VERIFIED DIRECT TESTIMONY OF ANDREW BURNHAM

ON BEHALF OF THE CITY OF BLOOMINGTON, INDIANA

Cause No. 45533

INTRODUCTION

1. Please state your name and business address.

A. My name is Andrew Burnham. My business address is 777 South Harbour Island Boulevard, Suite 600, Tampa, Florida 33602.

2. What is your occupation?

A. I am a Vice President with Stantec Consulting Services Inc. and Director of Management Consulting. In that capacity, I have responsibility for the delivery and oversight of the company's asset management, organizational performance, financial, economic, funding, and technology advisory services to hundreds of communities throughout North America. While these services are provided across multiple sectors, they are predominantly focused within the water industry.

3. What is your educational background?

A. I hold a Bachelor of Science degree in Business Administration, as well as an Associate Personal Computer Specialist degree from Lake Superior State University. Moreover, I have attended multiple classes in utility ratemaking from several industry groups, including

the American Water Works Association ("AWWA"), the American Gas Association, and the Edison Electric Institute.

4. Please describe your professional experience.

A. From January 2001 through July 2003, I worked for Consumers Energy Company as an analyst within the Rates Department, where I focused on various elements of revenue requirements, cost of service allocations, pricing, and tariff administration for retail, as well as wholesale customers of the electric and natural gas systems. In July of 2003, I began my employment with Burton & Associates, a specialty consulting services company focused on providing water resources rate setting and financial management advisory services to local governments and private utilities. Over time, I received various promotions, ultimately becoming Vice President and co-owner prior to the sale of the company in December of 2015 to Hawksley Consulting, a subsidiary of Montgomery Watson Harza, which Stantec Consulting Services Inc. acquired in 2016.

Since 2003, my focus has been predominantly on water resources financial management and rate setting for public and private utilities. During my career, I have personally conducted or managed thousands of water rate studies for hundreds of communities throughout North America, mostly in the United States. As such, I am an active and contributing member of the Rates & Charges Committee and the Finance, Accounting & Management Controls Committee of the AWWA. I also serve as the Vice Chair and a Trustee of the Management & Leadership Division of AWWA that oversees these committees. Among my contributions, I led the development of the first ever Cash Reserves Policy Guidelines report and corresponding policy statement for AWWA, and I

co-authored the current seventh edition of Manual of Water Supply Practices M1 Principles of Water Rates, Fees, and Charges ("M1") published by the AWWA in January of 2017[1]. At present, I serve as a co-author for two manual updates being pursued by the AWWA: first, an update to the fourth edition of its Manual of Water Supply Practice M29 Water Utility Capital Financing, and second, an update to the current seventh edition of M1.

Additionally, I serve as an instructor for the water portion of the Advanced Ratemaking Program of the Institute of Public Utilities of Michigan State University. I also maintain memberships in other notable and relevant industry groups, including the Utility Resource Management Committee of the Water Environment Federation, the National Association of Clean Water Agencies, and the Florida Section, Government Finance Officers Association. I routinely prepare publications and make presentations on water resources management and rate setting topics for various industry groups.

Particularly relevant to my testimony in this proceeding is my work with communities that provide water service to major universities. University communities I assist include Ann Arbor, Michigan (University of Michigan), Columbia, Missouri (University of Missouri), Tempe, Arizona (Arizona State University), and the Orange Water & Sewer Authority, North Carolina (University of North Carolina), among others.

Further information on my qualifications and experience is included in Attachment AB-1.

5. Have you previously testified in any regulatory proceedings?

[1] Unless otherwise noted, all references in my testimony to M1 are to the 7th edition of M1.

A. Yes. I have provided utility rate related testimony before utility regulatory commissions in Arizona, Florida, Michigan, the United States Virgin Islands, and the Federal Energy Regulatory Commission, and in circuit and district courts in various states. The subject of my testimony in these matters varied, including but not limited to: revenue requirements; rate adjustments; cost of service allocations; pricing structures; rate base and return on investment; wholesale rates; utility acquisitions; connection and capital cost recovery charges; and miscellaneous fees and user charges.

OVERVIEW OF REBUTTAL TESTIMONY

6. What is the purpose of your engagement and rebuttal testimony in this proceeding?

A. I am appearing on behalf of the City of Bloomington, Indiana ("City") to address various cost of service related topics raised in direct testimony by Jerome Mierzwa on behalf of the Indiana Office of Utility Consumer Counselor ("OUCC"), by Jessica York on behalf of the Trustees of Indiana University on behalf of its Bloomington Campus ("IU"), and Edward Rutter on behalf of the Washington Township Water Authority ("WTWA"). My silence on any other issues identified in filings by or other testimony on behalf of the OUCC, IU, or WTWA should not be construed as support for or agreement with those issues.

7. What have you done to prepare yourself to testify in this proceeding?

A. I reviewed the pre-filed case-in-chief testimony of the City and the pre-filed testimony of the OUCC, IU and WTWA, as well as IU's responses to discovery requests propounded by the City. I also reviewed the order and settlement agreement from the City's last rate case (Cause No. 44855). Additionally, I have reviewed prior Indiana Utility Regulatory Commission ("IURC") orders on water system cost of service and rate design issues, and

provided consultation to Mark Beauchamp relative to modifications to the cost of service and rate design proposals being offered on behalf of the City in his rebuttal testimony in this matter.

8. Please discuss how your rebuttal testimony is organized.

A. My testimony is organized into the following sections:

I. Introduction
II. Overview of Rebuttal Testimony
III. Indiana Office of Utility Consumer Counselor's Testimony
IV. Indiana University's Testimony
V. Washington Township Water Authority's Testimony
VI. Conclusions

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR'S TESTIMONY

9. Please summarize your understanding of the issues or concerns raised by OUCC witness Jerome Mierzwa with the City's cost of service study and rate design proposals.

A. Mr. Mierzwa provided his opinion that the City's cost of service study as prepared and presented by Mr. Mark Beauchamp, President of Utility Financial Solutions, LLC, did not properly follow the methods set forth in M1, citing three specific reasons: 1) determination of coincident peak demands based on water inflow into the City's treatment facilities rather than water outflow from its facilities; 2) classification of 16" and larger water mains as performing a transmission function and water mains less than 16" as performing a distribution function; 3) the classification of a portion of water distribution main costs as being customer-related and included in the customer charge.

