**STATE OF MICHIGAN**
**WAYNE COUNTY CIRCUIT COURT**

UNITED HOUSE OF PRAYER,
a District of Columbia non-profit corporation, individually and as representative of a class of similarly-situation persons and entities,

Plaintiff,

v.

CITY OF DETROIT,
a municipal corporation,

Defendant.

Case No. CZ
Hon.

Gregory D. Hanley (P51204)
Jamie K. Warrow (P61521)
Edward F. Kickham Jr. (P70332)
Kickham Hanley PLLC
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*Attorneys for Plaintiff*

**There was a prior action between these parties arising out of the same types of transactions and occurrences as are alleged in this Complaint. That action was Wayne County Circuit Court Number 15-009083-CZ and was assigned to the Honorable Annette J. Berry. That action is no longer pending. This Complaint involves claims arising from certain charges imposed after the dates that were applicable to the prior action.**

## PLAINTIFF'S CLASS ACTION COMPLAINT

Plaintiff United House of Prayer ("Plaintiff" or "UHOP"), by its attorneys, Kickham Hanley PLLC, individually and on behalf of a class of similarly situated class members, states the following for its Class Action Complaint against the City of Detroit (the "City"):

## INTRODUCTION

1. This is an action challenging the "Private Fire Line Charges" ("PFL Charges") imposed by the City on citizens whose property requires private fire line service. The City has

extracted millions of dollars from its private fire line customers that it has used not to cover the actual expenses of providing private fire line service to those customers, but rather to fund certain of the City's other governmental functions.

2. The PFL Charges are arbitrary, capricious and unreasonable and therefore are unlawful under common-law rate-making principles. The Charges unjustly enrich the City because they generate revenue far in excess of the City's actual cost of providing private fire line capacity to its customers. The PFL Charges are far in excess of the appropriate rates for private fire line service, both as established by the American Water Works Association and as reflected in the comparable service charges other large cities impose and collect. The PFL Charges also violate § 7-1202 of the Detroit City Charter, which requires all water rates to be "equitable".

## JURISDICTION AND VENUE

3. Plaintiff is a private fire line customer of the City, has paid the PFL Charges, and seeks to act as a class representative for all similarly situated persons.

4. Defendant City of Detroit (the "City") is a municipality located in Wayne County, Michigan.

5. Venue and jurisdiction are proper with this Court because all parties are present here and the actions which give rise to Plaintiff's claims occurred in this County.

## GENERAL ALLEGATIONS CONCERNING THE PFL CHARGES

6. Fire protection water service has characteristics that are markedly different from other types of water service. Where ordinary water service is in constant day-to-day use, fire protection water service is principally of a standby nature; fire protection systems stand by to deliver large quantities of water for short periods of time in the event of a fire at any of a large number of points in the water distribution system.

7. The City furnishes water to its citizens for fire protection purposes in two ways: (a) through public fire lines that lead to fire hydrants located throughout the water supply system, typically on city curbs and sidewalks; and (b) through private fire lines that lead to private fire hydrants, standpipes, and sprinkler connections located on private property.

8. Costs allocated to fire protection services as a whole can therefore be subdivided into those related to public fire protection service and private fire protection service.

9. The costs the City's Water Fund incurs for public fire protection service are incorporated into the water rates charged by the City to all users of the public water supply system.

10. The costs the City's Water Fund incurs for private fire protection services are incorporated into separate PFL Charges which are charged solely to those customers who have private fire suppression systems, such as sprinklers. In addition to a customer's ordinary water line, the City provides a standby water pipe to the customer's premises, which provides a stand-alone water supply to the fire suppression system in the unlikely event of a fire.

11. There are well-established methodologies for establishing private fire line service rates. The American Water Works Association ("AWWA") has published and endorsed a methodology that allocates a municipality's total fire protection costs among public and private fire systems based on the relative demands both type of fire protection system place on the water supply system.

12. The first step in the AWWA methodology 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) and then determine how much of the Revenue Requirement to allocate to public and private fire protection services. Both direct and indirect costs are calculated. The direct fire protection costs are assigned directly to public fire protection. The indirect fire protection costs (those associated with providing maximum-day and

maximum-hour firewater capacity to public hydrants and private fire lines) are allocated between public and private fire protection systems.

13. In order to allocate that total indirect cost among public and private systems, the AWWA methodology requires a calculation of the total fire flow demands of the public and private systems. One typical method is to determine the equivalent hydrant factors for each system. For the public system, each public hydrant with a standard six inch connection counts as one hydrant. For the private system, because the sizes of the dedicated fire line serving private premises vary among private users, the number of equivalent hydrants is determined by assigning an equivalent hydrant factor to each user based up the size of the dedicated fire line. Because it is the same size as a public hydrant line, a six inch private fire line is assigned a hydrant equivalent factor of 1.0. Smaller lines are assigned an appropriate fraction of one hydrant, while larger lines are assigned more than one hydrant.

14. The total number of equivalent hydrants is determined, and then allocated among the public and private users in proportion to the total equivalent hydrants of each class.

15. In 2016, Plaintiff brought a class action against the City claiming that the PFL Charges were excessive and constituted "taxes" imposed in violation of the law (the "Prior Action"). A Settlement Agreement was consummated settling the claims in the Prior Action on a class-wide basis. As part of the Settlement, the City agreed to change the method by which it charges for private fire protection services. The City agreed to perform a rate study and/or cost of services analysis for the City's PFL Charges guided by the principles set forth in Chapter IV.8 in the Sixth Edition of the American Water Works Association "principles of Water Rates, Fees and Charges, Manual of Water Supply Practices M1" (the "M1 Manual") or in any chapter in any subsequent edition of the M1 Manual. The City further agreed to implement the PFL Rates recommended in

that study/analysis effective July 1, 2017. As part of the Settlement, the City received a release of all claims relating to the PFL Rates imposed through June 30, 2017.

16. In 2017, the City engaged Raftelis Associates to conduct the rate study required by the Settlement Agreement in the Prior Action (the "Raftelis Study"). A copy of the Raftelis Study is attached hereto as Exhibit A.

