

EXHIBIT

Exhibit No.:

Issue(s):

Witness/Type of Exhibit:

Sponsoring Party:

Case No.:

Allocation of Mains Cost/
Rate Design

Meisenheimer/Direct

Public Counsel

WR-2003-0500

DIRECT TESTIMONY

OF

BARBARA A. MEISENHEIMER

FILED

JAN 23 2004

Missouri Public
Service Commission

Submitted on Behalf of the Office of the Public Counsel

Missouri-American Water Company

Case No. WR-2003-0500

October 10, 2003

Exhibit No. 34
Case No(s) WR-2003-0500
Date 12/16/03 Rptr SLM

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of Missouri-American Water)
Company for Authority to File Tariffs)
Reflecting Increased Rates for Water) Case No. WR-2003-0500
and Sewer Service.)

AFFIDAVIT OF BARBARA A. MEISENHEIMER

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

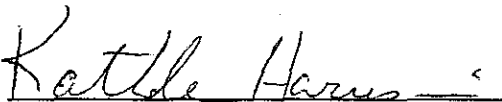
Barbara A. Meisenheimer, of lawful age and being first duly sworn, deposes and states:

1. My name is Barbara A. Meisenheimer. I am Chief Utility Economist for the Office of the Public Counsel.
2. Attached hereto and made a part hereof for all purposes is my direct testimony consisting of pages 1 through 14 and schedules BAM-1 through BAM-3.
3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.


Barbara A. Meisenheimer

Subscribed and sworn to me this 10th day of October, 2003.

KATHLEEN HARRISON
Notary Public - State of Missouri
County of Cole
My Commission Expires Jan. 31, 2006


Kathleen Harrison
Notary Public

My Commission expires January 31, 2006.

Table of Contents

I. ALLOCATION OF MAINS COST	2
II. RATE DESIGN	9
▪ General Rate Design Principles	9
▪ Rate Design for this Case	11

**DIRECT TESTIMONY
OF
BARBARA A. MEISENHEIMER**

MISSOURI AMERICAN WATER COMPANY

CASE NO. WR-2003-0500

1 **Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.**

2 A. Barbara A. Meisenheimer, Chief Utility Economist, Office of the Public Counsel (OPC
3 or Public Counsel), P. O. Box 7800, Jefferson City, Missouri 65102. I am also employed
4 as an adjunct Economics Instructor for William Woods University.

5 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND.**

6 A. I hold a Bachelor of Science degree in Mathematics from the University of Missouri-
7 Columbia (UMC) and have completed the comprehensive exams for a Ph.D. in
8 Economics from the same institution. My two fields of study were Quantitative
9 Economics and Industrial Organization. My outside field of study was Statistics. I have
10 taught Economics courses for the following institutions: University of Missouri-
11 Columbia, William Woods University, and Lincoln University. I have taught courses at
12 both the undergraduate and graduate levels.

13 **Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE THIS COMMISSION?**

14 A. Yes, I have testified on numerous issues before the Missouri Public Service Commission.
15 (PSC or Commission)

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2 A. My testimony will describe how Public Counsel's main allocation factor for St.
3 Louis County Water Company (SLCW, the Company) is developed and the
4 rationale for the development of this factor. The resulted main allocation factors
5 are utilized in Public Counsel witness James Busch's Cost of Service Study. I will
6 also present Public Counsel's rate design recommendation.

7 **I. ALLOCATION OF MAINS COST**

8 **Q. WHAT ARE THE CHARACTERISTICS OF MAINS COST?**

9 A. Mains are "shared" in the sense that they are facilities generally available and
10 used to provide service to multiple customers and customer classes. Therefore,
11 from an economic perspective, they should be treated as a shared cost recovered
12 from all customers and classes that benefit from the facilities availability. Public
13 water utilities such as MAWC are natural monopolies exhibiting characteristics
14 that tend to create cost saving by the operation of fewer or even a single provider
15 the most cost effective structure for providing service. One such cost reducing
16 characteristic is called "economies of scope". The term "economies of scope"
17 refers to the ability to achieve cost savings by utilizing the same equipment,
18 facilities and/or expertise to provide multiple products at lower cost than if the
19 products were produced on a stand-alone basis. In this case, the Company's
20 investment in transmission and distribution mains provides the Company with the
21 means to deliver water to locations of all customer classes in response to its
22 customers' year-round demands for water. All customers benefit from the
23 existence of these mains on every day that they use water. The total cost of mains

1 for SLCW is much less than what the sum of stand-alone costs for mains would
2 be if there was one company that served industrial customers and another
3 company that served residential customers and so on. Similarly, the total cost of
4 mains is less than what it would be if there was one company that served people's
5 needs for lawn irrigation and another that served people's needs for cooking.

6 Another characteristic of mains cost is the presence of "economies of scale." The
7 term "economies of scale" describes the phenomenon where larger scale
8 production can achieve cost savings. In this case, the average cost of producing
9 good or services declines as the output level increases. According to various flow
10 formulas, with other factors held constant, a 4" pipe has a flow capacity of about
11 6 times of that of a 2" pipe while, the per foot cost to install the 4" pipe may be
12 less than 2 times the cost to install the 2" pipe. This means that the cost of the
13 incremental capacity needed to serve during higher demand periods (peak
14 periods) is less expensive than the average cost of capacity. Taking advantage of
15 economies of scale benefits the utility by increasing use of facilities and in turn
16 increasing revenues. It benefits those who do not use the system as much in peak
17 periods because any revenue generated above incremental cost helps offset costs
18 that would otherwise have to be recovered during normal use periods. It can also
19 benefit the peak period user if some of the cost savings are reflected as per unit
20 rate reductions. The cost study OPC has prepared and submitted includes an
21 adjustment to the traditional technique of allocating mains cost to reflect the
22 economies of scale inherent in providing water during peak periods.

Q. HOW SHOULD ECONOMIES OF SCOPE RELATED TO THE COST OF MAINS BE REFLECTED IN THE ALLOCATION OF MAINS?

A. When economies of scope are present, the total cost of the transmission and distribution system for delivering water to the residential, commercial and industrial classes is less than the sum of the stand-alone costs of the separate distribution systems for delivering water to each of the customer classes. Generally, when allocating the shared cost of joint production, the general principle is that no cross subsidization should be present. The term cross subsidization, in this context, describes a situation where the revenue earned on part of the total output of the industry is more than the stand-alone production cost of that part. This general principle attempts to ensure that no group of customers should pay more than they would have paid if they were to provide their own products and services using the best available production technique. Similarly, for utilities that are "one-way" in nature, the revenue requirement for any customer class should be at least as large as the incremental cost to provide services to this class because otherwise somebody else will be forced to pay for more than its stand-alone cost.

The implication of this characteristic is that a just and reasonable cost allocation to a customer class ranges from the incremental cost to the stand-alone cost of providing services to that class. A judgement call is required to determine which point along this range is the most appropriate cost allocation. In fact, different viewpoints about whether the stand alone cost, the incremental cost, or a cost that is somewhere in the middle should be allocated to a product or a customer is one of the main reasons why different parties have different cost of service study results and different rate designs to recover the costs. However, one thing is

1 clear - a just and reasonable solution should ask each customer class to pay for
2 more than their respective incremental cost. The total cost will not be covered if
3 each class only pays for its incremental cost.

4 **Q. HOW SHOULD ECONOMIES OF SCALE RELATED TO THE COST OF MAINS BE**
5 **REFLECTED IN THE ALLOCATION OF MAINS?**

6 A: When economies of scale are present, there is not a one-to-one relationship
7 between the incremental cost burden that the system peak load imposes upon the
8 transmission and distribution system and that imposed by the average load.
9 Therefore, the traditional allocator derived as the ratio of peak load to average
10 load does not reflect that it costs proportionately less to set up a transmission or
11 distribution system that has a larger capacity than it costs to set up a system to
12 serve only a smaller capacity.

13 The implication of this characteristic in cost allocation is that we should not
14 allocate total demand-related cost corresponding to demand as if there is a direct
15 one to one relationship between costs and the level of demand. Instead, we need
16 to translate the demand of each customer class to the corresponding cost ratios
17 according to a non-linear relationship. For example, if the peak demand is twice
18 the average demand, it is incorrect to simply allocate half of the total cost of
19 mains to customers who use water at the peak period. The correct way to allocate
20 mains is to find out how much cost would actually be incurred to satisfy the
21 increment of peak demand over average demand and allocate that portion of cost
22 to those customers who use water at the peak period. In this example, when
23 economies of scale are considered, less of the total cost should be allocated to
24 customers who use water at the peak period.

Q. PLEASE EXPLAIN THE TRADITIONAL WATER COST ALLOCATION METHOD.

A. Traditionally for water utilities, the allocation of the mains cost has been accomplished through a method called the base-extra capacity method. In the base-extra capacity method, costs of service are usually separated into different categories that are associated with different functions of a water company's system. This method attempts to recognize the fact that a water system must satisfy multiple functions such as providing its customers annual water usage, meeting customers' rate of use requirements and ensuring the need for public fire protection. Specifically, the base-extra capacity method separates costs of service into four primary cost components: (1) base costs, (2) extra capacity costs, (3) customer costs, (4) direct fire-protection costs.

Q. PLEASE EXPLAIN THE FOUR COMPONENTS OF THE BASE-EXTRA CAPACITY METHOD.

A. Base costs are costs that tend to vary with the total quantity of water used, plus those operation-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. In other words, these costs are costs that would be incurred in supplying water at a perfect load factor (that is, at a continuous, uniform rate), excluding costs incurred in providing extra plant capacity for variation in the rate of use beyond a uniform usage rate. The resulting distribution of cost responsibility for base costs is simply a function of the volume of water used by each class.

The base-extra capacity method defines extra capacity costs as the costs associated with meeting rate of use requirements in excess of average and include

1 operation-and-maintenance expenses and capital costs for system capacity beyond
2 that required for average rate of use. In other words, extra capacity costs for
3 maximum-day and maximum-hour service are incurred in providing facilities to
4 furnish water at varying rates above the average.

5 According to the base-extra capacity method, customer costs comprise those costs
6 associated with serving customers, irrespective of the amount or rate of water use.
7 Direct fire-protection costs are those costs that are applicable solely to the fire-
8 protection function.

9 When applying the base-extra capacity method, some of the costs can be easily
10 determined and directly assigned to a single function. For example, the cost of
11 fire hydrants can be determined to be 100% fire-protection costs. Also, chemical
12 costs tend to vary directly with total water usage and can be assigned directly to
13 the base cost component. Most costs of a water company's system, however, can
14 not be easily separated into the four categories, because the same facility may
15 satisfy multiple functions at the same time. Transmission and distribution mains
16 costs are a primary example of costs that can't be directly assigned.

17 **Q. HOW IS THE BASE-EXTRA CAPACITY METHOD APPLIED TO MAINS COST**
18 **ALLOCATION?**

19 **A:** The first step of the base-extra capacity method is to separate costs into the four
20 primary cost components that are discussed above. Traditionally, mains costs are
21 allocated to base and maximum-hour extra capacity cost components in
22 recognition of the fact that mains provide annual water usage as well as
23 maximum-hour service to all customers. Selection of the appropriate factors for
24 allocating costs between base and extra capacity varies from analyst to analyst

1 and involves some judgement. Because mains cost is a joint cost, there is no clear
2 separation between these two cost categories. One method of determining cost
3 responsibility is to utilize the system capacity factor. Capacity factor is defined as
4 the average load in a particular period as a ratio or percentage of the maximum
5 capacity. The capacity factor is one indication of how the system load is spread
6 and whether there is a great difference between the average demand on the system
7 and the demand at peak. A small capacity factor indicates a small average usage
8 relative to the maximum demand and thus less cost should be allocated to the base
9 cost component and more cost should be allocated to the extra capacity cost
10 component.

