these calls every first Monday of the month from ten a.m. to eleven a.m. If you miss it, you can find it live stream at our Detroit Means Business Facebook page or on our website.

What is DMB? Detroit Means Business is helping make Detroit the place for small business owners to thrive. DMB is Detroit's front door to entrepreneurial success and the one place dedicated to driving a strong small business community; finding solutions, making connections and let DMB help your small business soar. For more information, please visit www.detroitmeansbusiness.org.

What are DBLs. District Business Liaisons are here to help you grow and succeed as a Detroit neighborhood business. DBLs can help navigate city processes, connect you to resources to grow your business, improve your business environment in Detroit's neighborhoods. If you need help finding your DBL, please visit www.ddc.org/districtbusiness-

liaisons. The link is available in the chat.

So I would like to set some ground rules. This session is being recorded and streamed live on Detroit Means Business Facebook page. This call is for educational purposes only. Detroit Means Business and its affiliates are not liable for any information provided today. The opinions expressed in the presentation are solely those of the presenter and not necessarily those of Detroit Means Business. The information contained in this presentation is not intended to be relied on for tax, legal advice. Attendees are advised to consult with its own tax and legal consultants before engaging in any transactions.

If you have any questions, please use the control alt feature located at the bottom of your screen. If you would like to ask any questions verbally, please raise your hand and you will be called on. The chat feature is reserved for links and resources.

So I would like to introduce myself. My name is Sami Elhady, and I'm the district business liaison for District 7. Today we will be speaking with Bryan Peckinpaugh, the Public Affairs Director from the Detroit Water and Sewerage, and the topic today is how does DWSD impact my small business.

Thank you for joining us for this important conversation. I would like to hand it off to Bryan to introduce himself.

MR. PECKINPAUGH: Thank you so much for that introduction. I appreciate it. Thank you for having the Detroit Water and Sewerage Department at your Detroit Means Business Webinar this morning on this last Monday before Christmas and the holiday break. Thank you for the opportunity.

Again, my name is Bryan Peckinpaugh. I'm the Public Affairs Director with the Detroit Water and Sewerage Department, and I'm going to share my screen so I can run through my presentation. There we go. So first I want to talk about DWSD's new inclining block rates for water usage.

This is one of the recommendations that came out of the Blue Ribbon Panel for water affordability that city council requested the department create back in 2015. And we've done several studies, and most recently, we did a comprehensive rate study.

Let me go to the next slide. So traditionally, the Detroit Water and Sewerage Department has based service charges that are cost of service, we are an enterprise city department, so we

Page 5

charge for our cost of service. We base that on a flat rate for water and sewerage base on our cost to provide that service and based on volume at the meter or meters, depending on how many you have in your business, no matter the usage. So there is a flat rate based on volume, no matter the type of usage or the level of usage.

Last year we conducted a comprehensive rate study, we analyzed volume usage across all our customers. We have 220,000 residential accounts and about 30,000 nonresidential accounts. So non-residential accounts include businesses, small businesses, large commercial customers, industrial customers and non-profits as well as the faith-based community.

So we did that over a twelve-month period, and we were able to look thoroughly at our rate structure. What we found is that we are able to move more costs to the water side of the billing system, due to the cost to provide that service; which in turn, you'll see later, reduced the volume rate for sewage. And then as of August 1st, 2022, we launched a two-tier inclining block rate for water usage.

Now, why inclining block rate? Again, we did a comprehensive rate study so that inclining block

Page 6

rate, the two tiers, proportionally allocates costs between water and sewer customers and counts for varying demands placed on the water systems.

What the benefit is to small businesses, such as businesses that have -- maybe you only use water for your restrooms for your employees and some guests. So the two-tier system, the inclining block rate, offers a lower rate for basic water usage for all customers, commercial customers and residential, a much lower rate for the basic water usage, and then more demand on the system, there's a second higher rate for above that usage.

The Board of Water Commissioners approved the inclining block rate for water usage as of August 1st, 2022, as of this year, and that rate study is available for you to review. It's under documents@detroitmi.gov/dwsd. You can freely review that rate study.

So the inclining block rate structure for water usage, just for the water usage side, based on your meter volume inside your building, the block one rate is for every customer that uses 4,500 gallons or less per month. So basically, your basic sanitary usage, basic water usage, handwashing, et cetera.

So block two is a higher rate for usage

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above that 4,500 gallons per month, as the rate study revealed that usage at or above this level places more demand on the water system, more volume going through the water mains, more maintenance when we have more pressure and volume going through those water mains for that higher usage.

So here are the two block rates. So the benefit is for that basic usage, the rate actually decreased. So we have about 70 percent of our customers have seen a slight decrease in their water bill since August 1st 2022. Now because more water above the 4,500 gallons puts more demand on the water system, that rate above 4,500 gallons or six CCF, which is what we use for the meters, six CCF calculation, and that's how you are billed, by CCFs, that rate for block two is 4 dollars and about 50 cents per CCF above the six CCF or above 4,500 gallons. One CCF is 748 gallons. And that is illustrated on your monthly DWSD bill.

Now the good news here, too, is that because we moved some of the cost of the water side of this system, the sewage rate went down. Last year sewage rate was $6.54 by CCF per month. $6.54 per month per CCF.

Now the sewage volume rate is now $5.54

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per month at each CCF. So there was a reduction there, per CCF per month. We did increase the drainage charge slightly, but historically, you've seen since the transition in 2016 to an impervious acreage rate for the hard surface area, sidewalks, parking lots, driveways, where we based the drainage charge on, that rate went up slightly; however, it did not have that dramatic increase that we've seen over the years where it went up several dollars every year.

So what can business customers do? The first thing, if you don't have your business name on the account, the water account, water and sewer account, we want to make sure that you establish the account officially with DWSD, that it's in your business name, or if you're a sole proprietor, if it's in your name, so that you can properly manage your account because you can go on the self-service portal and you're able to pay your account, and if you have multiple accounts, you can enroll in auto pay, you can enter payment arrangement, if you have a past due balance. You can monitor realtime water usage through the portal as well and look at your bills and water usage on that portal. It's mobile friendly. It's accessible at csportal.detroitmi.gov, as well as through the city website and you just click on water

EXHIBIT 18

In The Matter Of:

Ajax Metal Processing, Inc. v.
City of Detroit

Andrew Burnham
July 30, 2025



Judy Jettke
& Associates
COURT REPORTING AND VIDEO

Original File BURNHAM_250730-1.txt
Min-U-Script® with Word Index

STATE OF MICHIGAN
IN THE CIRCUIT COURT FOR THE COUNTY OF WAYNE

AJAX METAL PROCESSING, INC., a Michigan corporation, individually and as a representative of a class of similarly situated persons and entities,
Plaintiff,

Case No. 23-015314-CB

vs. Hon. Annette J. Berry

CITY OF DETROIT, a municipal corporation,
Defendant.

The Deposition of ANDREW BURNHAM
Taken via Zoom Videoconference
Commencing at 9:01 a.m.
Wednesday July 30, 2025
Before Pam Goletz, CSR-5097

APPEARANCES:

GREGORY D. HANLEY
EDWARD F. KICKHAM, JR.
Kickham Hanley PLLC
40950 Woodward Avenue, Suite 306
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(248) 544-1500
Appearing on behalf of the Plaintiff.

KIMBERLY L. SCOTT
Miller, Canfield, Paddock and Stone, P.L.C.
101 North Main, Seventh Floor
Ann Arbor, Michigan 48104
(734) 668-7786
Appearing on behalf of the Defendant - City of Detroit.

ALSO PRESENT:
David Archer, Lathrop GPM - representing Stantec
Scott MacGriff, In-House Detroit Counsel
Remy Sachs

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Via Zoom Videoconference
Wednesday, July 30, 2025
9:01 a.m.

ANDREW BURNHAM,
was thereupon called as a witness therein, and having first been sworn to testify to the truth, the whole truth and nothing but the truth, was examined and testified as follows:

EXAMINATION
BY MR. HANLEY:

Q. Good morning, Mr. Burnham. We've talked before. My name is Greg Hanley. Can you hear me fine?
A. I can hear you okay.
Q. Okay. I'll try and keep my voice up. As I said before we went on the record, for some reason my camera has been hijacked and I can't get it going. But I think we've confirmed that when I share the screen you're able to see the screenshares. Is that correct?
A. I was and if I'm not able to I'll let you know.
Q. Okay. And if for some reason you can't hear me, let me know that as well.
A. I will.
Q. All right. It's my understanding that you are still

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employed by Stantec.
A. That's correct.
Q. And how long have you been with Stantec?
A. Including service with acquired companies, since 2003.
Q. Okay. And what's your job now?
A. I'm a vice president and I lead the management and technology consulting sector for North America.
Q. Okay. And at least part of your job has been to act as a consultant to municipal utilities for purposes of rate making and cost studies and the like.
A. That's part of my technical experience and background and part of what I do.
Q. Okay. I know that you've done some work in Ann Arbor and, of course, here in Detroit. Are there any other municipal utilities in the state of Michigan that you've performed consulting services for?
A. Over the years there's been a number of them. Some aren't necessarily current relationships, but I've done work in the past with Pere Marquette Township, the City of Manistee as well as the City of Kalamazoo. Provided some limited support to efforts that my team has done with the cities of Battle Creek as well as Midland. There's a few other townships and cities that I've provided services to as well, but those are some of the more notable ones.
Q. Okay. Did your work for either Kalamazoo, Battle Creek or

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Midland require a cost of service study for water utility?
A. It did.
Q. Okay. And did you develop and design rates for each of those, water rates for each of those three municipalities?
A. Our firm developed water rates. My role was pretty limited in Battle Creek and Midland. I was in a similar role with our work with Kalamazoo. It's what I did in the past with Detroit.
Q. Okay. And Kalamazoo -- well, let's back up. You understand that this case, the central issue in this case that we're here on today is the rate structure for water rates in City of Detroit, correct?
A. Specifically for the water volumetric rates is my understanding.
Q. Yes, the water volumetric rates. And there's been some disagreement among our side and the City as to what you call this rate structure, whether it is an inclining block rate structure or something else. But can we agree that it at least involves the existence of two tiers of rates?
A. It includes two different rates. I would agree with that.
Q. Right. And different rates depending upon the amount of water that's used during any particular period, correct?
A. Well, I guess two different rates depending upon what level of water usage used in the billing period, up to a certain level of use for one rate in particular.

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Q. Right. And just to make it clear, if you use up to .6 Mcf you're charged a lower rate than all your usage above .6 Mcf, correct?
A. That was the rate structure that was developed as part of our study, yes.
Q. Right. And the rates have changed, but they started out in fiscal year 2023 and the first tier was about $25.04, correct?
A. I could verify that if I was able to look at my report, but the order of magnitude sounds familiar.
Q. And I'm assuming that you would have your report with you and you should feel free to consult it if you need to supplement anything that you're saying.
A. I don't have anything open on my screen, but if I should then I can do that.
Q. Well, it won't come as a surprise to you that I've marked your report and will be using it extensively throughout the deposition. I'm just saying I don't object to you if you had a hard copy and that's easier for you to consult it that way because we're going to be using it extensively.
A. Well, the only caveat to that I would ask is that we're a green company, so I would have the report on my separate screen located to my left if that's okay.
Q. All right. That's totally fine, however you want to do

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it. I'm an old school guy, so I've got all the paper in front of me.
A. Understood.
Q. In Kalamazoo, did you design volumetric rates that had a differential rate based upon the volume of usage?
MS. SCOTT: Objection, form.
A. The work that we've been doing with Kalamazoo, it's been in a context that has been fairly well established so we really haven't identified any structure modifications. What the work has been in Kalamazoo has been updating financial forecast and levels of rates each year and conducting cost allocations to different identified customer classes. But we haven't really been asked to identify changes to the structure of their rates.
BY MR. HANLEY:
Q. All right. But does the structure have a tiered structure on the water side?
A. I would have to go back and look to confirm. It may, but I haven't looked at the Kalamazoo project in a while and I don't want to speculate.
Q. Okay, fair enough. I'm not going to belabor it. You are familiar with the manual of water supply practices known as the M1 Manual.
A. I am familiar with the American Water Works Association Manual, M1, yes.

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Q. And it's in its seventh edition currently.
A. Currently, correct.
Q. All right. Do you agree that the M1 Manual provides guidance to rate making professionals concerning water rates?
A. I do.
Q. And do you agree that the M1 Manual is deemed authoritative and is routinely relied upon by rate making professionals?
A. I would say in many instances that's been the case. In some states that may not necessarily be the case.
Q. All right. But you followed it and adhered the guidelines of the M1 Manual in preparing the report that is at issue here, correct?
A. For Detroit and for that rate study and in general, we do follow the practices and principles as identified in M1 as well as other rate making publications from industry groups like American Water Works Association, yes.
Q. All right. And would it be fair for me to assume that in your report you've listed the various authoritative sources that you relied upon?
A. We, in the report, did list I think a few of those sources. There may have been indirect utilization of practices and principles from other manuals of practice like M54 which is Rate Making for Small Systems. But

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generally speaking the core ones that were, you know, most heavily utilized for guidance were included and listed in the report.
Q. Right. And are there any AWWA manuals that are devoted specifically to rate structures?
MS. SCOTT: Objection, form.
A. Well, the manual M1 is devoted to the development and guidance of practices for rates which includes rate structures. Manual M54 similarly talks about developing rates for small systems or those that have data limitations. So those would be the two manuals that I'm familiar with from AWWA that speak to guidelines and practices for establishing rate structures.
BY MR. HANLEY:
Q. Okay. And what I meant was, is there -- you understand that with leaving aside bad debt expense the thrust of our case is the final stage of the rate process, which is rate design, correct?
A. Oh. I see what you're asking now. Yeah, the understanding there being that this case is really focused on rate structure, that's my understanding. Yes.
Q. Right. And what I'm saying is obviously the M1 Manual addresses rate design and so does Manual 54 for small systems. But is there any AWWA publication or guidance that is devoted strictly to rate design or rate structure?

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A. Strictly to rate design or rate structure? I don't know that there's a manual. There may be white papers out there that could exist that have been articles on just rate structure themselves or journal, American Water Works Association Journal articles. But manuals of practice, I'm not aware of manuals of practice that are devoted just to rate structure.
Q. Okay, fair enough. Do you agree that local laws and regulations can impose limitations on municipal water rates?
A. In terms of like local laws like from an ordinance? Is that what you're referencing?
Q. Ordinances or charters or state statutes, that sort of thing.
A. I think those would certainly have consideration into the rate setting process at a minimum.
Q. Right. And although -- you're not a lawyer, are you?
A. No, sir, I'm not.
Q. Okay. Although you're not a lawyer, part of your job as a rate maker is to at least take into account whether there are external restrictions like charter ordinances, statutes that must inform the rate making process.
A. We certainly endeavor to be aware of those and consider them to the extent possible. And in some instances that's through firsthand knowledge or reliance on our clients and

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their legal counsel or external legal counsel that their staff, you know, for highlighting those things for our benefit for the study as well.
Q. All right. And I'll represent to you that I'm not aware of a state statute that prohibits block rates, but if there was, for example, a state statute that prohibited block rates then that would be something that would trump industry guidance or even M1 Manual.
MS. SCOTT: Andy, give me a chance to object. So I'm going to object on form as well as foundation, speculation and legal conclusion. Go ahead.
A. I'm sorry, I appreciate that. Could you repeat the question one more time?
BY MR. HANLEY:
Q. If there was a state statute that prohibited the use of block rates in water rates, that would have to inform your analysis if you were doing a rate making exercise, correct?
MS. SCOTT: Again, I'm going to object on vague, ambiguous, foundation, speculation, calls for a legal conclusion. Go ahead.
A. Well, hypothetically, if there were a law, I think if I'm tracking the question, you're saying if there were a law that precluded inclining block rate structures that would inform the rate setting process from a consultant's

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perspective, then I would say yes, it would.
BY MR. HANLEY:
Q. Okay. Have you reviewed the City's charter to determine whether there's anything in the charter that would apply to the rate making process?
A. Not specifically in the charter. My understanding, as it relates to the water and sewer rates, was that the only provisions from that, through discussions with staff, were that the rates needed to be equitable.
Q. Okay. And do you have an understanding of what it means to have a rate that's equitable?
A. I think the definition of equity is not something that is commonly defined, but there's general attributes of equity that I think various courts as well as individual practitioners would have in mind.
Q. Okay. Well, how would you have it in mind?
A. I think a lot of the foundation of equity from a practitioner standpoint and my professional opinion speaks to proportionality as a big part of that in terms of having allocations of costs that are in proportional to use and service characteristics. I think that's an important part of it. Maybe not the exclusive part, but an important part.
Q. Right. But in, for example, a tiered rate structure where usage in one of the tiers is charged at a higher amount

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per gallon so to speak, you'd agree with me that an equitable rate is one that designs those rates to reflect a difference in cost in servicing each tier, correct?
MS. SCOTT: Objection. Vague, ambiguous, seeks a legal conclusion, speculation. Go ahead.
A. I'm sorry, Mr. Hanley, one more time, please.
BY MR. HANLEY:
Q. Okay. In terms of applying your definition of equitable in the context of a water rate structure that includes tiers, wherein one tier is priced at a higher amount per gallon than the other tier, equitable rate making requires that the rates that are set reflect a difference in cost in servicing each of the tiers.
MS. SCOTT: Excuse me, objection. Vague, ambiguous, speculation, calls for a legal conclusion and foundation. Go ahead.
A. In terms of establishing different rates for usage, I think the important aspects as embodied in principles in M1 that speak to proportional equity would want to make sure that we have allocations of costs between the rates for the volumes of usage including in those rates that represent reasonable and proportional allocations of those costs.
BY MR. HANLEY:
Q. Right. But if you're charging more for the second tier,

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it should be cost-based, correct?
MS. SCOTT: Objection. Again, seeking a legal conclusion, vague, ambiguous, speculation, go ahead.
A. I think by nature of the rate making process and the steps that you have to follow in terms of establishing what those costs of providing service are and allocating those to different usage or demand parameters to then ultimately establish rates, they inherently have to reflect cost.
BY MR. HANLEY:
Q. All right. Have you reviewed any caselaw applicable to block rate structures?
A. I can't say that I specifically have. In the past I've seen various court cases or been made aware of them in various jurisdictions relative to inclining block rate structures.
Q. All right. Have you ever heard the term cost justified?
A. Well, I don't know that I have an industry standard definition for cost justified, but to me that would indicate that rates or something has to be justified or supported based upon cost.
Q. Okay. Do you agree that the first step in municipal water rate making is to determine what are called the revenue requirements of the water supply system?
A. I agree that that's generally reflective of that first step. Some may call it determining the cost of service as

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the revenue requirements are taking that cost of service and deducting from it, offsetting revenues or miscellaneous revenues.
Q. All right. So if you were explaining it to someone on a jury or someone with no experience, would it be accurate to say that it's a process of adding up all the costs to provide the service that have to be recovered in order to cover the cost of the system?
A. I would agree it's a process of identifying all those costs of providing service and then determining how many of those are required to be captured from rates or the revenues that would be used to support them.
Q. Okay. Because sometimes a utility gets revenues from non-rate sources which get applied to the revenue requirement and then the remainder is what you recover through rates and charges.
A. I would just say I think technically, to differentiate the terminology, that's why I mentioned cost of service. You determine the cost of service, apply those offsetting revenues or other funding sources to then determine what are the revenue requirements that your rates have to recover.
Q. Okay. And if the utility is -- well, rate making is a prospective exercise, correct?
A. In many instances it's prospective, relying upon annual

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budgets for the upcoming year as well as prospective capital improvements. But there are some aspects that are existing. For example, for existing debt service payments for principal and interest on debt that's been taken out previously. So in many instances it's forward-looking. In some instances it includes some existing or historical cost and in other instances there are occasions where it's an indicative rate and it's trued up to actual cost at the end of a year. So it's not a blanket yes or no. Generally speaking, they're forward-looking, but not necessarily always.

Q. And so there may be some future costs that are known like that service payments, but there may be some future costs that are unknown. For example, what the actual water usage costs are going to be because it could be a really hot, dry summer or it could be a wet summer, for example.

MS. SCOTT: Objection, form. Go ahead.

A. So yeah, there are when setting rates prospectively for a year to capture your revenue requirements. You are inherently having to make estimates of demands and actual demands, you know, can and often do differ that what was planned for in establishing those budgets and those rates.

BY MR. HANLEY:

Q. All right. But in doing rates you're aware of a specific revenue source that's going to be used in that coming

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year. And let's just break it down. When you did your rate study, it was for fiscal year 2023 which began on July 1st, 2022, correct?

A. Yeah. The first year of the rate study was for fiscal year '23. Fiscal year 2023, yeah.

Q. And I know that the final report was issued after the beginning of that fiscal year, but it purported to establish rates for fiscal year '23, correct?

A. That is correct. I believe the final date of the report was September of '22, but with the intention of having rates established for July of '22 and much of the work for the study was done before the report was completed.

Q. Okay, fair enough. But if in the course of doing your report for fiscal year 2023, you became aware that there was going to be the receipt during that fiscal year of some non-recurring extraordinary income like, for example, a grant from, a governmental grant, state or federal grant, that would be something that would be factored into your analysis, correct?

MS. SCOTT: Objection, speculation.

A. Depending upon timing. So as I mentioned, when we conduct studies, you know, we work with the most current data available. But then the analytical process has to occur, scenarios and options have to be developed and evaluated and then ultimately recommendations have to be prepared

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and presented and modified as appropriate when they're presented to stakeholders. And then a report is prepared. So depending upon when that occurrence happens, it may be factored into that process in a variety of different ways. If it happens soon enough, during the conduct of the analysis, it could be considered right then and there. Or alternatively what could happen is if that becomes known after the study is completed, it could then be factored into future years' subsequent rates that the municipality would set as they update their budgets each year.

BY MR. HANLEY:

Q. Right. But if you're aware while you're developing the rates and before the fiscal year begins for which the rates are being set and you find out that there's going to be free money arriving to the utility through a grant or otherwise, that's at least something that you would need to consider. How it would factor in is another issue, but you need to at least consider the existence of those funds and how they need to be accounted for.

MS. SCOTT: Objection. Asked and answered, speculation.

A. Again, depending upon timing, you know, what that revenue source is, the certainty around that source and the magnitude of it, that would certainly be something that would merit consideration. But exactly how that would be

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factored in or potentially handled or not and deferred to subsequent years, you know, that would have to be determined based upon the circumstances.

BY MR. HANLEY:

Q. Were you aware when you were doing your report back in 2022 whether there were such additional sources of free money, like grants, that were expected to be received?

MS. SCOTT: Objection, form.

A. I can't recall specifically if there was a known amount. I do recall discussions and assumptions that were made in the financial forecast about principal forgiveness for some lead service line replacements and assumptions were made about that. And there was also a separate parallel initiative that the City was doing relative to an assistance program that there may have been some funding for that. But beyond those, that's about all I can generally recall as I sit here today.

BY MR. HANLEY:

Q. All right. Once you completed your report, have you done any more work for the City of Detroit on the rate making side?

A. So me, personally, my involvement has been pretty minimal. As Stantec, we have been asked to do reviews each year of updates to budgets and units of service estimates that DWSD is making to support its annual budget and rate

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setting process. But it's been very much in a support and kind of reviewer role of what DWSD and the department is doing for its budgeting and rate setting process.
Q. To your knowledge has DWSD performed, either by itself or using a consultant, a kind of ground up cost of service study since your study was done?
A. I'm not aware of any having been conducted. It doesn't necessarily mean it hasn't been, but I'm not aware of any.
Q. All right. But are you aware of what the City has done to adjust rates since fiscal year 2023?
A. Not specifically, but I generally know that rate adjustments have been made as part of the annual budget process. Others on my team may be more knowledgeable about the specific rate adjustments that have been done through that process over the subsequent years.
Q. But have you been told that the rate adjustments have generally been rate of inflation kind of adjustments as opposed to specific adjustments based on analysis of actual costs?
A. I think the level of increases have been modest. I don't know the specific nature of them nor do I know how they've been applied to the different rate structure elements. So I'm just not at a point to be able to speak to that one definitively.
Q. Okay. So we were talking about the steps toward deriving

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the rates and we talked about revenue requirements. Do you agree that once the revenue requirements are established the next step is to proportionally distribute the identified revenue requirements among the various systems and types of customers served based on accepted industry best practices?
MS. SCOTT: Objection, form.
A. I would say generally after completing that cost of service and revenue requirement analysis, the next step is to perform a cost of service study that distributes costs to determined functions and identified customer classes.
BY MR. HANLEY:
Q. Okay. Is it fair to call that process cost allocation?
A. I would generally call it cost of service analysis, but you know, for purposes of this discussion I think cost allocation is fine.
Q. Okay. And finally, do you agree that once the cost allocation is completed the final stage is rate design?
A. So after you've completed the cost allocation or cost of service analysis to identify the different types of costs for the functions and how they would be allocated to units of service or demand parameters, you would then identify and establish rates based upon those cost requirements for the identified structure.
Q. Okay. And do you agree that the purpose of a rate design

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is to develop rate structures that proportionally recover cost of service and revenue requirements from each system and customer class?
MS. SCOTT: Objection, form.
A. Could you repeat that one more time? I want to make sure I fully captured it.
BY MR. HANLEY:
Q. I understand that there may be more purposes, but do you agree that one purpose of a rate design is to develop rate structures that proportionally recover cost of service and revenue requirements from each system and customer class?
MS. SCOTT: Objection, form.
A. I think that one purpose of rate structure would be to capture the identified cost of each system from rates for services of that system and also to make sure that the structures or that the structures should also generally reflect fair allocations based upon not just use characteristics proportionally, but also service characteristics. I think there's two important considerations there.
BY MR. HANLEY:
Q. What's the difference between a use characteristic and a service characteristic?
A. So the service characteristic would speak to, say, the number of service connections, the size of the service

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connections and the type. For instance, is it a dedicated private fire line versus a, you know, service going directly to a residence or a business? And so the number and size of those connections and the meters on those connections, to me, are an important part of the rate structure considerations because certain costs are associated with those service characteristics, whereas other costs may be more appropriately captured in rate structure through usage rates that reflect, really, the use characteristics. How the water is being used and the nature of the water use that influences system cost.
Q. All right. In Detroit, the total water revenue requirement was allocated -- leaving aside private fire lines and -- the water revenue requirement was largely allocated through the volumetric rates and charges and fixed rates and charges, correct?
A. Of the water revenue requirement there was a small amount for fire protection and then the remaining requirements were distributed between fixed charges that varied by meter size and then into the usage rates, the base rate and the new uniform rate.
Q. Right. And so one of the things you had to decide in designing the rates here was how much of the revenue requirement you were going to put into the fixed charges and how much of the revenue requirement you were going to

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put in the volumetric charges, correct?
A. That's a part of really any rate structure is a consideration of how do you distribute those cost requirements between fixed and variable charges when you have those two charge components.
Q. All right. And it goes without saying that the more of the revenue requirement you put into the fixed charges the lower the volumetric charges and vice versa.
A. Given a defined revenue requirement to be recovered, then, yes. When you capture more of that in fixed charges, that means there would be less recovered in variable and vice versa.
Q. All right. When you began your work for the City of Detroit, was the allocation of revenue requirement to the fixed charges higher than it ended up being in your final report?
A. That's an interesting question because I don't have information about how the current fixed charges were established. My recollection is that the cost of service study that we did was the first one that Detroit had done in a number of years, certainly since post-bifurcation from Great Lakes Water Authority. So all we had to compare against was the level of the current fixed charges and then comparing that to the revenue requirements that we identified through our cost of service study. And then

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those portions of those revenue requirements that were determined to be appropriate for recovery and fixed charges.
Q. All right. Were there specific types of expenses that were deemed to be appropriate for fixed charges as opposed to volumetric charges?
MS. SCOTT: Objection, form. Go ahead.
A. Through our study we did identify expenses that we thought were reasonable and appropriate for recovery in fixed charges, yes.
BY MR. HANLEY:
Q. And can you generally describe -- it's not a memory test. We're going to get into your report, but generally, how did you go about allocating the revenue requirement among those two types of charges?
A. Generally the process started with identifying the cost of different functions and identifying the appropriate functions that would make sense for recovery and fixed versus variable charges. And so there was a very extensive cost allocation process for establishing costs associated with fire protection, both public and private. The private piece was included in dedicated fixed monthly charges for those fire line connections. And then we also identified costs associated with various kind of fixed functions associated with basically customer service and

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billing, meters and service lines and then a portion of the fixed, if you will, public fire protection costs associated with GLWA expenses, that and capital. Those were the primary components, as I can recall, that were included in the fixed charge for the -- that would scale by meter size for the non-private fire line piece of the rate structure.
Q. All right. And just so we're clear on the fixed charges, the amount that each user pays in fixed charges is tied to the size of the meter servicing their property, correct?
A. It's tied to not only the size of the meter, but the number of service connections that they have as well.
Q. Right. But the notion is that underlies that is that if you have a larger service pipe your service demands are larger than, say, someone who has a 5/8 inch.
A. Well, to a degree it underpins that. As I recall through the rate study we went through and made sure that in the establishment of those fixed charges, certain costs that didn't necessarily scale based upon the size or the capacity of the meter were flat. So customer-related costs were included in the fixed charges by meter size equally per meter. Meter and service line costs were included in each respective fixed charge, but scaled based upon replacement cost schedules for the different meters and sizes. And then capacity-related costs for the public

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fire protection component, that was scaled based upon the hydraulic capacity of the meters. And those things were added together to build the final fixed charge scheduled. So it's not as simple as maybe as your question was on its face.
Q. Okay, fair enough. But the fixed charges have no correlation whatsoever to usage, correct? To actual usage.
A. So in terms of monthly billing, the fixed charges would occur regardless of the amount of water use that occurred in a month for a customer assuming it was an active account and they were receiving service.
Q. Right. So, for example, if a facility had a three-inch meter but used no water during a given month, they would still incur the fixed charge under the rate structure, correct?
A. That's very common practice and that's what our understanding is of the City's rate structure as well.
Q. Right. And I'm not suggesting there's anything wrong with that, I'm just saying that that's the way it works, correct?
A. That's my understanding, yes.
Q. Right, okay. So I want to talk about the volumetric rates that ended up being implemented. You'd agree with me that prior to August 2022 the City's water rate structure,

their volumetric charges were uniform.
A. The volumetric charges in place to that point it was a single uniform rate applicable to all retail customers.
Q. All right. And are you aware of any time prior to the year 2022 that the City of Detroit employed a tiered water rate structure?
A. That I do not know for sure. I can't speak to it, so I'm not aware of it. But I similarly don't have enough view of history to say that they never did.
Q. All right. But the M1 Manual talks about different types of rate structures. Uniform rate structure is one of them, correct?
A. It's one of several listed in M1.
Q. Right. And again, there may be many, but inclining block rates are a chapter in the M1 Manual, correct?
A. I don't know if they're a chapter, but there's a specific section dedicated to that type of a rate structure as are a couple others.
Q. And there's also a section or part of it dealing with declining block rates, correct?
A. That's my understanding that's in there. There may be others as well. If we could open the manual, we could go through the specific list, but there's a few in there.
Q. Right, okay. But you understand that a declining block rate is one in which greater usage is charged at a lower

volumetric rate than lower usage.
A. So in a declining block rate structure, there would be progressively lower rates for blocks of water use as the water use increases.
Q. All right. And so there are -- the manual contemplates that there could be situations where delivering high volumes of water becomes incrementally lower at higher volumes of usage.
A. I don't know that the manual necessarily suggests that. I know that the manual talks about each of these rate structures, that articulates the -- like on the basis of potential for design, things that could be considered, the benefits, the disadvantages of each. It may speak to industry trends and even some geographic uses of some of the rate structures, but I don't know if it specifically says that without opening the seventh edition and looking for that type of text.
Q. All right. And by the way, do you have access to that today? The M1 Manual.
A. I could if I need to.
Q. Okay. Well, you're probably going to need to.
A. Okay.
Q. But when we get there, I'll let you know. Do you agree that it's part of your cost of service study you shifted a significant amount of costs from the sewer side revenue

requirement to the water side revenue requirement?
MS. SCOTT: Object to form.
A. I think the results of the cost of service study, it really just identified the distribution of the current cost that we had as compared to the current revenue. So again, without the foundation of a prior study it's hard to say what may have shifted from one year to the next. What we can analyze was the current year cost requirements and the allocation of those and compare them against current revenues. That's why you conduct these studies periodically because those things could change over time. So I don't -- to say it's a shift, I don't know if I have a basis to that because all I could compare it to was what was in place in terms of the current revenues and what the cost of service results identified.
MS. SCOTT: Greg, we can't hear you if you're still there.
MR. HANLEY: No, I haven't been talking.
MS. SCOTT: Okay.
BY MR. HANLEY:
Q. I've pulled up what was previously marked in Mr. Rothstein's deposition as Exhibit 14 and I'll -- for the benefit of everybody, I'll show the first page so you can see it's the exhibit that was marked. And you recognize this cover sheet as being the one on your final report

dated September 19th, 2022?
A. Absent the exhibit mark, it looks like our report cover page.
Q. Okay. And again, because we're not working with hard copies, you'll just have to, at least at this point, trust me that this is the whole report. But it is marked and it is complete. On page five of your report, there's a chart of projected annual rate revenue increases. Do you see that?
A. I do see that, table 1-1?
Q. Yeah.
A. Okay.
Q. And so what you were proposing for July 1st, 2022 was that the water increased by 21.2 percent rate revenue and waste water rate revenue decreased by 13.7 percent. Do you see that?
A. I do see those percentages, yes.
Q. Okay. So was this the result of the analysis where you looked at the current costs and rebalanced, so to speak, the revenue needed from each system?
MS. SCOTT: Object to form.
A. Those adjustments for '23 reflect the distribution of the FY23 revenue requirements from our cost of service or cost allocation analysis, as you termed it, between those three different services, recognizing that the FY23 revenue

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requirements overall were about .8 percent greater than what the revenues were in 2022.
BY MR. HANLEY:
Q. Right. But if you go -- above your chart, the second sentence before the chart, it says, the fiscal year 2023 proposed rate adjustments reflect the results of the cost allocation study to rebalance the revenue needed from each system. Do you see that?
A. I do see that, yes.
Q. So the conclusion was that the sewer system rates were recovering more than they should and the water rates were recovering less than they should.
MS. SCOTT: Object to form.
A. I would say based on the '23 revenue requirements, you know, without adjustments to the rates in fiscal '23, that may have been the case without this kind of rebalancing to the rates based on those revenue requirements.
BY MR. HANLEY:
Q. Okay. So what analysis was performed in order to validate or justify this rebalancing?
A. Well, that speaks to the cost of service allocation analysis that's included in the report whereby the 2023 revenue requirements were identified for operations and maintenance expenses, debt, capital transfers, wholesale purchase expenses. They were functionalized to different

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categories of expense within each system, but first they were allocated between the three systems using accepted industry approaches. And so that's described in the report. In some cases, expenses could be directly assigned. In other cases, expenses were allocated using data sources that could be identified or management estimates.
Q. Okay. But is there any part of this exercise of rebalancing that isn't reflected in your report?
MS. SCOTT: Object to form.
A. I might need you to define rebalancing for me because the report reflects the cost of service study that we did. It's intended to be as complete as it can be, but it may not necessarily have included everything that was done.
BY MR. HANLEY:
Q. Right. But there's a lot of schedules. There's one for water and there's one for sewer, but they purport to have like line items of expense, correct?
A. Could you show me the schedules you're referring to?
Q. Give me a second. For example, schedule four seems to be one of them which would be --
A. Did you want to put it on your screen or do you want me to open the report myself?
Q. No, no. I'll find it. It's page 74.
A. That's okay. I just wanted to follow your lead.

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MS. SCOTT: Did you say page 74?
MR. HANLEY: Page 74.
A. You may be able to type it into that box up there with the 26 in it and that'll get you pretty close, that helps you navigate.
BY MR. HANLEY:
Q. Oh yeah.
A. It looks like it might be off by a couple, but that'll get you closer.
Q. Yeah, this is what I'm talking about. I'll spin it around for you.
A. That's okay. I'm familiar with that schedule.
Q. Okay. Can you just tell us what it purports to show?
A. So what this schedule shows and by title it says Cash Out, but it's intending to show the projection of expenditures in line item detail to the extent possible by fiscal year of the rate study. So it's really a projection of those expenses. In some cases in a lot of detail for operating expenses, you know, but department. But then as you scroll down through schedule four, other line items may be, you know, more shown at a high level like pre-bifurcation debt or pension expenses or GLWA expenses. But it's intending to show the projection of expenditures by year.
Q. Okay. And these are cash expenditures?

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A. That's correct, yes, cash expenditures.
Q. Okay. Did cash expenditures form the basis for your rate design?
A. Well, the -- I have to back up to answer your question. So to establish the cost of service or the revenue requirements, the cash needs approach which is identified in M1, was used where it's based on operations and maintenance expenses. That service expenses, transfers for capital, it's intended to represent cash expenditures as opposed to the utility basis of rate making which would factor in things like a rate of return and depreciation. So this was intended to represent cash expenditures or equivalents thereof as the basis of establishing the cost of service that creates the revenue requirements that are ultimately used to develop the rate structure.
Q. Okay. And so it doesn't have depreciation or rate of return, but it does have, you know, capital expenditures to be paid for with cash.
A. That's correct. This list should not include depreciation or rate of return and it will include some capital expenses that should be at the bottom or near the bottom is typically where we present those on these schedules.
Q. Okay. Did you have an actual City approved budget for the water fund or the DWSD water side at the time you finalized this?

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MS. SCOTT: Object to form.
A. I know we had certain budgets for the different years, that would depend on timing. I do not know and can't recall, unless it's in the report text, which it may be up in the earlier sections, if it specifies if we had the '23 budget or not. But if we look at the text, it may be able to refresh my recollection. Earlier in the report, if it's there.
BY MR. HANLEY:
Q. All right.
A. I can't recall without looking at that.
Q. Okay. All right, fair enough. Do you know what an inclining block rate structure is?
A. I have a definition of an inclining block rate structure that I believe is consistent with M1.
Q. All right. And how would you describe it?
A. To me I would generally describe it as a volumetric rate system with multiple blocks or increments of use where the price increases for those multiple blocks of usage. Typically there would be a number of blocks in those structures. We've seen a wide range on that, but generally it's comprised of multiple blocks. Multiple defined increments of usage.
Q. But you can have an inclining block rate structure with only two blocks, correct?

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A. I wouldn't consider that to necessarily be an inclining block rate structure. If you look to M1, it'll talk about a uniform rate structure, but then also talk about how lifeline rates can be applied to any of the rate structures or embodied within them. So in, you know, very simple terms, you could have a uniform rate structure with a lifeline rate that may seem like it's an inclining block rate structure, but it's really just a uniform rate with a lifeline rate.
Q. All right. But that's designations and titles. What's the functional difference between what you've just described and an inclining block rate structure?
A. The functional difference is that you'll have multiple tiers that typically in an inclining block usage rate structure, you're designing multiple blocks around different usage parameters or profiles. So many inclining block rate structures would have, say, the first tier could, not necessarily always, but could be a lifeline tier. But then there would be subsequent blocks above that defined for other usage profiles or percentiles of usage. So that's where you'll see some consistency but then deviation because inclining block rates will typically have established bases for sizing of additional tiers beyond just that first kind of lifeline rate type tier.

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Q. Have you ever designed a water rate structure that had two tiers?
A. That's had basically a uniform -- like an inclining block rate structure that would only have two tiers?
Q. Well, just two tiers. Two tiers because I don't -- for some reason, everybody seems, on your side of the table, seems not to want to call these inclining block rates and I'm trying to figure out why that is so important to you all.
MS. SCOTT: Object to form.
A. Well, it's really a -- the calculation here is really a uniform rate with a lifeline rate component. It's really not necessarily intended to be an inclining block rate structure. Because in that sense there would be challenges, I think, with applying multiple tiers. If you have blocks established based on certain usage profiles beyond a lifeline rate that's extended to all customers, there could be problems associated with multiple tiers going beyond that from a practical standpoint.
BY MR. HANLEY:
Q. But in any inclining rate structure, the first tier is available to all customers, right?
MS. SCOTT: Object to form.
A. Not necessarily.
BY MR. HANLEY:

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Q. It's possible to have an inclining block rate structure where the first tier all customers qualify, their usage qualifies for the tier one rate, correct?
A. If you're asking if I've seen inclining block rate structures applied to all customers, there are instances of that that I've seen.
Q. No, no. What I'm saying is the structure that you've done in Detroit, whether you want to call it a lifeline rate or tier one or whatever, everybody who uses water up to .6 Mcf gets that rate, correct?
A. For all customers. It's a single system-wide rate structure. So if anyone uses up to .6 Mcf in whatever type of business or residence that is, all usage that fits within that allowance would be priced the same.
Q. Right. And that's true also in what you would consider an inclining block rate structure.
A. Not necessarily. In many instances inclining block rate structures are applied not necessarily to all customers, but in many instances to specific customer classifications because they're developed based upon the usage profiles or statistics of those specific classifications.
Q. All right. I guess I asked the question poorly and I apologize. Whoever is in the structure, let's say if it applied just to residential, I think that's what you're saying, there could be a tier structure applied just to

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residential. Every person in the residential class under that rate structure would get the benefit of the tier one pricing.

MS. SCOTT: Objection, form.

A. In that example, inclining block rate structure for residential customers, all residential customers in that example would have the same amount of usage in that first block of the inclining block rate structure at the same price. I think that's what you're saying.

BY MR. HANLEY:

Q. Right. And so if in that example -- let's say your tier one is one Mcf, just to make it simple. Everybody in the residential class pays the same price per gallon for that first one Mcf, correct?

MS. SCOTT: Objection. Form, speculation.

A. In this example that you're building, again, if the first block is one Mcf for residential customers, all residential customers would have up to that one Mcf at the same rate, whatever that is.

BY MR. HANLEY:

Q. All right. So then those customers in the residential class who then used, for example, two Mcf, their usage would be one Mcf at the tier one rate and one Mcf at the tier two rate, correct?

A. Maybe. What's the size of tier two?

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Q. The size of tier two.

A. How much usage in this hypothetical are you including in tier two?

Q. Well, let's just say it's between one and two.

A. Okay. So then they would have that difference, that defined amount of usage, between one and two. All customers in that second block, if the second block is between one and two Mcf.

Q. All right. And what I'm saying is, in designing that rate you wouldn't charge -- if somebody used two, they wouldn't be charged for all of their usage at the tier two rate simply because they used two.

MS. SCOTT: Object to form, speculation.

A. Well, that depends. Most systems that I've seen that would not be the case. But there may be some systems where they could do that and I think those are sometimes referred to as ratchet rates, but they're less common from my experience.

BY MR. HANLEY:

Q. Well, what we have here is a customer class, a single customer class in Detroit, correct?

A. Correct. A single retail-wide rate structure, rate classification.

Q. But your rate design -- I mean my client, Ajax, uses about 6,000,000 gallons of water a month in its operations. So

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you'd agree with me that the vast amount of their water use is in the tier two, or the second tier, rate, correct?

A. 6,000,000 gallons a month did you say?

Q. Yeah.

A. That would certainly be the majority is in the uniform rate because of the base or the lifeline rate only captures about 4,500 gallons.

Q. Right. But even Ajax gets the lower rate for the 4,500 gallons that are in what you call the lifeline tier, correct?

A. That's correct. All customers receive the first increment of usage at that lower rate.

Q. Right. And that's standard in a block rate structure, correct?

MS. SCOTT: Objection, form.

A. Well, in terms of having the block structure apply to all customers in the designated customer class for which it's applied to, I would say yes.

BY MR. HANLEY:

Q. All right. So in other words, just because Ajax uses 6,000,000 gallons of water a month doesn't mean that all that 6,000,000 should be at the tier two rate, correct?

A. Well, in the hypothetical -- I guess I need clarification. Are we still in the hypothetical example where the second tier was at two Mcf or are we back talking about Detroit

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for a minute?

Q. No, we're back talking about Detroit because I'm trying to understand -- I gave an example, but what I'm trying to do is get an understanding as to how this typically works when you're designing an inclining block rate structure.

A. But if that were the case in Detroit you would potentially look at having additional tiers or ways to account for inclining block rates for those other use types. But what we have here is a uniform rate that all customers get and the base rate that was established and extended to all customers for that minimal amount of usage. So it's not necessarily that there's multiple tiers. Any use above the .6 Mcf is at the full uniform rate. That uniform cost of service rate.

Q. No, no. I understand that and I'm trying to get to this line. But the one possible way to devise an inclining block rate structure is to say if you use less than this you get tier one pricing. If you use more than this you get tier two pricing. But the question becomes, is the tier two pricing for all of your volume or is it just for the volume above the first tier?

MS. SCOTT: Objection. Form, speculation.

A. Well, this is an interesting conversation. So you may even still see a reference in M1 to the "Art of Rate Making" and that's where you'll find that, I believe, in

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the rate structure section of the manual or rate design and it's because there are certainly a number of options and ways that you could identify different rate structures and apply them. The key is that when you apply them, you know, are they done, you know, reasonably? And so could there be another rate structure that could be adopted and implemented versus what was done and recommended in this study that would still be reasonable? Absolutely. There's not a singular rate structure that defines reasonableness. So what you're describing is there could be alternative approaches, absolutely.

BY MR. HANLEY:

Q. All right. But is it your testimony that Detroit does not have an inclining block rate structure?

A. No. In my opinion it's a uniform rate with a base rate or a lifeline rate component that's extended to all customers.

Q. But you are aware that the City has publicly announced that these are inclining block water rates, correct?

A. I feel like I may have heard or seen that. Unfortunately, there's not a standard set of understood and defined terms throughout municipal spaces and the water space on some of these things. So sometimes terms are used that I'm not necessarily consulted about or would necessarily agree with.

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Q. Well, let me ask this. Why does it matter?

MS. SCOTT: Object to form, foundation.

A. Well, the importance that I would place on an inclining block rate structure is that if it were an inclining block rate structure there would be multiple tiers. There would be more blocks. And so to me that's an important distinction because if we go down that path for a rate structure, I think there inherently needs to be consideration about how those blocks are sized and how they could accommodate different types of use. In this instance, when it's a uniform rate, all customers are treated equitably for the same use and if there's a lifeline rate and it's extended to all customers, that's also being equitable and equal in its treatment. So if we go down a road of having multiple tiers in an inclining block rate structure then I think there needs to be consideration to some of the topics that you're bringing up now and others in terms of how would an inclining block rate structure need to be designed to work in this context.