Notwithstanding these concerns, Mr. Mierzwa states (starting on Page 4, Public's Exhibit No. 4, line 22):

> I believe that revenue distribution initially proposed by the City is generally reasonable. Therefore, with limited exception, I recommend that the City's revenue distribution be approved. The City's proposed revenue distribution appropriately reflects the principle of gradualism and my recommendations concerning the adoption of the City's proposed revenue distribution recognizes that cost of service determinations are not an exact science and cost of service studies results should be used as a guide in setting rates. With respect to my limited exception to the City's proposed revenue distribution, for the reasons discussed in detail in my testimony, I recommend that the revenue increase assigned to wholesale customers and Indiana University be increased, and the increase assigned to Residential customers be decreased.

10. What is your general assessment of the testimony offered by Mr. Mierzwa regarding M1?

A. Mr. Mierzwa provided a reasonable explanation of the cost of service methods identified in M1. I think, however, the testimony stops short of fully acknowledging that the intent of M1 is to provide guidance and advice. Even in the preface of M1, it states that, "The purpose of this manual is to describe and present issues associated with developing water rates, fees, and charges; to enumerate the advantages and disadvantages of various alternatives; and to provide information to help users determine water rates, fees, and charges that are most relevant to a particular situation." AWWA M1, page xv. As such, from the application of the principles and methodologies therein, a utility may create cost-based rates that reflect the distinct and unique characteristics of that utility and the values of the community. AWWA M1, page 5. Said simply, utilities are like snowflakes, and while there may be many similarities, there will also be differences that require modifications to approaches and methods employed to best fit the circumstances and available data/resources.

11. Relative to the first issue raised by Mr. Mierzwa, what is your experience with the data used for determination of system peak demands?

A. Appendix A of M1 is a good resource to guide the evaluation of determining or estimating coincident and non-coincident maximum day and peak hour demands by customer class and comparing them to system demands. This comparison is important to validate that maximum day and peak hour factors identified for each customer class, based on the data available and the assumptions regarding variation in consumption patterns, result in reasonable approximations of the overall class maximum-day and peak hour demands for cost allocation purposes.

When establishing system maximum day and peak hour demands for purposes of comparing to customer demands, often water production data is utilized as the source of such information. In some instances, there may be data limitations or accuracy concerns that could require the use of alternative data sets and/or require estimates. However, in this instance average day, maximum day, and peak hour production data for 2018, 2019, and 2020 was provided in response to a data request as identified in an exhibit to Mr. Mierzwa's testimony (Schedule JDM-1). Absent any knowledge or information indicating concerns about the accuracy of this data, I would concur with Mr. Mierzwa's recommendation to utilize this data in the cost of service study. For this purpose, data from a single-year or a multi-year average can be utilized. In this instance, there is a high-degree of consistency from year to year in the City's production data observations such that either approach will yield very similar results.

12. Relative to the second issue raised by Mr. Mierzwa, what is your opinion relative to the line size classifications used in the City's cost of service study?

A. As Mr. Mierzwa pointed out, the City's cost of service study identifies 16" and larger water mains as performing a transmission function and water mains less than 16" as performing a distribution function for purposes of allocating costs to customer classes. This distinction is important, as the cost of service study does not allocate distribution function costs to the City's wholesale customers or IU's master meter accounts. As indicated in response to OUCC discovery requests attached to Mr. Mierzwa's testimony as Schedule JDM-3 and JDM-4, wholesale and IU master metered accounts are commonly served by mains with diameters of less than 16".

When specifically looking at the main sizes serving the respective IU master meters per JDM-4, all pipe diameters are 12" to 20", with only one connection being served by an 8" main. In reviewing the various pipe diameters of mains serving the City's nine wholesale customers at the respective interconnection points, there is a wider range, from as small as 4" up to 36". The majority of the interconnections for this customer class are served by 12" mains or larger. As such, it is my opinion that the classification of water mains performing a transmission function should be defined as 12" and larger, with water mains less than 12" classified as performing a distribution function.

13. Please further explain why classifying 12" mains and larger as transmission is reasonable.

A. The ideal solution is to assign cost responsibility to each individual customer and to develop rates that reflect that cost. Unfortunately, it is neither economically practical nor

often possible to determine the exact cost responsibility and applicable rates for each individual customer. However, the cost of providing service can be reasonably determined for groups or classes of customers that have similar water-use characteristics. Rate-making endeavors to assign costs to classes of customers in a nondiscriminatory, cost-responsive, and proportional manner so that rates can be designed to closely meet the cost of providing service to such customer classes. AWWA M1, page 73. So while there may be individual customers within the wholesale customer class that interconnect at smaller or greater line sizes than 12", there are also differences in the amount of linear feet of pipe and other facilities being used to serve each individual customer within this class and within every other customer class for that matter. Based upon my review of the data referenced herein for the City, the cost allocation methodology being employed. and from my experience with other systems performing similar studies, the classification of mains 12" and larger as transmission would be appropriate and avoid allocations of smaller infrastructure predominantly being utilized for local water distribution to wholesale customers and IU master metered accounts.

14. Relative to the third issue raised by Mr. Mierzwa, what is your opinion relative to defining a portion of the water distribution system as minimum costs and including them in the customer charge?

A. Common industry practice is a two-part rate structure comprised of both fixed and variable charges. Fixed charges typically recover customer-related costs and as well as a portion of other system costs that may sometimes be specifically defined. Fixed charges contribute to the financial stability of a utility and recognize that many utility costs are fixed in nature. Variable or volumetric rates are charged based on actual metered water use and capture all

other remaining system costs. In practice, the type of costs included in the fixed charge, the name of the charge, the level of charge, and how it is applied often vary between utility systems.

Including a portion of distribution systems costs in the customer charge is in itself not flawed or inconsistent with industry practice. Traditionally, costs would be allocated to functions and then to customer classes based on units of service. Once that process is complete, specific fixed and variable charges would be built for each customer class. In this instance, the majority of costs included in the customer charge are agnostic of customer class (*i.e.*, meters, service lines, customer service, and billing) and are more a function of the number and size of meters, which would make a single customer charge schedule based on meter size applicable to all customer classes appropriate. However, distribution system costs are allocated to customer classes in proportion to their respective demand patterns, resulting in different unit costs for each customer class. As such, adding a portion of distribution system costs into a "common to all" customer charge is inconsistent with the cost of service results, absent offsetting adjustments as identified by Mr. Mierzwa.

