STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

IN THE MATTER OF THE PETITION OF BLOOMINGTON, INDIANA, FOR APPROVAL OF A NEW SCHEDULE OF RATES AND CHARGES FOR WATER UTILITY SERVICE AND FOR AUTHORITY TO ISSUE AND APPROVAL OF BONDS, NOTES, OR OTHER OBLIGATIONS	**CAUSE NO. 45533**

Verified Direct Testimony and Attachments of

Jessica A. York

On behalf of

Trustees of Indiana University on Behalf of its Bloomington Campus

July 30, 2021

BRUBAKER & ASSOCIATES, INC.

Project 11124

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Direct Testimony of Jessica A. York

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A Jessica A. York. My business address is 16690 Swingley Ridge Road, Suite 140, Chesterfield, MO 63017.

Q WHAT IS YOUR OCCUPATION?

A I am an Associate with the firm of Brubaker & Associates, Inc. ("BAI"), energy, economic and regulatory consultants in the field of public utility regulation.

Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A This information is provided in Appendix A to this testimony.

Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A I am appearing for the Trustees of Indiana University on Behalf of its Bloomington Campus ("Indiana University" or "IU Bloomington").

Q WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A The purpose of my testimony is to address IU Bloomington's concerns with the City of Bloomington, Indiana's ("City") class cost of service study ("COSS"), the City's proposed spread of its claimed revenue deficiency and the equity of the resulting rate increases. My silence on any issues addressed by the City in its testimony should not be taken as tacit approval or agreement with that issue.

Q PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A My conclusions and recommendations are as follows:

1. The City's COSS is flawed and unreliable. Therefore, it should not be used as the basis for revenue allocation or rate design in this case.

2. The City's estimated maximum day and maximum hour peaking factors for each customer class do not accurately reflect each customer class's contribution to the system peak day and peak hour demands. These peak day and peak hour demands are the customer loads that drive the City's need to invest in system capacity needed to provide firm uninterrupted service every day of the year including the peak day and peak hour.

3. The City should be required to develop demand allocation factors based on actual AMI data it acquires between now and the next rate case.

4. Requiring any class to move fully to cost of service based on the results of the City's inaccurate COSS would be unjust and unreasonable.

5. The record in this case does not include an accurate and reliable class cost of service study. Therefore, the most equitable and balanced approach to revenue allocation in this case, given the City's inaccurate and unreliable COSS is an equal percent change to all rates.

I. IU Bloomington's Perspective

Q PLEASE PROVIDE SOME BACKGROUND RELATED TO IU BLOOMINGTON.

A IU Bloomington serves as the flagship campus of the Indiana University system. It is a public university that as of 2020 served approximately 32,742 undergraduate students,

and 43,064 total students.[1] About 12,000 students live on campus, with the remainder living off campus. In 2018, IU Bloomington was ranked #4 among U.S. flagship university campuses with lowest tuition increases since 2008.[2]

IU Bloomington owns and operates its own water distribution system on its campus. Water is delivered to IU Bloomington's distribution system through the City's large water mains, and is metered by several "master meters" connected to those large mains that are served under a specific rate structure. In addition, IU Bloomington has nearly 250 other meters across its 1,900-acre campus ranging in size from 5/8" to 8" that are connected to the City's mains, and which take service under the City's commercial and fire protection rates. IU Bloomington also has accounts that take service under the City's irrigation rates. IU Bloomington is the City's largest customer.[3]

Q WHAT IS THE IMPACT OF THE CITY'S RATE PROPOSAL ON IU BLOOMINGTON?

A As a consequence of its flawed COSS, the City proposes, by Phase 2, to increase revenues from IU Bloomington's master metered usage, by just under 40%. By Phase 2, the commercial, irrigation, and fire protection classes would also see significant increases of about 33%, 44%, and 13%, respectively. I consider the increases to IU Bloomington's master meter usage and irrigation rates to clearly constitute rate shock as those increases are, respectively, 1.76 and 1.95 times the system average increase of 22.5%. I also consider the increase to the commercial rate, at 1.46 times the system average increase, to constitute rate shock to IU Bloomington under the totality of circumstances.

[1]https://www.indiana.edu/about/ranking-statistics.html
[2]https://admissions.indiana.edu/cost-financial-aid/managing-costs.html
[3]Bloomington's response to Data Request OUCC 2-4, attached as Attachment JAY-1 at 1.

Q WHAT ARE IU BLOOMINGTON'S CONCERNS RELATED TO THE CITY'S PROPOSED CLASS INCREASES?

A IU Bloomington is particularly concerned with the overall equity of the revenue allocation, and the resulting impact that the City's proposed rate increases will have on IU Bloomington and its students. IU Bloomington is an institutional customer in that for cost of service purposes it is a large volume consumer of water. That institutional nature, however, does not fully reflect the reality of IU Bloomington's nature as a customer. In the end, IU Bloomington's master metered usage is effectively comprised of many individual small residential and commercial customers. The costs incurred because of the proposed increases, or steps taken to mitigate them, will directly impact students and others residing in, and utilizing, IU Bloomington's affiliated buildings served behind the master meters in various ways. Those student "customers" would, then, ultimately be affected by the City's proposed 40% increase in water rates for IU Bloomington's master meter accounts. Students living off-campus inside the City of Bloomington would also be affected by the proposed increases. Those served as residential customers would see increases of about 21%, which is approximately equal to the system average increase. Regardless, those students would also be affected by the increase allocated to IU Bloomington's master metered accounts. The varied and disparate impacts on its student body as a whole is concerning to IU Bloomington, and the university views the results as inequitable; particularly as the proposed increases for all customers are predicated on a flawed COSS.

Q DOES IU BLOOMINGTON AGREE THAT COST-BASED RATES ARE EQUITABLE FOR ALL CUSTOMER CLASSES?

A Yes. IU Bloomington understands that cost-based rates are an equitable and appropriate way to allocate a utility's revenue requirement. The distribution of costs to

customer classes on a "cost-causation" basis, that is assigning costs to customers for the costs they impose on the system, has long been recognized as an equitable means of allocating costs. It has also been recognized that cost-based allocations have other benefits such as encouraging conservation through the economic signals they send to customers. Indiana University Bloomington does not dispute those basic principles. However, IU Bloomington also recognizes that any cost allocation methodology has to be fair and equitable and that some compromises to pure "cost based" ratemaking have to be made to achieve that end. In light of very serious concerns about the accuracy of the City's COSS, as described throughout this testimony, Indiana University Bloomington does not believe that the City's proposed revenue allocation reflects cost-based rates; much less produces fair and equitable results. Accordingly, without an accurate COSS, IU Bloomington considers the most equitable and fair approach in this case to be an equal percent increase for all customer classes.

II. Class Cost of Service

Q PLEASE DESCRIBE THE CITY'S CLASS COST OF SERVICE STUDY.

A The City's COSS is sponsored by Mr. Mark Beauchamp. His class cost of service study is based on the test year ended March 31, 2020 and utilizes the accepted Base-Extra Capacity method for *functionalizing, classifying* and *allocating* costs to the City's various customer classes.

Under this method, investment in water utility plant and operating costs are first *functionalized* according to the role they play in providing water service, such as: water supply, pumping, treatment, transmission, distribution, metering and billing. Next, these costs are *classified* into cost categories that are *allocated* among customer classes to reflect the causation of these costs based on the demands placed on the

system as measured through Base, or average, day rates of flow; Extra Capacity-Maximum Day and Extra Capacity-Maximum Hour rates of flow; and Customer-related costs, such as metering and billing.

Q IS MR. BEAUCHAMP'S COSS REASONABLE?

A When calculated and utilized properly, the Base-Extra Capacity cost allocation method is a reasonable approach to cost allocation. However, the City's COSS is not reasonable because it fails to accurately measure the demands each class places on the system.

Q CAN YOU MORE SPECIFICALLY DESCRIBE WHY YOU SAY THE CITY'S COSS IS NOT REASONABLE?

A Mr. Beauchamp's COSS does not produce an accurate measure of the City's cost of providing service to each of its customer classes. Specifically, the customer class maximum day and maximum hour peaking factors do not accurately measure each class's contribution to the extra-capacity demands placed on the City's water system. This is important because, ultimately, the utility's system has to be designed and built to accommodate the maximum demand placed on the system by customers. To achieve cost-based rates, the costs of building the system to meet that demand must be properly spread among the customer classes to reflect their class contribution to that maximum demand, and therefore their contribution to the costs of constructing the system. Because Mr. Beauchamp's COSS fails to properly account for class contribution to the extra-capacity demands on the City's water system, it fails to accurately allocate costs among the customer classes, and should not be relied upon as the basis for determining an appropriate revenue allocation or rate design in this case.

Q WHAT ARE CUSTOMER CLASS MAXIMUM DAY AND MAXIMUM HOUR PEAKING FACTORS?

A The base, maximum day and maximum hour rates of water usage for each customer class serve as the basis for allocating base, maximum day and maximum hour extra capacity costs between the Company's customer classes.

Maximum rates of water usage are expressed in terms of a peaking factor, or demand ratio. The maximum rate of usage, whether daily or hourly, can be expressed as a percent of average annual usage (i.e., base usage). This percentage relationship to the base usage is the demand ratio.

Q HOW ARE THESE DEMAND RATIOS USED IN THE COST OF SERVICE STUDY?

A For each customer class, maximum day peaking factors are multiplied by the average daily use to estimate the maximum day demand for each customer class.

Maximum hour peaking factors are developed by multiplying the ratio of maximum hour to maximum day demand by the maximum day peaking factors for each customer class.

The estimated maximum day and maximum hour demands for each customer class are then used to allocate extra-capacity costs in the COSS.

Q DO YOU AGREE WITH THE CITY'S MAXIMUM DAY AND MAXIMUM HOUR DEMAND RATIOS FOR EACH CUSTOMER CLASS?

A No. I have several concerns about the validity of the maximum day and maximum hour demand ratios developed by Mr. Beauchamp and subsequently used to allocate extra-capacity costs in the City's COSS. In his development of maximum day and maximum hour demand ratios, Mr. Beauchamp has relied on several unsupported assumptions

about customer class usage and demand characteristics. My concerns with the demand ratios are as follows:

1. The relationships between the peaking factors of the customer classes are atypical relative to many other water utilities, a fact acknowledged by the City.

2. Demand ratios for each customer class have been estimated based on test year billing data, rather than billing data from a hot, dry, high sales year. Therefore, they do not accurately measure each customer class's contribution to the load characteristic that drives investment in water system capacity.

3. For each customer class, the City's proposed demand ratios are based on the average sales over a three-month period during the test year. This methodology masks the true peaking nature of usage by weather-sensitive customer classes, relative to customer classes that are less weather-sensitive. Therefore, extra-capacity costs are not accurately allocated to the customer classes that drive peak day and peak hour demands on the system.

4. As shown on Attachment MCB-3, page 9 of 32, Mr. Beauchamp has applied a System MD/MM Ratio of 1.09 to each customer class. This ratio has not been supported, and conflicts with the City's own planning documents which reflect a much higher ratio.

5. Mr. Beauchamp has applied generic weekly usage adjustments to the development of maximum day peaking factors for each customer class, without consideration of the particular usage characteristics and periods of demands for the City's own customer classes.

6. Mr. Beauchamp has applied the same Max Hour Ratio of 1.13 to all customer class's maximum day peaking factor to develop each class's maximum hour peaking factor. This methodology represents an assumption that all customer classes exhibit the same relationship between maximum hour and maximum day peaking factors. No evidence supporting this assumption has been provided by the City.

Relationship between Customer Class Peaking Factors

Q PLEASE DISCUSS THE CITY'S ESTIMATED CUSTOMER CLASS PEAKING FACTORS.

A The City's customer class peaking factors are unusual. Typically, weather sensitive customer classes, such as residential customers, exhibit a larger spike in demand during the peak day and peak hour relative to their average daily use as compared to

less weather sensitive customer classes. This is typically due to usage such as increased lawn watering, filling swimming pools, and car washing which tend to occur during hot, dry, periods. Therefore, one would expect the residential peaking factors to be larger than other customer class peaking factors. However, the opposite is true for the peaking factors calculated by Mr. Beauchamp.

Q WHAT CLASS HAS THE LOWEST RATIO OF AVERAGE DAILY USE DURING THE MAX MONTH ("MM") TO AVERAGE DAILY USE DURING THE YEAR ("AD")?

A Prior to applying the system MD/MM Ratio and weekly usage adjustments, Mr. Beauchamp has calculated a Residential class MM/AD ratio of 1.06, as shown on Attachment MCB-3, page 9. This is the lowest MM/AD ratio of all customer classes.

Q IS THIS A LOGICAL RESULT?

A No. This suggests that estimated maximum day demand for residential customers, is not much higher than the average day consumption throughout the year. This compares to the industrial class MM/AD ratio of 1.24.

Effectively, these ratios suggest that the residential class has a higher load factor than the industrial class (and all other classes). Given the typical seasonal use of water by residential customers, one would expect the residential class to exhibit a lower load factor (and therefore higher MM/AD ratio), than the industrial class.

In addition, the Residential peak sales month in the test year is October (followed closely by November), rather than during the typical period of June through September.

When asked to explain why the residential class test year peak month sales occur in October and November, the City responded by saying that it does not have a

definitive explanation.[4] I would note that the irrigation class also experienced its highest test year monthly sales in October. The City did not have an explanation for the irrigation class test year peak sales month either.[5]

Q DO THE TEST YEAR PEAK SALES MONTHS ALIGN WITH HISTORICAL PEAK SALES MONTHS FOR EACH CUSTOMER CLASS?

A This cannot be determined due to the lack of information provided by the City. IU Bloomington and the OUCC have issued multiple discovery requests[6] to the City to obtain monthly water sales volumes by customer class for historical years. However, the City's responses do not allow for accurate analysis.

While monthly sales information has been provided in response to OUCC data request 2-3, the format in which it was provided does not align with the customer classes in the COSS. For example, monthly fire protection, and irrigation usage is not separately broken out from residential, commercial, or public authority usage. In addition, none of IU Bloomington's usage (master metered, irrigation, and non-master metered) is separately broken out from the other classes. Therefore, it has not been possible to determine whether the test year monthly consumption patterns for the customer classes in the COSS reasonably align with historical monthly consumption patterns.

[4]Bloomington's response to Data Request Indiana University 4-9, part i, attached as Attachment JAY-1 at 2-3.

[5]Bloomington's response to Data Request Indiana University 4-9, part j, attached as Attachment JAY-1 at 2-3.

[6]Data Requests OUCC 2-3, Indiana University 4-6, and Indiana University 4-11, attached as Attachment JAY-1 at 4-18.

Q HAS THE CITY ACKNOWLEDGED THAT THE RESIDENTIAL DEMAND RATIOS ARE UNUSUALLY LOW?

A Yes. Mr. Beauchamp acknowledged that the City's residential peaking factor of 1.06 is the lowest identified by UFS in hundreds of studies that it has completed.[7] Mr. Beauchamp claims that the City's residential class does not experience the seasonal peaks often experienced by other water systems.[8] He then tries to support this claim by pointing to the unusually low residential peaking factor estimated based on test year sales data, and his three-month average methodology. As I discuss below, however, the test year data and three-month average do not reasonably reflect each customer class's peak day and peak hour demands.

Use of Test Year Sales Data

Q PLEASE DESCRIBE THE TEST YEAR.

A The City's COSS is based on the test year ending March 30, 2020. The City indicated that the test year was a typical sales year for Bloomington.[9] The City, however, also indicated that test year water sales were lower than other years, such as 2018 – which was the highest sales year experienced in the last five years.[10]

The City has used actual water sales from the test year, without any adjustments, as the basis for developing allocation factors in its COSS. Given the end of the test year is March 30, 2020, and the pandemic was declared mid-March 2020, it seems unlikely that test year sales were significantly impacted due to the pandemic.

[7] 1.06 is from Attachment MCB-3 page 9, but Bloomington's response to Data Request Indiana University 8-4, part b, attached as Attachment JAY-1 at 19-22, shows it as 1.07.

[8] *Id.*

[9] Bloomington's response to Data Request Indiana University 4-7, attached as Attachment JAY-1 at 23.

[10] Bloomington's response to Data Request Indiana University 4-6, attached as Attachment JAY-1 at 11-13.