11 **Q. PLEASE DEMONSTRATE HOW THE CAPACITY RATIO CAN BE ADJUSTED TO BETTER**
12 **REFLECT ECONOMIES OF SCALE.**

13 A. Traditionally, the capacity ratio has been used directly to separate the mains cost
14 into base and extra capacity cost components. For example, if the system has an
15 annual average-hour use to maximum-hour use ratio of 1:2.22, then mains cost
16 would be allocated 45% ($1/2.22$) to base cost and 55% (100% minus 45%) to the
17 maximum-hour extra capacity cost.

18 OPC's allocator reflects economies of scale by adjusting the how heavily the ratio
19 of average and peak use are weighted in allocating costs. For example, if the
20 system average to maximum-hour capacity ratio is 1:2.22, the respective cost ratio
21 might be calculated as the square root of the capacity ratio, which would reflect
22 the lower cost for extra capacities if economies of scale are present. The square
23 root of $1/2.22$ would equal $1/1.49$ and therefore the mains cost would be allocated
24 67% ($1/1.49$) to base cost and 33% (100% minus 67%) to maximum-hour extra

1 capacity cost as opposed to the previous 45% base and 55 peak that was assigned
2 by the traditional method.

3 **Q. ACCORDING TO THE BASE-EXTRA CAPACITY METHOD, WHAT IS THE SECOND**
4 **STEP OF ALLOCATING MAINS COST?**

5 A. The second step of the base-extra capacity method is to distribute costs among
6 customer classes. Class cost responsibilities are determined based on different
7 usage characteristics or proportions of total system usage for each cost
8 component. Generally, the base cost component is distributed to different classes
9 based on each class's share of the total water usage. The extra-capacity cost
10 component can be distributed to each class based on class non-coincidental
11 peaking requirements on the system, or the difference between the class peaking
12 requirement and the corresponding class average rate of use. If the latter method
13 is adopted, an economies of scale adjustment could be used to ensure appropriate
14 cost allocation.

II. RATE DESIGN

▪ *General Rate Design Principles*

Q. WHAT IS THE RELATIVE IMPORTANCE OF CCOS STUDY RESULTS IN RATE DESIGN?

A. A CCOS study provides the Commission with a general guide as to the just and reasonable rate for the provision of service that corresponds to costs. In addition, other factors are also relevant considerations when determining the appropriate rate for a service including the value of a service, affordability, rate impact, and rate continuity, etc. The determination as to the manner in which the results of a cost of service study and all the other factors are balanced in setting rates can only be determined on a case-by-case basis.

Q. HOW DOES PUBLIC COUNSEL ACCOMMODATE OTHER FACTORS SUCH AS AFFORDABILITY, RATE IMPACT, AND RATE CONTINUITY IN THE RATE DESIGN RECOMMENDATIONS THAT IT MAKES TO THE COMMISSION?

A. Generally, Public Counsel has recommended that the Commission adopt a rate design that balances movement toward cost of service with rate impact and affordability considerations. To reach this balance, OPC believes that in cases where the existing revenue structure within a district departs greatly from the class cost of service, the Commission should impose, at a maximum, class revenue shifts within the district equal to one half of the revenue neutral shifts indicated by Public Counsel's class cost of service study. In addition, if the Commission determines that an increase in district revenue requirement is

1 necessary, then no customer class within the district should receive a net decrease
2 as the combined result of: (1) the revenue neutral shift that is applied to that class,
3 and (2) the share of the total revenue increase that is applied to that class. If the
4 Commission determines that a decrease in district revenue requirement is
5 necessary, then no customer class within the district should receive a net increase
6 as the combined result of: (1) the revenue neutral shift that is applied to that class,
7 and (2) the share of the total revenue decrease that is applied to that class.

8 With respect to shifts between districts, the Commission decided in its Report and
9 Order in WR-2000-281 to move away from single tariff pricing(a single
10 company-wide tariff that would apply to each class) and toward district specific
11 pricing. I believe that the Commissions decision has merit from both an economic
12 and public policy perspective. Moving rates closer to cost reduces market
13 distortions that might otherwise arise. However, while the Commission appeared
14 to want to move toward district specific pricing, it did not mandate that district
15 specific cost be achieved in all cases or within a specific timeframe. This
16 flexability allows for deviation from strict district specific pricing when
17 reasonably necessary based on consideration of all relevant factors.

18 ▪ ***Rate Design for this Case***

19 **Q. HAS OPC PERFORMED A CLASS COST OF SERVICE STUDY FOR THIS CASE?**

20 **A.** Yes. Public Counsel witness James Busch has performed a cost of service study
21 for this case and submitted it in his direct testimony.

Q. WHAT IS THE RESULT OF PUBLIC COUNSEL'S CLASS COST OF SERVICE STUDY?

A. Public Counsel's cost of service study shows that on average for many of MAWC largest districts including St. Louis, St. Joseph, Joplin, St CharlesWarrensburg, all customers and specifically residential and commercial customers are currently contributing more than they should according to their cost of service. According the the study results (excluding Jefferson City for which results are currently unavailable), Brunswick would require a district average increase of 108% to fully reach cost of service, Mexico would require a 13% district average and Parkville would require a 7% district average increase.

Q. PLEASE DESCRIBE THE COMPANY'S CURRENT RATE STRUCTURE.

A. Generally, the Company's rate structure includes a minimum customer charge and a commodity charge. The minimum customer charge includes a meter charge and in some cases a minimum usage charge. The meter charges vary with meter size may be different across classes. The commodity charges are different for different customer classes and are most often based on blocks of use that decline on a per unit basis as usage increases.

Q. PLEASE ILLUSTRATE YOUR RATE DESIGN PROPOSAL.

A. I am aware that different proposals would produce total revenue requirements for the Company ranging from roughly a possible \$20 million reduction to a possible \$20 million increase. My current rate design recommendation applies only to the level of revenue requirement based on Public Counsel's CCOS cost study results. I recommend the following rate design principles:

- The minimum usage component of customer charges should be eliminated. This will affect both the Jefferson City district as well as potentially reducing the Company's total revenue. I will provide specific information when adjusted information for Jefferson City becomes available .
- I do not recommend altering the existing meter charges at this time.
- If the Commission decides to move to the full cost of service on a district specific basis, then following the rate design principles I described previously , I recommend the changes shown in Table 1 Schedule BAM DIR-1. Additional supporting information is provided in Schedules BAM DIR-2.1 through 2.2 and Schedules BAM DIR-3.1.1 through 3.9.2.
- I believe that in some cases it is reasonable to temper unreasonably large district average rate increases of more than 15% that might occur in one district by allowing limited support generated from other districts. When deciding which districts should be called upon to provide support. I believe it would be reasonable to first look to districts that would otherwise receive the most significant rate reductions. In this case, under the results of OPC's cost of service study it appears that fully cost based rates for Brunswick would result in a district average increase of 108%. I would recommend that the district average

1 increase to Brunswick be capped at 15%. I further recommend
2 that the revenue shortfall be recovered from the districts that will
3 receive a double digit refund based on OPC's proposed CCOS
4 study results. This would produce an interdistrict shift of
5 \$198,008. Under the OPC's cost of service study this works out
6 to a reduction in the revenue deficiency of just over 1 cent on
7 each dollar for two districts.

8 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

9 **A. Yes.**

Office of the Public Counsel
Example of Class Cost Allocation
WR-2003-0500

Table 1 - Example At OPC COS Study Level: % increase in Rate Revenue by District by Class

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE
Jefferson City							
Brunswick	108%	93%	101%	144%	153%	140%	0%
Joplin	-9%	-11%	-9%	0%	-6%	-4%	-26%
Mexico	13%	11%	12%	26%	20%	7%	0%
Parkville	7%	6%	10%	22%	10%	11%	0%
St. Charles	-13%	-12%	-17%	-14%	-18%	N/A	-22%
St. Joseph	-5%	-5%	-5%	-6%	0%	-5%	36%
Warrensburg	-9%	-6%	-12%	-4%	-12%	-4%	-30%
St Louis	-14.2%	-14.6%		0.0%	0.0%	-44.5%	-28.4%

Table 1.1 - Example At OPC COS Study Level: Resulting Rate Revenue % by District by Class

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE
Jefferson City							
Brunswick	0.30%	0.14%	0.04%	0.00%	0.01%	0.11%	0.00%
Joplin	5.07%	2.55%	1.04%	0.97%	0.13%	0.28%	0.10%
Mexico	1.91%	0.91%	0.27%	0.26%	0.16%	0.27%	0.04%
Parkville	2.07%	1.47%	0.30%	0.01%	0.07%	0.18%	0.04%
St. Charles	5.09%	4.39%	0.55%	0.00%	0.09%	0.00%	0.06%
St. Joseph	10.64%	4.81%	2.04%	1.87%	0.45%	1.33%	0.15%
Warrensburg	1.55%	0.81%	0.28%	0.05%	0.25%	0.14%	0.03%
St Louis	68.61%	60.08%		5.99%	1.29%	0.73%	0.51%

Office of the Public Counsel
Summary of Cost of Service Results
WR-2003-0500

Table 1 - Summary: Cost of Service by District by Class

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	FIRE SERVICE
Total**	145,500,723 100%	83,586,175 57%	37,439,282 26%	15,898,093 11%	4,782,888 3%	2,318,036 2%	1,476,249 1%
Jefferson City	4,029,744 100%	2,159,414 54%	1,558,029 39%	217,197 5%	52,334 1%	- 0%	42,770 1%
Brunswick	442,242 100%	216,083 49%	59,367 13%	1,648 0%	8,491 2%	150,710 34%	5,944 1%
Joplin	7,532,075 100%	3,669,460 49%	1,540,934 20%	1,569,793 21%	204,708 3%	439,415 6%	107,765 1%
Mexico	2,840,569 100%	1,331,105 47%	398,860 14%	440,871 16%	254,355 9%	386,614 14%	28,764 1%
Parkville	3,074,538 100%	2,164,161 70%	468,629 15%	21,160 1%	111,951 4%	273,627 9%	35,010 1%
St. Charles	7,565,381 100%	6,586,490 87%	768,965 10%	3,593 0%	126,188 2%	- 0%	80,145 1%
St. Joseph	15,809,522 100%	7,115,110 45%	3,025,498 19%	2,714,358 17%	707,125 4%	1,965,320 12%	282,112 2%
Warrensburg	2,307,224 100%	1,236,218 54%	402,069 17%	80,031 3%	349,040 15%	213,557 9%	26,309 1%
St. Louis	101,899,426 100%	86,983,273 85%		11,109,841 11%	2,955,641 3%	301,957 0%	548,713 1%

Table 1.1 - Summary: Cost of Service by District by Class (as a percentage of total cost of service)

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC	SALES FOR RESALE	PRIVATE FIRE
Company**	100.00%	57.45%	25.73%	10.93%	3.29%	1.59%	1.01%
Jefferson City	2.77%	1.48%	1.07%	0.15%	0.04%	0.00%	0.03%
Brunswick	0.30%	0.15%	0.04%	0.00%	0.01%	0.10%	0.00%
Joplin	5.18%	2.52%	1.06%	1.08%	0.14%	0.30%	0.07%
Mexico	1.95%	0.91%	0.27%	0.30%	0.17%	0.27%	0.02%
Parkville	2.11%	1.49%	0.32%	0.01%	0.08%	0.19%	0.02%
St. Charles	5.20%	4.53%	0.53%	0.00%	0.09%	0.00%	0.06%
St. Joseph	10.87%	4.89%	2.08%	1.87%	0.49%	1.35%	0.19%
Warrensburg	1.58%	0.85%	0.28%	0.06%	0.24%	0.15%	0.02%
St. Louis	70.03%	59.78%		7.64%	2.03%	0.21%	0.38%