Therefore, I recommend that the City consider either: a) removing distribution costs from the customer charge; b) establishing different customer charges by customer class if a portion of distribution costs for each class are to be included; or c) adjusting the demands for all customer classes used to allocate remaining distribution costs consistent with Mr. Mierzwa's observation if a single customer charge structure is to be used. Moreover, I also recommend that the City carefully review the other costs included in the customer charge and make revisions as appropriate to the amount and/or types of costs being included.

INDIANA UNIVERSITY'S TESTIMONY

15. Please summarize your understanding of the issues or concerns raised by IU witness Jessica York with the City's cost of service study and rate design proposals.

A. Ms. York provided her opinion that the City's cost of service study as prepared and presented by Mr. Mark Beauchamp, President of Utility Financial Solutions, LLC, is flawed and unreliable, and therefore should not be used as the basis for revenue allocation or rate design. Ms. York's primary basis for that opinion stems from concerns with the estimated maximum day and peak hour factors being used for each customer class that affect cost distributions and revenue allocations. As such, Ms. York believes the most equitable and balanced approach in this case is an equal percentage change to all rates for all customer classes, and that the City should be required to develop demand factors based on actual data to be collected from its advanced metering infrastructure ("AMI") between now and the next rate case.

16. Is Ms. York's description of IU consistent with your experience with other community water systems that serve major universities?

A. Generally, yes. It is not uncommon for all or a portion of university water needs to be delivered by larger water mains to multiple interconnection points that are metered, after which localized distribution lines of the university are used to distribute water to specific facilities and/or irrigation areas. In lieu of, or in addition, water (and fire protection services as appropriate) can also be delivered directly to various individual buildings or irrigation areas on the university campus utilizing the utility's local distribution infrastructure. As such, it is not uncommon for universities to be subject to multiple different rate structures depending upon the nature and type of service being utilized throughout a large campus.

As such, Ms. York's testimony indicating that IU is served by several master meters, as well as nearly 250 other meters across a 1,900-acre campus for commercial, fire protection, and irrigation service is not surprising. It would also not be surprising for IU to be the largest customer for a community like the City after aggregating all of its meters.

17. Do you agree with the view expressed by Ms. York in her testimony that the magnitude of the proposed increase in cost to IU makes the City's rate recommendation inequitable?

A. No. While I certainly appreciate and fully recognize affordability and rate shock concerns, it is important to recognize that the City has not conducted a cost of service study in approximately 25 years. Since that time, there was an irrigation rate reduction by way of settlement in 2005, and significant changes have occurred to the City's costs and customer base (Question 15, page 6 of Petitioner's Exhibit 1 – Testimony of Vic Kelson). In circumstances such as these, it is not uncommon to observe significant variations between current rates and cost of service across customer classes that need to be corrected to achieve an equitable distribution of costs between all customer types. That notwithstanding, the City has proposed phasing in the recommended increases and further limiting the increases in each phase to no more than two times the overall average increase in revenue (which is consistent with past IURC causes provided by IU in response to the City's data request). In the context of balancing revenue requirements, equity and fairness of allocating costs, and customer impacts, it is my opinion that the City's proposal is reasonable. Moreover, focusing on percentages can be misleading and consideration should also be given to the magnitude of the anticipated dollar impact in context of the affected enterprise. Similarly, while the utility and customers alike both desire the highest level of service at the lowest

possible cost, individual customer objectives, such as keeping tuition costs down (York Testimony, Page 3, line 2) or having equal increases to all customers (York Testimony, Page 4, line 19) should not be used as reasons to argue against achieving unique rates for each customer class that reflect their proportional cost of service.

18. What does Ms. York identify as the primary or fundamental reason why the City's proposed cost of service study is unreasonable?

A. Ms. York appropriately recognizes that the base-extra capacity cost allocation method used by the City and identified in M1 is a reasonable approach to cost allocation. However, she states that the City's cost of service study is not reasonable as she alleges it fails to accurately measure the demands each class places on the system (York Testimony, Page 6, line 5). More specifically, Ms. York asserts that the customer class maximum day and maximum hour peaking factors do not accurately measure the contribution of each customer class to the extra-capacity demands placed on the City's water system. As such, Ms. York states that the City's cost of service study fails to accurately allocate costs among customer classes, and should not be relied upon as the basis for determining revenue allocation or rate design in this case (York Testimony, page 6, lines 11-24).

19. What specific concerns does Mr. York identify with the customer class extra capacity factors?

A. In her testimony (Page 7, answer starting on line 20), Ms. York lists her concerns as follows:

1) The relationships between the peaking factors of the customer classes are atypical relative to many other water utilities.

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.

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 as opposed to the highest single-month period.

4) As shown on Attachment MCB-3, page 9 of 32, Mr. Beauchamp has applied a system maximum day to max month 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 peak hour ratio of 1.13 to all customer classes to develop peaking hour factors for each class. This methodology represents an assumption that all customer classes exhibit the same relationship between maximum hour and maximum day peaking factors.

20. Initially, do you have any concerns with Ms. York's credibility as witness for water utility cost of service studies?

A. Yes. I would first point out that when citing to M1 throughout her testimony, she repeatedly cites to the 6th edition of M1 that was superseded by the 7th edition published in early 2017. I find it concerning that a professional witness offering testimony during a rate proceeding relies on a superseded version of M1. It strikes me as akin to a lawyer citing an overruled

case for support. While certainly some of the concepts remain the same from version to version of M1, the AWWA does not undertake M1 updates without reason. The updates to the 7th edition from the 6th edition are material. For example, Ms. York cites on several occasions to page 316 of M1 6th edition for Appendix A (*e.g.*, York Testimony, page 14, fn 16). In the 7th edition of M1, Appendix A begins on page 373, so her references cannot be explained away as typographical errors. The 57 pages of material added to M1 7th edition significantly changed or created the AWWA's guidance on a number of issues, including retail and wholesale rates for customers outside municipal boundaries, fire protection rates, treatment of fixed charges and declining revenue, system development charges, affordability, water reuse, and emerging trends. AWWA M1, page xix. While the specific calculation of peaking factors in Appendix A may not be materially changed from the 6th edition to the 7th edition, Ms. York's reliance on a version of M1 that has been outdated for nearly 5 years illustrates that she is not maintaining an active knowledge of current ratemaking practices.