BY MR. HANLEY:

Q. All right. So is it your testimony that you can't have an -- that if you only have two tiers, it is, by definition, not an inclining block rate structure?

A. Well, I think everyone's definitions of things, as you can

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tell by use of terminology, is going to be different. To me this is not a true, in my professional opinion and experience, not a true inclining block rate structure. This is and was intended to be a uniform rate with a base rate or lifeline rate component to it. I think there is even vestiges of that in the report. But there was some terminology requests to be changed as part of the process that -- I don't know if we captured all of that.

Q. All right. In your view, is there any way in which a rate structure with a uniform rate and a lifeline rate could be inequitable?

MS. SCOTT: Objection. Calls for a legal conclusion.

A. Did you say could be inequitable?

BY MR. HANLEY:

Q. Yeah.

MS. SCOTT: And speculation.

A. Well, I think the areas that I would have potential concerns about it would be is if -- I guess it could be if the lifeline rate was not necessarily established based on cost.

BY MR. HANLEY:

Q. Okay. I mean, let's give a silly example. There have to be limits, right?

MS. SCOTT: Objection, form.

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A. Well, I think, you know, you ultimately work within the context of a lifeline rate definition, so I don't think you could have something that goes to, you know, two Mcf and call it a lifeline rate. Because typically that lifeline rate or that base rate component is intended for a component of essential indoor water use is typically the basis of it. And then extending it to all customer classes is a way to ensure equitable and equal access to that lifeline rate. But if you made that rate significantly larger than that, then I think you start to get into some conversations about, A, is it cost based and then B, is this starting to merge with effectively just a simple uniform rate structure because as you make it bigger and broader, the two rates are going to continue to converge because you're effectively moving everything to just the single uniform rate at a certain stage. So I think there's, again, there's some of that term of art and the establishment of reasonable boundaries for what the lifeline rate would be, and I do think there is some science that should inform, you know, how that rate is established. There could be different ways and different science, but there should be foundation there.

BY MR. HANLEY:

Q. All right. But whatever you call your rate structure, so I'm going to try and take it out of what I say it is and

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what you say it is. But we do know that at different levels of usage there are different rates that apply, correct?
A. Well, there's two rates in this instance, correct?
Q. Right, yes. And so one of the things you had to do was determine the break point, correct?
MS. SCOTT: Objection, form.
A. To establish that base rate or that lifeline rate there needed to be a defined level of usage included to be able to proportionally allocate costs and to calculate rates. So yes, there had to be a demarcation of the amount of use included in the lifeline component.
BY MR. HANLEY:
Q. Right. But it also had to -- then you then had to allocate costs to be recovered through each of those rates, correct?
A. The costs needed to be fully captured in the uniform rate and the affordability rate or the lifeline rate, if you will, the base rate so depending upon where you would draw that boundary for that lifeline rate, it would impact how costs are allocated.
Q. And you had about $98,000,000.00 that was going to be recovered collectively through these volumetric rates, correct?
A. If you could show me that in the report, that would be

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helpful. I don't know if I recall that number specifically.
Q. Hold on just a minute.
A. It sounds familiar, but I just I don't want to speak in absolutes unless I can actually see it to make sure we're talking about the same thing.
Q. It's page 112.
A. Okay.
Q. Oh, I got it.
A. Well done. You're talking about the $98,115,000.00 figure.
Q. Yes.
A. That was the amount of revenue requirements to be captured in the volumetric rates.
Q. Right. And so the revenue requirement for the volumetric rates went up by about $29,000,000.00, correct?
A. From the current revenue.
Q. Right. And so you then had to decide how much of that -- you first had to decide or at some point you had to decide what level of usage would the increased rate kick in, correct?
A. Had to look at scenarios of or determine the threshold of that base or that lifeline tier. So that was the decision point. If there was no lifeline tier, then everything would go into the new uniform rate.

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Q. Right. I get that, but a critical part of your work was -- well, first of all, one critical part was determining how much of the total revenue requirement would be recovered through the volumetric rates, correct?
A. That's one of the first steps to be able to get into this aspect of calculating volumetric rates is identifying the portion of revenue requirement that needs to be captured.
Q. All right. And then another critical part of your analysis was estimating usage for the coming fiscal year, correct?
A. That was also an important part of it, but it was based on 2021 actual billing records and just some modest adjustments to account for changes and anticipated changes in customer base and usage provided by DWSD.
Q. Right. But it wasn't a material change.
MS. SCOTT: Objection, form. Calls for a legal conclusion. Go ahead.
A. The amount of the '23 estimated usage was very similar to the observed amounts from FY2021 as you can see on the schedule.
BY MR. HANLEY:
Q. Okay.
A. There's not a total, but if you add up those two '21 volumes, they're very comparable to the '23 usage number.
Q. All right. So you were expecting almost 2.6 million Mcf

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to be sold or billed at least. And then the next -- one of the critical steps after that was to decide what level of usage would fall within tier one and what level of usage would fall within tier two, correct?
A. Yes, it's labeled the base or the lifeline rate and the new uniform rate. Yes, sir.
Q. Okay. So can we agree, because this is from your own report, to call what you're calling the lifeline, can we call it tier one?
A. That would be fine.
Q. Okay. And could we call what you're calling the uniform rate, could we call it tier two?
A. Sure, for purposes of this discussion that would --
(Multiple Speakers)
Q. Let's agree -- I agree that my use -- you know, let's agree that we're not binding each other -- I'm not accepting the way you're calling the tiers and you're not accepting the way I'm calling the tiers, but we can agree for purposes of the deposition that when we say tier one, we're referring to what you call the lifeline tier and when we talk about tier two, we're referring to what you call the uniform tier.
A. Okay.
Q. But you would agree with me that the higher the tier one Mcf, the higher percentage of the 98,000,000 would go into

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tier one.
A. The higher percentage of the 98,000,000 -- that should generally -- it would generally be the case. I mean if you basically made tier one encapsulate all use, then the rate would go up but to a point. So generally speaking, yes, but there is a point where if there is no tier one then it's just taking the 98,000,000 and dividing it by that 2.5 million Mcf.
Q. Right. But you didn't do a uniform rate, right, you did two tiers. And so all I'm trying to understand is if instead of .6 Mcf for tier one you set that at 1.0.
MS. SCOTT: Objection to --
A. Okay.
BY MR. HANLEY:
Q. The tier one volume would not be 854,602. It would be some amount higher.
A. If you did adjust the tier one amount higher that amount of volume in tier one would also go up, yes.
Q. And the tier two volume of 1.7 million Mcf would go down.
A. In that example where we're increasing that tier one max to one Mcf, yes, that would go down as the tier one volume would go up.
Q. And similarly, if you set the tier one max at .3 Mcf, the tier one volume would go down and the tier two volume would go up.

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A. That would occur, yes.
Q. Okay. So in establishing the tier one rate that ended up being 25.04 per Mcf, and the tier two rate which is 44.92, those are impacted significantly by where you set this break point, which you set at .6 Mcf, correct?
MS. SCOTT: Object to form.
A. Those rates would change, depending upon that break point because that break point would identify where proportional allocations of costs would need to be made for average day and max day and peak hour costs.
BY MR. HANLEY:
Q. Okay. And you determined this break point, did you not, by considering the cost of servicing the two particular tiers, correct?
MS. SCOTT: Object to form.
A. So the way that we set this up to maintain proportionality was that as you adjusted the size of tier one that it would re-evaluate based on the amount of usage in that tier and how it occurred throughout the year in the lowest month to the highest month, it would redistribute the peaking costs based upon where that threshold was set and how the amount of use in that tier contributed to it. So it was a dynamic model that as you look at different levels, it would result in different allocations of cost consistent with the types and the amount of use included

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in that tier.
BY MR. HANLEY:
Q. Right. But my question is, did you back into the .6 Mcf number or did you determine that number based upon a cost differential associated with servicing a higher level of volume?
MS. SCOTT: Objection, form.
A. I'm trying to understand your question. I'm not sure if I'm picking it up exactly right.
BY MR. HANLEY:
Q. Well, the whole notion of the differential rates is that at higher volumes the system has higher costs than it does at lower volumes. Is that a layman's way of explaining it?
MS. SCOTT: Objection, form. I'm not sure what you mean by differential rates. Go ahead.
A. Yeah, I could use a --
MS. SCOTT: Go ahead, Andy, if you can answer that.
A. I'm sorry, I could use a repeat of the question if that's okay.
BY MR. HANLEY:
Q. Above .6 people are paying 44.92 per Mcf, right?
A. You cut out at the beginning of that. You said above .6?
Q. Above .6 the rate is $44.92 per Mcf, correct?
A. Well, at the time of this study and that's what the rate

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calculations were, yes.
Q. Yes. And at .6 or less it was $25.04, correct?
A. Per Mcf, yes.
Q. Right, okay. So it's fair for me to assume that you believe the higher rate for tier two was justified because at those volumes there are more significant costs that have to be covered. Is that correct?
MS. SCOTT: Objection, form and foundation.
A. It's a proportional allocation of those extra capacity costs that are occurring and the best data points that we have to measure that were in the monthly billing data looking at the amount of usage in the maximum month of the year, which I believe is August, versus the lowest month, which was February, and determining what usage in which tier was contributing to those changes in demands that really those additional capacity, those extra capacity costs, are intended to meet to make sure that they were proportionally distributed based upon the usage in each tier that was contributing to it.
BY MR. HANLEY:
Q. All right. But it is an underlying assumption that those extra costs are incurred above a level of .6 Mcf per month, correct?
MS. SCOTT: Objection, form.
A. I don't know that that is an underlying assumption. We

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have identified costs for the system that through the cost of service process were allocated and distributed to different types of demands. Average day, max day and peak hour and then as we take those costs for the system and look to distribute those through a rate structure, they are then distributed proportionally based upon the amount of demands that are contributing to the peak demands that are seen on the system through, as evidenced through the billing records. So it's not to say that they're specifically associated with a particular usage level. These are system costs that are then allocated back to customers and usage based on data that we have that collectively show how much use happens in those peak months of the year to make sure that they're proportionally distributed.

BY MR. HANLEY:

Q. All right. You've gone beyond my question, but I'll take responsibility for that.

A. I'm sorry.

Q. What I'm saying is, in your rate structure there is an assumption that anybody who -- take a particular month. If I use 1.0 Mcf, okay.

A. Okay.

Q. .6 Mcf is charged at 25.04, $25.04, correct?

A. Again, based on the time period of the study and following

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your hypothetical, the .6 would be at the 25.04. I'm following you.

Q. Yeah, I'm tying it to the report. I know it's different today, but at the time of the report my .4 Mcf additional usage above .6 would be charged at 44.92 per Mcf, correct?

A. It would, that's correct.

Q. And that's because in your view my use between .6 and 1.0 causes higher cost to the system than my use below .6, correct?

MS. SCOTT: Objection, form.

A. I would say it contribute proportionally more to those demands than the usage within the first tier.

BY MR. HANLEY:

Q. And would you agree that the difference between tier one and tier two rates are attributable to what you call peaking costs?

A. The difference in the rates because they both have the proportional allocation of average day costs that's based on the amount of volume in each tier, so it's the same effective unit cost or unit rate in each tier for those average day demands. It's the allocation of the peaking cost between tier one and tier two that really causes the rate differential.

Q. All right. So the assumption is that, going back to my example, is that my .4 usage of the 1.0 contributes to

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peaking more than my .6.

MS. SCOTT: Object to form.

A. Again, from an overall system perspective, this is an instance of where we have, you know, limitations to be able to design rates for each individual customer that perfectly capture their individual usage and service characteristics, i.e., like distance from the facility. So in this case, using system data, that's where we're able to draw an allocation point that's supported by proportional distributions of cost. But each individual user, their circumstances, you know, may vary in terms of how much water they use throughout the year and how it changes from one month to the next.

BY MR. HANLEY:

Q. I understand that. But what they're charged, going back to my example, I used 1.0 Mcf. I paid the higher tier rate for .4 Mcf of that usage, correct?

A. Yes. In your example, yes.

Q. And because the differential between tier one and tier two is the result of peaking cost, the assumption is that my .4 usage above the .6 contributed more to the peaking cost of the system than my .6 Mcf use did.

MS. SCOTT: Objection, form. Misstates his testimony.

A. I don't know that it necessarily makes that assumption.

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It's just the way that the rate structure that was designed based on system data works in the instance of the example that you're giving.

BY MR. HANLEY:

Q. Okay. Let's go to page 11 of your report. This is from the executive summary. I'm sorry, I think I should go to ten. You have figure 1-8. Do you see that?

A. I do see figure 1-8, yeah.

Q. And this is something you prepared or your team prepared as part of the report, correct?

A. Yes. This was an analysis done as part of the study.

Q. Okay. So figure 1-8, do you agree, shows the resulting volume in each tier by month based upon DWSD's 2021 billing data?

A. That's my understanding of what's depicted there, yes.

Q. And then you say the chart demonstrates that there's minimal peaking in the base tier because the amount of water use in the base tier is consistent each month throughout the year. Do you see that?

A. I do see that.

Q. But you'd agree with me that in a system like Detroit's the peak amount of water use occurs in the summer.

A. The data very clearly shows that as well with higher total usage happening in the summer months. July, August, September

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Q. And you understand from your years of experience in rate making that typically that is caused by outdoor water use, irrigation, that sort of thing, correct?
MS. SCOTT: Objection, form.
A. In many instances that's a driver, also seasonality in terms of occupancy is a big driver as well in terms of just some seasonal living situations that some folks employe as well. That drives up summer demands.
BY MR. HANLEY:
Q. Kids come home from school, that sort of thing.
A. Or just, you know, folks that have multiple houses and that maybe, you know, live in Michigan during the summer months but then in the winter months, you know, come down and visit me in Florida.
Q. Okay. Which is what I used to do. But this is not atypical at all, is it?
MS. SCOTT: Objection, form.
A. This usage profile is pretty typical of, you know, midwestern utility systems in terms of having some higher demands in the summer months. It's not always the case, but, you know, it's not atypical.
BY MR. HANLEY:
Q. Right. And so it says there's minimal peaking in the base tier because the amount of water use in the base tier is consistent each month throughout the year. Do you see

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that?
A. I do see that.
Q. And your base tier is depicted in blue, correct?
A. The blue bar on the chart, yes.
Q. All right. But you'd also agree with me that in any given month the water use in Detroit is never lower than 150,000 Mcf per month, correct?
A. For this particular year, the lowest combined bar would be February which is, I think, at that amount or maybe slightly greater.
Q. Yeah, it looks like it's peaking a little bit above 150,000 Mcf, correct?
A. Yeah, right around there.
Q. That's the minimum use throughout the -- minimum monthly use throughout the year, correct, is a little bit more than 150,000 Mcf per month.
A. For fiscal '21, yeah, that's the lowest kind of set of bars, stacked bars is that month of February.
Q. All right. So we can agree that in Detroit for the data that is reflected in figure 1-8, the water use of the whole system that was consistent throughout the year exceeds by a little bit at least 150,000 Mcf per month.
MS. SCOTT: Objection, form.
A. The total billed volume, that would be the minimum amount for the year would represented by that February bar which

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is a little bit more than 150,000 Mcf.
BY MR. HANLEY:
Q. All right. But people in Detroit consistently use, under this data set, consistently use at least 150,000 Mcf per month, correct?
MS. SCOTT: Objection, form.
A. Well, I don't know that it's just people. I mean the customers, which it could be non-residential businesses, but the collective usage for whatever purposes it's being used for, the minimum amount in '21 was that 150,000 Mcf.
BY MR. HANLEY:
Q. Okay. And so after your figure 1-8, we're going to get to figure 1-9 which is on the next page, but your second sentence says, the water system incurs additional cost to meet peak demands. Therefore, allocating peak cost to tiers in this way shifts peak costs to the customers who contribute to increasing peak demands. Do you see that?
A. I do see that.
Q. And is that an accurate statement of the rationale that you employed to shift the peak costs?
A. No, it's not ideal. I think there's a few other references in the report that speaks better to really what this is. It's really reflecting a proportional distribution of those peaking costs based on the contribution to those peak demands that happens in the

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base tier versus, you know, the rest of the usage in the uniform rate. It's really based on proportional contributions and --
(Multiple Speakers)
A. Other parts of the report say that.
Q. All right and we'll get into all that. But you authored this sentence, correct?
A. Well, the development of this report was done by a number folks at Stantec. So while my name and Carol's name are on it, I didn't craft every word of this report. I did my best to review it, but it's not to say that I can catch everything in 120 pages of my review.
Q. So are you saying that this is a misstatement?
A. I don't think it's the best articulation of what was intended and if you look at other sections of this report where this language appears you'll see better reflections of what I just stated.
Q. All right. But is your concern that by saying we're allocating peak costs to tiers in this way shifts peak costs to the customers who contribute to increasing peak demands is that that might not necessarily be the case with this rate structure, correct?
MS. SCOTT: Object to form.
A. I don't think it's an accurate depiction of the methodology and the process that was done because it's --

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as we looked at the establishment of and development of the base tier or the lifeline tier, the idea was that, you know, no matter where that was set the cost would be proportionally allocated based upon the contributions to that peak month usage that happens in the base tier versus the usage on the rest of the system. The idea was that it would be cost based for that amount of usage, not necessarily designed for any other specific purpose or about specific customers.

Q. But there may be, for example a customer that uses a large volume of water but is consistent throughout the year that doesn't necessarily contribute to peaking costs, correct?

MS. SCOTT: Object to form.

A. Well, I think their contribution to peaking costs may be different than others, but still having that higher level of use still contributes to that peak in that month. So even if it's steady throughout the month, if they were to reduce that usage down it would pull down that peak month usage. So there is still a contribution to peak demands from that usage.

BY MR. HANLEY:

Q. Right. But what contributes to peaking is inconsistent usage, correct, by all customers.

A. But it's the difference in usage patterns by all customers that could be for a variety of reasons like we talked

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about in terms of seasonality or business cycles or tourism or irrigation or there's a variety of things that can contribute to that.

Q. Okay. And let me ask you this. If you wanted to apply a tier one rate to usage that is consistent throughout the year, why did you set the base tier at an amount significantly less than the amount of water use that is consistent throughout the year?

MS. SCOTT: Object to -- go ahead, Andy.

A. Okay. I think in your question what you're speaking to is the total usage level and what was done as part of the analysis is actually sensitivity analysis where we looked at different levels of usage in the lifeline tier to analyze how those blue bars change throughout the year because different customers use water differently. And what we observed was that as you go above the .6 Mcf you start to see more variability in the proportion of the blue bars versus the orange each month. The blue started moving up and down more indicating that there were some inconsistencies in those usage profiles when we moved above the .6 Mcf. So at .6 Mcf it really showed a significant amount of consistency at that level and below for the level of the blue bars, if you will, from figure 1-8 throughout all months of the year.

BY MR. HANLEY:

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Q. Right. But the blue bar is just what you've set the base tier at, right?

MS. SCOTT: Objection, form.

A. Well, the blue bar represents the amount of billed water use that would be in the base tier or tier one, as we've been talking about it, across all the customers taking the billing data and applying it to say how much usage falls in tier one in each month throughout the year and that was done based on an analysis of the data to make sure that the usage profiles were consistent at that level throughout the year and the basis of design of that tier one was again, around lifeline principles but applied against the data to make sure that the data supported that level of use as reasonable for the basis of that first tier.

BY MR. HANLEY:

Q. Right. But you determined that first tier by looking at data from a water research foundation publication relating to residential and uses of water, correct?

A. So the -- as I indicated, through the study process we looked at various levels and identified indoor water usage, again, considering, you know, the intent of a lifeline type rate to be capturing, you know, portions of that indoor usage requirement and you leverage data from that about efficient indoor use and consideration of

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family size and consultation with DWSD, but then tested that against the data to make sure that setting that tier one, I'm trying, Greg, that tier one level was consistent and was a fair point to have that level where we saw consistent usage throughout the year across the customer base to help support that. But as indicated in many studies in M1, when you establish, you know, these amounts of use and lifeline tiers, there's various methods that could be used to establish that.

Q. All right. You say that the base tier threshold of .6 thousand cubic feet (Mcf) per month was calculated based on estimated indoor residential water use and that's the Water Research Foundation data, correct?

A. That's correct.

Q. And substantiated based on a review of DWSD fiscal year 2021 monthly billed volume distributions. Do you see that?

A. I do see that, yes.

Q. What were those distributions that you reviewed?

A. That goes back to figure 1-8 at the bottom. I think it's the next page, I apologize. To say when applied to the individual billing records, what was that level of usage throughout the year and was that tier appropriate, meaning setting it too high may mean that we're getting into uses that would be outside of that essential indoor usage or

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lifeline component that were really, you know, intended to be for those indoor uses that also are very steady year round and don't change much would have their buy associated with that a lesser contribution to the peak cost on the system to set a rate reflective of that.

Q. Okay. But my question is, you say you substantiated your tier one based on a review of DWSD fiscal year 2021 monthly billed volume distributions. What were those?

A. So the monthly billed volume distributions are presented in figure eight at a summary level that show by month, after taking all the individual billing records for '21 and applying the .6 Mcf to distribute the water use between tier one and tier two, as we've agreed to term it, to see how much of the water use was, in fact, occurring by month in that level to make sure that it was fairly steady throughout the year to reflect the fact that it wasn't a significant contributor usage at that level to those higher volumes that were observed in figure 1-8.

Q. Right. But again, was this monthly billed volume distributions for all water customers?

A. It was.

Q. And so you have varying levels -- you were able to tell how much water was used by each customer in each month?

A. From the billing records it did identify the amount of billed volumes for each month in fiscal year '21. I

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believe we also received a few other years as well.

Q. So let's say you get a record that has 160,000 or whatever billed volume distributions, okay? What did you do with that data?

A. So let me ask, when you say a record, do you mean like a account that had 160,000 Mcf on a bill?

Q. No, no, no. I'm sorry. Let's start basic. You got the data from the City, correct?

A. We did receive a few different data sets from the City on billing data.

Q. Okay. And so the data that -- what parts of that data did you look at or analyze?

A. So from the billing data we received monthly billing records for all of fiscal year '21 as well as prior years. I can't remember how many, but there was multiple years of data. We also separately received information about not only just for each customer account, what their water use was, but there was information in a separate file about their meter size and also information was provided about their property use type, whether it was a residential or commercial or industrial. And so we were able to take all of that data and basically analyze how those monthly volumes would be distributed between tier one and tier two with alternative thresholds for tier one. And that's how we could test the sensitivity of how that

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blue bar would change if we changed the threshold of tier one.

Q. Okay. But choosing .6 Mcf was done because it replicated estimated indoor residential water use under the assumption of four people per household and 36.7 gallons per person per day, correct?

A. That was one of the reasons that that numeric value was looked at and then we tested it against the billing data to make sure that it was reasonable for the system.

Q. Did you do an analysis that purported to look at average indoor non-residential water use?

A. Could you say that again? Average -- I missed part of that.

Q. Indoor non-residential water use.

A. I don't know that we -- I can't recall. We very well may have, but I can't recall at this stage. There was a lot of bill frequency analysis and bill tabulations done behind this report.

Q. Right. But why was base tier threshold of .6 Mcf chosen versus some other level of usage?

MS. SCOTT: Objection, form.

A. In terms of looking at that in our estimation from applying that billing data and looking at alternative thresholds, higher thresholds seemed to introduce more inconsistent levels of usage in that first tier, the base

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tier. Excuse me, tier one. And in looking at that, then we also considered indoor usage profiles as what would be reasonable levels for indoor use given consideration to the types of profiles and households within the community and discussion with DWSD staff. And so that led us to looking at efficient indoor use per person for that indoor component and consideration of a more typical family size to calculate what that amount of water use would be and then apply it against the billing data. And that was really the foundation for establishing that tier one consistent with lifeline rate methodologies as espoused in M1 and from our experience.

Q. All right. But why wasn't tier one -- let's go to your chart on page 11 where you have the water volumetric rates pricing analysis. And then you have the base rate, lifeline tier one, and then you had the new uniform rate. Do you agree with me that the difference in the rate is driven almost exclusively in the fact that the peaking costs are allocated very much to the tier two?

A. As you can see in figure 1-9, the average day cost is the same. You know, it's basically proportionally allocated based on the total volume in each tier and the difference in the rates is based on the allocation of those peaking costs, those orange bars, which is reflective of how much usage in each tier contributed to the change in volume

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from that lowest month to the highest month. So it's a proportional allocation of peaking costs that really drives the difference on the rates.

Q. Right. So because you're largely attempting to have a rate differential because of the increased peaking costs, shouldn't the threshold be determined based upon when there is contribution to the peaking costs?

MS. SCOTT: Objection, form.

A. Well, this is an allocation of costs as opposed to I think what you're describing. So here the approach would be, and this is where you look at the data and you have options in terms of how you would develop, you know, a base rate and a uniform rate and in this instance, looking at the data and making sure that you use the data to identify proportional allocations of those peaking costs based on contributions to the peaking costs in each of those two tiers, that number and that peaking cost would move, you know, depending upon where you change that level of usage in that base or lifeline tier as shown in figure 1-9. So it's not that it's necessarily a contribution, it's a point where you make a reasonable decision about what the data is showing for establishment of that base and lifeline tier and then making sure that you have proportional cost allocations of costs that are reflective of the usage in that tier that contribute to those peak

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demands on the system that those costs are associated with.

BY MR. HANLEY:

Q. Right. But again there's -- what I'm trying to understand is that you determine the base threshold by using estimated indoor residential water use which you say was substantiated based upon a review of DWSD fiscal year 2021 monthly billed volume distributions, correct?

A. Yeah, the report says that. Yes, sir.

Q. All right. But that threshold then becomes in your report largely based upon your conclusion that the peaking costs above .6 Mcf are significantly higher than the peaking costs below .6, correct?

MS. SCOTT: Object to form.

A. Yeah, the threshold wasn't based on that. The threshold was based on where does a reasonable place lie for establishing the amount of usage in that base or lifeline rate and then once that's established, then making sure that there is a fair allocation of costs to the usage in that base or lifeline tier as compared to the new uniform rate.

BY MR. HANLEY:

Q. Right. Because you knew how much water had been sold to customers who consumed .6 or less, correct?

A. If you go back up to figure 1-8 I believe it is. For all

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customer classes, we were able to identify the amount of volume on a monthly basis and to identify, you know, at different tier thresholds how that may or may not change and at this threshold for the base tier, it was found to be very reasonable because the usage was very steady. I think going above that, if I recall correctly, we started to see some fairly significant fluctuations in those blue bars which would then impact, inappropriately so, allocations of peaking costs associated with those types of fluctuations.

Q. Okay. So you're saying if you said at 1.0 there would be more peaking costs in tier one.

A. If that were found to be a reasonable threshold for that base rate. If you scroll down now to figure 1-9, if that were found to be a reasonable threshold for that base rate, then that allocation of the orange bars, that distribution would be affected because we would very likely see a greater contribution to those peak demands occurring in that base one or in that base rate with a higher tier threshold.

Q. All right. But what's wrong with that?

A. It's not that there's anything necessarily wrong with that. In our approach, we looked at the data, looked at typical indoor usage profiles, applied an understanding acquired through DWSD staff of typical household sizes,

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applied it against the data and developed a threshold that we thought was reasonable. It's not to say that there's necessarily only one way of doing things. I think I mentioned that before.

Q. Right. But the data, the principal data that you relied upon was for indoor residential uses, correct?

A. Well, the principal data relied upon for establishing the tier, the tier threshold, was founded in logic from industry sources and local anecdotal family size discussions, but then tested with actual billing data to make sure that the outcomes were consistent with what you would expect with a lifeline rate. Meaning that it's not significantly contributing to peak demands and therefore wouldn't have a significant allocation of peaking costs.

Q. All right. But it's not your testimony that just because you use a lot of water means that you're necessarily having a disproportionate impact on peaking costs, correct?

A. For individual users the actual changes in demands from one month to the next, you know, is going to look very different for individual customers.

Q. Right. One other thing I want to ask you about and then we'll take a break because we've been going for quite a while.

A. Okay.

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Q. There is an allocation of the peak costs among the tier one and tier two, correct?
A. Yeah, as evidenced in figure 1-9 there is a proportional distribution of those max day and peak hour costs between those two tiers.
Q. Okay. And then basically average day cost divided by total volume and that's a component of both rates, correct?
A. Yes, that's how you have the equal unit cost for those average day costs proportional based on the amount of volume in each tier, doing it that way.
Q. All right. And the volume that's in the new uniform rate, is this people who reached the tier two rate and so their tier one usage is included in this bar over here, the 44.92?
MS. SCOTT: Objection, form.
A. Just to be clear, so this figure 1-9 does not have usage data. This is pricing. If you scroll back up to figure 1-8. Just on the prior page, I'm sorry. This shows you the total usage that falls in each tier. And so the blue is the amount of usage that falls into the tier one threshold and the orange is the amount that falls into tier two. So if a customer's use was to, say, be one Mcf, .6 of the Mcf is in the blue and .4 is in the orange. Does that help you?

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BY MR. HANLEY:
Q. Okay. Well, not really because what I'm trying to understand is the blue that's in your chart on figure 1-9, that blue is supposed to reflect the average day costs divided by total volume, right?
A. Yes. There's some -- this was kind of a visual schematic for simplicity. It's the average day cost, but then you have to adjust it to be mathematically precise to account for bad debt and offsetting revenues. But conceptually, that's what it's doing, but there's some fine-tuning adjustments that are just not depicted in this simplistic image.
Q. Right. But whatever the average day costs are, does this mean that they're recovering half of those average day costs through the base rate and half of the average day costs through the new uniform rate?
A. No. It would be proportional to the amount of volume. You had a schedule at the back. I feel like it was page 74 that showed the volume in tier one versus tier two.
Q. Right.
A. That average day cost would be distributed based upon the amount of volume in each tier because then that way you would have the same unit cost for average day demands which is the intent because regardless of when the demand occurs throughout the year, we're meeting the average day

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or the total demands the cost should be the same. And to do so, it needs to be proportionally allocated based on the amount of volume.
Q. All right. And I'm just trying to understand what's depicted here graphically. So let's I use two Mcf a month, okay.
A. Okay.
Q. The 25.04 which would say my rate is covering some part of the base rate and some amount of this peaking, okay.
A. Uh-hum.
Q. Then I have the 1.4 usage at the tier two rate. And at the tier two rate, I'm also covering some of the average day costs and the additional peaking costs, correct?
A. Uh-hum, right. So what figure 1-9 depicts is basically for that rate for each tier what is effectively, how much of that unit rate is for average day versus max day and peak hour costs. So you can see the first tier rate at 25.04 about -- I don't know the specific number. It's probably in a later schedule, but about $22.00, let's say, is for the average day cost and the remaining $3.00 is for the allocation of those extra capacity cost. And then for the 1.4 Mcf in your example, that goes above that. It would still pay the same $22.00 for that amount of usage for the average day cost, but then it would pay an additional roughly $22.00 for the allocation of peaking

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costs associated with the usage above that base rate.
Q. Okay. Do you know roughly, approximately how many users there are, active users, in the City of Detroit at the time you did this?
A. It would be on the schedules at the back. I think the meter count that we had, active meter count was maybe around 190,000. But we can confirm that with schedules at the back of the report if we're able to --
Q. Okay.
A. It's a findable number.
Q. Yeah, okay. But the usage in figure 1-8, we've said it's never less than 150,000. Let's assume there are 190,000 customer accounts and we'll use -- I'll find maybe during the break the actual number you used, but you would agree that the average use if it's never used less than 150,000 and there's 190,000 users, that the average use in the system per month is more than .6 Mcf.
A. It would be calculable if we went to the back of the report and took the total volume for the year. Because using the minimum month you can't really get a good average from the minimum. You need to take an average across the --
Q. Let's find it just so that we can finish this before we take our break.
A. Okay. So if you go back to I think it was page 74 where

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you started, it was that rate -- the watering schedule at the back.
Q. No, it's not 74. It's 112 has some of it, so let's go there.
A. Okay.
Q. This is the water fixed, so this should tell us.
A. We need that. The number of customer equivalents, the customer column here. So if you were to add up the number of meters there at the bottom for '21 and then apply the growth assumptions from DWSD to get it to 23, that's the 191,647. That would be the active number of meter services that were estimated for 2023.
Q. So if we wanted to look at February average uses, which we agree is the lowest volume month, and determine the average usage during that month we would divide -- and again, I think it seems more than 150,000 but let's use it to be conservative, divided by 191,647. That's roughly .782 Mcf per month, correct?
A. Doing that math, yes. The caveat is that -- we don't have the data in this report to do is taking that figure that had the February volume in it. Ideally we would divide it by the number of active services in February to get you a real number because the number of active services does fluctuate throughout the year because of some of those seasonal patterns.

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Q. But that would -- I'm sorry, didn't mean to cut you off.
A. That's okay. So I would just say that we're probably overstating the divisor by using the annual average here for February which is the lowest month of consumption and you may have some of those seasonal occupancy patterns affecting your number of active accounts. But I understand conceptually what you're doing, but --
Q. But that would break in my favor in other words because the 191,000 would actually be less in February because of the snowbirds and other people, right?
MS. SCOTT: Objection, form.
A. I'm not sure, favor. I'm not sure where we're going.
BY MR. HANLEY:
Q. Well no, I'm just saying that the 191,000 is for the accounts that were active throughout the year, right?
A. It's the average, yeah.
Q. Right. So if we're looking at February, you would expect that 191,000 to be somewhat less. That's all I'm asking.
A. Oh. I might expect it to be less. Yeah, if that's your question, I might, but I would need to look at the data to confirm that. But my suspicion is that it would probably be a little less.
Q. Right. And if it is a little less, then that means that the average usage would go up.
A. Yeah. The divisor going down means the average usage

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would go up.
Q. Right, okay. And then we've got total usage of almost 2.6 million Mcf on your next schedule, correct? We can also do an exercise where we divided that by --
A. 191,000.
Q. Right.
A. And then you'd have to divide it by 12.
Q. Right.
A. Exactly, to get --
Q. That would give us the average annual usage.
A. On a monthly basis when you divide it by 12, yes.
Q. Okay. All right, fair enough.
MR. HANLEY: All right. Why don't we take a -- you want to take a ten-minute break?
THE WITNESS: That would be great.
MR. HANLEY: And we'll come back round 11:10 and I'll see if I can get my camera going.
THE WITNESS: Okay.
MR. HANLEY: All right. Thanks a lot.
(Off the record.)
BY MR. HANLEY:
Q. I want to return to Exhibit 14 which is the Stantec report and I want to refer your attention to figure 1-9 on page 11. I want to talk about how you're allocating the peaking costs. Before we do that I want to make sure we

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understand some basic terms about the method that was used. Do you agree that there's two generally accepted methodologies for conducting costs of service analysis for a water utility?
A. Generally two is identified in M1, yes.
Q. Yeah. And one is the base extra capacity methodology and the other is the commodity demand methodology.
A. Those are the two identified in manual M1.
Q. Okay. But you use the base extra capacity approach, correct?
A. The base extra capacity approach was what we used in this study, yes.
Q. Okay. And regardless of which one you used, if things go well they're supposed to lead basically to the same thing, right?
A. It depends. I think in many instances and M1 indicates they, you know, could be expected to come out similar, but there may be differences in certain types of costs or demand profiles that could cause them to vary. But M1 does give guidance that they generally would expect, in normal circumstances, similar outcomes.
Q. Okay. But you'd agree with me that under the base extra capacity approach the costs are separated into four primary cost components?
A. I may need you to give me the specifics on the four that

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you're talking about.
Q. There's base costs, extra capacity costs, customer costs and fire protection costs, generally, correct?
A. Generally there's, you know, some differentiation on the extra capacity costs between max day and peak hour. That's, you know, that you would also identify in M1, you know, as components of that extra capacity category that you mentioned.
Q. Okay. Are base costs what you refer to in your report as average day costs?
A. Yes. The use of that terminology, average day cost, is really intended to capture those portions of the base capacity that are being included in the volumetric rates.
Q. Right. And what it means is that the costs associated with providing water under average load conditions as opposed to peak periods.
A. Yeah, it's reflective of costs associated with meeting those average day demands or total demands throughout the year is maybe the best way to put it.
Q. Right, okay. Extra capacity costs are costs associated with meeting peak demand rate of use requirements in excess of the average use, correct?
A. The extra capacity costs are generally represented by those incremental demands to meet those maximum day and instantaneous peak hour demands on the system. But it's

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really identified through an allocation process.
Q. Right. So the idea is that when you set this up you have a column called peak day or max day?
MS. SCOTT: Object to form.
A. You may need to be more specific on when you say set this up. Like what do you --
BY MR. HANLEY:
Q. What I'm saying is you make a calculation of max day costs.
A. Well, you identify those through a process where you first take the water system expenses and functionalize them. Identify what's associated with meeting treatment distribution, you know, customer related functions, fire protection and then you allocate the cost of treatment in distribution to the different demand types. Those associated with meeting average day demands and those associated with max day or peak hour demands. So you don't go straight to a determination of these costs are max day. You identify costs by function first and then you allocate the cost of those functions based upon the types of demands that they're really supporting or you're incurring those costs to serve.
Q. Okay, fair enough. But you ultimately come up with a specific amount of cost that you call max day or peak day costs. And it may be part of distribution, part of

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transmission, some percentage of each, whatever, but you ultimately come to a number that says this portion of the total revenue requirement is attributable to max day, correct?
A. You ultimately do get to those outcomes, yes. For maximum day, peak hour, average day as well as those couple of other kind of categories you mentioned. Fire protection and customer.
Q. Right. But you also get the same for peak hour, correct?
A. Yes, you can. In some instances the extra capacity analysis isn't always done with peak hour, it's focused only on max day, but it can, yes.
Q. Right. But in your -- going back to your report, when you're talking about peaking costs, are those the max day and max hour costs that resulted from the cost allocation?
A. Yes, but for excluding the portion of those that are included with public fire protection that are captured as part of the base charge.
Q. Okay. All right. Other than that, the orange in your figure 1-9 is intended to represent max day and max hour incremental costs.
A. Again, yes, but with those caveats I mentioned before that there are adjustments that had to be made to that gross cost of service that was identified for those to account for offsetting revenues and bad debt.

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Q. Okay. And then you have a little star that I still can read. Peaking cost allocation based on proportional change in monthly volume from lowest month to highest month of the test year. Do you see that?
A. I do see it.
Q. So what does that mean?
A. So what that means is if you scroll back up to figure 1-8 I can visually also help explain it to you. So what that means is that to distribute and allocate those peak costs, as labeled in figure 1-9 between the base tier and the new uniform rate, we looked at the change in usage from the lowest month being February to the highest month being August, in usage for each of those tiers to determine what proportion of change in use in the base tier and uniform tier was contributing to those incremental demands in that maximum month to have a proportional allocation of those costs between the two tiers.
Q. All right. So again, you'd look at -- for your base tier you would look at February blue and August blue and you'd look at the whole stick for tier two. Or you'd look at the orange part for tier two.
A. The orange, correct.
Q. And whatever that proportion -- so for example, if the proportionate change in the orange between February and

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August was, say, 40 percent but the proportionate change in the blue between February and August was ten percent, there would be a four to one allocation.

A. Try that on me one more time. I'm not sure if I quite followed the percentages.

Q. If the -- for the orange, in February, for the difference between February and August was, say, 40 percent. It was 40 percent higher in August than it was in February, the blue, the difference was only ten percent, the ratio would be 40 percent to ten percent and so it would be four to one?

MS. SCOTT: Object to form.

A. I believe the algebra works the same, but the way we technically did it is we took the difference in use. So I think it works out to the same effect, though, in terms of we took the difference in the orange bar and usage, actual units of Mcf, versus February and the same for August versus February for the base tier. And took the sum of those two amounts. So you take the amount of change in actual Mcf or the uniform rate versus the base tier and calculate the ratio. How much did each one contribute to that total increase from February to August. I think it works out the same way, just algebra principles to what you described, but technically that's what was done, was actually using the units to determine those percentages.

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BY MR. HANLEY:

Q. Okay. So what is the underlying assumption that justifies the use of that type of calculation?

MS. SCOTT: Object to form.

A. The underlying -- I don't even know if it's necessarily an assumption, but it would be that, you know, the max day demands on the system and peak hour demands on the system are very likely happening in that maximum month of usage and to then allocate cost associated with meeting those peak demands that are happening in or around that month, those maximum day and peak hour demands, then we are allocating those based on the most granular data we have from a billing perspective available which is the billed volumes in each of the two tiers to distribute that proportionately based on which tiers are contributing the volumes to those peaks.

BY MR. HANLEY:

Q. Okay. But that results, because you've chosen .6. If you had chosen, say, .9, the blue would be more than it is and the orange would be less than it is, right?

MS. SCOTT: Object to form.

A. Well, I think this goes back to a prior question or two we had in that if the .6 were to be .9, we would start to see those blue bars moving more and I don't know for a fact this would be the case, but I would anticipate that blue

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bar in February would be a bit higher, the blue bar in August would be higher. But the bar in August might be higher than the increase in February, meaning there may be a greater allocation of the contribution to those peaking costs to that base tier if you've increased the threshold. I just don't know without running the data to confirm that.

BY MR. HANLEY:

Q. Right, but it only shows that choosing the high point of tier one is a critical part of the whole analysis, correct?

MS. SCOTT: Object to form.

A. Well, I don't know that it necessarily, you know, shows that. I mean the point that I made previously was that if that threshold -- we found the .6 and we went through the basis of it to be reasonable and appropriate. If an alternative approach were to, say, set that threshold at .9. The point being tis that you would go through a similar allocation process and the results may be different on figure 1-9 in terms of the rates as you adjust the threshold.

BY MR. HANLEY:

Q. Right. But the threshold needs -- because you're having such a significant rate differential, the rate has to be set -- the tier one rate has to be set and the tier two

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rate has to be set to reflect the difference in costs of servicing each of the tiers, correct?

MS. SCOTT: Object to form.

A. It needs to reflect the difference in costs attributable or allocated to each of those tiers which is best measured by this data. We don't have that level of precision in the cost allocation process to be able to get precisely to the moment in cost allocation and said we can go as far as the data will take us.

BY MR. HANLEY:

Q. Okay. By the way, do you know what a bill tabulation procedure it?

A. It's more commonly referred to these days as bill frequency analysis, but yes, I'm very familiar with bill tabulations and bill frequency analyses.

Q. And there's a specific, very specific procedure that's dictated in the M1 Manual, correct?

MS. SCOTT: Object to form.

A. I don't know if it's dictated, but there is an appendix at the back of M1 that shows and speaks to a bill tabulation process, but with computer automation these days, what's actually done is much more robust than what's shown in M1.