Q HOW HAS THE CITY USED TEST YEAR SALES DATA TO ESTIMATE MAXIMUM DAY DEMAND RATIOS?

A The maximum day and maximum hour demand ratios used in the City's COSS are developed on Attachment MCB-3, page 9 of 32. As shown on that attachment, first, the test year average daily usage was calculated for each customer class. Next, for each customer class, the City calculated the average daily usage that occurred during a three-month maximum sales period of the test year, adjusted for water losses. Dividing the average daily usage from the maximum month period, by the average daily use during the test year equals the MM/AD Ratio shown on Attachment MCB-3, page 9, for each class. The MM/AD Ratio is then further adjusted to arrive at the Maximum Day ("MD") Factor used for extra-capacity cost allocation in the COSS.

The MD Factors for each customer class are further adjusted to arrive at the Maximum Hour ("MH") Factor used for extra-capacity cost allocation in the COSS.

Q DOES THE CITY'S METHODOLOGY REFLECT COST-CAUSATION?

A No. As explained in the City's 2003 Long Range Water Capital Plan, maximum day demand is defined as the largest quantity of water pumped to distribution on any one day during the year, and the maximum day demand is utilized in sizing most water supply and treatment facilities.[11] Maximum hour demand is defined as the largest quantity of water pumped to distribution, adjusted for any inflow and outflow from system storage, in any one-hour period during the year.[12] These peak demands used for system design typically occur during dry years and in hot months.[13]

[11]Bloomington's response to Data Request OUCC 3-11, attached as Attachment JAY-1 at 32.
[12]*Id.*
[13]*Id.*

Therefore, the City's estimated customer class peaking factors based on test year (i.e. typical year) sales data do not accurately measure each class's contribution to the actual sort of peak load characteristics that drive investment in water system capacity.

Q IF THE CITY DESIGNED ITS SYSTEM TO MEET ESTIMATED TEST YEAR PEAK DAY AND PEAK HOUR DEMANDS, WOULD IT BE ABLE TO PROVIDE RELIABLE, UNINTERRUPTED WATER SERVICE TO ALL CUSTOMERS IF PEAK DEMANDS EXCEED THE TEST YEAR LEVELS?

A No. The system is not designed to meet the peak day and peak hour demand requirements during a typical sales year, such as the test year. Rather, water systems are designed to meet peak day and peak hour demand requirements during atypically high periods of consumption, such as those occurring during extreme hot, dry, periods when consumption tends to increase. If the City simply built the system to meet the demands of a "typical" year then it would not be able to provide firm, uninterrupted water service to customers during periods of time when peak day and peak hour demands exceed the test year levels. This is a point with which the City agrees.[14]

Three-Month Average Sales Method

Q WHY DID THE CITY RELY ON AVERAGE SALES DURING A THREE-MONTH PERIOD OF THE TEST YEAR TO ESTIMATE CUSTOMER CLASS PEAKING FACTORS?

A Mr. Beauchamp's testimony was silent with respect to the calculation of the City's maximum day and maximum hour customer class peaking factors. However, in

[14]Bloomington's response to Data Request Indiana University 8-6, attached as Attachment JAY-1 at 36.

discovery, IU Bloomington asked the City to explain why it has calculated the maximum month usage as the average usage over a three-month period. In addition, IU Bloomington asked the City to provide the justification for using such an approach, including references to industry-related documents supporting it.

The City's response was simply that UFS considered a three-month average as a more consistent approach reducing impacts from meter reading cycles and other abnormalities.[15] No supporting industry-related reference material has been provided.

Q DOES THE CITY'S METHODOLOGY ALIGN WITH THE AWWA MANUAL M1 INSTRUCTIONS FOR ESTIMATING CUSTOMER CLASS PEAKING FACTORS?

A No. Appendix A of the sixth edition of the AWWA Manual M1 explains the process for developing peaking factors by customer class. As discussed in Appendix A, the first step in determining the non-coincident peaking factor by customer class requires two pieces of information derived from monthly customer class billing data:

1. Average daily consumption in the maximum sales month for each customer class; and
2. Annual average-day consumption for each customer class.[16]

The AWWA Manual M1 specifically does <u>not</u> suggest using the average sales over a multi-month period to develop maximum day peaking factors by customer class.

Q WHAT IS THE EFFECT OF AVERAGING WATER SALES OVER A MULTI-MONTH PERIOD DURING THE TEST YEAR, FOR EACH CUSTOMER CLASS?

A As stated by the City in response to discovery, averaging sales over a three-month period has the effect of smoothing or minimizing estimated peak demands for weather

[15]Bloomington's response to Data Request Indiana University 4-9, parts d-f, attached as Attachment JAY-1 at 37-38.

[16]AWWA Manual M1, Sixth Edition, Appendix A, page 316.

sensitive customer classes. Applying this averaging methodology to the test year (which is itself a typical sales year), indicates that the demand ratios for weather sensitive customer classes used for cost allocation purposes in the City's COSS are significantly less than those which were used to design the water system capacity and which drove, and will drive, investment in system capacity.

As a result of the averaging of sales data, the maximum day and maximum hour demand allocators calculated by Mr. Beauchamp, cannot reasonably be considered to accurately reflect each customer class's contribution to the system peak day and peak hour demands. Use of these factors under-allocates extra-capacity costs to weather sensitive customers like the Residential class, and over-allocates these costs to customer classes that are less weather sensitive.

System MD/MM Ratio

Q WHAT IS THE PURPOSE OF THE SYSTEM MD/MM RATIO?

A Water system capacity must be designed to meet system peak day demand and system peak hour demand requirements. In the City's Long Range Water Capital Plan, observed relationships between the system max day to average day demand, and system max hour to average day demand were used to project future water requirements for system design.[17] In order to produce the most accurate estimate of system peak day and peak hour demand requirements, and each customer class's contribution to those demand requirements for cost allocation purposes, these observed relationships should be used in the development of customer class peaking factors in the COSS.

[17]Bloomington's response to Data Request OUCC 3-11, attached as Attachment JAY-1 at 34-35.

The System MD/MM ratio is calculated as the ratio of the overall system coincident maximum day demand to the average daily demand for the system maximum month. As described in the AWWA Manual M1, it provides an indication of the potential relationship between these two demands for each of the utility's retail customer classes.[18]

Q HOW DID THE CITY CALCULATE ITS SYSTEM MD/MM RATIO OF 1.09?

A The City's 9.5% factor is shown on Attachment MCB-3, page 3. Mr. Beauchamp has calculated this factor as the ratio of authorized consumption to total annual production for the test year (i.e. 527,533 / 5,555,100). This factor, plus one, then flows to the calculation of each customer class's MD Factor as the System MD/MM Ratio on Attachment MCB-3, page 9.

Q DO YOU CONSIDER THE MD/MM RATIO OF 1.09 TO TRULY REPRESENT THE SYSTEM MD/MM RATIO AS DEFINED BY THE AWWA MANUAL M1?

A No. As I discuss below, the 1.09 ratio does not coincide with the City's own system planning, nor with the results if test year data is used to calculate the ratio following AWWA standards. This undermines its use in evaluating each customer class's contribution to the maximum demand requirements that drive the City's investment in its water system capacity.

[18]AWWA Manual M1, Sixth Edition, Appendix A, page 316.

Q HOW DOES THE CITY'S RATIO OF 1.09 COMPARE TO THE SYSTEM MD/MM RATIO USED FOR SYSTEM DESIGN IN THE 2003 LONG RANGE CAPITAL PLAN?

A As shown on page 3-2 of the 2003 Long Range Capital Plan, the maximum day and maximum hour demand ratios used for system design were 1.60 and 1.90, respectively. The Company's ratio of 1.09 is significantly below the peaking factors used for design, and supports the assessment that the City's estimated customer class peaking factors are inaccurate and unreliable.

Q DID MR. BEAUCHAMP REVIEW THE CITY'S 2003 LONG RANGE CAPITAL PLAN?

A No. Mr. Beauchamp admitted this in response to IU Bloomington's Data Request 6-10.[19]

Q DOES MR. BEAUCHAMP'S CALCULATION ALIGN WITH THE INSTRUCTIONS CONTAINED IN APPENDIX A OF THE AWWA MANUAL M1?

A No. As noted above, the AWWA Manual M1 describes the System MD/MM ratio as the ratio of the overall system coincident maximum day demand to the average daily demand for the system maximum month. Mr. Beauchamp's calculation does not align with this description.

Q WHAT IS THE CORRECT SYSTEM MD/MM RATIO BASED ON THE TEST YEAR?

A If the System MD/MM ratio was developed correctly, using test year data from Attachment MCB-3, page 3, it would be 1.20, as shown by the following calculation:

System Max Day Demand: 22.3 MG

Average Day Demand in System Max Month: 576 MG

[19]Attached as Attachment JAY-1 at 39.

Number of Days in System Max Month: 30 days

System MD/MM Ratio: 22.3 / 576 / 30 = 1.20

While this is more reasonable than Mr. Beauchamp's factor of 1.09, it is still significantly less than the peaking factors used by the City for system design. The discrepancy highlights the unusual assumptions and methods used by Mr. Beauchamp in developing his COSS.

Weekly Usage Adjustments

Q PLEASE DESCRIBE THE WEEKLY USAGE ADJUSTMENTS THAT MR. BEAUCHAMP HAS APPLIED TO EACH CUSTOMER CLASS'S DEMAND RATIO.

A The City has applied adjustments to each class's maximum day demand ratio to reflect the fact that daily fluctuations occur throughout the month of maximum consumption for each customer class. As shown on Attachment MCB-3, page 9, a weekly usage adjustment of 1.35 was used for the Residential, Multi-Family, and Irrigation classes. An adjustment of 1.17 was used for the Commercial, Industrial, Wholesale, and Indiana University classes.

Q WHAT IS THE CITY'S RATIONALE FOR USING THESE WEEKLY USAGE ADJUSTMENTS?

A The City did not address its assumptions with respect to these weekly usage adjustments in its testimony. However, in discovery, IU Bloomington requested a detailed explanation of the basis for the weekly usage adjustment applied to each customer class. The City responded by stating that the weekly usage adjustment is a standard industry practice to recognize differences in usage patterns of each customer

class.[20] Importantly, however, the City admitted that the weekly usage adjustments it used were directly from the AWWA Manual M1, and that no information on customers' actual weekly usages had been provided to Mr. Beauchamp.[21]

Q WHAT IS YOUR CONCERN WITH THESE WEEKLY USAGE ADJUSTMENT FACTORS?

A As noted above, the weekly usage adjustment factors for each customer class exactly match the weekly usage adjustment factors used in the example demand ratio calculations contained in Appendix A of the AWWA Manual M1. The AWWA Manual M1 states, "It should be emphasized that these adjustment factors are assumed for purposes of this example only. Consideration should be given to the particular usage characteristics and periods of demands for the various customer classes of each individual utility, when analyzing and determining the applicable class peaking factors."[22] The examples in the AWWA Manual used by Mr. Beauchamp are merely illustrative, not "default" factors that can be applied in the absence of actual data. Accordingly, I do not consider the use of the factors in the AWWA Manual M1, which explicitly states the factors are tied to the specific example, to be an appropriate or reasonable substitute for adjustment factors based on actual data. Moreover, the City has unquestionably indicated that it did not provide data to Mr. Beauchamp regarding weekly class usage. As a result, it is impossible for Mr. Beauchamp, or anyone, to conclude the factors in the AWWA Manual M1 are appropriate. This is one more example of a questionable practice that casts doubt onto the overall accuracy of the City's COSS. .

[20]Bloomington's response to Data Request Indiana University 4-9, parts g and h, attached as Attachment JAY-1 at 2-3.

[21]*Id.*

[22]AWWA Manual M1, Sixth Edition, Appendix A, page 316.

Q HAS THE CITY PROVIDED ANY INFORMATION SHOWING THAT IT HAS CONSIDERED THE PARTICULAR USAGE CHARACTERISTICS OF ITS OWN CUSTOMER CLASSES WHEN DEVELOPING THE WEEKLY USAGE ADJUSTMENTS?

A No.

Q PLEASE SUMMARIZE YOUR CONCLUSIONS WITH RESPECT TO THE WEEKLY USAGE ADJUSTMENTS USED BY THE CITY TO DEVELOP CUSTOMER CLASS MAXIMUM DAY DEMAND RATIOS.

A The weekly usage adjustments that have been applied to the maximum day demand ratios for each customer class are not based on the City's own customer usage characteristics, and are instead based on generic factors used by the AWWA for illustrative purposes only. The usage adjustments utilized by Mr. Beauchamp have not been shown to reliably or accurately reflect the load characteristics of the City's customer classes and should not be relied upon to develop cost-based rates in this case.

Customer Class Maximum Hour Ratios

Q WHAT IS THE PURPOSE OF A MAXIMUM HOUR RATIO?

A As discussed in AWWA Manual M1, the maximum hour ratio should represent the relationship between the maximum hour and maximum day peaking factor for each customer class.[23]

[23] *Id.* at page 318.

Q DOES THE AWWA PROVIDE INSIGHT INTO THE EXPECTED RELATIONSHIP BETWEEN MAXIMUM HOUR RATIOS ACROSS CUSTOMER CLASSES?

A Yes. The AWWA Manual M1 notes that for industrial customers, the relationship between the maximum hour and maximum day peaking factors may be a function of manufacturing processes, input/output logistics, scheduling, or simply the hours of operation during the day in which the maximum hour for the class is likely to occur.[24] The relationship between the maximum hour and maximum day peaking factors for the residential and commercial customer classes is a function of even more factors due to the diversity of customers within these classes.[25]

The AWWA Manual M1's example indicates that the maximum hour ratio for residential and commercial customer classes is greater than that for the industrial class, because the time of peak consumption for these two classes may be concentrated in a shorter timeframe throughout the day.[26] The City has not provided evidence supporting a different relationship between the peaking factors of its own customer classes.

Q WHAT MAXIMUM HOUR RATIO DID THE CITY USE IN THE DEVELOPMENT OF THE MH FACTOR FOR EACH CUSTOMER CLASS?

A As shown on Attachment MCB-3, page 9, the City used the same Max Hour Ratio of 1.13 for all of its customer classes.

[24] *Id.*
[25] *Id.*
[26] *Id.*

Q HOW DID THE CITY CALCULATE ITS MAX HOUR RATIO OF 1.13?

A The City provided its calculation of the 1.13 ratio in response to IU Bloomington Data Request 6-3, part c.[27] The calculation is shown below in Table 1.

TABLE 1

Bloomington's Calculation of the System Max Hour Ratio

Line	Customer Class	Usage (kgal) (1)
	City Test Year	
1	System Average Day[1]	13,774
2	System Max Hour[1]	24,559
3	Ratio Line 2 / Line 1	1.78
	UFS Model	
4	System Average Day[2]	15,219
5	System Max Hour[2]	24,000
6	Ratio Line 5 / Line 6	1.58
7	Max Hour Ratio (Line 3 / Line 6)	1.13

Source:
[1] Attachment MCB-3, page 9.
[2] Attachment MCB-3, page 2.

As far as I can determine, this calculation was simply used to balance Mr. Beauchamp's model to the test year system peak hour demand. It does not provide any insight into the actual relationship between the maximum hour and maximum day peaking factors for each customer class.

[27]Bloomington's response to Data Request Indiana University 6-3, part d, attached as Attachment JAY-1 at 40-41.

Q DID THE CITY EXPLAIN WHY IT USED THE SAME RATIO FOR ALL CUSTOMER CLASSES?

A No. When asked to provide an explanation and justification for applying the same Max Hour Ratio of 1.13 to all customer classes, including references to industry-related documents supporting such an approach, the City responded as follows:

> The Max Hour ratio is a system based ratio used to further classify a max hour factor by class. The 1.13 factor was an assumption used in the model and applied to all customer rate classes. The factor was used to balance to the [test year max hour].[28]

Q DOES USING THE SAME MAX HOUR RATIO FOR ALL CUSTOMER CLASSES FURTHER CLASSIFY A MAX HOUR FACTOR BY CLASS?

A No. In fact, applying the same max hour ratio to each customer class's MD Factor results in each class's contribution to system maximum day demand and system maximum hour demand being equal, on a percentage basis.