Moreover, in response to data requests (see Attachment MCB-16 sponsored by Mr. Beauchamp), it was indicated that Ms. York has evaluated a total of 7 water cost of service studies in the last 5 years, 3 of which contained no cost of service adjustments. Her limited evaluation experience and complete lack of experience in actually preparing a water utility cost of service study herself (see Attachment MCB-16) results in a very small body of knowledge to draw upon to recognize and account for unique circumstances between utility systems, and increases the potential to overlook or not completely understand important elements of the City's cost of service process. From my review of the issues and statements

made in her testimony, including citation to a version of M1 that has been out of date for nearly 5 years, this seems to be the case in certain instances.

21. Relative to the first issue raised by Ms. York, what is your opinion relative to the relationship between peaking factors of the customer classes being atypical relative to other utilities?

A. In my experience working with hundreds of water systems across the country, the relationship of peaking factors between customer classes can and often does vary between utility systems, even in the same region. This is often due to a number of factors including, but not limited to, metering of irrigation, economic composition of the community that can affect customer seasonal demand profiles and occupancy, climate and rainfall patterns, grouping of customer classes, diversity of business and industry types, conservation programs, and watering restrictions. In the City's case, the dynamics of irrigation, seasonal occupancy influences of IU, and the composition of customer classes (*i.e.*, grouping of multi-family and residential accounts) are some of the notable elements to consider as part of evaluating the relationship of peaking factors between the City's customer classes. For instance, Ms. York states in her testimony (Page 9, answer beginning on line 32) that typically weather-sensitive customer like single-family residential (and separate irrigation only meters) exhibit a larger spike in their maximum day and peak hour demands. However, in the City's case, we have to consider that single-family residential and multifamily residential customers are grouped together in the peaking factor analysis. This is important as multi-family accounts typical have much lower amounts of weather-sensitive water demands than single-family accounts. Moreover, residential accounts in the City experience occupancy fluctuations associated with student housing that occurs off-

cycle from or not coincident with many of those weather-sensitive outdoor and irrigation activities. As such, this further serves to mitigate the magnitude of peak demands exhibited by the residential customer class in the City as compared to other communities.

22. Relative to the second issue raised by Ms. York, do you agree that using billing data from a hot, dry, sales year is required and appropriate for the City's cost of service analysis?

A. No. In fact, to allocate costs based upon an abnormal test year to establish rates that will be in effect for a multi-year period can and likely will lead to cost allocations that do not reflect typical usage of the system. More common practice is to update cost of service evaluations periodically (generally every three to five years) to incorporate observed changes in system and customer demand patterns that occur over time. To the extent that conditions warrant, utilities may choose to evaluate their cost of service allocations more frequently or in different intervals to take into account key changes, such as new customer or system information, updates in the magnitude or complexion of cost requirements, and/or material changes in the customer base or demand patterns.

23. Relative to the third issue raised by Ms. York, what is your opinion regarding the City's proposed demand ratios reflecting average sales over a three-month period?

A. In cost of service studies, it is common for utilities to develop unique modifications to generally accepted practices to properly reflect their specific circumstances, available data, and objectives. M1 specifically allows for flexibility in ratemaking: "this manual [M1] will not prescribe a solution. Rather, it is intended to provide guidance and advice." AWWA M1, page xv. That being said, I am not aware of any circumstances in this instance that

would suggest using a three-month period is more appropriate than the single-month period that is common industry practice. Absent such information and supporting justification, I would agree with Ms. York's recommendation to utilize the single highest month in the test year to establish the maximum month to average month demand ratios for each customer class that are then used to develop estimated maximum day and peak hour factors and demands by class.

24. Can you speak to the fourth issue raised by Ms. York regarding the system maximum day to max month ratio of 1.09 applied by Mr. Beauchamp to each customer class?

A. The application of the system maximum month ratio to all customer classes performed by Mr. Beauchamp is technically correct and consistent with the methodology of estimating non-coincident peaking factors as identified in Appendix A of M1. The issue in this instance pertains to the appropriate system data to be used to establish the actual ratio. As previously noted, Mr. Mierzwa identified that the cost of service study used plant inflow data to calculate the ratio, whereas common industry practice is to use plant production data. As such, the revised cost of service study being offered by Mr. Beauchamp reflects the use of plant production data and results in a new ratio of maximum day to maximum month system demand of 1.06. Ms. York both incorrectly calculates this ratio and compares this ratio to other ratios that compare maximum day or peak hour demands to average day demands (as opposed to maximum month demands). The plant production information referenced previously in my testimony from Mr. Mierzwa (Schedule JDM-1) shows maximum day and peak hour to average day demand ratios over the past three years of about 1.3 and 1.7, respectively. While these ratios are a bit lower than the same ratios cited by Ms. York in her testimony from a 2003 Long Range Capital Plan (see page 17, line 3),

it is consistent with my experience where utilities across the country are seeing continued reductions in peak demands and per capita water use due to enhanced conservation awareness, improved technologies, and increased efficiency in water fixtures. As indicated, the 7th edition of M1 specifically addresses the issue of declining sales in the water industry.

25. Can you speak to the fifth issue raised by Ms. York regarding the weekly usage adjustments used to the development of maximum day peaking factors for each customer class?

A. In the City's cost of service study (as shown on Attachment MCB-3, page 9), a weekly usage adjustment factor of 1.35 was used for the residential and irrigation customer classes, and an adjustment of 1.17 was used for the commercial, industrial, wholesale, and IU classes. Ms. York states in her testimony (answer beginning on line 9 of page 20) that the weekly usage adjustments 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. Ms. York further indicates that the usage adjustments utilized by Mr. Beauchamp have not been shown to reliably or accurately reflect the characteristics of the City's respective customer classes.

