

Executive Summary

The City of Ann Arbor (City) utilizes a capital charge program that attempts to provide adequate cost recovery for the initial capital investment in its water and sanitary sewer systems. The water and sewer systems have been designed to provide sufficient capacity for both current customers and anticipated future growth in customer connections, presumably to City build out. As new connections tap into the systems, a payment is required to help fund the previous system capacity investment. In some cases, an additional payment is required to help pay for new system assets (main extensions) where none currently exist yet are needed to serve these new connections. Over the years, payment mechanisms have included past special assessments, connection fees, improvement charges and, in the case of developers, contributed assets (usually main extensions).

The City's current capital charge program funding mechanisms consist of connection fees, improvement charges and in the case of developers, contributed assets. The connection fee and improvement charge structures and levels are the primary focus of this analysis. The reason why these funding mechanisms are the focus of this study is that the affordability and methodologies associated with them have been called into question by various community stakeholders over the years, including the University of Michigan, local developers, and individual home and business owners. Complaints about methodologies have centered on the inequities of the program and the complexities of program fee and charge calculations. To address these concerns, the City has made a series of modifications to program approaches and implementation procedures over the past two decades. Unfortunately, the good intentions of the City have created further layers of complexity and confusion, thus generating more concerns and customer complaints. In some cases, where past inequities were resolved, new inequities were created.

From the City's perspective, the capital charge program has been equally frustrating. For example, in development situations where outside City township properties would connect to the systems, the City funded the township property's share of project costs and continued to carry those expenses until the benefiting township property annexed to the City which could be many years later. At the time of annexation, the township property owners would then pay their historical recorded shares of the project cost as approved by the City Council, however without inflation or interest adjustment. Depending on the time of an annexation, the City may or may not have recovered its cost of temporarily financing the project. The City property owners on the other hand paid their fair share of the project cost from the beginning – thus raising the equity issue. Overall, project costs and associated special assessment and improvement charges varied widely due to specific project conditions and time of annexation, thereby resulting in

similarly situated parcels, receiving similar benefit, but receiving widely disparate improvement charges. As equity became the City goal, code changes to the capital program created an increasingly complex maze of fee calculations.

In addition, the City has found that the current capital program is difficult to administer as well as explain to customers. Researching past property payments, determining the value of older mains adjacent to connecting properties, and explaining the program methodologies have proven to be frustrating procedures for City staff, thus creating inherent inefficiencies in staff workload related to the program. Consequently, potential transparency issues have arisen, from a customer's perspective.

Therefore, the intent of this study is to establish an equitable, understandable, defensible cost recovery philosophy and charge structure for customers connecting to the City's water main and/or sanitary sewer systems. The capital cost recovery charge calculations in this study use a recoupment (buy-in) approach that identifies the demand that new connections place on the City's water and sanitary sewer systems. The demand units required per connection are multiplied by the cost per unit for each component of each utility system and summed to determine the gross charge. Debt service credits are then calculated and deducted from the gross charge to arrive at a net charge per water connection.

To calculate the charges, industry standards (those primarily endorsed by the American Water Works Association) and professional best practices were utilized. The section below identifies the recommendations of the analysis. Following this section, the report discusses general background related to capital charge development and then portrays the water and sanitary sewer charge analyses.

RECOMMENDATIONS

The recommendations of the capital cost recovery charge analysis are summarized as follows:

- Using the buy-in or recoupment approach to fee development, Black & Veatch has established new water and sewer capital cost recovery charge schedules for City consideration. Tables 1 and 2 illustrate these proposed charges. Note that these charges may be subject to credits as discussed on page 4 and later in the body of this report.

Table 1 – Recommended Water Capital Cost Recovery Charge Schedule

Line No.	Meter Size (in)	Buy-In Component per Meter Equivalent	Flat Cost per Meter	Capital Cost Recovery Charge
Displacement Meters				
1	0.62	\$5,054	\$220	\$5,274
2	0.75	\$5,054	\$220	\$5,274
3	1.00	\$8,424	\$220	\$8,644
4	1.50	\$16,848	\$220	\$17,067
5	2.00	\$26,957	\$220	\$27,176
Magmeters				
6	0.75	\$9,266	\$220	\$9,486
7	1.50	\$22,745	\$220	\$22,964
8	2.00	\$37,065	\$220	\$37,285
9	2.50	\$84,239	\$220	\$84,459
10	3.00	\$126,359	\$220	\$126,578
11	4.00	\$210,598	\$220	\$210,818
12	6.00	\$471,740	\$220	\$471,959
13	8.00	\$614,947	\$220	\$615,166
14	10.00	\$985,599	\$220	\$985,819
15	12.00	\$1,482,611	\$220	\$1,482,830

Note: Charges may be subject to credits as detailed in this report.