Q USING THE CITY'S ASSUMED MAX HOUR RATIO OF 1.13, WHAT IS EACH CLASS'S CONTRIBUTION TO SYSTEM MAX DAY DEMAND, AND EACH CLASS'S CONTRIBUTION TO SYSTEM MAX HOUR DEMAND, ON A PERCENTAGE BASIS?

A A comparison of each customer class's percentage contribution to maximum day and maximum hour extra capacity demand are shown below in Table 2.

[28] *Id.*

TABLE 2

Bloomington's Allocation of Extra Capacity Costs

Line	Customer Class	Average Daily Use (kgal)[1] (1)	Max Day Peaking Factor[1] (2)	Max Day Demand (3)	Percent of Total (4)	Max Hour Peaking Factor[1] (5)	Max Hour Demand (6)	Percent of Total (7)
1	Residential / Multi-Family	6,007	1.57	9,411	43.3%	1.77	10,634	43.3%
2	Comm. / Gov / Inderdept.	2,972	1.51	4,490	20.7%	1.71	5,074	20.7%
3	Industrial	192	1.59	306	1.4%	1.80	346	1.4%
4	Wholesale	3,115	1.41	4,383	20.2%	1.59	4,953	20.2%
5	Indiana University	1,064	1.51	1,610	7.4%	1.71	1,819	7.4%
6	Irrigation	425	3.61	1,533	7.1%	4.08	1,733	7.1%
7	Total	13,774		21,733	100.0%		24,559	100.0%

Source: Attachment MCB-3, page 9.

As shown in columns (4) and (7), the City's methodology for developing customer class max hour peaking factors assumes that each customer class's contribution to peak hour demand is exactly equal to the contribution to peak day demand. Effectively, the City's COSS does not recognize a distinction between the maximum day and maximum hour demands placed on the system by each customer class.

Q HAS THE CITY PROVIDED ANY SUPPORT FOR ITS ASSUMPTION THAT EACH CLASS CONTRIBUTES EQUALLY TO BOTH THE SYSTEM MAXIMUM DAY AND MAXIMUM HOUR DEMANDS?

A No. The City has provided no evidence showing that its assumption that each class contributes equally to both the maximum day and maximum hour demands aligns with the actual, specific usage characteristics of Bloomington's customer classes.

Q DO YOU CONSIDER USE OF THIS ASSUMPTION REASONABLE?

A No. As I explained above, customer classes exhibit different consumption patterns throughout the day. In addition, certain wholesale customers may have their own storage capacity, which allows them to mitigate their contribution to the system peak hour demand. Mr. Beauchamp's assumption makes no effort to recognize each class's specific consumption patterns and contributions to peak hour demand, which is unreasonable.

It is system peak demands that drive infrastructure investment, including treatment capacity, which must be sized to accommodate peak demand. Failure to recognize differences in customer class consumption patterns throughout the month and throughout the day is guaranteed to produce inaccurate customer class peaking factors. This leads to an inaccurate allocation of extra capacity costs across customer classes. Therefore, I cannot conclude the use of the same max hour ratio of 1.13 for all customer classes is a reasonable.

Q THE AWWA MANUAL M1 IDENTIFIES MAX HOUR RATIOS BY CLASS. WHY DIDN'T MR. BEAUCHAMP USE THOSE FACTORS IN HIS ANALYSIS?

A In response to IU Bloomington Data Request 6-3, part f, the City indicated that the max hour ratios in the AWWA Manual M1 are for illustrative purposes only and are not industry standard factors to be used by all utilities.[29]

Interestingly, while Mr. Beauchamp's observation is correct, the same is true for the weekly usage adjustments that he obtained from the AWWA Manual M1 and used to develop the customer class maximum day peaking factors. This helps highlight

[29]Bloomington's response to Data Request Indiana University 6-3, part f, attached as Attachment JAY-1 at 40-41.

another internal discrepancy within the City's COSS that renders it flawed and unreliable for purposes of setting cost-based rates in this case.

AMI Meter Data

Q HAS THE COMPANY COMPLETED ITS INSTALLATION OF AMI METERS?

A Yes. According to the direct testimony of Mr. Vic Kelson, installation of AMI meters reached completion in 2020. The City has indicated that all customers have AMI meters.[30]

Q ARE THE AMI METERS CAPABLE OF READING HOURLY USAGE?

A Yes. According to the City's response to Washington Township's Data Request 1-28, all of Bloomington's AMI meters provide hourly usage data.[31]

Q HAS THE CITY ACKNOWLEDGED THAT AMI METERS WILL ALLOW IT TO PRODUCE A MORE ACCURATE COSS?

A Yes. In response to Washington Township's Data Request 5-10, Bloomington confirmed that AMI meters are important to being able to more accurately perform future cost of service studies because Bloomington will have more data to identify peak demands and variability of demand.[32] The City also indicated that AMI technology would aid in the collection and validation of data.[33]

[30]Bloomington's response to Data Request Washington Township 2-4, attached as Attachment JAY-1 at 42.
[31]See Attachment JAY-1 at 43.
[32]See Attachment JAY-1 at 44.
[33]*Id.*

Q IS THE CITY WILLING TO UPDATE THE DEMAND RATIOS IN THE COSS PRIOR TO THE CLOSE OF THIS CASE?

A No.[34] Even if it was willing to update the extra capacity cost allocation factors, with the installation of AMI meters completed by August 2020, the City has only one year of AMI data available. Further, that data may be abnormal due to the impacts of the COVID pandemic and there is no indication that the period for which AMI data exists represents the sort of weather conditions that would generate an accurate picture of customer class peak day and peak hour demands. Accordingly, the data may not be reliable for use in a COSS to establish rates in this case.

III. Revenue Allocation

Q WOULD YOU PLEASE DESCRIBE THE CITY'S PROPOSED REVENUE ALLOCATION?

A A comparison of the City's COSS results to its proposed revenue allocation for Phase 1 and Phase 2 is presented in Attachment JAY-2. As shown on this attachment, the COSS shows that rates for several meter sizes are currently priced above cost of service and should be reduced. However, volumetric rates for all customer classes except residential and fire protection require above system average increases to reach cost of service.

The City proposes no change to rates for meter sizes that require rate decreases. The City proposes to limit the increase for the remaining meter sizes and volumetric rates to no more than 20 percent in each Phase.

[34]Bloomington's response to Data Request Washington Township 4-13, attached as Attachment JAY-1 at 45.

Q DO YOU AGREE THAT THE CITY'S PROPOSED REVENUE ALLOCATION WILL PRODUCE JUST AND REASONABLE RATES?

A No. The City tries to move classes toward cost of service based on its COSS results which, as I have described, are deeply flawed and built on numerous inaccurate assumptions. Moreover, as shown on Attachment JAY-2, under the City's proposal, several classes will experience increases greater than 1.5 times the system average, and will essentially reach cost of service by Phase 2. This is unreasonable, and does not align with the principle of gradualism and avoidance of rate shock.

Q ARE YOU RECOMMENDING AN ALTERNATIVE REVENUE ALLOCATION?

A Yes. I recommend an equal percent increase for all customer classes. The impact of my proposed revenue spread by customer class, relative to the City's proposed revenue spread is shown on Attachment JAY-3. As shown on page 2 of the attachment, the impact of my proposal relative to the City's proposal is minimal for residential customers.

By Phase 2, the City proposes to increase residential class volumetric revenues by 0.96x the system average increase. Under my proposal, the residential volumetric revenues would receive the system average increase. Assuming the City recovers 100% of its claimed revenue deficiency, by Phase 2, my proposal would increase meter charges for 5/8-inch and ¾-inch meters by $0.64, and $1.77 per month, respectively. The volumetric charge for the residential class would increase by $0.03 per thousand gallons.

Q PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS WITH RESPECT TO COST OF SERVICE AND REVENUE ALLOCATION.

A The COSS is deeply flawed as I have outlined in my testimony, and it cannot be corrected with the information provided by the City. Therefore, no class should be required to move to cost of service based on the results of this study. In addition, the proposed movement results in rate shock to numerous classes and the rate design and proposal is, therefore, contrary to the principle of gradualism.

Rather than relying on a flawed cost of service study, I recommend an equal percent increase for all customer classes in this case. Due to the inaccurate COSS, an equal percent increase is the most equitable and balanced approach in this case. Further, the Commission should require the City to collect hourly AMI data for all of its customers between now and the next rate case. Peak day and peak hour demand ratios should be calculated based on the highest sales year, without any restrictions on water use, between now and then, and those updated demand ratios should be used in the next COSS.

Q DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A Yes, it does.

Qualifications of Jessica A. York

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A Jessica York. My business address is 16690 Swingley Ridge Road, Suite 140, Chesterfield, MO 63017.

Q PLEASE STATE YOUR OCCUPATION.

A I am a consultant in the field of public utility regulation and an Associate with the firm of Brubaker & Associates, Inc. ("BAI"), energy, economic and regulatory consultants.

Q PLEASE IDENTIFY THE JURISDICTIONS IN WHICH YOU HAVE PREVIOUSLY SPONSORED TESTIMONY.

A I have sponsored expert testimony in front of the Illinois Commerce Commission, the Indiana Utility Regulatory Commission, the Michigan Public Service Commission, the Missouri Public Service Commission, and the Public Utilities Commission of Nevada.

Q PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EMPLOYMENT EXPERIENCE.

A I graduated from Truman State University in 2008 where I received my Bachelor of Science Degree in Mathematics with minors in Statistics and Actuarial Science. I earned my Master of Business Administration Degree with a concentration in Finance from the University of Missouri-St. Louis in 2014.

I joined BAI in 2011 as an analyst. Then, in March 2015, I joined the consulting team of BAI.

I have worked in various electric, natural gas and water and wastewater regulatory proceedings addressing cost of capital, sales revenue forecasts, revenue

requirement assessments, class cost of service studies, rate design, and various policy issues. I have also conducted competitive power and natural gas solicitations on behalf of large electric and natural gas users, have assisted those large power and natural gas users in developing procurement plans and strategies, assisted in competitive contract negotiations, and power and natural gas contract supply administration. In the regulated arena, I have evaluated cost of service studies and rate designs proffered by other parties in cases for various utilities, including in Wisconsin, Illinois, Indiana, Kansas, and others. I have conducted bill audits, rate forecasts and tariff rate optimization studies.

I have also provided support to clients with facilities in deregulated markets, including drafting supply requests for proposals, evaluating supply bids, and auditing competitive supply bills. I have also prepared and presented to clients reports that monitor the electric market and recommend strategic hedging transactions.

BAI was formed in April 1995. BAI and its predecessor firm have participated in more than 700 regulatory proceedings in forty states and Canada.

BAI provides consulting services in the economic, technical, accounting, and financial aspects of public utility rates and in the acquisition of utility and energy services through RFPs and negotiations, in both regulated and unregulated markets. Our clients include large industrial and institutional customers, some utilities and, on occasion, state regulatory agencies. We also prepare special studies and reports, forecasts, surveys and siting studies, and present seminars on utility-related issues.

In general, we are engaged in energy and regulatory consulting, economic analysis and contract negotiation.

In addition to our main office in St. Louis, the firm also has branch offices in Phoenix, Arizona and Corpus Christi, Texas.

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

IN THE MATTER OF THE PETITION OF BLOOMINGTON, INDIANA, FOR APPROVAL OF A NEW SCHEDULE OF RATES AND CHARGES FOR WATER UTILITY SERVICE AND FOR AUTHORITY TO ISSUE AND APPROVAL OF BONDS, NOTES, OR OTHER OBLIGATIONS	)	**CAUSE NO. 45533**

Verification

I, Jessica A. York, an Associate of Brubaker & Associates, Inc., affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

Jessica A. York
July 30, 2021

418504

Q-2-4: Please provide a list of the ten (10) largest customers for the test year. Please include the name of the customer, number of meters assigned to the customer, and total usage in thousands of gallons (or hundreds of cubic feet) for the test year.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections. Bloomington further objects to the extent the Data Request purports to require Bloomington to supply information in a format other than the format in which Bloomington keeps such information, or to the extent it seeks a calculation or compilation that has not already been performed and that Bloomington objects to performing.

Response:

The requested information is set forth in the table below:

Customer Name	Meters	Consumption
INDIANA UNIVERSITY	448	357584
TOWN OF ELLETTSVILLE	5	257159
SOUTHERN MONROE WATER CORP	8	188426
B AND B WATER CORP	4	120170
EAST MONROE WATER CORP	8	105629
VAN BUREN WATER INC	6	102576
WASHINGTON TOWNSHIP WATER CORP	7	63067
OLYMPUS PROPERTIES LLC	5	52174
COOK PHARMICA	4	48638
COOK INC	14	26640

Q-4-9: Please refer to Attachment MCB-3, page 9 of 32.

a. Please confirm that maximum day and maximum hour demand ratios for each customer class are based on projected test year data. If the response is anything other than an unqualified confirmation, please provide a detailed explanation supporting the response.

b. Please provide a detailed explanation of the rationale for developing max day and max hour demand ratios based on projected test year usage rather than actual historical data.

c. Please provide the justification for using the approach discussed in part a., and part b. including references to industry-related documents that support this approach.

d. Please explain why the max month usage is calculated as the average usage over a three-month period.

e. Please provide a detailed explanation of the rationale for using a three-month average usage as the maximum usage for the demand ratio calculations.

f. Please provide the justification for using the approach discussed in part d., and part e., including references to industry-related documents that support this approach.

g. Please provide a detailed explanation of the basis for the weekly usage adjustment applied to each customer class.

h. Please provide all documents relied upon by Mr. Beauchamp to conclude that these weekly usage adjustments reflect the particular usage characteristics and periods of demands for the City of Bloomington's customers.

i. Please explain why the highest test year water consumption for the irrigation class occurs in October and November.

j. Please explain why the highest test year water consumption for the residential and multi-family class occurs in October and November.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections. Bloomington further objects to the Data Request as being vague, ambiguous, and overly broad in that it requests "industry-related documents." Bloomington further objects to the Data Request because it assumes facts not evidence, specifically that weekly usage data was available.

Response:

a. The customer usage data was based on historical test year data between 4.1.19 – 3.31.20. There were adjustments to unit sales to match the calculated sales revenue from the revenue proof shown on schedule 3 of MCB-3 and MCB-4. The schedule is titled Revenue and Usage Projections; however, the data is from the historical test year. The adjustments used to match revenues with financial statement revenues are also shown in this schedule on page 8 of MCB-3 and MCB-4.

b. The customer usage data was based on historical test year data as explained above.

c. The customer usage data was based on historical test year data with adjustments to unit sales to match calculated sales revenue with reported sales revenues. This adjustment is shown on pages 8 of MCB-3 and MCB-4.

d. Customers meters are read in cycles depending on the meter reading schedule. Some months may only have 27 or 28 day's usage recorded for the month and other months may have 33 days. UFS used a three-month average to smooth out any potential issues that can occur due to the meter reading cycles.

e. Customers meters are read in cycles depending on the meter reading schedule. Some months may only have 27 or 28 day's usage recorded for the month and other month may have 33 days. UFS used a three month average to smooth out any potential issues that can occur due to the meter reading cycles.

f. UFS considered a three-month average as a more consistent approach reducing impacts from meter reading cycles and other abnormalities.

g. The weekly usage adjustment is a standard industry practice to recognize differences in usage patterns of each customer class. This method is taught by AWWA and the factors used were directly from AWWA M-1 Version 7; Appendix A on page 376 and 377. This reference is available in the IU 4-9 folder on the "IURC CN 45533-Bloomington Water Rate Case" Dentons Direct Site.

h. No information on customers' weekly usages were provided to UFS.

i. Bloomington does not have a definitive explanation. The high water consumption in October and November may be due to meter reading cycles or other abnormalities.

j. Bloomington does not have a definitive explanation. The high water consumption in October and November may be due to meter reading cycles or other abnormalities.

Q-2-3: Please provide the following information by customer class:

a. Customer count (billings) for each month of the period April 1, 2019 through March 31, 2021.
b. Customer Revenues for each month of the period April 1, 2019 through March 31, 2021.
c. Customer Consumption for each month of the period April 1, 2019 through March 31, 2021.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections. Bloomington further objects to the extent the Data Request purports to require Bloomington to supply information in a format other than the format in which Bloomington keeps such information, or to the extent it seeks a calculation or compilation that has not already been performed and that Bloomington objects to performing.