BY MR. HANLEY:

Q. All right. But M1 prescribes a procedure -- I take away the word dictate. But they have a procedure or guideline

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that can be used by rate making professionals to perform what's called a bill tabulation analysis, correct?
MS. SCOTT: Object to form.
A. One does provide a good framework and approach for how to do a bill tabulation analysis and as I recall, I think it does have some language about things to consider in terms of increments and how you can leverage technology to do it pretty granularly these days.
BY MR. HANLEY:
Q. Okay. Did you do a bill tabulation analysis as prescribed by M1 as part of your work in this study?
MS. SCOTT: Object to form.
A. The bill tabulation -- I'm going to struggle not to call it a bill frequency analysis, I think it's even used synonymously like that in M1, is really an inherent part of the process and you can see it throughout some of the tables in the report. I think there's one that shows kind of an aggregate percent of bills issued for 5/8 inch metered residential customers in the report and so that bill tabulation and bill frequency process was done and is important to make sure that we understand the billing data that we're working with and are also able to do revenue proofs to make sure that the billing data, when the rates are applied, you know, generates revenues consistent with those identified in the financial reports for the revenue

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requirements of the system.
BY MR. HANLEY:
Q. All right. Well, that was a longwinded answer to what should have been a yes or no. Did you perform a bill tabulation analysis as prescribed by M1 as part of your work in this case?
MS. SCOTT: Object to form.
A. Again, I don't know that M1 prescribes a bill tabulation analysis, but we did a bill tabulation analysis consistent with the principles identified in M1.
BY MR. HANLEY:
Q. And what did your bill tabulation analysis consist of?
A. As best I can recall, a compilation of monthly billing data for not just '21 but also a couple of prior years to identify the number of bills issued by type of customer in increments of use. I can't recall if we did .1 Mcf, I think was the frequency of, you know, where we identified the number of bills issued in .1 increments of Mcf and did the cumulative counts of bills and usage in each of those increments by customer classification.
Q. All right. Have you reviewed -- do you know that we've retained an expert named John Damico?
A. I'm aware of that.
Q. Did you review his report in this case?
A. I did review it but it was a while ago. I didn't review

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anything in preparation for today.
Q. All right. But you haven't been retained to offer any opinions about what Damico has done, have you?
A. No. No, I have not.
Q. And you're not prepared in this deposition to give a criticism or an endorsement of that report.
A. No, I'm not.
Q. Okay. Similarly, have you reviewed Eric Rothstein's report in this matter?
A. Again, I believe I was provided a draft some time ago, but I have not seen a final version nor have I reviewed that in preparation for today.
Q. All right. So is it fair to say that as you sit here today you're not offering any opinions one way or the other as to Mr. Rothstein's conclusions?
A. I'm not prepared to at this point in time. I've not been asked to.
Q. Okay. All right, fair enough. So your billing -- did you provide data to Mr. Rothstein?
A. I don't know that I personally did, but members of my team, Carol Malesky may have provided information in response to discovery requests through counsel. But I didn't personally provide anything.
Q. Okay, fair enough. But were you aware of what -- did somebody give you an itemization of what had been provided

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from Stantec's work product?
A. There may have been a list at some point time in terms of the data production that our project manager compiled, but I can't recall specifically what was in that without having a list shown to me.
Q. Well, you say that you did a billing tabulation analysis and kind of somewhat described and we may get into it in more detail, but was there work product generated as a result of that?
A. So it's manifested throughout different tables in the report. I don't know when the last time, out of all the rate studies that I do, that I've ever included the bill tabulation in the actual report. It's very voluminous, the data is extensive and it's oftentimes used to inform various analyses and tables in the report. So if it's -- in the, I think, rate design section of the report there's a table that shows an output from that process of residential billing packs in the report for 5/8 inch meter that shows you an example of that bill tabulation analysis that was done.
Q. I would have expected you to have the billing tabulation data in the report, the raw data, but did you generate -- I'm assuming that you got data from the City and you crunched that data, correct?
A. A significant amount of data was provided by the City that

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we did analyze, yes, sir.
Q. Okay. And so that analysis that you did resulted in you creating some new documents, right?
A. Well, it was used to perform our analysis and was included in, you know, various models that were utilized to develop specific cost of service and rate calculations.
Q. All right. But was that data provided to the City?
A. The outcomes of our analysis of the data, like our models, those are things that we typically will just at the end of the scope provide the report as asked. I'd have to go back and look at the list to see what we exactly provided. I just can't recall specifically what we provided back to the City in response to the data request because there was a lot of things that were provided. I just can't speak to the specifics.
Q. Well, let me ask it this way. Does that work product exist today?
A. Bill tabulation? So in the underlying models that were used for this report, those bill tabulations most certainly exist.
Q. All right. So if we had those, we would be able to determine exactly what you did to analyze the data that the City gave you.
MS. SCOTT: Object to form.
A. Well, the bill tabulations you'd be able to see how we

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prepared that bill frequency or bill tabulation analysis. But then how we used that information to evaluate different tier thresholds or things, those would be done in a model. To an extent I think is an answer to your question. You could see what we did with it in terms of how we compiled it and the statistics we drew from it. You'd be able to see the analysis that supports figure 1-8, but there may be other aspects here that it doesn't necessarily capture.
BY MR. HANLEY:
Q. Well, okay. If I showed you a couple spreadsheets that were provided to us through discovery, would you be able to tell us whether those spreadsheets originated with you as opposed to some other person?
A. Possibly. To the best of my recollection I would try.
Q. All right.
MR. HANLEY: Ed, are you on the call?
MR. KICKHAM: Yes, I am.
MR. HANLEY: All right. I'll stop sharing the screen. Can you pull up the less big, the smaller spreadsheet?
MR. KICKHAM: Okay. Let me see what I can do. I've started opening -- I was just opening them in numerical order so --
MR. HANLEY: Well, we can come back to you if you

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want some time to get them --
MR. KICKHAM: Well, it just takes a minute to get the big one open, but I can -- let me quit that and I'll do the small one and I'll share that screen.
MR. HANLEY: Okay.
MR. KICKHAM: Okay, can everyone see that?
THE WITNESS: I've got an Excel spreadsheet. Water, W Bill Distribution is the name of the tab.
MR. KICKHAM: Right. And I'm going to go to the upper left of the spreadsheet, it opened kind of down towards the middle.
THE WITNESS: Okay.
MR. KICKHAM: And this was produced to us as EPR, a bunch of zeros and then two.
THE WITNESS: Okay.
MR. KICKHAM: We kind of wonder and Greg, I don't mean to step on what you're doing, but whether this is possibly under Stantec's nomenclature either probably W Bill Distribution.XLSX or less likely Bill_Distribution.XLSX.
THE WITNESS: Okay.
BY MR. HANLEY:
Q. I guess what I ask is, is this something you recognize as being something Stantec derived from the City data or not?
A. I seems familiar. Could you arrow to the right? If I may

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ask, to see what's to the right of column S. And then let that chart update. This looks like something that was part of our analysis.
MR. KICKHAM: I'm continuing, for the record, to drag the spreadsheet to the right. I'm now into columns AJ, AK, AL and so on.
THE WITNESS: Uh-hum. Okay.
MR. KICKHAM: I'm now all the way to the right. And what I can see, it's something like BW.
MR. HANLEY: It looks like BY.
MR. KICKHAM: BY, okay. It's a blocked on the screen.
MR. HANLEY: Right. So go back to the start or the far left, Ed.
MR. KICKHAM: There?
MR. HANLEY: Yeah.
BY MR. HANLEY:
Q. So when you say that there was a bill tabulation analysis performed, do you believe that this is the document that reflects that?
A. It's part of it. When you do bill tabulation analyses there's many different sections or views that you can take and so this is one that looks at the number of bills issued in increments of Mcf or in cubic feet, hundred cubic feet, increments. But there's other analysis that

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was done that has some of this information by, I forget the terminology and the billing system, but for lack of a better term like the property use type. Like residential, commercial, industrial. And then there's also monthly data files as well or other years. So this is a piece of it, but it's not necessarily all of it.

Q. Okay. But you do recognize this as originating with Stantec.

A. Yeah. This looks familiar and again, I didn't personally prepare this but I think our project team built this off of the data and there's probably more to it than this. I know there is because there is individual monthly analysis I've seen as well. As well as customer classification bill tabulations that have been done, but I don't see them on this spreadsheet.

Q. Okay. But this spreadsheet, tell us what it purports to show us.

A. I need to confirm. I don't know that it's the 2021 billing data, but it's for a fiscal year. I'm presuming it's '21. It shows the number of bills issued by month for all customers in increments of hundred cubic feet and then it shows, you know, what the total number of bills are and the cumulative number of bills in volume in each of those increments. And then further to the right, from what I saw, it then shows how usage would be distributed

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between the base and the new uniform rate in subsequent sections by month to the right.

Q. Okay.

A. It's in essence showing a lot of what those bill tabulation guidelines are at the back of M1. We don't use tick marks in technology, so you're not going to see tick marks. But this is effectively getting at how you can look at the number of bills you have by month in increments of usage and how much usage occurs at various levels of monthly volumes. And this is for -- again, I need to confirm what test year this is for, but it's looking --

Q. We can figure that out, but it's not necessary for the questions I'm going to ask, the very few questions I'm going to ask. But column O says total bills and that would be total annual bills at each level of usage that you've done by .1 Mcf increments, correct?

A. It would seem to be. If you click in column O2, if I may ask, there's probably a formula there that would be able to help us confirm that. So that's what seems to be happening in increments of a hundred cubic feet.

Q. Yeah, okay. And so that would be annual. So if we wanted to turn that into number of customer bills per month, we'd just divide by 12, right?

A. To get an effective number of customers it's just, you

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know, as we've talked about, not every customer always uses the same amount every month. So in one month the customer may be at this level, another month they might be at 300. So you could calculate an effective number of customers it represents. It may not be the actual number of different customers in each month that are using that amount of usage.

Q. Right. But what this reflect is that roughly 71 percent of, I'm sorry, 77 percent of all bills were for usage .6 or less.

A. I see row eight. And then if you click in column Q just real quickly for me, that's taking the sum of the cumulative number of bills divided by the total. So that does indicate 77 percent at .6 Mcf or less.

Q. Okay. And so then column R and S have -- those are usage numbers?

A. Yeah. If you click in column R, I believe each one of those is based on that increment of CCF and the total number of bills, how much cubic feet would be represented by the bills issued for this year at that usage level and then it's converted in column S to Mcf, I think it's divided by 1,000. And then the cumulative usage is then summed up in column T, similar to the cumulative bills were summed up in column P.

Q. Okay. So does column T, is this Mcf consumption by each

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level of consumption?

A. Column T is cumulative. So what that would mean is for row four, you can see there it's showing 71,000 which is the sum of the use of row three in column S plus row four in column S. So column S is the amount of usage in Mcf for bills issued throughout the year at .1 Mcf I think is line three and then .2 Mcf is line four and then column T is what's the cumulative amount of usage for bills issued at .2 Mcf or less.

Q. So if we wanted to get the cumulative usage at .6 Mcf or lower, we would look at the number for cumulative in column eight, right?

A. I believe row eight. I think that was the .6. I've lost track of the labels, I apologize. That would be the cumulative on those bills that are issued at that amount or less. Could you click in column T for me for just a moment? Yeah, I would need to confirm the math with some time to make sure it represents what you're asking. But it should represent the amount of usage at that amount or below. It's a distinction between how much total usage happens at .6 Mcf and under.

Q. Right. But you'd agree with me that if this is accurate it's significantly lower than the tier one usage that's in your report, correct?

MS. SCOTT: Object to form.

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A. Well, I was trying to help highlight a distinction. So what this is showing is at bills issued at .6 Mcf and below, how much usage that represents. It's not the total amount of usage on the system at .6 Mcf and below because you have bills above .6 Mcf that have obviously up to .6 Mcf on them. So this is just showing you kind of the cumulative tally of how the usage builds up on the system based on the bills issued. But if you want to know how much use happens at that amount or below, I think that's where you would have to go further right to this analysis where it's compiled, where they do the distribution to say -- because there's bills above .6 Mcf that use .6 Mcf, right?

BY MR. HANLEY:

Q. Okay, I get that. Okay. So does this have that?

A. I think it does but we're starting to get past my familiarity at this point. I'd have to see if it's column W or X. Sorry to ask this of you, but could you go all the way to the bottom. I know this is a pretty big spreadsheet? If you hit control and the down arrow, it'll take you down to the bottom of the column. It didn't. Keep going down a little bit further. No, it doesn't do it there, so I think it's up and to the right then. That's, I think, what some of those other columns were helping us do.

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Q. Okay.

A. I was trying to find that simple math. But that's what in the schedule of report, that analysis was done to get the distribution of volume between tier one and tier two. That was on that schedule that we were reviewing earlier. But I just don't know if it's in this spreadsheet. It may be off to the right a little bit further.

Q. Right. But I think W is the one that would give us the total number that's in tier one.

A. It may. We would just need to do some calculations because it looks like it wasn't summed up at the bottom of the column. But the model does the math and those how we were able to get the distribution of usage of how much falls at .6 or below that goes into the report.

Q. Okay.

A. That shows in that schedule.

Q. So in other words, if you'd go down to maybe column 20 and tie it to W, there's 5,950 Mcf that are tier one usage, but it represents the tier one portion of usage of somebody who's using a total of whatever column 20 is, correct?

A. Correct. If you were to highlight that cell and the one to the right of it, just using this row as an example, I know this is going to be terrible for the record, but you see the 17,849? That matches column S. So I think what

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you're saying, Greg, is correct. It's splitting out the use for all the bills issued at that level of how much goes into tier one versus tier two.

Q. Okay. So if things work according to plan, and I know that W and X are not totaled up, or at least we can go down to the bottom and we could put a formula in that would total W and total X and that should tie out to your report for the volumes in each tier.

A. That would -- yeah, that would show for the '21 -- if this is '21, yes. Because the data in the report was based on fiscal year '21.

Q. Okay.

MR. HANLEY: Ed, does it do that? Can you go down a little bit on W and X and see? I know you went to the bottom of the whole report, but these are not --

MR. KICKHAM: Yeah, I don't want to mess up the record, but I was a little confused about how these work because --

MS. SCOTT: Guys, I'm going to say this. This is a deposition. If you have questions for him, ask the questions. There's one attorney that should be asking the questions here, right?

MR. HANLEY: Well, that's fine, Kim, but with all due respect we got this dropped on us right before the Rothstein dep, it's existed for years and we're trying to

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get to the bottom of what it means and so --

MS. SCOTT: You have the capability of doing that yourself, okay? But this is a formal deposition. The record is getting very confusing and we did not agree to have two of your attorneys questioning at the same time.

MR. HANLEY: We're not having two attorneys question. He's asking some clarifying questions. Come on.

MS. SCOTT: Come on, Greg. You can ask the questions yourself.

MR. HANLEY: It's not appropriate to call this out.

MS. SCOTT: No, it's not. I want a clear record on this, okay?

MR. HANLEY: Thank you for clarifying that it's not appropriate for you to call it out.

MS. SCOTT: I did not. It's not appropriate for how you're conducting this deposition.

MR. HANLEY: Okay. How about you get us the rest of the data, Kim, and then you'll be in a much higher moral ground.

MS. SCOTT: I gave you the data that you requested in your document requests, so --

MR. HANLEY: Where's the --

(Multiple Speakers)

MS. SCOTT: But you did not ask for these documents.

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MR. HANLEY: Where's the customer class data? Does anybody know?
MS. SCOTT: Why don't we take a break so the two of you can get it together and ask appropriate questions for the deposition.
MR. HANLEY: Hey, Kim. Kim, don't tell me to get it together, okay? Your people created this problem by dumping this on us with no explanation. We didn't even know where it came from. We thought it was Rothstein's data because it has his designations on it. Then we find out in the Rothstein deposition that it came from Stantec, for the first time. So yeah, we'll get it together but the reason we're not together is because we haven't received all the documents and we got no explanation of what things are.
MS. SCOTT: First of all, you've received what you've requested in discovery. And second, you did not ask prior to Rothstein's deposition what these documents are, so the situation is created by yourself. I think --
(Multiple Speakers)
MR. HANLEY: Why did you give us this? Why is this within the scope of our request, but the full amount of the data is not?
MS. SCOTT: Because this was what Rothstein relied on his report. That was why it was being produced.

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MR. HANLEY: So they didn't even give Rothstein all the information is what you're saying.
MS. SCOTT: I am not making that representation.
MR. HANLEY: You effectively are, Kim. You effectively are making that representation because you're saying --
MS. SCOTT: No, I am not.
MR. HANLEY: Everything they gave to Rothstein and if you --
MS. SCOTT: No, I am not making that representation. I said this is what Rothstein relied on for his opinions.
MR. HANLEY: Oh. So now you're saying there may be other stuff you gave him that he didn't rely on that you didn't give to us. Okay.
MS. SCOTT: No, I am not saying that either.
MR. HANLEY: All right. We'll take a ten-minute break and we'll be back.
(Off the record.)
BY MR. HANLEY:
Q. We're going to talk about some of the guidance that's in the M1 Manual, so if you could have that handy, that would be helpful.
A. Okay.
Q. I want to start out at page 73, the chapter 3.2 which is about distributing costs to customer classes.

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A. Okay.
Q. And I want to refer your attention to the very last paragraph of page 73. Have you found it?
A. Yeah, customer classes and the last paragraph on that page says, demand patterns.
Q. Yeah.
A. That paragraph?
Q. Yeah. It says, demand patterns of various customers differ depending on their maximum day and maximum hour rates of demand relative to average demands. For example, the residential customer class placing summer lawn irrigation loads on the system typically has much higher peak demand requirement relative to the average demand than does a large manufacturing facility which may require water on a relatively uniform basis throughout the year. First of all, do you agree with that?
A. I think, you know, the phrasing is such that it says typically because it's not always the case. I think the first component of that where it says demand patterns of various customers I would say could differ, they don't necessarily always differ based on my experience. So I think there's, you know, some proper qualifications in there because these aren't just blanket statements.
Q. All right. But you didn't do an analysis of relative peak demand requirements among residential and non-residential

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customers as customer classes, correct?
A. Well, the data that we had with monthly billing information, you know, really as far as we could go was kind of that figure 1-8, if you recall, where we looked at monthly usage. We were able to look at those relationships for the system, but then also as I recall, based on some summary data by customer classification, kind of looking at those relationships of maximum month to average month. But that was, with the data we had, about as far as we could go.
Q. Right. But in other words, you could tell how the usage varied, but you didn't analyze how the usage varied based upon whether the customer was a residential user or a non-residential user, for example.
A. Well, in the information that we have, the customer classifications that were in the system, again, we were told that there wasn't necessarily a significant amount of integrity there that we should assume, but with the designations that we had, we were able to look at those total demands that were in figure 1-8 on a maximum month to average month basis by some high levels of categories that I mentioned before. I think it was residential, commercial, industrial. There may have been government and tax exempt codes, but to an extent we could.
Q. Right. But does your rate structure reflect any

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difference between non-residential usage or residential usage?
A. Oh, I think I see what -- so the rate structure is a single retail-wide rate structure that applies to all customers equally, residential and non-residential. In what's, you know, been presented in the report and in the information. In our analysis, I will say, from looking at that summary level data that I mentioned, we did see some pretty good levels of consistency in terms of relationships of average month to max month across the customer classes.
Q. Right. But for example, say two customers that use 3.0 Mcf in a month.
A. Okay.
Q. You weren't -- your rate structure doesn't care whether they're a commercial customer or a residential customer. It's set up so that they pay the same.
A. The rate structure is a single rate structure applicable to all customers equally, so they both would pay the same rates for that same amount of usage.
Q. All right. So if, for example, a non-residential customer used 3.0 Mcf every month, every year -- I know that's not possible, but if they did, but the other customer, the residential customer that used 1.0 and then on one particular month used 3.0 Mcf, the variability in their

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usage doesn't impact what they pay when they use the 3.0 Mcf, correct?
MS. SCOTT: Object to form.
A. Well, I'm not sure I'm understanding the question exactly. You may have to try again if I don't answer exactly with what you're anticipating. I guess if in the month that the customer uses one Mcf, they pay the rates for that one Mcf. When they use the three Mcf, they pay the rates for the three Mcf. So if a customer uses three Mcf all year long, every month, they would pay the rates for the three Mcf based on that usage. I guess I'm not quite sure I'm picking up the question.
BY MR. HANLEY:
Q. Right. But the tier two rate that they're paying is based upon their, supposed to be based upon their relative contributions to the peaking costs, correct?
MS. SCOTT: Object to form.
A. So the rate structure analysis, again, is based on the overall system cost and analysis of system demands and we have a single rate structure that applies to all customers. And so individual customer characteristics, I think as I mentioned, those are not going to be something that's readily accounted for in this or really many rate structures. It's hard to get to that level of specificity in rates because of data access, resource requirements and

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just levels of precision that may not be attainable in allocating certain costs.
BY MR. HANLEY:
Q. But when -- we know you did this in Ann Arbor, but you've created different customer classes and designed rates for each of those different customer classes based upon whether they're residential, non-residential, multi-family so to speak, correct?
A. You can certainly create different customer classifications, you know, grouped, again, accordingly based on common service and usage characteristics. You could certainly do that.
Q. Right. And you deemed it to be appropriate in Ann Arbor because customer classes might use water differently.
A. So within Ann Arbor there were -- it was an existing rate structure that had certain customer classifications already. There was also an interest, too, from the community's perspective to even create an additional customer classification at that time for multi-family. And so we were able to work with them to look at the data and to support, you know, the reasonableness of that and to establish, you know, proportional cost allocations given the data on those service and usage characteristics. In this instance, it's a one retail rate structure was what's been in place and was desired to be maintained.

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And so with that understanding, you then look to apply cost of service principles and methodologies within that context to make sure you're able to adhere to those proportional allocations to the extent that the customer classification process would allow.
Q. Right. But what is the purpose in general of creating different customer classifications? Why would you need to do it in one town and not another?
MS. SCOTT: Object to form.
A. The creation of customer classes or creating of rate structures for different customer types really comes down to policy objectives, data availability, community preferences and policy objectives. There's not necessarily a requirement to create, you know, a certain number of customer classes. And in fact, in many systems you'll see just single rate structures are applied to all customers.
BY MR. HANLEY:
Q. But I didn't ask you whether it was a requirement, that's a different question. But you've done it both ways, correct?
A. That's correct.
Q. What's the determining factor or factors?
MS. SCOTT: Objection, asked and answered. Go ahead, Andy.

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A. Again, the determining factor really comes down to conversations with each community about what makes sense for them and their preferences in terms of how far do they want to and have the ability to get the data to support those customer classifications and the technology and the resources to be able to maintain those classifications and the data necessary to reflect that over time. And it's a different conversation with every community about, you know, what are those requirements, their capabilities, the community expectations and policy objectives in terms of having a single rate structure across the whole system for all that addresses some considerations relative to either customer understanding and transparency or other objectives that they may have.

BY MR. HANLEY:

Q. Okay. Can you turn to page 117?

A. Okay. I've found page 117.

Q. And it's in the chapter of decreasing block rates.

A. Okay.

Q. In the first full paragraph of page 117 it says, generally large volume users, as a class, have a lower average peaking factor, i.e., relationship of peak use to average use with correspondingly lower extra capacity requirements and related costs than do smaller volume users as a class. Do you see that?

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A. Yeah, I see that sentence right at the top of the page.

Q. And do you generally agree with that?

A. I think to an extent that was a lot of historical observations. I think today I'm seeing some different things with client data. So I think it can be true, but I don't know that it's necessarily always true.

Q. Did you analyze whether it's true in Detroit?

A. Well, that's what I mentioned with the billing data that we had. We did look at monthly usage by those customer types at that higher level and observed the relationship of maximum month uses to average month. And the relationships between residential and commercial and industrial were actually very similar. In some years the ratio of that max month usage to average month for residential was higher than commercial and industrial. And in other years it was lower. Overall, it was generally very comparable, but that's for Detroit. That could be different for other communities.

Q. Well, is that reflected anywhere in your report that you did an analysis of the peak to average peaking factor by customer class?

A. No, that wasn't included in the report. It's just part of what we do as part of our process is to, you know, when we go through conversations about rate structures and customer classifications, you know, we do what we need to do to educate ourselves to make sure that we're comfortable with what those would be.

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Q. And what data did you review to make that judgment here?

MS. SCOTT: Object to form.

A. The data would have been summary monthly billing information. In this instance we went back several years. I can't remember exactly how many, but it was a number of years before 2021 to look at summary data. Again, without analyzing the specifics and doing the data verification with the data provided, we grouped into those use classifications and compared those ratios for a multi-year time period.

BY MR. HANLEY:

Q. All right. But we are talking -- and I apologize, I asked the wrong question. We'll get into the distinction between customer classes shortly, but this says generally large volume users as a class have a lower peak to average peaking factor with correspondingly lower extra capacity requirements and related costs than do smaller volume users as a class. So did you look at that specific, not by customer class but by user volume?

A. Oh, by larger volume?

Q. Yeah.

A. I don't know that we went to that level of detail. I can't recall on that question.

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(Multiple Speakers)

A. I'm sorry.

Q. No, I thought you were done. Go ahead.

A. I was just going to say, but I recall us looking at the customer classification differentials but I don't recall specific large user analysis other than bill impacts and those sorts of things that would be a normal part of the process when you look at rates, not necessarily the peak to average calculation. I just can't recall what was done there.

Q. But doesn't your rate study assume that high volume users have higher peaking contributions than low volume users because you're allocating a large part of the peaking cost to people who use more than .6?

MS. SCOTT: Object to form.

A. I don't know that it necessary makes that assumption. It's really an allocation of capacity costs and the allocation of those costs are based on the amount of volume that changes between what's in the base rate and what's in the uniform rate. So it doesn't make any assumptions about individual usage profiles that underlie that system data.

BY MR. HANLEY:

Q. Well, it may not make assumptions about individual usage profiles, but it has the effect of large volume users

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paying more on a per gallon basis than low volume users, correct?

MS. SCOTT: Object to form.

A. It depends how you define that because all customers will receive that low volume rate for the first .6 Mcf and then as you use more than that it's a higher rate. When does that transition, you know, in terms of a net additional cost to a particular customer based on their monthly usage profiles. I don't know that I can specifically say that.

BY MR. HANLEY:

Q. All right. Let's pull up your report one more time. I'm going to go to page 16 where it has the summary of your findings and recommendations. You're familiar with this, correct?

A. Again, this looks to be our report so, yes.

Q. Okay. So point number three says, the water rate structure revised to apply base rate to water use that is consistent throughout the year and allocate peaking costs to the base rate and a new uniform rate in proportion to the contributions to peak demands on the system from use in each tier. Do you see that?

A. I do see that. Yeah, number three.

Q. Is that an accurate statement of what the rate structure is intended to accomplish?

A. I think it is. Generally a good representation of what

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was intended with the base and the new uniform rate structure is to reflect an appropriate and fair allocation of those costs associated with meeting those peak demands based on the contribution to those with the data that we had.

Q. All right. And what's relevant is the use of all users, not any particular class of user or a particular circumstance of a family or how many people are in a home. It's supposed to be a consistent methodology that applies across the board to all users.

MS. SCOTT: Object to form.

A. The rate structure is for a single customer classification. I think -- if that's what you're asking.

BY MR. HANLEY:

Q. All right. And you said that the base rate would be applied to water use that is consistent throughout the year. Do you see that?

A. I do see that.

Q. Consistent by whom?

A. Well, it's consistent across the system. Again, it goes back to figure 1-8 when we looked at the usage in that base tier, it was very consistent from month to month. So it was, again, looking at all the data across the entire system, the system being effectively a single customer class, to identify a base rate that was appropriate for

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that level of use. Even though it wasn't perfectly consistent it would, again, have a smaller allocation of peaking costs because of that consistency.

Q. But we know from your figure 1-8 that the water use that's consistent throughout the year by the entire system users is at least 150,000 Mcf per month, correct?

MS. SCOTT: Object to form.

A. Well, that's the total minimum or the total amount of use on the system in that particular month. How was that distributed and across which customers, that's where you have to look at the underlying billing data to really identify how that would be in terms of if it's very consistent at that level or not. Even at above .6 Mcf we were seeing inconsistencies in the amount of use that would be captured in those blue bars going above that .6 threshold.

BY MR. HANLEY:

Q. But whether there's individual variations, you told me that the use of any particular user is not considered, correct?

A. Well, the underlying information for all users is considered and analyzed and boiled up into the total information seen here. We just didn't have different individual rate structures or classifications for each customer or classifications of customer.

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Q. All right. But wherever you turn this blue or orange, the top of each of these bars is the observed water use during each of those months of 2021, correct?

A. By those accounts that had active service in this months, yes.

Q. Okay. And it doesn't matter whether it's a residential account, non-residential, government, whatever, this is all users.

A. The bars are for all the active accounts from the billing data we received in each month.

Q. And this chart was a result of your billing data, correct?

A. Yes. It was a summation of the billing data and the thresholds for the base tier and then for the remaining use in the uniform rate.

Q. Okay. So we know from the billing data that all users never used less than 150,000 Mcf every month during fiscal year '21, correct?

A. I would say the total demands on the system, not that all users because I don't think every individual user used that amount. I think what you're saying is the total demand on the system from all users was never less than that 150,000, round numbers, Mcf in 2021.

Q. All system users, as a group, never used less than 150,000 Mcf in any month in fiscal year 2021, correct?

A. That's what the data shows for fiscal year '21.

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Q. Okay. So we know that there was over 150,000 in February and there was something around maybe 230,000 in August?
A. Approximately, yeah.
Q. Okay. So all of the areas of orange are paying for almost all of the peaking costs for the entire system, correct?
MS. SCOTT: Object to form.
A. Could you restate the question one more time for me?
BY MR. HANLEY:
Q. The folks representing in orange, the tier two rate, they're paying for the overwhelming percentage of the peaking costs that you've included in your rate model, correct?
MS. SCOTT: Object to form.
A. The orange bars aren't individual customers, that's use. So a customer may have some use in the blue and in the orange --
(Multiple Speakers)
BY MR. HANLEY:
Q. But in your chart, you graphically present the fact that the orange peaking costs are largely, with exception of a little sliver in the base rate, are all going to be recovered through the new uniform rate of $44.92, correct?
A. The allocation approach does yield that distribution of the peaking costs based upon that base rate threshold.
Q. Okay. But you've set the rates to only capture about

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$850,000.00 of -- 850,000 Mcf of usage, correct?
A. Say that one more time. I missed the number part.
Q. You've set the tier one volume at 854,000-and change, correct?
MS. SCOTT: Object to form.
A. 854,000 what? I'm sorry.
BY MR. HANLEY:
Q. Mcf.
A. Oh, Mcf. Oh, the total amount of volume in tier one. That's what you're talking about.
Q. Yeah.
A. I understand now. So the volume in the tier one, based upon the .6 Mcf was, in '21, the 854,602 that you're showing here on schedule one.
Q. Right. But if you had set tier one to be equivalent to the water use that is truly consistent throughout the year, that would be set at about 150,000 Mcf, correct?
MS. SCOTT: Object to form.
BY MR. HANLEY:
Q. I'm not asking you to agree that that's appropriate, I'm just asking you math basically. If you used the volumes that are shown in your chart 1.8, where we agree that the system uses a minimum of 150,000 Mcf every month. If you used that as the tier one volume, i.e., the system use that's consistent throughout the year, that 854,000 would

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turn into 150,000 times 12, right?
MS. SCOTT: Object to form.
A. In that hypothetical or in that example, the amount of volume in tier one would change to roughly that amount if that's where that threshold was established. What that means on a monthly basis, does that mean it's one instead of .6? Like I don't know what that number is, but conceptually what you're describing, I'm following, in that tier one volume would be roughly that amount if you set it at that level. I just don't know what that level is.
BY MR. HANLEY:
Q. No, the tier one volume would be if you used 150,000 Mcf a month times 12, that's 1.8 million Mcf. So if the tier one volume was 1.8 million, then the tier one rate would change, correct?
A. The tier one rate would change and what I was speaking to is I just don't know what that threshold would be. The .6 would be something different. It would need to be higher in that example.
Q. Right. But if we used 150,000 times 12 to get --
A. The volume.
Q. Well, we can just use 150,000 because we're trying to figure out how many Mcf would be in that tier. And let's just assume that there's 191,000, which is what your

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report -- we would just divide 150,000 by 191,000, correct?
MS. SCOTT: Object to form.
A. In round numbers, for this example, that would get you the new tier one threshold.
BY MR. HANLEY:
Q. And that would increase it -- we can do the math. I'll tell you it's .785, okay?
A. Okay.
Q. So if the tier one max were adjusted to .785, you would agree with me one of two things would -- two things would happen. First of all, the tier one volume would go up, right?
A. The amount of volume in tier one if you set the threshold at that level, it would go up.
Q. And the tier two volume would go down.
A. The tier two volume would go down. The hesitancy I have is, I don't think it's as simple as taking that total monthly volume and dividing it by the customers to get the amount of volume in tier one because in some months some customers don't use any water. They're in active service, but they're not using water. So to get the total -- and some don't use the full .6 Mcf in this example or the .78, so I just I don't --
Q. But my calculation, through my hypothetical is

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conservative because the actual tier one volume of 150,000 should probably be distributed among a smaller number of total customers, correct?

MS. SCOTT: Object to form.

A. Very likely. We'd have to look at the actual active service accounts, but I think that would be a fair statement.

BY MR. HANLEY:

Q. Right, okay. But the point is then you would take the peaking costs and have to deal with them differently given the different tiers, correct? It would be a whole new analysis required.

A. You would have to then look at the change in use between the amount of water volume that would fall into that adjusted tier versus the max month and update those proportional allocations of the extra capacity approach if you were to adjust the threshold as you're suggesting in this hypothetical. In order to have the proportional cost allocations.

Q. Right. And so let's go to page 99 of your report. Schedule 8, water allocation to class. Do you see that?

A. I do see it on the screen, thank you.

Q. Now does this take the various cost functions and put numbers on them? For lack of a better word.

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A. So the functions, I think, are on the prior schedule, seven. If you were to scroll up just a brief moment. So the functions -- we assign costs to those categories in column, on the left. So cost refers to functionalized and to treatment, distribution, meters and services, customer-related costs and then fire protection. Those were the categories that were used.

Q. Right.

A. But then for each function, data was used to identify how much of the cost of each function were used to meet each of those, I think you called them pillars earlier, but the base average day cost, max day, extra capacity, peak hour, et cetera. And so we take the cost of each function and allocate them to each of these service parameters, which is showing up in schedule eight.

Q. Okay. So in other words you determined that the treatment costs were 22., basically 23 million and so you allocated that on a percentage basis between base and extra day, correct?

A. Extra capacity max day. Yes, sir. Consistent with the base extra capacity method from M1.

Q. Right. And we're not questioning that. And then you had 88.9 million dollars of distribution costs which you allocated certain percentages to base average day, extra max day and extra peak hour, correct?

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A. That's correct, yes.

Q. And then there's service lines, customer and fire protection, all of which have their own cost center, correct?

A. Effectively, yeah.

Q. All right. So you end up coming up with basically 51 million dollars of extra max day cost and extra peak hour costs, correct?

A. If you add the two together. Yeah, in extra capacity costs it's about 51 million dollars.

Q. Right. So then on figure, on schedule 8, you take that 51 million dollars and you allocate it amongst retail, public fire and private fire lines, correct?

A. Correct.

Q. And so 31 million of the extra max day and extra peak hour costs get into the retail volumetric rates and the public fire cost of roughly 18.6 million are divided among the volumetric charges and the fixed costs. Is that fair to say?

A. That's correct.

Q. Okay. So the amount that gets in the volumetric rates is 31 million dollars from the retail allocation and is it roughly half of the public fire allocation?

A. Correct. And then there are, though, adjustments that I mentioned before that you do to account for offsetting

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revenues because this is a gross cost of service number and then adjust for bad debt. So from the cost perspective, yes. But then there's those adjustments that happen.

Q. When all those adjustments are made, whatever that resulting amount is is what gets plugged in as peaking costs into the volumetric rates, correct?

A. Correct. And if you think back to the 98 million that you referenced earlier, for the volumetric revenue requirement, and you subtract the roughly 60 for base average day, that kind of gives you the rough dollar amounts there. Again, before the adjustments for bad debt and offsetting revenues.

Q. Okay.

A. So in round numbers, it's about 40 million, which is consistent with what you're describing here. I just want to be clear about those adjustments too.

Q. Okay. And so that's the amount -- the 40 million is what is supposed to be recovered through the tier two rate, correct?

A. Round numbers. And it's not necessarily tier two, it's the 40 million that we then have to proportionally allocate to the base rate and the new uniform rate based on their contributions to peak demands that are driving those extra capacity costs.

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Q. All right. But do you know what those nominal dollar amounts are? Because they're not reflected in your report.
A. It's based on the proportional change in use. So I think it's about ten percent is what I recall, plus or minus. It may ten to 15 percent, but it's somewhere in that range. I don't know if it is specifically called out in the report or not.
Q. And is there anywhere in your report where you actually show your work in terms of how you take whatever those 40 million-plus in costs are and put ten percent in first tier and the rest in tier two?
A. Yeah, the figure we were looking at before shows kind of the outcomes, the numeric values, of the unit cost from that approach. I can't remember if that was figure 1-8 -- no, it wasn't figure -- it was early in the report. We talked about it earlier. But the actual math for that is -- I don't think it shows up on the rate schedule we were looking at a little bit further down that had the 98 million on it. Because it's part of a formula in the model that does the allocation and then also does the adjustments for the bad debt and the offsetting revenues.
Q. Right. But my question is, if a judge is looking at your report and the judge says, this allocation is pretty important, how do I know how you did it?

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(Multiple Speakers)
A. I'm sorry, I interrupted you.
MS. SCOTT: Go ahead.
BY MR. HANLEY:
Q. Is it reflected in the report?
MS. SCOTT: Object to form.
A. It's generally described in the report. Can you mathematically regenerate it from the figures and tables in the report? I would have to look at that to see, but we did generally try to describe it fairly and show the outcomes of that process. But I don't know that we, in the report, showed the exact step-by-step math.
BY MR. HANLEY:
Q. Right. But I know that we could probably back into a number, a nominal number, but that's a different thing. What I'm saying is, yeah, we can see -- we can monetize the amounts and say there's four million of peaking costs in tier one and there's 36 million of peaking costs in tier two. We could probably come close to those numbers, but what I'm saying is how do we know how you put 36 million in one bucket and four million in the other bucket?
A. The footnote earlier on figure 1-8 or 1-9 that indicates we distributed those extra capacity costs based on the proportional change in use from the minimum month to the maximum month. And that was the blue versus orange bars that was shown in the figure right before that.
Q. All right. So if it's based upon the proportional change and you put 90 percent in tier two and ten percent in tier one, does that mean that that's the proportional change in the peaking for each of those usage levels?
A. It would. If you went back, I think it was figure 1-8 that had the blue and the orange bars, if you took the actual numbers behind those bars and looked at the change in use, you would see that that's in that ten to 15 percent range. I can't remember the precise percentage, but that's the data that was used to determine that allocation.
Q. But if, for example, you had determined that tier one cut off should be .8 or .9, that would impact all of these other calculations, correct?
MS. SCOTT: Object to form.
A. If you were to change the usage threshold for the base rate component then you would need to update that proportional allocation which would affect the cost distribution of the collective peaking costs between the two rates. So you would have to update that if you were to change it.
BY MR. HANLEY:
Q. Right.

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A. Following a proportional cost of service allocation.
Q. Right. But there's a way to do that. If, say, a judge was saying I agree with everything Mr. Burnham's done, but I think that Plaintiffs have shown that the break point should be .9 or something like that. Again, I'm not asking you to agree with it. But I'm saying the report provides the judge the tools to change what these rates would be based upon those changes and assumptions. Is that correct?
MS. SCOTT: Object to form.
A. I think it could be done. I would just need a moment to verify that the -- if you were to resize the tier from the information in the report that you could do that. It may be through other information that's been provided through the record. You would certainly be able to. I just don't know if you could do it just directly from the report. I'd need to think about that.
BY MR. HANLEY:
Q. All right. But it's certainly doable because you did it with .6, you could do it at any level of usage.
A. You could adjust the threshold and still utilize the same proportional cost allocation methodology and the rates would update.
Q. Isn't the selection of the threshold the single most important component of your rate design?

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MS. SCOTT: Object to form.
A. I don't know if I would consider it to be the most important. There was a significant amount of time and effort putting into the allocation of costs between fixed and variable and to make sure that they were scaled properly for the different services. Like private fire lines and then scaling certain costs by meter size and the fixed fees. I think that was a very important part of the process, as was the fundamental cost allocation that informs the rate structure. Getting that updated as it had been a number of years, I would put those very high up on the list of important aspects.
BY MR. HANLEY:
Q. All right, and I appreciate that. But my question was not to revenue requirements or cost allocation, but rather to the specific rate design that was chosen. Would you agree with me that choosing the appropriate break point between tier one and tier two is probably the single most important determinant of what each of the rates would be?
MS. SCOTT: Object to form.
A. I think in that context and with that a little bit more specificity I better understand your question. I think that incorporation of that lifeline or that base rate and the threshold it's set at is probably the, outside of assigning costs between fixed and variable, is probably

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the bigger driver on the rate structure at this point. Because the proportional allocation process and the cost distributions have been also very well vetted, but this is also where, I mentioned before, you can certainly have alternative opinions and there's not a single rate structure that is, by itself, perfectly reasonable for all circumstances.
BY MR. HANLEY:
Q. Okay. I'm going to direct your attention to page 104 of the report. These are your cost allocation analysis summaries, schedule 11, and the bottom part of 104 has the breakdown of the water allocation to the rate components. Is that correct?
A. Yes, I see that. It's hard to see, but I see it.
Q. Okay. I guess I can make it bigger. Is that better?
A. That's helpful, thank you.
Q. Okay. Part of the effort you had to do in your rate design was to allocate the water revenue requirement among the volumetric, fixed and private fire line charges, correct?
A. That was a part of the process, yes.
Q. And you have total expenses that you've allocated to volumetric and fixed and I know that there are other schedules that show how that was derived. And then there's less non-rate revenues. How did you decide which

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rate revenue, non-rate revenues to allocate to the volumetric charge as opposed to the fixed charge?
A. As I recall, based on footnote seven, they were proportionally allocated based upon the revenue requirements assigned to the fixed and volumetric charge components.
Q. So in proportion to the expenses?
A. Exactly.
Q. Okay. So it wasn't like you were looking at whether non-rate revenues were received relating to, say, water meters or things like that. It was just whatever the proportion between the 101 million and the 24 million was, you retained that in allocating the non-rate revenues.
A. That's correct.
Q. Okay. So for the volumetric rates, that gives you 87, almost 88 million dollars, correct?
A. For the initial rate revenue requirement, it does. I see that.
Q. All right. And then you make a bad debt adjustment of 10.1 million for volumetric and 2.4 million for fixed, correct?
A. Yeah. And I think footnote eight, it's not shown on the screen, but I think it indicates the percentage perhaps. If you scroll down just a tiny bit. Yeah, it was again, based on the overall revenue requirements and then

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assigned proportionally between the charge types.
Q. Okay. So 10.1 million dollars of bad debt increases the total rate revenue requirement for the volumetric charges to 98,115,778, correct?
A. That's the FY23 rate revenue requirement you see there, yes.
Q. All right. So the bad debt adjustment is already in the 98 million, right?
A. That's correct.
Q. Okay. So 98,115,778 is the rate revenue requirement for the volumetric rates for fiscal year '23.
A. That's correct as evidenced here.
Q. Okay. Can you tell me what your -- you would agree with me, first of all, that the inclusion of bad debt adjustment in the rates causes people who pay their bills to pay proportionally more than they would pay if there was no bad debt.
MS. SCOTT: Object to form.
A. If there were no bad debt, there wouldn't be an expense for those write-offs, so that would mean that the requirements would be lower.
BY MR. HANLEY:
Q. All right. So if there were no bad debt, you would have set the rates based upon $87,994,968.00, correct?
A. If there were no bad debt then you would be able to stop

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at the initial rate revenue requirement row.
Q. But instead, because of the bad debt, the rates were set to generate 98,115-and change, correct?
A. That's the adjustment up from the initial rate revenue requirement to the final rate revenue requirement.
Q. So the effect of a bad debt adjustment is to send out bills in the amount of 98 million dollars and end up with 87.994 million dollars, correct?
MS. SCOTT: Object to form.
A. Well, all systems have a level of bad debt expense. Unfortunately, not all customers pay their bills. So to account for that, you have to gross up your charges to factor in an estimated allowance for that to make sure that you recover those rate revenue requirements. And so that's what's happening here is trying to be able to factor that in based on estimates of what that will be.
BY MR. HANLEY:
Q. Right. But the effect of that is is that people who pay their water bills end up covering the costs associated with people who don't pay their water bills, correct?
MS. SCOTT: Object to form.
A. To a degree it does if those bad debts aren't ever recovered.
BY MR. HANLEY:
Q. Okay, and we'll get into that. What's your definition of

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bad debt?
A. To me the bad debt allowance represents the, in the year that you're setting rates the amount of revenue that you expect to not be able to collect.
Q. And does that mean it's an estimate -- is it an estimated amount of bills that won't be paid during that fiscal year?
A. That's typically when we look at bad debt expenses. You'll see those in budgets for an upcoming year, singularly, and that's what that represents, is the anticipated amount of bad debt in that year that corresponds to the year in which the charges were or the services were provided and the charges were billed. It's kind of that one -- it's a one year at a time with a bad debt expense. It's been my experience.
Q. Okay. So do all of the revenues reflected in the fiscal year cost of service study represent revenues received during fiscal year 2023 or all revenues received with respect to bills sent out in fiscal year 2023?
A. Well, I guess we'd have to go to look at the specific revenues for the report, but when we show revenues in the financial forecasting and the revenue requirements piece of the report, it's what's billed. It's what's charged. It's what's anticipated to be issued and then on the expense side, you would have a bad debt allowance for the

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portion of those that you expect to not be able to collect in that year.
Q. Right. But the 98 million in revenues are revenues from bills sent out after, say, July 1st of 2023.
A. Uh-hum.
Q. Yes?
A. So that would be the -- if for the bills that we sent out and ideally that would be the amount that we need to bill.
Q. Okay. But say a bill you sent out on June 30th of 2023 might not get paid by July 1st of 2023, but you don't consider that bad debt, correct?
MS. SCOTT: Objection, foundation. Go ahead.
A. The process here would be, again, to take the 12 months of expected revenues for charges for services and have that be the basis of your revenue estimates for budgeting of what you would expect to charge. When it's paid, that is kind of a different question from this perspective. Your point earlier, we're looking at the prospective year that's upcoming, so we're estimating what we'll bill and then we're estimating what portion of that would have to, would be uncollectable.
BY MR. HANLEY:
Q. Right. But your 98 million dollars doesn't include money that would be received in fiscal year '23 from rates that were imposed in earlier periods, correct?

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A. Oh, recoveries of bad debt? I'd have to check to see what's in the non-rate revenue line to see if that may have been captured there. I just don't recall off the top of my head.
Q. Is there anything in your report that shows what the sources of the non-rate revenues are?
A. It may be in schedule A where we have the financial forecast. There's a cash-in schedule, like the cash-out schedule that you showed earlier. That would help me get a better sense of the non-rate revenues that were included in the study. I just can't recall.
Q. Hold on just a minute. That would be appendix A, schedule 4 or schedule 3.
A. Yeah, I think schedule 4 was the cash-out. There should be a schedule preceding that that would show the cash-in and we'd be able to look at the non-rate revenues listed there.
Q. Okay. Let's go to that page. It's page 53.
A. Okay. It's a bit fuzzy, maybe it's still loading. Okay, I think I can make out the --
Q. It looks like after your water rate revenue, which we've been talking about, and there's other operating revenue, water other fees of 2.9 million dollars. That would be things like installation charges and things like that, right?