17. As a result of the Raftelis Study, the City reduced its PFL Rates effective July 1, 2017 by almost 50%. For example, the monthly charge for a six-inch line was reduced from $321.41 per month to $182.66 per month.

18. Notwithstanding the reduction effective July 1, 2017, the City's PFL Charges remain arbitrary, capricious and unreasonable and therefore continue to generate revenues far in excess of the City's actual cost of providing private fire line service.

19. Contrary to the requirements of the Settlement Agreement in the Prior Action, the Raftelis Study does not comply with the M1 Manual and contains a number of egregious errors and erroneous factual assumptions that defy reality and result in the derivation of proposed PFL Rates that generate revenues far in excess of the City's actual cost of providing private fire line service.

20. The principal reason the Raftelis Report recommends PFL Rates that generate revenues far in excess of the City's actual cost of providing private fire line service is that Raftelis used revenue and expense assumptions that are completely untethered from the revenue and expenses actually associated with the City's provision of water service to customers in the City.

21. For example, the Raftelis Report uses a Revenue Requirement for Water Rates that is grossly inflated because it fails to take into account actual, significant "non-rate" revenues.

22. Raftelis concluded that the total cost of service under the cash needs approach for the Detroit water system for FY 2017-18 was $142.9 million. *See* Report at p. 6.

23. Raftelis recognized that non-rate revenues needed to be deducted from the Revenue Requirement in determining the rates. *See* Report at p. 7. Raftelis deducted $4,750,000 from the $142.9 million to derive a "Net Revenue Requirement" of $138.1 million. *Id.* Raftelis used $138.1 million as the Revenue Requirement in deriving the PFL Rates. *See Id.* at p. 14.

24. Remarkably, Raftelis failed to deduct $22.5 million in "Capital Lease Receipts" and the $20.7 million "Ownership Equity Credit" the City receives from the Great Lakes Water Authority ("GLWA") in determining the Net Revenue Requirement. *See* Exhibit B hereto.

25. The deduction of these two items of non-rate revenues reduces the Net Revenue Requirement to $94.9 million in the Raftelis study.

26. In deriving the actual water rates for FY 2017-18, the City determined that the "Net Requirement from Detroit Customer Class" was $88.99 million. *See* Exhibit C hereto.

27. The Raftelis Revenue Requirement ($138.1 for million) is more than 50% higher than City's actual Revenue Requirement ($88.99 million). This overstatement alone results in PFL Rates that are over 50% higher than they should have been.

28. Further, Raftelis allocated a grossly-excessive portion of the already-inflated Max Hour costs to the Fire Protection class, which further inflated the resulting PFL Rates. Raftelis allocated 87.9% ($36.9 million) of the total Max Hour costs of $41.99 million to Fire Protection and just $5 million to the retail customer class. *See* Report at p. 14. Raftelis accomplished this by, among other tactics, using grossly-inflated assumptions about "Theoretical Fire Flows" – i.e., the volumes of water necessary to extinguish numerous simultaneous fires in the City.

29. Further, Raftelis allocated a grossly-disproportionate amount of the "Meter Operations" costs to PFL customers. Meter Operations costs are maintenance and capital costs associated with meters which measure the volume of water flowing through a water service line and provide a basis for billing those customers. There are over 280,000 meters attached to the service

lines of the City's retail water customers. There are only 1600 private fire line customers (representing approximately ½ of 1% of the total water service lines in the City) and the private fire lines servicing those customers do not have traditional meters which measure the volume of water. The meter costs associated with a stand-by private fire line obviously are far less than the meter costs associated with a traditional water supply line. Nonetheless, Raftelis allocated over $1 million of the total Meter Operations costs of $4.6 million (21.7%) to the PFL Charges. *See* Report at p. 14.

30. The foregoing are just a sample of the many errors and omissions made by Raftelis in its Report.

31. The City adopted the recommendations for PFL Rates that were contained in the Raftelis Report, and implemented those Rates, effective July 1, 2017. The City's PFL Rates thus incorporate the many error and omissions made by Raftelis in its Report.

32. Not surprisingly, the City's PFL Charges far exceed the same charges imposed by virtually every other major municipality in the United States. In many cases, the City's PFL Charges are 5 or 10 times the amount of the charges imposed by comparable municipalities. The Charges constitute a naked cash grab completely untethered from any actual costs the City incurs in providing private fire suppression services. The table below compares the Detroit's charges to other cities:

| **City** | **Annual charge for 6" fire line** | **How many times higher is the DWSD charge?** |
|---|---|---|
| Detroit, MI | $2,191 | |
| Grand Rapids, MI | $192 | 11.4 |
| Indianapolis, IN | $137 | 16 |
| New York, NY | $232 | 9.4 |
| Kansas City, KS | $315 | 6.9 |
| Madison, WI | $174 | 12.6 |
| Miami, FL | $138 | 15.5 |
| Memphis, TN | $440 | 5 |

| | | |
|---|---|---|
| Oklahoma City, OK | $162 | 13.5 |
| Omaha, NE | $144 | 15.2 |
| Baltimore, MD | $145 | 25.3 |

33. Not surprisingly, because the City imposes PFL Charges far in excess of its actual cost of providing private fire suppression services, the City is able to divert millions of dollars garnered from the PFL Charges to finance other governmental functions which are unrelated to providing private fire suppression services.

34. The fact that the City is able to divert millions of dollars of PFL Charges for services unrelated to supplying private fire protection systems is proof that the City is charging rates for private fire protection service that exceed the actual cost of providing the service, and the City thereby has been unjustly enriched at the expense of private fire line customers.

35. "All water and sewer bill charges shall constitute a lien on the property served." City Ordinance Sec. 102-67. The PFL Charges are part of a customer's water and sewer bill charges.

36. If water and sewer bill charges – including the PFL Charges – go unpaid for 6 months, "the mayor shall place such charges, together with an additional 30 percent penalty, on the next general city or county tax roll and the charges shall be collected as part of the general city or county tax roll on which such charges appear." City Ordinance Sec. 102-68.

## CLASS ALLEGATIONS

37. Plaintiff brings this action as a class action, pursuant to MCR 3.501, individually and on behalf of a proposed class consisting of all persons or entities which have incurred or paid PFL Charges during the relevant class periods.

