**MEMORANDUM**

TO: Leo Evans, P.E., Director of Public Works, City of Muskegon

FROM: Matthew Farrar, Public Works Director, County of Muskegon

DATE: April 22, 2021

SUBJECT: Eastside Water System Concerns

This is a follow up to our January 10, 2021 meeting during which we discussed the issues relative to the County’s Eastside Water System and the maintenance the City of Muskegon (“City”) performs on the County’s Northside and Eastside Water Systems. You requested, and I agreed to outline the County’s issues and suggest potential solutions for discussion purposes. The intent of this communication is to make sure we both understand the issues so further discussions are productive.

Key concerns that need to be addressed include:

1. The current rate structure results in Customer Communities paying for in-City customer costs
2. The 25% surcharge applied to Customer Communities is excessively burdensome and without clear justification
3. Maintenance services provided by the City at full cost to the County are critical to County operations and should not be eliminated
4. The County, particularly its Eastside System, is obligated to pay for a substantially disproportionate share of water loss
5. Despite contractual agreements to provide water at operational head levels to Customer Communities, the County receives water for its Eastside System at zero head and must pay capital and operating expenses to boost pressure to operational levels, including water provided to the City’s customers in the industrial park and to the WMRWA system
6. The Channel Crossing will present new challenges and opportunities for both the County and the City, including provision of water to North Muskegon. It is in the best interest of all parties to proactively address these issues prior to the Channel Crossing becoming fully operational

**Background**

**Rate Structure Disproportionally Recovers Costs**

The City owns and operates a water filtration plant that supplies water to its distribution system. From its distribution system, the City supplies water to the City of North Muskegon, City of Roosevelt Park, and the County of Muskegon’s Northside and Eastside Systems (collectively referred to as “Customer Communities”).

Customer Communities disproportionally participate in all costs related to the City’s water filtration plant and distribution system. The Agreement for Municipal Water Supply effective October 1, 2012 between the City and its Customer Communities sets the commodity rate for Customer Communities the same as City customers plus a 25% surcharge. This leads to the following inequities relative to the City’s distribution system costs:

* Customer Communities disproportionally participate in the City’s cost to fix water main breaks, plus pay for their own water main breaks;
* Customer Communities disproportionally participate in the City’s cost for sampling, plus pay for their own sampling;
* Customer Communities disproportionally participate in the City’s cost of water service installation, repair, and replacement plus pay their own water service installation, repair, and replacement costs;
* Customer Communities disproportionally participate in the City’s cost for meter installation, replacement, and reading, plus pay the cost for their own meter installation, replacement, and reading;
* Customer Communities disproportionally participate in the City’s cost to flush hydrants, turn valves, and perform general maintenance plus their own costs to flush hydrants, turn valves, and perform general maintenance; and
* Customer Communities disproportionally participate in the City’s cost to replace lead services lines[[1]](#footnote-1), even the lines on private property, plus the costs to replace their own lead service lines.

Previously the City had a ready-to-serve charge on its customer’s accounts that covered some costs outlined above. Based on a recommendation by the engineer who performed a ‘cost of service study’, by misapplying the Bolt vs. Lansing Supreme Court decision, the ready-to-serve charge was removed[[2]](#footnote-2) to shift more costs on to the Customer Communities. By recovering all costs on the commodity rate, which the Customer Communities pay a multiplier on, a higher percentage of the City’s distribution and filtration costs shifted to the Customer Communities.

Since the Customer Communities are participating in all of the City’s distribution maintenance costs at a higher proportion, it would not be unreasonable for the City to perform the maintenance on the Customer Communities distribution systems at no additional charge above the established commodity rate.

Since the Customer Communities need a *portion* of the City’s distribution system for water supply, they should only participate in a *portion* of the City’s distribution costs, primarily the larger transmission mains. Customer Communities do not need and should not participate in the cost to operate, maintain, and replace in-City distribution mains (i.e. water mains 8” or smaller) that are not hydraulically necessary to supply water to the Customer Communities.