Office of the Public Counsel
Summary of Cost of Service Results
WR-2003-0500

Table 2 - Summary: Current Rate Revenue by District by Class

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC	SALES FOR RESALE	PRIVATE FIRE
Company**	153,615,831 100%	123,446,456 80%	7,814,692 5%	12,274,778 8%	2,681,887 2%	5,517,019 4%	1,880,999 1%
Jefferson City	2,865,193 100%	1,693,760 59%	821,804 29%	183,869 6%	53,370 2%	(103) 0%	112,493 4%
Brunswick	202,793 100%	100,479 50%	27,974 14%	744 0%	3,552 2%	64,974 32%	5,070 3%
Joplin	8,069,321 100%	4,183,872 52%	1,647,603 20%	1,410,520 17%	207,179 3%	423,522 5%	196,625 2%
Mexico	2,486,854 100%	1,197,434 48%	348,742 14%	301,415 12%	192,751 8%	368,933 15%	77,579 3%
Parkville	2,841,730 100%	2,032,163 72%	400,946 14%	14,832 1%	96,594 3%	230,612 8%	66,583 2%
St. Charles	8,552,581 100%	7,312,573 86%	959,209 11%	4,132 0%	159,641 2%	- 0%	117,006 1%
St. Joseph	16,394,416 100%	7,460,181 46%	3,138,604 19%	2,931,268 18%	655,164 4%	2,054,574 13%	154,627 1%
Warrensburg	2,470,660 100%	1,252,537 51%	469,810 19%	77,275 3%	408,331 17%	209,250 8%	53,457 2%
St. Louis	109,732,303 100%	98,213,457 90%		7,350,725 7%	905,305 1%	2,165,257 2%	1,097,559 1%

Table 2.1 - Summary: Current Rate Revenue by District by Class (as a percentage of total revenue)

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC	SALES FOR RESALE	PRIVATE FIRE
Company**	100.00%	80.36%	5.09%	7.99%	1.75%	3.59%	1.22%
Jefferson City	1.87%	1.10%	0.53%	0.12%	0.03%	0.00%	0.07%
Brunswick	0.13%	0.07%	0.02%	0.00%	0.00%	0.04%	0.00%
Joplin	5.25%	2.72%	1.07%	0.92%	0.13%	0.28%	0.13%
Mexico	1.62%	0.78%	0.23%	0.20%	0.13%	0.24%	0.05%
Parkville	1.85%	1.32%	0.26%	0.01%	0.06%	0.15%	0.04%
St. Charles	5.57%	4.76%	0.62%	0.00%	0.10%	0.00%	0.08%
St. Joseph	10.67%	4.86%	2.04%	1.91%	0.43%	1.34%	0.10%
Warrensburg	1.61%	0.82%	0.31%	0.05%	0.27%	0.14%	0.03%

Office of the Public Counsel
MAWC Class Cost of Service Summary

Jefferson City District

CLASS COST OF SERVICE SUMMARY:		TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	2,430,399	1,295,076	916,074	128,808	33,426	0	19,828	37,186
2	Depreciation Expenses	353,748	158,795	139,344	19,501	3,662	0	5,847	26,598
3	Taxes	76,201	38,673	28,569	4,094	994	0	1,024	2,847
4	TOTAL Expenses and Taxes	2,860,348	1,492,545	1,083,987	152,403	38,082	-	26,699	66,632
5									
6	Spread public fire expenses & taxes to others	15	66,632	57,087	8,849	260	436	0	0
7	TOTAL Expenses and Taxes after Spread	2,860,348	1,549,633	1,092,836	152,663	38,518	-	26,699	(66,632)
8									
9	Current Revenue								
10	Rate Revenue	2,865,193	1,693,760	821,804	183,869	53,370	(103)	112,493	0
11	Other Revenue	25	26,671	14,236	10,359	1,456	363	0	257
12	TOTAL Current Revenues	2,891,864	1,707,996	832,163	185,325	53,733	(103)	112,750	0
13	Current Revenue Percentage	100.00%	59.06%	28.78%	6.41%	1.86%	0.00%	3.90%	0.00%
14									
15	OPERATING INCOME	31,516	158,363	(260,673)	32,662	15,215	(103)	86,051	0
16									
17	TOTAL Rate Base	9,268,333	4,154,712	3,654,596	512,493	93,432	-	153,724	699,375
18									
19	Spread public fire rate base to others	15	699,375	599,193	92,880	2,731	4,572	0	0
20	TOTAL Rate Base after Spread	9,268,333	4,753,905	3,747,476	515,224	98,004	-	153,724	(699,375)
21									
22	Implicit Rate of Return (ROR)	0.34%	3.33%	-6.96%	6.34%	15.52%	#DIV/0!	55.98%	
23									
24	Operating Income with Equalized ROR	31,516	16,165	12,743	1,752	333	-	523	
25									
26	Class COS with Equalized ROR	2,891,864	1,565,798	1,105,579	154,415	38,851	-	27,222	
27	Class COS Percentage	100.00%	54.14%	38.23%	5.34%	1.34%	0.00%	0.94%	
28									
29	OPC Recommended ROR	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	
30									
31	Operating Income with Recommended ROR	690,491	354,166	279,187	38,384	7,301	-	11,452	
32	True-up plus add'l taxes	25	478,904	255,615	186,006	26,150	6,515	0	4,618
33	Class COS with Recommended ROR	4,029,744	2,159,414	1,558,029	217,197	52,334	-	42,770	
34	Class COS Percentage	100.00%	53.59%	38.66%	5.39%	1.30%	0.00000000%	1.06%	
		1,137,879	593,616	452,450	62,782	13,483	-	15,548	

Office of the Public Counsel
MAWC Class Cost of Service Summary

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OPA	SIR	PRIVATE FIRE	
1 Current Rate Revenue	2,891,864	1,707,996	832,163	185,325	53,733	(103)	112,750	
2 Class Percentage	100.00%	59.06%	28.78%	6.41%	1.86%	0.00%	3.90%	
3								
4 Class COS with Equalized ROR	2,891,864	1,565,798	1,105,579	154,415	38,851	-	27,222	
5 Class COS Percentage	100.00%	54.14%	38.23%	5.34%	1.34%	0.00%	0.94%	
6								
7 Margin Revenue Required to Equalize ROR	2,891,864	-1,565,798	1,105,579	154,415	38,851	-	27,222	
8 Revenue Neutral Shift to Equalize Class ROR	(0)	(142,198)	273,415	(30,910)	(14,882)	103	(85,528)	
9 Revenue Increase/Decrease Percentage	0.00%	-8.33%	32.86%	-16.68%	-27.70%	-100.00%	-75.86%	
10								
11 1/2 of Revenue Neutral Shift	(0)	(71,099)	136,708	(15,455)	(7,441)	52	(42,764)	
12 Revenue Increase/Decrease Percentage	0.00%	-4.16%	16.43%	-8.34%	-13.85%	-50.00%	-37.93%	
13								
14 Recommended Margin Revenue	2,891,865	1,636,869	968,851	169,867	46,291	0	69,986	
15 Recommended Class Revenue Percentage	100.00%	56.60%	33.50%	5.87%	1.60%	0.00%	2.42%	
16								
17 Spread of Revenue Increase								
18 Example: Revenue At OPC Study COS Level	1,137,879	644,068	381,220	66,839	18,215	0	27,538	
19 Example: Revenue Increase of Additional 10% Above OPC C	1,540,854	872,162	516,227	90,509	24,665	0	37,290	
20 Example: Revenue Increase of Additional 50% Above OPC C	3,152,751	1,784,537	1,056,255	185,192	50,467	0	76,300	
21								
22 Combining Revenue Neutral Shift and Revenue Increase								
23 Example: Revenue At OPC Study COS Level	1,137,879	572,969	517,927	51,384	10,774	52	(15,226)	
24 Example: Revenue Increase of Additional 10% Above OPC C	1,540,854	801,063	652,934	75,054	17,224	52	(5,474)	
25 Example: Revenue Increase of Additional 50% Above OPC C	3,152,751	1,713,438	1,192,963	169,737	43,027	52	33,536	
26								
27 Adjust to eliminate negative increase								
28 Example: Revenue At OPC Study COS Level	1,137,879	572,969	517,927	51,384	10,774	52	(15,226)	1,137,879
29 Example: Revenue Increase of Additional 10% Above OPC C	1,540,854	801,063	652,934	75,054	17,224	52	(5,474)	1,540,854
30 Example: Revenue Increase of Additional 50% Above OPC C	3,152,751	1,713,438	1,192,963	169,737	43,027	52	33,536	3,152,751
31								
32 Percentage of Net Revenue Increase								
33 Example: Revenue At OPC Study COS Level	39.35%	33.55%	62.24%	27.73%	20.05%	-50.00%	-13.50%	
34 Example: Revenue Increase of Additional 10% Above OPC C	53.28%	46.90%	78.46%	40.50%	32.06%	-50.00%	-4.85%	
35 Example: Revenue Increase of Additional 50% Above OPC C	109.02%	100.32%	143.36%	91.59%	80.08%	-50.00%	29.74%	
36								
37 Class Revenue								
38 Example: Revenue At OPC Study COS Level	4,029,744	2,280,965	1,350,091	236,709	64,507	(52)	97,524	
39 Example: Revenue Increase of Additional 10% Above OPC C	4,432,718	2,509,059	1,485,098	260,379	70,957	(52)	107,276	
40 Example: Revenue Increase of Additional 50% Above OPC C	6,044,616	3,421,434	2,025,126	355,062	96,759	(52)	146,286	
41								
42 Percentage of Class Revenue								
43 Example: Revenue At OPC Study COS Level	100.00%	56.60%	33.50%	5.87%	1.60%	0.00%	2.42%	
44 Example: Revenue Increase of Additional 10% Above OPC C	100.00%	56.60%	33.50%	5.87%	1.60%	0.00%	2.42%	
45 Example: Revenue Increase of Additional 50% Above OPC C	100.00%	56.60%	33.50%	5.87%	1.60%	0.00%	2.42%	

Office of the Public Counsel
MAWC Class Cost of Service Summary

Brunswick District

CLASS COST OF SERVICE SUMMARY:

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1 O & M Expenses	289,104	130,801	37,475	1,266	6,656	113,036	260	(390)
2 Depreciation Expenses	39,717	18,429	4,828	96	637	12,763	310	2,653
3 Taxes	(40,953)	(19,350)	(4,866)	(78)	(570)	(11,806)	(450)	(3,833)
4 TOTAL Expenses and Taxes	287,868	129,881	37,437	1,284	6,724	113,994	120	(1,570)
5								
6 Spread public fire expenses & taxes to others	15 (1,570)	(1,285)	(258)	(7)	(21)	0	0	1,570
7 TOTAL Expenses and Taxes after Spread	287,868	128,596	37,179	1,277	6,703	113,994	120	-
8								
9 Current Revenue								
10 Rate Revenue	202,793	100,479	27,974	744	3,552	64,974	5,070	0
11 Other Revenue	25 9,594	4,143	1,238	48	242	3,946	(23)	0
12 TOTAL Current Revenues	212,387	104,622	29,212	792	3,794	68,920	5,047	0
13 Current Revenue Percentage	100.00%	49.26%	13.75%	0.37%	1.79%	32.45%	2.38%	0.00%
14								
15 OPERATING INCOME	(75,481)	(23,974)	(7,967)	(485)	(2,909)	(45,074)	4,927	0
16								
17 TOTAL Rate Base	773,309	359,705	93,597	1,900	12,388	243,990	6,579	55,150
18								
19 Spread public fire rate base to others	15 55,150	45,134	9,051	241	724	0	0	(55,150)
20 TOTAL Rate Base after Spread	773,309	404,839	102,647	2,141	13,112	243,990	6,579	-
21								
22 Implicit Rate of Return (ROR)	-9.76%	-5.92%	-7.76%	-22.64%	-22.19%	-18.47%	74.88%	
23								
24 Operating Income with Equalized ROR	(75,481)	(39,516)	(10,019)	(209)	(1,280)	(23,815)	(642)	
25								
26 Class COS with Equalized ROR	212,387	89,080	27,160	1,068	5,423	90,178	(522)	
27 Class COS Percentage	100.00%	41.94%	12.79%	0.50%	2.55%	42.46%	-0.25%	
28								
29 OPC Recommended ROR	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	
30								
31 Operating Income with Recommended ROR	57,611	30,160	7,647	160	977	18,177	490	
32 True-up plus add'l taxes	25 96,763	41,785	12,488	487	2,441	39,797	(235)	
33 Class COS with Recommended ROR	442,242	216,083	59,367	1,648	8,491	150,710	5,944	
34 Class COS Percentage	100.00%	48.86%	13.42%	0.37%	1.92%	34.08%	1.34%	
	229,855	111,461	30,155	856	4,697	81,790	897	

**Office of the Public Counsel
MAWC Class Cost of Service Summary**

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OPA	SIR	PRIVATE FIRE
1 Current Rate Revenue	212,387	104,622	29,212	792	3,794	68,920	5,047
2 Class Percentage	100.00%	49.26%	13.75%	0.37%	1.79%	32.45%	2.38%
3							
4 Class COS with Equalized ROR	212,387	89,080	27,160	1,068	5,423	90,178	(522)
5 Class COS Percentage	100.00%	41.94%	12.79%	0.50%	2.55%	42.46%	-0.25%
6							
7 Margin Revenue Required to Equalized ROR	212,387	89,080	27,160	1,068	5,423	90,178	(522)
8 Revenue Neutral Shift to Equalize Class ROR	(0)	(15,542)	(2,053)	276	1,629	21,258	(5,569)
9 Revenue Increase/Decrease Percentage	0.00%	-14.86%	-7.03%	34.80%	42.95%	30.84%	-110.35%
10							
11 1/2 of Revenue Neutral Shift	(0)	(7,771)	(1,026)	138	815	10,629	(2,784)
12 Revenue Increase/Decrease Percentage	0.00%	-7.43%	-3.51%	17.40%	21.47%	15.42%	-55.17%
13							
14 Recommended Margin Revenue	212,387	96,851	28,186	930	4,609	79,549	2,262
15 Recommended Class Revenue Percentage	100.00%	45.60%	13.27%	0.44%	2.17%	37.45%	1.07%
16							
17 Spread of Revenue Increase							
18 Example: Revenue At OPC Study COS Level	229,855	104,817	30,504	1,007	4,988	86,092	2,448
19 Example: Revenue Increase of Additional 10% Above OPC (	274,079	124,984	36,373	1,200	5,947	102,656	2,919
20 Example: Revenue Increase of Additional 50% Above OPC (	450,976	205,651	59,849	1,975	9,786	168,912	4,803
21							
22 Combining Revenue Neutral Shift and Revenue Increase							
23 Example: Revenue At OPC Study COS Level	229,855	97,046	29,478	1,145	5,802	96,721	(336)
24 Example: Revenue Increase of Additional 10% Above OPC (	274,079	117,213	35,347	1,338	6,762	113,285	135
25 Example: Revenue Increase of Additional 50% Above OPC (	450,976	197,880	58,823	2,113	10,601	179,541	2,019
26							
27 Adjust to eliminate negative increase							
28 Example: Revenue At OPC Study COS Level	229,855	96,904	29,435	1,143	5,794	96,580	-
29 Example: Revenue Increase of Additional 10% Above OPC (	274,079	117,213	35,347	1,338	6,762	113,285	135
30 Example: Revenue Increase of Additional 50% Above OPC (	450,976	197,880	58,823	2,113	10,601	179,541	2,019
31							
32 Percentage of Net Revenue Increase							
33 Example: Revenue At OPC Study COS Level	108.22%	92.62%	100.76%	144.24%	152.71%	140.13%	0.00%
34 Example: Revenue Increase of Additional 10% Above OPC (	129.05%	112.03%	121.00%	168.90%	178.23%	164.37%	2.67%
35 Example: Revenue Increase of Additional 50% Above OPC (	212.34%	189.14%	201.36%	266.68%	279.40%	260.51%	40.01%
36							
37 Class Revenue							
38 Example: Revenue At OPC Study COS Level	442,242	201,668	58,690	1,937	9,596	165,641	4,710
39 Example: Revenue Increase of Additional 10% Above OPC (	486,467	221,835	64,559	2,131	10,556	182,205	5,181
40 Example: Revenue Increase of Additional 50% Above OPC (	663,364	302,502	88,035	2,905	14,395	248,461	7,066
41							
42 Percentage of Class Revenue							
43 Example: Revenue At OPC Study COS Level	100.00%	45.60%	13.27%	0.44%	2.17%	37.45%	1.07%
44 Example: Revenue Increase of Additional 10% Above OPC (	100.00%	45.60%	13.27%	0.44%	2.17%	37.45%	1.07%
45 Example: Revenue Increase of Additional 50% Above OPC (	100.00%	45.60%	13.27%	0.44%	2.17%	37.45%	1.07%

**Office of the Public Counsel
MAWC Class Cost of Service Summary**

Joplin District

CLASS COST OF SERVICE SUMMARY:		TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	4,009,177	1,858,456	812,535	837,034	118,584	229,638	36,821	116,109
2	Depreciation Expenses	740,464	340,402	144,337	147,203	17,579	42,077	15,373	33,492
3	Taxes	1,305,132	573,106	256,130	274,329	31,532	78,577	25,496	65,962
4	TOTAL Expenses and Taxes	6,054,773	2,771,964	1,213,002	1,258,566	167,695	350,292	77,690	215,564
5									
6	Spread public fire expenses & taxes to others	15 215,564	184,685	28,628	842	1,409	0	0	(215,564)
7	TOTAL Expenses and Taxes after Spread	6,054,773	2,956,649	1,241,630	1,259,408	169,104	350,292	77,690	-
8									
9	Current Revenue								
10	Rate Revenue	8,069,321	4,183,872	1,647,603	1,410,520	207,179	423,522	196,625	0
11	Other Revenue	25 170,992	80,601	35,467	37,117	4,750	10,421	2,636	0
12	TOTAL Current Revenues	8,240,313	4,264,473	1,683,070	1,447,637	211,929	433,943	199,261	0
13	Current Revenue Percentage	100.00%	51.75%	20.42%	17.57%	2.57%	5.27%	2.42%	0.00%
14									
15	OPERATING INCOME	2,185,540	1,307,824	441,439	188,229	42,825	83,652	121,571	0
16									
17	TOTAL Rate Base	19,987,284	8,745,940	3,911,282	4,196,388	475,453	1,205,903	406,121	1,046,199
18									
19	Spread public fire rate base to others	15 1,046,199	896,335	138,939	4,085	6,839	0	0	(1,046,199)
20	TOTAL Rate Base after Spread	19,987,284	9,642,275	4,050,221	4,200,473	482,292	1,205,903	406,121	-
21									
22	Implicit Rate of Return (ROR)	10.93%	13.56%	10.90%	4.48%	8.88%	6.94%	29.93%	
23									
24	Operating Income with Equalized ROR	2,185,540	1,054,349	442,878	459,307	52,737	131,861	44,408	
25									
26	Class COS with Equalized ROR	8,240,313	4,010,998	1,684,508	1,718,715	221,841	482,153	122,098	
27	Class COS Percentage	100.00%	48.68%	20.44%	20.86%	2.69%	5.85%	1.48%	
28									
29	OPC Recommended ROR	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	
30									
31	Operating Income with Recommended ROR	1,489,053	718,349	301,741	312,935	35,931	89,840	30,256	
32	True-up plus add'l taxes	25 (11,751)	(5,539)	(2,437)	(2,551)	(326)	(716)	(181)	
33	Class COS with Recommended ROR	7,532,075	3,669,460	1,540,934	1,569,793	204,708	439,415	107,765	
34	Class COS Percentage	100.00%	48.72%	20.46%	20.84%	2.72%	5.83%	1.43%	
		708,237	341,538	143,573	148,922	17,133	42,738	14,333	

Office of the Public Counsel
MAWC Class Cost of Service Summary

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OPA	SIR	PRIVATE FIRE	
1 Current Rate Revenue	8,240,313	4,264,473	1,683,070	1,447,637	211,929	433,943	199,261	
2 Class Percentage	100.00%	51.75%	20.42%	17.57%	2.57%	5.27%	2.42%	
3								
4 Class COS with Equalized ROR	8,240,313	4,010,998	1,684,508	1,718,715	221,841	482,153	122,098	
5 Class COS Percentage	100.00%	48.68%	20.44%	20.86%	2.69%	5.85%	1.48%	
6								
7 Margin Revenue Required to Equalized ROR	8,240,313	4,010,998	1,684,508	1,718,715	221,841	482,153	122,098	
8 Revenue Neutral Shift to Equalize Class ROR	0	(253,475)	1,438	271,078	9,912	48,210	(77,163)	
9 Revenue Increase/Decrease Percentage	0.00%	-5.94%	0.09%	18.73%	4.68%	11.11%	-38.72%	
10								
11 1/2 of Revenue Neutral Shift	0	(126,738)	719	135,539	4,956	24,105	(38,581)	
12 Revenue Increase/Decrease Percentage	0.00%	-2.97%	0.04%	9.36%	2.34%	5.55%	-19.36%	
13								
14 Recommended Margin Revenue	8,240,313	4,137,736	1,683,789	1,583,176	216,885	458,048	160,680	
15 Recommended Class Revenue Percentage	100.00%	50.21%	20.43%	19.21%	2.63%	5.56%	1.95%	
16								
17 Spread of Revenue Increase								
18 Example: Revenue At OPC Study COS Level	(708,237)	(355,630)	(144,718)	(136,071)	(18,641)	(39,368)	(13,810)	
19 Example: Revenue Increase of Additional 10% Above OPC	44,970	22,581	9,189	8,640	1,184	2,500	877	
20 Example: Revenue Increase of Additional 50% Above OPC	3,057,800	1,535,423	624,817	587,482	80,481	169,972	59,625	
21								
22 Combining Revenue Neutral Shift and Revenue Increase								
23 Example: Revenue At OPC Study COS Level	(708,237)	(482,367)	(143,999)	(531)	(13,685)	(15,263)	(52,391)	
24 Example: Revenue Increase of Additional 10% Above OPC	44,970	(104,157)	9,908	144,179	6,140	26,605	(37,704)	
25 Example: Revenue Increase of Additional 50% Above OPC	3,057,800	1,408,686	625,536	723,021	85,437	194,077	21,043	
26								
27 Adjust to eliminate negative increase								
28 Example: Revenue At OPC Study COS Level	(708,237)	(482,367)	(143,999)	(531)	(13,685)	(15,263)	(52,391)	(708,237)
29 Example: Revenue Increase of Additional 10% Above OPC	44,970	-	2,385	34,704	1,478	6,404	-	44,970
30 Example: Revenue Increase of Additional 50% Above OPC	3,057,800	1,408,686	625,536	723,021	85,437	194,077	21,043	3,057,800
31								
32 Percentage of Net Revenue Increase								
33 Example: Revenue At OPC Study COS Level	-8.59%	-11.31%	-8.56%	-0.04%	-6.46%	-3.52%	-26.29%	
34 Example: Revenue Increase of Additional 10% Above OPC	0.55%	0.00%	0.14%	2.40%	0.70%	1.48%	0.00%	
35 Example: Revenue Increase of Additional 50% Above OPC	37.11%	33.03%	37.17%	49.94%	40.31%	44.72%	10.56%	
36								
37 Class Revenue								
38 Example: Revenue At OPC Study COS Level	7,532,075	3,782,106	1,539,071	1,447,105	198,244	418,680	146,869	
39 Example: Revenue Increase of Additional 10% Above OPC	8,285,283	4,160,317	1,692,978	1,591,816	218,069	460,548	161,556	
40 Example: Revenue Increase of Additional 50% Above OPC	11,298,113	5,673,159	2,308,606	2,170,658	297,366	628,020	220,304	
41								
42 Percentage of Class Revenue								
43 Example: Revenue At OPC Study COS Level	100.00%	50.21%	20.43%	19.21%	2.63%	5.56%	1.95%	
44 Example: Revenue Increase of Additional 10% Above OPC	100.00%	50.21%	20.43%	19.21%	2.63%	5.56%	1.95%	
45 Example: Revenue Increase of Additional 50% Above OPC	100.00%	50.21%	20.43%	19.21%	2.63%	5.56%	1.95%	