Unfortunately, this is a data point that is not readily available for the majority of water systems in the country and often these adjustment factors are based on general understandings or assumptions of typical usage profiles for the respective customer classes. Having said that, the resulting maximum day to average day demand factors from these adjustment assumptions can be compared against other utilities that have advanced metering infrastructure ("AMI") data. Moreover, the aggregate maximum day non-

coincident demands calculated from these adjustment assumptions can be compared against the coincident maximum day demands of the system to measure the system diversity of demand per Appendix A of M1. The system diversity ratio is often in the range of 1.1 to 1.4, though different system diversity measures may arise for communities with more atypical customer class usage patterns. This system diversity measure is another method to ensure that the maximum day peaking factors selected for each customer class, based on the data available and the assumptions regarding variation in consumption patterns, likely result in reasonable approximations of the overall class maximum-day demands for cost allocation purposes. AWWA M1, Appendix A, page 377.

26. What is your opinion of the reasonableness of the weekly usage adjustments used in the development of maximum day peaking factors for each customer class?

A. As part of preparing this testimony I reviewed each of the original assumptions by customer class and provided advice to Mr. Beauchamp relative to modifying certain of the assumptions that has been incorporated in the revised cost of service analysis being presented in his rebuttal testimony. The advice I provided relative to these assumptions was based upon my experience with other communities, and included typical residential indoor and outdoor usage profiles, consideration of the general nature of commercial activity in the City, reasonable assumptions relative to frequency of outdoor irrigation, and methods of establishing factors for wholesale and IU master meter customer classes.

In addition, I compared both Mr. Beauchamp's original and revised maximum day demands for the residential (single-family & multi-family), commercial, and irrigation classes to previously compiled data used in recent cost of service studies from four

communities that authorized identification of their actual maximum day demands for these customer classes from their AMI systems. The results are set forth on Attachment AB-2 to my testimony. Of note, the City of Ann Arbor, Michigan (University of Michigan), and the City of Tempe, Arizona (Arizona State University) are communities that have a major university as part of their community. However, we did not specifically isolate and aggregate the many meters for the respective universities as part of our prior studies, nor did we have data available for wholesale customers.

As can be seen from the results included in Attachment AB-2, both the original and revised maximum day demand factors for these customer classes for the City are within the range of what I have seen with communities with actual data observations. Moreover, when comparing the revised aggregate maximum day non-coincident demands resulting from the usage adjustments assumed to the maximum day demand on the system, the system diversity results are within the zone of reasonableness as identified by Appendix A of AWWA M1. As such, it is my opinion that the revised weekly usage assumptions by customer class identified by Mr. Beauchamp in his rebuttal testimony are reasonable and appropriate for use in this case.

27. Can you address the sixth issue raised by Ms. York regarding the application of the same peak hour ratio of 1.13 to all customer classes to develop peaking hour factors for each class?

A. This is a similar issue as to the question of appropriate weekly usage adjustment factors for each customer class used in establishing maximum day demand factors. In the City's cost of service study (as shown on Attachment MCB-3, page 9), a maximum hour adjustment

factor of 1.13 was used for all customer classes in order to estimate the respective peak hour demand factors by customer class. Ms. York states in her testimony (answer beginning on line 2 of page 25) that customer classes typically exhibit different usage patterns throughout the day, certain classes (wholesale) may be able to mitigate their peak hour demands due to storage facilities, and that Mr. Beauchamp makes no effort to recognize each class's specific consumption patterns and contributions to peak hour demand.

Unfortunately, this is again an instance of a data point that is not readily available for the majority of water systems in the country and often these adjustment factors are based on general understandings or assumptions of typical usage profiles for the respective customer classes. Having said that, the resulting peak hour to average day demand factors from these adjustment assumptions can be compared against other utilities that have advanced metering infrastructure ("AMI") data. Moreover, the aggregate peak hour non-coincident demands calculated from these adjustment assumptions can be compared against the coincident peak hour demands of the system to measure the system diversity of demand per Appendix A of M1. The system diversity ratio is often in the range of 1.1 to 1.4, though different system diversity measures may arise for communities with more atypical customer class usage patterns. This system diversity measure is another method to ensure that the peak hour factors selected for each customer class, based on the data available and the assumptions regarding variation in consumption patterns, likely result in reasonable approximations of the overall class peak hour demands for cost allocation purposes. AWWA M1, Appendix A, page 378.

28. What is your opinion of reasonable maximum hour adjustments to be used in the development of peak hour demand factors for each customer class?

A. As part of preparing this testimony I reviewed the original assumption applied to all customer classes and provided advice to Mr. Beauchamp relative to developing customer-class specific assumptions that has been incorporated in the revised cost of service analysis being presented in his rebuttal testimony. The advice I provided relative to these assumptions was based upon my experience with other communities, and included typical residential indoor and outdoor usage profiles and time of use patterns, consideration of the general nature and duration of daily commercial activity in the City, reasonable assumptions relative to the timeframe for outdoor irrigation, and methods of establishing factors for wholesale (considering storage) and IU master meter customer classes.

In addition, I compared both Mr. Beauchamp's original as well as revised peak hour demands for the residential (single-family & multi-family), commercial, and irrigation classes to previously compiled data used in recent cost of service studies from four communities that allowed for the identification of actual peak hour demands for these customer classes from their AMI systems. Of note and as I mentioned earlier, the City of Ann Arbor, Michigan (University of Michigan), and the City of Tempe, Arizona (Arizona State University) are communities that have a major university as part of their community. However, again, we did not specifically isolate and aggregate the many meters for the respective universities as part of our prior studies, nor did we have data available for wholesale customers.

As can be seen from the results included in Attachment AB-2, both the original and revised peak hour factors for these customer classes for the City are within the range of what I have seen with communities with actual data observations. Moreover, when comparing the revised aggregate peak hour non-coincident demands to the peak hour demand on the

system, the system diversity results are within the zone of reasonableness as identified by Appendix A of AWWA M1. As such, it is my opinion that the revised maximum hour adjustment assumptions by customer class identified by Mr. Beauchamp in his rebuttal testimony are reasonable and appropriate for use in this case.

WASHINGTON TOWNSHIP WATER AUTHORITY'S TESTIMONY

30. Please summarize your understanding of the issues or concerns raised by WTWA witness Edward Rutter with the City's cost of service study and rate design proposals.