Response:

The requested customer data is available in the OUCC 2-3 folder on the "IURC CN 45533-Bloomington Water Rate Case" Dentons Direct Site.

January-18	Accounts	Consumption	Revenues
Commercial	1,411	43,730	$159,463.23
Industrial	6	3,283	$10,079.22
Public Authority	322	37,377	$117,176.74
Multi-Family Residential	1,454	52,080	$311,840.94
Single-Family Residential	12,645	43,709	$388,956.61
Wholesale	30	70,927	$188,481.59
Total:	15,868	251,106	$1,175,998.33

February-18	Accounts	Consumption	Revenues
Commercial	1,415	37,415	$156,779.90
Industrial	6	3,332	$10,228.54
Public Authority	321	52,981	$156,946.58
Multi-Family Residential	1,463	54,610	$320,907.03
Single-Family Residential	12,696	47,261	$403,086.81
Wholesale	30	89,870	$218,348.45
Total:	15,931	285,469	$1,266,297.31

March-18	Accounts	Consumption	Revenues
Commercial	1,418	35,070	$157,151.33
Industrial	6	3,503	$10,726.18
Public Authority	323	57,209	$166,111.06
Multi-Family Residential	1,472	53,923	$311,424.06
Single-Family Residential	12,773	42,867	$392,728.63
Wholesale	30	72,945	$177,903.61
Total:	16,022	265,517	$1,216,044.87

April-18	Accounts	Consumption	Revenues
Commercial	1,426	36,208	$156,506.12
Industrial	6	3,360	$10,314.30
Public Authority	324	43,353	$131,741.83
Multi-Family Residential	1,480	47,415	$282,664.16
Single-Family Residential	12,839	38,028	$355,623.98
Wholesale	30	61,525	$150,609.81
Total:	16,105	229,889	$1,087,460.20

May-18	Accounts	Consumption	Revenues
Commercial	1,438	35,500	$156,993.92
Industrial	6	3,573	$10,954.42
Public Authority	327	50,057	$152,658.42
Multi-Family Residential	1,489	53,296	$299,267.71
Single-Family Residential	12,907	39,078	$364,754.94
Wholesale	30	71,294	$173,957.72
Total:	16,197	252,798	$1,158,587.13

June-18	Accounts	Consumption	Revenues
Commercial	1,436	43,560	$188,796.91
Industrial	6	5,171	$15,629.75
Public Authority	328	56,984	$187,674.43
Multi-Family Residential	1,498	52,882	$307,294.97
Single-Family Residential	13,003	44,360	$389,788.09
Wholesale	30	98,792	$239,683.94
Total:	16,301	301,749	$1,328,868.09

July-18	Accounts	Consumption	Revenues
Commercial	1,451	46,436	$200,006.54
Industrial	6	4,840	$14,655.87
Public Authority	329	66,591	$221,861.03
Multi-Family Residential	1,522	50,074	$291,050.70
Single-Family Residential	13,193	56,253	$436,920.52
Wholesale	29	88,073	$213,959.96
Total:	16,530	312,267	$1,378,454.62

August-18	Accounts	Consumption	Revenues
Commercial	1,457	52,645	$224,500.52
Industrial	6	5,077	$15,367.75
Public Authority	330	65,954	$215,935.69
Multi-Family Residential	1,559	51,408	$291,972.66
Single-Family Residential	13,377	56,324	$424,570.76
Wholesale	30	107,222	$259,825.64
Total:	16,759	338,630	$1,432,173.02

September-18	Accounts	Consumption	Revenues
Commercial	1,467	46,240	$213,850.27
Industrial	6	5,497	$16,599.71
Public Authority	333	74,524	$251,524.36
Multi-Family Residential	1,641	51,727	$289,641.09
Single-Family Residential	13,627	56,178	$414,131.14
Wholesale	30	84,073	$204,499.53
Total:	17,104	318,239	$1,390,246.10

October-18	Accounts	Consumption	Revenues
Commercial	1,594	63,065	$211,036.97
Industrial	6	5,077	$13,505.79
Public Authority	343	68,677	$256,514.10
Multi-Family Residential	2,204	64,197	$339,496.72
Single-Family Residential	15,395	167,064	$430,218.48
Wholesale	30	90,750	$209,554.38
Total:	19,572	458,830	$1,460,326.44

November-18	Accounts	Consumption	Revenues
Commercial	1,490	39,662	$171,300.79
Industrial	6	3,710	$11,349.71
Public Authority	335	59,100	$184,064.03
Multi-Family Residential	1,701	52,461	$313,518.61
Single-Family Residential	13,854	44,036	$371,491.32
Wholesale	30	68,805	$168,009.01
Total:	17,416	267,774	$1,219,733.47

December-18	Accounts	Consumption	Revenues
Commercial	1,494	41,432	$178,333.19
Industrial	6	4,391	$13,322.15
Public Authority	336	57,474	$172,838.74
Multi-Family Residential	1,721	64,088	$349,383.12
Single-Family Residential	13,931	51,422	$407,811.41
Wholesale	30	93,179	$226,268.15
Total:	17,518	311,986	$1,347,956.76

January-19	Accounts	Consumption	Revenues
Commercial	1,502	34,373	$146,562.40
Industrial	6	3,842	$11,700.07
Public Authority	337	41,864	$124,086.52
Multi-Family Residential	1,740	49,318	$280,478.69
Single-Family Residential	13,989	44,590	$368,726.62
Wholesale	30	66,401	$162,263.45
Total:	17,604	240,388	$1,093,817.75

February-19	Accounts	Consumption	Revenues
Commercial	1,513	34,231	$147,816.46
Industrial	5	3,454	$10,353.55
Public Authority	336	49,995	$147,758.28
Multi-Family Residential	1,747	58,683	$316,686.01
Single-Family Residential	14,063	48,435	$386,238.59
Wholesale	29	82,430	$200,503.07
Total:	17,693	277,228	$1,209,355.96

March-19	Accounts	Consumption	Revenues
Commercial	1,520	34,480	$146,436.56
Industrial	5	2,717	$8,196.43
Public Authority	337	37,411	$117,258.01
Multi-Family Residential	1,758	53,515	$303,856.87
Single-Family Residential	14,106	44,638	$373,893.80
Wholesale	30	82,979	$201,884.87
Total:	17,756	255,740	$1,151,526.54

April-19	Accounts	Consumption	Revenues
Commercial	1,534	36,371	$155,283.71
Industrial	6	3,475	$10,987.07
Public Authority	336	44,529	$134,547.25
Multi-Family Residential	1,770	57,261	$310,935.98
Single-Family Residential	14,186	45,299	$376,022.68
Wholesale	30	74,917	$182,616.69
Total:	17,862	261,852	$1,170,393.38

May-19	Accounts	Consumption	Revenues
Commercial	1,541	33,597	$147,519.85
Industrial	6	3,462	$10,958.83
Public Authority	337	44,831	$141,850.80
Multi-Family Residential	1,797	52,238	$288,686.51
Single-Family Residential	14,275	40,244	$352,614.16
Wholesale	30	65,679	$160,550.20
Total:	17,986	240,051	$1,102,180.35

June-19	Accounts	Consumption	Revenues
Commercial	1,550	42,325	$178,714.39
Industrial	6	5,351	$16,494.23
Public Authority	340	48,968	$159,209.55
Multi-Family Residential	1,811	62,630	$323,351.30
Single-Family Residential	14,415	49,297	$390,850.89
Wholesale	30	90,660	$220,242.46
Total:	18,152	299,231	$1,288,862.82

July-19	Accounts	Consumption	Revenues
Commercial	1,562	48,255	$178,714.39
Industrial	6	4,321	$16,494.23
Public Authority	342	40,140	$159,209.55
Multi-Family Residential	1,839	53,828	$323,351.30
Single-Family Residential	14,571	55,479	$390,850.89
Wholesale	30	85,462	$220,242.46
Total:	18,350	287,485	$1,288,862.82

August-19	Accounts	Consumption	Revenues
Commercial	1,582	46,223	$184,895.42
Industrial	6	5,230	$16,241.65
Public Authority	342	63,582	$206,298.28
Multi-Family Residential	1,908	47,300	$260,070.33
Single-Family Residential	14,859	56,072	$386,837.43
Wholesale	30	85,884	$208,827.82
Total:	18,727	304,291	$1,263,170.93

September-19	Accounts	Consumption	Revenues
Commercial	1,593	56,392	$217,661.06
Industrial	6	6,282	$19,190.11
Public Authority	341	67,640	$224,697.54
Multi-Family Residential	2,153	58,410	$294,250.11
Single-Family Residential	15,313	61,416	$416,694.51
Wholesale	30	105,654	$256,078.12
Total:	19,436	355,794	$1,428,571.45

October-19	Accounts	Consumption	Revenues
Commercial	1,594	63,065	$201,601.93
Industrial	6	5,077	$15,879.25
Public Authority	343	68,677	$227,336.71
Multi-Family Residential	2,204	64,197	$333,576.58
Single-Family Residential	15,395	167,064	$454,019.58
Wholesale	30	90,750	$220,457.56
Total:	19,572	458,830	$1,452,871.61

*10 single-family residential Accounts were adjusted a total of 99,946 units due to an error in the final read entry that caused excessive billed consumption.

November-19	Accounts	Consumption	Revenues
Commercial	1,610	63,712	$203,761.82
Industrial	6	4,900	$15,164.37
Public Authority	343	63,883	$204,197.73
Multi-Family Residential	2,232	190,691	$352,405.54
Single-Family Residential	15,328	105,350	$436,207.46
Wholesale	30	91,371	$221,942.61
Total:	19,549	519,907	$1,433,679.53

*9 single-family residential were adjusted off a total of 89,953 and 4 multi-family residential accounts were adjusted off a total of 120,784 units due to an error in the final read entry that caused excessive billed consumption.

December-19	Accounts	Consumption	Revenues
Commercial	1,625	42,342	$189,094.02
Industrial	6	4,444	$11,768.95
Public Authority	344	46,064	$144,548.45
Multi-Family Residential	2,266	78,296	$344,712.66
Single-Family Residential	15,491	237,171	$476,429.27
Wholesale	30	70,963	$173,166.63
Total:	19,762	479,280	$1,339,719.98

*13 single-family residential Accounts were adjusted a total of 119,865 units due to an error in the final read entry that caused excessive billed consumption.

January-20	Accounts	Consumption	Revenues
Commercial	1,642	104,038	$135,387.21
Industrial	6	4,356	$13,138.99
Public Authority	345	32,516	$103,381.20
Multi-Family Residential	2,306	86,780	$290,927.56
Single-Family Residential	15,778	90,559	$333,544.49
Wholesale	30	88,563	$215,107.39
Total:	20,107	406,812	$1,091,486.84

1 Multi-family residential account was adjusted off 100,000 units 3

*Note: 3 Commercial accounts were adjusted a total of 69,998 units off, 2 multi-family residential accounts were adjusted off a total of 30,000, and 5 single-family residential accounts were adjusted off a total of 49,989 units due to an error in the final read entry that caused excessive billed consumption.

February-20	Accounts	Consumption	Revenues
Commercial	1,660	38,658	$115,971.52
Industrial	6	2,904	$8,985.91
Public Authority	344	46,995	$143,370.25
Multi-Family Residential	2,284	61,524	$311,733.57
Single-Family Residential	15,806	62,148	$413,813.27
Wholesale	30	93,836	$227,833.10
Total:	20,130	306,065	$1,221,707.62

March-20	Accounts	Consumption	Revenues
Commercial	1,656	1,037,778	$147,305.59
Industrial	6	5,564	$16,820.77
Public Authority	345	57,532	$174,369.62
Multi-Family Residential	2,346	170,426	$339,681.20
Single-Family Residential	15,933	83,318	$348,540.10
Wholesale	30	76,257	$184,825.14
Total:	20,316	1,430,875	$1,211,542.42

*1 multi-family residential account was adjusted off a total of 100,000 units, 1 commercial account was adjusted off 1,000,000 units, and 3 single-family residential accounts were adjusted off 29,994 units due to an error in the final read entry that caused excessive billed consumption.

April-20	Accounts	Consumption	Revenues
Commercial	1,682	49,195	$172,444.21
Industrial	6	4,066	$8,806.55
Public Authority	345	46,745	$145,278.09
Multi-Family Residential	2,383	69,903	$335,997.87
Single-Family Residential	16,097	58,828	$407,970.94
Wholesale	30	73,129	$178,317.17
Total:	20,543	301,866	$1,248,814.83

May-20	Accounts	Consumption	Revenues
Commercial	1,676	37,556	$118,953.08
Industrial	5	5,989	$13,978.11
Public Authority	343	27,541	$57,238.80
Multi-Family Residential	2,405	58,639	$284,457.73
Single-Family Residential	16,178	67,184	$393,181.17
Wholesale	30	87,035	$197,236.41
Total:	20,637	283,944	$1,065,045.30

June-20	Accounts	Consumption	Revenues
Commercial	1,690	41,020	$125,686.67
Industrial	5	4,886	$14,643.54
Public Authority	346	37,910	$131,558.53
Multi-Family Residential	2,442	113,637	$303,676.13
Single-Family Residential	16,294	54,836	$425,174.13
Wholesale	30	86,698	$197,602.08
Total:	20,807	338,987	$1,198,341.08

*1 multi-family residential account was adjusted off a total of 50,000 units due to an error in the final read entry that caused excessive billed consumption.

July-20	Accounts	Consumption	Revenues
Commercial	1,705	55,758	$212,517.48
Industrial	6	6,154	$18,535.97
Public Authority	346	35,508	$105,144.79
Multi-Family Residential	2,517	62,228	$377,964.71
Single-Family Residential	16,514	81,711	$530,373.06
Wholesale	30	108,630	$263,162.17
Total:	21,118	349,989	$1,507,698.18

August-20	Accounts	Consumption	Revenues
Commercial	1,720	49,141	$185,811.88
Industrial	6	7,632	$22,348.25
Public Authority	345	65,762	$233,740.26
Multi-Family Residential	2,655	166,613	$239,345.77
Single-Family Residential	16,877	115,970	$417,472.79
Wholesale	30	105,782	$256,357.84
Total:	21,633	510,900	$1,355,076.79

*1 multi-family residential account was adjusted off a total of 100,000 units and 4 single-family residential accounts were adjusted off a total of 39,995 units due to an error in the final read entry that caused excessive billed consumption.

September-20	Accounts	Consumption	Revenues
Commercial	1,741	53,511	$200,817.85
Industrial	6	7,114	$19,564.28
Public Authority	342	52,815	$163,683.08
Multi-Family Residential	3,318	79,332	$307,815.21
Single-Family Residential	17,895	78,086	$450,073.36
Wholesale	29	93,157	$185,422.73
Total:	23,331	364,015	$1,327,376.51

*1 multi-family residential account was adjusted off a total of 5,334 units due to an error in the final read entry that caused excessive billed consumption.

October-20	Accounts	Consumption	Revenues
Commercial	1,750	57,549	$190,777.31
Industrial	6	6,355	$19,094.30
Public Authority	346	64,489	$217,018.34
Multi-Family Residential	3,474	81,373	$370,340.73
Single-Family Residential	18,146	82,628	$470,169.04
Wholesale	29	144,861	$348,772.06
Total:	23,751	437,255	$1,616,171.78

November-20	Accounts	Consumption	Revenues
Commercial	1,758	41,922	$140,066.69
Industrial	6	6,456	$19,597.98
Public Authority	347	46,411	$160,186.13
Multi-Family Residential	3,514	78,885	$355,612.58
Single-Family Residential	18,298	74,031	$433,643.37
Wholesale	29	90,012	$218,641.34
Total:	23,952	337,717	$1,327,748.09

December-20	Accounts	Consumption	Revenues
Commercial	1,772	34,042	$131,994.22
Industrial	6	5,527	$16,790.66
Public Authority	347	35,575	$119,730.31
Multi-Family Residential	3,574	72,381	$329,066.88
Single-Family Residential	18,504	63,904	$395,464.41
Wholesale	29	77,003	$165,821.56
Total:	24,232	288,432	$1,158,868.04

Q-4-6: In what year during the last five (5) years did the City of Bloomington experience its highest level of water sales? For the year identified, please provide the following information:

a. Please describe the weather conditions that occurred during this high sales year.

b. Please state whether or not there were any restrictions on water use in effect during the year, and to the extent that restrictions were in place, please describe the restrictions and identify the dates when these restrictions were in effect.

c. An updated version of the A1. System Production tab of the cost of service study model reflecting pumping and water sales data for the high sales year.

d. Monthly water sales by customer class during this high sales year.

e. An updated version of the B3. Class Diversity Ratio tab of the cost of service study model reflecting data for this high sales year.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections. Bloomington further objects to the Data Request on the basis that it requests data resulting from a calculation that Bloomington has not performed, and Bloomington objects to performing said calculation. Bloomington further objects to the Data Request to the extent that it asks Bloomington to perform a calculation or otherwise create documents or information not in existence prior to receipt of the Data Request. Bloomington further objects to the Data Request on the grounds that it requests information that is available in the public domain and is equally accessible by Indiana University as it is Bloomington. Bloomington further objects to the Data Request to the extent that it seeks documents or information not in its possession, custody or control.