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A. Perhaps. I don't know what's included in those. Those would be things that I would have to go back to see in the source data or ask DWSD staff. Like what revenues get recorded in those object codes. I just can't recall.
Q. Okay. But the biggest item of extra revenue we can know has nothing to do with past rates. It says, other miscellaneous forecast based on pension expenses reimbursable by GLWA. That's the 12 million dollars, correct?
A. Yeah, that's the biggest component for fiscal '23. And again, I think DWSD staff can speak to the details of it. But I think that was a one-time item that year, that large of a number, to my recollection.
Q. Okay. Is that reflected in your rate design?
A. So we, as part of the process, netted that out of the pension expense in the cost of service process because it was such an unusual item. So when we did the cost allocations, we deducted that from the pension expense itself, even before any of the cost of service allocations began.
Q. Okay. So it reduces the expenses so you don't have to recognize it as revenue.
A. Exactly. Yeah, because it was such an unusual item and large that we wanted to make sure we deducted it from the actual pension expense up front, that way it all flowed

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naturally through the cost of service process.
Q. Okay. Let me go to page 35. You say on page 35, you describe the non-rate revenue -- I'm sorry, I got to flip it here. On page 35 you say that non-rate revenues include miscellaneous sources such as penalties and fees and reduce the revenue required from rates for each system. Do you see that?
A. I do see that.
Q. So penalties and fees end up being a significant part of the non-rate revenues because there's late charges, right?
MS. SCOTT: Object to form.
A. I'd have to go back and check to see how significant. So they're a part of it, I just I can't speak to the significance without diving into those details on those object codes.
BY MR. HANLEY:
Q. Okay. But it's knowable, right? So you could -- between now and trial, if there is one, you could determine whether any of your non-rate revenues include revenues received from charges imposed in prior periods.
A. Yeah. Or others that -- DWSD may be able to speak to that as well. They'll be more into the details. It's been a few years since we did this, so I just can't recall.
Q. Okay. And then a couple things about bad debt. You say, bad debt represents a percentage of retail rate revenue

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that's not collected by DWSD. Bad debt increases the revenue required from rates. Do you see that?
A. I do see that.
Q. And that's just another way of saying we have to increase the revenue requirement and people who pay their bills pay more than they otherwise would pay in a perfect --
MS. SCOTT: Object to form.
A. I think we talked about this. We have to account for that to make sure that we recover the revenue requirements of the system.
BY MR. HANLEY:
Q. Okay. Do you agree that in order to be a true bad debt, the amounts at issue must be uncollectable?
MS. SCOTT: Object, foundation.
A. I don't know that I have necessarily the professional accounting background to speak about what constitutes a true accounting-type entry for bad debt. But what I can speak to is from a rate setting perspective. You know, we need to account for the amount of anticipated bad debt expense. That is estimated. Not sure the exact definitions I would assign to it, but it's really working with our clients to understand what's the anticipated level of bad debt based upon current circumstances, policies and procedures and historical levels to account for it. So what goes into that definition is something

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that I think we really look to take heed from our clients about how they're doing their bad debt.
BY MR. HANLEY:
Q. Right. But do you have any understanding of what accounting standards there are to decide whether something is truly a bad debt or whether it's questionable or some other designation?
MS. SCOTT: Object to form.
A. No, not really. I don't have a lot of that accounting background or expertise. It just doesn't really get to that level of detail in what I do from a professional standpoint.
BY MR. HANLEY:
Q. So you don't know --
(Multiple Speakers)
A. -- working with a number.
Q. All right. But you don't know whether if a debt is collectable, it can't be classified as a bed debt?
A. Again, I'm not into the details on what constitutes bad debt expense. We're more involved from a looking at the levels of bad debt that hit the operating expense budgets that need to be factored into the design of rates. So from that accounting perspective I'm just -- I'm not able to give you an opinion.
Q. All right. Well, then let's look at page 14 of your

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report. Oh no, I'm sorry, page 23. So there's a little blurb here about bad debt. You say, due to the moratoriums on shutoffs, DWSD's bad debt on water and combined sewer revenues in recent years, fiscal year '19 through fiscal year '21, has ranged from six percent to 12 percent from water and from nine percent to 14 percent for the combined sewer system. Staff estimates that water and wastewater bad debt expense will be ten percent as long as the current moratorium is in place and drainage debt expenses will be 18 percent to result in a combine sewer bad debt of 14 percent. Bad debt expense is expected to be reduced to eight percent for water and wastewater and 16 percent for draining by fiscal year 2027 in response to the elimination of the moratorium on shutoffs and customer assistance programs. Do you see that?

A. I do see that, yeah.

Q. So is it fair for me to say that your estimate of bad debt in your report was based upon discussions with DWSD about how it historically has experienced bad debt and how it might experience it in the future if certain things changed?

A. I think that's fair. And then we did look at data that they were able to provide to help, you know, corroborate that. But as stated here, we did rely on staff for those assumptions, given their experience and knowledge of the

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system as well as the programs that they were anticipating for eliminating the moratorium and then additional customer assistance programs that they were rolling out in parallel with the study.

Q. Okay. But water shutoffs is an enforcement mechanism that the City can avail itself of to get people to pay their bills, correct?

MS. SCOTT: Objection, foundation. Calls for a legal conclusion. Go ahead, Andy.

A. I think that's part of what we see in the industry is the use of, you know, shutoffs as ways to help try to drive folks towards, you know, payment of their bills. But also to minimize the extent of the bad debt expense.

BY MR. HANLEY:

Q. Right. But what the City's telling you and what you're reflecting in your report here is that if they can shut off the water, they'll lower the percentage of bad debt expense.

MS. SCOTT: Objection to form. Misstates the document and his testimony.

A. Yeah, I think that's what was indicated here and in my recollection of discussions were that Detroit was anticipating to see positive improvements on the level of bad debt expense associated with that and then also the implementation of a customer assistance program that would

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hopefully enhance folks' abilities to pay and avoid, you know, the extent of service being provided before it was shut off.

BY MR. HANLEY:

Q. Right. But it's a tool that they have to help them get people to pay their bills.

MS. SCOTT: Objection, foundation.

A. Shutoffs are a way to not necessarily get folks to directly pay their bills, I think it's an incentive. It does help, you know, stop the continuation of providing service without receipt of payment. It helps that for sure.

BY MR. HANLEY:

Q. All right. Which lowers bad debt expense, correct?

A. Again, I think that's what the intent of that statement was getting is that would help lower future bad debt expense by minimizing the extended time periods of service being provided without receiving revenue before shutoffs are done.

Q. Okay. Are you aware that DWSD has the authority to place unpaid water bills on the tax bills of the associated property?

MS. SCOTT: Objection, misleading statement. Go ahead.

MR. HANLEY: How is it misleading, Kim?

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MS. SCOTT: It's a too global statement. You're trying to apply that to all the water users and it's not an accurate statement.

A. I'm sorry, would you mind repeating that?

BY MR. HANLEY:

Q. Does the City have the authority to place unpaid water bills on the tax rolls?

MS. SCOTT: Objection. Again, misstates the record. It makes statements about facts that are not on the record and misstates the City's --

MR. HANLEY: Don't make speaking objections. It's an inappropriate way of objecting. Please object to form or some other thing that doesn't coach the witness how to answer the question.

A. Well, let me answer what I think I heard. I mean, you can ask again if I'm misunderstanding it. I do think, I don't know for certain, but I do think the City has that ability to do that.

BY MR. HANLEY:

Q. Okay. Do you know whether the City has consistently exercised that ability?

A. That I don't know.

Q. Okay. Do you know the process that occurs when a water bill is put on the tax rolls?

A. Generally speaking or within the City of Detroit?

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Q. Within the City of Detroit?
A. I don't specifically know the process.
Q. Well, do you know how the City treats money that they receive when people pay their taxes which include unpaid water bills?
A. That I don't know how that applies to any outstanding accumulated bad debtor allowance for doubtful accounts. I just am not familiar with that.
Q. Okay. Are you aware of any -- let's assume that on an annual basis the City receives five million dollars for unpaid water bills that were paid through taxes because they got rolled onto the tax rolls. Do you know how that's treated by the City?
MS. SCOTT: Objection, speculation.
A. I don't.
BY MR. HANLEY:
Q. Would it be fair for me to assume that it's not in your rate design?
MS. SCOTT: Objection, form.
A. What mechanisms the City has used to recover historical amounts of outstanding bad debt, I just don't have much knowledge about. What I can speak to is the bad debt expense that was included prospectively for services assumed in '23 and how that was factored into future rate projections but I can't speak to the recovery of

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historical amounts and how funds are being applied. I just don't know.
BY MR. HANLEY:
Q. But your fiscal year 2023 rate study does not include revenues from unpaid bills that may have been unpaid years later, or years earlier, for which the City received payment in fiscal year '23.
MS. SCOTT: Objection, form.
A. I don't believe it does, but it also doesn't include that liability for all of the historical amount of outstanding bad debt that's on the system. We're focused on the prospective cash needs of the system, not historical unpaid bills for services provided.
BY MR. HANLEY:
Q. Right. But there's no corresponding adjustment to your bad debt reserve or your bad debt expense to reflect that the City is getting paid from amounts that were previously characterized as bad debt, but then were recovered through the tax process.
MS. SCOTT: Objection. Form, foundation.
A. I can speak to what we did in our rate study which is using those '23 revenue requirements and then beyond that, in terms of how that process is managed and how it affects annual budgeting and rate setting that DWSD does, I can't speak to how that is or is not incorporated into that

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process.
BY MR. HANLEY:
Q. Right. But if they were a recurring source of revenues that was received by the City each year and you knew about it and you knew the amounts, you would consider that in your rate model, correct?
MS. SCOTT: Objection. Form, speculation.
A. The consideration of it would include understanding of what it is and what it's for. And the what it's for is important because if it's for expenses that we're including in our model, the rates would otherwise have to capture. It has relevance. But if it's for something historical that was not factored into our rate study or an outstanding liability that's not included, it may not.
BY MR. HANLEY:
Q. But you did rates on a cash basis, right?
A. We did rates on a cash needs basis based on the anticipated expenses for the upcoming fiscal year '23 which was the year upcoming at the time.
Q. And so take it out of bad debt expense and the whole tax roll thing, which we'll have to substantiate in another way, if the City got a grant from the state of Michigan for 20 million dollars every year for water, you'd reflect that in your rate structure, correct?
MS. SCOTT: Objection, speculation. Go ahead.

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A. If there were to be a grant amount of that magnitude coming in, we would want to note what that's for. And if it's for capital costs that are in the capital improvement program that's included in the rate study, we would certainly want to factor that in. But if it's for expenses that weren't provided and weren't included in the rate study, then we wouldn't necessarily want to bring it in because it's for something that we didn't have the expense for. So it depends on the hypothetical.
BY MR. HANLEY:
Q. Okay. But it's something you certainly would want to look at.
A. We'd want to have an understanding to make sure that it was properly handled.
Q. But one of the things you didn't look at here is whether there's money coming in from other sources relating to unpaid bills for water that were put on tax rolls and later recovered through tax payments.
MS. SCOTT: Objection, form.
A. The scope of our study was to work with DWSD and to work with the data that we had. So data was provided to us on operating expenses, capital expenses, budgeted offsetting and other offsetting revenues like we talked about, to the extent those things are included in those items is a possibility I can't speak to. But our analysis, you know,

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wasn't intended to be an exhaustive research to go beyond the data provided by DWSD to identify all these other sources. We relied on the City to provide the information that we had asked for to conduct the study.

BY MR. HANLEY:

Q. Okay. By the way, you know that the population of Detroit has declined significantly since the 1950s?

A. I'm aware that the population has declined, yes, in the city.

Q. This current water system is sized to serve a much larger population than it actually does serve, correct?

A. Just based on discussions with staff and just kind of applying the circumstances, that makes sense and is consistent with what I've heard.

Q. Have you considered that in allocating costs to the peaking factors here?

MS. SCOTT: Object to form.

A. The allocation of costs is probably where that would come in most, not peaking factors per se. But I think that's maybe what you're meaning. Does it factor into the allocation of costs to max day and peak hour demands? I think is maybe what you're asking.

BY MR. HANLEY:

Q. Well, I guess what I'm saying is even at the highest peaking day of August at the highest peaking hour, the

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Detroit system is nowhere near its actual system peak, correct?

A. Oh, I see. I don't believe that the system hits the peak capacity on a physical basis that it's capable of with its current demands. I think that's what you're asking.

Q. Right. And it doesn't even come close, correct?

A. I don't know, I haven't looked at the measurement of how close it comes, but just my understanding of the circumstances is that it's not utilizing the full capacity, but that's also not necessarily uncommon in the industry for utilities to not utilize all their capacity.

Q. Right. But you would definitely expect that if the system were properly designed to accommodate two million people, who are using the system in August, that whatever the amount of water they're using at its peak in 2025 is far less than that capacity.

MS. SCOTT: Objection, form.

A. I think in that hypothetical if it was designed for a larger population than what's there today, all else being equal, then you would expect it wouldn't be utilizing the full capacity. But in this instance a fair amount of our costs, though, do adjust with our actual average day, max day and peak hour demands, i.e., the charges from the Great Lakes Water Authority. So as those actual average day and max day and peak hour demands change, so do the

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cost allocations from GLWA.

BY MR. HANLEY:

Q. Okay. And you used the GLWA peaking factors to establish these rates?

MS. SCOTT: Object to form.

A. Well, not necessarily to establish the rates, but in the cost allocation process to help identify what the system max day and peak hour demands were to distribute the cost of treatment across average day, max day and peak hour, we did rely upon those data sets from GLWA as the best source of information to aid that process. I wouldn't say to set rates. We used the billing data to calculate rates.

BY MR. HANLEY:

Q. Okay. I meant as part of the whole process.

MS. SCOTT: Object to form.

A. I see.

BY MR. HANLEY:

Q. I'm going to pull up, if I could, Exhibit 12 which I'll represent to you is the report that you did in Ann Arbor back in 2018. If you give me a second, I will go to the page I wanted to show you.

MR. HANLEY: This is, for the record, the water and sewer cost of service study and final report dated June 27th, 2018 for the City of Ann Arbor by Stantec.

BY MR. HANLEY:

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Q. Is that your signature on page two?

A. It seems to be the report for Ann Arbor that we did.

Q. All right. And you don't have any basis to question that that's your signature?

A. No. No, it looks very much like my signature.

Q. So you would have reviewed this report and been responsible ultimately for it, although you may not have prepared everything.

A. I was involved in the study, absolutely.

Q. Okay. I want to refer your attention to page 38 where you remember that one of the things that, even if you didn't develop it originally, that your rate study recommended a tiered structure only for the residential class in Ann Arbor, correct?

A. That's correct.

Q. Okay. I want to refer you to a couple different statements. One of the things you said in the second paragraph under your chart. In the second sentence it says, as a class is well established and supported by data, as is the case here, that residential customers use water differently than non-residential, multi-family and water only customers. Do you see that?

A. I'm sorry, where are you? I'm lost in the text.

Q. I'm sorry. The second sentence of the second paragraph under the chart.

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A. As a class, I've got it now. Thank you.
Q. Okay. Do you agree with that statement?
A. Especially the parenthetical. It's been established historically and it's supported by data in Ann Arbor that that was the case. It's not necessarily the case, but it was in this instance.
Q. Right. But you didn't say it's only the case here. You said it's well established and supported by data, as is the case here, that residential customers use water differently than non-residential, multi-family and water only customers. Do you see that?
A. I do see that language.
Q. And it's fair for the reader to assume that that's a general statement and not merely limited to Ann Arbor residents, correct?
MS. SCOTT: Objection, foundation.
A. You know, what the reader may take from it is up to debate. But I could see how one would take that from it. I don't object to the statement. I think historically that was the case that it was well established and supported by data. That was also eight years ago, nine years ago, and we're seeing data that's indicating otherwise. But at the time, that was a good statement.
BY MR. HANLEY:
Q. Okay. And do you agree that for customers within a class,

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such as different types of non-residential customers, there needs to be a rationale, data and system for developing and administering a structure that is fair based on the cost to serve?
A. I'd say when they're defined classes. Anytime you define a classification of customers for rate setting, I think that's a true statement.
Q. Okay. And isn't it true that within the non-residential class there's a wide variety of business types with different levels of water usage requirements and metering configurations such that charging a tiered volumetric rate for this customer class as a whole would not be fair?
MS. SCOTT: Objection, form.
A. Again, that sentence was written in the context of Ann Arbor. So within their non-residential class, that was what we were seeing in the data. But that also is the case in other instances as well, but it's not always the case.
BY MR. HANLEY:
Q. All right. But are there small offices in Detroit?
A. I'd imagine there are several.
Q. And are there restaurants in Detroit?
A. There are.
Q. Okay. So I understand that you didn't do classes in Detroit, but if you were to look at the classes, there are

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a wide variety of business types with different levels of water usage requirements and metering configurations, correct?
A. I think within Detroit that's fair. So within the collective non-residential class, commercial and industrial, I'd agree with that.
Q. All right. And you say, for example, a small office in the City may use about 20 CCF throughout the year and a restaurant with the same square footage may use 100 CCF throughout the year. If a second tier rate were set at 50 CCF, that would be unfair to the restaurant to charge them more for 50 CCF even though they are not contributing to the cost that is driving the non-residential peak to the system. Do you see that?
A. I do see that.
Q. And that's true, correct?
A. For this instance and that hypothetical, I think individual customer circumstances, that could exist.
Q. But isn't it variability in -- haven't you observed that within the residential class of users, the usage is relatively homogenous?
MS. SCOTT: Objection, form.
A. Within the City of Detroit or generally speaking?
BY MR. HANLEY:
Q. Both.

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A. It tends to be fairly different in the industry and then within Detroit the usage profile was pretty compressed for residential. For the most part, there were some pockets of higher use areas that showed up in the billing data I would say, in terms of some higher bills. But other communities it's very different in the residential class where it's postage stamp-sized lots and they don't do irrigation. In other areas they have really large lot sizes in parts of the Midwest. So it's hard to say. There can -- it's more homogenous in residential than it is in non-residential I would say.
Q. Right. But your example here is saying, just because the restaurant uses 50 CCF and the small office only uses 20 CCF -- I'm sorry. Just because the restaurant uses 100 CCF and the small office uses 20 CCF throughout the year, that doesn't mean that the restaurant is driving the non-residential peak to the system.
A. Yeah, I think that's what the sentence says.
Q. So higher use does not necessarily translate to increasing the peaking costs.
A. Not necessarily. There will be a contribution, as we talked about earlier, for that higher use to those peak demands. But is that proportionate to changes in or contributions to that peak from other users that have more fluctuations? It may not be the case.

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Q. Okay. And then you conclude by saying, because non-residential customers have no standard activity to determine a fair way to allocate the costs of service in the pricing structure, a flat rate is the most equitable in the absence of data, system and resources to establish and maintain individualized customer specific tiers. Do you see that?
A. I do see that.
Q. And that's a true statement as well, correct?
A. That is a fair statement because it is a challenging thing to impose, and in the context of this report, an inclining block rate structure on non-residential for these items that we've been discussing.
Q. All right. And so you were able to void those challenges in Detroit by just simply having a single customer class.
A. Well, I think it's a uniform rate is really the approach. So in this instance, the City wanted to maintain a single retail rate classification. And with that understanding, knowing that there are a variety of types of users within that, it was really kind of guided the approach of having a uniform rate and then having a lifeline rate, but extending it to all customers to make sure that things were proportional and equitable and equal in terms of how they applied to all customers. Doing a tiered system like Ann Arbor, with a single rate classification, where it has

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multiple tiers like this and it's a true inclining block rate structure, that would be challenging. So that's why the uniform rate approach with the availability of a lifeline to all customers, you know, was what was appropriate for Detroit and not necessarily trying to implement an inclining block rate structure like Ann Arbor.
Q. All right. So it's your -- again, going back to the point that you made is that you do not believe that Detroit has a tiered inclining block rate structure, correct?
A. No. It's a uniform rate with a lifeline rate.
Q. Okay. But if the court were to determine that, notwithstanding what you're trying to call it, that it is an inclining block rate as the City has publicly announced several times, that could impact your analysis?
MS. SCOTT: Objection, speculation.
A. No, it wouldn't. The conceptual methodology that was used here is still appropriate. So we can call it a variety of different things, but conceptually we have a uniform rate that has appropriate allocations of cost for that amount of use based on their contributions to peak demands and an equitable allocation of average day demands. And there's another rate that similarly reflects the same type of proportional allocations of costs. So in my opinion, it does not change the fact that it was a reasonable

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recommendation to be made.
BY MR. HANLEY:
Q. All right. But what you're referring to as a uniform rate is one of two different rates.
MS. SCOTT: Objection to form.
BY MR. HANLEY:
Q. That fact remains. Isn't that true?
MS. SCOTT: Objection, form.
A. The fact remains and it's consistent with M1 which shows a uniform rate and then talks about how lifeline rates can be incorporated into all the rate structures in M1, including uniform rates.
BY MR. HANLEY:
Q. Who is it a lifeline rate for?
A. It's for all customers.
Q. Why does Ajax need a lifeline rate?
MS. SCOTT: Objection --
(Multiple Speakers)
A. It's conceptually a lifeline rate or a base rate in this instance was the terminology we used because it's being extended for all customers and it's really reflecting that it was consistent -- that level of usage that's consistent throughout the year, you know, should have a lower allocation of extra capacity costs given the stability of those demands and all customers should receive that level

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of usage at that same rate.
BY MR. HANLEY:
Q. Whose idea was it to have this particular tiered rate structure?
A. It's not necessarily a tiered rate structure per se. It's the uniform rate with a lifeline rate. It's applying concepts from M1.
BY MR. HANLEY:
Q. I thought we agreed we weren't going to have this constant bickering about what you call it. There's tier one and there's tier two, correct? Those two words appear in your report, correct? Okay. Whose idea was it to have tier one and tier two as opposed to a uniform volumetric rate?
MS. SCOTT: Objection, form.
A. I can't recall exactly whose idea that was. It was part of the collaborative nature of the rate study process. We look at alternatives and evaluate them and ultimately determine with our clients what makes sense and we provide recommendations and help evaluate and support the process based on our industry experience. So in terms of a singular person's idea, I don't know. I can't recall specifically where that generated.
BY MR. HANLEY:
Q. Who's the highest ranking person at DWSD that you dealt with?

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A. In the rate study process, Gary Brown was engaged. The one point in the presentation process or during the conduct of the study there was a presentation maybe to, I can't recall exactly, with the mayor. And then a lot of the study work was done with like the CFO, Istakur Rahman and others that provided data throughout the study.
Q. Okay. Did the mayor urge you to have tier two and tier one?
A. I can't recall if the mayor directly urged anything that specific.
Q. What about Mr. Brown?
A. I can't recall.
Q. I mean isn't it true that the higher ups at the City directed Stantec to have a rate structure that would minimize the cost of the average residential user?
MS. SCOTT: Objection to form.
BY MR. HANLEY:
Q. Isn't that the whole purpose of the lifeline rate that you call?
MS. SCOTT: Objection, form.
A. Well, I think there are objectives within rate making. And again, there's many options that can be selected to suit circumstances and objectives. But in this particular instance I recall some of the early conversations being about cost allocations and equity and transparency. And

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then also, you know, concerns around affordability. And then also interest in promotion conservation. So you take those into account as you develop and look at options.
BY MR. HANLEY:
Q. Okay. And why is conservation important in the most prevalent fresh water area in the world?
A. Well, in this particular instance it helps, as I mentioned earlier, reduce some of our wholesale cost allocations that are based on our demands.
Q. Let's return to your report.
A. Mr. Hanley, do I have the opportunity to ask for a bathroom break?
Q. Oh, absolutely. I apologize.
A. That's okay. Could we take just a few minutes?
Q. Yeah. Let's come back at like 1:40.
A. Okay, thank you.
(Off the record.)
BY MR. HANLEY:
Q. Mr. Burnham, if you could turn again to the M1 Manual. I want to refer your attention to page 124.
A. Okay.
Q. Now this is the chapter 4.4, a chapter on increasing block rates in the M1 Manual, correct?
A. Yes. It's in the inclining block rate section or chapter.
Q. By the way, have you ever designed an inclining block

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rate? Designed or recommended an inclining block rate structure for a single customer class? For all system users as a class?
A. As I've defined the inclining block rate structure with multiple tiers, I think we supported those sorts of activities in Jackson, Mississippi. It wasn't a specific recommendation. It was a rate structure that they wanted to implement there. It was a tiered system for all users. But it wasn't a recommendation that I made. And similarly in places like Surprise, Arizona, they have an inclining block rate structure that applies to all customers. But that was in place and they didn't ask for my recommendations on that. So I've seen it done in other places, but it's not necessarily something I can point to a specific recommendation of having done a rate structure like what's on this page with, you know, four multiple tiers, multiple blocks across all customer classes. I'd have to think about that some more.
Q. So to your recollection, you've not done a cost of service study that had an inclining block rate structure applicable across the board to all users regardless of customer class.
A. I mean as I've defined it, the use of like a -- we've done work and looked at that. Again, it's an existing structure that's in place for Atlanta. We've looked at

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potential modifications to that structure. It would still be applicable to all users. We've done a sustainable -- I've done a sustainable rate structure analysis with the help of my team for New York City DEP that looked at -- again, they have a single retail rate structure and they have a uniform rate and they were looking at incorporating a lifeline rate very similar to this. So I think it depends on the definition of what's an inclining block rate structure for me to be able to give you a very direct yes or no answer.
Q. All right. On 124 right under the figure. It says, increasing block rates are not a one-size-fits-all solution. Do you see that?
A. I do see that paragraph.
Q. Do you agree with it?
A. I guess it depends on the context you take it. I take it in a context of what works in one community may not work for another. So I wouldn't necessarily take an exact rate structure from one community and apply it in another without giving it some thought to the data, circumstances, considerations to make sure it was appropriate. So I don't think there's just one design of an inclining block rate structure that makes sense for all utilities. That's the way I take it.
Q. Okay. But in the next sentence it says: Unless used with

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a small highly homogenous customer base, system-wide application of a single increasing block rate structure is likely to result in cost of service inequities, especially to commercial and industrial customers with relatively uniform consumption patterns (low peak demands, but high total usage). Do you see that?
A. I do see that.
Q. Do you generally agree with that?
A. I think it could potentially have those outcomes if not carefully considered and evaluated to make sure that there's proportional allocations of costs. It's possible for individual users.
Q. All right. But again, in Detroit you didn't create separate customer classes for commercial and industrial customers, correct?
A. I didn't create an inclining block rate structure either.
Q. So your answer is yes?
A. Restate your question.
Q. That your rate structure in Detroit did not create separate customer classes for industrial and commercial customers.
A. No, there was a single rate structure classification for all customers in the rate structure for Detroit.
Q. Okay. Then it says: These larger volume customers may not impose costs on a water system proportional to the unit

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cost implied by increasing block rates. Do you see that?
A. Hold on. Oh, in the middle of the paragraph. Okay, I do see that sentence.
Q. And finally, do you agree with it?
A. In certain circumstances I think that could be the case. That's why the use of the word may there is, I think, appropriate because it's possible.
Q. All right. Have you done an analysis of -- well, you'd agree with me that there's, on a nominal basis there's more residential water users in the City of Detroit than commercial and industrial.
MS. SCOTT: Objection, form.
A. Oh just pure number of customers? Yeah, there are more residential customers on the Detroit system than commercial and industrial on a customer account basis.
BY MR. HANLEY:
Q. Have you done any analysis as to what percentage of customers in each of those classes, residential, commercial, industrial, consume more than .6 Mcf per month?
A. I don't know if I've specifically conducted that. It may have been something that the team did as part of the process. But I can't specifically recall having done it myself. I don't think I did, but I feel like it may have been done.

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Q. Okay. Would that have been -- it's not reflected in your report, though, correct?
A. I don't think that's in the report. Again, a lot of the sensitivity analysis and those sorts of things that we talked about with bill frequencies and bill tabulations, they just don't end up in the final report product typically.
Q. But if I told you that -- have you looked at Mr. Rothstein's analysis in his report of the percentage of use that falls within each of the levels of usage on a CCF basis?
MS. SCOTT: Objection, form.
A. I may have looked at a draft report of his a while ago, but I can't remember the content or substance of it. If you want to show me the report, I'd be happy to work through it with you. But I just I can't recall what's in his report.
BY MR. HANLEY:
Q. Okay. But if I told you that at .6 Mcf the percentage of commercial users who use more than .6, the percentage is two-and-a-half times higher than the residential usage users. Would you have any basis to contest or affirm or agree or disagree?
MS. SCOTT: Objection, form.
A. I mean the way you posited the question, I mean, I would

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just need to look at the data to confirm that. Sitting here I don't have a basis to agree or disagree without looking at the information just based on my recollection.
BY MR. HANLEY:
Q. But you don't have a specific recollection of having done that kind of analysis as part of your work. You say it may have been done, but you don't recall it.
A. No, no. Not me specifically, but I suspect it's in the bill frequency tabulations that were done as part of the study by my team.
Q. All right. Returning to the M1 Manual, page 124. The statement about unless it's used with a small highly homogenous customer base, system-wide application of a single increasing block rate structure is likely to result in cost of service inequities. Do you see that?
A. I do. I think we spoke about that a moment ago.
Q. And you would agree with me that the commercial customer base in Detroit is not highly homogenous, correct?
A. I don't think the commercial industrial customer base in Detroit is highly homogenous.
Q. Okay. And in fact, one of the things that when you got around to recommending rates for wastewater, you made a distinction. That was one place where you made a distinction between residential and non-residential, correct?

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A. Well, the distinction was really for a temporary basis until an average winter consumption could be implemented for all customers.
Q. Right. But at least initially you had a sewer rate that was capped at 1.2 Mcf for metered residential units, correct?
A. That was the interim recommendation. But the ultimate recommendation is, I think, right above that bullet point in terms of having all customers' sewer volumes be based on average winter consumption.
Q. Right. Do you know whether that's been implemented?
A. I do not know the answer in terms of the implementation of AWC. I haven't had a chance to follow up on that at all.
Q. Well, were the modifications to the DWSD billing system made and implemented?
MS. SCOTT: Objection, foundation.
A. I don't know the timing of those, if they've officially been made or not. I just can't recall. I suspect this has been implemented, but I don't know.
BY MR. HANLEY:
Q. But the reason that you proposed it as an interim solution is because full data wasn't available to allow it to be applied across the board, correct?
A. The reason it was presented as an interim solution was really around the modification timing and to be able to

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implement a structure that was trying to recognize reduced return flows for sewer to the extent possible before implementation of those billing system modifications.
Q. And just so we're clear, the reason this is relevant to water use is because water use is a proxy for sewer usage, correct?
A. The billed volumes for water are generally the basis of the billed volumes for sewer. For that rate structure, with, you know, the caveat that, you know, in some water only instances or where there's sub-metering done you may be able to isolate water only flows from those that are water flows returning to the sewer system.
Q. But for the vast majority of users, it's based upon water usage, correct?
A. For the vast majority it's the billed water use as the basis of the billed sewer volumes. Notwithstanding it's mainly commercial industrial customers that would have some separate metering configurations typically that would maybe isolate some water only flows so they don't pay sewer on that.
Q. Right. But the idea would be ultimately because a lot of the water used in July doesn't become sewer because it seeps into the ground. The best way to measure what people's sewer output is is by looking at months in which they're not out watering their lawn.

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MS. SCOTT: Objection, form.
A. The use of the average winter consumption is typically intended to try to isolate out those water only uses that occur during those months. It could be irrigation. It could be other seasonal uses for car washing or pressure washing or other activities. It's really trying to get at the water use that really returning to the sewer system.
BY MR. HANLEY:
Q. Right. And swimming pools, obviously, are another factor.
A. Sure.
Q. But for some reason that average water use data for January through March was not fully available at the time of your report. Would that be fair to say?
A. Well, for the prospective time period, that's correct. We did have the January through March billing data for the historical time period of '21. So you're right, there is a period of data collection that was needed to get that data from January through March of, I guess, '22 to inform future rates. So there is a lag, I guess, I think is your point.
Q. Okay. So in the interim the volumetric rate would be capped, would be based on water usage, but it would be capped at 1.2 Mcf for individually metered residential units, correct?
A. That was the suggestion for the interim approach until the

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average winter consumption could be implemented in the billing system.
Q. Right. And how was that monthly cap of 1.2 determined?
A. I can't remember specifically on that in terms of how it was determined. It's rather simply the two times the base tier threshold, but I can't recall specifically unless it's in the report where that was determined. I mean, logically you would say that's basically the water use for a larger family for indoor use if you use the same assumptions for the base tier. Family of four using the 37 gallons a day. If you had a family that was larger, like eight, that would be, you know, the estimate of indoor use for a larger family. But I can't definitively point to a specific recollection on that right now.
Q. But the cap only applied to residential units that had meters, correct?
A. For those individually metered residential units. That was the interim recommendation, yes.
Q. So if you had two -- first of all, why was it only applied to individually metered residential units?
A. Well, for many of the other use types, as I mentioned, if they have separate or if they have water only uses, they tend to be separate metered, whether it was irrigation of common areas or business process. So for many commercial and master metered multi-family complexes, there tends to

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be, not necessarily always, but generally there tends to be some separation of those water uses that aren't returning to the sewer system already in place.
Q. Well no, that's answering a different question.
A. Oh, I'm sorry.
Q. It's answering for different residential units. The commercial and industrial customers did not get the benefit of the cap, correct?
A. Of the interim cap it was only intended for those individually metered residential units.
Q. Okay. So if we had two users, one's a residence that's metered that uses two Mcf of water and doesn't have separate metering all that stuff, and a commercial customer that uses two Mcf of water during the same period of time, the residential pays for 1.2 even though they've actually used two, but the commercial pays for two and uses two, correct?
A. In your example, that would be the effect, yes.
Q. Okay. And one of the things that you said, you dropped a footnote to justify why it was appropriate for residential customers. You said, sewer caps are appropriate for residential customers that have relatively homogenous usage profiles compared to the wide variability of usage in commercial customers that make sewer caps problematic. Do you see that?

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A. I do see that.
Q. So you're recognizing that Detroit is not an exception to what is talked about in the M1 Manual and which you referenced in your Ann Arbor study that there's a wide variability of usage among commercial customers such that, as it applies to sewer caps, it would not be appropriate, correct?
MS. SCOTT: Object to form.
A. I'll say generally speaking I'd have to do some research, but none come to mind in terms of any utilities that apply sewer caps to commercial customers.
BY MR. HANLEY:
Q. Well, I didn't ask that. I asked you whether this confirms that Detroit is no different than Ann Arbor in the sense that the residential customers have relatively homogenous usage profiles, but commercial customers do not.
MS. SCOTT: Objection, form.
A. I think the footnote is kind of an indication of the rationale for the sewer cap, not necessarily a specific analysis about Detroit. But I think the statement in terms of relatively homogenous usage profiles within residential would hold as would the variability of individual customer usage profiles within commercial and industrial classes. I think both of those things would

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hold true for Detroit. To what degree, that would be subject to further analysis.
BY MR. HANLEY:
Q. Okay. How does the fact that you've applied a cap factor into your rate design on the sewer side?
A. Well, the rate design that was recommended and that's reflected in the report was the rates based on the average winter consumption.
Q. Okay.
A. So the report doesn't have rates that reflect the implementation of the cap. The whole report and the schedules at the back were done based on the assumption of the average winter consumption and we did that using the data from January through March of 2021 that we had.
Q. Why was there a need to have an interim rate approach then?
A. That speaks to the bullet from the third point up from the bottom in terms of the City's ability to implement the changes in the billing system. There was a desire to have in place a mechanism to effectively reflect the dynamics of that for residential users individually metered in advance of the implementation of the billing system because it was a little bit out in terms of time to my recollection.
Q. But your rate design is not the interim rate design. Your

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rate design is the proposed approach to be implemented at some future time when the capability of doing it emerged.
MS. SCOTT: Objection, form.
A. That was the approach in the '23 rate studies. So that recommendation to use the average winter consumption is what the sewer rate structure was based around.
BY MR. HANLEY:
Q. Okay. So if we go to page 113, is this the schedule to wastewater rate design that reflects the volumetric rates described earlier in your report?
A. Yeah. If you scroll down just a little bit for me the volume rate piece is at the bottom of this schedule. That charge per unit, it's per Mcf. I apologize, it's not labeled. But that was calculated based on the revenue requirement that you see. And in the 2021, when their average data that we had adjusted for the changes in customers and usage from '21 to '23. So you can see it's about the same number, but we adjusted it to '23. And that was based on the winter volumes that we had from the billing data from that fiscal year '21 time period.
Q. So does the 2.1 million dollars for fiscal year 2023 usage, is that the average winter usage extrapolated for the whole year?
A. For '21, yes.
Q. Okay.

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A. It's effectively representing that when you take the bills for each individual customer and identify that winter average for those three months and then apply it through the rest of the billing data for that time period to calculate sewer bills, what would be the billed sewer volumes? Because in some months customers may, for whatever reason, not have even used their average winter consumption and we were using the lesser amount. So that was kind of the estimated billed sewer volume using the average winter consumption approach that was presented earlier adjusted to '23.

Q. But the reason the water volumes for 2023 are assumed to be 2.5-plus million as opposed to the usage used for the sewer rates of 2.1 million, that difference is because the sewer rate extrapolates the average winter usage throughout the year and so it doesn't capture all of that heavier water usage outside of those January through March periods.

A. I would say principally and then I would say also, too, there is a difference in between billed water volumes and billed sewer volumes because of some of those water only accounts that I mentioned. So you'll have organically some level of higher water use for some water only accounts that are out there. But the difference is largely going to be attributable to the use of average

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winter month volumes here versus the total annual volumes from the other schedule. That's the difference, largely, but there are some water only accounts too.

Q. Okay. But what I'm trying to just confirm is whether this 2.149 million of usage volume recognizes the cap or not.

A. No. This is based on average winter use by itself without the application of a cap.

Q. All right. And do you know, have you ever done a calculation of what would be the result in volumes or the resulting rate revenues for the volume rates if the cap had been applied?

A. I don't recall what that is, but I know we ran that analysis. But I can't recall what the outcome was.

Q. Do you know whether the City actually implemented the rates that are the $55.40 that's in your schedule here in fiscal year '23?

A. That I do not know in terms of what was actually implemented from our study. Oftentimes there are instances where, obviously, our recommendations aren't fully adopted or implemented.

Q. Right, okay. But you haven't done an analysis as to whether this rate structure was actually implemented within a certain period of time and if so, how the rate revenue looked versus what it was projected here.

A. I have not. That may have been something that other

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members of my team may have done as part of supporting future rate and budget updates for DWSD, but I have not.

Q. Okay. But whatever it is, it's not reflected in your report, that alternative analysis.

A. No, the report reflects the use of the average winter volumes for calculating these rates that we're looking at.

Q. Okay. I just have a few more things.

A. And just as a notice, Greg, sometimes when you move away from the mic, I lose your audio for just a minute. So just if I look at you funny, I might ask you to repeat something. You've been doing great so far, but every now and again I miss a few words.

Q. Okay, I appreciate it. So if we go to your schedule one which is on page 112, I believe.

A. Okay.

Q. This is where you take the 98 million dollar volumetric revenue requirement and you apportion it among tier one based upon your anticipated tier one volume and your tier two volume, correct?

MS. SCOTT: Objection, form.

A. That's the schedule one shows the calculation of the volumetric rates, yes.

BY MR. HANLEY:

Q. Okay. So if we -- you estimated that the tier one volume would be 854,602 Mcf for the entire year, correct?

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MS. SCOTT: Objection, form.

A. That amount of volume was the actual amount for '21. And this goes to some of our discussion earlier. If you were to sum up, and I know it's not presented on the schedule, the 854,602 and the 1,733,183, that total is slightly greater than that total usage you see up above for '23. That 2,558,080, because we adjusted those two volume amounts down slightly based on the anticipated decline in volumes that was provided as part of the study to get us to '23 estimated units. So the actual billed volumes and the rate calculation, those were adjusted down slightly.

BY MR. HANLEY:

Q. Okay. But to get to your 98 million and change, would it be fair for me to conclude that you would multiply 854,602 Mcf by $25.04, that would be one element of it, correct?

A. Well, that's what I was mentioning. We would need to adjust that volume down because that was the '21 test year volume. So we would need to adjust that total volume down to get the total revenue generation from tier one in 2023.

Q. All right. But I assume you'd do it in the same proportions.

A. We did. Yes, we did.

Q. The 854 would go down a little bit and the 1,733,000 would also go down a bit.

A. Correct, yes.

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Q. Okay. So you'd maintain the proportionality. So to get to the 98 million, we would multiply whatever the adjusted tier one volume was, some modicum under 854,602 by $25.04.
MS. SCOTT: Objection, form.
A. Plus you would add on --
BY MR. HANLEY:
Q. The first step, step one would be to get the tier revenues -- by the way, is there a document that would disclose what that 854,602 should be using the projected 2023 usage?
A. In the report I would have to look. Offhand I can't remember. I just know the difference between the '21 and '23 volumes.
Q. It looks to me like it's around 30,000 Mcf.
A. It was like 2.58 and change was the '21 total and then it just got revised down slightly with the --
(Multiple Speakers)
Q. It might make a 10,000 Mcf impact on tier one and a 20,000 Mcf impact on tier two.
A. I think that's generally a pretty good estimate from this conversation.
Q. Okay. But whatever it is, the difference, can we agree they're not going to be material given the 98 million dollars we're talking about?
MS. SCOTT: Objection, form.

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A. I would tend to agree, they wouldn't be material based on the 98 million dollar figure that we're talking about.
BY MR. HANLEY:
Q. Okay. But the mathematical exercise for tier one is multiplying the tier one volume, whatever it is, by $25.04 and then the tier two revenues are determined by multiplying the tier two volumes by $44.92.
A. That would be a way to kind of do a revenue proof on making sure that these revenues combined would then add up to the 98 million.
Q. Right. And they do. But the rough math is about 21 million dollars gets recovered through tier one and about 77 million gets recovered through tier two. Does that seem about right?
A. If you did the math of what we just described, you know, and that's what it yields, then you know, I'll accept that for this purpose of discussion.
Q. All right, yeah. But as long as we've described how to do it, the numbers won't lie, right?
A. Yeah. The approach sounds good, I just wasn't using a calculator to prove that out, that's all.
Q. Okay. So now I want to go back to where you presented this graphically. So this 44.92 block and the 25.04 block, they both have -- well, the 44.92 block is going to generate about 77 million in revenues. Can you tell me,

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of those 77 million dollars of revenues, how much average day costs they're supposed to recover?
A. Oh, you would be able to take -- if you wanted to use this chart, you could take the size of the blue bar, about $22.00 per Mcf times the amount of volume in tier two.
Q. Okay. And the same thing with the base rate, we'd multiply that same 22 by the volume.
A. Yeah. And that would identify the amount of average day costs that are being captured in the tier one or the base rate.
Q. Okay. So the amount of base day costs, average day costs, the nominal amount, despite the fact that in the graphic it looks like they're equivalent because there's more volume being applied to the 44.92 rate, the percentage of average day costs that are going to be covered by the tier two rate is higher.
A. So it proportional to the amount of volume in each tier. So it's the same cost per Mcf, but it's just the amount that's captured is based on the amount of volume in each tier.
Q. Right. But the tiered rate doesn't go into effect until .6 Mcf, correct?
A. You mean the tier two rate as we've been talking about it?
Q. Yes, right.
A. That's correct. And the tier one rate is in effect before

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that and both have the same unit cost for average day demands within the rates of $22.00 per Mcf.
Q. No, no. I understand that, but the uniform rate -- let's apply this to a single user, okay.
A. Okay.
Q. I use two Mcf a month, okay.
A. Okay.
Q. So the base rate I'm going to pay $25.04 per Mcf for the first .6, correct?
A. Yes, that's correct.
Q. And then what I'm really doing is then kicking in the uniform rate above .6, correct?
A. Well, you would apply that -- yeah, that rate to your amount of use above the .6. So in your example, I think it would be 1.4.
Q. Right. But my use above .6, my 1.4 Mcf of use above .6 I'm also paying in that rate for average day cost.
A. In both components of the rate, there should be a component for average day cost. Average day costs are based on total volume.
Q. I'm paying the average day cost on my .6, correct?
A. Correct.
Q. And I'm paying the same average day cost on my use above it, but a proportionally, nominally higher amount because I'm using 1.4, not .6.

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MS. SCOTT: Objection, form.
A. I think it's not an additional amount of average day cost per se. It's just the average day cost, in essence, represent the total divided by 365. So the average day cost are spread across total volume. So for every amount of water that's used, you pay the same portion of the average day cost because those costs are associated with providing total water supplies. So that's why in each tier of the rate component, you should pay the same amount for the average day cost and the amount that's recovered is going to depend on how much volume is in each tier.
BY MR. HANLEY:
Q. Right. And I'm not suggesting it's that aspect of this isn't appropriate. I'm just trying to understand how it's done. So if I used 400 Mcf in a month, I would still be paying half of that tier two rate to pay for the average day cost.
A. Yeah, every Mcf that you use in the two or the 400 is going to effective have the same cost per Mcf for those average day costs in it, in the rate.
Q. Okay. Fair enough. Do you agree that different customer classes can have different peaking factors?
A. When you say different customer classes, you mean, say, residential customers versus commercial versus industrial?
Q. Yes.

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A. That they have different peaking factors meaning ratios of their maximum day and peak hour demands to their average day demands?
Q. Yes.
A. That can occur, but they don't necessarily -- they're not necessarily always different.
Q. And have you heard the term non-coincident peak demands as opposed to coincident peak demands?
A. Yes, I've heard of both. It's very common in the energy industry and then M1, in the appendices, about estimating peaking factors for different customer classifications. There's guidance about how to go about calculating coincident and non-coincident demands.
Q. Right. But that's not something you did as part of your analysis here.
A. Not for individual customer classifications. We did as part of the cost allocation process as you termed it earlier. Need to go through and identify the system estimates for maximum day and peak hour factors and then also consider non-coincident demands for fire protection as part of the cost of service process. But we didn't go down to the level for individual customer peaking factor analysis beyond looking at the monthly billing data as I mentioned before. Where we could look at average month versus max month relationships.

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Q. The notion of non-coincidental demands is when you look at your chart of usage and you see, you know, the highest peak hour, peak day is sometime in August usually, correct?
A. From 2021, August had the highest usage by month --
Q. And that's the system peak usage. That's all users at the same time combined, right?
A. That would be effectively the coincident maximum month demand of the collective customers on the system for that year.
Q. But if you were to look at it by customer class, saying residential, commercial, industrial, they might have their peaks, their class peaks, at different days and different times, correct?
A. It's potential for that. That they could be occurring on different days and different months of the year as the class. It really would depend on the nature of the customer classes that we're talking about and how big they are. Because sometimes one customer's behavior is, you know, otherwise masked in the context of a bigger customer base. So sometimes that can occur. Oftentimes my experience has been they're generally pretty consistently in the same month and if not --
Q. But when that peak hour occurs in August, that doesn't necessarily mean that all customer classes are at their

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peak. It just means that as a whole, the system usage is at its peak.
A. When we talk about coincident demands and peak hours and peak demands on the system, that's right. It's at the time of the peak demands on the system when they coincide, what is that maximum demand as opposed to taking each customer's maximum demand independently and stacking them up.
Q. All right. So when that system demand is at its peak, it doesn't necessarily mean that the commercial class is at its peak or the residential class is at its peak or the commercial class is at its peak. If you were looking at all three of them individually.
A. It's possible they may not all have the same peaking months or days or hours when you look at them separately. But again, in this context, it's a single customer classification and so it's a system approach that we took in the study.
Q. All right.
MR. HANLEY: I believe that's all the questions I have for you, sir. I appreciate your time and we'll see you next time, I guess.
EXAMINATION
BY MS. SCOTT:
Q. Andy, I have a few follow-up questions for you.