Chapter 94, Section 94-63 of the City’s Utilities Ordinance does not have a provision to charge connection fees to its new water distribution customers, outside of immediate and direct costs (service line). It is typical in the water industry to have a connection fee that serves as a “buy in” to reimburse the utility of past costs incurred to construct a system with adequate capacity and reliability. Without such fees, improvements, replacements, and upgrades made to serve new developments are paid by the Customer Communities disproportionally.

**City Water Loss Cost Allocation**

Exacerbated by the above rate methodology, the City does not pay for the water loss in its distribution system. All water systems have water loss. The City’s Customer Communities are master metered. Any and all water loss occurring in the Customer Communities’ distribution systems is paid by the Customer Communities. The cost of the City’s water loss in its distribution systems is in the rate which the Customer Communities pay a disproportional share. With all costs being on the commodity rate, there is no mechanism for the City to pay for water loss within its distribution system because the City does not master meter its water for billing purposes. The commodity rate is calculated based on billed flow which is innately unfair to the Customer Communities. Cost for water loss due to leaks and main breaks that sometimes go several days before being repaired are disproportionally placed on the shoulders of the Customer Communities, whereas the Customer Communities pay for all water lost from water main breaks in their respective distribution systems.

A more reasonable rate structure is for the City to cover the cost of water leaving the plant, less the water master metered to the Customer Communities. Such a mechanism does not exist in the current rate structure for the Customer Communities but is in place for the West Michigan Regional Water Authority (“WMRWA”) whose rate is based on total flow and not billed flow.

While this communication is primarily focused on the Eastside System and City issues with maintenance, there are solutions that would address the disproportionate cost recovery rate structure and water loss allocation in the City’s distribution system:

Solutions for the disproportional rate structure and cost recovery method:

* Have a professional study and identify which portion of the City’s distribution costs incurred and should be recovered from the Customer Communities and adopt a rate structure that appropriately allocates costs. This could be accomplished in many ways:
  + Have a professional recommend a ready-to-serve for the City’s customers[[3]](#footnote-3) to cover some costs incurred in the City’s distribution system that are not necessary to serve Customer Communities, or
  + Change rate multipliers.
* Revisit the rate structure proposal titled “*Muskegon Metro Area Consolidated Water Service Proposal*” presented by the City of Muskegon on July 7, 2011.

Water loss allocation solution:

* Institute a ready-to-serve charge to the City’s distribution customers or a different commodity charge could be applied that would allocate City distribution losses fairly.

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**County Issues**

**Eastside Metering**

The City’s Industrial Park is located in the County’s Eastside System. The County’s customers in the Eastside System are not master metered separately from the City’s Industrial Park customers. All water supplied to the Eastside System is master metered with the City’s Industrial Park customers deducted, at par, based on meter readings at each of the 232 facilities, from the master meter readings with the County paying the balance. The City’s Industrial Park customers use 47%[[4]](#footnote-4) of all water pumped to the Eastside System.

This billing method is infamously known as the ‘deduct method’ so loathed by the City. This results in the County paying for all water loss in the Eastside System *and* in the City’s Industrial Park. The City’s Industrial Park accountability is always 100% (unheard of in the industry) because it only pays for the exact amount it deducts from the total flow metered into the Eastside System. The County is paying for water loss for the Industrial Park and for water supplied to the WMRWA[[5]](#footnote-5) in the following manner:

* All meters have some loss, but with the deduct method, none of the meter loss is paid by the City:
  + Each meter has its own inherent error range. Deducting so many meter reads from the one master meter increases the cumulative error and total loss at the County’s expense;
  + Naturally occurring errors of metering the 232 Industrial Park customers is unfairly biased against the Eastside System;
  + When meters slow down, are not in calibration, or become inoperable, the County covers the water loss expense;
  + Meters are known to have electronic losses. Electronic loss occurs when there are discrepancies between the signaled read and the actual volume recorded on the meter. Any electronic losses in the City’s Industrial Park are paid by the County; and
  + The Eastside System bears 100% of the accumulated meter errors.
* A recent fire in the Industrial Park that, according to City estimates, used 5,000,000 gallons of water from hydrants was not metered and paid by the County;
* Water used for hydrant flushing in the Industrial Park is not metered and paid by the County;
* Water used to conduct flow test in the Industrial Park is not metered and paid by the County;
* Water from hydrants used to fill sewer trucks and street sweepers in the Industrial Park and by Muskegon’s DPW Building is not metered and paid by the County; and
* The County pays for the water loss for water supplied to the WMRWA through the Black Creek booster station.