Response:

2018.

a. Please see objections.

b. No water restrictions were in place in 2018.

c. Please see objections.

d. The information is available in the IU 4-6 folder on the "IURC CN 45533-Bloomington Water Rate Case" Dentons Direct Site.

e. Please see objections.

CITY OF BLOOMINGTON

Revenue Budget Worksheet Report

Account Number	Account Description	2016 Actual Amount	2017 Actual Amount	2018 Actual Amount	2019 Actual Amount	2020 Actual Amount
Fund:	**009 - Water**					
REVENUES						
Department:	**00 - Utilities**					
Program:	**900000 - Default**					
Operating Rev - Operating Revenues						
U46101	Metered Sales Single Family	3,979,954.3700	4,252,160.9900	4,726,481.1900	4,782,222.7300	4,961,648.4300
U46102	Metered Sales Commercial	1,555,572.0400	1,789,125.9100	2,064,858.5200	1,962,829.0400	1,733,645.6900
U46103	Metered Sales Industrial	141,283.3500	127,636.8000	152,733.3900	158,404.2400	191,915.4300
U46104	Metered Sales Public Authority	1,589,223.3400	1,762,591.9700	2,042,015.5300	1,829,604.2000	1,585,505.1600
U46105	Metered Sales Multiple Family	3,105,592.4800	3,325,155.0700	3,678,375.5100	3,668,236.2400	3,800,853.5000
U46106	Water Station Revenue	0.0000	0.0000	0.0000	25.1800	390.8700
U46600	Metered Sales for Resale	1,984,971.8600	2,153,496.5100	2,431,101.7900	2,416,352.7200	2,639,098.9900
U46211	Public Fire Protection Single	664,451.2800	714,028.5000	809,600.7500	811,339.1700	818,287.0900
U46222	Private Fire Protection Commercial	238,936.5600	266,389.5300	305,430.3800	307,303.0200	312,282.4300
U46223	Private Fire Protection Industrial	9,360.6800	8,091.5400	8,736.2400	11,193.4600	11,592.4700
U46224	Private Fire Protection Public	91,512.6400	98,312.1100	113,040.8500	115,981.9400	117,606.2900
U46225	Private Fire Protection Multiple	281,880.9000	308,669.1000	353,167.0900	367,518.0100	371,478.6000
U46501	Irrigation Sales Single Family	41,498.8400	57,276.0000	53,601.5000	48,410.1000	57,771.7000
U46502	Irrigation Sales Commercial	94,993.3500	108,862.3100	109,861.1700	153,870.3500	144,088.0200
U46503	Irrigation Sales Industrial	0.0000	0.0000	0.0000	2,048.5800	389.8800
U46504	Irrigation Sales - Public Authority	89,509.8500	166,232.3000	173,031.4800	145,237.1400	169,194.2400
U46505	Irrigation Sales Multiple Family	28,642.5000	33,139.7900	30,086.2600	31,118.5800	45,766.4400
U47000	Forfeited Discounts	26,760.2300	34,440.7800	32,679.9300	41,366.6400	13,213.1700
U47102	Turn On Reset Charge	82,187.6900	63,993.3000	136,307.7500	161,587.3200	91,225.7800
U47404	Non-Sufficient Funds (NSF)	4,150.0000	5,074.9900	6,925.0000	6,571.5800	5,175.0000
U47101	Connection Charge	197,039.3500	249,047.6700	414,430.5400	376,318.3300	216,880.8200
U47401	Other Water Revenues	182,086.8200	176,038.3600	222,444.0200	251,158.7600	532,266.7300
Account Classification Total: Operating Rev - Operating Revenues		$14,389,608.13	$15,699,763.53	$17,864,908.89	$17,648,697.33	$17,820,276.73
NonOperating Rev - Non-Operating Revenues						
U41906	Interest O&M Sweep	(4,010.9900)	(7,041.5100)	40,951.3400	67,428.0900	15,215.2500
U41500	Revenue from Contract Work	29,572.4500	26,162.6200	6,981.0700	53,478.4300	12,968.9500
U41902	Interest - Miscellaneous	0.0000	0.0000	0.0000	66,713.0900	16,484.0700
U42100	Non Utility Income	10,609.7100	5,942.1900	13,100.9800	9,087.5700	5,789.4200
U53604	Other Revenue	0.0000	0.0000	0.0000	590.1100	0.0000
Account Classification Total: NonOperating Rev - Non-Operating Revenues		$36,171.17	$25,063.30	$61,033.39	$197,297.29	$50,457.69
Program Total: 900000 - Default		$14,425,779.30	$15,724,826.83	$17,925,942.28	$17,845,994.62	$17,870,734.42
Department Total: 00 - Utilities		$14,425,779.30	$15,724,826.83	$17,925,942.28	$17,845,994.62	$17,870,734.42
REVENUES Total		$14,425,779.30	$15,724,826.83	$17,925,942.28	$17,845,994.62	$17,870,734.42
Fund REVENUE Total: 009 - Water		$14,425,779.30	$15,724,826.83	$17,925,942.28	$17,845,994.62	$17,870,734.42
REVENUE GRAND Totals:		$14,425,779.30	$15,724,826.83	$17,925,942.28	$17,845,994.62	$17,870,734.42

	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Total
Commercial	$158,710.83	$156,246.39	$157,031.11	$155,774.24	$155,495.96	$179,709.97	$184,059.08	$197,410.70	$192,666.79	$191,819.99	$161,481.97	$174,451.49	$2,064,858.52
Industrial	$10,079.22	$10,228.54	$10,726.18	$10,314.30	$10,954.42	$15,629.75	$14,655.87	$15,367.75	$16,599.71	$13,505.79	$11,349.71	$13,322.15	$152,733.39
Public Authority	$117,108.34	$156,905.54	$166,035.82	$131,464.81	$150,832.14	$170,806.99	$195,964.79	$178,178.89	$220,929.04	$223,989.90	$165,900.41	$163,898.86	$2,042,015.53
Multi-Family Residential	$311,553.66	$320,311.95	$311,813.42	$282,653.90	$299,257.45	$306,662.27	$287,039.04	$285,095.04	$282,643.77	$333,385.18	$310,009.69	$347,950.14	$3,678,375.51
Single-Family Residential	$387,910.09	$403,167.51	$393,223.70	$355,846.29	$364,498.44	$388,300.39	$428,907.46	$414,690.38	$401,829.40	$419,595.96	$365,051.46	$403,460.11	$4,726,481.19
Wholesale	$188,481.59	$218,348.45	$177,903.61	$150,609.81	$173,957.72	$239,683.94	$213,959.96	$259,825.64	$204,499.53	$209,554.38	$168,009.01	$226,268.15	$2,431,101.79
Irrigation	$2,154.60	$1,088.93	-$688.97	$796.85	$3,591.00	$28,074.78	$53,868.42	$81,604.62	$71,077.86	$68,475.24	$37,931.22	$18,605.86	$366,580.41
Total:	$1,175,998.33	$1,266,297.31	$1,216,044.87	$1,087,460.20	$1,158,587.13	$1,328,868.09	$1,378,454.62	$1,432,173.02	$1,390,246.10	$1,460,326.44	$1,219,733.47	$1,347,956.76	$15,462,146.34

Q-4-11: Please provide actual monthly water sales by customer class from 2016 through 2021 to date. Customer classes should be consistent with the classes identified on Attachment MCB-3, page 9.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections. Bloomington further objects to the extent the Data Request purports to require Bloomington to supply information in a format other than the format in which Bloomington keeps such information, or to the extent it seeks a calculation or compilation that has not already been performed and that Bloomington objects to performing.

Response:

CBU does not have a report that generates exactly the same as the report listed on Attachment MCB-3, page 9. The information available in the IU 4-11 folder on the "IURC CN 45533-Bloomington Water Rate Case" Dentons Direct Site details actual monthly water sales by customer class and ranges from 2016 through 2021. In the report provided, Single Family Residential and Multi-Family Residential are listed separately (in the MCB-3 report they are listed together).

In the information available in the IU 4-11 folder on the "IURC CN 45533-Bloomington Water Rate Case" Dentons Direct Site, Indiana University is included in the Public Authority Class. CBU has included a tab with monthly Indiana University billing data from 2016-2021. In the IU Billing Data tab, the monthly amounts include any water charges billed to Indiana University (usage, irrigation, service, etc.) as well as any overpayments or adjustments that were made to any Indiana University accounts from that period.

2016	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016	October 2016	November 2016	December 2016	Total 2016
Commercial	115,274.96	123,471.68	115,308.63	124,043.98	125,248.69	116,821.31	133,737.51	138,021.30	142,141.15	144,767.54	134,194.95	142,540.34	1,555,572.04
Industrial	11,712.16	11,319.30	9,649.49	10,773.98	10,580.38	10,874.30	15,659.48	11,656.47	15,175.71	14,439.62	9,320.87	10,121.59	141,283.35
Public Authority	117,193.40	107,556.39	122,303.55	118,280.84	122,786.80	118,830.93	129,415.21	123,028.32	154,796.50	196,483.69	144,486.07	134,061.64	1,589,223.34
Multiple Family Residential	262,898.04	259,914.89	256,528.00	260,209.47	271,286.28	245,386.67	242,902.34	230,205.75	251,030.21	286,590.74	261,887.05	276,753.04	3,105,592.48
Single Family Residential	330,601.21	325,598.59	322,980.25	319,241.35	330,057.04	317,844.50	338,985.47	358,626.46	328,004.53	353,100.66	324,817.57	330,096.74	3,979,954.37
Wholesale	172,337.20	155,881.89	145,724.93	165,380.16	145,235.39	151,953.63	200,895.69	157,873.88	183,608.56	182,537.94	154,369.49	169,173.10	1,984,971.86
Irrigation	3,801.89	2,650.50	2,596.35	4,833.60	8,792.25	14,879.85	53,118.30	41,057.10	38,383.80	40,854.65	31,643.55	12,032.70	254,644.54
Total	1,013,818.86	986,393.24	975,091.20	1,002,763.38	1,013,986.83	976,591.19	1,114,714.00	1,060,469.28	1,113,140.46	1,218,774.84	1,060,719.55	1,074,779.15	12,611,241.98

2017	January 2017	February 2017	March 2017	April 2017	May 2017	June 2017	July 2017	August 2017	September 2017	October 2017	November 2017	December 2017	Total
Commercial	121,527.92	135,364.55	111,563.05	135,908.01	120,395.14	134,753.04	151,280.25	150,048.67	197,853.66	191,278.23	172,074.11	167,079.28	1,789,125.91
Industrial	7,670.21	8,328.97	7,681.85	8,473.89	9,008.07	9,300.03	12,121.00	12,014.40	14,901.95	12,444.78	13,795.45	11,896.20	127,636.80
Public Authority	100,018.42	120,706.26	104,832.97	127,734.72	134,949.70	133,249.42	118,273.93	168,913.60	205,460.85	201,014.42	184,597.51	162,840.17	1,762,591.97
Multiple Family	266,288.49	252,612.69	241,376.69	264,887.44	258,784.20	251,599.79	242,635.07	233,890.22	281,872.30	347,355.54	334,963.01	348,889.63	3,325,155.07
Single Family	330,050.83	329,420.26	290,547.37	313,189.55	314,732.21	320,192.93	346,159.79	351,944.74	401,101.59	446,481.76	404,689.90	403,650.06	4,252,160.99
Wholesale	143,032.46	159,406.18	140,234.54	152,542.67	147,199.52	157,368.42	203,086.68	172,892.41	239,735.80	231,099.08	200,750.86	206,147.89	2,153,496.51
Irrigation	4,491.60	504.44	951.9	4,468.80	5,340.90	10,958.25	47,572.20	50,613.72	88,767.67	86,961.24	57,999.78	6,879.90	365,510.40
Total	973,079.93	1,006,343.35	897,188.37	1,007,205.08	990,409.74	1,017,421.88	1,121,128.92	1,140,317.76	1,429,693.82	1,516,635.05	1,368,870.62	1,307,383.13	13,775,677.65

2018	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Total
Commercial	$158,710.83	$156,246.39	$157,031.11	$155,774.24	$155,495.96	$179,709.97	$184,059.08	$197,410.70	$192,666.79	$191,819.99	$161,481.97	$174,451.49	$2,064,858.52
Industrial	$10,079.22	$10,228.54	$10,726.18	$10,314.30	$10,954.42	$15,629.75	$14,655.87	$15,367.75	$16,599.71	$13,505.79	$11,349.71	$13,322.15	$152,733.39
Public Authority	$117,108.34	$156,905.54	$166,035.82	$131,464.81	$150,832.14	$170,806.99	$195,964.79	$178,178.89	$220,929.04	$223,989.90	$165,900.41	$163,898.86	$2,042,015.53
Multi-Family Residential	$311,553.66	$320,311.95	$311,813.42	$282,653.90	$299,257.45	$306,662.27	$287,039.04	$285,095.04	$282,643.77	$333,385.18	$310,009.69	$347,950.14	$3,678,375.51
Single-Family Residential	$387,910.09	$403,167.51	$393,223.70	$355,846.29	$364,498.44	$388,300.39	$428,907.46	$414,690.38	$401,829.40	$419,595.96	$365,051.46	$403,460.11	$4,726,481.19
Wholesale	$188,481.59	$218,348.45	$177,903.61	$150,609.81	$173,957.72	$239,683.94	$213,959.96	$259,825.64	$204,499.53	$209,554.38	$168,009.01	$226,268.15	$2,431,101.79
Irrigation	$2,154.60	$1,088.93	-$688.97	$796.85	$3,591.00	$28,074.78	$53,868.42	$81,604.62	$71,077.86	$68,475.24	$37,931.22	$18,605.86	$366,580.41
Total:	$1,175,998.33	$1,266,297.31	$1,216,044.87	$1,087,460.20	$1,158,587.13	$1,328,868.09	$1,378,454.62	$1,432,173.02	$1,390,246.10	$1,460,326.44	$1,219,733.47	$1,347,956.76	$15,462,146.34

2019	January 2019	February 2019	March 2019	April 2019	May 2019	June 2019	July 2019	August 2019	September 2019	October 2019	November 2019	December 2019	2019 Toal
Commercial	$146,004.95	$147,358.18	$146,033.00	$155,283.71	$142,742.11	$168,892.15	$181,397.47	$163,534.10	$181,541.30	$168,339.01	$180,919.64	$180,783.42	$1,962,829.04
Industrial	$11,700.07	$10,353.55	$8,196.43	$10,987.07	$10,958.83	$16,494.23	$13,518.31	$15,649.99	$19,162.75	$14,459.95	$15,154.11	$11,768.95	$158,404.24
Public Authority	$124,007.86	$147,597.54	$117,216.97	$134,547.25	$140,930.82	$145,738.17	$128,438.56	$178,247.44	$190,764.30	$196,105.27	$182,904.81	$143,105.21	$1,829,604.20
Multi-Family Residential	$280,475.27	$316,665.49	$303,785.05	$310,935.98	$288,631.79	$321,911.48	$288,623.98	$254,317.89	$287,567.43	$325,943.14	$346,417.12	$342,961.62	$3,668,236.24
Single-Family Residential	$368,873.68	$386,731.07	$373,575.74	$376,022.68	$352,494.46	$389,715.45	$409,683.32	$379,963.23	$406,171.17	$442,603.62	$425,810.66	$470,577.65	$4,782,222.73
Wholesale	$162,263.45	$200,503.07	$201,884.87	$182,616.69	$160,550.20	$220,242.46	$207,819.24	$208,827.82	$256,078.12	$220,457.56	$221,942.61	$173,166.63	$2,416,352.72
Irrigation	$492.47	$147.06	$834.48	$1,405.62	$5,872.14	$25,868.88	$33,297.12	$62,630.46	$87,286.38	$84,963.06	$60,530.58	$17,356.50	$380,684.75
Total:	$1,093,817.75	$1,209,355.96	$1,151,526.54	$1,171,799.00	$1,102,180.35	$1,288,862.82	$1,262,778.00	$1,263,170.93	$1,428,571.45	$1,452,871.61	$1,433,679.53	$1,339,719.98	$15,198,333.92