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A. Okay.
Q. So do you recollect Mr. Hanley asking you about setting a tier rate using 150,000 Mcf?
A. I generally recall some questions and answers along those lines.
Q. So if the City of Detroit -- you would agree with me, the City of Detroit had policy objective to implement a lifeline rate as part of its water rate, correct?
A. I think affordability certainly was an objective and implementation of a lifeline rate was definitely something that was developed as part of the study.
Q. Okay. And so setting a tier one level at 150,000 Mcf, would that achieve the objective of affordability that the City sought?
A. I don't know that it would. We'd have to run the numbers to see as the discussion kind of encapsulated how setting that base or that lifeline tier threshold at that higher level would affect the cost allocation in terms of distribution of extra capacity cost to that lifeline or base rate threshold. So it would likely cause it to go up, but to what degree I just -- I can't tell without running the numbers so to speak.
Q. But isn't it fair to say that what the City wanted was a lifeline rate that reflected water usage for personal hygiene purposes, correct?

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MR. HANLEY: Object to form.
A. I think again that was the intent behind looking at the levels of usage that we did for that lifeline rate and then in the context of a retail rate classifications that are present in the City of Detroit, i.e., a single rate classification, extending that to all customers was really the intent and the approach.
BY MS. SCOTT:
Q. So if that was the intent and approach, could that be achieved by setting a tier one rate based upon 150,000 Mcf?
MR. HANLEY: Objection to form.
A. Potentially, but it would be more challenging I would imagine because of the additional amount of volume that's being captured in that base rate or that lifeline rate because it's going to be encapsulating more of the demands contributing to the volumes in the peak month.
BY MS. SCOTT:
Q. And what you mean by that is that the volume at 150,000 Mcf is not reflecting solely personal hygiene use, correct?
MR. HANLEY: Objection to form.
A. I think it would most likely be extending beyond that without, you know, extensive information that's a hard thing to say concretely. But I suspect it would be

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extending beyond some indoor water use for those residential customers.
BY MS. SCOTT:
Q. Sorry about that. If you look at the screen, this is your report and it's page ten I do believe. And Mr. Hanley asked you a lot of questions about consistent water usage. And if you see the first paragraph on that page, the second sentence. Let me read it to you. Do you see it? It says, the chart demonstrates that there is minimal peaking in the base tier because the amount of water use in the base tier is consistent each month throughout the year. Did I read that correctly?
A. You did. I do see that.
Q. When you were using the term consistent in this sentence, what were you referring to?
A. Really the level of volatility in the total volumes that would be occurring in that base tier in each month. So you can see that the blue bar as you go across visually figure 1-8, the amount of usage that would be billed at the base tier rate was very steady across all the months. There is a small increase in August as you can see and so that's hence the allegation of a component of peaking cost based upon that contribution or that increase in the blue bar from February to August.
Q. You weren't using the word consistent in order to reflect

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a consistent total volume of water usage per month, correct? It was going to be based upon trying to determine a consistent base rate. Is that correct?
MR. HANLEY: Object to form.
A. I'd say that's correct.
BY MS. SCOTT:
Q. So for Mr. Hanley to continue to use this term consistent to apply the total volume usage, it was not matching up with your use of consistent with regards to your report on page ten, correct?
MR. HANLEY: Object to form.
A. I don't think it was in that context, no. Our consistency was more about the billed total volumes from accounts that were happening in that tier as opposed to the total volumes on the system.
BY MS. SCOTT:
Q. Can you pull up the M1 Manual, please?
A. Okay.
Q. And if you can go back to page 124.
A. Okay.
Q. And Mr. Hanley asked you questions about that first paragraph under figure IV-4.1. Do you remember that?
A. I do.
Q. Okay. And he was trying to establish, I think, that if a municipality doesn't use an increasing block rate, which

is based upon various customer classes and customer water usage, then the water rate could be inequitable. Would you agree with me that that was what he was trying to establish here?

MR. HANLEY: Objection to form, foundation. How could he possibly know what I was trying to do?

A. That was the impression that I was left with. But again, I don't necessarily know exactly what the foundation or the basis was.

BY MS. SCOTT:

Q. And if the water -- so the uniform water rate is not based upon customer class types, correct?

A. The rate structure is not based on customer class types, it's based on total water use across all customers within the City.

Q. Okay. And so in those situations, one does not need to identify a class type in order to have a uniform rate that's (inaudible), correct?

MR. HANLEY: Object to form.

A. No, you wouldn't need to do that. And in fact, in many instances when it's a uniform rate structure, it's very commonly applied throughout Michigan and other places as just a single system-wide uniform rate.

BY MS. SCOTT:

Q. And so the passage in the M1 on page 124 that Mr. Hanley

pointed you to really only applies if there is an increasing block rate and the determination of how the classifications in tiers are applied, correct?

MR. HANLEY: Objection to form.

A. That's the way that I take that particular section of text is to be in that context.

BY MS. SCOTT:

Q. And is that text applicable to Detroit's water rate?

A. I don't -- as indicated, I don't think it is because what we're talking about is a uniform rate with a lifeline rate component. So we're really using the uniform rate structure that's identified in a different section of M1 as opposed to the inclining block section.

Q. Okay.

MS. SCOTT: Thank you. I have no further questions. Thank you for your time today, Mr. Burnham.

MR. HANLEY: I have nothing further, thank you.

THE WITNESS: You're welcome.

(Deposition concluded at 2:35 p.m.)

Signature of the witness was requested.)

AJAX METAL PROCESSING,
Plaintiffs,
vs. Case No. 23-015314-CB
CITY OF DETROIT,
Defendant.
_____/

VERIFICATION OF DEPONENT

I, Andrew Burnham, having read the foregoing deposition consisting of my testimony at the aforementioned time and place, do hereby attest to the correctness and truthfulness of the transcript.

_____
Andrew Burnham
Dated:

ERRATA SHEET

PAGE	LINE	CORRECTION

CERTIFICATE OF NOTARY.

STATE OF MICHIGAN)
) SS
COUNTY OF MACOMB)

I, PAMELA GOLETZ, certify that this deposition was taken before me on the date hereinbefore set forth; that the foregoing questions and answers were recorded by me stenographically and reduced to computer transcription; that this is a true, full and correct transcript of my stenographic notes so taken; and that I am not related to, nor of counsel to, either party nor interested in the event of this cause.

_____

PAMELA GOLETZ, CSR-5097
Notary Public,
Macomb County, Michigan
My Commission expires: July 19, 2028

EXHIBIT 19

Neutral
As of: September 11, 2025 8:22 PM Z

Moore v. Walgreen Co.

Court of Appeals of Michigan

November 27, 2012, Decided

No. 303768

Reporter
2012 Mich. App. LEXIS 2356 *

TERRI MOORE, Plaintiff-Appellant, v WALGREEN COMPANY, Defendant-Appellee.

Notice: THIS IS AN UNPUBLISHED OPINION. IN ACCORDANCE WITH MICHIGAN COURT OF APPEALS RULES, UNPUBLISHED OPINIONS ARE NOT PRECEDENTIALLY BINDING UNDER THE RULES OF STARE DECISIS.

Subsequent History: Leave to appeal denied by Moore v. Walgreen Co., 2013 Mich. LEXIS 452 (Mich., Apr. 1, 2013)

Prior History: **[*1]** Wayne Circuit Court. LC No. 09-007931-NO.

Judges: Before: FORT HOOD, P.J., and K. F. KELLY and DONOFRIO, JJ.

Opinion

PER CURIAM.

Plaintiff, Terri Moore, appeals by right, following a bench trial, from a judgment of no cause of action in favor of defendant, Walgreen Company. We affirm.

On April 3, 2009, plaintiff filed a complaint alleging negligence by defendant. Specifically, plaintiff alleged that she suffered injury when "a case of giant sized Frisbees fell from a shelf and struck" her on the head in defendant's Westland store on April 6, 2006. It was asserted that plaintiff suffered severe and serious personal injuries to such an extent that she was disabled. A bench trial was conducted on March 14, 15, and 16, 2011. However, the transcript of the final trial date, March 16, 2011, could not be produced because of equipment failure. Consequently, a settled statement of facts was filed in the trial court on April 9, 2012, MCR 7.210(2)(B). This statement of facts provided, in relevant part:

> 5. At the close of Defendant's case in chief, Plaintiff's counsel made a motion for directed verdict pursuant to MRE 601(A) [sic], arguing that Defendant's employees had failed to preserve necessary evidence by failing **[*2]** to preserve the box which struck Plaintiff on the head until the time of trial. The motion was denied. The Court also declined to give an instruction on spoliation of evidence.
> 6. Plaintiff requested the introduction of rebuttal testimony from Dr. Richard Weiss and Dr. Roderick Claybrook. The Court declined to permit the introduction of the testimony concluding that because Dr. Weiss and Dr. Claybrook could not testify in Plaintiff's case in chief, they could not testify as rebuttal witnesses.
> 7. Plaintiff requested the introduction of medical records from Dr. Weiss, Dr. Claybrook, MRI of CMI and Providence Pain Management in rebuttal to the testimony of Dr. Wolff [sic]. The Court declined to permit the introduction of the medical records, concluding that because the records could not be introduced in Plaintiff's case in chief, they could not be introduced as rebuttal evidence.
> 8. The case was then submitted to the Court for ruling.
> 9. In reaching her ruling finding in favor of Defendant, Judge Daphne Means Curtis made the following findings of fact and conclusions of law:
> A. The Plaintiff was an invitee.
> B. Plaintiff went to Walgreens to obtain cash.
>
> C. The Plaintiff and her son went to **[*3]** aisle 5.
> D. Plaintiff described the aisle.
> E. The instrumentality of injury depends on who you believe. If the court believes Plaintiff, then she was hit by a box. If the court believes Defendant's employees, she was hit by a Frisbee.
> F. Walgreen's employees testified that there was only one Frisbee.
> G. The issue before the court was credibility.
> H. The Plaintiff testified that this incident changed her life and caused her spasms, tremors, daily headaches, speech impediments, problems with depression and sexual impotence.
> I. The Frisbee was very lightweight.
> J. The court is not a bioengineer; cannot say the box or the

Frisbee could have caused her injuries.
K. The court does not believe Plaintiff's story.
L. The court is not a bioengineer and cannot conclude that even if the box hit her in the head that it could have caused her injuries.
M. There was no causation testimony because the Plaintiff failed to file a witness list.
N. Both sides must rely on the information and discovery sent to each other.
O. The Defendant had no way of knowing who Plaintiff was going to call as a witness.
P. The court was not basing her decision on the weight or the box but rather the law and the facts.

Q. The court **[*4]** found that the Plaintiff's [sic] claimed that some five years after the incident she is totally disabled.
R. When Plaintiff was questioned by the Plaintiff's attorney she had slurred speech, tremors, she had to be told multiple times to speak into the microphone, her hands shook, and she trembled, and was soft spoken.
S. When Plaintiff was questioned by the defense, she was more alert, no problems expressing herself and her enunciation was better. Her demeanor was called into question. The court felt that she was putting on a show for the benefit of the court.
T. Even if the court were to find liability, the court finds that there was no medical support for her injuries.
U. The only medical expert testimony came from Dr. Wolf who testified that there was some disc bulging. [H]owever, he said that bulging could be caused by aging or trauma and that he would defer judgment to an orthopedic surgeon. He also said that bulging was not uncommon in people over the age of 30 and the Plaintiff was 52.
V. The court believed Ms. Wendy Hall, the store manager. The court finds her testimony credible and believable.

W. The court finds that the lack of competent medical evidence as to causation leads it **[*5]** to conclude that Plaintiff has not sustained her burden of proof.
X. The lack of causation, the absence of the credibility on Plaintiff's part, leads the court to conclude that there is no liability and no causation. The height of the top shelf being only slightly over five feet, the height of the plaintiff at about five feet, leads the court to conclude that the Frisbee could not have fallen more than a foot prior to the Frisbee hitting her.
Y. The Plaintiff had an opportunity to present evidence and failed to produce it. The court finds that there is no liability and although it could stop there, it also finds that there is no causation.

Plaintiff does not raise an issue with regard to the trial court's ruling regarding the physical cause of the injury, a single Frisbee.[1] She also does not challenge the lack of correlation between the single Frisbee and the injury in light of the height of plaintiff in comparison to the shelf height. Rather, plaintiff contends that the trial court erred in excluding medical testimony and medical records from her case in chief as well as medical evidence in rebuttal. Because plaintiff fails to challenge the trial court's rejection of plaintiff's theory **[*6]** of causation and the credibility determinations, she is not entitled to appellate relief.[2]

Following a bench trial, a trial court's conclusions of law are reviewed de novo and its findings of fact are reviewed for clear error. *Mettler Walloon, LLC v Melrose Twp*, 281 Mich App 184, 195; 761 NW2d 293 (2008). "Clear error exists where, after a review of the record, the reviewing court is left with a firm and definite conviction that a mistake has been made." *Marshall Lasser, PC v George*, 252 Mich App 104, 110; 651 NW2d 158 (2002). We defer to the trial court's assessment of the credibility of the witnesses because of the lower court's superior **[*7]** ability to examine the witnesses who appeared before it. *Glen Lake-Crystal River Watershed Riparians v Glen Lake Ass'n*, 264 Mich App 523, 531; 695 NW2d 508 (2004). Deference is also accorded the trial court's resolution of the issues when it is presented with various theories of the experts and the witnesses and conflicting testimony. See *Buckeye Marketers, Inc v Finishing Servs, Inc*, 213 Mich App 615, 617; 540 NW2d 757 (1995).

"To establish a prima facie case of negligence, a plaintiff must prove the following elements: (1) the defendant owed the plaintiff a legal duty, (2) the defendant breached the legal duty, (3) the plaintiff suffered damages, and (4) the defendant's breach was a proximate cause of the plaintiff's damages." *Loweke v Ann Arbor Ceiling & Partition Co, LLC*, 489 Mich 157, 162; 809 NW2d 553 (2011). A valid theory of causation must be premised on facts admitted in evidence. *Craig v Oakwood Hosp*, 471 Mich 67, 87; 684 NW2d 296 (2004).

Proximate cause requires proof of two separate elements: (1) cause in fact, and (2) legal cause, otherwise known as proximate

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[1] The trial court, in the settled record, stated that "the Frisbee" could not have fallen more than a foot before striking plaintiff, finding of fact X. The trial court rejected plaintiff's credibility and her theory that a box of Frisbees caused her serious injury, findings of fact E, G, K, V, and X.

[2] When the appellant fails to challenge an issue which necessarily must be reached to ultimately obtain the relief requested, he cannot prevail on appeal. *Roberts & Sons Contracting, Inc v North Oakland Dev Corp*, 163 Mich App 109, 113; 413 NW2d 744 (1987).

cause. *Skinner v Square D Co*, 445 Mich 153, 162-163; 516 NW2d 475 (1994). Generally, the cause in fact requirement **[*8]** is established by demonstrating that "but for" the defendant's actions, an injury to the plaintiff would not have occurred. *Id.* at 163. Proximate cause addresses the foreseeability of consequences and whether "a defendant should be held legally responsible for such consequences." *Id.* If a plaintiff fails to prove cause in fact, proximate cause does not become a relevant issue. *Id.* The burden of establishing proximate cause belongs to the complaining party, and the mere fact of an accident does not create a presumption of proximate cause. *Id.* at 164 (citation omitted). Causation cannot be established by mere possibilities or speculation. *Meemic Ins Co v DTE Energy Co*, 292 Mich App 278, 281-282; 807 NW2d 407 (2011). When an appellant fails to challenge the basis of the ruling by the trial court, we need not even consider granting the party the relief requested. *Derderian v Genesys Health Care Sys*, 263 Mich App 364, 381; 689 NW2d 145 (2004).

In the present case, plaintiff alleges that the trial court erred in excluding medical evidence regarding her injuries and damages. However, a prima facie case of negligence also requires that plaintiff prove causation by presenting facts in evidence, **[*9]** *Loweke*, 489 Mich at 162; *Craig*, 471 Mich at 87, and the mere evidence of an accident is insufficient to establish causation, *Skinner*, 445 Mich at 164. Because plaintiff[3] failed to contest this aspect of the trial court's ruling regarding the prima facie case of negligence, she has failed to demonstrate entitlement to appellate relief. *Derderian*, 263 Mich App at 381.

Affirmed. Defendant, the prevailing party, may tax costs, MCR 7.219.

/s/ Karen M. Fort Hood

/s/ Kirsten Frank Kelly

/s/ Pat M. Donofrio

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[3] Plaintiff also alleged that the trial court erred in failing to grant her request for an adverse inference instruction and motion for directed verdict when defendant failed to preserve the box which struck plaintiff. In light of the trial court's factual findings that a single Frisbee, not a box of Frisbees, struck plaintiff, she is not entitled to appellate relief.

EXHIBIT 20

July 3 | 2025

Expert Report of

Eric P. Rothstein

in the Matter of

Ajax Metal Processing, Inc. v. City of Detroit

Case No. 23-015314-CB

State of Michigan, Wayne County Circuit Court

Galardi Rothstein Group

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Introduction

Engagement

The City of Detroit, Michigan ("Detroit" or the "City"), through its counsel Miller, Canfield, Paddock and Stone, P.L.C., ("MCPS"), engaged the Galardi Rothstein Group ("GRG")[1] to provide expert opinions to be considered in adjudication of the case: *Ajax Metal Processing, Inc. v. City of Detroit*, Case No. 23-015314-CB, Wayne County Circuit Court, Michigan.[2]

The opinions contained in this report are related to the water rates approved by the City in August 2022. In particular, MCPS engaged me to evaluate (1) the reasonableness of the City's two-tier water rate, (2) the Stantec Rate Study Report, [3] (3) the opinions of John Damico, as provided in Report of Findings and Opinions dated June 3, 2023 ("Damico Report"), (4) Plaintiff's claims that most commercial and industrial customers subsidize residential customers, and (5) the potential impact of Plaintiff's requested relief on the purported class members[4], given that water customers move in and out of the "Significant User" class in any given month, and thus, many "Significant Users" are also ***not*** Significant Users.

I reviewed, among other documents, the Stantec Rate Study Report and Plaintiff's Complaint and the Damico Report and determined that Stantec's methodology and calculations were reasonable and in accord with industry guidance. The City's water rates are just, reasonable, and non-discriminatory, and the Plaintiff's Complaint is without merit.

I may supplement this report with revised or additional opinions in the event that additional evidence or information becomes available after the date of this report.

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[1] GRG is the partnering of Galardi Consulting, LLC, established in 1996 – a certified Woman-Owned and Emerging Small Business Enterprise in Portland, OR; the Rothstein Group, LLC, established in March 2007 and located in Montreat, NC; and Stanger Consulting, LLC, established in 2012 and located in Herriman, UT - under a "doing business as" arrangement.

[2] My compensation for this engagement is $400 per hour plus reimbursable expenses and is not contingent on the outcome of the litigation.

[3] Detroit Water and Sewerage Department Rate Study Final Report, prepared by Stantec, dated September 19, 2022 ("Stantec Rate Study Report").

[4] Plaintiff's purported class definition is unclear and differs among Plaintiff's own filings. Mr. Damico states: "The shift resulted in Significant Users (i.e., water customers that use at least 1 McF (approximately 8480 gallons) per month), the majority of which are in the nonresidential class." (Damico Report, p, 2.) Plaintiff, however, defined a different purported class in its Complaint: "Plaintiff is a 'Significant User,' which definition includes all City water customers who/which per their water meters receive in excess of 2 McF of treated water per month from the City." Plaintiff's Class Action Complaint and Jury Demand filed by Kickham Hanley PLLC, November 27, 2023 ("Plaintiff's Complaint"), ¶ 7. Plaintiff's class certification brief seeks to certify a class of water customers (i.e., Significant Users) that use on average of 1 McF per month. I have assumed that Plaintiff's purported class contains water customers that use at least 1 McF per month as noted in Mr. Damico's report.

Detroit Rate Setting Practice and Policy Objectives

Detroit's rate setting practices are consistent with water and wastewater industry guidance[5] which recognize that rate-setting must be responsive to local conditions and requirements and involve the balancing of different, often competing, policy objectives. See infra, pp. 5-6. ("Review Methodology"). In Detroit's case, this is reflected in the practice of applying a common rate structure to all customers[6] and Detroit's implementation of a lifeline volumetric water rate tier[7] in August 2022. The lifeline rate tier – applied to calculate all Detroit water customer bills – serves to advance water affordability and water use efficiency policy objectives.

Detroit's rates were and are established to recover revenue requirements which Plaintiff has not contested with the exception of the (appropriate) inclusion of bad debt expense. Detroit's rates, taken as a whole, recover the costs the utility incurs to provide service. Moreover, the City's rates are aligned with peer retail water and wastewater systems in Michigan and nationally.[8] **Detroit's rates are just and reasonable.**

Detroit's water rates are applied uniformly across all active water users–regardless of low volume or high-volume water usage. The Significant Users described by the Plaintiff are charged the same rates and charges (that feature the lifeline tier) as those charged to low-volume users. Affordability, in this context, does not translate to inequity or unfairness. **Detroit's rates are non-discriminatory.**

Detroit's election, within its discretion, both to employ a customer classification that includes all water users (rather than disaggregating the water users by breaking them out by customer type depending on land use, location within the service area, or usage levels), and to apply the two-tier volumetric rate design to all customers, is reasonable and acceptable ratemaking practice. It recognizes the challenges of relying on tax-type designations imported from property tax assessment rolls to define land use based customer classifications, and

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[5] As delineated primarily in the American Water Works Association's M1 Principles of Water Rates Fees and Charges (7th Edition), 2017 ("AWWA M1") and the Water Environment Federation's Financing and Charges For Wastewater Systems, Manual of Practice No. 27, (4th Edition), 2018 ("WEF No. 27").

[6] References to all water customers excludes consideration of separate Private Fireline Charges and includes all retail residential, commercial, industrial, municipal and tax-exempt customers.

[7] "The term lifeline rates is sometimes used for rate structures designed to provide an essential amount of water service at a reduced cost to all customers, independent of income level or ability to pay." AWWA M1, p. 214.

[8] See AWWA Rate Survey at https://www.awwa.org/data-products/rate-survey/ and https://ellio.raftelis.com/AWWA - accessed on June 26, 2025.

simplifies billing and collection practices. There is no requirement for, nor does AWWA guidance mandate, separately classifying customers by land use type (e.g., residential, commercial, industrial), or usage levels, or income levels, or any other factor. And doing so invites significant billing and collection complications. **Detroit's water customer class does not require disaggregation.**

Plaintiff's Complaint and Mr. Damico's Opinions

The Plaintiff in this case does not contend that the City's water rates recover costs in excess of the costs required to deliver water services. The Plaintiff does not contest that the City charges the same rates to all customers. Rather, the Plaintiff contends that the lifeline rate component:

> results in high-volume water users, almost all of which are commercial and industrial users (the "Significant Users," as defined below), being charged amounts far in excess of the amount the City actually incurs to service those users (the "Block Rate Overcharges").[9]

The Plaintiff is demanding that Detroit abandon its legitimate rate-setting objectives in exchange for an inverse policy that results in charging large-volume customers lower bills and lower-volume customers higher bills.

The Plaintiff's Complaint is purportedly supported by a report that does not consider how Stantec developed the two-tier rate design, does not present an alternative rate study (but rather a flawed bill tabulation analysis), and does not provide a calculation of estimated damages. The Damico Report is so replete with misstatements of AWWA guidance, methodological errors, and unfounded conclusions that it must be discounted in its entirety.

Background

I have worked in water and sewer utility financing for more than 35 years and have been involved in developing industry manuals of practice for water and wastewater rate setting. Notably, I have served on the American Water Works Association's Rates and Charges Committee for over 30 years and have co-authored and edited portions of its Principles of Water Rates, Fees, and Charges (M1) Manual of Practice, which John Damico repeatedly claims

[9] Plaintiff's Complaint, ¶ 1. Note that the terms "Significant Users" and "Block Rate Overcharges" are entirely fictions of the Plaintiff.

to rely on in his report.[10]

In Michigan, I was engaged in 2015 to serve as an advisor to Federal District Court Judge Sean Cox to facilitate establishment of the Great Lakes Water Authority and subsequently served as Program Manager for implementation of the regional authority. Between October 2015 and March 2016, I served on the Flint Water Advisory Task Force. Since 2016, I have worked on consulting projects and provided expert witness testimony in matters related to water, wastewater and stormwater rate setting in Michigan.

I am currently engaged with clients in Alabama, California, Georgia, Illinois, Michigan, North Carolina, Ohio, Nova Scotia (Canada) and Guam on matters related primarily to water and sewer utility capital financing and rate setting. I have worked with communities to adopt lifeline rates similar to the one adopted by the City. A more detailed narrative description of my experience is provided as Exhibit EPR-1; my resume, including a listing of expert witness engagements, is provided as Exhibit EPR-2.

Industry Standards and Review Methodology[11]

For the development of this report, I have reviewed the documents and spreadsheets listed in Exhibit EPR – 3 as well as re-familiarized myself with Michigan law as it pertains to water setting. I note that Michigan law is generally similar to most other states, territories (and Canadian provinces) in that rates should be just, reasonable and non-discriminatory.[12] In Michigan, municipal rates are presumed to be reasonable and there is no prescribed or required method for setting rates. In Detroit, the City's charter calls for rates to be equitable – generally meaning fair, impartial, reasonable and non-discriminatory.

Before delving into the specifics of Detroit's water rates and Plaintiff's claims, it is important to explain industry guidance on water rate setting. Specifically, the AWWA M1 Manual of Practice has, since the 1st edition published in 1954:

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[10] American Water Works Association, Principles of Water Rates, Fees and Charges, (M1) Manual of Water Supply Practices, 4th – 7th editions. (1991, 2000, 2012, 2017).

[11] In contrast to the Damico Report, this report includes substantive footnotes and citations from water and wastewater industry guidance (see footnote 7) to fully document my findings and conclusions which should be read in their entirety. Quotes from these referenced sources are accompanied by footnoted citations.

[12] To be clear, I am not an attorney, and I am not offering a legal opinion. Rather, this is my understanding of prevailing legal requirements which need to be taken into account when developing water rates. For a further discussion of the legal framework for water ratemaking, see American Water Works Association, Water Rates, Fees and the Legal Environment, (2nd Edition, 2010).

> *aimed at outlining the basic elements involved in water rates and suggesting alternative rules of procedure for formulating rates, **thus permitting the exercise of judgment and preference to meet local conditions and requirements.***[13]

Perhaps most importantly, contrary to Mr. Damico's characterization (see infra, pp. 21-31,"Damico Report Review"), AWWA and WEF Manuals of Practice are specifically not prescriptive; these publications are instead offered as guidance[14]:

> *As with the other manuals prepared by the Rates and Charges Committee and AWWA in general, this manual will not prescribe a solution. Rather, it is intended to provide guidance and advice*.

I am offering Opinions in this report based on my extensive experience with water utility financing and ratemaking that includes numerous projects throughout the U.S. and Canada and long-term service on the professional societies[15] that have promulgated industry guidance on rate setting principles. This experience has underscored that there is no one way that water rates are to be calculated. AWWA and WEF guidance is not prescriptive and does not offer recommendations. Rather, water rate development involves careful consideration of local conditions and circumstances, and the balancing of (often competing) rate setting objectives.

As a co-author of the industry's manuals of practice, I am particularly familiar with their principles and considered and applied them (along with my own years of experience working with municipalities) in my review of the materials listed in Exhibit EPR-3 and the preparation of this report.

Detroit's Rate Setting

Objectives

As noted, industry guidance recognizes that water rate setting involves consideration of multiple (often competing) potential objectives. Full cost recovery is a key objective such that arbitrary exclusions of selected expense categories (such as bad debt) is problematic.

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[13] AWWA M1, p. 5 (emphasis added).

[14] Mr. Damico incorrectly asserts that the "AWWA recommends" (Damico Report, p. 15), "AWWA approved" (*id.*, p.16), and that there are only "four generally accepted…rate structures" per AWWA (*id.*, p. 18). He makes these inaccurate statements about the AWWA throughout his report. But during his deposition, Mr. Damico agreed that the AWWA M1 only offers guidance and his use of "recommends" in his report with regards to the AWWA should be read as being the same as a "guidance" from the AWWA. Damico Dep. 90:19-91:7, 94:1-95:1. Nonetheless, Mr. Damico still claims that the AWWA does make some recommendations, but this assertion is *not* based on the express language of the AWWA; instead, it is based solely on *his interpretation*, which he admits reflects his inferences and "deductive reasoning." Id., 95:1-96:25.

[15] American Water Works Association ("AWWA") and the Water Environment Federation ("WEF").

Objectives may also reflect billing system or administrative constraints that render relatively more complicated rate designs impractical. Other objectives may include pricing policies that are aligned to a community's values and priorities. For these reasons, AWWA does not conclude that any particular rate form is the most fair and equitable, prescribe customer classification structures, or dictate usage tiers for block rate designs.[16]

In Detroit's case, rate setting policy objectives prioritize public health through a "lifeline rate" component.[17] *"The term lifeline rates is sometimes used for rate structures designed to provide an essential amount of water at reduced cost to all customers, independent of income level or ability to pay."*[18] Here, Detroit developed a uniform rate for all water usage, but the City also asked Stantec to develop a "lifeline" rate that would be appropriate to charge for only using what is deemed an "essential" or "basic needs" volume of usage (e.g., water for cooking, bathing and using the toilet).[19] As noted in Stantec's report, this volume of water, 0.6 McF, reflects detailed industry research and was also tested against the City's actual water bills. In turn, all customers[20] who voluntarily use more than this "basic needs" volume pay the Tier 2 rate for that usage, which is made available via a high-capacity water system that supplies them with water well beyond their basic needs. Through its different price points, this rate design also promotes water use efficiency and conservation by signaling to customers what level of usage goes beyond basic needs.[21]

Several elements of Detroit's unique history as a water services provider further support the modification of the previously employed single uniform system-wide rate with implementation of a lifeline rate component.[22]

- Detroit's embedded water system excess capacity, which continues to drive costs,

[16] Mr. Damico agrees that "[t]here is no single approach [to the cost-of-service and rate-making process] that fits a utility perfectly." Damico Dep. 90:19-91:7, 92:23-93:3.
[17] I am familiar with Detroit's water and sewer utility operations and in preparing this report, I have spoken to various individuals who manage, administer and operate the City's water system.
[18] AWWA M1, p, 214.
[19] Mr. Damico does not know how the AWWA M1 defines "lifeline" rate or if a "lifeline" rate is even discussed in the AWWA M1. Damico Dep. 65:2-5.
[20] All customers assigned as residential, commercial, industrial, tax-exempt, and government through tax-type designations.
[21] Mr. Damico admits that his analysis did not take into consideration Detroit's policy objectives of a lifeline rate and conservation. Damico Dep. 157:8-158:10.
[22] For a discussion of addressing historical context in rate-setting, see Journal AWWA, Affordability and Equity Considerations for Rate-Setting, by Eric Rothstein, Stacey Isaac Berahzer, Joe Crea, and Michael Matichich, September 2021, pp. 31-43.

was developed in large part to meet the water demands of high volume commercial and industrial users in the City. The water system is sized to deliver water demands far in excess of the stable, year-round demand levels required to meet basic human health and sanitary needs of Detroit's water customers.

- Detroit's historical economic decline has given rise to acute concerns related to water affordability. These concerns prompted Detroit's convening of a Blue Ribbon Panel on Affordability that, among other things, evaluated programmatic and rate structure options to address water affordability.[23]
- The Great Lakes Water Authority (GLWA) was established to serve regional water customer needs through the use of Detroit's water system infrastructure. GLWA's existence is predicated in part on lease payments from GLWA to the City – payments that were negotiated in continued recognition of Detroit citizen-ownership of water treatment and transmission assets.[24]

The lifeline component reflects these historical factors and further ensures that Detroit citizens still see a form of return for GLWA's use of the City's oversized water system.[25]

Moreover, the use of a lifeline rate component is by no means unusual throughout the United States. System-wide tiered rates with a lower cost tier at usage tied to basic health and sanitary needs exist, for example, in Atlanta, Georgia, Jefferson County, Alabama, and Guam. Many systems in Michigan and throughout North America employ a single retail rate class as opposed to land-use based customer classifications, and some apply tiered rates to all water customers – residential and non-residential - like Detroit. In Michigan, the Village of Mackinac City's two-tiered rates were recently sustained by the Michigan Supreme Court.[26] And there is nothing in industry guidance that prohibits or recommends against modifying a uniform

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[23] Blue Ribbon Panel on Affordability Report dated Feb 3, 2016 (BRPA Report).

[24] Detroit's rate calculations prior to the creation of GLWA included a "return" component paid by wholesale customers for the City of Detroit's utility investments. This ownership return accrued to the benefit of Detroit retail water customers.

[25] Notwithstanding economies of scale in water infrastructure development, these types of inherent cost differences, and water conservation objectives, have (as Mr. Damico noted) given rise to implementation of "inclining block" rate forms in many communities, particularly those in more arid climates and/or facing water supply shortages. Yet, as documented in the Stantec Rate Study Report, Detroit did not develop an inclining block rate form but rather adjusted its uniform volume rate to provide for a lifeline component. Because the supporting analytics (documented in the Stantec Rate Study Report as compared to the AWWA M1, Chapter IV-4, pp. 123-128) are markedly different, the distinction is not mere semantics.

[26] Michigan Supreme Court, Mackinaw Area Tourist Bureau, Inc. v. Village of Mackinaw City, Case No. 361625, (2024).

volume rate structure to establish a tier price point for water consumption that meets basic human health and sanitary needs. In fact, AWWA guidance authors noted that "*the concept of lifeline rates may be useful*"[27] when considering how to employ rate related affordability programs (which are in place in Detroit). Indeed, use of a lifeline rate in Detroit, with its difficult history related to water affordability could hardly be more appropriate and more responsive to unique local circumstances as called for in AWWA guidance.[28] And, as illustrated below, in the City's case, the two-tier rate is not something solely benefiting low-income customers or residential customers. Commercial and industrial customers benefit from the "lifeline component" rate for essential consumption.

Comparability

While the lifeline rate design implemented by Detroit in August 2022 benefits all customers, it has not resulted in billings for higher volume users that are unusually high or represent outliers relative to other communities, particularly large cities, elsewhere in the United States.[29] The chart below provides a comparison of 20 selected utilities' monthly water bills across for a commercial customer served by a 1½ inch meter and using 10 McF[30] (or 10 times the Significant User usage threshold 1.0 McF postulated by the Plaintiff).

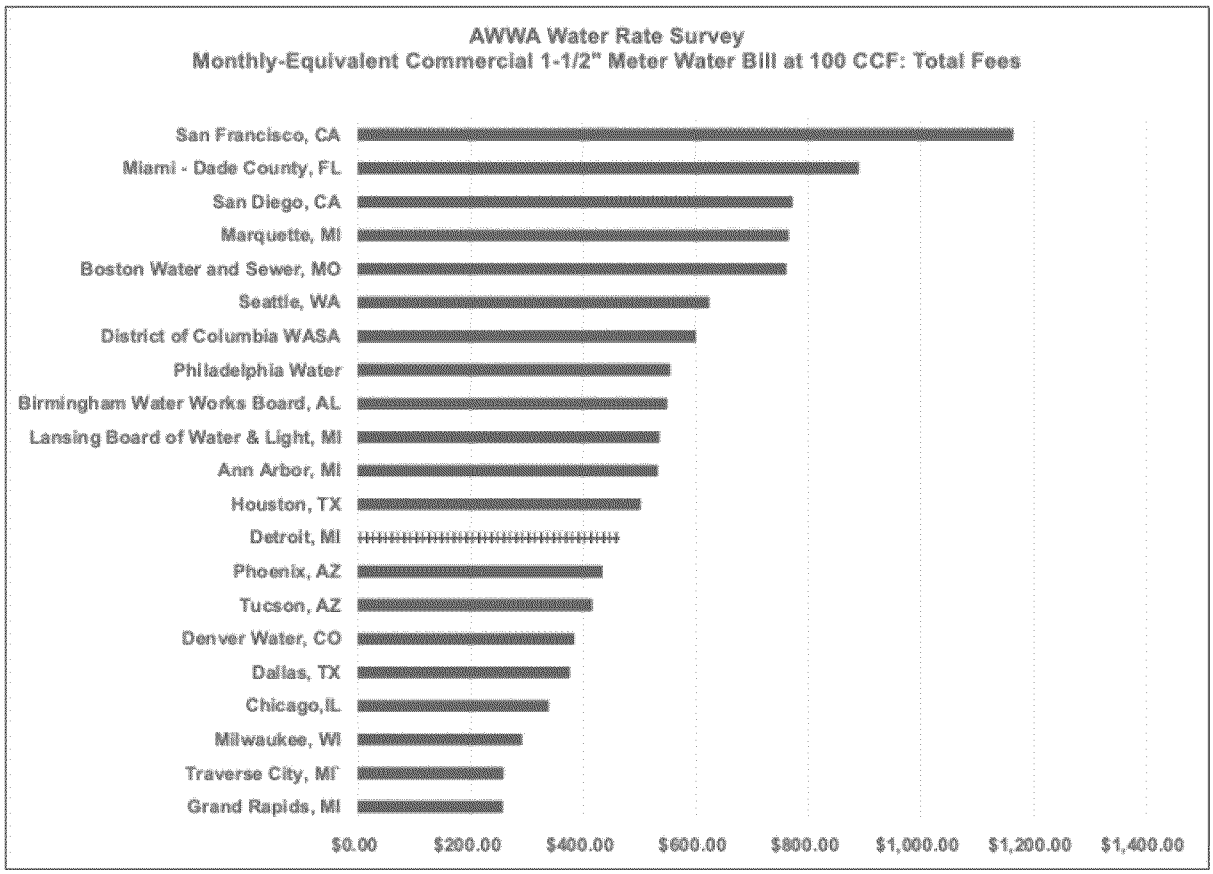
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[27] AWWA M1, p. 214.

[28] As noted, these local circumstances gave rise to Detroit convening a Blue Ribbon Panel on Affordability that, Mr. Damico mischaracterizes by pulling selected phrases out of context. He states that it "advocated that the City implement an inclining block rate structure" without also noting the BRPA Report recognized that: "Implementation issues are substantial due to the relative complexity of the service pricing structure and attendant changes needed to billing system software routines, business processes and customer service protocols, particularly in the event that rates are differentiated by customer classes (residential, commercial, industrial)" (BRPA Report, p. 17). He claims that the Panel recognized that one of the requirements for implementing an increasing block rate structure was to develop and test bill frequency distribution reporting by customer class" whereas the BRPA Report notes at p. 17: "While DWSD would not be required to address income qualification, utility systems typically establish different customer classifications if billing non-uniform volumetric rates" – like the inclining block rate structure calculated by Damico but not contemplated with Detroit's single retail class. Finally, he asserts that no billing tabulation was performed prior to the implementation of the City's inclining block rate structure" (Damico Report, p. 9) when, as discussed below, Stantec did perform a bill tabulation and developed a uniform volume rate with a lifeline tier for all customers not an inclining block rate for residential customers.

[29] Mr. Damico did not compare Detroit's water rates to other municipalities in Michigan or the United States. Damico Dep. 109:6-8, 110:7-15.

[30] 10 McF equals 100 CCF.



When compared to other cities, including selected cities in Michigan, Detroit's water rates that incorporate the lifeline rate component implemented in August 2022 are clearly reasonable.

Methodology

Detroit's local circumstances, and Michigan law, precipitated the development of Detroit's lifeline rate form in notable ways that reflect sound ratemaking principles, and are well-aligned to AWWA guidance. The methodological mechanics are salient.

- Detroit's customers populate a single water customer class that is not disaggregated based on usage levels, customer type (e.g., residential, commercial, industrial), income levels, or age. All customers are subject to the same rate form. As noted, Detroit's rates are non-discriminatory.
- The lifeline rate tier was calculated by:
  - determining a uniform volume rate that could be applied to all customers,
  - determining and validating usage levels associated with meeting basic human health and sanitary needs for all customers,
  - evaluating shares of average day and peak day costs associated with delivering basic needs volumes,

- determining the lifeline rate that would recover allocated basic needs costs of service,
- determining the uniform volume rate applicable to usage above the 0.6.McF basic needs usage threshold required to recover volumetric rate revenue requirements (in combination with the projected lifeline rate revenue recovery), and
- conducting a "proof of revenue" to ensure that the bifurcated rate form featuring the lifeline rate component would recover approximately the same revenue requirements – the costs of service viewed as a whole – as would a single uniform volume rate.

These methodological mechanics are procedurally well structured to address Detroit's rate setting objectives by having **all water users** subject to the same price structure, by helping to address the affordability of water service to meet basic human health and sanitary needs **for all customers**, and by recognizing that Detroit's cost profile reflects, in part, historic and current investments in capacity to serve large volume users. These mechanics are procedurally sound, echo my own water and wastewater rate development experience, and are perfectly well aligned to AWWA guidance.

Detroit's Water Rates and Plaintiff's Complaint

The City recovers water system revenue requirements (including Uncollectible Accounts (i.e., "bad debt" expense) primarily through (1) fixed charges and (2) volumetric rates. The fixed charges vary by water meter size; the volumetric rates are assessed based on metered water use. The City's water rates and charges, billed monthly, recover revenue requirement components including Great Lakes Water Authority (GLWA) services charges[31], operating expenses,[32] pre-bifurcation debt service, capital outlays, and transfers (including to/from reserve accounts). In August 2022, the City implemented a revised water rate structure that featured lifeline and non-lifeline volumetric water rate components rates as shown below:

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[31] See GLWA – DWSD June 12, 2015 Water and Sewer Services Agreement, Exhibit B-V (Modified List of Relevant Ratemaking Terms), ¶ B(3) (Revenue Requirements, Bad Debt Expense), pp.B-V-2, B-V-3. This agreement reflects the fact that Bad Debt Expenses are recognized as components of revenue requirements both for GLWA (relating to wholesale customer account delinquencies) and for DWSD (relating to retail customer account delinquencies)

[32] Including DWSD Administration, Operations, Compliance, Finance and Customer Service expenses (see, e.g., Stantec Rate Study Report, Schedules 3 and 6).

Detroit Water Rates#	
Water Volume Usage Block 1 (less than or equal to 6 CCF*)	$ 2.504 / CCF
Water Volume Usage Block 2 (greater than 6 CCF*)	$ 4.492 /CCF
* CCF (Centum Cubic Feet) – 748.05 Gallons, 1 McF equals 1000 Cubic Feet, 10 CCF or 7,480.5 gallons,	
# Rates effective on and after August 1, 2022. https://detroitmi.gov/sites/detroitmi.localhost/files/2022-07/Water%20and%20Sewer%20Rates%202022-2023%20Detroit_0.pdf – accessed June 15, 2025. Volume rates are per CCF.	

The Plaintiff is:

> challenging the "Inclining Block Water Rates" (the "Block Rates") imposed by the City, by and through its Water and Sewerage Department ("DWSD"), on citizens who receive treated water from the City. The Block Rates are based upon the volume of water used by customers (as determined by a meter) and are determined by reference to how many thousand cubic feet of water ("McF") is used by each water customer. One McF is roughly equal to 7480 gallons. Through use of the Block Rates, the City charges customers $15.024 (approximately 33 cents per hundred gallons) for the first 0.6 McF (4500 gallons) they use per month and approximately 60 cents per hundred gallons for al monthly usage in excess of 0.6 McF (4500 gallons). The City's use of the Block Rates results in high-volume water users, almost all of which are commercial and industrial users (the "Significant Users," as defined below), being charged amounts far in excess of the amount the City actually incurs to service those users (the "Block Rate Overcharges"). The Block Rate Overcharges allow the City to charge residential water customers much less than the amount the City actually incurs to service those users, even though there is no meaningful per-gallon difference in the cost of servicing each class of users.[33]

Opinions

I have come to several opinions regarding the water rates implemented by Detroit in August 2022. In summary, and as discussed in the noted sections, my opinions are:

1) The City's two-tier water rate is just, reasonable and non-discriminatory. It was developed in accord with Michigan law and industry guidance. The Plaintiff's claims related to a fabricated Significant Users class are without merit. See supra, pp. 6-11 ("Detroit's Rate Setting"), infra p. 20 ("Stantec Rate Study Report Review").
2) Stantec conducted a substantive, disciplined rate study that is consistent with AWWA and WEF guidance. It is technically sound and consistent with industry best practice. See infra, p. 20 ("Stantec Rate Study Review")
3) The Damico Report is particularly unfortunate with frequent misrepresentations of AWWA guidance, see infra pp. 16-20 ("Rate Setting Practice Confusions – A

[33] Plaintiff's Complaint, ¶ 1. Note that the terms: "Significant Users" and "Block Rate Overcharges" are entirely fictions of the Plaintiff.

Summary"), flawed analyses and unsupported opinions, see infra pp. 21-31 ("Damico Report Review"), such that the Damico Report must be discounted in its entirety. The Damico Report cannot be construed to represent a rate study supporting Plaintiff's position.

4) Plaintiff's claims that commercial and industrial Significant Users subsidize residential customers is contradicted by analysis of actual billing data. See infra pp. 13-20 ("Class Definition Confusions" and "Rate Setting Practices Confusion"). Plaintiff conducted no analysis of usage patterns or costs to support its claim. See infra pp. 21-31 ("Damico Report Review").

5) Neither Plaintiff's Complaint nor the Damico Report has identified the purported class members much less quantified any purported damages, thus offering no insight into the potential impact of Plaintiff's requested relief on the purported class members. (See infra pp. 13-20 ("Class Definition Confusions" and "Rate Setting Practices Confusion") and pp. 20-31 ("Damico Report Review").

In arriving at these opinions, I was struck by the glaring confusions that undergird the Plaintiff's Complaint and are replete in the Damico Report. These confusions represent fundamental flaws that compromise the definition of the purported class and render the claims that Detroit's rates are not just, reasonable and non-discriminatory utterly without basis. My recognition and assessment of these confusions support my Opinions, delineated above, in this case.

Class Definition Confusion

Significant Users?