38. The members of the Class are so numerous that joinder of all members is impracticable.

39. Plaintiff's claims are typical of the claims of members of the Class. Plaintiff is a

member of the Class it seeks to represent, and Plaintiff was injured by the same wrongful conduct that injured the other members of the Class.

40. The City has acted wrongfully in the same basic manner as to the entire class.

41. There are questions of law and fact common to all Class Members that predominate over any questions, which, if they exist, affect only individual Class Members, including:

a. whether the PFL Overcharges imposed by the City are taxes;

b. whether the PFL Overcharges imposed by the City violate the Headlee Amendment;

c. Whether the City has been unjustly enriched by collecting the PFL Overcharges in violation of its own Charter;

d. Whether the City has violated MCL 141.91; and

e. Whether the City's PFL Charges are unreasonable.

42. Plaintiff will fairly and adequately protect the interests of the Class, and Plaintiff has no interests antagonistic to those of the Class. Plaintiff is committed to the vigorous prosecution of this action, and has retained competent and experienced counsel to prosecute this action.

43. A class action is superior to all other available methods for the fair and efficient adjudication of this controversy since joinder of all members is impracticable. The prosecution of separate actions would create a risk of inconsistent or varying adjudications. Furthermore, the prosecution of separate actions would substantially impair and impede the ability of individual class members to protect their interests. In addition, since individual refunds may be relatively small for most members of the class, the burden and expense of prosecuting litigation of this nature makes it unlikely that members of the class would prosecute individual actions. Plaintiff anticipates no difficulty in the management of this action as a class action.

## COUNT I
## ASSUMPSIT – MONEY HAD AND RECEIVED
## VIOLATION OF MCL 141.91

44. Plaintiff incorporates each of the preceding paragraphs as if fully set forth herein.

45. MCL 141.91 provides: Sec. 1. "Except as otherwise provided by law and notwithstanding any provision of its charter, a city or village shall not impose, levy or collect a tax, other than an ad valorem property tax, on any subject of taxation, unless the tax was being imposed by the city or village on January 1, 1964."

46. The City has violated MCL 141.91 by imposing and collecting the PFL Overcharges. The PFL Overcharges are taxes that are not ad valorem property taxes and the PFL Overcharges were first imposed after January 1, 1964.

47. The PFL Overcharges have all relevant indicia of a tax:

a. They have no relation to any service or benefit actually received by the taxpayer;

b. The amount of the PFL Overcharges is disproportionate to the cost incurred by the City in providing private fire suppression services;

c. The PFL Overcharges are designed to generate revenue;

d. The PFL Overcharges lack a regulatory purpose;

e. Payment of the PFL Overcharges are not discretionary, but effectively mandatory;

f. Various other indicia of a tax described in *Bolt v. City of Lansing* are present.

48. As a direct and proximate result of the City's improper conduct, the City has collected millions of dollars to which it is not entitled. By paying the PFL Overcharges, Plaintiff and the Class have conferred a benefit upon on the City.

49. A claim to recover amounts paid to a governmental unit in excess of the amount allowed under law is properly filed as an equitable action in assumpsit for money had and received.

50. By virtue of the City's inclusion of the PFL Overcharges in the Rates, the City has collected amounts in excess of the amounts it was legally entitled to collect. Therefore, Plaintiff is entitled to maintain an equitable action of assumpsit to recover back the amount of the illegal exaction. *See, e.g., Bond v. Public Schools of Ann Arbor*, 383 Mich. 693, 704, 178 N.W.2d 484 (1970).

WHEREFORE, the City should be required to disgorge the revenues attributable to the PFL Overcharges imposed or collected by the City between July 1, 2017 and the date of the filing of this action, and during the pendency of this action, and refund all PFL Overcharges it has collected to Plaintiff and the Class.

## COUNT II
## UNJUST ENRICHMENT – VIOLATION OF MCL 141.91

51. Plaintiff incorporates each of the preceding paragraphs as if fully set forth herein.

52. MCL 141.91 provides: Sec. 1. "Except as otherwise provided by law and notwithstanding any provision of its charter, a city or village shall not impose, levy or collect a tax, other than an ad valorem property tax, on any subject of taxation, unless the tax was being imposed by the city or village on January 1, 1964."

53. The City has violated MCL 141.91 by imposing and collecting the PFL Overcharges. The PFL Overcharges are taxes that are not ad valorem property taxes and the PFL Overcharges were first imposed after January 1, 1964.

54. As a direct and proximate result of the City's improper conduct, the City has collected millions of dollars to which it is not entitled. By paying the PFL Overcharges, Plaintiff and the Class have conferred a benefit upon on the City.

55. The City has been unjustly enriched because it received PFL Overcharges to which it was not entitled, and it would be unfair for the City to retain the PFL Overcharges under these circumstances.

56. The City should be required to disgorge the amounts by which it has been unjustly enriched.

57. The City should be required to disgorge the revenues attributable to the PFL Overcharges imposed or collected by the City between July 18, 2013 and the date of the filing of this action, and during the pendency of this action, and refund all PFL Overcharges it has collected to Plaintiff and the Class.

## COUNT III
## ASSUMPSIT – MONEY HAD AND RECEIVED
## CHARTER VIOLATION

58. Plaintiff incorporates each of the preceding paragraphs as if fully set forth herein.

59. As a direct and proximate result of the City's improper conduct, the City has collected millions of dollars to which it is not entitled. By paying the PFL Overcharges, Plaintiff and the Class have conferred a benefit upon on the City.

60. The City has been unjustly enriched because it received PFL Overcharges to which it was not entitled, and it would be unfair for the City to retain the PFL Overcharges under the circumstances.

61. Indeed, the Detroit City Charter, § 7-1202, specifically provides that the City must "establish equitable rates to be paid" for all water supply, drainage, and sewer services.

62. A claim to recover amounts paid to a governmental unit in excess of the amount allowed under law is properly filed as an equitable action in assumpsit for money had and received.

63. By virtue of the City's inclusion of the PFL Overcharges in the Rates, the City has collected amounts in excess of the amounts it was legally entitled to collect. Therefore, Plaintiff is

entitled to maintain an equitable action of assumpsit to recover back the amount of the illegal exaction. *See, e.g., Bond v. Public Schools of Ann Arbor*, 383 Mich. 693, 704, 178 N.W.2d 484 (1970).