A. Mr. Rutter provided his opinion that the City's cost of service study as prepared and presented by Mr. Mark Beauchamp, President of Utility Financial Solutions, LLC is flawed, citing the lack of recognition that some wholesale customers have storage facilities that would normally impact the usage on the maximum day and maximum hour of the system which may impact the rate charged or the institution of a sub rate recognizing the storage contribution (see Answer 11 on Page 8 of Rutter Testimony).

Additionally, while Mr. Rutter provides a number of opinions relative to revenue requirement issues not within the scope of my testimony, there is a stated concern relative to the lack of recognition of capital contributions made by wholesale customers in the cost of service study and rate design proposals (Rutter Testimony, Page 9) that I would like to address.

31. Can you address the first issue raised by Mr. Rutter regarding the lack of recognition of storage facilities in the cost of service study?

A. As indicated previously, Schedule JDM-3 highlighted the various number and size of interconnections of the City's nine wholesale customers. It shows a wide range of number

and size of interconnections for each individual wholesale customer, but does not indicate which customer may have storage facilities and what the usable capacity of those facilities is. So while WTWA may have some storage facilities that could mitigate its peak demands as compared to other wholesale customers, WTWA is identified as having the most interconnection points with the City (*i.e.*, 6) of any wholesale customer, and is likely relying upon more of the City's transmission function (and even the distribution function given that two of WTWA's interconnections are to 6" diameter mains) than other wholesale customer with fewer interconnections. As indicated previously, the ideal solution is to assign cost responsibility to each individual customer and to develop rates that reflect that cost. Unfortunately, it is neither economically practical nor often possible to determine the exact cost responsibility and applicable rates for each individual customer. However, the cost of providing service can be reasonably determined for groups or classes of customers that have similar water-use characteristics. Rate-making endeavors to assign costs to classes of customers in a nondiscriminatory, cost-responsive, and proportional manner so that rates can be designed to closely meet the cost of providing service to such customer classes. AWWA M1, page 73.

As such, I did review the weekly usage adjustment and maximum hour ratio assumptions being applied to the wholesale class in the initial cost of service. I also provided advice to Mr. Beauchamp on how to recognize the composite usage profiles of the wholesale customer class and that a portion of the class does have storage facilities that should be considered in establishing maximum day and peak hour factors for the class. Based upon my review of the data referenced herein for the City, the cost allocation methodology being employed, and from my experience with other systems performing similar studies, I believe

the revised cost of service study is giving reasonable consideration of the storage facilities of the City's wholesale customers in establishing maximum day and peak hour factors utilized in the base-extra capacity cost allocation process. Moreover, the cost of service study does not allocate any portion of the City's storage costs to the wholesale customer class, recognizing that some wholesale customers have storage facilities.

32. Can you address the second issue raised by Mr. Rutter regarding the lack of recognition of capital contributions in the cost of service study?

A. To the extent that the City was proposing to establish revenue requirements using the utility basis of ratemaking, there would be a need to recognize historical contributions in aid of construction. This is because the utility basis of establishing revenue requirements is in part based on the return of and on historical investment of the utility. As such, any historical contributions from customers to that investment would need to be credited. However, the City is utilizing the cash needs basis of establishing revenue requirements, that is forward looking and includes future capital improvement needs. As such, historical contributions from 1998 and 2000 (see Answer 14 on page 9 of Rutter Testimony) do not address the upcoming capital improvement needs of the utility and are not appropriate to be reflected in the cost of service study or rate design proposals.

CONCLUSIONS

33. What is your general assessment of the cost of service and rate design proposals of the City and the positions taken by the OUCC, IU, and WTWA?

A. I think the City's initial cost of service study was generally done in conformance with industry practice and that the rate proposals for each customer class were reasonable in the

context of balancing revenue requirements, equity and fairness of allocating costs, and customer impacts. As such, I disagree with various parties' claims that the cost of service study is "flawed", and believe that these claims stem from an inability to use the model developed by Mr. Beauchamp that may reflect a lack of experience conducting water system cost of service studies. Having said that, I do think the various parties to the case have identified certain areas and data points that have merit and should be considered and reflected in the cost of service study. Upon incorporating the recommendations identified herein, I believe the City's revised cost of service study and rate proposals reflect proportional and equitable allocations of cost to the City's customer classes that are reasonable and should be approved by the Commission.

34. Does this conclude your pre-filed rebuttal testimony at this time?

A. Yes.

VERIFICATION

I hereby verify under the penalties of perjury that the foregoing representations are true to the best of my knowledge, information, and belief.

9/3/21
Dated

Andrew Burnham

Stantec

Andrew Burnham

Vice President

Mr. Burnham is the Vice President and Global Practice Leader of Financial Services at Stantec. Andy has extensive experience in conducting as well as overseeing cost of service allocations, integrated financial planning and affordability analyses, and development of alternative rate and fee structures for a variety of utility systems, including water, wastewater, reclaimed water, stormwater, solid waste, recycling, electric, and natural gas. He has been recognized as an industry expert as part of providing testimony in utility rate-related regulatory proceedings in multiple states and territories (including Florida, Michigan, Arizona, and the United States Virgin Islands), as well as before the Federal Energy Regulatory Commission. He has led over 500 studies for 150+ communities, and has supported the issuance of $1 billion of bonds for projects in the past 5 years.

Mr. Burnham is currently serving on multiple AWWA and WEF Committees, and was actively involved in the recent update to AWWA Manual M1 – Principles of Water Rates, Fees and Charges, notably in regards to outside-city retail rates, wholesale rates, and reuse rates. In addition, Andy led the development of the Cash Reserve Policy Guidelines Report recently published by the AWWA.

EDUCATION

Bachelors of Business Administration, Lake Superior State University, Sault Ste. Marie, Michigan, 2000

MEMBERSHIPS

Trustee of the Management & Leadership Division, American Water Works Association

Member, Utility Resource Management Committee, The National Association of Clean Water Agencies

Member, Florida Section, Government Finance Officers Association

Rates and Charges Committee, American Water Works Association

Financial Accounting & Management Controls Committee, American Water Works Association

Management Committee, Water Environment Federation

PROJECT EXPERIENCE

WATER RESOURCES

Western Area Water Authority | North Dakota

Andy is serving as the Project Manager on a financial feasibility study for the Authority as required by the 2017 legislature. As part of the study, our team quantified the amount of excess capacity available on a locational basis to evaluate the potential of firm and interruptible service offerings that would effectively change the Authority's primary role to more of a pure wholesaler of water to local private water companies. The study incorporated potential revenue from a new concession-based business model, with the intent of stabilizing cash flows and achieving financial sustainability to support continued domestic rural water supply in the region.