Plaintiff has fabricated a "Significant Users" class without any analytical basis. Placing the claim of overcharges to "Significant Users" in context, it is noteworthy that Detroit (within its discretion) has not established and does not rely on land use, distance or usage-based customer classifications. It is not required to do so. Yet, despite advocating for a single, uniform rate, Plaintiff is also effectively claiming that if the Court allows the City to implement a two-tier rate,[34] the City must implement rates that distinguish (and favor) a sub-group of

[34] Despite proposing a two-tier rate, Mr. Damico repeatedly opined that a "tiered rate structure would not be appropriate." Damico Report, p. 4 at ¶ I. See also, id. at p. 23 ("I do not agree that a Tier rate structure design

customers that are Significant Users for cost allocation and ratemaking purposes.[35] This claim is incorrect.

This argument is fundamentally shaped by Plaintiff's misunderstanding of the customers who are "Significant Users" and Plaintiff's repeated mischaracterizations of the City's uniform rate with a lifeline component. In particular, the Plaintiff erroneously asserts that "high-volume water users, almost all of which are commercial and industrial users" are effectively being required to subsidize residential customers.[36] Yet, as shown in the table below, FY 2021 bill distribution data shows that the cumulative percentages of bills by customer type are not dramatically different. Indeed, 72% of residential, 70% of commercial, and 75% of industrial customer bills reflect usage of .6 McF or less in FY 2021. Each of these customer types (all of whom are within the entire customer class and charged the same rate for each gallon of water used) had between 25% and 30% of their bills with usage above the lifeline usage tier threshold. Moreover, because of the relatively large population of residential customer bills, it is the case that more residential customer bills fall into the Plaintiffs' Significant Users group than commercial or industrial bills.[37] Indeed, given the relative size of the respective customer type populations, it is the case that there are more residential bills reflecting usage volumes above the Significant User usage threshold of 1.0 McF than there are <u>total bills</u> issued to any other customer type (designated by land use).

City of Detroit – FY 2021 Bill Distribution Cumulative Percentage of Bills by Usage Increment					
McF	Residential	Commercial	Industrial	Tax Exempt	Government
0	11%	47%	50%	48%	90%
0.1	19%	56%	59%	63%	91%
0.2	31%	61%	64%	69%	92%
0.3	43%	64%	68%	73%	93%
0.4	54%	67%	71%	76%	93%
0.5	64%	69%	73%	79%	94%
0.6	72%	70%	75%	81%	95%
0.7	78%	72%	77%	83%	95%

method is an appropriate approach to use for the City of Detroit."); id. at p. 24 ("I do not agree that a Tier rate structure design is appropriate."); id. at p. 25 ("I do not agree that a Tier rate structure design is appropriate."); id. at p. 27 (same).

[35] See Damico Dep. 163:22-164:22.

[36] Plaintiff's Complaint, ¶1, p. 2.

[37] Mr. Damico concedes, as he must, that Significant Users includes residential users. See Damico Dep. 160:8-12, 163:12-16 (Significant Users include residential users); id., 162:21-163:3 ("there's significant users in each of the class categories").

0.8	83%	73%	78%	84%	96%
0.9	86%	74%	79%	85%	96%
1	89%	75%	80%	87%	97%
1.1	91%	76%	81%	87%	97%
1.2	92%	77%	81%	88%	97%
1.3	94%	78%	82%	89%	97%
1.4	95%	78%	82%	89%	97%
1.5	95%	79%	83%	90%	97%
1.6	96%	79%	84%	90%	97%
1.7	96%	80%	84%	91%	97%
1.8	97%	80%	85%	91%	98%
1.9	97%	81%	85%	91%	98%
2	97%	81%	85%	92%	98%
2.1	98%	82%	86%	92%	98%
2.2	98%	82%	86%	92%	98%
2.3	98%	83%	86%	93%	98%
2.4	98%	83%	87%	93%	98%
2.5	98%	83%	87%	93%	98%
2.6	98%	84%	87%	94%	98%
2.7	99%	84%	87%	94%	98%
2.8	99%	84%	88%	94%	98%
2.9	99%	85%	88%	94%	98%
3.0	99%	85%	88%	94%	98%

Because the lifeline tier is applied to all water users, all customer types have some bills that would be considered Significant User bills and some that would not. In addition, it should be noted that the population of Significant Users would change monthly depending on individual customer usage patterns. Any individual customer – residential, commercial, or industrial – could be regarded as a Significant User under the Plaintiff's construction in one month, and not in the next.

Given the fact that no one type of customer is a "Significant User," the Plaintiff and Mr. Damico, through his report, simply advocate for a rate that advances different policy objectives than the City, not a rate that is more fair or equitable to commercial or industrial customers in the aggregate. Namely, they seek to segregate *large* volume users into a separate Significant Users class that would be subject to lower (arguably subsidized) rates while offering no pricing differential to promote the affordability of water volumes used to meet basic health and sanitary needs (for all customer types). However, there is no industry-based or legal requirement that the City to do this. Detroit elected, within its discretion, to establish a customer class composed of all customers – regardless of land use or property tax

designation.[38] This customer class structure is perfectly reasonable and appropriate for the City based on my experience with rate setting in Michigan and across North America.

Plaintiff and Mr. Damico contend that "Significant Users" are harmed because they would pay less with a uniform rate (or a declining block rate that would have low volume users pay more for water, not less). Fundamentally, the Plaintiff fails to recognize that any rate structure (even a uniform rate structure) will inevitably result in some disparity. For example, it is widely accepted that customers across the breadth of a service area can pay one water rate notwithstanding the fact that less distribution pipeline infrastructure and pumping is needed to deliver water service to areas located within close proximity to a treatment plant than to places at the periphery of the service area. Users that individually exhibit different average day and peak period usage characteristics also pay one water rate notwithstanding limited inherent differences in the costs to serve each individually. Thus, the Plaintiff's self-serving classification of "Significant Users" is but one of dozens of alternative constructions or reconstructions of Detroit's customer class designation that could be concocted, none of which are meaningful or indicative of inequity. The Significant Users designation is a spurious, litigation-driven fabrication.

Rate Setting Practice Confusions – A Summary

Unfortunately, the noted confusion over whether and how customers are appropriately classified is compounded by an equally problematic series of Mr. Damico's misunderstandings and misrepresentations of AWWA guidance and industry-accepted rate setting practices. In the context of challenging the City's rate-setting practices, Mr. Damico indicates that he is prepared to offer 17 (enumerated A-Q) "expert opinions with a reasonable degree of professional certainty, with respect to the water system rate structure design the City utilized beginning in August 2022 and continuing through the present day."[39] But these "opinions" are not well-formed. The table below provides a summary[40] of these opinions and the critical facts and considerations that necessitate effectively discounting <u>each and every one of the opinions offered</u>.

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[38] This is particularly so if one recognizes that DWSD does not verify the tax type and land use designations resident in Detroit customer billing system and thus, some errors are likely to exist.

[39] Damico Report. p. 2.

[40] See Section titled "Damico Report Review" for a more detailed discussion of the short-comings.

Damico Report Opinion Review Summary		
No.	Opinion Summary	Basis for Discount or Rejection
A.	Uniform volume rates are most fair and equitable per AWWA.	AWWA offers no such recommendation or conclusion.
B.	Detroit improperly structured its two-tiered rate structure without using a bill tabulation analysis.	AWWA establishes no such bill tabulation requirement nor offers prescriptions about tier design. Moreover, Stantec did analyze all of the City's water customer bills from FY 2021 to support its analysis.[41]
C.	Detroit's two-tiered rate design shifted costs to Significant Users and subsidize residential users.	There are no Significant User or even residential customer classes. Detroit does not use classes based on water user types. Rates are applied uniformly to all water customers.
D.	Contends, citing the City's Blue Ribbon Panel on Affordability report issued in February 2016, that the City's intent is to implement tiers was to lower water costs to the residential class.	Detroit does not use a residential class but rather a class composed of all customer types, all of whom are subject to same rate design. Even so, the uniformly applicable tier is within Detroit's discretion. And, many Significant Users are residential customers.
E.	Objects to Tier 1 threshold usage of 0.6 McF based on textbook information and not exhibited usage data.	The Tier 1 threshold is logical, consistent with other utilities practice, advances rate design objectives, and is entirely within Detroit's discretion. Stantec also validated the threshold of .6 McF by analyzing all of the City's water customers bills from FY 2021.
F.	Inaccurately claims AWWA recommends definition of initial usage Tier to capture 50% of water usage.	AWWA makes no such recommendation but instead only offers an illustrative example so constructed, as well as a lifeline rate design alternative.[42]

[41] Stantec Rate Study Report, p. 9 and spreadsheet W Bill Distribution.xls.

[42] Specifically, in the AWWA M1 Increasing Block Rates chapter (p. 126):

> *Block sizes should correspond to the utility's individual bill distribution and customer usage patterns.* ***For example,*** *the first block can be set to capture a defined percentage of the annual number of bills, such as 50 percent (or median number) of all single-family residential bills. Another* ***example*** *would be establishing the first block to correspond to nonirrigation season (winter) water demands, which provide some indication of indoor water usage in most areas. Finally,* ***this first block can be established to meet policy objectives, such as tying the block size to a lifeline need or essential use allowance (i.e. to correspond to the estimated basic water needs of a typical family. (emphasis added).***

Also, while Mr. Damico's states (at p. 17) that "the purpose of the bill tabulation is to determine a 50% usage range used to apply a Tier if deemed necessary for residential water customers only for addressing peak usage in the water utility system," the AWWA M1 Appendix C: Bill Tabulation Methods (pp. 389-396) makes no such statement of purpose.

G.	Effectively a redundant re-statement of E and F above to suggest much higher usage volume (1.7 McF per account / 981,413 McF total) should be used for Tier 1 calculations.	1.7 McF is simply one (of potentially dozens) of different rate calculations that is no more valid than that calculated by Stantec and is uninformed by the City's rate design objectives. As such, it is arguably less, not more aligned, to AWWA guidance.
H.	Claims that AWWA and water rate setting professionals assert rate tiers only properly applicable (using bill tabulation analysis) to residential customer classes.	Misrepresents and misunderstands AWWA guidance. There are ample industry examples of well-accepted tier structures applicable to non-residential customer types.[43]
I.	Oddly presents how ERC would calculate a two-tier structure (based on a bill tabulation analysis) with a 1.7 McF Tier threshold but also states a "tiered rate structure would not be appropriate[.]"	Other than ERC's different opinion, there is nothing that compels or requires Detroit to define its Tier 1 threshold as ERC recommends. Doing so would frustrate the rate design objectives that informed Detroit's decision to offer a uniform rate with a lifeline component (which is within its discretion).
J.	Recommends a uniform no tier rate structure design in the amount of no more than $36.38 per McF based on Stantec's FY 2023 revenue requirement and usage of FY 2021 Usage.	Involves a fundamentally flawed uniform rate calculation by mismatching FY 2023 revenue requirements and FY 2021 usage. Reflects no recognition of declining usage trends as noted by Stantec.[44]
K.	Asserts that the bad debt expense should not be included in water utility annual costs. Provides a recalculation of ERC's two-tier rate calculations excluding bad debt expense.	Uncollectible accounts expense is explicitly included in revenue requirement calculation examples in the AWWA M1 manual.[45] Exclusion of bad debt expense in rate calculations would lead to revenue under-recovery.

[43] For example, the City of Atlanta has a three-tier volumetric rate design applicable to all water and wastewater customers; the Boston Water and Sewer Commission have 6-tiered inclining block business rates for both water and sewer services; Jefferson County, AL has a three-tier volumetric rate design applicable to wastewater customer; and Tucson Water has tiered seasonal non-residential rates with summer season tiers based on Winter Average Usage. See for: (accessed June 25, 2025, and for BWSC on July 1, 2025)

- Atlanta: https://www.atlantawatershed.org/waterrates/,
- Boston Water and Sewer Commission: https://www.bwsc.org/business-customers/rates
- Jefferson County, AL: https://www.jccal.org/Default.asp?ID=2232&pg=Rate+Information, and
- Tucson: https://www.tucsonaz.gov/Departments/Water/Your-Water-Bill/commercial-industrial-bill.

Again, however, here, the City never intended to develop different rate structures for different customer classes.

[44] Stantec Report, Table 3-1: Water and Wastewater Projected Customer and Volume Growth, p. 23.

[45] AWWA M1, Table II. 3-1 O&M expenses (p. 31), and Table III.1-3 Allocation of O&M expense and non-rate revenues – Base-Extra Capacity Method (test year).

L.	As above for a uniform rate calculation excluding bad debt expense.	
M.	Asserts Plaintiff allegation that Detroit's Block Rates "generate revenues far in excess of the actual costs of providing water service to the Significant Users" violating Charter requirement of charging equitable rates.	Detroit's tiered retail rate structure is designed to recover allocated customer costs and thereby meet common law and Charter requirements. Insofar as the purported class of "Significant Users" is a construct of the Plaintiff and not a designated customer class, neither Detroit nor Plaintiff have determined actual costs to serve (monthly varying) populations of Significant Users, which include residential and non-residential customers.
N.	Notes that, per the Youman's case, a party challenging Rates must establish that the Rates, "viewed as a whole" are unreasonable and excessive.	Detroit's tier rates are (undisputably) designed to recover revenue requirements and arguably, thereby are "reasonable when viewed as a whole." The claim of excessive rates is only as it pertains to Plaintiff's intra-class group of subjectively-defined Significant User customers (that is not segregated for rate-setting purposes). Rates are not excessive simply because a small group of customers who voluntarily use more water than other customers have higher bills. ERC has not identified a single cost component (other than bad debt) that inflates the rates. Detroit's bills for usage levels 10x higher than the Plaintiff's 1.0 McF usage threshold are demonstrably reasonable when compared to other US and Michigan utilities (see supra at pp. 9-10).
O.	Further to N above, material overcharges may be simply calculated by determining the difference between actual charges for Significant Users and that which would be charged under ERC's alternative rates.	ERC does not perform the "simple mathematical calculation" and thereby does not provide a damage claim estimate. ERC does not identify the specific population of Significant Users (which varies monthly), their associated usage levels, or the potential water bill differences.
P.	Asserts, without a comprehensive rate study, that rates as applied to Significant Users excessively compensate Detroit.	The assertion is based (erroneously) on contention that the Stantec Rate Study is deficient without the bill tabulation analysis ERC developed. However, Stantec performed a rate study aligned to AWWA guidance while ERC did not. ERC does not even rely on

		Stantec's detailed (and apparently accepted) cost allocations to inform its rate design.
Q	Opinions are not freestanding but rely on industry standards and the Detroit City Charter.	Misunderstanding and misinterpretations of industry guidance compromise reliance (as discussed throughout this report).

Stantec Rate Study Report Review

Based on my detailed review of the Stantec Rate Study Report and supporting analytical data, Stantec conducted a substantive, disciplined rate study that is consistent with AWWA and WEF guidance.[46] It is technically sound and consistent with industry best practice. See supra, pp. 6-11 ("Detroit's Rate Setting"). The work provides important information on a host of important cost of service and rate design issues including the distribution of revenue recovery across system components (e.g., water, wastewater, stormwater), and between fixed and volumetric rate components. The Study affirms that Detroit's rates are set to recover appropriate water system expenses. There are no improper or illegal expenses paid for by Detroit ratepayers. In that regard, Stantec properly includes Uncollectible Accounts (i.e., "bad debt") expense in the City's water system revenue requirements, consistent with AWWA guidance. These expenses are a function of operating a water system.

Stantec employed a reasonable basis for establishing the lifeline (Tier 1) usage threshold which appropriately reflects Detroit's policy objectives (and incidentally need not be derived from a bill tabulation analysis). Further to this point, AWWA offers no recommendation on the determination of tier block usage thresholds or assignments of costs to set tier rates and Stantec's referencing of important industry research to ground its usage threshold[47] is arguably best practice. Stantec then validated the Tier 1 usage threshold relying on data from all water customer bills in FY 2021 (thus, reviewing actual customer usage for all customers).[48] The distribution data in the analysis was also used to perform a "proof of revenue" to confirm that their two-tiered rate calculations would recover revenue requirements.

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[46] The Stantec Rate Study Report addressed wastewater and drainage rates, fixed charges, and fire protection charges - none of which are being challenged. The study was comprehensive, and the Plaintiff does not address the positive benefits to the Significant Users of other changes delineated in the Study. They have not considered the rates, as a whole.

[47] See Stantec Rate Study Report, p. 9 – Footnote 9.

[48] See Stantec Rate Study Report, p. 9.

Damico Report Review

The Damico Report is particularly unfortunate when juxtaposed with the Stantec Rate Study Report. Mr. Damico's frequent misrepresentations of AWWA guidance"[49] and flawed analyses (as discussed further below) compel discounting of the Damico Report in its entirety. The Damico Report cannot be construed to represent a rate study supporting Plaintiff's position.

Other than opining about the City's "Bad Debt" allowance (discussed below), the Damico Report is restricted to providing an opinion on Detroit's water rate design analysis. ERC "is not providing any opinion" on the City's conclusions regarding the Revenue Requirements analysis or Cost of Service analysis steps for establishing cost-based rates.[50]

Bad Debt Expense

Industry guidance is instructive and useful in helping utilities meet their rate setting objectives including, perhaps most importantly, full cost recovery. For this reason, it is mystifying how Mr. Damico could proffer the opinion that:[51]

> ERC does not agree with the City of Detroit inflating the revenue requirements by including the "bad debt" expense in the volume/usage rate calculation. The bad debt inclusion practice does not adhere to good rate setting policies and procedures, especially those recognized by AWWA.[52]

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[49]For example, Section III: Water Resource Profession Associations and Manuals of the Damic Report names five manuals published by AWWA that he characterizes as the "latest manuals from AWWA organization used by rate setting professionals as guidelines and standards for establishing water rates." However, Mr. Damico's publication listing is by no means accurate. Nor does it reflect the most recent publications. Of the five supposedly latest AWWA manuals listed, the last two are no longer published but rather were incorporated into the AWWA M1 Manual of Practice, 5th Edition published in 2000. Two other publications offer guidance on matters that are not as issue in this case – utility accounting and capital financing,

As discussed later, it is noteworthy that:

i. AWWA does not make recommendations on Tier usage blocks.
ii. AWWA does not make recommendations on class construction.
iii. AWWA does not make recommendations on whether tiers should or should not be used across non-residential accounts nor how to price the tiers.

Presented calculations are examples and not prescriptive.

[50] Damico Report, p. 8.

[51] Mr. Damico testified that he does not know if the AWWA M1 provides any guidance on how to treat bad debt expense, and he did not look at the AWWA M1 before opining that bad debt expense should be excluded from revenue requirements. Damico Dep. 14:18-15:2, 31:19-14:8. He did not rely on any industry guidance. He does not understand why Detroit's bad debt expense is 10%. Id. 101:24-102:5 He has no idea how Detroit treats recovery of its bad debt or what is required under the water lease agreement between Detroit and the Great Lakes Water Authority ("GWLA"), although that agreement might have changed his opinion. Id. 15:8-21, 16:3-17:7. He is not familiar with Detroit, did not talk to anyone at the City, DWSD, GWLA, or Stantec, and has only spoken with Plaintiff's counsel in forming his opinions. Id. 24:15-18, 51:13-19, 85:3-87:8, 104:23-105:3.

[52] Damico Report, p. 26.

But the opposite is true. AWWA clearly includes Uncollectible Accounts expense (e.g., Bad Debts expense) in its delineation of O&M expenses that compose utility revenue requirements.[53] The characterization that the City of Detroit is "inflating the revenue requirements" by including bad debt in its calculations is simply wrong. Uncollectible Accounts expense is a component of a utility's revenue requirements.[54] This sort of willful disregard for basic math, to say nothing of the mischaracterization of industry guidance, is misguided and would result in rates that fail to achieve full cost recovery.[55,] Under the misguided notion that Bad Debt expense can be ignored, Mr. Damico would have Detroit set rates to generate roughly $90 million in revenues when its true costs are $100 million.[56] It can't.

Moreover, Damico's "subsidy" claim – i.e., that "rates are set to generate from paying customers millions in additional revenue from those customers that the City then uses to cover the costs associated with non-paying customers" (Damico Report, p. 26) is specious. Damico fails to acknowledge that the Bad Debt adjustment is allocated to volumetric, fixed and private fire line rates and charges.[57] Notably, the latter two types of rates and charges are uncontested in this case. With regard to impacts on volumetric rates, recovery of this expense is distributed across all water customers - both the larger group of residential customers and the smaller (and constantly varying) group of Significant Users referred to in Plaintiff's Complaint.

As a consequence, all of Damico's calculations presented in Section X: Rate and Rate Structure Design "Excluding Bad Debt"[58] that purport to present viable rate alternatives must be set aside. They do not; instead, they wrongly and improperly disregard Detroit's (and all

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[53] See AWWA M1, Table II. 3-1 O&M Expenses, p. 31; *id.* Table III. 1-6 Allocation of O&M expense and non-rate revenue – Base-Extra Capacity Method (test year), p. 66.

[54] As is true for any enterprise and highlighted by utility regulatory procedure. For example, it is well accepted that an electric or gas utility's rates are set to account for the fact that some customers will not pay their electric or gas bills, for whatever reasons – and that failure to do so would lead the electric or gas utility to not cover its costs. This is no less true for a municipal water and wastewater utility.

[55] Though (again), I'm not offering a legal opinion, my experience suggests that one particular adverse impact of exclusion of bad debt expense is that because the resultant rates would not recover all water system costs, Detroit could be found to be in violation of its bond covenants and the Michigan Revenue Bond Act and face technical default. Ironically, this very concern was a major issue in negotiations related to GLWA's establishment.

[56] And the logic offered by Mr. Damico in deposition that Bad Debt expense can be ignored because property liens are placed on delinquent accounts to provide for later collection is a red herring. See Damico Dep. 15:3-17, 101:12-102:23. Property liens by no means ensure (subsequent period) collections and any later collected revenues are recognized as Other Revenues in the (uncontested) determination of revenue requirements.

[57] Stantec Rate Study Report, p. 104-104.

[58] Damico Report, pp. 26-29.

other utilities') cost structure and industry guidance.

Inclining Block Strawman

Unfortunately, Mr. Damico's other opinions, restricted as they may be to rate design, are also compromised by an apparent lack of understanding of AWWA guidance, the discretion afforded Detroit under Michigan law, and the mechanics Stantec employed to design Detroit's lifeline rate framework. Oddly, he focuses an inordinate amount of time reviewing Stantec's work for Ann Arbor, Michigan, and James City Service Authority (Williamsburg, VA), both of which are characterized by fundamentally different local circumstances. He suggests that Stantec's development of inclining block rates for residential customer classes in these communities somehow indicts Stantec's development of a lifeline tier structure for water customers in Detroit. It doesn't. Nor is Stantec's rate design "contrary to all AWWA rate setting and rate structure design proven procedures and guidelines from the AWWA m1 (seventh edition) manual."[59]

Mr. Damico is creating a strawman by suggesting that Detroit is implementing an inclining block rate design intended to advantage a residential customer class at the expense of an admittedly contrived class of Significant Users. Detroit did not use a residential class nor a Significant Users class to develop its water rates. It implemented a lifeline rate tier applicable to all water customers – higher and lower volume users; residential, commercial, and industrial users. It did not adopt an inclining block rate applicable to land use-based customer classes. Thus, Mr. Damico criticizes Plaintiff's (or his own) flawed interpretation of Stantec's analysis rather than the actual substance of it. In other words, **Mr. Damico opines on a water rate that is not being used by Detroit.** Mr. Damico apparently did not credit the affidavit of Andrew Burnham (which explained that the City was not using an inclining block rate). Nor did he consider that in its Rate Study, Stantec acknowledged it had developed a lifeline rate.[60] Damico does not tackle or opine on the preparation of the basic needs rate and offers nothing to suggest that the analysis and rate that Stantec developed in response to Detroit's legitimate policy objective is inappropriate or unreasonable.

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[59] Damico Report, p.23.

[60] Stantec Rate Study Report, Figure 1-9: Water Volumetric Rates Pricing Analysis, p. 11; Figure 5-5: Water Volumetric Rates Pricing Analysis p. 42.

Billing Data Quality

Mr. Damico, also oddly given his extensive (and exhaustively enumerated) manipulations of Detroit data, fails to consider the practical challenges of disaggregating the City's water customers into class types. Simply put, there are important data quality issues associated with doing so. For example, the tax-type designations embedded in Detroit's billing data that Mr. Damico relies on (but which are not used by the City to determine applicable rates and charges) are not always accurate. This to say nothing of the significant administrative challenges involved in validating and maintaining these types of designations. Mr. Damico dismissively noted:

> ERC is relying on the City of Detroit water utility billing usage information to be accurate and further assume the data does not contain any errors or inherent problems that would impact the results of performing the billing tabulation analysis.[61]

Detroit, however, is afforded no such luxury. Its election to employ a class of all water customers and modify a uniform volume rate to incorporate a lifeline component is entirely reasonable, appropriate, and consistent with AWWA guidelines that, among other considerations, call for rates to be responsive to local circumstances.

Bill Tabulation Analysis Deficiencies

Mr. Damico's primary focus is on the implications of a bill tabulation analysis he developed. However, he apparently does not recognize that Stantec also developed a bill tabulation analysis (though they did not and were not required to do so by customer type).[62] Mr. Damico's statement that "no billing tabulation analysis was performed prior to the implementation of the City's inclining block rate structure in August 2022"[63] is simply, and obviously, incorrect. Stantec could not have performed a proof-of-revenue analysis (to determine that their tiered rate structure would adequately recover revenue requirements) without having effectively done a bill tabulation analysis for Detroit's water customers. Mr. Damico seems to be of the view that a bill tabulation analysis requires segregation of bills by land use type or other

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[61] Damico Report, p.13.
[62] Stantec Rate Study Report, p. 41 ("The following Figure 5-4 shows the resulting volume in each tier by month, based on 2021 billing data for all retail customers.").
[63] Damico Report, p. 9.

classification construct.[64] Yet, it does not. And Stantec's analysis of water customer billings (inclusive of residential, commercial, and industrial customers) conforms to AWWA M1 guidance.

Moreover, Mr. Damico is so wedded to his (incorrect) interpretation of "exact AWWA recommended procedures from the M1 Manual for performing a bill tabulation"[65] that he refuses to stray from it even when it leads to illogical results. For example, Damico notes that Table 3 of his report contains " the usage AND the number of bills" but then he acknowledges that the "billed usage amounts [e.g., 5,064,059 McF] include more than [actual] customer usage [2,696,675 McF]." [66] There is no reason for this muddied analysis as there is no reason to blend usage volumes with the number of bill counts. Doing so artificially inflates usage values when a simple (computerized) tabulation of actual usage – by 1 unit increment – would avoid the problem.

Damico also fumbles the most basic calculation of total usage volume by not accounting for declining per account usage patterns as noted in the Stantec report.[67] As a result, he overstates FY 2021 billed usage by about 4.2% (2,696,675 McF v. 2,587,785 McF).[68] He then couples this overstated FY 2021 usage with FY 2023 revenue requirements to derive his flawed rate calculations.

Damico further compromises his analysis through a series of breathtaking (and potentially corrupting) data manipulations including:

- Populating more than 400,000 records with meter size data in each of the three fiscal year data sets, without any explanation of what data he relied on to populate the meter size[69] and how or why meter size data is useful for a tabulation of usage statistics,

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[64] Damico Report, p. 9 ("According to the AWWA M1 manual (seventh edition), the purpose and results of performing the bill tabulation analysis on water utility customers determines the number of customer bills rendered at various levels of water usage during a time period for each customer class and meter size serviced by the water utility.") Yet, Stantec does perform an appropriate bill tabulation as the only relevant customer class is the single retail customer class in Detroit.

[65] Damico Report, p. 17 – Note.

[66] Damico Report, p. 17 (emphasis in original).

[67] Stantec Report, p. 23 (Table 3-1: Water and Wastewater Projected Customer and Volume Growth).

[68] Damico Report, p. 17 estimating FY 2021 usage and applied to FY 2023 revenue requirements vs. Stantec Rate Study Report, p. 112 (Schedule 1: Water Rate Design).

[69] Damico Report, p. 16. Mr. Damico testified that he populated the missing meter size fields based on DWSD's rate codes. Damico Dep. 150:16-151:10. However, this is a faulty premise. There are commercial, tax-exempt, and even small industrial customers served by smaller size (5/8,"3/4") meters that are typically used for single-

- Populating 2,000,000 records with customer land use classifications,[70] and
- Organizing the data into ERC prescribed 300 CF consumption ranges (presumably to enable ERC to gauge the 50% usage threshold) as opposed to relying on actual usage.

Mr. Damico's data manipulations seem, at least in part,[71] to define a different Tier 2 usage threshold than .6 McF as he contends that "AWWA recommends identifying and capturing at least the first 50% of water usage to be included when establishing the first Tier block in a rate structure design analysis."[72] Yet, AWWA makes no so recommendation. In fact, the full text of the section of the AWWA M1 Manual (Increasing Block Rates, p. 126) that Mr. Damico is apparently referring to – after noting "there is no single method for setting the size or unit price of the usage blocks under this approach" reads:

> For example, the first block can be set to capture a defined percentage of the annual number of bills, such as 50 percent (or median number) of all single-family residential bills. Another example would be establishing the first block to correspond to non-irrigation season (winter) water demands which provide some indication of indoor rate usage in most areas. Finally, this first block can be established to meet policy objectives, such as tying the block size to a lifeline need or essential use allowance (i.e. to correspond to the estimated basic water needs of a typical family). (emphasis added).

The first example relates to 50 percent of bills, not usage; the final example is exactly what Detroit did in developing its tier structure.

Mr. Damico apparently misunderstands the intent of the example cited in the AWWA M1 manual as being illustrative (and necessarily blind to Detroit's local circumstances and rate design objectives which AWWA guidance cites as important rate design considerations). Yet, perhaps more surprisingly, despite Mr. Damico's ardent statement of allegiance to AWWA M1 procedures, Mr. Damico's bill tabulation bears little resemblance to the bill tabulation example offered in the AWWA M1 Manual's 7th edition and contains noteworthy errors. In the 12th step

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family residential accounts. Similarly, mid-size meters may serve multi-family residential, commercial, tax-exempt and even industrial customer accounts. Meter size is simply not a reliable determinant of land use. Notably Mr. Damico does not use meter size in his bill tabulation analysis. Moreover, meter size is primarily relevant for consideration of fixed charges, which Mr. Damico does not challenge. *See* Damico Report, p. 8.

[70] Based on the heroic assumption that Tax_Type data provides a reliable means to develop pseudo customer class determinations even though this data is not maintained by Detroit's water department for that purpose.

[71] Mr. Damico's data manipulations also appear to reflect a myopic obedience to procedural aspects of the Bill Tabulation Methods Appendix to the AWWA M1 that that are now dated given recent advances in computing technologies.

[72] Damico Report, p. 15.

describing ERC's bill tabulation analysis, Damico grouped the:

> various possible levels of customer usage for each billing period in terms of ranges of 300 cubic feet range increments. **Every 300 cubic feet range was created by ERC.**"[73]

Unfortunately, by grouping bills into usage ranges, Damico's bill tabulation analysis is compromised. This is because usage can be, and often is, distributed unevenly within the 300 CCF ranges.[74] In some cases, there are more bills at the lower end of a usage range, but in other cases, there are more bills at higher ends of the range. Mr. Damico's calculations of usage do not account for the distribution of usage within his consumption ranges.[75] Therefore, his calculations are inaccurate and thus, his proposed 1.7 McF Tier 2 usage threshold is unsupported and also likely inaccurate. This is at least one reason why the AWWA M1 manual uses 1 (not 3) unit increments in its Bill Tabulation Methods Appendix.[76] Perhaps the most glaring error is his representation that usage in the 10th block (>= 2700 CCF) of his tabulation is the product of the number of bills in the block x 10 units (of 3 CCF). However, the 10th block captures bills with usage ranging from 2701 to 27,000 (or more) CCF so Damico's usage calculation for this range of the bill tabulation is understated.

Alternative Rate Calculations

Mr. Damico's (flawed) bill tabulation purportedly supports his opinion that a tiered rate design, if deemed reasonable by a court, should be set with a Tier 2 usage threshold at 1.7 McF (despite claiming that the only acceptable rate is his proposed single uniform rate). He notes: "I will only provide an opinion on the water variable volume/usage portion of the water utility rate."[77] Accordingly, Damico does not provide a rate study, accepts the underlying costs allocated to the water system, and does not offer an opinion that any utility system revenue requirements, absent Uncollectible Accounts expense, is improper or illegal.

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[73] Damico Report, p.12 (emphasis added).
[74] See Damico Dep. 152:23-153:7.
[75] See Damico Dep. 146:3-9 ("You have to understand, the billing tabulation uses both usage and ticks. It's not true consumption.").
[76] By developing bill tabulations based on single unit increments over the relevant range of usage (e.g., up to 15,000 gallons, the AWWA Appendix avoids this problem that is inherent in use of consumption ranges for bill tabulation purposes. AWWA M1 Manual of Practice, Appendix C – Bill Tabulation Methods, pp. 389-396. See *id.*, Table C-2: Example of water bill tabulation sheet, p. 392 and Table C-3:Development of cumulative billed usage for residential 5/8-in. meters, p. 394.
[77] Damico Report, p. 21.

He offers a baffling set of alternative rate calculations in Section: VIII: City of Detroit Proper Rate Structure Designs.[78] Even the simplest of his calculations that supports his concluding call for reversion to a single, uniform volume rate, presented in Table 6: Single Flat Rate No Tier, is flawed. Here he divides (uncontested) FY 2023 revenue requirements by FY 2021 usage levels without any adjustment for projected declines in water usage after FY 2021.[79] His denominator is incorrect. Therefore, his simple long division leads to revenue under-recovery.

Moreover, this is preceded by a set of misstatements and illogical steps that critically compromise his analysis as summarized in the table below:

Damico Report Descriptions of "Proper Rate Structure Designs" (pp. 21-23)		
No.	Point Summary	Basis for Discount or Rejection
3.	"Stantec did NOT independently perform an actual analysis to determine either the Tier 1 water volume/usage rate and [sic] the Tier 2 water volume / usage rate."	Stantec's use of Water Research Foundation supported analyses of Residential End Uses provides more than ample support for the (policy-based) Tier 1 usage threshold. Though billing data is not required and AWWA offers no recommendations regarding the definition of usage tiers, Stantec substantiated the tier usage block through a review of FY 2021 billing data.
4.	Damico notes that "the volume Tier 1 and Tier 2 do not add up to the total volume/usage amount used by Stantec below."	As noted above, the usage volumes used to determine FY 2023 rates should not employ FY 2021 usage volumes without accounting for declining per account usage volumes.
6.	"Stantec incorrectly determined that Tier 1 rates would generate over $30 million in revenues[.]"	Mr. Damico's statement, made without reference, is simply incorrect.[80] Neither the Stantec report nor the supporting rate study analysis indicate that Tier 1 rates would generate $30 million in revenues. Stantec's supporting schedules align to Mr. Damico's calculations based on FY 2021 usage and revenue requirements.
8.	Mr. Damico states that "allocation to determine the Tiers should be the results of performing the billing	There is no requirement to employ a bill tabulation analysis to determine usage tier thresholds. As contemplated by AWWA

[78] Damico Report, pp. 21-26.
[79] See Stantec Rate Study Report - Table 3-1: Water and Wastewater Projected Customer and Volume Growth, p. 23; Damico Dep. 114:14-119:18.
[80] See Damico Dep. 119:19-122:5 (Mr. Damico was unable to find where Stantec allegedly used $30 million and also conceded he erroneously was using FY2023 revenues and FY2021 usage levels).

	tabulation analysis that was clearly not performed by Stantec. There appears to be no relationship between the annual costs or volume/usage as it relates to the Tiers created by Stantec."[81]	guidance, this rate design decision may properly be determined to advance local policy objectives. Yet, Stantec did validate its tier threshold determination with detailed billing analysis and determined tier rates by reference to monthly usage patterns and average and peak cost allocations. Moreover, tiered rate designs, particularly for a single class of all water customers, do not require cost allocations to usage tiers and doing so may even frustrate rate design policy objectives.
11.	Mr. Damico states definitively that "the City does not have a highly homogeneous customer base that would justify a Block Rate structure applied across the board to all customers."	Mr. Damico offers no analysis whatsoever of the relative homogeneity of Detroit's customer base nor does he even counter the data presented above: Cumulative Percentage of Bills by Usage Increment that suggests that his definitive statement is simply incorrect. Moreover, application of a lifeline tier does not require a homogeneous customer base and "is designed to provide an essential amount of water at a reduced cost to all customers."[82]
12.	Mr. Damico states that "[i]nclining block rates require information on water sales by block of consumption." He complains that Stantec determined the Tier 1 usage threshold by reference to "estimated indoor residential water use …and completely ignored usage information for commercial and residential customers"	Stantec was not developing inclining block rates nor rates by customer type. Detroit has one class consisting of all water customers and does not disaggregate its customers for rate-setting purposes by land use type, usage or income levels. It applies its rates uniformly across all water customer accounts such that all customers are charged lifeline rates and for usage above the lifeline usage threshold, Tier 2 rates.
13.	Mr. Damico references Ex. B to the Complaint, the City of Ann Arbor's Water and Sewer Cost of Service Study Final Report, dated June 27, 2018 for the proposition that it is unfair to charge higher rates to large volume commercial users who do not cause peaking and	Detroit charges the same rates to all of its water customers, unlike Ann Arbor. Detroit charges the same rates for large volume users with high and with low peaking factors and the same rates for low volume users with high and with low peaking factors. Detroit charges the same rates for residential, commercial, and industrial customers irrespective of their relative peaking

[81] Mr. Damico testified he did no analysis to determine if Detroit's "higher tier reflects allocation of costs to the water users who impose increased burden on the system[.]" Damico Dep. 110:24-11:24, 114:9-13. And Mr. Damico does not challenge the appropriateness of allocating costs associated with the increased burden or cost on the water system imposed by higher volume users' water usage. Id. 111:18-24, 112:10-15.

[82] AWWA M1, p. 214.

	"there is a wide variety of business types with different levels of water usage requirements and metering configurations such that charging a tiered volumetric rate for this customer class would not be fair."	factors. Even so, Mr. Damico offers no analysis to support his supposition that large volume users exhibit materially different demand patterns than low-volume users – or that such users are the same accounts month to month.

Perhaps most tellingly, Mr. Damico goes completely off-script in his calculation of an alternative tiered rate structure - his Restated Rates Based on Calculated Usage, Peaking Allocation at 50%/50%.[83] While again using incorrectly high usage volumes (that don't account for declining per capita use), Mr. Damico subjectively elects to distribute both average day and peak day related costs in equal proportions between his Tier 1 and Tier 2 usage blocks. He inaccurately asserts that these allocations are recommended by AWWA guidance.

They are not. Moreover, they are not the product of any analysis of peaking characteristics[84] associated with usage above or below the 1.7 McF usage threshold that Mr. Damico calculated through his bill tabulation analysis. Mr. Damico's rate calculations are untethered to any cost-of-service based allocation and fail to illustrate anything unreasonable about the City's lifeline rate structure or its Tier 1 breakpoint of .6 Mcf. Further, Mr. Damico states (inaccurately) that:

> AWWA recommends identifying and capturing at least the first 50% of water usage to be included when establishing the first Tier block in a rate structure design.[85]

Yet, his 1.7 McF Tier 2 usage threshold does not do so – not even close. As shown in Table 5, his rate design would have 981,413 McF in Tier 1 and almost twice that, 1,715262 McF, in Tier 2. And, while his bill tabulation analysis may indicate that a 1.7 McF usage threshold captures

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[83] Damico Report, Table 5, p. 25.

[84] Mr. Damico testified that a part of the rate setting process is to identify who's using the system and allocating the "fair share" of costs to the water users "based on…the use if it's – if it's a lot higher than the other land use." Damico Dep. 132:7-18. Mr. Damico allocated increased costs to his subjectively designated residential user class, however that allocation was not based on any analysis conducted by Mr. Damico but instead, on a hypothetical example in the AWWA M1. Id. 133:4-16, 134:16-22, 135:3-136:18. Mr. Damico testified that he *did not conduct* any peaking analysis, cost of service analysis, or analysis to determine if higher water users impose increased costs on Detroit's water system even though he allocated costs to water users differently than Stantec to arrive at his water rate. See id. 50:18-21, 51:25-52:3, 52:24-53:7, 54:2-7, 133:17-134:2; 134:17. In fact, Mr. Damico testified that whatever analysis he conducted did not support his conclusion presented in his report that residential users are causing peaking. Id. 135:3-136:18. Meaning, there is no analysis to support his conclusion.

[85] Damico Report, p. 3.

50% of residential usage, Detroit does not have a residential only customer class and has no obligation to create such a class when adopting a uniform rate with a lifeline component.

Similarly, Detroit does not have a Significant Users class. This "class" is an after-the-fact label used to describe a group of high-volume users who apparently do not want to pay higher bills because of their high-volume usage. Plaintiff's class certification motion suggests that one can easily determine damages incurred by

> all persons and entities who/which have used an average of at least 1 mcf per month and paid the city for water service at any time since August 1, 2022 or who/which pay for the city for water service during the pendency of this action.[86]

Yet, Mr. Damico did not calculate the damages. More importantly, Mr. Damico has not delineated the class. The prospective class so defined is amorphous. Complications abound even if Plaintiff's meritless Complaint had any validity. For example, as noted above, any residential, commercial, or industrial customer could be a "Significant User" in any given month and not in the next month, and regardless would also benefit from the lifeline rate for lower volume usage.

Conclusions

Claims in this class action lawsuit have been constructed from the distorted view that any variance from either the Plaintiff's or Mr. Damico's recommended practices constitutes an overcharge. This is not the case. ERC's opinions are faulty and cannot be relied upon. The City's practices do not result in unreasonable rates that have created overcharges. Detroit's rates and charges were and remain reasonable and properly recover the City's water system costs.

Respectfully submitted on July 3, 2025.



Eric Rothstein, Principal

Galardi Rothstein Group

[86] Plaintiff's Motion for Class Certification, filed June 10, 2025, at p. 20.

Exhibit EPR-1

Expert Qualifications Narrative

I, Eric Paul Rothstein, conducted this review and offer this expert report and opinions. My background and qualifications to offer expert opinions are summarized below; my resume is offered as Exhibit EPR-2.

Education / Certifications

I have a Bachelor's Degree from Ripon College, Ripon, WI, where I majored in Economics and History. I have a Master's Degree in Economics from the University of California, Davis, and completed all coursework and qualifying examinations for a Ph.D. in economics from that institution. I was a State of Oregon Certified Public Accountant from 1995 to 2024 and am a Municipal Advisor Principal registered with the Municipal Securities Rulemaking Board.

Professional Experience

I worked for 10 years for the City of Austin, Texas – initially for 5 years in its Resource Management Department, where I managed the Planning and Evaluation Division responsible for technical evaluations of energy and water conservation programs. In 1989, I became the Financial Manager for the City of Austin's Water and Wastewater Utility, where I was responsible for managing cost-of-service ratemaking, capital financing, and other financial analysis and reporting functions.

In 1994, I took a position with CH2M HILL, an international project delivery company. For CH2M HILL, I conducted water and wastewater rate studies, prepared engineers' feasibility studies for utility revenue bond issues, conducted financial capability assessments in conjunction with several wastewater consent decree negotiations, and participated in a wide variety of other utility management consulting engagements. After founding and managing the Utility Management Solutions organization for CH2M HILL, in March 2007, I left CH2M HILL to form my own utility management consulting firm marketed under a "doing business as" arrangement with Deb Galardi (and since 2012 with Cody Stanger) as the Galardi Rothstein Group.

As a GRG Principal, I have addressed water and wastewater service pricing in numerous cost-of-service rate analyses including for the cities of Atlanta, GA, Cleveland, OH, Halifax, Nova Scotia, CA, Portland, OR, Tucson, AZ and Winnipeg, AB. Other GRG projects have included a wide range of utility finance and institutional strengthening engagements.

Over the last several years, I have worked with several financially distressed communities facing unique challenges, including Jefferson County, AL, and Detroit, MI, both of which filed for bankruptcy protection, and Flint, MI, which suffered a system-wide water quality crisis leading to lead exposure. Each of these communities faced acute challenges stemming, in part, from problems related to their financing of water and sewer system capital improvements. Governor Snyder's Flint Water Advisory Task Force,[1] of which I was a member, underscored the profound importance of effective planning for financing of needed utility system renewal and reinvestment.

Industry Guidance Development Experience

I have been active in the water and wastewater industry's various professional societies, including the American Water Works Association (AWWA), Water Environment Federation (WEF), International Water Association (IWA), and National Association of Clean Water Agencies (NACWA). I have been involved in a number of projects for the Water Research Foundation (WRF, previously American Water Works Association Research Foundation or AwwaRF).

For more than 25 years, I have served on AWWA's Rates and Charges sub-committee that is responsible for promulgating the Principles of Water Rates, Fees and Charges (M1) manual of practice and have authored portions of the manual. For WEF's Utility Management Committee in 2004-05, I served as Task Force Chair for development of the Financing and Charges for Wastewater Systems manual of practice (No. 27) that promulgated standard practices for wastewater service ratemaking. I participated in the update of that manual of practice in 2017 leading the development of its Emerging Financing Alternatives chapter. Also for WEF, I participated in the development of the original Affordability of Wastewater Service Special Publication in 2005 and its update in 2017. For NACWA, I have prepared white papers on Financial Capability Assessment (FCA) methods used to structure wastewater consent

[1] This task force was appointed in October 2015 and was among the first reviews of the Flint Water Crisis. The Task Force identified the Michigan Department of Environmental Quality as primarily responsible in a letter to Governor Snyder dated December 29, 2015; the Task Force's final report was issued on March 21, 2016.

decree schedules. I serve on the U.S. Environmental Protection Agency (EPA) Environmental Finance Advisory Board and in 2018 co-chaired its workgroup to develop a charge report on water and wastewater utility consolidation and regionalization.