WHEREFORE, the City should be required to disgorge the revenues attributable to the PFL Overcharges imposed or collected by the City between July 1, 2017 and the date of the filing of this action, and during the pendency of this action, and refund all PFL Overcharges it has collected to Plaintiff and the Class.

## COUNT IV
## UNJUST ENRICHMENT—CHARTER VIOLATION

64. Plaintiff incorporates each of the preceding paragraphs as if fully set forth herein.

65. As a direct and proximate result of the City's improper conduct, the City has collected millions of dollars to which it is not entitled. By paying the PFL Overcharges, Plaintiff and the Class have conferred a benefit upon on the City.

66. The City has been unjustly enriched because it received PFL Overcharges to which it was not entitled, and it would be unfair for the City to retain the PFL Overcharges under the circumstances.

67. Indeed, the Detroit City Charter, § 7-1202, specifically provides that the City must "establish equitable rates to be paid" for all water supply, drainage, and sewer services.

68. The City should be required to disgorge the amounts by which it has been unjustly enriched.

## COUNT V
## ASSUMPSIT – MONEY HAD AND RECEIVED
## UNREASONABLE WATER AND SEWER RATES

69. Plaintiff incorporates each of the preceding paragraphs as if fully set forth herein.

70. Water and Sewer Rates must be reasonable. *Mapleview Estates v. City of Brown City*, 258 Mich. App. 412.

71. The City's Private Fire Line Rates are arbitrary, capricious, and unreasonable.

72. As a direct and proximate result of the City's improper conduct, the City has collected millions of dollars to which it is not entitled. By paying the PFL Overcharges, Plaintiff and the Class have conferred a benefit upon on the City.

73. A claim to recover amounts paid to a governmental unit in excess of the amount allowed under law is properly filed as an equitable action in assumpsit for money had and received.

74. By virtue of the City's inclusion of the PFL Overcharges in the Rates, the City has collected amounts in excess of the amounts it was legally entitled to collect. Therefore, Plaintiff is entitled to maintain an equitable action of assumpsit to recover back the amount of the illegal exaction. *See, e.g., Bond v. Public Schools of Ann Arbor*, 383 Mich. 693, 704, 178 N.W.2d 484 (1970).

WHEREFORE, the City should be required to disgorge the revenues attributable to the PFL Overcharges imposed or collected by the City between July 1, 2017 and the date of the filing of this action, and during the pendency of this action, and refund all PFL Overcharges it has collected to Plaintiff and the Class.

## COUNT VI
## UNJUST ENRICHMENT – UNREASONABLE WATER AND SEWER RATES

75. Plaintiff incorporates each of the preceding paragraphs as if fully set forth herein.

76. The Private Fire Line Charge is arbitrary, capricious and unreasonable.

77. As a direct and proximate result of the City's improper conduct, the City has collected millions of dollars to which it is not entitled. By paying the PFL Overcharges, Plaintiffs and the Class have conferred a benefit upon on the City.

78. The City has been unjustly enriched because it received PFL Overcharges to which it was not entitled, and it would be unfair for the City to retain the PFL Overcharges under the circumstances.

79. The City should be required to disgorge the amounts by which it has been unjustly enriched.

WHEREFORE, the City should be required to disgorge the revenues attributable to the PFL Overcharges imposed or collected by the City between July 1, 2017 and the date of the filing of this action, and during the pendency of this action, and refund all PFL Overcharges it has collected to Plaintiff and the Class.

## PRAYER FOR RELIEF

Plaintiff requests that the Court grant the following relief:

A. Certify this action to be a proper class action with Plaintiff certified as Class Representative and Kickham Hanley PLLC designated Class Counsel;

B. With respect to Counts I through VI, define the Class to include all persons or entities which have incurred or paid PFL Charges at any time since July 1, 2017 and/or which incur or pay the PFL Charges during the pendency of this action.

C. With respect to Counts I through VI, enter judgment in favor of Plaintiff and the Class and against the City, and order and direct the City to disgorge and refund all PFL Overcharges collected and to pay into a common fund for the benefit of Plaintiff and all other members of the Class the total amount of PFL Overcharges to which Plaintiff and the Class are entitled;

D. Appoint a Trustee to seize, manage and distribute in an orderly manner the common fund thus established;

E. Permanently enjoin the City from collecting any past PFL Overcharges and from imposing or collecting PFL Charges in the future which exceed the City's actual costs of providing private fire line service;

F. Find and declare that the City has been unjustly enriched by collecting the PFL Overcharges, and permanently enjoin the City from collecting any past PFL Overcharges and from imposing or collecting PFL Charges in the future which exceed the City's actual costs of providing private fire line service;

G. Find and declare that all liens or encumbrances upon the properties of Plaintiff and the Class for unpaid PFL Overcharges are null, void and discharged.

H. Award Plaintiff and the Class the costs and expenses incurred in this action, including reasonable attorneys', accountants', and experts' fees; and

J. Grant any other appropriate relief.

KICKHAM HANLEY PLLC

*/s/ Gregory D. Hanley*
Gregory D. Hanley (P51204)
Jamie Warrow (P61521)
Edward F. Kickham Jr. (P70332)
32121 Woodward Avenue, Suite 300
Royal Oak, Michigan 48073
(248) 544-1500
Counsel for Plaintiff

Date: February 13, 2019

**CERTIFICATE OF SERVICE**

I hereby certify that on February13, 2019, I electronically filed the ***Plaintiff's Class Action Complaint*** with the Clerk of the Court using the electronic filing system.