Data from 2019 (most recent available) indicates the Eastside System is disadvantaged by the deduct method of billing. The following shows the billed water loss for the Customer Communities and Muskegon in 2019:

|  |  |
| --- | --- |
| **Community** | **2019 % of Billed Water Loss** |
| City of Muskegon | 0.00% |
| City of Roosevelt Park | 5.70% |
| City of North Muskegon | 12.00% |
| County Northside System | 6.58% |
| County Eastside System | **24.58%** |

The loss experienced by the Eastside System is an outlier on the normal distribution scale and is the only Customer Community billed based on the deduct method. Accuracy in billing to all Customer Communities is more important than ever because of the large amount of recent capital investments in the City’s and County’s distribution systems. The County is in the process of increasing water rates again, which is difficult to do as Staff has no cogent explanation for the Water System Policy Board as to why the Eastside System continues to pay for all water loss in the City’s Industrial Park in addition to the innate unfairness of the cost recovery structure.

The City and County agree the deduct method is not appropriate. Attached is a letter, dated September 26, 2008, from the City to the County’s Department of Public Works, and a letter dated November 3, 2008 from the City to the Municipal Wastewater Users relative to the deduct method the County used for calculating the City’s sewer usage and bills. Ultimately, the County spent nearly $1,160,000 to change from deduct metering to master metering to calculate the City’s sewer bills. The attached letters clearly outline the City’s position on the deduct method of metering. As stated by the City, the County also “*remains convinced that all loss should be shared proportionally*.”

**Solutions:**

* Make all customers east of US31 County Eastside System customers;
* Bill the County for all Eastside System water use based on its customer meter reads. This is exactly what is being done with the City’s Industrial Park customers;
* For the City’s deduct customers east of US31, apply a multiplier to the deduction equal to the previous year’s total Eastside System’s loss. For example, if the total water loss in the Eastside system is 25%, when the City deducts its customer reads from the total master meter readings, the deduction would be at 125%. This would only assign total system loss proportionally and would not address other losses outlined above; or
* Install master meters at each point the Eastside System enters the City’s Industrial Park.

**Operational Head Levels and Cost Allocation**

Customer Communities and the WMRWA are supplied water from the City at operational head levels (up to 788.25z). The cost to pump water to operational head levels is incurred at the filtration plant with the Customer Communities disproportionally covering this cost through the established commodity rate.

The Eastside System, however, receives its water at zero head and therefore must pay to pump its water from the Keating[[6]](#footnote-6), Harvey, and Quarterline booster stations. Furthermore, the County pays the cost to pump water used by City customers located in the Industrial Park *and* for water supplied to the WMRWA through the Eastside System. The City’s Industrial Park and WMRWA use 47% of the water pumped to the Eastside System. This is structurally unfair to the Eastside System, that:

1. Disproportionally participates in the cost to pump water to operational head levels to the City, Customer Communities, and the WMRWA, and
2. Pays 100% of the cost to pump water to operational head levels to the City’s Industrial Park customers in the Eastside System, the WMRWA, and to its own from **zero** head.

**Solution:** City take ownership of the Keating, Harvey, and Quarterline booster stations and make the same part of the filtration and pumping portion of the overall rate.

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**City Issues**

**Maintenance Agreements**

According to the City, staffing levels in its Water Department are no longer adequate to meet its increasing maintenance needs and would benefit by not being burdened with services provided to the Northside and Eastside Systems.

Since the County is paying for the City’s distribution costs at a higher percentage than City customers, it is preferred the County retains the City’s services on a time-and-material basis. For the County to participate in a higher proportion of the City’s distribution system, most of which it does not need, it seems very fair to the City to charge T&M for work performed in the County’s systems.