Expert Witness Experience

General

In 2012, I provided expert opinions related to the City of Waukesha, WI's application for water rate increases precipitated by water supply development requirements. In 2013, I provided expert opinions before the Nova Scotia Utility and Review Board on water, sewer, and stormwater rate applications of the Halifax Regional Water Commission. Also in 2013, for the San Diego County Water Authority, I provided expert opinions related to the pricing of water supplies delivered by the Metropolitan Water District of Southern California. In 2014, I provided expert opinions related to the pricing of water supplies delivered by the Water Replenishment District of Southern California. Also in that year, as well as in 2010, I provided expert opinions related to wholesale service rates imposed by the Milwaukee, WI, Water Works Department. In 2016, I provided expert opinions on water rates adopted in October 2014 by the Sabine River Authority, Orange County, TX. In February 2019, I provided direct and rebuttal testimony in support of the Citizens Water Authority Inc. (Indianapolis, IN) application to obtain authority to increase its wastewater rates and charges, and to secure approval of a low-income customer assistance program. Similarly, in June 2019. I provided direct testimony and developed a stipulation agreement in support of the Guam Waterworks Authority's (GWA's) application to increase its water and wastewater rates and charges for FY 2020 – FY 2024. In December 2021, I provided direct testimony in support of GWA's Comprehensive Review and Update (CRU) filed on March 31, 2021, and filed rebuttal testimony on December 3, 2021. In March 2024, I provided direct testimony and developed a stipulation agreement in support of the Guam Waterworks Authority's (GWA's) application to increase its water and wastewater rates and charges for FY 2025 – FY 2029.

I have filed expert reports and/or been deposed in several recent and ongoing cases related to selected communities' claims of damages from public water supply contamination related to per- and polyfluoroalkyl substances (PFAS). These cases include:

- The Matters of City of Rome, GA v. 3M Company et al., Superior Court of Floyd County, GA Case No.: 19-CV-02405-JFL003 and Jarrod Johnson v. 3M Company et al., US District Court, Northern District of GA, Case No. 4:20-cv-00008-AT.

- The Matters of Cape Fear Public Utility Authority, Brunswick County, Lower Cape Fear Water & Sewer Authority, and Town Of Wrightsville Beach, v. The Chemours Company FC, LLC, E. I. Du Pont De Nemours and Company, and The Chemours Company Case No. 7:17-CV-00195-D and Case No. 7:17-CV-00209-D
- The Matters of Cape Fear Public Utility Authority, Brunswick County, Lower Cape Fear Water & Sewer Authority, and Town Of Wrightsville Beach, v. The Chemours Company FC, LLC, E. I. Du Pont De Nemours and Company, and The Chemours Company Case No. 7:17-CV-00195-D and Case No. 7:17-CV-00209-D
- the Matters of Cumberland County, v. The Chemours Company, The Chemours Company FC, LLLC., E.I. Du Pont De Nemours and Company, Dupont De Nemours, Inc., and Corteva, Inc., in the State of North Carolina, County of Cumberland General Court of Justice, Superior Court Division, 22 CVS 1569
- the Matters of City of Summerville, Georgia v. 3M Company, et al., United States District Court for the Northern District of Georgia, Summerville Division, Case No. 4:21-cv-00040-TWT and Earl Parris, Jr. and City of Summerville, Georgia, v. 3M Company, et al., United States District Court for the Northern District of Georgia, Summerville Division, Case No. 4:21-cv-00040-TWT.

State of Michigan

I have provided expert reports in several recent cases in southeast Michigan where class action suits have been filed challenging communities' water and sewer rate setting practices. In December 2016, I provided expert opinions on water and sewer rates collected by Taylor, MI, between 2010 and 2016 (Bohn v. City of Taylor, Wayne County Circuit Court Case No. 15-013727-CZ). In October 2017, I provided an expert report in the matter of Gumbleton v. Village of Holly (Oakland County Circuit Court Case No: 17-157734-CZ) that offered opinions on the reasonableness of Holly, MI's water and sewer rates. In August 2019, I provided an expert report in the matter of Daniel Brunet v. City of Rochester Hills (Oakland County Circuit Court Case No. 18-164764-CZ) that offered opinions on the reasonableness of Rochester Hills, MI's water and sewer rates. In March 2021, I provided direct testimony in support of Farmington Hill's response to litigation related to water and sewer reserves (Joan Greenfield v. City of Farmington Hills, MI, Case No: 18-169707-CZ). In April 2022, I provided direct testimony in support of the City of Novi, MI's response to litigation related to water and sewer reserves in the Matter of William F. Novar v. City of Novi, MI, Case No: 2020-183155-CS, State of Michigan in the Circuit Court for the County of Oakland.

Eric P. Rothstein, CPA

Principal

Distinguishing Qualifications

- A leading expert in developing financial strategies to support major water, wastewater and storm water infrastructure programs; securing acceptance of multi-year rate increases in politically charged environments; and addressing water affordability.
- Served as feasibility consultant and municipal advisor for numerous water and sewer utility bond issues with principal amounts totaling in excess of $4 billion. Related presentations before rating agencies and investors have addressed enterprise fund management and financial policies as well as cash-flow forecasts.
- Experienced in utility management processes, strategic business planning, regionalization, public/private partnership evaluation, and facilitation of complex decisions affecting diverse stakeholder groups.
- Co-authored industry-standard manuals and research publications on water and wastewater ratemaking, affordability, capital planning, financial capability assessments, and public-private partnerships.
- Registered Municipal Advisor Principal

Education

- MA, Economics, University of California-Davis, 1983
- AB, Economics, Ripon College, 1981

Expert Witness Depositions and Testimony

- Expert Report of Eric P. Rothstein in the Matters of City of Summerville, Georgia v. 3M Company, et al., United States District Court for the Northern District of Georgia, Summerville Division, Case No. 4:21-cv-00040-TWT and Earl Parris, Jr. and City of Summerville, Georgia, v. 3M Company, et al., United States District Court for the Northern District of Georgia, Summerville Division, Case No. 4:21-cv-00040-TWT, filed February 2025.
- Deposition of Eric P. Rothstein in the Matters of Cumberland County, v. The Chemours Company, The Chemours Company FC, LLLC., E.I. Du Pont De Nemours and Company, Dupont De Nemours, Inc., and Corteva, Inc., in the State of North Carolina, County of Cumberland General Court of Justice, Superior Court Division, 22 CVS 1569, taken on February 25, 2025 (via Zoom).
- Expert Report and Surrebuttal Report of Eric P. Rothstein in the Matters of Cape Fear Public Utility Authority, Brunswick County, Lower Cape Fear Water & Sewer Authority, and Town Of Wrightsville

Beach, v. The Chemours Company FC, LLC, E. I. Du Pont De Nemours and Company, and The Chemours Company Case No. 7:17-CV-00195-D and Case No. 7:17-CV-00209-D, filed March 2024.

- Expert Report of Eric P. Rothstein in the Matters of City of Rome, GA v. 3M Company et al., Superior Court of Floyd County, GA Case No.: 19-CV-02405-JFL003 and Jarrod Johnson v. 3M Company et al., US District Court, Northern District of GA, Case No. 4:20-cv-00008-AT, filed December 2022.
- Expert Report of Eric P. Rothstein in the Matter of William F. Novar v. City of Novi, MI, Case No: 2020-183155-CS, State of Michigan in the Circuit Court for the County of Oakland, filed April 2022.
- Eric P. Rothstein in the Matter of Joan Greenfield v. City of Farmington Hills, MI, Case No: 18-169707-CZ, State of Michigan in the Circuit Court for the County of Oakland, filed March 2020.
- Expert Report of Eric P. Rothstein in the Matter of Daniel Brunet v. City of Rochester Hills, MI, Case No: 18-164764-CZ, State of Michigan in the Circuit Court for the County of Oakland, filed August 2019.
- Direct Testimony In Support of the Requests For Approvals of the Guam Waterworks Authority's Financial Plan and Capital Improvement Program (FY 2020 – FY 2024 and FY2025 – FY 2029) and Low Income Customer Assistance Program filed before the Guam Public Utilities Commission, June 2019.
- Direct and rebuttal testimony in support of the Petition of Citizens Water Authority Inc. for (1) Authority to increase rates and charges for wastewater utility service in three phases and approval of new schedules of rates and charges applicable thereto, (2) approval of a low-income customer assistance program, and (3) approval of certain changes to its general terms and conditions for wastewater service, Cause No. 45151 before the Indiana Utility Regulatory Commission. Direct testimony filed October 2018; rebuttal filed February 2019.
- Expert Report of Eric P. Rothstein in the Matter of Heidi Marie Gumbleton v. Village of Holly, MI, Case No: 17-157734-CZ, State of Michigan in the Circuit Court for the County of Oakland, filed October 2017.
- Expert Report of Eric P. Rothstein in the Matter of Leonard S. Bohn v. City of Taylor, MI, Case No. 15-013727-CZ, State of Michigan in the Circuit Court for the County of Wayne, filed December 2016.
- Expert Report of Eric P. Rothstein in the Matter of City of Dallas v. Abney, et al. Cause No. D150045-C, 260th Judicial District, Orange County Texas, filed June 21, 2016
- Expert Report and Written Direct Expert Testimony of Eric P. Rothstein in the Matter of City and County of Honolulu v. Hawaii State Department of Health, Docket 15 – CWB – EMD – 3, filed April 25, 2016.

Selected Key Project Experience

For the **American Water Works Association (AWWA), Association of Metropolitan Water Agencies (AMWA), National Association of Clean Water Agencies (NACWA), National Association of Water Companies (NAWC), US Water Alliance (USWA) and Water Environment Federation (WEF),** Eric served as a Project Manager / Principal Contributor for development of the report: Low-Income Water Customer Assistance Program Assessment released in early 2023. The report assesses options for structuring a permanent, federally funded, program for providing water service bill assistance. The Study addresses fundamental questions related to the extent of household water burdens, how to most effectively and efficiently deliver sustained relief, and roles and responsibilities of low-income assistance providers and utilities.

For **Jefferson County, Alabama,** Eric led development of a Municipal Advisor Report related to the County's Series 2024 Sewer Revenue Warrant issue to effectuate refinancing of the County's Series 2013 warrants issued to effectuate the County's exit from bankruptcy (see description below). GRG has also been engaged to support updating the department's Strategic Financial Planning model for

investor relations initiatives, updating the Department's Financial Capability Assessment, and developing a new low-income Customer Assistance Program.

For Hamilton County, (OH), Los Angeles (CA) and the Guam Waterworks Authority, Eric is assisting in conducting financial capability assessments per EPA's recently updated (2023) prescribed methodologies, and in developing alternative approaches to assessment that more appropriately reflect utility capital financing options. These efforts are supporting Consent Decree negotiations that have been complicated by a shifting and uncertain landscape related to financial capability assessments and milestone schedule determination.

For Bloomington (IL), Four Rivers Sanitation District (IL), Halifax Water (NS), Portland Environmental Services Department (OR), Shreveport (LA) and Guam Waterworks Authority, Eric has provided senior advisory consulting services for these utilities ongoing cost-of-service and strategic financial planning initiatives and development or enhancement of low-income water affordability measures.

For the American Water Works Association (AWWA), National Association of Clean Water Agencies (NACWA), and Water Environment Federation (WEF), Eric served as a principal contributor to the development of the report: Developing a New Framework for Household Affordability and Financial Capability Assessment in the Water Sector (April 17, 2019). Eric authored sections offering recommendations for revising USEPA's methodology for conduct of utility Financial Capability Assessments. Eric also co-authored these associations' "Water Utility Association Consultant Review: Proposed 2022 Clean Water Act Financial Capability Assessment Guidance issued in April 2022.

For the Guam Waterworks Authority, Eric developed testimony in support of the Authority's applications for approval of its FY 2020 – FY2024, and FY 2025 – 2029 Financial Plans and Rate Increase Requests, and contributed to the Consultants reports in support of the Authority's Series 2020 and Series 2024 revenue bond issues, and (pending) Series 2025 issue.

For the Toledo Regional Chamber of Commerce, Eric facilitated a decision process leading to the signing of a Memorandum of Understanding for the creation of the Toledo Area Water Authority (TAWA). The Authority would provide regional governance for the development and operation of water supplies to serve communities in Northwest Ohio.

For the Detroit Water and Sewerage Department, between 2015 and 2017, Eric provided management assistance to the utility's leadership team. His work focused on water affordability and lead risk mitigation initiatives, as well as supporting DWSD's participation in GLWA cost allocation and rate setting processes. He served as Program Manager for DWSD's Drainage Charge Implementation Program and was Chair/Facilitator of its Blue Ribbon Panel on Affordability. Eric provided management assistance for its Minimizing Lead in Drinking Water program, strategic planning efforts, and evaluation of cost allocation and rate structure options.

For the Denver Water Distributors in 2016, Eric led a negotiation team to address concerns related to various aspects of Denver Water's (DW) rate setting and capital financing practices. Eric led negotiation sessions, presented before the DW Board, and provided regular update briefings to the Distributor's Technical Advisory Committee. Eric has provided senior advisor support for the annual updates of DW's cost-of-service analyses.

Eric was appointed in October 2015 by Michigan Governor Rick Snyder to serve as one of five members of the independent Flint Water Advisory Task Force to conduct a review of the events and decision-making that led to the Flint, Michigan water crisis. The task force developed

recommendations to address governmental failures, mitigate impacts on the Flint community, and improve protection from drinking water contaminations for communities in the State of Michigan.

For the U.S. Bankruptcy Court, Eastern District of Michigan, Southern Division, in 2014 and 2015, Eric served as an independent utility advisor for mediation related to the creation of the Great Lakes Water Authority (GLWA). Following execution of a Memorandum of Understanding and Articles of Incorporation by the Incorporating Municipalities (City of Detroit; Macomb, Oakland and Wayne counties; and the State of Michigan), Eric served as Implementation Planning Program Manager for the successful standup of the GLWA – a regional utility serving approximately 40 percent of the population of the State of Michigan.

For the Water Replenishment District of Southern California, Eric was engaged in 2014 to provide an expert report related to the consistency of the District's rate-setting requirements with industry-standard practices contemplating proportionate distribution of cost responsibilities based on cost causation. These practices are consistent with prescripts of State of California law.

For Jefferson County, Alabama, Eric served as the County's rate consultant between 2010 and its exit from bankruptcy in 2013. He reviewed cost-of service analyses and alternative rate proposals to address the County's outstanding sewer warrant obligations, developed revisions to its sewer rates that were approved in November 2012 and again in September 2013, and led strategic financial planning related to the County's bankruptcy Plan of Adjustment. Eric was deposed and provided expert witness testimony in various court proceedings stemming from the County's declaration of bankruptcy in 2011, and led development of a Municipal Advisor Report related to its Series 2013 Sewer Warrant issue to effectuate the County's exit from bankruptcy.

For the Halifax Regional Water Commission, Eric led development of a Cost of Service and Rate Design report to the Nova Scotia Utility and Accounting Review Board (NSUARB Docket No. NSUARB-W-HRWC-R-11), in response to the Board's Order and Decision to hold separate hearings to determine appropriate ratemaking methodologies for Canada's first regulated water, wastewater and storm water utility. Eric led preparation of the report and the development of cost allocation and rate design models to illustrate the implications of alternative methodological approaches. He supported development of HRWC's subsequent application for water, wastewater and storm water rates filed with the NSUARB in December 2012, and he provided expert witness testimony in support thereof in April 2012. In April 2014, Eric prepared an expert report on HRWC Cost Shares for Use of the Angus L. Macdonald Bridge and provided expert witness testimony in M06127 – Halifax-Dartmouth Bridge Commission/Halifax Regional Water Commission: Waterline on the Angus L. MacDonald Bridge – HDBC-G-14.

For the City of Atlanta, since 2004, Eric has provided a broad array of utility management consulting services ranging from support of major multi-year rate increases, to securing funding for low-income affordability programs, to capital improvement project prioritization. He has served as the Department of Watershed Management's primary coordinator for its revenue bond issues used to finance its $3 billion wastewater Consent Decree program. This has included issues in 2004, 2008, 2009 (2), 2013, 2015, 2017, and 2018 and, in 2006, implementation of its Tax-Exempt Commercial Paper program with a shelf registration of $1.2 billion. Eric led development of the Department's Financial Capability Based Schedule Extension Request Report used to secure the City's 13-year extension of its wastewater Consent Decree schedule. He prepared each of the Department's Financial Capability Assessment filings. He has led the development and updating of strategic financial planning tools for water and sewer rate development and policy-level consideration of overall program financing strategies (as well as detailed project expenditure, status, and schedule

tracking). GRG's Municipal Advisor Feasibility study report was also used for issuance of the City's Environmental Impact Bond (EIB) in January 2018, the first public offering of an EIB to fund stormwater management projects in the US.

For the Egyptian Ministry of Housing, through a USAID contract, Eric developed guidance on tariff setting, capital project prioritization, and strategic planning for the newly established water and wastewater sector regulatory agency. He traveled to utilities across upper Egypt to collect data and hold workshops on utility finance and rate setting practices. The project involved the development of a guidance manual, detailed financial planning and cost-of-service analysis modeling, and testing of financial analysis and prioritization tools with four major Egyptian utilities. He also provided presentations on financial planning and strategic planning principles to USAID staff and Technical Assistance contractors.

For the Milwaukee Wholesale Customers (MWC), through sub-contracts with SHEH, Inc., Eric reviewed the Milwaukee Water Works (MWW) rate increase applications filed in 2010 and 2014, reviewed pre-filed testimony, and offered expert witness testimony related to revenue requirements and appropriate rates of return at hearings before the Wisconsin Public Service Commission (WPSC). The WPSC allowed rate increases that were substantially lower than those requested by MWW in both cases.

For several wastewater permittees facing Consent Decrees including Akron, Ohio; Atlanta, Georgia; East Bay Municipal Utility District, California; Jackson, Mississippi; Northeast Ohio Regional Sewer District, Ohio; Metropolitan Sewer District of St. Louis, Missouri; and Honolulu, Hawaii, Eric has assisted in conducting financial capability assessments per EPA-prescribed methodologies and in developing alternative approaches to assessment that more appropriately reflect utility capital financing options. These efforts have successfully supported negotiation positions related to the scope and schedule of potential Consent Decree provisions.

For the National Association of Clean Water Agencies (NACWA), Eric has served as Principal Author for several white papers and publications related to Financial Capability Assessments used to develop wastewater Consent Decree schedules. Examples include NACWA's Financial Capability and Affordability in Wet Weather Negotiations (2007) and The Evolving Landscape for Financial Capability Assessment: Clean Water Act Negotiations and the Opportunities of Integrated Planning (2013). These papers provide critical reviews of the U.S. Environmental Protection Agency's (EPA's) established policies and guidance on financial capability assessments for wet weather programs and offers practical guidance for negotiations on enforcement policies and practices related to consideration of financial capability.

For the City of Winnipeg, Manitoba, Eric served as Project Manager for a comprehensive cost-of-service rate studies for the City's water, wastewater and storm water systems conducted in 1997 and 2012. In 1997, the consulting team facilitated decision-making through an extensive public involvement process that featured monthly meetings of a Citizen's Advisory Committee comprised of a diverse set of stakeholder representatives. For both studies, detailed cost allocation analyses were conducted and customized computer rate analysis models developed to facilitate rate updating for budgetary changes, revision to cost allocations, and rate design modifications.

For Augusta-Richmond County, Georgia, Eric has provided strategic financial planning, bond feasibility and comprehensive cost-of-service rate assistance since 2000. Strategic financial planning facilitated the City's adoption of a 7-year, 11 percent per annum rate increase schedule to support infrastructure reinvestment in excess of $400 million. Eric managed three bond feasibility studies over the course of the program implementation, helping the County secure strong credit ratings and

favorable financing terms. A cost-of-service study in 2004 involved special queries of a new billing system for development of user characteristic data and consideration of specific cost assignments for previously unsewered portions of the County's wastewater system. Cost-of-service rate study updates were commissioned in 2012 and address water conservation and water affordability issues.

Previous to his work as a utility management consultant, Eric served in several financial management positions for the City of Austin, Texas. In this capacity, he directed staff of up to 22 people in utility ratemaking, evaluation of regionalization alternatives and proposed utility investments, analysis of capital financing options, internal control evaluation, and revenue forecasting.

Boards / Certifications / Professional Licenses

Registered Municipal Advisor

- MSRB Registration No. (MSRB ID): K0764

Certified Public Accountant

- Oregon License No. 7998, June 1995 - 2024

Membership in Professional Organizations

American Water Works Association

- Strategic Management Practices Committee
- Rates and Charges Sub-Committee
  - Chair, Water Rate Structures and Pricing (M34)
  - Member, Water Rates, Fees and Related Charges (M1), 4th – 8th Editions

International Water Association

- Economics and Statistics Specialist Group
- Editorial Board, Utility Management International, 2008-2012

National Association of Clean Water Agencies

- Utility Management Committee

Water Environment Federation

- Technical Practice Committee – Chair, 2014-2017
- Utility Management Committee
  - Chair, Finance and Administration Sub-Committee, 2011 -2014
  - Chair, Financing and Charges for Wastewater Systems (M27), Manual of Practice Task Force, 2005
  - Coordinator, Asset Management Hot Topics Workshops, 2005-2007
  -

Selected Publications

"Development and Application of Utility Operating Metrics for Customer Affordability" with Michael Matichich, Zachary Green, Joe Crea, Stacey Isaac Berahzer, and Frank Roth, Journal AWWA, January/February, 2025 , pp. 24-32,

"Low-Income Water Customer Assistance Program Assessment", Project Report: AWWA/AMWA/NAWC/ NACWA/WEF (April 20, 2023).

"Affordability and Equity Considerations for Rate Setting" with Stacey Isaac Berahzer, Joe Crea, and Michael Matichich, Journal AWWA, September 2021, pp 33-43,

"Funding and Financing Strategies to Address Coronavirus Impact" with Jim A. Beard, NACWA White Paper, May 2020.

"Developing a New Framework for Household Affordability and Financial Capability Assessment in the Water Sector", Project report: AWWA/NACWA/WEF (April 17, 2019).

"Model Water Utility Affordability Programs," with Bradford L. Blake and Gary Brown, Journal of the American Water Works Association (AWWA), August 2017, vol. 109, issue 8, pp. 30-36

"Why Flint Matters," Journal of the American Water Works Association (AWWA), July 2016, pp. 38-42

"The Birth of the Great Lakes Water Authority," Program Management Office Close-Out Report, Great Lakes Water Authority and Detroit Water and Sewerage Department, June 2016

Flint Water Advisory Task Force – Final Report, State of Michigan, March 2016

Blue Ribbon Panel on Affordability – Final Report, City of Detroit, February 2016

Sustainability Reporting Statements for Wastewater Systems, Water Environment Federation (WEF) Special Publication, October 2012 (Task Force Chair, Chapter 1 Author)

"The Business Case for Low Income Affordability Programs," Proceedings of the Utility Management Conference, Miami, FL, February 2012

"Strategic Planning: A Portfolio Management Approach to Effective Utility Management," with Tom Sigmund, Proceedings of the Utility Management Conference, Miami, FL, February 2012

"Financial Sustainability in an Uncertain World," with Debbie Galardi, Water Utility Management International, vol. 6, issue 4 (December 2011), pp. 23-27.

"Developing A Financially Sustainable Capital Program to Meet Consent Decree Requirements," Proceedings of the Water Environment Federation Technology Exposition and Conference (WEFTEC), October 2009

"Regionalization of Water Service in Central Florida: Capacity Rights Contracting for the Yankee Lake WTF," Proceedings of the American Water Works Association (AWWA) Annual Conference and Exposition, June 2007 and the Florida Water Resources Conference, April 2007

"Affordability Tools," Section 8: Affordability Special Publication, Water Environment Federation, 2007 – updated 2022.

"Tough Choices in Paradise: Capital Project Prioritization on Oahu," with Ross Kaneko, Barry Usagawa, Scott Muraoka and Jason Takaki, Proceedings of the AWWA-WEF Joint Management Conference, February 2007 and Proceedings of the AWWA Annual Conference and Exposition, June 2007

"Financial Sustainability as a Foundation for Infrastructure Development and Management: Best Practices," with Debbie Galardi, Water Utility Management International, vol. 2, issue 1 (March 2007), pp. 10-13

Selected Presentations / Seminars

Addressing Affordability and Equity in Rate Setting Practice, Wisconsin Public Utility Institute October 21, 2020

"Flint and its Implications for the Nation," Panel Discussion with James A. Beard, CFO, City of Atlanta, One Water Summit conference, Atlanta, GA, June 2016

"Exit from Bankruptcy: Jefferson County, Alabama's Historic Plan of Adjustment and $1.7 Billion Sewer Warrant Issue Sustainability Reporting Statements for Wastewater Systems," presented at the Utility Management Conference, Austin, TX, February 2015

"The Business Case for Sustainability Reporting," presented at the Sustainability Reporting Statements for Wastewater Systems Special Publication Workshop, WEFTEC 2013, October 2013

"Building Support for Rate Increases," presented at the Central States Water Environment Association (CSWEA) Annual Conference, May 17, 2013

"Which Direction is Your Utility Heading," presented at the Illinois City Managers Association Conference, Galena, Illinois, June 28, 2012

"Financial Sustainability in an Uncertain World," presented at the Illinois Section American Water Works Association (AWWA) Annual Conference, March 2012

"Doing More With Less: Financial Planning and Management in Stressful Times," presented at the Central States Water Environment Federation (WEF) Wisconsin Government Affairs Seminar, February 23, 2012

Exhibit EPR – 3

Document Listing

Plaintiff Filings and Reports

1. Damico Report - Report of Findings and Opinions dated June 3, 2025 prepared by John F. Damico, Environmental Rate Consultants (ERC)
2. John Damico Deposition Transcript dated June 25, 2025
3. Item 3 - Billing Tabulation 2021 Billing Pages 11 and 12 REVISED June 24 2025
4. Plaintiff's Class Action Complaint and Jury Demand dated November 27, 2023 filed by Kickham Hanley, PLLC
5. Plaintiff's Motion for Class Certification dated June 10, 2025 filed by Kickham Hanley, PLLC

City of Detroit – Rate Study Information

6. Stantec Rate Study Report and appended schedules: Detroit Water and Sewerage Department Rate Study Final Report dated September 19, 2022 prepared by Stantec
7. W Bill Distribution. Xlsx
8. bill_distribution.xlsx

City of Detroit – Billing Data

9. DWSDAJ0005077, 20250501 AJAX_Request 07012020 to 06302021.xlsx
10. DWSDAJ0005078, 20250501 AJAX_Request 07012021 to 06302022.xlsx
11. DWSDAJ0005079, 20250501 AJAX_Request 07012022 to 06302023.xlsx
12. DWSDAJ0005080, 20250501 Codes.xlsx

Court Filings and Written Discovery

13. Affidavit of Andrew Burnham, Exhibit 1 to City's Motion for Summary Disposition of Plaintiff's Complaint Under MCR 2.116(C)(8) and MCR 2.116(C)(10), January 31, 2024
14. Affidavit of Mihai Facaeanu and attached documents, Exhibit 4 to City's Response in Opposition to Plaintiff's Motion for Class Certification, July 1, 2025

Miscellaneous Expert Report Materials

15. American Water Works Association's M1 Principles of Water Rates Fees and Charges (7th Edition), 2017
16. Blue Ribbon Panel on Affordability Report dated Feb 3, 2016
17. Mackinaw Area Tourist Bureau, Inc. v. Village of Mackinaw City, --- N.W.3d ---- (2024)
18. Water Environment Federation's Financing and Charges For Wastewater Systems, Manual of Practice No. 27, (4th Edition), 2018
19. GLWA – DWSD Water and Sewer Service Agreement
20. AWWA Survey - https://ellio.raftelis.com/AWWA/Theme/NonresidentialBillComparison - accessed June 28, 2025

EXHIBIT 21

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
997	905000	0	0	0	0	1	0	0	0	0	0	0	0	
998	906000	0	0	0	1	0	0	0	0	0	0	0	0	
999	907000	0	0	0	0	0	0	0	0	0	0	0	0	
1000	908000	0	0	0	0	0	0	0	1	0	0	0	0	
1001	909000	0	0	1	0	0	0	0	0	0	0	0	0	
1002	1000000	2	2	1	2	2	3	2	4	4	4	2	2	
1003														
1004														
1005	Total Use	248,085,172	265,795,549	250,308,376	218,840,298	197,362,116	194,648,309	197,125,285	190,289,480	191,179,506	205,630,599	214,288,080	214,232,177	
1006														
1007														
1008														
1009														
1010														
1011														

O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
Residential	Commercial	Industrial	Tax Exempt	Government	Drainage	#N/A		Tier 1	Residential	Commercia	Industrial	Tax Exemp	Governmen	Drainage	#N/A
-	-	1	-	-	-	-			-	-	1	-	-	-	-
-	1	-	-	-	-	-			-	1	-	-	-	-	-
-	-	-	-	-	-	-			-	-	-	-	-	-	-
-	-	1	-	-	-	-			-	-	1	-	-	-	-
-	-	1	-	-	-	-			-	-	1	-	-	-	-
1	-	28	-	1	-	-			1	-	17	-	1	-	-
1,214,404,969	743,566,267	469,029,898	16,015,700	144,428,113	10,100	329,900		T1 Volume	788,632	47,974	4,921	3,392	9,595	7	82
								T2 Volume	425,773	695,592	464,109	12,624	134,833	3	248

EXHIBIT 22

Neutral
As of: September 11, 2025 8:43 PM Z

Garcia v. West Shore Med. Ctr.

Court of Appeals of Michigan

July 21, 2015, Decided

No. 320781

Reporter
2015 Mich. App. LEXIS 1433 *; 2015 WL 4465186

WILLIAM GARCIA, personal representative of the Estate of BEVERLY KAY GARCIA, Plaintiff-Appellant, v WEST SHORE MEDICAL CENTER, RICHARD A. SCHARP, JR., M.D., and RAYMOND E. SCHMOKE, M.D., Defendants-Appellees, and MUNSON HEALTHCARE and MANISTEE COUNTY, Defendants.

Notice: THIS IS AN UNPUBLISHED OPINION. IN ACCORDANCE WITH MICHIGAN COURT OF APPEALS RULES, UNPUBLISHED OPINIONS ARE NOT PRECEDENTIALLY BINDING UNDER THE RULES OF STARE DECISIS.

Subsequent History: Leave to appeal denied by Garcia v. West Shore Med. Ctr., 499 Mich. 882, 876 N.W.2d 524, 2016 Mich. LEXIS 523 (Mar. 29, 2016)

Prior History: **[*1]** Manistee Circuit Court. LC No. 11-014339-NH.

Judges: Before: GLEICHER, P.J., and K. F. KELLY and SERVITTO, JJ.

Opinion

PER CURIAM.

Can an inadequately treated skin infection caused by *streptococcus pneumoniae* lead to fatal pneumococcal pneumonia? That is the scientific issue presented in this medical malpractice lawsuit. Plaintiff's expert witness, Dr. David Goldstein, testified that under the unusual circumstances presented in this case, Beverly Garcia's incompletely treated skin infection progressed to fatal pneumococcal pneumonia. The circuit court found Dr. Goldstein's opinion unreliable under MRE 702 and MCL 600.2955 and excluded it. Because plaintiff lacked alternative causation evidence, the court granted summary disposition to defendants.

In reaching its reliability conclusion, the circuit court misunderstood the medical literature produced by Dr. Goldstein and misconstrued the legal principles underlying MRE 702 and MCL 600.2955. More fundamentally, by weighing the credibility of plaintiff's causation theory against the defense experts' testimony, the circuit court improperly usurped the role of the factfinder, thereby abusing its discretion. We reverse.

I.

Beverly Garcia was admitted to defendant West Shore Medical Center with swelling **[*2]** of her left ear and redness of the skin on the left side of her face. Her white blood cell count was elevated, signaling an infection. According to Dr. Richard Scharp, Garcia's skin condition had worsened despite outpatient treatment with Cipro, an oral antibiotic. Dr. Scharp diagnosed erysipelas, the medical term for a bacterial skin infection. Erysipelas is an uncommon disorder. When it occurs, the offending bacteria most commonly belong to a species called Group *A streptococcus. Streptococcus pneumoniae*, a different bacterial strain, accounts for a much smaller number of erysipelas cases.[1]

Streptococcus pneumoniae bacteria normally inhabit the throat and the nose and are the most common bacterial cause of middle ear infections. Erysipelas due to *streptococcus pneumoniae* has been reported in peer-reviewed medical literature as an uncommon variant of the disease, sometimes associated with chronic middle ear infections, immunosuppression, or connective tissue disorders. Garcia's medical records indicate **[*3]** that she had frequent left middle ear infections and had been diagnosed with Raynaud's disease (a connective tissue disorder), rheumatoid arthritis (an autoimmune disease), and was taking Medrol when seen in the emergency room (Medrol is a steroid which may cause immunosuppression). Defendant Raymond Schmoke, M.D., who examined Garcia in the emergency room, noted that her erysipelas was "most likely . . . caused by a streptococcal infection."

Defendants concede that *streptococcus pneumoniae* can cause

[1] The italicized term *streptococcus pneumoniae* refers to the bacterial species involved in this case. Streptococcal or streptococcus pneumonia refers to the disease which took Garcia's life.

erysipelas. If untreated or treated incorrectly, erysipelas can develop into cellulitis, a deeper infection of the skin and underlying soft tissues. This, too, the defense admits. The defense further acknowledges that worsening cellulitis can progress to bacteremia, which means the presence of bacteria in the blood.

Defendants treated Garcia's erysipelas with intravenous Kefzol, an antibiotic. The infection worsened. Dr. Schmoke decided that Garcia's infection was due to the *herpes zoster* virus rather than to bacteria, and stopped the intravenous Kefzol. Instead, Dr. Schmoke prescribed antiviral therapy. Garcia's condition improved and Dr. Schmoke discharged her from the hospital. Defendants' **[*4]** infectious disease expert, Dr. Michael McIlroy, admitted that herpes zoster almost always presents with characteristic blisters called vesicles. None of the physicians who examined Garcia detected any vesicles. Dr. McIlroy agreed that "a very low number" of patients with herpes zoster present without the hallmark rash. Whether Garcia had erysipelas and cellulitis (plaintiff's view) or herpes zoster (defendants' claim), the parties agree that hers was an unusual case.

Four days after she went home from the hospital, Garcia returned to the emergency room complaining of nausea, vomiting, dry heaves, and headache. She told the emergency room physician, "I can't breathe, I think I've got pneumonia." The emergency physician diagnosed "nausea" precipitated by the antiviral drugs and sent Garcia home with additional medication. Within a week, Garcia was admitted to the hospital in septic shock. Blood cultures revealed the presence of *streptococcus pneumoniae*, and chest x-rays demonstrated extensive pneumonia. Garcia rapidly succumbed to multiorgan failure caused by septic shock and pneumonia.

Plaintiff alleges that defendants incorrectly diagnosed herpes zoster instead of cellulitis or worsening **[*5]** erysipelas and negligently discontinued Garcia's antibiotic treatment. As a consequence, plaintiff asserts, Garcia's cellulitis progressed to bacteremia and to sepsis (a severe inflammatory reaction caused by bacteremia), and then to pneumonia. Dr. David Goldstein served as plaintiff's primary causation expert. Dr. Goldstein is board certified in internal medicine and pulmonology. He received most of his training at Harvard Medical School, has practiced his medical specialties for more than two decades, and teaches internal medicine, pulmonology, and hospital medicine at Florida State University Medical School. Defendants have not challenged Dr. Goldstein's qualifications to offer causation testimony in this case.

Defendants' experts asserted at their depositions that an inadequately treated skin infection could not have caused Garcia's fatal sepsis and pneumonia, as they believe that streptococcus pneumonia cannot be acquired through hematogenous spread.[2] The defense experts admitted that *streptococcus pneumoniae* can cause erysipelas and cellulitis, and that a patient inadequately treated for a *streptococcus pneumoniae* skin infection can develop bacteremia and sepsis. Defendants' experts **[*6]** took issue with the third and final link in the causation chain: that *streptococcus pneumoniae* bacteremia can spread through the bloodstream and infect the lungs, causing pneumonia. According to Dr. Stanley Sherman, a pulmonologist retained by the defense, *streptococcus pneumoniae* are capable of hematogenous travel to the lungs only in patients with "right-sided endocarditis, where you have bacteria going right into the distal portions of the lung," or in patients with septic emboli. Dr. Sherman opined: "pneumococcal pneumonia does not stem from a skin infection; that doesn't happen." Defendants successfully moved for a *Daubert*[3] hearing.

Plaintiff redeposed Dr. Goldstein, eliciting in greater detail the scientific basis for his causation conclusion. Dr. Goldstein explained that although *streptococcus pneumoniae* bacteria rarely cause skin infections such as erysipelas, the medical literature confirms "it does occur." Garcia was at particular risk for infection caused by this bacterial species because she suffered from recurrent middle ear infections, **[*7]** Dr. Goldstein explained, which often involve *streptococcus pneumoniae*. Proper treatment of Garcia's erysipelas, Dr. Goldstein continued, required 10 days of intravenous antibiotic therapy. Dr. Goldstein maintained that defendants' decision to prematurely stop the antibiotics led to a deeper skin infection (cellulitis), and then to bacteremia. "[B]acteremia with strep pneumonia can seed any organ in the body and can cause pneumonia," he opined.

Dr. Goldstein produced several medical articles supporting that *streptococcus pneumoniae* is a known cause of erysipelas and cellulitis, and that patients with erysipelas and cellulitis can develop bacteremia. As to the final link in the causation chain, that *streptococcus pneumoniae* bacteremia can cause fatal pneumonia, Dr. Goldstein primarily relied on three articles published by Medscape. The first, *Pneumococcal Infections*, states in relevant part, "*S pneumoniae* can cause a wide variety of clinical symptoms, either by direct extension from the nasopharynx or by invasion and hematogenous spread." The article identifies "[o]titis media" as a condition that can develop with "direct

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[2] Hematogenous means "disseminated by the circulation or through the blood stream." *Dorland's Illustrated Medical Dictionary* (25th ed, 1974), p 689.

[3] *Daubert v Merrell Dow Pharm, Inc*, 509 U.S. 579; 113 S. Ct. 2786; 125 L. Ed. 2d 469 (1993).

extension . . . from the nasopharynx," and "[b]acteremia," "[j]oint and bone infections," "[c]ardiac infections **[*8]** (endocarditis and pericarditis)" and "[s]oft tissue infections (eg, cellulitis, myositis, periorbital cellulitis, and abscess)" as conditions that "may develop with invasion and hematogenous spread of *S pneumoniae*[.]" The article further explains, "pneumococci may reach normally sterile areas, such as the blood, peritoneum, cerebrospinal fluid, or joint fluid, by hematogenous spread after mucosal invasion."

A second Medscape article, *Bacterial Pneumonia*, instructs that "[b]acteria from the upper airways or, less commonly, from hematogenous spread, find their way to the lung parenchyma. Once there, a combination of factors (including virulence of the infecting organism, status of the local defenses, and overall health of the patient) may lead to bacterial pneumonia."[4] A third article, *Erysipelas in Emergency Medicine Follow-up*, lists "pneumonia" as a possible complication of erysipelas. The articles note that immunocompromised patients are at heightened risk for the development of bacteremia. At his *Daubert* deposition, Dr. Goldstein emphasized that Garcia's skin infection and its progression to pneumonia were unusual medical events, but scientifically both plausible and likely given the facts of this **[*9]** case.

The defense experts reiterated that streptococcus pneumonia cannot be contracted through bacteremia triggered by a skin infection caused by *streptococcus pneumoniae*. Dr. McIlroy, a defense expert, characterized Dr. Goldstein's theory as "bordering on ludicrous." Notably, none of the defense experts produced any medical literature refuting Dr. Goldstein's analysis. Instead, the defense experts contended that the Medscape articles cited by Dr. Goldstein were not "reliable" or "peer reviewed," although the latter claim is manifestly incorrect.[5]

Analyzing the factors listed in MCL 600.2955(1), the circuit court found that plaintiff failed to demonstrate that Dr. Goldstein's testimony had "been subjected to scientific testing and replication," and made no showing that Dr. Goldstein's specific opinion had been subjected to "direct peer review or publication." The defense experts' disagreement with Dr. Goldstein, the court continued, evidenced that the latter's opinion is not generally accepted in the relevant medical community. Nor was "the basis" for Dr. Goldstein's opinion reliable, the court found, as other experts in his field would not use it to reach the type of opinion Dr. Goldstein proffered. As to the final factor, MCL 600.2955(g), the court summarized:

> And the last factor is factor (g) Whether the opinion or methodology is **[*11]** relied upon by experts outside of the context of litigation. And, of course, there is some publication that talks about the occurrence here and that publication is general and generic. And as [defense counsel] points out, if you step back you can see that there are articles that say that the infection in the blood, the circumstances in the blood can cause the pneumonia that's caused here, bacteremia that's there. However, I can't find that factor (g) supports admission of the testimony.

Having determined that every § 2955 factor it considered weighed against admissibility, the court granted defendants' motion to exclude Dr. Goldstein's testimony. Because plaintiff could not prove proximate causation without Dr. Goldstein's assistance, the circuit court granted summary disposition to defendants pursuant to MCR 2.116(C)(10).

II.

This Court reviews for an abuse of discretion a circuit court's evidentiary rulings. *People v Farquharson*, 274 Mich App 268, 271; 731 NW2d 797 (2007). A circuit court's interpretation of the requirements of Rule 702 and MCL 600.2955, however, is subject to de novo review. *Elher v Misra*, 308 Mich. App. 276, 288; 870 N.W.2d 335 (2014). Thus, de novo review is appropriate when this Court assesses whether the circuit court performed its gatekeeping role in conformity with the legal principles articulated in *Gilbert v DaimlerChrysler Corp*, 470 Mich 749; 685 NW2d 391 (2004), in which our Supreme **[*12]** Court adopted the *Daubert* framework. *Elher*, 308 Mich App at 288. If the circuit court correctly executed its gatekeeping role, its ultimate decision to admit or exclude scientific evidence is evaluated for an abuse of discretion. *Craig v Oakwood Hosp*, 471 Mich 67, 76; 684 NW2d 296 (2004). When a circuit court

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[4] We must consider the evidence, including inferences, in the light most favorable to plaintiff. Given that pneumococcal pneumonia is one of the most common causes of bacterial pneumonia, it logically follows that this article encompasses pneumonias caused by *streptococcus pneumoniae* among those that can spread hematogenously. The inference that we have drawn from the article is entirely reasonable. See *Debano-Griffin v Lake County*, 493 Mich 167, 181-182; 828 NW2d 634 (2013).

[5] Medscape is an "open access" medical journal, which means that it "provide[s] access to trusted articles and data at no cost." *The End of Peer Review and Traditional Publishing as We Know It*, The Medscape Journal of Medicine, November 24, 2008, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2605128/> (accessed **[*10]** July 9, 2015). The articles cited by Dr. Goldstein identify the physicians who reviewed them. The reviewing physicians are listed at the end of the articles. For example, the *Pneumococcal Infections* article was reviewed by Thomas E. Herchline, M.D., a Professor of Medicine at Wright State University, Burke A. Cunha, M.D., a Professor of Medicine at the State University of New York School of Medicine at Stony Brook, and others.

excludes evidence based on an erroneous interpretation or application of law, it necessarily abuses its discretion. *Kidder v Ptacin*, 284 Mich App 166, 170; 771 NW2d 806 (2009).

We review de novo a circuit court's summary disposition ruling, considering the evidence submitted by the parties in the light most favorable to the non-moving party. *Walsh v Taylor*, 263 Mich App 618, 621; 689 NW2d 506 (2004).

III.

MRE 702 governs the admission of expert testimony:

> If the court determines that scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise if (1) the testimony is based on sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

The aspects of MRE 702 at issue here are whether Dr. Goldstein's testimony draws upon "reliable principles **[*13]** and methods," and whether he "applied the principles and methods reliably to the facts of the case."

MRE 702 incorporates the admissibility parameters set forth in *Daubert. Gilbert*, 470 Mich at 782. *Daubert* focuses on the reliability of an expert's methodology, not his or her conclusions. To assist judges in performing the requisite analysis, the Supreme Court outlined four factors that might assist judges in gauging reliability: 1) whether the expert's theory "can be (and has been) tested"; 2) whether the theory "has been subjected to peer review and publication"; 3) the theory's "known or potential rate of error" and the existence of "standards controlling the technique's operation"; and 4) the extent to which the methodology or technique employed by the expert is generally accepted in the scientific community. *Daubert*, 509 U.S. at 593-594.

The analysis required under MRE 702 does not hinge on discovering "absolute truth" or resolving "genuine scientific disputes." *Chapin v A & L Parts, Inc*, 274 Mich App 122, 127; 732 NW2d 578 (2007). "[I]t would be unreasonable to conclude that the subject of scientific testimony must be 'known' to a certainty; arguably, there are no certainties in science." *Daubert*, 509 U.S. at 590. Rather, the trial court is tasked with filtering out unreliable expert evidence. "The inquiry is into whether the opinion is rationally **[*14]** derived from a sound foundation." *Chapin*, 274 Mich App at 139. "The standard focuses on the scientific validity of the expert's methods rather than on the correctness or soundness of the expert's particular proposed testimony." *People v Unger*, 278 Mich App 210, 217-218; 749 NW2d 272 (2008). The United States Supreme Court emphasized in *Daubert*:

> The inquiry envisioned by Rule 702 is . . . a flexible one. Its overarching subject is the scientific validity—and thus the evidentiary relevance and reliability—of the principles that underlie a proposed submission. The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate. [*Daubert*, 509 U.S. at 594-595.]

In *Kumho Tire Co, Ltd v Carmichael*, 526 U.S. 137, 152; 119 S Ct 1167; 143 L Ed 2d 238 (1999), the United States Supreme Court revisited *Daubert* and clarified its teachings. One question presented in *Kumho* was whether a trial court evaluating proposed engineering expert testimony "*may* consider several more specific factors that *Daubert* said might 'bear on' a judge's gatekeeping determination." *Id.* at 149 (emphasis in original). The listed factors included:

> — Whether a "theory or technique . . . can be (and has been) tested";
>
> — Whether it "has been subjected to peer review and publication";
>
> — Whether, in respect to a particular technique, there is a high "known or potential rate of error" and whether there are "standards **[*15]** controlling the technique's operation"; and
>
> — Whether the theory or technique enjoys "general acceptance" within a "relevant scientific community." [*Id.* at 149-150 (alteration in original, citation omitted).]

The Supreme Court resolved the inquiry in the following manner: "Emphasizing the word 'may' in the question, we answer that question yes." *Id.* at 150.