*/s/ Kim Plets*
Kim Plets

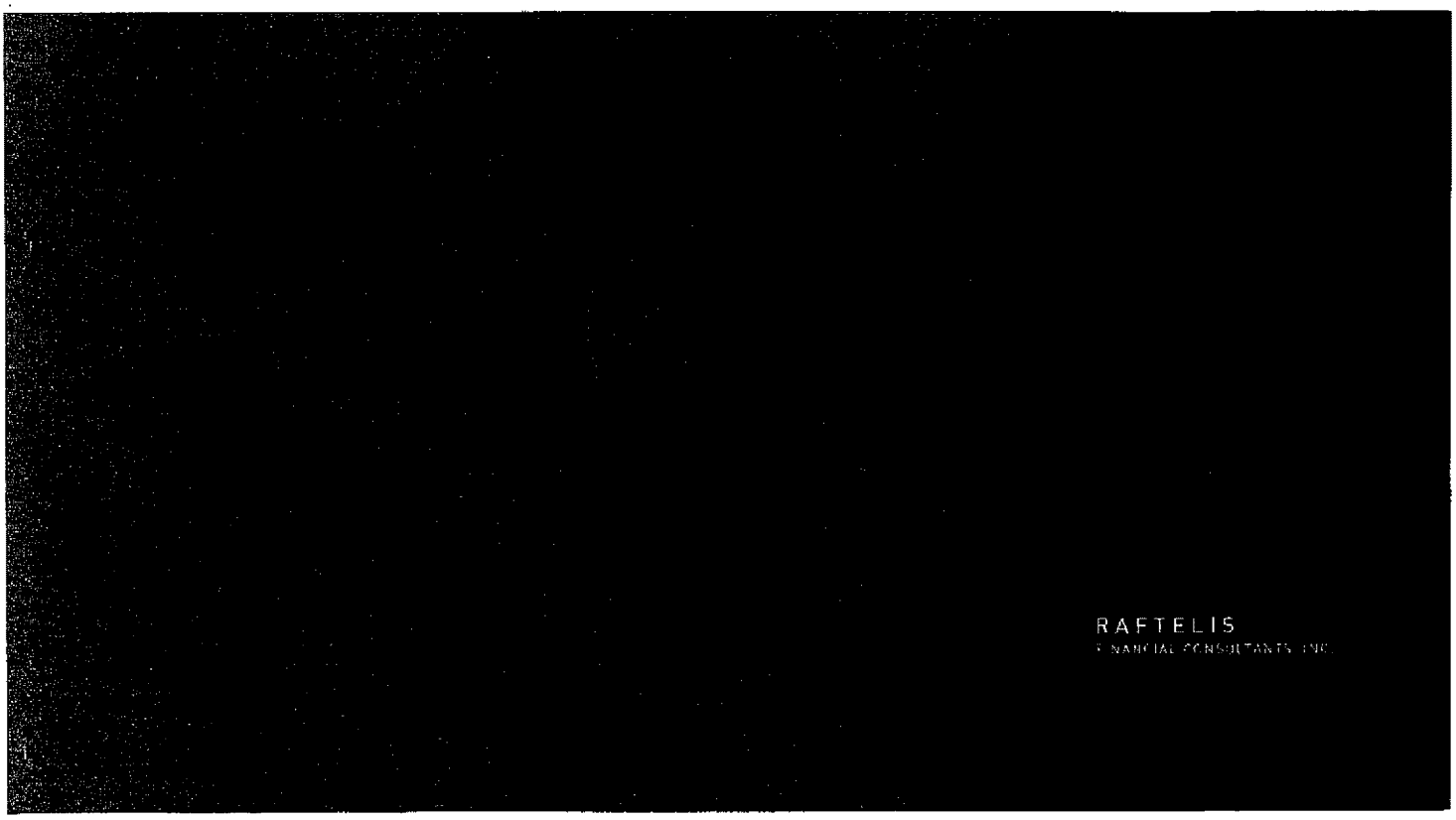
KI1157883

# EXHIBIT A

# Detroit Water and Sewerage Department

## Fire Protection Cost of Service Analysis

Final Draft Report / June 1, 2017



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# BACKGROUND OF THE STUDY

In January of 2017, The Detroit Water and Sewerage Department ("DWSD", "the Department") engaged Raftelis Financial Consultants, Inc. (RFC) to develop, in collaboration with the Department, a fire protection cost of service analysis.

## Objectives of the Study

The scope of services includes the following:

- Examine the cost of providing water service for the fiscal year ending June 30, 2018
- Determine the cost of providing private fire protection service
- Determine a monthly charge for private fire protection service

# WATER COST OF SERVICE METHODOLOGY

A cost of service analysis determines how the revenue necessary to operate the water system should be recovered from DWSD's customer classes. As this study is only concerned with setting private fire protection charges, the only unique customer classes to which costs are allocated are public fire protection and private fire protection. All remaining costs are allocated to other retail customers as a single class. The methodology employed to determine the private fire protection charges involves the following steps:

1. **Determine revenue requirement**
2. **Allocate revenue requirement to functional cost components**
3. **Determine unit cost of service**
4. **Allocate costs between retail and private fire protection**
5. **Determine private fire protection charges.**

The overall objective of the study is to equitably allocate costs between retail customers and private fire service customers. The process begins with a determination of the overall level of costs to be allocated **(determine revenue requirement)**. The revenue requirement is then allocated to the components of costs which vary according to customer demand **(allocate revenue requirement to functional cost components)**, such as base demand, maximum day demand, and maximum hour demand. Once the costs associated with each component have been determined, each customer class' proportionate share of those costs is determined by establishing customer class units of service. Once the costs and units of service are determined, a unit cost of service for each functional cost component is developed **(determine unit cost of service)**. Once the overall unit cost is known, each customer class can be assigned proportionate responsibility for those costs in accordance with their units of service **(allocate costs between retail and private fire protection)**. Each class' units of service are multiplied by the overall unit cost of service to determine proportionate responsibility for water system costs. The share of costs allocated to private fire protection is based on that class' proportionate share of the cost components (i.e. base, maximum day, maximum hour). The costs associated with private fire protection will be recovered via a monthly charge per equivalent six-inch

fire connection and is determined by dividing the private fire service cost by the number of equivalent six-inch connection multiplied by 12 **(determine private fire protection charges).**

## Determine Revenue Requirement

The annual revenue requirements or cost of service to be recovered includes operating and capital related costs. The total FY 2018 cost of service to be recovered from DWSD customers, shown in **Figure 3**, is calculated using the cash needs approach. Total cost of service under the cash needs approach is approximately $138.1 million, of which approximately $78.8 million are operating costs and the remaining $59.3 million are capital costs, consisting of debt service payments and cash funded capital. The cost of service analysis is based upon the premise that the utility must generate annual revenues adequate to meet the estimated annual revenue requirements.