2020	January 2020	February 2020	March 2020	April 2020	May 2020	June 2020	July 2020	August 2020	September 2020	October 2020	November 2020	December 2020	Total 2020
Commercial	$132,712.77	$114,405.16	$146,320.63	$167,710.93	$113,515.28	$116,237.21	$186,139.02	$152,022.28	$175,718.47	$171,108.89	$126,930.47	$130,824.58	$1,733,645.69
Industrial	$13,132.15	$8,985.91	$16,817.35	$8,806.55	$13,974.69	$14,640.12	$18,535.97	$22,054.13	$19,564.28	$19,241.36	$19,444.08	$16,718.84	$191,915.43
Public Authority	$103,292.28	$141,557.65	$174,215.72	$145,161.81	$56,582.16	$129,745.93	$80,158.27	$175,398.48	$151,542.08	$163,854.44	$145,569.05	$118,427.29	$1,585,505.16
Multi-Family Residential	$290,520.58	$311,723.31	$339,626.48	$336,555.33	$284,030.23	$301,702.79	$369,948.23	$229,431.19	$295,622.91	$359,984.97	$352,650.86	$329,056.62	$3,800,853.50
Single-Family Residential	$335,298.95	$413,761.97	$348,481.96	$407,885.44	$392,627.13	$422,369.73	$519,924.96	$403,952.47	$438,308.56	$457,097.80	$426,659.73	$395,279.73	$4,961,648.43
Wholesale	$215,107.39	$227,833.10	$184,825.14	$178,317.17	$197,236.41	$197,602.08	$263,162.17	$256,357.84	$185,422.73	$348,772.06	$218,641.34	$165,821.56	$2,639,098.99
Irrigation	$1,422.72	$3,440.52	$1,255.14	$4,377.60	$7,079.40	$16,043.22	$69,829.56	$115,860.40	$61,197.48	$96,112.26	$37,852.56	$2,739.42	$417,210.28
Total:	$1,091,486.84	$1,221,707.62	$1,211,542.42	$1,248,814.83	$1,065,045.30	$1,198,341.08	$1,507,698.18	$1,355,076.79	$1,327,376.51	$1,616,171.78	$1,327,748.09	$1,158,868.04	$15,329,877.48

	January 2021	February 2021	March 2021	April 2021	2021 To Date
Commercial	$ 142,009.98	$ 140,512.59	$ 144,960.45	$ 158,421.80	$ 585,904.82
Industrial	$ 17,395.84	$ 16,386.16	$ 15,603.60	$ 18,449.92	$ 67,835.52
Public Authority	$ 102,812.08	$ 100,278.40	$ 106,765.11	$ 121,444.64	$ 431,300.23
Mulit-Family Residential	$ 311,396.49	$ 317,683.81	$ 343,094.45	$ 353,854.89	$ 1,326,029.64
Single-Family Residential	$ 399,320.86	$ 384,229.05	$ 382,897.72	$ 387,271.90	$ 1,553,719.53
Wholesale	$ 196,461.36	$ 176,717.57	$ 174,538.54	$ 181,805.59	$ 729,523.06
Irrigation	$ 1,080.72	$ 701.10	$ 345.42	$ 1,781.82	$ 3,909.06
Total	$ 1,170,477.33	$ 1,136,508.68	$ 1,168,205.29	$ 1,223,030.56	$ 4,698,221.86

G/L Date	G/L Account	Journal Type	SubLedger	Journal Number	Transaction Description	Debit	
01/06/2016	009-U14101	Journal Entry	Utility Billing	2016-00000229	Bills For Cycle Zone 5 01/06/2016	$95,023.55	
02/01/2016	009-U14101	Journal Entry	Utility Billing	2016-00001568	Bills For Cycle Zone 5 02/01/2016	$91,779.64	
03/03/2016	009-U14101	Journal Entry	Utility Billing	2016-00003135	Bills For Cycle Zone 5 03/03/2016	$106,090.36	
04/01/2016	009-U14101	Journal Entry	Utility Billing	2016-00004654	Bills For Cycle Zone 5 04/01/2016	$102,038.39	
05/02/2016	009-U14101	Journal Entry	Utility Billing	2016-00006252	Bills For Cycle Zone 5 05/02/2016	$105,943.82	
06/01/2016	009-U14101	Journal Entry	Utility Billing	2016-00007802	Bills For Cycle Zone 5 06/01/2016	$105,735.80	
07/04/2016	009-U14101	Journal Entry	Utility Billing	2016-00009317	Bills For Cycle Zone 5 07/04/2016	$138,499.67	
08/01/2016	009-U14101	Journal Entry	Utility Billing	2016-00010734	Bills For Cycle Zone 5 08/01/2016	$110,817.18	
09/01/2016	009-U14101	Journal Entry	Utility Billing	2016-00012467	Bills For Cycle Zone 5 09/01/2016	$137,127.33	
10/03/2016	009-U14101	Journal Entry	Utility Billing	2016-00014072	Bills For Cycle Zone 5 10/03/2016	$179,349.46	
11/01/2016	009-U14101	Journal Entry	Utility Billing	2016-00015790	Bills For Cycle Zone 5 11/01/2016	$130,058.21	
12/02/2016	009-U14101	Journal Entry	Utility Billing	2016-00017206	Bills For Cycle Zone 5 12/02/2016	$115,385.22	
							$1,417,848.63

G/L Date	G/L Account	Journal Type	SubLedger	Journal Number	Transaction Description	Debit	
01/02/2017	009-U14101	Journal Entry	Utility Billing	2017-00000293	Bills For Cycle Zone 5 01/02/2017	$83,060.30	
02/01/2017	009-U14101	Journal Entry	Utility Billing	2017-00001906	Bills For Cycle Zone 5 02/01/2017	$104,163.34	
03/01/2017	009-U14101	Journal Entry	Utility Billing	2017-00003257	Bills For Cycle Zone 5 03/01/2017	$86,123.53	
04/03/2017	009-U14101	Journal Entry	Utility Billing	2017-00005242	Bills For Cycle Zone 5 04/03/2017	$108,010.34	
05/02/2017	009-U14101	Journal Entry	Utility Billing	2017-00006660	Bills For Cycle Zone 5 05/02/2017	$114,355.71	
06/01/2017	009-U14101	Journal Entry	Utility Billing	2017-00008264	Bills For Cycle Zone 5 06/01/2017	$115,367.40	
07/03/2017	009-U14101	Journal Entry	Utility Billing	2017-00009971	Bills For Cycle Zone 5 07/03/2017	$113,005.47	
08/01/2017	009-U14101	Journal Entry	Utility Billing	2017-00011532	Bills For Cycle Zone 5 08/01/2017	$161,113.94	
09/01/2017	009-U14101	Journal Entry	Utility Billing	2017-00013445	Bills For Cycle Zone 5 09/01/2017	$200,947.36	
10/02/2017	009-U14101	Journal Entry	Utility Billing	2017-00014930	Bills For Cycle Zone 5 10/02/2017	$195,995.91	
11/01/2017	009-U14101	Journal Entry	Utility Billing	2017-00017042	Bills For Cycle Zone 5 11/01/2017	$179,126.18	
12/04/2017	009-U14101	Journal Entry	Utility Billing	2017-00018605	Bills For Cycle Zone 5 12/04/2017	$139,144.56	
							$1,600,414.04

G/L Date	G/L Account	Journal Type	SubLedger	Journal Number	Transaction Description	Debit	
01/01/2018	009-U14101	Journal Entry	Utility Billing	2018-00000507	Bills For Cycle Zone 5 01/01/2018	$92,510.40	
02/01/2018	009-U14101	Journal Entry	Utility Billing	2018-00001908	Bills For Cycle Zone 5 02/01/2018	$131,560.45	
03/01/2018	009-U14101	Journal Entry	Utility Billing	2018-00004215	Bills For Cycle Zone 5 03/01/2018	$139,916.65	
04/02/2018	009-U14101	Journal Entry	Utility Billing	2018-00005811	Bills For Cycle Zone 5 04/02/2018	$105,463.97	
05/02/2018	009-U14101	Journal Entry	Utility Billing	2018-00007272	Bills For Cycle Zone 5 05/02/2018	$127,461.65	
06/01/2018	009-U14101	Journal Entry	Utility Billing	2018-00009333	Bills For Cycle Zone 5 06/01/2018	$151,207.63	
07/02/2018	009-U14101	Journal Entry	Utility Billing	2018-00011034	Bills For Cycle Zone 5 07/02/2018	$187,856.18	
08/01/2018	009-U14101	Journal Entry	Utility Billing	2018-00012223	Bills For Cycle Zone 5 08/01/2018	$166,444.11	
09/03/2018	009-U14101	Journal Entry	Utility Billing	2018-00014268	Bills For Cycle Zone 5 09/03/2018	$212,827.13	
10/02/2018	009-U14101	Journal Entry	Utility Billing	2018-00016252	Bills For Cycle Zone 5 10/02/2018	$215,468.92	
11/01/2018	009-U14101	Journal Entry	Utility Billing	2018-00017564	Bills For Cycle Zone 5 11/01/2018	$159,191.66	
12/03/2018	009-U14101	Journal Entry	Utility Billing	2018-00019681	Bills For Cycle Zone 5 12/03/2018	$147,315.50	
							$1,837,224.25

G/L Date	G/L Account	Journal Type	SubLedger	Journal Number	Transaction Description	Debit	
01/01/2019	009-U14101	Journal Entry	Utility Billing	2019-00000443	Bills For Cycle Zone 5 01/01/2019	$111,152.90	
02/01/2019	009-U14101	Journal Entry	Utility Billing	2019-00002218	Bills For Cycle Zone 5 02/01/2019	$125,485.16	
03/04/2019	009-U14101	Journal Entry	Utility Billing	2019-00003518	Bills For Cycle Zone 5 03/04/2019	$93,705.81	
04/01/2019	009-U14101	Journal Entry	Utility Billing	2019-00005098	Bills For Cycle Zone 5 04/01/2019	$109,929.44	
05/02/2019	009-U14101	Journal Entry	Utility Billing	2019-00006958	Bills For Cycle Zone 5 05/02/2019	$117,596.86	
06/03/2019	009-U14101	Journal Entry	Utility Billing	2019-00008631	Bills For Cycle Zone 5 06/03/2019	$132,984.30	
07/02/2019	009-U14101	Journal Entry	Utility Billing	2019-00010057	Bills For Cycle Zone 5 07/02/2019	$115,957.17	
08/01/2019	009-U14101	Journal Entry	Utility Billing	2019-00012202	Bills For Cycle Zone 5 08/01/2019	$156,744.73	
09/02/2019	009-U14101	Journal Entry	Utility Billing	2019-00013887	Bills For Cycle Zone 5 09/02/2019	$170,952.15	
10/02/2019	009-U14101	Journal Entry	Utility Billing	2019-00015586	Bills For Cycle Zone 5 10/02/2019	$176,413.74	
11/01/2019	009-U14101	Journal Entry	Utility Billing	2019-00017096	Bills For Cycle Zone 5 11/01/2019	$158,652.50	
12/02/2019	009-U14101	Journal Entry	Utility Billing	2019-00018971	Bills For Cycle Zone 5 12/02/2019	$121,759.64	
							$1,591,334.40

G/L Date	G/L Account	Journal Type	SubLedger	Journal Number	Transaction Description	Debit	
01/01/2020	009-U14101	Journal Entry	Utility Billing	2020-00000688	Bills For Cycle Zone 5 01/01/2020	$90,374.01	
02/03/2020	009-U14101	Journal Entry	Utility Billing	2020-00002714	Bills For Cycle Zone 5 02/03/2020	$116,242.98	
03/03/2020	009-U14101	Journal Entry	Utility Billing	2020-00003860	Bills For Cycle Zone 5 03/03/2020	$161,383.25	
04/01/2020	009-U14101	Journal Entry	Utility Billing	2020-00005476	Bills For Cycle Zone 5 04/01/2020	$124,456.53	
05/04/2020	009-U14101	Journal Entry	Utility Billing	2020-00007164	Bills For Cycle Zone 5 05/04/2020	$78,375.84	
06/01/2020	009-U14101	Journal Entry	Utility Billing	2020-00008591	Bills For Cycle Zone 5 06/01/2020	$110,571.92	
07/02/2020	009-U14101	Journal Entry	Utility Billing	2020-00009708	Bills For Cycle Zone 5 07/02/2020	$103,408.60	
08/03/2020	009-U14101	Journal Entry	Utility Billing	2020-00011640	Bills For Cycle Zone 5 08/03/2020	$179,442.99	
09/01/2020	009-U14101	Journal Entry	Utility Billing	2020-00012843	Bills For Cycle Zone 5 09/01/2020	$149,653.05	
10/02/2020	009-U14101	Journal Entry	Utility Billing	2020-00014206	Bills For Cycle Zone 5 10/02/2020	$166,143.03	
11/02/2020	009-U14101	Journal Entry	Utility Billing	2020-00015348	Bills For Cycle Zone 5 11/02/2020	$130,021.88	
12/02/2020	009-U14101	Journal Entry	Utility Billing	2020-00016970	Bills For Cycle Zone 5 12/02/2020	$98,540.62	
							$1,508,614.70

G/L Date	G/L Account	Journal Type	SubLedger	Journal Number	Transaction Description	Debit	
01/01/2021	009-U14101	Journal Entry	Utility Billing	2021-00000109	Bills For Cycle Zone 5 01/01/2021	$83,151.79	
02/01/2021	009-U14101	Journal Entry	Utility Billing	2021-00001543	Bills For Cycle Zone 5 02/01/2021	$81,463.79	
03/01/2021	009-U14101	Journal Entry	Utility Billing	2021-00003549	Bills For Cycle Zone 5 03/01/2021	$86,673.82	
04/01/2021	009-U14101	Journal Entry	Utility Billing	2021-00004713	Bills For Cycle Zone 5 04/01/2021	$100,492.95	
							$351,782.35

Q-8-4: Please refer to Bloomington's response to IU DR 6-3, parts d – f.

a. Please explain what is meant by Bloomington's statement that the, "Max hour ratio is a system ratio used to further classify a max hour factor by class."

b. Please explain how using the same ratio (i.e., 1.13) for all classes accomplishes Bloomington's objective of "further classifying a max hour factor by class."

c. Does Mr. Beauchamp agree that the system diversity ratio (used to test the reasonableness of maximum day and hour peaking factors) is separate from, and calculated differently from, the Max Hour Ratio used to develop the MH Factor on Attachment MCB-3, page 9? Please provide a detailed explanation supporting Mr. Beauchamp's conclusion.

d. Does Mr. Beauchamp agree that max hour peaking factors for each customer class are supposed to be developed by multiplying the maximum day peaking factor by the ratio of maximum hour to maximum day demand, as shown in the AWWA Manual M1, Appendix A, page 318? Please provide all documents relied upon by Mr. Beauchamp to support his conclusion.

e. Referring to part c. above, does Mr. Beauchamp agree that the ratio of maximum hour to maximum day demand should be specific to each customer class? If Mr. Beauchamp disagrees, please provide a detailed explanation supporting the response, including all documents relied upon by Mr. Beauchamp to reach his conclusion.

f. Is it Mr. Beauchamp's position that all of Bloomington's customer classes exhibit the same relationship between their maximum hour and maximum day peaking factors? Please provide a detailed explanation supporting the response, including all documents and analysis relied upon by Mr. Beauchamp to reach his conclusion.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

a. Max hour ratio is used to allocate costs with max hour functionalization to customer classes.

b. The concentrated usage hours were not available for each class. Therefore, a consistent factor was applied to all classes. UFS believes the example calculations included in AWWA Manual M1, Appendix A, do not address the unique circumstances of each water system. For example, CBU residential customers do not experience seasonal peaks often experienced by other water systems. This can be discerned by a review of the residential usage during the max month and average residential usage during the year. A CBU residential peaking ratio of 1.07 is the lowest identified by UFS in hundreds of studies we completed. As a result, we elected to balance to the system peak demands considering an estimate of system losses, authorized consumption, application of concentrated usage days, and a max hour ratio to balance to the system peak demand. Even though UFS used the weekly adjustment for the residential class, the concentrated usage hours factor could not be identified with any confidence considering CBU's unique characteristics.

c. The diversity factor is the ratio of the sum of the individual maximum demands of each class to the maximum demand of the whole system. Because customers in each class do not all peak at the same time, the system diversity factor is normally greater than the actual system demand.