James City Service Authority | Virginia

Andy was the Project Manager for a comprehensive rate study for the Authority. He led the development of rate structure modifications that ensured the Authority's rates conformed to accepted industry practice and reflected the appropriate distribution of system costs, while achieving its policy objectives, of fiscal stability, affordability, and conservation. In light of declining demands, the Authority had significant concerns relative to its ability to recover a portion of the fixed costs of the system, so we developed a two-part rate structure inclusive of a fixed monthly readiness-to-serve charge and inclining block water conservation rates. We also evaluated the Authority's system and local facilities charges to ensure they recovered the initial cost of capacity for infrastructure utilized to serve new connections in the future.

City of Cleveland - Water and Wastewater Cost of Service Study | Cleveland, Ohio | Project Director

Andy oversaw all work completed during this comprehensive cost of service and rate study for the City's water and wastewater utilities. He provided guidance relative to the development of alternative ten-year financial management plans, reserve policies, and capital funding strategies. Andy also directed the completion of benchmarking activities relative to infrastructure spending for underground assets.

TOHO | Florida | Technical Advisor

Andy recently served as technical advisor for a reclaimed water cost of service and rate design for the Authority. The study included a detailed cost allocation analysis that evaluated the current level of cost recovery from existing rates and examined alternative rate designs for the Authority, including the resulting impacts to retail and bulk customers. The Authority adopted the recommendations developed during the study, which included modifications to provide a consistent level of cost recovery amongst all customer classes and a modified retail reclaimed water rate structure that is consistent with its potable water rate structure.

JEA, Jacksonville | Florida | Project Manager

Mr. Burnham has served as our project manager for multiple studies with the JEA, including 1) understanding the forms of business organization being applied to the sewer business, and practices used in the industry for conversion of septic tanks to central sewer service, 2) identifying the costs associated with treatment of landfill leachate from the City of Jacksonville to support new service rates, and 3) a comprehensive cost of service and rate design study to support the update of all fees and charges using more detailed data (including hourly customer metering data) and granular approaches intended to result in enhanced equity, transparency, conservation, and affordability of service to its diverse customer base.

Town of Front Royal | Virginia | Project Manager

Mr. Burnham served as project manager for a water and sewer comprehensive cost of service and rate study and subsequent updates to the initial study. He used our FAMS-XL model to develop a ten-year financial management plan and plan of annual rate adjustments to meet all of the utility's financial obligations in each year of the projection period. Mr. Burnham developed three alternative conservation rate structures for consideration that would recover the identified cost of service from the financial management plan and prepared customer impact analyses for each alternative. The analysis also included the review of and updates to current outside-town rate differentials.

Diamondhead Water & Sewer District | Diamondhead, Mississippi | Project Manager

Mr. Burnham served as the project manager for a comprehensive cost of service for the District. During the study, we provided updates to the water and sewer rates, taking into account capital funding challenges resulting from FEMA reimbursement delays. Mr. Burnham has also managed the preparation of a Bond Feasibility Report and a benchmarking analysis in which we compared the District's operations to industry standards and local entities.

Orange County | Florida | Project Manager

Mr. Burnham has served as the project manager or a lead consultant for the County for over 15 years. During that time, he has conducted several revenue sufficiency analyses to ensure adequate revenue to meet projected cost requirements, periodic water and wastewater impact fee studies, water and sewer rate structure analysis, reclaimed water cost of service study and presentations of the results to management, elected officials and other stakeholders. In addition, he led a bond feasibility study for the County including preparation of a bond report. The recommendations from our services have generally been implemented and the utility has been able to maintain a very good credit rating with low rates and annual rate adjustments.

Town of Cary | North Carolina | Project Manager

Mr. Burnham served as the project manager for a Bond Feasibility Study for the Town which included the development of a Financial Model. During the study, Mr. Burnham led the development of a multi-year financial forecast using our FAMS-XL model. He developed a capital financing plan that included alternative funding options to minimize the rate impacts on existing rate payers as well as to comply with existing bond covenants. He worked closely with staff to prepare a bond feasibility report consistent with prior reports, modified based upon his experience.

Marion County | Florida | Project Manager

Mr. Burnham has served as the project manager for the County for over ten years. During this time, he has managed a variety of initiatives including multiple water, wastewater, and irrigation revenue sufficiency analysis to ensure adequate revenues to meet projected cost requirements; development of inclining block rates, as well as a plan for common rate structure through the County which combined five disparate rate districts into one common inclining block rate structure; and development of a detailed customer impact analysis to demonstrate the impact of the new rate structure upon the cost of service to all customers classes in each rate district.

City of Greenfield | California | Project Manager

Andy served as project manager during the conduct of a long-overdue comprehensive water and wastewater rate study for Greenfield. Rates were designed to fund the utility's projected costs of providing service while proportionally allocating costs among customers, providing a reasonable and prudent balance of revenue stability, and complying with the substantive requirements of California Constitution Article XIII D, Section 6 (Prop 218).

Pasco County | Florida | Project Manager

Andy was the project manager for the County's water, sewer & reclaimed water rate study. The study included a five and ten-year revenue sufficiency analysis during which he reviewed alternative capital improvement funding sources, target debt service coverage levels, levels of operating and capital reserves, and other financial policies/goals that affect the financial performance of the utility systems and future revenue requirements. He analyzed their financial goals and objectives and scenarios regarding alternative capital improvement spending programs, cost escalation factors, levels of impact fees and miscellaneous charges, changes in usage patterns, and elasticity of demand in response to rate increases and conservation measures.

Orange Water & Sewer Authority | North Carolina | Project Manager

Mr. Burnham has served as project manager for OWASA for water, wastewater, and reclaimed water financial consulting services for nearly ten years. He has conducted several studies including several long-term financial plans, detailed cost allocation to support rate design, evaluation of affordability for low-income users, and bond feasibility studies.