### Operating Costs

The basis for the development of the operating costs portion of the revenue requirement was the FY 2018 operating budget provided by DWSD. Non-operating expenses such as the refunding of debt principal ($46.9M) were excluded and additional transfers not accounted for in the operating budget were added (e.g. the transfer to the pension obligation payment fund). The allowance for doubtful accounts, treated as a negative operating revenue was included in the operating cost share of the overall revenue requirement. Finally, DWSD's payment to the Great Lakes Water Authority (GLWA) for wholesale water service includes an operating and a capital portion. For FY 2018, the operating portion is $16,027,090. **Figure 1** shows a reconciliation of the total FY 2018 operating expenses to the amount included in the operating expenses share of the overall revenue requirement.

**Figure 1: Operating Expenses**

| | |
|---|---|
| **Budget:** | $ 97,044,853 |
| Debt Service and Amortization | (46,921,944) |
| Allowance for Doubtful Accounts | 12,146,019 |
| Transfer to Operating Reserve | 775,000 |
| Pension Obligation Fund | 4,500,000 |
| GLWA Payment for Water Service (Operating Portion) | 16,027,090 |
| **Total O&M Expenses:** | **$ 83,571,018** |

## Capital Costs

Capital costs include debt service, a transfer to the improvement and extension (I&E) account, and the capital component of DWSD's payment to GLWA for wholesale water service. **Figure 2** indicates the capital cost share of the revenue requirement.

**Figure 2: Capital Expenses**

| | |
|---|---|
| Debt Service | $34,400,000 |
| Transfer to I&E Account | 4,407,559 |
| GLWA Payment for Water Service (Capital Portion) | 20,523,900 |
| **Total Capital Costs:** | **$59,331,459** |

## Other Revenue

As part of the cost of service analysis, revenues from sources other than water rates and charges (e.g. revenues from miscellaneous services and income) are deducted from the appropriate cost elements. **Figure 3** shows the total system revenue requirement. The $20,700,000 lease payment from GLWA is not included as an offset to the overall revenue requirement.

**Figure 3: Total Revenue Requirement**

| | Operating | Capital | Total |
|---|---|---|---|
| **Revenue Requirements** | | | |
| O&M Expenses | $ 67,543,928 | | $ 67,543,928 |
| Debt Service | | 34,400,000 | 34,400,000 |
| I&E Account | | 4,407,559 | 4,407,559 |
| GLWA Payment for Water Service | 16,027,900 | 20,523,900 | 36,551,800 |
| **Total Revenue Requirement** | **$ 83,571,828** | **$ 59,331,459** | **$ 142,903,287** |
| **Other Revenue** | $ (4,750,000) | | $ (4,750,000) |
| **Net Revenue Requirement** | **$ 78,821,828** | **$ 59,331,459** | **$ 138,153,287** |

# Allocation of Revenue Requirement to Functional Cost Components

The total cost of water service is analyzed by system function to equitably distribute the cost of service. For this analysis, water utility cost of service is assigned under the Base-Extra Capacity method to three basic functional cost components: base costs, extra capacity or peaking costs and customer service related costs as described in the M1 Manual, Principles of Water Rates, Fees, and Charges, published by the American Water Works Association (AWWA).

Base costs are those operating and capital costs of the water system associated with serving customers at a constant average rate of use. Supply costs are typically considered to be based on average usage.

Extra capacity or peaking costs represent those costs incurred to meet customer peak demands for water in excess of average day usage. Total extra capacity costs are subdivided into costs associated with maximum day and maximum hour demands. The maximum day demand is the maximum amount of water used in a single day in a year. The maximum hour demand is the maximum usage in an hour on the maximum usage day. Different facilities are designed to meet different peaking characteristics. For example, transmission lines are designed to meet Max Day requirements. Transmission lines must be designed larger than they would be if the same annual amount of water were being used at a constant rate throughout the year. The cost associated with constructing a larger line is based on the "overdesign principle" and is proportioned on the Max Day factor. For example, if the Max Day factor is 2.0, then the line must be designed twice as large than would be required to only meet the average usage conditions. In this case half of the cost would be allocated to Base or average day and the other half allocated to Max Day. The calculation of the Max Hour and Max Day demands is explained below.

Customer service costs include customer related and meter related costs. Customer costs are uniform for all customers and include such costs as meter reading, billing, collecting, and accounting. Meter service costs include maintenance and capital costs associated with meters. These costs are assigned based on meter size or equivalent meter capacity.

Direct fire protection costs are those associated with private fire lines and/or public fire hydrants.

The allocation of costs of service into these principal components provides the means for determining the costs to the various customer classes based on their respective base, extra capacity and customer requirements for service.

## Determination of Allocation Percentages

To determine how costs should be allocated to average and peak (Max Day and Max Hour) demands, the allocation percentages assigned to each cost component need to be determined. Customer service related costs are allocated 100 percent to the customer service component. Costs related to meter maintenance are allocated to the meter operations component. Public hydrant costs were allocated 100 percent to the public fire protection component. The methodology for calculating volume related cost allocations is explained below.

The first step is to determine system peaking factors. Peaking factors are based on assumed system design criteria. The Base or average daily demand (ADD) is the average of the annual usage expressed as the usage per day. This Base Demand, or ADD, for DWSD is assigned a value of 1.0. DWSD's Max Day demand is 1.50 times the ADD. The maximum hourly (Max Hour) demand is 2.00 times the ADD. **Figure 4** below shows the assumed peaking factors of the water system.