The preferred range stated in the AWWA Manual M1 and other literature often states that the preferred range for the max day is 1.1 – 1.4 and that the preferred range for max hour is 1.4 – 1.7. The objective of a cost of service study is to allocate costs to classes based on their contribution to the usage during the max day and their usage during the max hour. This is done to recognize each class's proportionate use of the system. When hourly usage data is not available for each of the rate classes, a concentration day and concentration hour ratio is often applied. These factors may be set without accurate meter data, and as a result, UFS elected to set the max hour ratio to balance to the max hour of the water system. By UFS setting the ratio to balance to the system, UFS bypassed the need to compare to the preferred ranges stated above. This is because the use of a max day factor applied to each class's average day to max day ratio is a mathematical exercise that does not change study results. See the table below:

Class	Average Day in Max Month/Annual Avg Day Ratio	System Wide Max Day to Max Month Ratio
Residential and Multi Family	1.09	1.20
Comm, Gov, Interdept Usage	1.21	1.20
Industrial	1.48	1.20
Wholesale	1.24	1.20
Indiana University Usage	1.18	1.20
Irrigation Usage	2.82	1.20

When the factor of 1.20 is applied to the average day to max day ratio in a consistent manner, it will not change the allocation factor.

d. Please see Bloomington's responses to IU DR Q-8-4(b) and (c).

A method can be used to develop peaking factors for the purpose of recognizing a customer's usage at the time of the system peak by using the following formula:

Step One: Determination of Monthly Average Daily Consumption

Class	Total annual consumption	Average Daily Conumption	Maximum Monthly Consumption	Maximum monthly average daily consumption
Residential and Multi Family	1,593,538	4,366	144,162	4,742
Comm, Gov, Interdept Usage	788,343	2,160	79,333	2,610
Industrial	50,973	140	6,291	207
Wholesale	1,037,433	2,842	107,518	3,537
Indiana University Usage	354,483	971	34,873	1,147
Irrigation Usage	112,669	309	26,467	871
Total	**3,937,439**	**10,788**	**398,644**	**13,113**

Step Two: Determination of Max Day Factor

Class	Average Day in Max Month/Annual Avg Day Ratio	System Wide Max Day to Max Month Ratio	Concentrated Usage	Concentrated Usage Days	Estimated Max Day Factor
Residential and Multi Family	1.09	1.20	1.35	5.20	1.75
Comm, Gov, Interdept Usage	1.21	1.20	1.17	6.00	1.69
Industrial	1.48	1.20	1.17	6.00	2.07
Wholesale	1.24	1.20	1.17	6.00	1.74
Indiana University Usage	1.18	1.20	1.17	6.00	1.65
Irrigation Usage	2.82	1.20	1.35	6.00	4.57

Step Three: Determination of Max Hour Peaking Factors

Class	Estimated Max Day Factor	Hourly Usage Adjustment	Concentrated Usage Hours	Estimated Max Hour Factor
Residential and Multi Family	1.75	1.66	14.5	2.90
Comm, Gov, Interdept Usage	1.69	1.66	14.5	2.80
Industrial	2.07	1.66	14.5	3.43
Wholesale	1.74	1.66	14.5	2.88
Indiana University Usage	1.65	1.66	14.5	2.74
Irrigation Usage	4.57	1.66	14.5	7.56

UFS believes the results of the study are a fair and reasonable representation of the cost of providing service using the factors originally developed.

e. These factors normally vary by customer class due to the concentrated usage hours. Due to CBU's unique characteristics, UFS did not arbitrarily apply the concentrated usage hours factors and applied the same factor to all the classes. UFS believes the example calculations included in AWWA Manual M1, Appendix A, do not address the unique circumstances of each water system. For example, CBU residential customers do not experience seasonal peaks often experienced by other water systems. This can be identified by review of the residential usage during the max month and their average usage during the year. A CBU residential peaking ratio of 1.07 is the lowest identified by UFS in hundreds of studies we completed. As a result, we elected to balance to the system peak demands considering an estimate of system losses, authorized consumption, application of concentrated usage days, and a max hour ratio to balance to the system peak demand.

f. Please see Bloomington's response to IU DR Q-8-4(e).

Q-4-7: Please identify an average, or typical, sales year for the City of Bloomington from among those years identified in response to Data Request 4-6. For the year identified, please provide the following information:

a. An updated version of the A1. System Production tab of the cost of service study model reflecting pumping and water sales data for the high sales year.

b. Monthly water sales by customer class during this high sales year.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections. Bloomington further objects to the Data Request on the basis that it requests data resulting from a calculation that Bloomington has not performed, and Bloomington objects to performing said calculation. Bloomington further objects to the Data Request to the extent that it asks Bloomington to perform a calculation or otherwise create documents or information not in existence prior to receipt of the Data Request.

Response:

The test year was a typical sales year for Bloomington.

a. Please see objections.

b. Please see response to IU 4.6.d. for high sales year information.

Q-3-11: Please explain what the facilities plan and demand study referenced on page 11 of Petitioner's Exhibit 1 is. Please provide a copy of the most recent facilities plan and demand study.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

The purpose of the facilities plan is to help develop future plans for the utility. The plan will include an evaluation of (i) the water system growth and user demand, (ii) the utility's ability to meet upcoming water quality regulations, (iii) system resiliency, and (iv) the status of existing processes and equipment. The plan will provide recommendations for future growth and recommended equipment upgrades and replacements. The most recent plan, from 2003, is available in the OUCC 3-11 folder on the "IURC CN 45533-Bloomington Water Rate Case" Dentons Direct Site.

CITY OF BLOOMINGTON UTILITIES
LONG RANGE WATER CAPITAL PLAN

January 2003

Prepared by
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Cincinnati, Ohio

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CITY OF BLOOMINGTON UTILITIES
LONG RANGE WATER CAPITAL PLAN

TABLE OF CONTENTS

LIST OF TABLES

LIST OF TABLES

LIST OF TABLES

LIST OF FIGURES

3. WATER REQUIREMENTS

A water utility supplies water to meet its user's demands at flow rates that fluctuate yearly, monthly, daily, and hourly. Water demands are typically higher during dry years and in hot months. Water demand follows a diurnal (daily) pattern that is generally low at night and high in the early morning and late in the day. The most significant demands in the design and operations of a water system are the annual Average Day (AD), the Maximum Day (MD) and the Maximum Hour (MH) demands.

Average day demand is defined as the total annual water pumped to distribution divided by the number of days in the year. The average day demand is utilized in estimating future average day, future maximum day, and future maximum hour demands. The average day demand is used to determine the required yield of water supply sources and used indirectly in determining estimated future revenues and operating costs.

Maximum day demand is defined as the largest quantity of water pumped to distribution on any one day during the year. The maximum day demand is utilized in sizing most water supply and treatment facilities.

Maximum hour demand is defined as the largest quantity of water pumped to distribution, adjusted for any inflow and outflow from system storage, in any one-hour period during the year. Since minimum distribution system pressures are commonly experienced during the maximum hour, the sizes and locations of distribution facilities are determined considering maximum hour conditions. Maximum hour demands are met using strategically located system storage. The use of system storage minimizes the required capacity of the treatment facilities, the water transmission mains, and the pumping facilities. It also results in a more uniform and economical operation of the water system as a whole.

3. WATER REQUIREMENTS

A. HISTORICAL WATER USE

1. Historical System Water Use and Peaking Factors

The annual average day, maximum day, and maximum hour water demands for the period 1985 through 2001 are summarized in Table 3-1. The ratios of maximum day demand to the average day demand (MD/AD) and the maximum hour demand to average day (MH/AD) demand also are listed in the table.

Table 3-1
Historical Water Demands and Peaking Factors

Year	Water Demand, mgd			Peaking Factors	
	Average Day	Maximum Day	Maximum Hour	MD/AD Ratio	MH/AD Ratio
1985	11.93	15.50	17.50	1.30	1.47
1986	11.58	14.70	18.20	1.27	1.57
1987	12.69	16.10	18.30	1.27	1.44
1988	13.84	22.50	24.40	1.63	1.76
1989	11.98	14.70	17.60	1.23	1.47
1990	11.83	17.30	17.30	1.46	1.46
1991	11.72	18.80	21.20	1.60	1.81
1992	11.68	16.30	21.90	1.40	1.87
1993	12.31	17.30	17.70	1.41	1.44
1994	13.03	19.30	20.70	1.48	1.59
1995	12.03	17.70	22.70	1.47	1.89
1996	12.62	17.40	22.30	1.38	1.77
1997	12.96	17.40	22.90	1.34	1.77
1998	12.98	19.10	24.00	1.47	1.85
1999	13.85	20.30	24.80	1.47	1.79
2000	13.19	17.30	23.50	1.31	1.78
2001	13.09	18.80	22.90	1.44	1.75
			Average Peaking Factor	1.41	1.68
			Largest Peaking Factor	1.63	1.89
			Smallest Peaking Factor	1.23	1.44
			Peaking Factors Used for Design	**1.60**	**1.90**

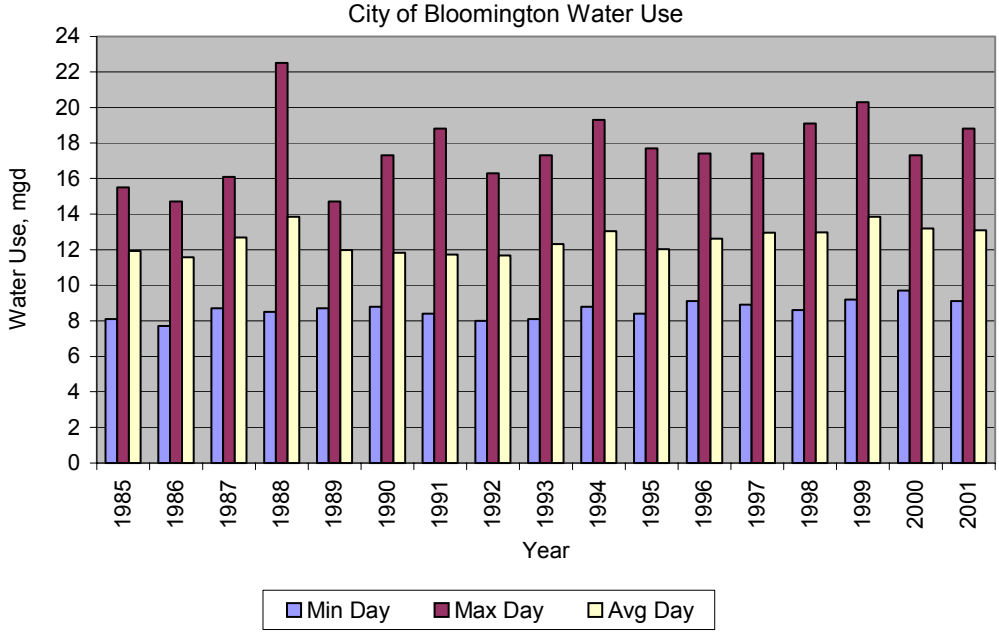
3. WATER REQUIREMENTS

Table 3-1 shows that during the period 1985 through 2001, the largest ratio of maximum day to average day (MD/AD) water demand was 1.63. From experience, for medium-sized communities with populations between 20,000 to 75,000 have their largest MD/AD ratio in the range of 1.30 to 1.75. CBU's ratio of 1.63 is in the typical range for medium sized communities. Larger communities or communities with large industrial water use commonly have their largest MD/AD ratio in the range of 1.20 to 1.60. Affluent, rapidly growing systems where lawn irrigation is practiced extensively can have MD/AD ratios as high as 2 or 3. The largest MD/AD ratio for the CBU system is only slightly higher than the commonly largest MD/AD ratio. Since university students account for approximately 65 percent of the City's population while school is in session, the water use pattern of the university students greatly influences the City's water demand ratios. During the summer, the student population decreases dramatically, which reduces demands during the typical high use summer period. After reviewing the data listed in Table 3-1, it was determined that 1999 was the best (most conservative) year to use in establishing system-wide demands. The MD/AD factor of 1.60 was used for design purposes.

Figure 3-1, which follows, illustrates a slightly rising trend in average day demands for the CBU system over the past seventeen years. During this time, the average day demand increased approximately 20 percent or 1.2% per year.

3. WATER REQUIREMENTS

Figure 3-1
City of Bloomington Water Use



Experience has shown that the largest ratio of the maximum hour to average day (MH/AD) water demand is typically 1.1 to 1.5 times the largest maximum day to average day ratio (MD/AD). Applying these experienced factors to CBU's 1.63 largest MD/AD ratio gives a MH/AD ratio of 1.8 to 2.4. In the seventeen years listed in Table 3-1, the largest ratio for MH/AD was 1.89 and is consistent with experience. Since 1999 was the more conservative year to use in establishing system-wide demands, the MH/AD factor of 1.90 was used for design purposes.

In the following Figure 3-2, the peaking factors for maximum day and maximum hour water demands from 1985 through 2001 are shown. The peaking factors used in projecting future water requirements for design are consistent with conditions historically experienced by CBU.

Q-8-6: Please refer to Bloomington's response to IU DR 6-11. If Bloomington's water system was designed to meet test year water sales, test year maximum day demands, and test year maximum hour demands, would Bloomington be able to provide reliable, uninterrupted water service to all customers if maximum day and maximum hour demands exceed the test year levels? Please provide a detailed explanation supporting the response.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections. Bloomington objects to the Data Request to the extent it requires Bloomington to perform a calculation or analysis that it has not performed and objects to performing. Bloomington further objects to the Data Request because it is vague and ambiguous in what constitutes a "detailed explanation".

Response:

Bloomington's water system is designed to not only meet but exceed test year water sales, test year maximum day demands, and test year maximum hour demands. Accordingly, Bloomington's system could still provide reliable, uninterrupted water service to all customers if hypothetical maximum day and maximum hour demands exceed test year demands, depending on the level that the hypothetical demands exceed test year demands. The Data Request appears to assume that "designed to meet" is equivalent language to "designed not to exceed." Accordingly, a system can be designed to not only meet test year water sales, test year maximum day demands and test year maximum hour demands, but to provide reliable, uninterrupted service in excess of those demands.

Q-4-9: Please refer to Attachment MCB-3, page 9 of 32.

a. Please confirm that maximum day and maximum hour demand ratios for each customer class are based on projected test year data. If the response is anything other than an unqualified confirmation, please provide a detailed explanation supporting the response.

b. Please provide a detailed explanation of the rationale for developing max day and max hour demand ratios based on projected test year usage rather than actual historical data.

c. Please provide the justification for using the approach discussed in part a., and part b. including references to industry-related documents that support this approach.

d. Please explain why the max month usage is calculated as the average usage over a three-month period.

e. Please provide a detailed explanation of the rationale for using a three-month average usage as the maximum usage for the demand ratio calculations.

f. Please provide the justification for using the approach discussed in part d., and part e., including references to industry-related documents that support this approach.

g. Please provide a detailed explanation of the basis for the weekly usage adjustment applied to each customer class.

h. Please provide all documents relied upon by Mr. Beauchamp to conclude that these weekly usage adjustments reflect the particular usage characteristics and periods of demands for the City of Bloomington's customers.

i. Please explain why the highest test year water consumption for the irrigation class occurs in October and November.

j. Please explain why the highest test year water consumption for the residential and multi-family class occurs in October and November.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections. Bloomington further objects to the Data Request as being vague, ambiguous, and overly broad in that it requests "industry-related documents." Bloomington further objects to the Data Request because it assumes facts not evidence, specifically that weekly usage data was available.