**Office of the Public Counsel
MAWC Class Cost of Service Summary**

Mexico District

CLASS COST OF SERVICE SUMMARY:		TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	1,262,962	568,010	173,115	191,147	119,369	167,483	9,118	34,719
2	Depreciation Expenses	369,845	161,907	50,572	57,152	30,626	49,920	4,941	14,728
3	Taxes	298,094	127,873	40,844	47,177	25,237	41,563	3,651	11,748
4	TOTAL Expenses and Taxes	1,930,901	857,791	264,531	295,475	175,233	258,966	17,710	61,196
5									
6	Spread public fire expenses & taxes to others	61,196	53,759	5,937	277	1,223	0	0	(61,196)
7	TOTAL Expenses and Taxes after Spread	1,930,901	911,550	270,468	295,752	176,455	258,966	17,710	-
8									
9	Current Revenue								
10	Rate Revenue	2,486,854	1,197,434	348,742	301,415	192,751	368,933	77,579	0
11	Other Revenue	35,702	16,271	5,062	5,704	3,292	5,006	367	0
12	TOTAL Current Revenues	2,522,556	1,213,705	353,804	307,119	196,043	373,939	77,946	0
13	Current Revenue Percentage	100.00%	48.11%	14.03%	12.17%	7.77%	14.82%	3.09%	0.00%
14									
15	OPERATING INCOME	591,654	302,156	83,336	11,367	19,588	114,973	60,235	0
16									
17	TOTAL Rate Base	10,627,082	4,555,891	1,459,799	1,693,118	891,586	1,491,429	132,111	403,148
18									
19	Spread public fire rate base to others	403,148	354,156	39,111	1,827	8,055	0	0	(403,148)
20	TOTAL Rate Base after Spread	10,627,082	4,910,047	1,498,910	1,694,945	899,641	1,491,429	132,111	-
21									
22	Implicit Rate of Return (ROR)	5.57%	6.15%	5.56%	0.67%	2.18%	7.71%	45.59%	
23									
24	Operating Income with Equalized ROR	591,654	273,363	83,451	94,365	50,087	83,034	7,355	
25									
26	Class COS with Equalized ROR	2,522,556	1,184,912	353,919	390,117	226,542	342,000	25,065	
27	Class COS Percentage	100.00%	46.97%	14.03%	15.47%	8.98%	13.56%	0.99%	
28									
29	OPC Recommended ROR	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	
30									
31	Operating Income with Recommended ROR	791,718	365,798	111,669	126,273	67,023	111,111	9,842	
32	True-up plus add'l taxes	117,950	53,757	16,723	18,845	10,876	16,537	1,212	
33	Class COS with Recommended ROR	2,840,569	1,331,105	398,860	440,871	254,355	386,614	28,764	
34	Class COS Percentage	100.00%	46.86%	14.04%	15.52%	8.95%	13.61%	1.01%	
		318,014	146,192	44,941	50,754	27,813	44,614	3,699	

**Office of the Public Counsel
MAWC Class Cost of Service Summary**

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OPA	SIR	PRIVATE FIRE
1 Current Rate Revenue	2,522,556	1,213,705	353,804	307,119	196,043	373,939	77,946
2 Class Percentage	100.00%	48.11%	14.03%	12.17%	7.77%	14.82%	3.09%
3							
4 Class COS with Equalized ROR	2,522,556	1,184,912	353,919	390,117	226,542	342,000	25,065
5 Class COS Percentage	100.00%	46.97%	14.03%	15.47%	8.98%	13.56%	0.99%
6							
7 Margin Revenue Required to Equalize ROR	2,522,556	1,184,912	353,919	390,117	226,542	342,000	25,065
8 Revenue Neutral Shift to Equalize Class ROR	(0)	(28,793)	115	82,998	30,499	(31,939)	(52,880)
9 Revenue Increase/Decrease Percentage	0.00%	-2.37%	0.03%	27.02%	15.56%	-8.54%	-67.84%
10							
11 1/2 of Revenue Neutral Shift	(0)	(14,396)	58	41,499	15,249	(15,969)	(26,440)
12 Revenue Increase/Decrease Percentage	0.00%	-1.19%	0.02%	13.51%	7.78%	-4.27%	-33.92%
13							
14 Recommended Margin Revenue	2,522,556	1,199,309	353,861	348,618	211,293	357,969	51,506
15 Recommended Class Revenue Percentage	100.00%	47.54%	14.03%	13.82%	8.38%	14.19%	2.04%
16							
17 Spread of Revenue Increase							
18 Example: Revenue At OPC Study COS Level	318,014	151,194	44,611	43,950	26,637	45,128	6,493
19 Example: Revenue Increase of Additional 10% Above OPC (	602,070	286,245	84,458	83,206	50,430	85,438	12,293
20 Example: Revenue Increase of Additional 50% Above OPC (	1,738,298	826,446	243,847	240,233	145,602	246,677	35,493
21							
22 Combining Revenue Neutral Shift and Revenue Increase							
23 Example: Revenue At OPC Study COS Level	318,014	136,798	44,668	85,448	41,887	29,159	(19,947)
24 Example: Revenue Increase of Additional 10% Above OPC (	602,070	271,848	84,515	124,705	65,680	69,469	(14,147)
25 Example: Revenue Increase of Additional 50% Above OPC (	1,738,298	812,050	243,904	281,732	160,852	230,708	9,052
26							
27 Adjust to eliminate negative increase							
28 Example: Revenue At OPC Study COS Level	318,014	128,724	42,032	80,405	39,414	27,438	-
29 Example: Revenue Increase of Additional 10% Above OPC (	602,070	265,607	82,575	121,842	64,172	67,874	-
30 Example: Revenue Increase of Additional 50% Above OPC (	1,738,298	812,050	243,904	281,732	160,852	230,708	9,052
31							
32 Percentage of Net Revenue Increase							
33 Example: Revenue At OPC Study COS Level	12.61%	10.61%	11.88%	26.18%	20.10%	7.34%	0.00%
34 Example: Revenue Increase of Additional 10% Above OPC (	23.87%	21.88%	23.34%	39.67%	32.73%	18.15%	0.00%
35 Example: Revenue Increase of Additional 50% Above OPC (	68.91%	66.91%	68.94%	91.73%	82.05%	61.70%	11.61%
36							
37 Class Revenue							
38 Example: Revenue At OPC Study COS Level	2,840,569	1,350,503	398,472	392,568	237,930	403,098	57,999
39 Example: Revenue Increase of Additional 10% Above OPC (	3,124,626	1,485,554	438,319	431,824	261,723	443,407	63,799
40 Example: Revenue Increase of Additional 50% Above OPC (	4,260,854	2,025,755	597,708	588,851	356,895	604,647	86,998
41							
42 Percentage of Class Revenue							
43 Example: Revenue At OPC Study COS Level	100.00%	47.54%	14.03%	13.82%	8.38%	14.19%	2.04%
44 Example: Revenue Increase of Additional 10% Above OPC (	100.00%	47.54%	14.03%	13.82%	8.38%	14.19%	2.04%
45 Example: Revenue Increase of Additional 50% Above OPC (	100.00%	47.54%	14.03%	13.82%	8.38%	14.19%	2.04%

**Office of the Public Counsel
MAWC Class Cost of Service Summary**

Parkville District

CLASS COST OF SERVICE SUMMARY:		TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	1,270,245	861,600	188,354	10,017	51,126	111,139	8,306	39,705
2	Depreciation Expenses	283,141	180,430	41,316	1,622	8,965	24,054	4,469	22,285
3	Taxes	666,581	417,172	98,487	3,870	21,223	59,671	10,235	55,923
4	TOTAL Expenses and Taxes	2,219,968	1,459,202	328,157	15,509	81,314	194,864	23,010	117,913
5									
6	Spread public fire expenses & taxes to others	117,913	108,663	7,521	280	1,448	0	0	(117,913)
7	TOTAL Expenses and Taxes after Spread	2,219,968	1,567,865	335,678	15,789	82,762	194,864	23,010	-
8									
9	Current Revenue								
10	Rate Revenue	2,841,730	2,032,163	400,946	14,832	96,594	230,612	66,583	0
11	Other Revenue	31,464	21,752	4,956	224	1,189	2,963	380	0
12	TOTAL Current Revenues	2,873,194	2,053,915	405,902	15,056	97,783	233,575	66,963	0
13	Current Revenue Percentage	100.00%	71.49%	14.13%	0.52%	3.40%	8.13%	2.33%	0.00%
14									
15	OPERATING INCOME	653,227	486,051	70,224	(733)	15,020	38,711	43,953	0
16									
17	TOTAL Rate Base	8,436,415	5,267,838	1,262,421	48,791	268,662	771,495	124,472	692,737
18									
19	Spread public fire rate base to others	692,737	638,394	44,188	1,647	8,508	0	0	(692,737)
20	TOTAL Rate Base after Spread	8,436,415	5,906,231	1,306,609	50,438	277,170	771,495	124,472	-
21									
22	Implicit Rate of Return (ROR)	7.74%	8.23%	5.37%	-1.45%	5.42%	5.02%	35.31%	
23									
24	Operating Income with Equalized ROR	653,227	457,316	101,170	3,905	21,461	59,736	9,638	
25									
26	Class COS with Equalized ROR	2,873,194	2,025,181	436,848	19,694	104,223	254,600	32,647	
27	Class COS Percentage	100.00%	70.49%	15.20%	0.69%	3.63%	8.86%	1.14%	
28									
29	OPC Recommended ROR	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	
30									
31	Operating Income with Recommended ROR	628,513	440,014	97,342	3,758	20,649	57,476	9,273	
32	True-up plus add'l taxes	226,058	156,283	35,609	1,613	8,539	21,286	2,728	
33	Class COS with Recommended ROR	3,074,538	2,164,161	468,629	21,160	111,951	273,627	35,010	
34	Class COS Percentage	100.00%	70.39%	15.24%	0.69%	3.64%	8.90%	1.14%	
		201,344	138,981	31,781	1,465	7,728	19,026	2,363	