**Figure 4: Demand Factors**

| | Peaking Factor |
|---|---|
| Base | 1.00 |
| Max Day | 1.50 |
| Max Hour | 2.00 |

For example, cost components that are designed for Max Hour peaks (i.e. distribution system costs) are allocated to base and max hour. The Max Hour factor is 2.00, so Max Hour facilities are designed to provide 200 percent of the average day capacity. Out of this 200, 100 represents the ADD, and 100 represents the Max hour requirement. This means that the Max Hour capacity represents 100 out of 200, or 50 percent, and the remaining 100 out of 200 represents the base capacity of the facilities designed for Max Hour. The allocation of Max Hour facilities is shown below:

| | | | |
|---|---|---|---|
| Base: | 50% | = | 1.00/2.00 |
| Max Hour: | 50% | = | (2.00-1.00)/2.00 |

## Allocation of Operating Expense

Projected net operating expenses for FY 2018 are allocated to cost components based on their function within the utility. For example, meter and customer service related costs are allocated directly to those components. Distribution costs are allocated based on max hour peaks as well as a nominal allocation to public fire based on the net book value of fire hydrant assets. The operating expenses portion of DWSD's payment to GLWA is allocated according to the Service Charge Recommendations FY 2018 report.

Administration and general expenses are related to total system operations and cannot be specifically allocated to individual functions such as transmission or treatment, etc. These expenses are therefore allocated in the same proportion as all the remaining operating expenses. The resulting allocation of operation and maintenance expense serves as the basis for allocating the FY 2018 net operating costs shown in **Figure 3** to the base, max day, max hour, customer service, meter operations, and fire protection cost components as shown in **Figure 5.**

**Figure 5: Functional Cost Components for Operating Expenses**

| | Total | Base | Max Day | Max Hour | Public Fire | Private Fire | Customer Service | Meter Operations |
|---|---|---|---|---|---|---|---|---|
| *Distribution* | 100% | 50.0% | | 50.0% | | | | |
| *Hydrants* | 100% | | | | 100.0% | | | |
| *GLWA Payment* | 100% | 2.4% | 62.9% | 34.7% | | | | |
| *General Plant* | 100% | 32.8% | 22.4% | 44.3% | 0.0% | 0.0% | 0.5% | |
| | | | | | | | | |
| *Distribution* | $ 36,805,983 | $ 18,402,992 | | $ 18,402,992 | | | | |
| *Hydrants* | 283,332 | | | | 283,332 | | | |
| *GLWA Payment* | 20,523,900 | 493,300 | 12,912,600 | 7,118,000 | | | | |
| *General Plant* | 1,718,244 | 563,559 | 385,103 | 761,132 | | | 8,450 | |

## Allocation of Plant Investment and Capital Costs

Capital costs include DWSD's debt service, a transfer to the Local I&E fund, and a portion of DWSD's payment to GLWA for water service. Capital costs related to specific facilities will vary significantly from year to year. Allocating these costs based on the functions of these specific facilities would cause the rates to the different customer classes to change from year to year. A reasonable method of assigning capital costs to functional components, widely practiced in the industry, is to allocate such costs based on net plant investment recognizing that over time these allocations will provide costs to be passed on to customers equitably. Net plant investment is represented by the original cost less accumulated depreciation of water utility facilities. The estimated fiscal year net plant investment in water facilities consists of net plant in service as of June 30, 2014. Costs are allocated based on the design criteria of each facility. Allocation of the capital portion of DWSD's GLWA payment for water service is based on the Service Charge Recommendations FY 2018 Report. The investment in general plant is allocated to each cost component based on all other plant investment. The resulting allocation of net plant investment serves as the basis for allocating the capital costs shown in **Figure 6.**

**Figure 6: Functional Cost Components for Capital Costs**

| | Total | Base | Max Day | Max Hour | Public Fire | Private Fire | Customer Service | Meter Operations |
|---|---|---|---|---|---|---|---|---|
| *Transmission* | 100% | 50.0% | | 50.0% | | | | |
| *Distribution* | 100% | 50.0% | | 50.0% | | | | |
| *Hydrants* | 100% | | | | 100.0% | | | |
| *GLWA Payment* | 100% | 2.4% | 62.9% | 34.7% | | | | |
| *General Plant* | 100% | 32.8% | 22.4% | 44.3% | 0.0% | 0.0% | 0.5% | |
| | | | | | | | | |
| *Transmission* | $ 3,961,249 | $ 1,980,624 | | $ 1,980,624 | | | | |
| *Distribution* | 32,844,734 | 16,422,367 | | 16,422,367 | | | | |
| *Hydrants* | 283,332 | | | | 283,332 | | | |
| *GLWA Payment* | 20,523,900 | 493,300 | 12,912,600 | 7,118,000 | | | | |
| *General Plant* | 1,718,244 | 563,559 | 385,103 | 761,132 | | | 8,450 | |

# Determine Unit Cost of Service

To allocate the cost of service to the different customer classes, unit costs of service need to be developed for each cost component. The unit cost of service is developed by dividing the total annual costs allocated to each parameter by the total annual service units of the respective component. The volume related cost components are based on annual usage (in Mcf) and maximum day and hour usage (expressed in Mcf per Day). Customer service related cost components are based on number of bills and meter related costs are based on equivalent 5/8" meters.

Fire Protection units of service are based upon a theoretical maximum concurrent fire flow. Based upon a review of information provided by the Detroit Fire Department, this study assumes that fire flow in the City could have to support fighting up to two large fires at 3,000 gallons per minute for six hours and ten small fires at 1,500 gallons per minute for four hours. **Figure 7** demonstrates the calculation of theoretical concurrent fire flow.

**Figure 7: Determination of Theoretical Fire Flow**

| | Max Day | Max Hour |
|---|---|---|
| **Large Fire** | | |
| Number of Fires | 2 | 2 |
| Duration (minutes) | 360 | 60 |
| Maximum Flow (gpm) | 3,000 | 3,000 |
| | 2,160,000 | 8,640,000 |
| **Small Fire** | | |
| Number of Fires | 10 | 10 |
| Duration (Minutes) | 240 | 60 |
| Maximum Flow (gpm) | 1,500 | 1,500 |
| | 3,600,000 | 21,600,000 |
| Fire service demand (gals) | | |
| Public Flow | 5,470,166 | 1,521,630 |
| Private Flow | 289,834 | 28,718,370 |
| Total: | 5,760,000 | 30,240,000 |