Table 2 – Recommended Sewer Capital Cost Recovery Charge Schedule

Line No.	Meter Size (in)	Buy-In Component per Meter Equivalent	Flat Cost per Meter	Capital Cost Recovery Charge
Displacement Meters				
1	0.62	\$6,587	\$120	\$6,707
2	0.75	\$6,587	\$120	\$6,707
3	1.00	\$10,978	\$120	\$11,098
4	1.50	\$21,956	\$120	\$22,076
5	2.00	\$35,130	\$120	\$35,250
6	3.00	\$96,608	\$120	\$96,728
7	4.00	\$153,694	\$120	\$153,814
Magmeters				
8	0.75	\$12,076	\$120	\$12,196
9	1.50	\$29,641	\$120	\$29,761
10	2.00	\$48,304	\$120	\$48,424
11	2.50	\$109,782	\$120	\$109,902
12	3.00	\$164,672	\$120	\$164,792
13	4.00	\$274,454	\$120	\$274,574
14	6.00	\$614,777	\$120	\$614,897
15	8.00	\$801,406	\$120	\$801,526
16	10.00	\$1,284,445	\$120	\$1,284,565

Note: Charges may be subject to credits as detailed in this report.

- In development scenarios whereby a developer is required to construct and install main extensions to serve a development project, Black & Veatch recommends the City provide a credit in recognition of the costs of the extensions borne by the developer. Credits would be applied to the gross buy-in component of the capital charge for the development project, not including the flat cost per meter charge. This flat cost per meter charge would be added to the total fee after the credit is applied. For the water system, main extension credit is proposed to be 51 percent and for the sanitary sewer system, the credit is proposed to be 11 percent.
- These credits would also be applied in redevelopment situations whereby a currently vacant lot once paid a past special assessment for water and/or sewer capacity and is now seeking to connect to the utility system(s) again with a similar sized demand profile, i.e. similar sized meter and requested capacity. Similarly, the credits would be applied to the gross buy-in component of the capital charge then the flat cost per meter charge would be added to the net charge to yield a total capital cost recovery charge. Details on the development of these credits are located in the body of this report.
- In development scenarios whereby an existing development area that has not been previously served by City water and/or sanitary sewer service is now required to connect to a utility system. In these instances, a new main extension is required to facilitate this connection and would be constructed and installed by the City, rather than by a developer. In this scenario, the existing properties that are required to connect to the system would be responsible for the cost of the main extension in addition to their buy-in charge obligation. For the water system, Black & Veatch recommends that the extension charge per residential equivalency unit (or $\frac{3}{4}$ inch meter) be \$18,275. For the sanitary sewer system, Black & Veatch recommends that the extension charge per residential equivalency unit ($\frac{3}{4}$ inch meter) be \$19,972. These charges would be in addition to the capital cost recovery charges listed in Tables 1 and 2 less credits. Details on the development and application of these credits are located in the body of this report.
- In development scenarios whereby a project requires or requests a larger meter compared to the existing one (“upsizing”), the City will charge the connection the proposed larger charge based on the new meter size less the proposed charge for the current meter size (provided a prior charge was paid for the original meter). The charge will be discounted by the same credit applied in other development scenarios (51 percent for water and 11 percent for sanitary sewer) to acknowledge past contributions to the system(s). For example, if a property upsizes its water meter from a 1-inch displacement meter to a 2-inch magmeter, the gross capital recovery charge would be \$28,641 (\$37,285 minus \$8,644 equals \$28,641 – using the proposed charges listed in Table 1). Then, the credit would be applied to this charge. Therefore, the net water capital charge in this example would be \$14,034 (\$28,641 less a 51 percent credit equals \$14,034).

- Black & Veatch recommends the City implement the following Fire Line Lead capital charges for new fire line connections related to the water system. Table 3 presents the proposed charges.

Table 3 – Recommended Fire Line Lead Capital Charges – Water System (Compared to Full Capital Cost Recovery Charge)

Line No.	Fire Line Pipe Size (in)	Capital Cost Recovery Charge	Fire Line Lead Charge
1	0.75	\$9,486	\$3,369
2	1.50	\$22,964	\$8,155
3	2.00	\$37,285	\$13,241
4	2.50	\$84,459	\$29,994
5	3.00	\$126,578	\$44,953
6	4.00	\$210,818	\$74,869
7	6.00	\$471,959	\$167,610
8	8.00	\$615,166	\$218,468
9	10.00	\$985,819	\$350,101
10	12.00	\$1,482,830	\$526,608

- Black & Veatch recommends the City discontinue collecting a Fire Line Lead capital charge for new fire line connections related to the sanitary sewer system. Based on Black & Veatch’s experience with fire line lead charges and industry experience, few if any public agencies charge a fire line lead capital charge related to a sanitary sewer system. Our agency comparative survey results also indicate that none of the surveyed agencies exact a similar charge for fire leads related to sewer
- As part of this study, the City asked Black & Veatch to review and analyze the City’s current practice of developing and updating miscellaneous service fees such as water turn-on/turn-off functions, field operation requests (taps), and winterization services. The City calculates such fees by a time and materials approach. Staff regularly updates costs by applying labor and material cost inflators and also reviews time effort for each fee service on a periodic basis. Black & Veatch routinely performs miscellaneous fee analyses for utility agencies throughout the United States. The time and materials approach used by the City is similar to the one that Black & Veatch would use in this case. Therefore, Black & Veatch agrees with the approach and implementation process utilized by the City and recommends that the City continue its practice of routine reviews and updates to the labor effort and materials factors that comprise miscellaneous fee development.