**Office of the Public Counsel
MAWC Class Cost of Service Summary**

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OPA	SIR	PRIVATE FIRE
1 Current Rate Revenue	2,873,194	2,053,915	405,902	15,056	97,783	233,575	66,963
2 Class Percentage	100.00%	71.49%	14.13%	0.52%	3.40%	8.13%	2.33%
3							
4 Class COS with Equalized ROR	2,873,194	2,025,181	436,848	19,694	104,223	254,600	32,647
5 Class COS Percentage	100.00%	70.49%	15.20%	0.69%	3.63%	8.86%	1.14%
6							
7 Margin Revenue Required to Equalized ROR	2,873,194	2,025,181	436,848	19,694	104,223	254,600	32,647
8 Revenue Neutral Shift to Equalize Class ROR	(0)	(28,735)	30,946	4,638	6,441	21,025	(34,315)
9 Revenue Increase/Decrease Percentage	0.00%	-1.40%	7.62%	30.80%	6.59%	9.00%	-51.25%
10							
11 1/2 of Revenue Neutral Shift	(0)	(14,367)	15,473	2,319	3,220	10,513	(17,158)
12 Revenue Increase/Decrease Percentage	0.00%	-0.70%	3.81%	15.40%	3.29%	4.50%	-25.62%
13							
14 Recommended Margin Revenue	2,873,194	2,039,548	421,375	17,375	101,003	244,087	49,805
15 Recommended Class Revenue Percentage	100.00%	70.99%	14.67%	0.60%	3.52%	8.50%	1.73%
16							
17 Spread of Revenue Increase							
18 Example: Revenue At OPC Study COS Level	201,344	142,925	29,529	1,218	7,078	17,105	3,490
19 Example: Revenue Increase of Additional 10% Above OPC	508,798	361,172	74,619	3,077	17,886	43,224	8,820
20 Example: Revenue Increase of Additional 50% Above OPC	1,738,613	1,234,161	254,981	10,514	61,118	147,701	30,138
21							
22 Combining Revenue Neutral Shift and Revenue Increase							
23 Example: Revenue At OPC Study COS Level	201,344	128,558	45,002	3,537	10,298	27,618	(13,667)
24 Example: Revenue Increase of Additional 10% Above OPC	508,798	346,805	90,092	5,396	21,106	53,737	(8,338)
25 Example: Revenue Increase of Additional 50% Above OPC	1,738,613	1,219,794	270,454	12,833	64,339	158,214	12,980
26							
27 Adjust to eliminate negative increase							
28 Example: Revenue At OPC Study COS Level	201,344	120,386	42,141	3,312	9,644	25,862	-
29 Example: Revenue Increase of Additional 10% Above OPC	508,798	341,213	88,639	5,309	20,766	52,870	-
30 Example: Revenue Increase of Additional 50% Above OPC	1,738,613	1,219,794	270,454	12,833	64,339	158,214	12,980
31							
32 Percentage of Net Revenue Increase							
33 Example: Revenue At OPC Study COS Level	7.01%	5.86%	10.38%	22.00%	9.86%	11.07%	0.00%
34 Example: Revenue Increase of Additional 10% Above OPC	17.71%	16.61%	21.84%	35.26%	21.24%	22.64%	0.00%
35 Example: Revenue Increase of Additional 50% Above OPC	60.51%	59.39%	66.63%	85.23%	65.80%	67.74%	19.38%
36							
37 Class Revenue							
38 Example: Revenue At OPC Study COS Level	3,074,538	2,182,473	450,904	18,593	108,081	261,192	53,295
39 Example: Revenue Increase of Additional 10% Above OPC	3,381,992	2,400,720	495,994	20,452	118,889	287,312	58,625
40 Example: Revenue Increase of Additional 50% Above OPC	4,611,808	3,273,709	676,356	27,890	162,121	391,789	79,943
41							
42 Percentage of Class Revenue							
43 Example: Revenue At OPC Study COS Level	100.00%	70.99%	14.67%	0.60%	3.52%	8.50%	1.73%
44 Example: Revenue Increase of Additional 10% Above OPC	100.00%	70.99%	14.67%	0.60%	3.52%	8.50%	1.73%
45 Example: Revenue Increase of Additional 50% Above OPC	100.00%	70.99%	14.67%	0.60%	3.52%	8.50%	1.73%

Office of the Public Counsel
MAWC Class Cost of Service Summary

St Charles District

CLASS COST OF SERVICE SUMMARY:		TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	2,575,222	2,163,307	246,941	1,363	45,460	0	16,469	101,682
2	Depreciation Expenses	883,332	682,920	86,070	371	14,043	0	11,869	88,060
3	Taxes	2,042,524	1,567,180	206,446	908	32,615	0	25,904	209,473
4	TOTAL Expenses and Taxes	5,501,078	4,413,407	539,457	2,641	92,118	-	54,242	399,214
5									
6	Spread public fire expenses & taxes to others	15 399,214	385,504	12,778	29	904	0	0	(399,214)
7	TOTAL Expenses and Taxes after Spread	5,501,078	4,798,910	552,235	2,670	93,021	-	54,242	-
8									
9	Current Revenue								
10	Rate Revenue	8,552,561	7,312,573	959,209	4,132	159,641	0	117,006	0
11	Other Revenue	25 149,175	128,463	16,193	76	2,684	0	1,758	0
12	TOTAL Current Revenues	8,701,736	7,441,036	975,402	4,208	162,325	0	118,764	0
13	Current Revenue Percentage	100.00%	85.51%	11.21%	0.05%	1.87%	0.00%	1.36%	0.00%
14									
15	OPERATING INCOME	3,200,658	2,642,126	423,167	1,539	69,304	0	64,522	0
16									
17	TOTAL Rate Base	31,558,534	24,224,677	3,224,765	14,134	507,232	-	393,066	3,194,660
18									
19	Spread public fire rate base to others	15 3,194,660	3,084,943	102,258	230	7,230	0	0	(3,194,660)
20	TOTAL Rate Base after Spread	31,558,534	27,309,620	3,327,022	14,364	514,462	-	393,066	-
21									
22	Implicit Rate of Return (ROR)	10.14%	9.67%	12.72%	10.71%	13.47%	#DIV/0!	16.42%	
23									
24	Operating Income with Equalized ROR	3,200,658	2,769,734	337,426	1,457	52,177	-	39,865	
25									
26	Class COS with Equalized ROR	8,701,736	7,568,645	889,661	4,126	145,198	-	94,106	
27	Class COS Percentage	100.00%	86.98%	10.22%	0.05%	1.67%	0.00%	1.08%	
28									
29	OPC Recommended ROR	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	
30									
31	Operating Income with Recommended ROR	2,351,111	2,034,567	247,863	1,070	38,327	-	29,283	
32	True-up plus add'l taxes	25 (286,808)	(246,987)	(31,134)	(146)	(5,161)	0	(3,381)	
33	Class COS with Recommended ROR	7,565,381	6,586,490	768,965	3,593	126,188	-	80,145	
34	Class COS Percentage	100.00%	87.06%	10.16%	0.05%	1.67%	0.00%	1.06%	
		(1,136,356)							

Office of the Public Counsel
MAWC Class Cost of Service Summary

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OPA	SIR	PRIVATE FIRE	
1 Current Rate Revenue	8,701,736	7,441,036	975,402	4,208	162,325	0	118,764	
2 Class Percentage	100.00%	85.51%	11.21%	0.05%	1.87%	0.00%	1.36%	
3								
4 Class COS with Equalized ROR	8,701,736	7,568,645	889,661	4,126	145,198	-	94,106	
5 Class COS Percentage	100.00%	86.98%	10.22%	0.05%	1.67%	0.00%	1.08%	
6								
7 Margin Revenue Required to Equalized ROR	8,701,736	7,568,645	889,661	4,126	145,198	-	94,106	
8 Revenue Neutral Shift to Equalize Class ROR	(0)	127,609	(85,741)	(82)	(17,127)	0	(24,658)	
9 Revenue Increase/Decrease Percentage	0.00%	1.71%	-8.79%	-1.94%	-10.55%		-20.76%	
10								
11 1/2 of Revenue Neutral Shift	(0)	63,804	(42,871)	(41)	(8,564)	0	(12,329)	
12 Revenue Increase/Decrease Percentage	0.00%	0.86%	-4.40%	-0.97%	-5.28%		-10.38%	
13								
14 Recommended Margin Revenue	8,701,736	7,504,840	932,531	4,167	153,762	0	106,435	
15 Recommended Class Revenue Percentage	100.00%	86.25%	10.72%	0.05%	1.77%	0.00%	1.22%	
16								
17 Spread of Revenue Increase								
18 Example: Revenue At OPC Study COS Level	(1,136,356)	(980,053)	(121,779)	(544)	(20,080)	0	(13,899)	
19 Example: Revenue Increase of Additional 10% Above OPC	(379,817)	(327,575)	(40,704)	(182)	(6,711)	0	(4,646)	
20 Example: Revenue Increase of Additional 50% Above OPC	2,646,335	2,282,340	283,597	1,267	46,761	0	32,369	
21								
22 Combining Revenue Neutral Shift and Revenue Increase								
23 Example: Revenue At OPC Study COS Level	(1,136,356)	(916,249)	(164,650)	(585)	(28,643)	-	(26,228)	
24 Example: Revenue Increase of Additional 10% Above OPC	(379,817)	(263,771)	(83,574)	(223)	(15,275)	-	(16,975)	
25 Example: Revenue Increase of Additional 50% Above OPC	2,646,335	2,346,144	240,727	1,226	38,198	-	20,040	
26								
27 Adjust to eliminate negative increase								
28 Example: Revenue At OPC Study COS Level	(1,136,356)	(916,249)	(164,650)	(585)	(28,643)	-	(26,228)	(1,136,356)
29 Example: Revenue Increase of Additional 10% Above OPC	(379,817)	(263,771)	(83,574)	(223)	(15,275)	-	(16,975)	(379,817)
30 Example: Revenue Increase of Additional 50% Above OPC	2,646,335	2,346,144	240,727	1,226	38,198	-	20,040	2,646,335
31								
32 Percentage of Net Revenue Increase								
33 Example: Revenue At OPC Study COS Level	-13.06%	-12.31%	-16.88%	-13.90%	-17.65%		-22.08%	
34 Example: Revenue Increase of Additional 10% Above OPC	-4.36%	-3.54%	-8.57%	-5.29%	-9.41%		-14.29%	
35 Example: Revenue Increase of Additional 50% Above OPC	30.41%	31.53%	24.68%	29.14%	23.53%		16.87%	
36								
37 Class Revenue								
38 Example: Revenue At OPC Study COS Level	7,565,381	6,524,787	810,753	3,623	133,682	0	92,536	
39 Example: Revenue Increase of Additional 10% Above OPC	8,321,919	7,177,266	891,828	3,985	147,050	0	101,790	
40 Example: Revenue Increase of Additional 50% Above OPC	11,348,071	9,787,180	1,216,129	5,435	200,523	0	138,804	
41								
42 Percentage of Class Revenue								
43 Example: Revenue At OPC Study COS Level	100.00%	86.25%	10.72%	0.05%	1.77%	0.00%	1.22%	
44 Example: Revenue Increase of Additional 10% Above OPC	100.00%	86.25%	10.72%	0.05%	1.77%	0.00%	1.22%	
45 Example: Revenue Increase of Additional 50% Above OPC	100.00%	86.25%	10.72%	0.05%	1.77%	0.00%	1.22%	