Response:

a. The customer usage data was based on historical test year data between 4.1.19 – 3.31.20. There were adjustments to unit sales to match the calculated sales revenue from the revenue proof shown on schedule 3 of MCB-3 and MCB-4. The schedule is titled Revenue and Usage Projections; however, the data is from the historical test year. The adjustments used to match revenues with financial statement revenues are also shown in this schedule on page 8 of MCB-3 and MCB-4.

b. The customer usage data was based on historical test year data as explained above.

c. The customer usage data was based on historical test year data with adjustments to unit sales to match calculated sales revenue with reported sales revenues. This adjustment is shown on pages 8 of MCB-3 and MCB-4.

d. Customers meters are read in cycles depending on the meter reading schedule. Some months may only have 27 or 28 day's usage recorded for the month and other months may have 33 days. UFS used a three-month average to smooth out any potential issues that can occur due to the meter reading cycles.

e. Customers meters are read in cycles depending on the meter reading schedule. Some months may only have 27 or 28 day's usage recorded for the month and other month may have 33 days. UFS used a three month average to smooth out any potential issues that can occur due to the meter reading cycles.

f. UFS considered a three-month average as a more consistent approach reducing impacts from meter reading cycles and other abnormalities.

g. The weekly usage adjustment is a standard industry practice to recognize differences in usage patterns of each customer class. This method is taught by AWWA and the factors used were directly from AWWA M-1 Version 7; Appendix A on page 376 and 377. This reference is available in the IU 4-9 folder on the "IURC CN 45533-Bloomington Water Rate Case" Dentons Direct Site.

h. No information on customers' weekly usages were provided to UFS.

i. Bloomington does not have a definitive explanation. The high water consumption in October and November may be due to meter reading cycles or other abnormalities.

j. Bloomington does not have a definitive explanation. The high water consumption in October and November may be due to meter reading cycles or other abnormalities.

Q-6-10: Has Mr. Beauchamp reviewed CBU's Long Range Water Capital Plan, dated January 2003, which was provided in response to OUCC DR 3-11?

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

No.

Q-6-3: Please refer to Attachment MCB-3, page 9 of 32.

a. Please explain how the System MD/MM Ratio of 1.09 was developed.

b. Please explain why this factor has not been developed using the data contained in the Test Year column of the table in data request 6.1, above.

c. Please provide the calculation of the 1.13 Max Hour Ratio used to develop the maximum hour factor for each customer class, and provide all supporting calculations.

d. Please provide an explanation and justification for applying the same Max Hour Ratio of 1.13 to all customer classes, including references to industry-related documents supporting such an approach.

e. Please provide all documents relied upon by Mr. Beauchamp to conclude that the ratio of 1.13 reflects the particular usage characteristics and periods of demands for CBU's customers.

f. Please explain why Mr. Beauchamp used 1.13 for all customer classes rather than the max hour ratios out of Appendix A of the AWWA M-1 manual.

g. Please refer to CBU's response to OUCC DR 4-7.

i. Please explain what is meant by CBU's statement that, "An adjustment of 1.13 was required to balance to the peak hour of the water system."

ii. Please explain why it is necessary to "balance to the peak hour of the water system" when CBU has indicated that these demand ratios are reflective of the non-coincident peak demand of each customer class.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

a. The factor is the percentage of the authorized consumption of the water plant to total water plant production. The study assumed 9% of the water plant's inputs would be authorized usage including backwashing filters. The water plant production data used in the study was based on raw water inputs to the water treatment plant.

b. The factors were developed to approximate the test year column in the table in data request 6.1 above. This result is shown on Attachment MCB-3 and Attachment MCB-4, Schedule 4, lines 39 and 43. A summary of the results are shown below.

	System	UFS model
Max Day	22.30	21.73
Max Hour	24.00	24.56

c. The 1.13 factor was an assumption used in the model and applied to all rate classes. The factor was used to balance to the Max Hour shown in data request 6.1 above. The detailed calculation is shown below.

Max Hour Ratio			
Average Day Total	13,774	a	MCB-3 page 9
Max Hour Usage	24,559	b	MCB-3 page 9
Class Factor	1.78	b/a	
System Average Usage	15,219	c	MCB-3 page 2
System Max Hour	24,000	d	MCB-3 page 2
System Factor	1.58	d/c	
Max Hour Ratio	1.13	(b/a)/(d/c)	

d. The Max hour ratio is a system based ratio used to further classify a max hour factor by class. The 1.13 factor was an assumption used in the model and applied to all rate classes. The factor was used to balance to the Max Hour shown in data request 6.1 above.

e. Attachment MCB-3 Phase 1, pages 2 and 9 provide the data used in the calculation of the Maximum Hour Ratio and the values referenced in subpart (c) above, as noted in Bloomington's response. Values (c) and (d) have been converted into comparable units (multiplied by 1000).

f. The max hour ratios in the Appendix A of the AWWA M-1 manual are noted as an example specific for illustrative purposes only and are not industry standard factors to be used by all utilities. The factors used in this COSS were calculated to recognize the specific usage characteristics of the City of Bloomington.

g. Please see below:
(i) The study results needed to be adjusted by 1.13 to balance the data through the model with the max hour in the test year.

Q-2-4: Is the allocation of AMI meter costs to the wholesale customers supported by cost savings and benefits to those wholesale customers derived from the installation of AMI meters?

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

Bloomington determined that all customers would receive an AMI meter no matter their customer classification. The cost savings and benefits derived from the installation of the AMI meters accrue to Bloomington and all of its customers by allowing Bloomington to accurately measure consumption and overall system efficiency, to improve accuracy from the newer meters, and to provide additional customer engagement via the customer portal. Moreover, wholesale customers are not allocated any meter cost in the wholesale volumetric rate. Wholesale customers are allocated a meter cost based on the number and size of meters serving them.

A. Please provide any cost benefit analysis to support the answer to the above question.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

No formal cost benefit analysis was performed for wholesale customers.

IURC Cause No. 45533
Bloomington's Responses to Washington Township's DR 1
May 17, 2021

Q-1-28: Which of Bloomington's AMI meters provide hourly usage data?

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

All of Bloomington's AMI meters provide hourly usage data.

Q-5-10: For Witnesses Kelson and/or Beauchamp. Are AMI meters important to being able to more accurately perform future Cost of Service Studies ("COSS")?

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

Yes.

A. Please explain why.

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

AMI meters are important to being able to more accurately perform future cost of service studies because Bloomington will have more data to identify peak demands and variability of demand. The AMI technology would also aid in the collection and validation of data.

IURC Cause No. 45533
Bloomington's Responses to Washington Township's DR 4
May 20, 2021

Q-4-13: On page 17, lines 21 to 23, and page 18, lines 1 to 5 you discuss the use of AMI meters and that you do not have a full year of AMI data. However, it appears that prior to the close of the record in this Cause you should have one (1) full year of AMI data. Do you have plans to augment or modify your COSS, using updated AMI data, prior to the close of the record in this Cause?

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

No.

A. Even if you had no current plans to update your COSS, would you be willing to do so?

Objection: Bloomington objects to the Data Request on the basis of the foregoing general objections.

Response:

No. Any update would use information that would be outside of the period for fixed, known and measurable adjustments to test year results.

CITY OF BLOOMINGTON

Cost of Service Study Results vs. Proposed Increase

Line	Description	Revenue at Current Rates[1]	Phase I: Increase / (Decrease) to Reach COS		Phase I: Proposed Increase / (Decrease)			Phase II: Increase / (Decrease) to Reach COS		Phase II: Proposed Increase / (Decrease)		
			Amount[2]	Percent	Amount[3]	Percent	Index	Amount[4]	Percent	Amount[3]	Percent	Index
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Meter Size (Inches)											
1	5/8" Meter	$ 455,857	$ 33,962	7.5%	$ 43,341	9.5%	0.81	$ 53,189	11.7%	$ 53,403	11.7%	0.52
2	3/4" Meter	1,425,945	(118,470)	-8.3%	-	0.0%	-	(51,393)	-3.6%	-	0.0%	-
3	1" Meter	431,447	(43,430)	-10.1%	-	0.0%	-	(18,467)	-4.3%	-	0.0%	-
4	1.5" Meter	106,092	18,383	17.3%	21,230	20.0%	1.71	25,445	24.0%	25,441	24.0%	1.06
5	2" Meter	167,130	13,404	8.0%	25,835	15.5%	1.32	25,860	15.5%	25,835	15.5%	0.69
6	3" Meter	67,392	(7,149)	-10.6%	-	0.0%	-	(3,077)	-4.6%	-	0.0%	-
7	4" Meter	99,968	(15,733)	-15.7%	-	0.0%	-	(9,618)	-9.6%	-	0.0%	-
8	6" Meter	164,801	(32,158)	-19.5%	-	0.0%	-	(21,983)	-13.3%	-	0.0%	-
9	8" Meter	36,542	(9,795)	-26.8%	-	0.0%	-	(7,383)	-20.2%	-	0.0%	-
10	10" Meter	14,121	(2,961)	-21.0%	-	0.0%	-	(1,955)	-13.8%	-	0.0%	-
	Volumetric Revenue											
11	Residential / Multi Family	5,943,896	345,459	5.8%	573,674	9.7%	0.82	960,157	16.2%	1,290,766	21.7%	0.96
12	Comm, Gov, Interdept.	2,491,162	530,771	21.3%	496,656	19.9%	1.70	822,827	33.0%	819,876	32.9%	1.46
13	Industrial	148,842	55,220	37.1%	29,565	19.9%	1.69	75,270	50.6%	65,246	43.8%	1.94
14	Wholesale	2,479,465	566,801	22.9%	435,722	17.6%	1.50	815,295	32.9%	819,572	33.1%	1.47
15	IU	840,125	244,978	29.2%	145,338	17.3%	1.48	335,012	39.9%	333,214	39.7%	1.76
16	Irrigation	385,328	528,967	137.3%	76,618	19.9%	1.70	635,624	165.0%	169,007	43.9%	1.95
17	Fire Protection	1,630,512	(128,891)	-7.9%	132,546	8.1%	0.69	115,067	7.1%	205,722	12.6%	0.56
18	Total[5]	$ 16,888,625	$ 1,979,359	11.7%	$ 1,980,524	11.7%	1.00	$ 3,749,869	22.2%	$ 3,808,081	22.5%	1.00

Sources

[1] Revenue requirement by class from Attachment MCB-3, page 17.

[2] Revenue requirement by class from Attachment MCB-3, page 23, less revenue at current rates in column (1).

[3] Calculated revenue at proposed rates based on billing units from Attachment MCB-3, pages 18-19, and proposed rates from Attachment MCB-5, page 3.

[4] Revenue requirement by class from Attachment MCB-4, page 23, less revenue at current rates in column (1).

[5] Differences between cost of service increase, and proposed increase are due to rounding.

CITY OF BLOOMINGTON

Proposed Revenue Allocation
(Phase I)

Line	Description	Revenue at Current Rates[1] (1)	City Proposed Increase / (Decrease) Amount[1] (2)	City Proposed Increase / (Decrease) Percent (3)	IU Proposed Increase / (Decrease) Amount (4)	IU Proposed Increase / (Decrease) Percent (5)	IU More / (Less) than the City (6)	Annual Billing Units (7)	Impact Per Unit (8)
	Meter Size (Inches)								
1	5/8" Meter	$ 455,857	$ 43,341	9.5%	$ 53,458	11.7%	$ 10,117	77,395	$ 0.13
2	3/4" Meter	1,425,945	-	0.0%	167,220	11.7%	167,220	181,418	0.92
3	1" Meter	431,447	-	0.0%	50,596	11.7%	50,596	40,741	1.24
4	1.5" Meter	106,092	21,230	20.0%	12,441	11.7%	(8,789)	5,769	(1.52)
5	2" Meter	167,130	25,835	15.5%	19,599	11.7%	(6,236)	6,379	(0.98)
6	3" Meter	67,392	-	0.0%	7,903	11.7%	7,903	1,113	7.10
7	4" Meter	99,968	-	0.0%	11,723	11.7%	11,723	1,004	11.68
8	6" Meter	164,801	-	0.0%	19,326	11.7%	19,326	836	23.12
9	8" Meter	36,542	-	0.0%	4,285	11.7%	4,285	124	34.56
10	10" Meter	14,121	-	0.0%	1,656	11.7%	1,656	36	46.00
	Volumetric Revenue								
11	Residential / Multi Family	5,943,896	573,674	9.7%	697,039	11.7%	123,365	1,593,538	$ 0.08
12	Comm, Gov, Interdept.	2,491,162	496,656	19.9%	292,138	11.7%	(204,518)	788,343	(0.26)
13	Industrial	148,842	29,565	19.9%	17,455	11.7%	(12,110)	50,973	(0.24)
14	Wholesale	2,479,465	435,722	17.6%	290,766	11.7%	(144,956)	1,037,433	(0.14)
15	IU	840,125	145,338	17.3%	98,521	11.7%	(46,817)	354,483	(0.13)
16	Irrigation	385,328	76,618	19.9%	45,187	11.7%	(31,430)	112,670	(0.28)
17	Fire Protection	1,630,512	132,546	8.1%	191,210	11.7%	58,663	6,279	9.34
18	Total	$ 16,888,625	$ 1,980,524	11.7%	$ 1,980,524	11.7%	$ (0)		

Source

[1] Attachment JAY-2.

CITY OF BLOOMINGTON

Proposed Revenue Allocation
(Phase II)

Line	Description	Revenue at Current Rates[1] (1)	City Proposed Increase / (Decrease) Amount[1] (2)	City Proposed Increase / (Decrease) Percent (3)	IU Proposed Increase / (Decrease) Amount (4)	IU Proposed Increase / (Decrease) Percent (5)	IU More / (Less) than the City (6)	Annual Billing Units (7)	Impact Per Unit (8)
	Meter Size (Inches)								
1	5/8" Meter	$ 455,857	$ 53,403	11.7%	$ 102,787	22.5%	$ 49,385	77,395	$ 0.64
2	3/4" Meter	1,425,945	-	0.0%	321,525	22.5%	321,525	181,418	1.77
3	1" Meter	431,447	-	0.0%	97,284	22.5%	97,284	40,741	2.39
4	1.5" Meter	106,092	25,441	24.0%	23,922	22.5%	(1,519)	5,769	(0.26)
5	2" Meter	167,130	25,835	15.5%	37,685	22.5%	11,850	6,379	1.86
6	3" Meter	67,392	-	0.0%	15,196	22.5%	15,196	1,113	13.65
7	4" Meter	99,968	-	0.0%	22,541	22.5%	22,541	1,004	22.45
8	6" Meter	164,801	-	0.0%	37,160	22.5%	37,160	836	44.45
9	8" Meter	36,542	-	0.0%	8,239	22.5%	8,239	124	66.45
10	10" Meter	14,121	-	0.0%	3,184	22.5%	3,184	36	88.44
	Volumetric Revenue								
11	Residential / Multi Family	5,943,896	1,290,766	21.7%	1,340,242	22.5%	49,476	1,593,538	$ 0.03
12	Comm, Gov, Interdept.	2,491,162	819,876	32.9%	561,712	22.5%	(258,164)	788,343	(0.33)
13	Industrial	148,842	65,246	43.8%	33,561	22.5%	(31,685)	50,973	(0.62)
14	Wholesale	2,479,465	819,572	33.1%	559,075	22.5%	(260,497)	1,037,433	(0.25)
15	IU	840,125	333,214	39.7%	189,433	22.5%	(143,781)	354,483	(0.41)
16	Irrigation	385,328	169,007	43.9%	86,885	22.5%	(82,122)	112,670	(0.73)
17	Fire Protection	1,630,512	205,722	12.6%	367,651	22.5%	161,929	6,279	25.79
18	Total	$ 16,888,625	$ 3,808,081	22.5%	$ 3,808,081	22.5%	$ (0)		

Sources

[1] Attachment JAY-2.