**Figure 8** shows the determination of the total annual units by customer class.

## Figure 8: Units of Service Calculation

| *FY 2018* | | | | Max Day | | | Max Hour | | Customer Units | | Private Fire Connections | | Public Hydrants |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Water Sales | Average Day | Peaking Factor | Total Capacity | Extra Capacity | Peaking Factor | Total Capacity | Extra Capacity | Bills | Equiv. Meters | Equiv. Meters | Bills | Hydrants |
| | mcf | mcf | | mcf | mcf | | mcf | mcf | | 5/8" Eq. | 6" Eq. | | |
| *Calculations* | | = (1) / (365) | | = (2) x (3) | = (4) - (2) | | =(2) x (6) | =(7) - (4) | | | | | |
| **Retail** | 4,467,300 | 12,239 | 1.23 | 15,055 | 2,816 | 1.27 | 15,505 | 450 | 2,084,568 | 280,000 | | | |
| **Private Fire** | | | | 38.7 | 39 | | 203 | 165 | | | 1,612 | 19,320 | |
| **Public Fire** | | | | 731.3 | 731 | | 3,839 | 3,108 | | | | | 30,430 |
| | ***4,467,300*** | ***12,239*** | | ***15,825*** | ***3,586*** | | ***19,548*** | ***3,723*** | ***2,084,568*** | ***280,000*** | ***1,612*** | ***19,320*** | ***30,430*** |

# EXHIBIT B

# Water System Revenue Charges

**Great Lakes Water Authority**
**Approved FY 2018 Water Supply System Allocated Revenue Requirements and Service Charges**

| | | Projected Sales Volume (Mcf) | Fixed Monthly Charge ($/month) | Commodity Charge ($/Mcf) | Annual Revenue Requirement ($) |
|---|---|---|---|---|---|
| | ***Allocation of Wholesale Revenue Requirement*** | | ***60%*** | ***40%*** | |
| | **Suburban Wholesale** | | | | |
| 81 | West Bloomfield Township | 263,500 | 482,500 | 14.65 | 9,650,300 |
| 82 | Westland | 317,100 | 301,800 | 7.61 | 6,034,700 |
| 83 | Wixom | 69,000 | 121,500 | 14.08 | 2,429,500 |
| 84 | Woodhaven | 62,200 | 102,400 | 13.17 | 2,048,000 |
| 85 | Ypsilanti Community Utilities Authority | 494,300 | 542,900 | 8.78 | 10,854,800 |
| 86 | **Total Contract Wholesale Customers** | 13,242,470 | $ 177,900 | *9.13* | **$ 302,344,900** |
| 87 | Adjustments for customers without a current GLWA contract (a) | | | | $7,674,900 |
| 88 | **Net Requirement from Wholesale Charges (agrees with GLWA Budget "Schedule 3A")** | | | | **$ 310,019,800** |
| | **Detroit Customer Class** | | | | |
| 89 | **Wholesale** Revenue Requirements *(b)* | | | | $ 15,130,600 |
| 90 | **Indirect Retail** Revenue Requirements *(c)* | | | | 43,518,400 |
| 91 | **Direct Retail** Revenue Requirements *(d)* | | | | 35,092,200 |
| 92 | **Total** | | | | 93,741,200 |
| 93 | **less: Estimated Miscellaneous Operating Revenue** | | | | (4,750,000) |
| 94 | **Net Requirement from Detroit Customer Class (agrees with GLWA Budget "Schedule 3A")** | | | | **$ 88,991,200** |

*(a) Includes the City Flint, Highland Park and the Genesee County Drain Commission.*
*(b) Reflects Great Lakes Water Authority wholesale amounts only.*
*(c) Reflects amounts assigned to the Detroit Local System pursuant to the GLWA Master Bond Ordinance flow of funds and the Water and Sewer Services Agreement.*
*(d) Reflects amounts allocable to the Local System, for which GLWA transfers monies to DWSD. Preliminary, subject to receipt of final DWSD budget.*

# EXHIBIT C

## Sources and Uses of Funds
### Water Operating Fund

| | Restated Budget 2018 | Estimated Requirements 2019 | Increase (Decrease) | % Change |
|---|---|---|---|---|
| **Estimated Revenues** | | | | |
| Gross Retail Sales | $ 99,994,000 | $ 101,569,300 | $ 1,575,300 | 1.6% |
| Less: Bad Debt Expense | (10,789,000) | (11,040,000) | (251,000) | 2.3% |
| Net Retail Sales | 89,205,000 | 90,529,300 | 1,324,300 | 1.5% |
| Capital Lease Receipts | 22,500,000 | 22,500,000 | - | 0.0% |
| Ownership Equity Credit | 20,700,000 | 20,700,000 | - | 0.0% |
| Shared Service Revenue | 3,026,000 | 1,677,000 | (1,349,000) | -44.6% |
| Other Revenue | 4,750,000 | 3,000,000 | (1,750,000) | -36.8% |
| **Total Estimated Water Revenue** | **$ 140,181,000** | **$ 138,406,300** | **$ (1,774,700)** | **-1.3%** |
| **Revenue Requirement** | | | | |
| Operating Requirement | | | | |
| O&M Controllable Expense | $ 42,569,000 | $ 41,535,700 | $ (1,033,300) | -2.4% |
| WRAP Requirement | 1,028,000 | 406,300 | (621,700) | -60.5% |
| Wholesale Charges | 35,831,000 | 41,026,100 | 5,195,100 | 14.5% |
| Total Operating | 79,428,000 | 82,968,100 | 3,540,100 | 4.5% |
| Non-Operating Requirements | | | | |
| Obligation to GLWA | 34,314,000 | 34,443,000 | 129,000 | 0.4% |
| Non-Operating Pension | 4,422,000 | 4,427,400 | 5,400 | 0.1% |
| Extraordinary Repair & Replacement | 52,000 | - | (52,000) | -100.0% |
| Budget Stabilization | (2,081,000) | - | 2,081,000 | -100.0% |
| DWSD Debt Service | 2,600,000 | 3,296,000 | 696,000 | 26.8% |
| Transfer to I&E | 21,446,000 | 13,271,800 | (8,174,200) | -38.1% |
| Total Non-Operating | 60,753,000 | 55,438,200 | (5,314,800) | -8.7% |
| **Total Revenue Requirement** | **$ 140,181,000** | **$ 138,406,300** | **$ (1,774,700)** | **-1.3%** |