The City has performed the maintenance on the Northside System since it was constructed in the late 1980’s. The maintenance work for the Northside System was covered under the Water Purchase Agreement effective October 7, 1981 and terminated on October 1, 2012 by the Agreement for Municipal Water Supply. The City has continued to perform maintenance as if this agreement was still in full force and effect.

The City has performed the maintenance on the Eastside System at least since 1972. The current Operation and Maintenance agreement effective April 22, 2003 does not have a term; however, it can be terminated by either party following a 180 day notice of termination.

The work the City performs on the County’s Northside and Eastside water systems is trending down. The County is using the City less. Since the installation of soft start and variable frequency drives at the Quarterline booster station, water main breaks on the Eastside System have declined from 56 in 2000 to 7 in 2015 & 2016 and down to 1 in 2017[[7]](#footnote-7). The Water System Policy Board directed staff to move forward with a plan to replace $4,000,000 of water mains in the Eastside System. This should reduce the number of water main brakes that occur thereby reducing the burden on Muskegon’s Water Department.

The County has relied on the City to perform maintenance on the Northside and Eastside Systems since 1988 and 1972 respectively. As a gesture of goodwill that you have also shown, staff will consider the feasibility of following actions:

* Work to formalize contractual relationships with local contractors for water service installation, repair, and replacements,
* Investigate the feasibility to contract the following:
  + Fire hydrant repair and replacement,
  + Valve repair and replacement, and
  + MISS DIG tickets.

Even if the above was successful, a service agreement that covers items such as emergency main breaks and occasional assists should be part of the discussion if these discussions produce an equitable resolution.

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**Emerging Issues**

**Commodity Rate for the Channel Crossing Feed**

The commodity rate charged to the Customer Communities includes City’s filtration and distribution costs with a 25% multiplier. Water supplied through the new Channel Crossing feed will not utilize the City’s distribution system; therefore, water supplied through this feed should not be subject to the City’s distribution costs. Identical to the WMRWA feed, the County’s Channel Crossing feed will be connected directly to the filtration plan and will not incur cost on the City’s distribution system. For water supplied through the Channel Crossing feed, the County will request a rate structure identical to the WMRWA’s rate structure, which only includes costs related to the filtration plant plus a 15% multiplier.

This is complicated by the fact that water supplied to the Northside System will also flow through the Causeway feed, which uses the City’s distribution system. To avoid future disagreements on which feed to primarily use, it is proposed the rate for both feeds be an average of the WMRWA’s and Customer Community’s commodity rates.

**North Muskegon**

The City of North Muskegon is supplied water via an old 12” water main and booster station. When the Channel Crossing is completed, the County will have adequate distribution capacity and reliability to supply North Muskegon off the Northside System. It is not uncommon for the County to supply North Muskegon for extended periods of time from the Causeway feed. Connecting North Muskegon to the County’s Northside System may allow North Muskegon to shut down its booster pump. This does not need to be addressed now, but should be discussed in the near future.

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Please call with any questions relative to the above or any further information that will help with the understanding of the City’s issues. Once we both completely understand each other’s issues, we can begin discussing possible solutions to recommend to those above us. I look forward to this process. Welcome to the world of inter-governmental *coopetition*.

1. Unconfirmed if the City has implemented a RTS for this costs. [↑](#footnote-ref-1)
2. TetraTech MPS, (May 2003). *City of Muskegon Water Cost of Service Study* [↑](#footnote-ref-2)
3. A ready-to-serve charge would also apply to the Community Customer’s master meters. [↑](#footnote-ref-3)
4. 2019 [↑](#footnote-ref-4)
5. The West Michigan Regional Water Authority’s second water supply feed flows through the Eastside System. [↑](#footnote-ref-5)
6. Suction a Keating is at City operational head but only accounts for less than 1.8% of the total flow to the Eastside System in 2019. [↑](#footnote-ref-6)
7. Prein&Newhof, (April, 2017). *Water system reliability study*. Muskegon County Eastside. [↑](#footnote-ref-7)