**Office of the Public Counsel
MAWC Class Cost of Service Summary**

St Joseph District

CLASS COST OF SERVICE SUMMARY:		TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	5,674,383	2,650,172	1,027,458	870,716	251,236	617,674	116,714	140,413
2	Depreciation Expenses	1,675,120	669,979	315,900	293,960	73,107	214,547	42,846	64,780
3	Taxes	3,152,593	1,248,136	604,905	571,250	141,079	417,937	50,278	119,009
4	TOTAL Expenses and Taxes	10,502,097	4,568,287	1,948,263	1,735,927	465,422	1,250,159	209,838	324,202
5									
6	Spread public fire expenses & taxes to others	324,202	288,642	32,118	1,463	1,978	0	0	(324,202)
7	TOTAL Expenses and Taxes after Spread	10,502,097	4,856,929	1,980,381	1,737,390	467,400	1,250,159	209,838	-
8									
9	Current Revenue								
10	Rate Revenue	16,394,416	7,460,181	3,138,604	2,931,266	655,164	2,054,574	154,627	0
11	Other Revenue	188,014	81,650	36,603	33,415	8,663	24,221	3,462	0
12	TOTAL Current Revenues	16,582,430	7,541,831	3,175,207	2,964,681	663,827	2,078,795	158,089	0
13	Current Revenue Percentage	100.00%	45.48%	19.15%	17.88%	4.00%	12.54%	0.95%	0.00%
14									
15	OPERATING INCOME	6,080,333	2,684,902	1,194,826	1,227,291	196,427	828,637	(51,749)	0
16									
17	TOTAL Rate Base	76,303,951	30,042,269	14,739,548	14,001,033	3,434,184	10,251,773	1,063,354	2,771,790
18									
19	Spread public fire rate base to others	2,771,790	2,467,768	274,598	12,510	16,915	0	0	(2,771,790)
20	TOTAL Rate Base after Spread	76,303,951	32,510,038	15,014,146	14,013,542	3,451,099	10,251,773	1,063,354	-
21									
22	Implicit Rate of Return (ROR)	7.97%	8.26%	7.96%	8.76%	5.69%	8.08%	-4.87%	
23									
24	Operating Income with Equalized ROR	6,080,333	2,590,585	1,196,413	1,116,679	275,003	816,920	84,734	
25									
26	Class COS with Equalized ROR	16,582,430	7,447,514	3,176,794	2,854,069	742,403	2,067,078	294,572	
27	Class COS Percentage	100.00%	44.91%	19.16%	17.21%	4.48%	12.47%	1.78%	
28									
29	OPC Recommended ROR	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	
30									
31	Operating Income with Recommended ROR	5,684,644	2,421,998	1,118,554	1,044,009	257,107	763,757	79,220	
32	True-up plus add'l taxes	(377,219)	(163,817)	(73,437)	(67,041)	(17,382)	(48,596)	(6,946)	
33	Class COS with Recommended ROR	15,809,522	7,115,110	3,025,498	2,714,358	707,125	1,963,320	282,112	
34	Class COS Percentage	100.00%	45.01%	19.14%	17.17%	4.47%	12.43%	1.78%	
		(772,908)	(332,405)	(151,296)	(139,711)	(35,278)	(101,759)	(12,460)	

**Office of the Public Counsel
MAWC Class Cost of Service Summary**

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OPA	SIR	PRIVATE FIRE	
1 Current Rate Revenue	16,582,430	7,541,831	3,175,207	2,964,681	663,827	2,078,795	158,089	
2 Class Percentage	100.00%	45.48%	19.15%	17.88%	4.00%	12.54%	0.95%	
3								
4 Class COS with Equalized ROR	16,582,430	7,447,514	3,176,794	2,854,069	742,403	2,067,078	294,572	
5 Class COS Percentage	100.00%	44.91%	19.16%	17.21%	4.48%	12.47%	1.78%	
6								
7 Margin Revenue Required to Equalized ROR	16,582,430	7,447,514	3,176,794	2,854,069	742,403	2,067,078	294,572	
8 Revenue Neutral Shift to Equalize Class ROR	0	(94,317)	1,587	(110,612)	78,576	(11,717)	136,483	
9 Revenue Increase/Decrease Percentage	0.00%	-1.25%	0.05%	-3.73%	11.84%	-0.56%	86.33%	
10								
11 1/2 of Revenue Neutral Shift	0	(47,158)	793	(55,306)	39,288	(5,858)	68,241	
12 Revenue Increase/Decrease Percentage	0.00%	-0.63%	0.02%	-1.87%	5.92%	-0.28%	43.17%	
13								
14 Recommended Margin Revenue	16,582,430	7,494,673	3,176,000	2,909,375	703,115	2,072,937	226,330	
15 Recommended Class Revenue Percentage	100.00%	45.20%	19.15%	17.54%	4.24%	12.50%	1.36%	
16								
17 Spread of Revenue Increase								
18 Example: Revenue At OPC Study COS Level	(772,908)	(349,327)	(148,034)	(135,606)	(32,772)	(96,620)	(10,549)	
19 Example: Revenue Increase of Additional 10% Above OPC	808,044	365,207	154,763	141,771	34,262	101,012	11,029	
20 Example: Revenue Increase of Additional 50% Above OPC	7,131,853	3,223,345	1,365,950	1,251,278	302,399	891,539	97,341	
21								
22 Combining Revenue Neutral Shift and Revenue Increase								
23 Example: Revenue At OPC Study COS Level	(772,908)	(396,486)	(147,240)	(190,912)	6,516	(102,478)	57,692	
24 Example: Revenue Increase of Additional 10% Above OPC	808,044	318,049	155,556	86,465	73,550	95,154	79,270	
25 Example: Revenue Increase of Additional 50% Above OPC	7,131,853	3,176,187	1,366,743	1,195,972	341,687	885,680	165,583	
26								
27 Adjust to eliminate negative increase								
28 Example: Revenue At OPC Study COS Level	(772,908)	(393,171)	(146,009)	(189,316)		(101,622)	57,210	(772,908)
29 Example: Revenue Increase of Additional 10% Above OPC	808,044	318,049	155,556	86,465	73,550	95,154	79,270	808,044
30 Example: Revenue Increase of Additional 50% Above OPC	7,131,853	3,176,187	1,366,743	1,195,972	341,687	885,680	165,583	7,131,853
31								
32 Percentage of Net Revenue Increase								
33 Example: Revenue At OPC Study COS Level	-4.66%	-5.21%	-4.60%	-6.39%	0.00%	-4.89%	36.19%	
34 Example: Revenue Increase of Additional 10% Above OPC	4.87%	4.22%	4.90%	2.92%	11.08%	4.58%	50.14%	
35 Example: Revenue Increase of Additional 50% Above OPC	43.01%	42.11%	43.04%	40.34%	51.47%	42.61%	104.74%	
36								
37 Class Revenue								
38 Example: Revenue At OPC Study COS Level	15,809,522	7,145,345	3,027,966	2,773,769	670,343	1,976,317	215,781	
39 Example: Revenue Increase of Additional 10% Above OPC	17,390,474	7,859,880	3,330,763	3,051,145	737,377	2,173,949	237,359	
40 Example: Revenue Increase of Additional 50% Above OPC	23,714,283	10,718,018	4,541,950	4,160,653	1,005,515	2,964,476	323,672	
41								
42 Percentage of Class Revenue								
43 Example: Revenue At OPC Study COS Level	100.00%	45.20%	19.15%	17.54%	4.24%	12.50%	1.36%	
44 Example: Revenue Increase of Additional 10% Above OPC	100.00%	45.20%	19.15%	17.54%	4.24%	12.50%	1.36%	
45 Example: Revenue Increase of Additional 50% Above OPC	100.00%	45.20%	19.15%	17.54%	4.24%	12.50%	1.36%	

Office of the Public Counsel
MAWC Class Cost of Service Summary

Warrensburg District

CLASS COST OF SERVICE SUMMARY:		TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	946,968	481,577	158,776	32,101	148,316	82,680	7,178	36,341
2	Depreciation Expenses	250,001	122,207	42,130	8,411	35,313	22,502	3,567	15,871
3	Taxes	516,385	240,396	87,542	18,166	75,714	49,982	7,235	37,350
4	TOTAL Expenses and Taxes	1,713,355	844,180	288,449	58,678	259,343	155,164	17,980	89,561
5									
6	Spread public fire expenses & taxes to others	15 89,561	78,947	8,503	184	1,927	0	0	(89,561)
7	TOTAL Expenses and Taxes after Spread	1,713,355	923,126	296,951	58,862	261,270	155,164	17,980	-
8									
9	Current Revenue								
10	Rate Revenue	2,470,660	1,252,537	469,810	77,275	408,331	209,250	53,457	0
11	Other Revenue	25 54,043	27,731	9,701	1,991	8,617	5,340	663	0
12	TOTAL Current Revenues	2,524,703	1,280,268	479,511	79,266	416,948	214,590	54,120	0
13	Current Revenue Percentage	100.00%	50.71%	18.99%	3.14%	16.51%	8.50%	2.14%	0.00%
14									
15	OPERATING INCOME	811,348	357,141	182,560	20,403	155,678	59,425	36,140	0
16									
17	TOTAL Rate Base	8,971,047	4,150,029	1,529,521	319,638	1,323,712	882,570	124,067	641,511
18									
19	Spread public fire rate base to others	15 641,511	565,484	60,903	1,320	13,805	0	0	(641,511)
20	TOTAL Rate Base after Spread	8,971,047	4,715,513	1,590,424	320,957	1,337,516	882,570	124,067	-
21									
22	Implicit Rate of Return (ROR)	9.04%	7.57%	11.48%	6.36%	11.64%	6.73%	29.13%	
23									
24	Operating Income with Equalized ROR	811,348	426,474	143,839	29,028	120,966	79,820	11,221	
25									
26	Class COS with Equalized ROR	2,524,703	1,349,601	440,790	87,890	382,236	234,985	29,201	
27	Class COS Percentage	100.00%	53.46%	17.46%	3.48%	15.14%	9.31%	1.16%	
28									
29	OPC Recommended ROR	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	
30									
31	Operating Income with Recommended ROR	668,343	351,306	118,487	23,911	99,645	65,751	9,243	
32	True-up plus add'l taxes	25 (74,473)	(38,214)	(13,369)	(2,743)	(11,875)	(7,358)	(914)	
33	Class COS with Recommended ROR	2,307,224	1,236,218	402,069	80,031	349,040	213,557	26,309	
34	Class COS Percentage	100.00%	53.58%	17.43%	3.47%	15.13%	9.26%	1.14%	
		(217,479)	(113,383)	(38,722)	(7,859)	(33,196)	(21,427)	(2,892)	