The Court accented that the inquiry under Rule 702 is "'a flexible one'" in which the factors cited "do *not* constitute a 'definitive checklist or test.'" *Id.* (emphasis in original, citation omitted). Using language especially relevant to the case before us, the Supreme Court continued: "And *Daubert* adds that the gatekeeping inquiry must be 'tied to the facts' of a particular case." *Id.* This means that the *Daubert* factors "may or may not be pertinent in assessing reliability, depending on the nature of the issue, the expert's particular expertise, and the subject of the testimony." *Id.* The Court stressed that the applicability of the *Daubert* factors necessarily varies case by case, expert by expert. "Too much depends upon the particular circumstances of the particular case at issue" to impose hard and fast rules. *Id.* Thus,

when screening scientific evidence **[*16]** under MRE 702, a court must determine which factors reasonably measure reliability within a case-specific factual context.

Along with its MRE 702 gatekeeping duties, a trial court must also consider the factors listed in MCL 600.2955(1). *Clerc v Chippewa Co War Mem Hosp*, 477 Mich 1067, 1068; 729 NW2d 221 (2007). The Legislature dictated that the following factors inform a trial court's analysis under MRE 702:

> (1) In an action for the death of a person or for injury to a person or property, a scientific opinion rendered by an otherwise qualified expert is not admissible unless the court determines that the opinion is reliable and will assist the trier of fact. In making that determination, the court shall examine the opinion and the basis for the opinion, which basis includes the facts, technique, methodology, and reasoning relied on by the expert, and shall consider all of the following factors:
> (a) Whether the opinion and its basis have been subjected to scientific testing and replication.
> (b) Whether the opinion and its basis have been subjected to peer review publication.
> (c) The existence and maintenance of generally accepted standards governing the application and interpretation of a methodology or technique and whether the opinion and its basis are consistent with those standards.
>
> (d) The **[*17]** known or potential error rate of the opinion and its basis.
> (e) The degree to which the opinion and its basis are generally accepted within the relevant expert community. As used in this subdivision, "relevant expert community" means individuals who are knowledgeable in the field of study and are gainfully employed applying that knowledge on the free market.
> (f) Whether the basis for the opinion is reliable and whether experts in that field would rely on the same basis to reach the type of opinion being proffered.
> (g) Whether the opinion or methodology is relied upon by experts outside of the context of litigation.
> (2) A novel methodology or form of scientific evidence may be admitted into evidence only if its proponent establishes that it has achieved general scientific acceptance among impartial and disinterested experts in the field.
>
> (3) In an action alleging medical malpractice, the provisions of this section are in addition to, and do not otherwise affect, the criteria for expert testimony provided in [MCL 600.2169]. [MCL 600.2955.][6]

[6] According to the statute's plain terms, the trial court's task is to "consider" the factors in assessing reliability. To "consider" means to "1. to look at carefully; examine 2. to think about in order to understand or decide; ponder [to consider a problem] 3. to keep in mind; take into account . . . ." *Webster's New World Dictionary of the American Language* (2d College Ed), p 303. The language of § 2955 supports that the listed factors are adjuncts to the gatekeeping process, and not a definitive checklist that must be tallied.

Four of the seven factors identified in MCL 600.2955 [subparts (a)-(d)] derive directly from *Daubert*, 509 U.S. at 593-594, and overlap with MRE 702. This Court has held that each of the statutory factors need not favor the **[*18]** proposed expert's opinion. *Chapin*, 274 Mich App at 137 (opinion by DAVIS, J.). It suffices that "the opinion is rationally derived from a sound foundation." *Id.* at 139. A similar approach governs the application of FRE 703: "*Daubert* . . . made clear that its list of factors was meant to be helpful, not definitive. Indeed, those factors do not all necessarily apply even in every instance in which the reliability of scientific testimony is challenged." *Kumho*, 526 U.S. at 151.

We turn to the factors discussed by the court.

A.

MCL 600.2955(1)(a) asks whether an expert's "opinion and its basis have been subjected to scientific testing and replication." The circuit court found Dr. Goldstein's testimony deficient because the conclusions Dr. Goldstein **[*19]** expressed in this case have never undergone scientific testing. We are unsure how Dr. Goldstein's case-specific causation theory could *ever* be "subjected to scientific testing and replication." No reputable physician or scientist we can imagine would infect a patient's skin with *streptococcus pneumoniae*, fail to treat the resulting erysipelas or cellulitis, and watch to see what happened next. Nor can we envision a study that would allow untreated erysipelas to progress even to cellulitis. Given the rarity of the conditions at issue, "replication" of the case facts is at best impractical, and at worst dangerous. This factor was irrelevant and should not have informed the circuit court's judgment.

B.

The circuit court next relied on MCL 600.2955(1)(b), which addresses whether an "opinion and its basis have been subjected to peer review publication." In its bench ruling, the court rejected that plaintiff had met this guidepost, reasoning: "Certainly the individual steps that have taken place throughout the progression of the plaintiff's theory have been subjected to that, but no direct peer review or publication with respect to the causation that is attempted to be linked here."

We confess some confusion **[*20]** regarding the circuit court's meaning. By using the term "direct peer review" was the circuit

court's focus on whether Dr. Goldstein's specific opinion in *this* case was subjected to peer review? Or did the court intend to convey that in general, Dr. Goldstein's causation theory lacked peer review support? Either way, the court erred.

That Dr. Goldstein failed to publish an article setting forth the particular causation theory propounded here is hardly surprising. Garcia's skin infection and its consequences are unlikely to be of interest to the medical community, given the rarity (one hopes) of inadequately treated erysipelas. Nor is it even remotely likely such a case report would have been published and peer reviewed before Dr. Goldstein gave his deposition testimony. See *Daubert v Merrell Dow Pharm, Inc*, 43 F3d 1311, 1318 n 9 (CA 9, 1995) (*Daubert II*) ("There may well be good reasons why a scientific study has not been published. For example, it may be too recent or of insufficiently broad interest."). Furthermore, anecdotal case reports do not suffice to prove cause and effect. See *McClain v Metabolife Int'l, Inc*, 401 F3d 1233, 1253-1254 (CA 11, 2005); *Jones v United States*, 933 F Supp 894, 899 (ND CA, 1996).

In cases involving whether exposure to a marketplace drug or an environmental chemical caused injury, peer-reviewed studies testing causation theories may separate **[*21]** the scientifically-reliable wheat from the statistically-unproven chaff. Here, we deal with an issue more closely akin to pure science than to epidemiologically-proven relationships. Accordingly, as applied in this case, factor (b) contemplates whether peer-reviewed medical literature *generally* corroborates the scientific principles and methods advanced by an expert. And this record substantiates that it does.

The inquiry mandated by § 2955(1)(b) assists a court in assessing reliability by requiring an examination of whether the proponent of a causation theory can cite "objective, verifiable evidence that the testimony is based on 'scientifically valid principles.'" *Daubert II*, 43 F3d at 1317-1318. "One means of showing this is by proof that the research and analysis supporting the proffered conclusions have been subjected to normal scientific scrutiny through peer review and publication." *Id.* In *Edry v Adelman*, 486 Mich 634, 641; 786 NW2d 567 (2010), our Supreme Court observed that "peer-reviewed, published literature is not always a necessary or sufficient method of meeting the requirements of MRE 702[.]" In that case, "the lack of any supporting literature, combined with the lack of any other form of support" for the expert's opinion rendered it unreliable and inadmissible. **[*22]** *Id.* Notably, in *Edry*, the challenged expert's opinion "was contradicted by both the defendant's oncology expert and the published literature on the subject that was admitted into evidence[.]" *Id* at 640. "Moreover," the Supreme Court continued, "no literature was admitted into evidence that supported [the challenged expert's] testimony." *Id.*

It bears emphasis that this case involves a highly unusual constellation of facts. Bacterial skin infections are not rare, but skin infections so advanced that they require hospital admission for intravenous therapy are decidedly uncommon. *Streptococcus pneumoniae* skin infections that develop into bacteremia are even more unusual, as most skin infections successfully resolve with antibiotic therapy. Thus, the universe of patients akin to Garcia is small indeed, and it is hardly surprising that Dr. Goldstein could cite no studies discussing or describing identical patients. Rather, the salient question is whether the medical literature supports that the methodology Dr. Goldstein employed in reaching his opinion is scientifically sound.

Dr. Goldstein pointed to three articles published in a widely-read medical resource (Medscape) substantiating that when ***[*23]*** *streptococcus pneumoniae* bacteria enter the bloodstream, infection may result in the joints and bones, the heart, and the lungs. Hematogenous spread of *streptococci pneumoniae*, one article pointed out directly, can cause pneumonia, albeit rarely. See Kamangar, *Bacterial Pneumonia*, Medscape Reference: Drugs, Diseases & Procedures, October 12, 2012, p 1 ("Bacteria from the upper airways or, less commonly, from hematogenous spread, find their way to the lung parenchyma. Once there, a combination of factors . . . may lead to bacterial pneumonia."). Practicing physicians authored the Medscape articles, and other practicing physicians reviewed and edited them.[7] The articles demonstrated that Dr. Goldstein's theory rested on an accepted scientific foundation; in other words, he did not simply fabricate a causal link between pneumococcal bacteremia in the bloodstream and lung infection. The literature he cited supports that it happens, although rarely.

Rather than viewing this literature and the inferences reasonably drawn from it in the light most favorable to plaintiff, the circuit court gave credence to the defendants' experts' opinion that pneumonia caused by *streptococcus pneumoniae* bacteremia cannot occur, except in two circumstances not pertinent here. This was error not only because the literature says otherwise, but also because in rejecting Dr. Goldstein's opinion the circuit court weighed the experts' credibility rather than objectively analyzing

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[7] Defendants assert that the medical literature produced by Dr. Goldstein "is not peer-reviewed and fails to provide an evidence-basis for the statements made." This statement is incorrect, as the Medscape articles that we have cited specifically **[*24]** state the names of the reviewers, and include citations to other articles. Dr. Kamangar, who authored the article referencing hematogenous spread in bacterial pneumonia, is an associate professor of pulmonary medicine at the University of California, Los Angeles. Dr. Zab Mosenifar, director of pulmonary and critical care medicine at the Cedars Sinai Medical Center, University of California, Los Angeles, served as the primary editor of the article. Other named physicians also reviewed it.

the science they presented. The court discounted Dr. Goldstein's view based on the defense experts' testimony that Dr. Goldstein was wrong, rather than on an independent examination of the evidence **[*25]** plaintiff presented. Doing so contravened MRE 702 and MCR 2.116(C)(10).

The defense experts, primarily Dr. Sherman, opined that lung infection due to streptococcus pneumonia can occur through hematogenous spread only by way of septic emboli and right-sided endocarditis. Dr. Sherman produced no literature to support this *ipse dixit* pronouncement. Nor did Dr. Sherman offer any reasoned explanation as to how or why septic emboli or right-sided endocarditis involving *streptococcus pneumoniae* can cause pneumonia, but hematogenous spread cannot. Defendants insist that because plaintiff bears the burden of demonstrating that Dr. Goldstein's theory is reliable, defendants were under no obligation to produce any literature contradicting Dr. Goldstein. As a general proposition, we agree that the proponent of scientific evidence shoulders the burden of proving its reliability. However,

> where one party alleges that an expert's conclusions do not follow from a given data set, the responsibility ultimately falls on that challenging party to inform (via the record) those of us who are not experts on the subject with an understanding of precisely how and why the expert's conclusions fail to follow from the data set. Any failure **[*26]** by the challenging party to satisfy this responsibility is at that party's peril. [*Goebel v Denver & Rio Grande Western R Co*, 346 F3d 987, 990 (CA 10, 2003).]

See also *King v Burlington Northern Santa Fe Ry*, 277 Neb 203, 232-233; 762 NW2d 24 (2009).

Here, Dr. Goldstein put forth a causation theory and supported it with medical literature. Defendants claimed that the literature failed to support the proposition, and propounded a contradictory scientific proposition: that hematogenous spread of *streptococcus pneumonia* can *never* cause pneumonia except in two well-defined, irrelvant circumstances. Having affirmatively injected this scientific claim, defendants bore the burden of proving it. The circuit court adopted Dr. Sherman's view of the science despite that the only evidence supporting it was Dr. Sherman's say-so. The court exacerbated this error by rejecting the Medscape articles, based again on the defense experts' authority.[8]

Moreover, peer-reviewed medical literature *conclusively* establishing a causal relationship has never been required by any court applying *Daubert*. Such a rule flies in the face of *Daubert*'s theme that the admissibility of scientific evidence depends on "good grounds" rather than certainty. Here, peer-reviewed literature supplied "good grounds" for Dr. Goldstein's causation opinion in this medically unusual case.

C.

The circuit court further faulted Dr. Goldstein's testimony by finding it deficient under § 2955(1)(e), "[t]he degree to which the opinion and its basis are generally accepted in the relevant expert community." The court determined that the defense experts' strenuous rejection of the notion that hematogenously spread *streptococcus pneumoniae* verified that Dr. Goldstein's opinion is not generally accepted or reliable. But unlike the Medscape articles, the retained defense experts were far from **[*28]** neutral, objective resources. Indeed, Dr. Sherman testified that 15% of his income derives from serving as an expert witness in "legal matters," 90% of the time for the defense. Permitting a retained expert like Dr. Sherman to vouch for the beliefs of the "relevant expert community" is inconsistent with *Daubert* and MRE 702.

The court was tasked with the responsibility of sorting out whether the data, methodology, and literature advanced by Dr. Goldstein supported the conclusion Dr. Goldstein reached. This inquiry required a focus on the case facts, the literature on which Dr. Goldstein relied, and the method Dr. Goldstein used to apply the scientific information in the literature to the facts. Here, however, the court focused on the experts' ultimate proximate cause conclusions and selected the conclusion it believed rang truer, thereby conflating reliability with persuasiveness.

Where competing "experts' opinions are supported by evidence and sound scientific reasoning, the question of who is right is a question for the jury." *Milward v Acuity Specialty Prods Group, Inc*, 639 F3d 11, 23 (CA 1, 2011). "A factual dispute is best settled by a battle of the experts before the fact finder, not by judicial fiat. Where two credible experts disagree, it is the job of the **[*29]** fact finder, not the trial court, to determine which source is more credible and reliable." *City of Pomona v SQM North America Corp*, 750 F3d 1036, 1049 (CA 9, 2014). Here, published

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[8] At his deposition, Dr. Sherman referred to Medscape as "a low quality medical publication." In response to plaintiff's argument that the defense had failed to present articles rebutting Dr. Goldstein's theory, Dr. Sherman claimed that "nobody" would publish an article stating that "pneumococcal bacteremia does not lead to pneumonia." Perhaps Dr. Sherman is correct. But these assertions are not facts—they are opinions. **[*27]** Gatekeeping under MRE 702 does not involve cherry-picking which of several conflicting expert opinions to believe and which to discredit. Dr. Sherman's arguments about the articles are for the jury to evaluate, along with the rest of the evidence supporting or contradicting Dr. Goldstein's theory.

medical literature supports Dr. Goldstein's causation theory. Even if the intellectual provenance of Dr. Goldstein's testimony is doubtful, as Dr. Sherman insists, the adversary system is designed to resolve such debates through rigorous cross-examination, the introduction of countervailing evidence, and a jury instruction that plaintiff bears the burden of proof. That the defense experts vigorously disagreed with the Medscape authors and Dr. Goldstein simply did not render Dr. Goldstein's opinion unreliable.

Moreover, the "general acceptance" factor incorporated in § 2955(1)(e) generally relates to novel (new) scientific theories and therefore lacks relevance here.[9] The "general acceptance" test for admissibility was announced in *Frye v United States*, 293 F 1013 (DC Cir, 1923). *Frye* involved evidence derived from a "crude precursor to the polygraph machine." *Daubert*, 509 U.S. at 585. The Supreme Court identified the following "famous (perhaps infamous) passage" as encapsulating the *Frye* rule:

> "Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stage is difficult to define. Somewhere in this twilight **[*30]** zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, *the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs*." [*Id.* at 585-586, quoting *Frye*, 293 F at 1014 (emphasis in original).]

FRE 702 superseded the *Frye* test. In *Daubert*, the Supreme Court reasoned that *Frye* could not be reconciled with the letter or the spirit of the federal rules of evidence:

> [A] rigid "general acceptance" requirement would be at odds with the "liberal thrust" of the Federal Rules and their "general approach of relaxing the traditional barriers to 'opinion' testimony." Given the Rules' permissive backdrop and their inclusion of a specific rule on expert testimony that does not mention "general acceptance," the assertion that the Rules somehow assimilated *Frye* is unconvincing. *Frye* made "general acceptance" the exclusive test for admitting scientific testimony. That austere standard, absent from, and incompatible with, the Federal Rules of Evidence, should not be applied in federal trials. [*Daubert*, 509 U.S. at 588-589 (citations omitted).]

No objective, verifiable evidence presented to the circuit court addressed whether **[*32]** Dr. Goldstein's views lack "general acceptance." Accordingly, the "general acceptance" factor is not pertinent here, and the circuit court erred by relying on it to exclude Dr. Goldstein's testimony.

D.

Lastly we consider the circuit court's determination that despite the "general and generic" statements in the Medscape publications supporting Dr. Goldstein's methodology, "I can't find that factor (g) supports admission of the testimony." Factor (g) concerns whether "the opinion or methodology is relied upon by experts outside of the context of litigation."

The circuit court offered no meaningful explanation for its determination that factor (g) cuts against the admission of Dr. Goldstein's testimony, particularly in light of its directly contrary conclusion that "there are articles that say the infection in the blood, the circumstances in the blood can cause the pneumonia that's caused here, bacteremia that's there." Medscape is a publication designed to be read by doctors, not lawyers. The Medscape articles demonstrate that Dr. Goldstein's deductive methodology flows from accepted medical principles that bear no relationship to lawsuits. Simply put, the articles support that an infection **[*33]** caused by *streptococcus pneumoniae* can spread hematogenously to the lungs. By relying on this factor to exclude Dr. Goldstein's testimony, the circuit court erred.[10]

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[9] That Dr. Goldstein's theory is not novel is demonstrated by the following excerpt from an Indiana case decided in 1919:

> On this phase of the case the uncontradicted testimony of the attending physician is that on April 8, 1918, the wound resulting from Buanno's injury had not fully healed, there being at that time an open sore on the arm about an inch square, which became infected with erysipelas, causing the arm to become swollen to twice its normal size, and that this infection spread "over his neck to the side of his face, and finally developed into streptoccocal pneumonia." The attending physician also testified that:
>
> "There was no mistake in the diagnosis of the infection on the arm. It was erysipelas. There could be no such infection without some exterior brasure of the skin. There would have to **[*31]** be some point of entry. In my opinion the primary cause of this infection was the unhealed portion of his injury. It is rather common for pneumonia to follow such infection."
>
> It is our opinion that the evidence fully sustains the finding that Pasqualle Buanno died as a result of the injury he received . . . . [*Ft Wayne Rolling Mill Corp v Buanno*, 69 Ind App 464, 465-466; 122 NE 362 (1919).]

[10] The circuit court erred in determining that MCL 600.2955(1)(f) weighed against admission. This factor calls for an examination of "[w]hether the basis for the opinion is reliable and whether experts in that field would rely on the same basis to reach the type of opinion being proferred." The statutory factors involve substantial overlap. We have determined that the peer-reviewed materials upon which Dr.

IV.

Daubert and its progeny instruct that an inquiry into methodology does not encompass a determination of which expert's view seems more convincing. Nor does any case law mandate as a precondition of admissibility an expert possess first-hand experience with precisely the same medical condition **[*34]** at issue in the case. Rather, the gatekeeping obligation envisions an inquiry into the soundness of an expert's underlying methodology. If the thrust of the expert's reasoning finds purchase in the medical literature, or if the expert has reasonably extrapolated from an established scientific foundation, his or her testimony should be admitted for a jury's consideration.

Determining whether evidence is truly scientific is not simple. As Judge Alex Kozinski, who authored *Daubert II*, put it: "Federal judges ruling on the admissibility of expert scientific testimony face a far more complex and daunting task in a post-*Daubert* world than before." *Daubert II*, 43 F3d at 1315. MCL 600.2955 provides circuit courts with helpful guideposts in making this determination. Here, application of the guideposts supports rather than prohibits the admission of Dr. Goldstein's testimony. We emphasize that neither MRE 702 nor MCL 600.2955 require the party proffering expert testimony to "carry the burden of proving to the judge that the expert's assessment of the situation is correct." *Ruiz-Troche v Pepsi Cola of Puerto Rico Bottling Co*, 161 F3d 77, 85 (CA 1, 1998). The touchstone is reliability, not ultimate accuracy or believability.

In contrast with the defense experts' testimony, Dr. Goldstein's conclusions constituted neither purely subjective **[*35]** beliefs nor unsupported scientific allegation. The articles he cited demonstrate that the science he relies on does not qualify as "junk." Accordingly, a jury rather than the circuit court should determine whether Dr. Goldstein's opinions are more persuasive than those of the competing experts.

We reverse and remand for further proceedings consistent with this opinion. We do not retain jurisdiction.

/s/ Elizabeth L. Gleicher

/s/ Kirsten Frank Kelly

/s/ Deborah A. Servitto

Goldstein relied adequately support that "the basis for [his] opinion [was] reliable" and that other "experts in the field would rely on the same basis to reach the type of opinion being proffered." Moreover, the circuit court's brief assertion "that the plaintiff has failed in that respect as well" was too cursory to permit appellate review of its reasoning.

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EXHIBIT 23

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Stamler v. Oakland Physicians Med. Ctr., LLC

Court of Appeals of Michigan

March 10, 2016, Decided

No. 325261

Reporter
2016 Mich. App. LEXIS 472 *

JENNIFER STAMLER, a legally incapacitated person, by her guardian/conservator, PATRICIA STAMLER, Plaintiff-Appellant, v OAKLAND PHYSICIANS MEDICAL CENTER, LLC, d/b/a DOCTORS HOSPITAL OF MICHIGAN, ANUJ MITTAL, M.D., and MAMIN BADAWI, M.D., Defendants-Appellees, and PONTIAC GENERAL HOSPITAL AND MEDICAL CENTER, d/b/a NORTH OAKLAND MEDICAL CENTER, and JEETENDER S. MATHARU, M.D., Defendants.

Notice: THIS IS AN UNPUBLISHED OPINION. IN ACCORDANCE WITH MICHIGAN COURT OF APPEALS RULES, UNPUBLISHED OPINIONS ARE NOT PRECEDENTIALLY BINDING UNDER THE RULES OF STARE DECISIS.

Prior History: **[*1]** Oakland Circuit Court. LC No. 2012-128636-NH.

Judges: Before: SAAD, P.J., and SAWYER and HOEKSTRA, JJ.

Opinion

PER CURIAM.

In this medical malpractice action, the trial court entered a default judgment against defendant Oakland Physicians Medical Center (OPMC). That order constituted a final order.[1] Plaintiff now appeals as of right, challenging two previous orders entered by the trial court which granted summary disposition in favor of defendants Dr. Anuj Mittal and Dr. M-Amin Badawi. Because a factual question remains regarding whether Dr. Mittal's and Dr. Badawi's alleged negligence was a proximate cause of Stamler's injuries, we reverse the trial court's grant of summary disposition to these defendants and remand for further proceedings consistent with this opinion.

[1] MCR 7.202(1)-(6); MCR 7.203(A)(1).

I. FACTS & PROCEDURAL HISTORY

In December 2009, plaintiff Jennifer Stamler, a legally incapacitated person, was admitted to the psychiatric floor of Doctors Hospital of Michigan (DHM). Stamler had long suffered from schizophrenia, bipolar mood disorder, and various other mental illnesses. Once admitted to DHM, Stamler was placed in the care of Dr. Short, a psychiatrist, and Dr. Mittal, a family medicine practitioner, was Stamler's "medical **[*2]** consultant," meaning that he consulted in the treatment of Stamler's non-psychiatric medical issues as needed.

Shortly after Stamler's admission to DHM, Dr. Short ordered a urinalysis and urine culture when he suspected that Stamler was suffering from a urinary tract infection (UTI). Dr. Short also consulted Dr. Mittal, who started Stamler on Ciprofloxacin ("Cipro"), a broad spectrum antibiotic commonly used to treat UTIs. Notably, the urinalysis and urine culture revealed that Stamler had E. coli in her urine that was resistant to treatment with Cipro. Although the cultures showed the presence of bacteria, because the colony count was too low and Stamler was not experiencing clinical symptoms of a UTI, she was not diagnosed with a UTI. Dr. Mittal discontinued Cipro in December of 2009 because Stamler did not have a UTI.

In January 2010, doctors once again suspected that Stamler was suffering from a UTI. The urinalysis and urine culture conducted at that time again revealed that Cipro-resistant E. coli was present in Stamler's urine. However, because Stamler was not exhibiting clinical symptoms of a UTI, she was not treated with any antibiotic.

On February 11, 2010, Dr. Mittal once again **[*3]** suspected that Stamler had a UTI, given that she had a fever and other symptoms. Dr. Mittal ordered a straight catheter to obtain a urine sample. On February 12, 2010, Stamler showed an elevated temperature and she stated that she was not feeling well. Nurses attempted to contact Dr. Mittal. However, when Dr. Mittal could not be reached, nurses contacted Dr. Badawi, who had not previously seen Stamler. In response to the symptoms described by the nurses over the telephone, and without inquiring about previous urine cultures, Dr. Badawi

prescribed Cipro for Stamler.

Within several hours of Stamler's first dose of Cipro, Stamler was visited by Dr. Mittal and another doctor. Both doctors noted a likely UTI. Neither doctor changed Dr. Badawi's prescription for Cipro. Treatment with Cipro continued on February 13 and February 14.

On February 15, 2010, Stamler's health deteriorated rapidly. She was taken to the intensive care unit (ICU) with a diagnosis of septic shock, UTI, urosepsis, and aspiration pneumonia. Following admission to the ICU, Stamler's urine culture was returned showing, once again, Cipro-resistant E. coli. Her UTI and urosepsis were then treated with a range of different **[*4]** antibiotics. Stamler remained in the ICU for two months.

Stamler's sister, as her guardian and conservator, filed the instant malpractice suit, alleging that Dr. Badawi and Dr. Mittal were negligent for attempting to treat Stamler's UTI with Cipro in light of prior tests showing bacteria in Stamler's urine that was resistant to Cipro. Stamler asserted that this permitted the UTI to go untreated and resulted in sepsis and the long hospital stay. Stamler supported her claim of medical malpractice with the opinion of two expert witnesses: Dr. Stephan Hosea and Dr. Jeffrey Deitch.

Dr. Badawi moved for summary disposition pursuant to MCR 2.116(C)(10), arguing that there was no question of fact regarding causation. Specifically, he argued that he had a very limited role in Stamler's treatment, particularly given Dr. Mittal's subsequent treatment of Stamler. Further, Badawi asserted that Stamler provided only speculative causation evidence insofar as her expert, Dr. Hosea, ignored evidence showing that Stamler's condition improved on February 13, after receiving Cipro. According to Badawi, his very limited role, combined with the speculative causation evidence, required summary disposition in his favor. In **[*5]** response, Stamler argued that there was, at the very least, a question of fact regarding causation that should be left to the jury, and that the expert's testimony was not speculative.

Dr. Mittal later filed his own motion for summary disposition, making nearly identical arguments to Dr. Badawi's—that Stamler's theory of causation was speculative because Stamler showed improvement after being given the Cipro, and other doctors were also involved in the treatment. In response, Stamler argued that the theory of causation was not speculative, that there was a question of fact regarding whether Stamler improved with the Cipro, and that the medical records supported her expert's opinion.

After holding two separate hearings, the trial court granted Dr. Badawi's and Dr. Mittal's respective motions for summary disposition, based on the conclusion that the expert testimony on causation was speculative with respect to each doctors' role in causing Stamler's injuries. In particular, during both hearings, the trial court relied heavily on what the trial court believed to be a fact in evidence—that Stamler had suffered a UTI in December 2009 and treatment with Cipro, despite the urine culture showing **[*6]** Cipro-resistance, worked. Based on its belief that Cipro previously "worked" in the treatment of Stamler's Cipro-resistant UTI, the trial court reasoned that Stamler could not show that Cipro was the cause of her injuries or that a different antibiotic would have prevented sepsis. Thus, the trial court concluded that Stamler had not presented sufficient evidence on the element of causation to survive Dr. Badawi's and Dr. Mittal's respective motions for summary disposition.

After the various other defendants in the case were disposed of, Stamler filed the instant appeal, arguing that the trial court should not have granted summary disposition to either Dr. Badawi or Dr. Mittal based on causation.[2] Stamler contests the assertion that her experts presented speculative testimony. In particular, she contends that the trial court erred by concluding that she benefited from Cipro in December because, in actuality, she did not have a UTI at that time. Regarding the assertion that her condition initially improved in February following treatment with Cipro, Stamler contends that the experts disagree on the interpretation of her symptoms, such that a question remains for the jury. Stamler emphasizes **[*7]** her rapid deterioration on February 15, and she argues that, notwithstanding claims that Cipro "worked", the undisputed facts show that the bacteria were resistant to Cipro and could *not* be treated with Cipro. Finally, Stamler argues that there can be more than one proximate cause of an injury, such that treatment by more than one doctor does not preclude a finding that both Badawi and Mittal are proximate causes of her injuries. Ultimately, given the causation evidence offered by Dr. Hosea and Dr. Deitch,

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[2] Dr. Badawi asserts on appeal that the trial court's summary disposition order amounted to an order striking plaintiff's expert witness, Dr. Hosea, as an expert. However, the record is plain that there was no motion to strike Dr. Hosea's testimony, the trial court never ordered such evidence stricken, and the only order on review is the order to grant summary disposition based on lack of evidence for causation. Because there was no motion to strike this testimony and the trial court entered no such order, we will not consider this unpreserved question of whether the expert testimony should have been stricken. See *Hines v Volkswagen of Am, Inc*, 265 Mich App 432, 443; 695 NW2d 84 (2005). Indeed, **[*8]** Badawi and Mittal waived this issue by failing to properly raise the matter in the trial court. *Craig v Oakwood Hosp*, 471 Mich 67, 82; 684 NW2d 296 (2004). In any event, as discussed *infra*, there is nothing speculative about Dr. Hosea's opinion and no basis for striking his testimony.

Stamler argues that a fact question remains regarding causation.

II. STANDARD OF REVIEW

"This Court reviews decisions on motions for summary disposition de novo to determine if the moving party was entitled to judgment as a matter of law." *Alcona Co v Wolverine Environmental Prod, Inc*, 233 Mich App 238, 245; 590 NW2d 586 (1998). A motion for summary disposition under MCR 2.116(C)(10) "tests the factual sufficiency of the complaint." *Joseph v Auto Club Ins Assoc*, 491 Mich 200, 206; 815 NW2d 412 (2012). "In evaluating a motion for summary disposition brought under this subsection, a trial court considers affidavits, pleadings, depositions, admissions, and other evidence submitted by the parties, MCR 2.116(G)(5), in the light most favorable to the party opposing the motion." *Maiden v Rozwood*, 461 Mich 109, 120; 597 NW2d 817 (1999). Summary disposition is proper where there is no "genuine issue regarding any material fact." *Id.*

III. ANALYSIS

A plaintiff in a medical malpractice action must establish four elements: "(1) the applicable standard of care, (2) breach of that standard of care by the defendant, (3) injury, and (4) proximate causation between the alleged breach and the injury." *Woodard v Custer*, 473 Mich 1, 6; 702 NW2d 522 (2005) (citation omitted). "Generally, expert testimony is required in medical malpractice **[*9]** cases." *Id.* Regarding causation, "'[p]roximate cause' is a legal term of art that incorporates both cause in fact and legal (or 'proximate') cause." *Craig*, 471 Mich at 86. See also MCL 600.2912a(2).

> The cause in fact element generally requires showing that "but for" the defendant's actions, the plaintiff's injury would not have occurred. On the other hand, legal cause or "proximate cause" normally involves examining the foreseeability of consequences, and whether a defendant should be held legally responsible for such consequences. [*Craig*, 471 Mich at 86-87, quoting *Skinner v Square D Co*, 445 Mich 153, 163; 516 NW2d 475 (1994).]

"[I]t is well-established that there can be more than one proximate cause contributing to an injury." *O'Neal v St John Hosp & Med Ctr*, 487 Mich 485, 496; 791 NW2d 853 (2010). Consequently, to establish proximate causation, a plaintiff need not demonstrate that an act or omission was the "*sole* catalyst for his injuries," but he "must introduce evidence permitting the jury to conclude that the act or omission was *a* cause." *Craig*, 471 Mich at 87.

"As a matter of logic, a court must find that the defendant's negligence was a cause in fact of the plaintiff's injuries before it can hold that the defendant's negligence was the proximate or legal cause of those injuries." *Id.* "Normally, the existence of cause in fact is a question for the jury to decide, but if there is no issue of material fact, **[*10]** the question may be decided by the court." *Genna v Jackson*, 286 Mich App 413, 418; 781 NW2d 124 (2009). "Cause in fact may be established by circumstantial evidence, but the circumstantial evidence must not be speculative and must support a reasonable inference of causation." *Ykimoff v Foote Mem Hosp*, 285 Mich App 80, 87; 776 NW2d 114 (2009) (citation omitted). A plaintiff must put forth proof that amounts to "a reasonable likelihood of probability rather than a possibility. The evidence need not negate all other possible causes, but such evidence must exclude other reasonable hypotheses with a fair amount of certainty." *Skinner*, 445 Mich at 166 (internal quotation and citation omitted). "Summary disposition is not appropriate when the plaintiff offers evidence that shows that it is more likely than not that, but for defendant's conduct, a different result would have obtained." *Robins v Garg (On Remand)*, 276 Mich App 351, 362; 741 NW2d 49 (2007) (citation and quotation marks omitted).

In comparison to a cause in fact, legal or proximate cause "is that which, in a natural and continuous sequence, unbroken by new and independent causes, produces the injury." *Wiley v Henry Ford Cottage Hosp*, 257 Mich App 488, 496; 668 NW2d 402 (2003). Thus, consideration of proximate causation requires "an independent, searching inquiry, the focus of which is whether the result of conduct that created a risk of harm and any intervening causes were foreseeable." *Jones v Detroit Med Ctr*, 490 Mich 960; 806 NW2d 304 (2011). "An intervening cause breaks **[*11]** the chain of causation and constitutes a superseding cause which relieves the original actor of liability, unless it is found that the intervening act was 'reasonably foreseeable.'" *Auto Owners Ins Co v Seils*, 310 Mich App 132, 157; 871 NW2d 530 (2015), quoting *McMillian v Vliet*, 422 Mich 570, 576; 374 NW2d 679 (1985). Negligent medical care in the treatment of an injury is typically considered foreseeable. *Richards v Pierce*, 162 Mich App 308, 317; 412 NW2d 725 (1987). See also *People v Schaefer*, 473 Mich 418, 437; 703 NW2d 774 (2005). Moreover, "[a]n act of negligence does not cease to be a proximate cause of the injury because of an intervening act of negligence, if the prior negligence is still operating and the injury is not different in kind from that which would have resulted from the prior act." *Taylor v Wyeth Labs., Inc*, 139 Mich App 389, 401-402; 362 NW2d 293 (1984). Proximate causation and whether an intervening negligent act constitutes a superseding cause is typically a question for the jury. *139 Mich App* at 402; *Richards*, 162 Mich App at 317.

A. DR. MITTAL

In this case, as noted, Dr. Badawi initially prescribed Cipro to

Stamler on February 12, 2010. Thereafter, Dr. Mittal saw Stamler later that same day and on other occasions, when he could have altered the course of treatment. Instead, Dr. Mittal concurred in Dr. Badawi's prescription, and continued Stamler on Cipro, despite knowing of Stamler's previous urine cultures showing the presence of Cipro-resistant bacteria in Stamler's system. To establish that Mittal acted negligently in **[*12]** his treatment of Stamler with Cipro, and to establish that this breach of the standard of care caused Stamler's subsequent injuries, Stamler presented expert testimony from Dr. Hosea and Dr. Deitch.

According to these experts, it is a breach of the standard of care to prescribe an antibiotic for an infection if a doctor knows that particular infection is resistant to that antibiotic or when, as in this case, the doctor knows of previous cultures demonstrating the presence of bacteria resistant to the antibiotic in question. As explained by the experts, bacteria resistant to a particular antibiotic becomes part of a person's flora of bacteria, such that it would be highly unlikely a subsequent UTI would be caused by something other than the bacteria found in the previous cultures. For this reason, because Dr. Mittal was aware of the past cultures showing Cipro-resistant bacteria, Stamler's experts opined that he should not have used Cipro in February of 2010 to treat Stamler's UTI. Dr. Hosea and Dr. Deitch identified several alternative medications that should have been used under the circumstances to treat Stamler's UTI.

These experts also testified that Dr. Mittal's improper use of **[*13]** Cipro to treat Stamler in February of 2010 caused her subsequent illness and hospital stay. To begin with, these experts explained the simple proposition that bacteria that are resistant to an antibiotic cannot be treated by that antibiotic. For example, Dr. Hosea specified that if bacteria are resistant to Cipro, Cipro cannot possibly work in the treatment. In Stamler's case in particular, urine cultures conducted in February 2010 confirmed that Stamler's infection was resistant to Cipro, meaning that Cipro could not work as a treatment and thus, given Dr. Mittal's negligence, Stamler's UTI effectively went untreated until she was admitted to the ICU on February 15. Dr. Hosea described in detail how this untreated UTI led to Stamler's sepsis and related issues as follows:

> When the urinary tract infection became symptomatic based on her fever and her tachycardia, that meant that she had a systemic response to this infection. If that systemic response to this infection is not treated, then the systemic response continues such as it caused the kidneys to shut down, the lungs to shut down, the heart cardiovascular system to shut down so that people develop shock requiring powerful medicines **[*14]** to try and restore their circulation, their renal function as well as their respiratory function.

When asked if a different antibiotic would have caused a different outcome, Dr. Hosea stated "it would have definitely altered her outcome." He explained: "[w]ell, she only had systemic inflammatory response syndrome initially and the antibiotics would have treated the infection in her bladder so that she more likely than not would not have gone on to develop septic shock." Dr. Hosea stated specifically that a change in antibiotic up until 24 hours before Stamler's deterioration on February 15, would have made a difference in her outcome, in that she would have avoided septic shock. Dr. Hosea testified that the prescription and continuation of Cipro "more likely than not caused [Stamler's] subsequent complications," including "septic shock, respiratory failure, pulmonary embolism, the aspiration pneumonia, the empyema pneumonia and decortication[.]" Dr. Deitch likewise opined that "if a different antibiotic would have been given, [Stamler] would have not had sepsis."

Considering this testimony, a question of fact clearly remains regarding whether Dr. Mittal constituted a proximate cause of Stamler's **[*15]** injuries. That is, contrary to the trial court's conclusions, Stamler presented expert testimony that Mittal's improper continuation of a course of treatment involving Cipro resulted in Stamler's development of septic shock and an array of other issues. In other words, the chain of causation described by Stamler's experts leads straight from Dr. Mittal's continuation of an inappropriate antibiotic to Stamler's urosepsis and lengthy ICU stay. Because Stamler offered evidence to show that it is more likely than not that, but for Mittal's conduct, a different result would have been obtained, summary disposition was improper. *Robins*, 276 Mich App at 362.

In contrast to this conclusion, Dr. Mittal contends on appeal that summary disposition was appropriate because (1) treatment by other doctors precludes a finding of proximate causation and (2) Stamler's expert testimony was speculative insofar as it ignored facts in evidence, such as Stamler's improvement while taking Cipro. These arguments are without merit. First, there can be more than one proximate cause, *O'Neal*, 487 Mich at 497, and Stamler clearly presented expert testimony to support her position regarding Mittal's proximate role in causing her injury. While this testimony is not **[*16]** dispositive, it is sufficient to raise a question of fact to defeat Mittal's motion for summary disposition.

Second, contrary to Dr. Mittal's arguments and the trial court's findings, Stamler's experts did not ignore facts in evidence and we see nothing speculative in their expert opinions. When offering an opinion, experts may not make assumptions that are not in accord with established facts; but, experts are free to disagree regarding the "interpretation" of the facts presented.

Robins, 276 Mich App at 363. Such disagreement among experts evinces a question for the jury which should not be resolved by the trial court incident to a motion for summary disposition. *Id.* See also *Lenawee Co v Wagley*, 301 Mich App 134, 166; 836 NW2d 193 (2013) ("Disagreements pertaining to an expert witness's interpretation of the facts are relevant to the weight of that testimony and not its admissibility."). Consequently, in this case, given the opinions of Stamler's experts, the trial court erred by concluding as a factual matter that Stamler previously benefited from Cipro in December of 2009, such that it could not be the cause of her injuries in February of 2010. In reaching this conclusion, the trial court disregarded the testimony of Stamler's experts, resolved factual questions of **[*17]** causation, and failed to view the record in a light most favorable to Stamler.[3] Likewise, insofar as Mittal argues that Cipro cannot be a cause of Stamler's injuries because she initially improved on Cipro in February, this argument ignores Stamler's expert testimony and fails to view the record in a light most favorable to Stamler. To the extent there was debate among the doctors regarding the propriety and efficacy of Cipro for Stamler's treatment in February 2010, this issue was one of fact for the jury.[4] See *Robins*, 276 Mich App at 363. Mittal is free to present opposing evidence at trial and to disagree with Stamler's experts' interpretation of the facts, but such disagreement at the summary disposition stage merely evinces the existence of a material question of fact. See *id.*; *Lenawee Co*, 301 Mich App at 166. Because a question of fact remained regarding proximate causation, the trial court erred by granting summary disposition to Mittal.

B. DR. BADAWI

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[3] Indeed, as Stamler emphasizes on appeal, there was no factual support at all for the trial court's conclusion that Stamler benefited from Cipro in December. In actuality, it is undisputed that doctors ceased treatment with Cipro in December of 2009, not because it "worked," but because Stamler did *not* ***[*18]*** have a UTI at that time.

[4] Specifically, Mittal emphasizes that there is evidence that, on February 13 and 14, Stamler's temperature dropped and she subjectively reported feeling better. However, the import of these facts is a question in dispute among the experts. That is, while Mittal claims that these facts demonstrate that Stamler benefited from Cipro, Dr. Hosea testified that a patient's illness may vary from one day to another, regardless of treatment, that people have naturally lower temperatures in the mornings, and that Stamler's subjective reports of good health should be taken lightly considering her volatile mental state. Moreover, notwithstanding any purported improvement, the facts show that Stamler rapidly deteriorated on February 15 and Dr. Hosea opined that Cipro could not treat a Cipro-resistant bacteria. In short, Dr. Mittal's interpretation of Stamler's symptoms does not entitle him to summary disposition given Stamler's expert testimony on causation. See *Robins*, 276 Mich App at 363.

With regard to Dr. Badawi, as noted, Dr. Badawi initially prescribed Cipro for Stamler on February 12. At that time, Dr. Badawi failed to inquire about possible past urine cultures, which were part of **[*19]** Stamler's medical record and which would have showed the presence of Cipro-resistant bacteria in Stamler's urine. Dr. Hosea opined that Dr. Badawi breached the standard of care by prescribing Cipro without inquiring about possible cultures before prescribing an antibiotic. As discussed above, Dr. Hosea also opined that treatment with Cipro in Stamler's case violated the standard of care given the past tests showing the presence of Cipro-resistant bacteria in Stamler's urine and the high likelihood that her UTI in February would have resulted from the same bacteria. As discussed in more detail *supra*, according to Dr. Hosea's expert opinion, as a result of the improper treatment with Cipro, which could not work to treat Stamler's Cipro-resistant infection, Stamler's UTI went untreated and this untreated UTI resulted in sepsis and a host of other issues. Given Dr. Hosea's expert opinion, the trial court erred by granting summary disposition to Dr. Badawi because Stamler offered evidence to show that it is more likely than not that, but for Dr. Badawi's negligent prescription of Cipro, a different result would have been obtained. See *Robins*, 276 Mich App at 362.

Like Dr. Mittal, Dr. Badawi argues on appeal that summary **[*20]** disposition was appropriate because (1) Dr. Hosea's expert testimony was speculative insofar as it ignored established facts, and (2) treatment by other doctors precludes a finding that Dr. Badawi's prescription of Cipro proximately caused Stamler's injuries. These arguments lack merit. First, as with Dr. Mittal's arguments, Dr. Badawi's assertion that Dr. Hosea provided speculative testimony simply because he disagrees with Badawi's interpretation of the facts is without merit for the reasons discussed *supra*. Certainly there is disagreement among the doctors, but this disagreement merely establishes the existence of a fact question for the jury. See *Robins*, 276 Mich App at 363; *Lenawee Co*, 301 Mich App at 166.

Second, with regard to treatment by other doctors, Dr. Badawi's argument ignores the basic principle that there can be more than one proximate cause of an injury. *O'Neal*, 487 Mich at 497. Other doctors may have also treated Stamler, but the fact nonetheless remains that Stamler presented expert testimony to support the proposition that, but for Badawi's alleged negligence, Stamler's injuries would have been avoided. Indeed, to the extent Dr. Badawi emphasizes that Dr. Mittal's negligent failure to discontinue Cipro came *after* Dr. Badawi's negligent prescription **[*21]** of Cipro, a question of fact remains for the jury regarding whether Mittal's negligence should be seen as a superseding cause. See *Taylor*, 139 Mich App at 401-402. That is, negligent medical treatment is typically considered foreseeable, *Richards*, 162 Mich App at 317, and reasonably foreseeable

negligence does not relieve an actor of responsibility, *Auto Owners Ins Co*, 310 Mich App at 157. Viewing the record in a light most favorable to Stamler, reasonable minds could conclude that Dr. Mittal's negligence in failing to modify Dr. Badawi's improper Cipro prescription was foreseeable, meaning that a question of fact remains for the jury regarding whether Mittal's negligence should be seen as a superseding cause. See *Taylor*, 139 Mich App at 401-402. Thus, the trial court erred by granting summary disposition to Badawi based on the issue of causation.

Reversed and remanded for further proceedings. Plaintiff being the prevailing party, may tax costs pursuant to MCR 7.219. We do not retain jurisdiction.

/s/ Henry William Saad

/s/ David H. Sawyer

/s/ Joel P. Hoekstra

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