**Office of the Public Counsel
MAWC Class Cost of Service Summary**

	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OPA	SIR	PRIVATE FIRE	
1 Current Rate Revenue	2,524,703	1,280,268	479,511	79,266	416,948	214,590	54,120	
2 Class Percentage	100.00%	50.71%	18.99%	3.14%	16.51%	8.50%	2.14%	
3								
4 Class COS with Equalized ROR	2,524,703	1,349,601	440,790	87,890	382,236	234,985	29,201	
5 Class COS Percentage	100.00%	53.46%	17.46%	3.48%	15.14%	9.31%	1.16%	
6								
7 Margin Revenue Required to Equalized ROR	2,524,703	1,349,601	440,790	87,890	382,236	234,985	29,201	
8 Revenue Neutral Shift to Equalize Class ROR	0	69,333	(38,721)	8,624	(34,712)	20,395	(24,920)	
9 Revenue Increase/Decrease Percentage	0.00%	5.42%	-8.08%	10.88%	-8.33%	9.50%	-46.04%	
10								
11 1/2 of Revenue Neutral Shift	0	34,667	(19,361)	4,312	(17,356)	10,197	(12,460)	
12 Revenue Increase/Decrease Percentage	0.00%	2.71%	-4.04%	5.44%	-4.16%	4.75%	-23.02%	
13								
14 Recommended Margin Revenue	2,524,703	1,314,934	460,151	83,578	399,592	224,787	41,660	
15 Recommended Class Revenue Percentage	100.00%	52.08%	18.23%	3.31%	15.83%	8.90%	1.65%	
16								
17 Spread of Revenue Increase								
18 Example: Revenue At OPC Study COS Level	(217,479)	(113,269)	(39,638)	(7,199)	(34,421)	(19,363)	(3,589)	(217,478.50)
19 Example: Revenue Increase of Additional 10% Above OPC	13,244	6,898	2,414	438	2,096	1,179	219	13,243.91
20 Example: Revenue Increase of Additional 50% Above OPC	936,134	487,564	170,619	30,990	148,165	83,349	15,447	936,133.55
21								
22 Combining Revenue Neutral Shift and Revenue Increase								
23 Example: Revenue At OPC Study COS Level	(217,479)	(78,602)	(58,998)	(2,887)	(51,777)	(9,166)	(16,048)	
24 Example: Revenue Increase of Additional 10% Above OPC	13,244	41,564	(16,947)	4,751	(15,260)	11,377	(12,241)	
25 Example: Revenue Increase of Additional 50% Above OPC	936,134	522,231	151,259	35,302	130,809	93,546	2,987	
26								
27 Adjust to eliminate negative increase								
28 Example: Revenue At OPC Study COS Level	(217,479)	(78,602)	(58,998)	(2,887)	(51,777)	(9,166)	(16,048)	
29 Example: Revenue Increase of Additional 10% Above OPC	13,244	41,564	(16,947)	4,751	(15,260)	11,377	(12,241)	
30 Example: Revenue Increase of Additional 50% Above OPC	936,134	522,231	151,259	35,302	130,809	93,546	2,987	
31								
32 Percentage of Net Revenue Increase								
33 Example: Revenue At OPC Study COS Level	-8.61%	-6.14%	-12.30%	-3.64%	-12.42%	-4.27%	-29.65%	
34 Example: Revenue Increase of Additional 10% Above OPC	0.52%	3.25%	-3.53%	5.99%	-3.66%	5.30%	-22.62%	
35 Example: Revenue Increase of Additional 50% Above OPC	37.08%	40.79%	31.54%	44.54%	31.37%	43.59%	5.52%	
36								
37 Class Revenue								
38 Example: Revenue At OPC Study COS Level	2,307,224	1,201,665	420,513	76,378	365,171	205,424	38,072	
39 Example: Revenue Increase of Additional 10% Above OPC	2,537,947	1,321,832	462,565	84,016	401,688	225,966	41,879	
40 Example: Revenue Increase of Additional 50% Above OPC	3,460,836	1,802,498	630,770	114,568	547,757	308,136	57,108	
41								
42 Percentage of Class Revenue								
43 Example: Revenue At OPC Study COS Level	100.00%	52.08%	18.23%	3.31%	15.83%	8.90%	1.65%	
44 Example: Revenue Increase of Additional 10% Above OPC	100.00%	52.08%	18.23%	3.31%	15.83%	8.90%	1.65%	
45 Example: Revenue Increase of Additional 50% Above OPC	100.00%	52.08%	18.23%	3.31%	15.83%	8.90%	1.65%	

Office of the Public Counsel
MAWC Class Cost of Service Summary

St Louis District

CLASS COST OF SERVICE SUMMARY:

		TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	54,690,242	44,662,325		5,869,926	1,520,671	157,094	248,340	2,231,893
2	Depreciation Expenses	10,484,590	7,981,320		1,167,708	314,506	31,830	65,464	923,761
3	Taxes	22,041,772	16,748,632		2,458,212	672,251	67,978	137,469	1,957,232
4	TOTAL Expenses and Taxes	87,216,603	69,392,278	-	9,495,846	2,507,429	256,902	451,273	5,112,886
5									
6	Spread public fire expenses & taxes to others	15 5,112,886	5,108,862		3,993	31	0	0	(5,112,886)
7	TOTAL Expenses and Taxes after Spread	87,216,603	74,501,140	-	9,499,839	2,507,459	256,902	451,273	-
8									
9	Current Revenue								
10	Rate Revenue	115,789,663	98,213,457		7,350,725	905,305	2,165,257	1,097,559	6,057,360
11	Other Revenue	25 2,983,390	2,512,118		350,559	93,567	9,549	17,597	0
12	TOTAL Current Revenues	118,773,049	106,773,053	0	7,706,014	998,909	2,174,806	1,115,156	0
13	Current Revenue Percentage		89.90%	0.00%	6.49%	0.84%	1.83%	0.94%	0.00%
14									
15	OPERATING INCOME	31,556,449	26,224,439	0	(1,793,825)	(1,508,550)	1,917,904	663,883	0
16									
17	TOTAL Rate Base	278,015,073	210,521,249		31,100,723	8,553,918	863,805	1,785,285	25,190,083
18									
19	Spread public fire rate base to others	15 25,190,083	25,170,261		19,672	152	0	0	(25,190,083)
20	TOTAL Rate Base after Spread	278,015,073	235,691,510	-	31,120,396	8,554,070	863,805	1,785,285	-
21									
22	Implicit Rate of Return (ROR)	11.35%	11.13%	#DIV/0!	-5.76%	-17.64%	222.03%	37.19%	
23									
24	Operating Income with Equalized ROR	31,556,452	26,752,460	-	3,532,360	970,940	98,047	202,641	
25									
26	Class COS with Equalized ROR	118,773,027	101,253,600	-	13,032,199	3,478,400	354,950	653,914	
27	Class COS Percentage	100.00%	85.25%	0.00%	10.97%	2.93%	0.30%	0.55%	
28									
29	OPC Recommended ROR	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	7.45%	
30									
31	Operating Income with Recommended ROR	20,712,124	17,559,018	-	2,318,469	637,278	64,354	133,004	
32	True-up plus add'l taxes	25 (6,029,299)	(5,076,881)		(708,464)	(189,096)	(19,299)	(35,563)	
33	Class COS with Recommended ROR	101,899,408	86,983,277	-	11,109,845	2,955,642	301,957	548,714	
34	Class COS Percentage	100.00%	85.36%	0.00%	10.90%	2.90%	0.30%	0.54%	
		(16,873,618)	(14,270,323)	-	(1,922,354)	(522,758)	(52,993)	(105,200)	

Office of the Public Counsel
MAWC Class Cost of Service Summary

		TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OPA	SIR	PRIVATE FIRE		
1	Current Rate Revenue	118,773,049	118,773,053	106,778,168	0	7,706,014	998,909	2,174,806	1,115,156	
2	Class Percentage		100.00%	89.90%	0.00%	6.49%	0.84%	1.83%	0.94%	
3										
4	Class COS with Equalized ROR		118,773,027	101,253,600	-	13,032,199	3,478,400	354,950	653,914	
5	Class COS Percentage		100.00%	85.25%	0.00%	10.97%	2.93%	0.30%	0.55%	
6										
7	Margin Revenue Required to Equalized ROR		118,773,027	101,253,600	-	13,032,199	3,478,400	354,950	653,914	
8	Revenue Neutral Shift to Equalize Class ROR		(22)	(5,524,568)	0	5,326,184	2,479,491	(1,819,857)	(461,242)	
9	Revenue Increase/Decrease Percentage		0.00%	-5.17%	#DIV/0!	69.12%	248.22%	-83.68%	-41.36%	
10										
11	1/2 of Revenue Neutral Shift		(11)	(2,762,284)	0	2,663,092	1,239,745	(909,928)	(230,621)	
12	Revenue Increase/Decrease Percentage		0.00%	-2.59%	#DIV/0!	34.56%	124.11%	-41.84%	-20.68%	
13										
14	Recommended Margin Revenue		118,773,038	104,015,884	0	10,369,107	2,238,654	1,264,878	884,535	
15	Recommended Class Revenue Percentage		100.00%	87.58%	0.00%	8.73%	1.88%	1.06%	0.74%	
16										
17	Spread of Revenue Increase									
18	Example: Revenue At OPC Study COS Level		(16,873,644)	(14,777,150)	0	(1,473,100)	(318,037)	(179,697)	(125,663)	
19	Example: Revenue Increase of Additional 10% Above OPC COS		(6,683,703)	(5,853,275)	0	(583,500)	(125,976)	(71,178)	(49,775)	
20	Example: Revenue Increase of Additional 50% Above OPC COS		34,076,060	29,842,223	0	2,974,903	642,271	362,894	253,774	
21										
22	Combining Revenue Neutral Shift and Revenue Increase									
23	Example: Revenue At OPC Study COS Level		(16,873,655)	(17,539,434)	-	1,189,992	921,708	(1,089,625)	(356,284)	(16,873,643)
24	Example: Revenue Increase of Additional 10% Above OPC COS		(6,683,714)	(8,615,560)	-	2,079,593	1,113,770	(981,107)	(280,396)	
25	Example: Revenue Increase of Additional 50% Above OPC COS		34,076,049	27,079,939	-	5,637,996	1,882,017	(547,034)	23,152	34,076,070
26										
27	Adjust to eliminate negative increase									
28	Example: Revenue At OPC Study COS Level		(16,873,655)	(15,588,560)				(968,428)	(316,655)	(16,873,643)
29	Example: Revenue Increase of Additional 10% Above OPC COS		(6,683,714)	(5,830,055)				(663,904)	(189,741)	(6,683,700)
30	Example: Revenue Increase of Additional 50% Above OPC COS		34,076,049	26,652,085	-	5,548,917	1,852,282		22,787	34,076,070
31										
32	Percentage of Net Revenue Increase									
33	Example: Revenue At OPC Study COS Level		-14.21%	-14.60%		0.00%	0.00%	-44.53%	-28.40%	
34	Example: Revenue Increase of Additional 10% Above OPC COS		-5.63%	-5.46%		0.00%	0.00%	-30.53%	-17.01%	
35	Example: Revenue Increase of Additional 50% Above OPC COS		28.69%	24.96%		72.01%	185.43%	0.00%	2.04%	
36										
37	Class Revenue									
38	Example: Revenue At OPC Study COS Level		101,899,397	89,238,734	0	8,896,006	1,920,617	1,085,182	758,872	
39	Example: Revenue Increase of Additional 10% Above OPC COS		112,089,338	98,162,609	0	9,785,607	2,112,679	1,193,700	834,760	
40	Example: Revenue Increase of Additional 50% Above OPC COS		152,849,102	133,858,108	0	13,344,010	2,880,926	1,627,772	1,138,308	
41										
42	Percentage of Class Revenue									
43	Example: Revenue At OPC Study COS Level		100.00%	87.58%	0.00%	8.73%	1.88%	1.06%	0.74%	
44	Example: Revenue Increase of Additional 10% Above OPC COS		100.00%	87.58%	0.00%	8.73%	1.88%	1.06%	0.74%	
45	Example: Revenue Increase of Additional 50% Above OPC COS		100.00%	87.58%	0.00%	8.73%	1.88%	1.06%	0.74%	