City of Chesapeake | Virginia | Project Manager

Mr. Burnham served as the project manager for a comprehensive cost of service rate study, during which we 1) developed an updated multi-year financial forecast and plan of annual rate adjustments, 2) evaluated peak demands and cost allocations by customer class, 3) assessed the customer impacts of alternative rate structures by class of customer, 4) updated specific service charges and connection fees, 5) reviewed billing practices and made recommendations for improvements, and 6) provided customized modeling tools for the City's future use. The study culminated in the City's successful transition from a single rate structure for all customer classes to different rates and rate structures for each defined customer class.

Pere Marquette Township | Michigan | Project Manager

Mr. Burnham served as project manager for the Township in negotiating their wholesale water supply rate with their provider. After lengthy negotiations, the parties agreed to a rate structure which reduced the Township's purchased water costs and provided incentive for the attachment of a major user to the Township's system. Once purchased water costs were finalized, expected revenues reflecting the new customer addition, operating, debt, and capital costs were developed for the Township. This allowed the Township to examine the future sustainability of their operations. Water and sewer rate recommendations were presented to the Township's Board.

City of Punta Gorda | Florida | Project Manager

Andy conducted a comprehensive water and wastewater rate study involving the development of: a long-term financial plan of annual rate adjustments, full-cost recovery impact fees for consideration, and rate structure modifications of both the tiers and block rates to encourage conservation. Andy assisted the City by providing a detailed cost-of-service analysis which isolated water and sewer service costs. He also developed and updated several miscellaneous fees which included: fire protection fees, treated water rates, and irrigation rates. As part of the study, he identified the drivers of rate adjustments and their impacts to various customer types and presented the results to management and elected officials.

City of Denton | Texas | Project Manager

Andy led a comprehensive cost of service and rate design study for the City's water and sewer utilities. The study included the development of a ten-year financial management plan, including identification of annual rate increases, amount and timing of required borrowing to fund the capital improvement program, establishment of proper reserve levels, and maintenance of adequate debt service coverage levels. An important component in the financial management plan for the City was a rate stabilization reserve to address the issue of revenue volatility due to weather conditions and demand reductions.

City of Venice | Florida | Project Manager

Mr. Burnham has served as project manager for the City since 2012. He managed a comprehensive water and sewer rate study during which he utilized our FAMS-XL model to evaluate the adequacy of the revenue provided by the Utility's current rates and charges, and he also reviewed the Utility's current rate structure and developed modifications based upon legal precedent, conformance to accepted industry practice, an equitable distribution of costs, promoting resource conservation, and customer impact objectives. He led a series of work sessions with a Stakeholder Work Group, comprised of representatives from the community, which unanimously endorsed our recommendations, and were approved by the City Council.

Henrico County | Virginia | Project Manager

Mr. Burnham served as the project manager for a rate study detailing revenue requirements, cost of service allocations, financing

alternatives, and recommended rates and fees. The Study included a ten-year projection of all operating costs and capital improvement costs and the determination of the annual revenue required to support those costs. Notably, he reviewed and made recommendations regarding cost of service studies that were prepared by the County related to purchased water from other entities in the area.

City of Naples | Florida | Project Manager

Andy served as the project manager for the City's comprehensive water and sewer rate study. Andy worked with City staff to customize a multi-year financial forecasting model. He also reviewed the current water and sewer rate structures and developed modifications to ensure the City's rates conformed to accepted industry practice and reflected the appropriate distribution of system costs, while providing cost incentive to encourage water conservation.

Brunswick-Glynn County Joint Water & Sewer Commission | Georgia | Project Manager

Mr. Burnham has 1) developed annual ten-year financial management plans for the water and sewer systems within the JWSC's two districts, 2) prepared loan and bond feasibility reports, 3) calculated updated water and sewer capital tap fees (impact fees) for each district, 4) calculated public and private fire protection charges, 5) developed a uniform conservation rate structure for its two service districts, and 6) prepared a detailed rate manual that explains the purpose, intent, and structure of all its rates, fees, and charges.

City of St. Petersburg | Florida | Project Manager

Mr. Burnham has served as project manager for the City for over 10 years of annual water, sewer and reclaimed water rates studies. Annually, he manages an update to the multi-year financial plan, detailed cost allocation analyses of the water, wastewater and reclaimed water costs and evaluation of rate structures. He has also providing litigation support for the City along with support in the issuance of revenue bonds.

FINANCIAL SERVICES AND MANAGEMENT

Western Area Water Authority | North Dakota | Project Manager

Andy served as the project manager on a financial feasibility study for the Authority as required by the 2017 legislature. As part of the study, our team quantified the amount of excess capacity available on a locational basis to evaluate the potential of firm and interruptible service offerings that would effectively change the Authority's primary role to more of a pure wholesaler of water to local private water companies. The study incorporated potential revenue from a new concession-based business model, with the intent of stabilizing cash flows and achieving financial sustainability to support continued domestic rural water supply in the area.

City of Ann Arbor | Michigan | Project Manager

Mr. Burnham led a detailed cost of service study that evaluated multiple forecasts of revenue requirements and rate adjustments with stakeholders under a variety of assumptions and capital funding strategies. As part of the study, we analyzed the City's available data, customer usage patterns (on a monthly, daily, and hourly basis) past studies, and objectives to determine appropriate customer classes, cost of service methodologies, and rate structures that satisfied annual revenue requirements, adhered to cost of service, promoted conservation, and enhanced affordability. Notably, our review of available data led to the creation of a cost-based tiered rate structure and creation of a new multifamily rate classification.

City of Clearwater | Florida | Project Manager

Mr. Burnham has served as project manager for the City's annual water, sewer, reclaimed water, solid waste, and recycling and stormwater rate studies. Each year, he oversees a detailed analysis of historical customer demand data, including the development of multi-year projections of the same based upon current economic and environmental conditions. As part of each study, a multi-year financial forecast and rate adjustment plan is developed for each utility. Mr. Burnham also developed rate structures for the City that ensure fair and equitable rates and conformance to accepted industry practice and legal precedent. Each study included presentations of the results to City management, elected officials, and stakeholders.

City of Olathe | Kansas | Project Director

Andy served as the project director for a Comprehensive Utility Rate Study for the City. For each service – including Solid Waste, Water, Sewer, and Stormwater – we developed customized financial models including ten-year financial plans and identification of alternative plans of rate adjustments, reviews of alternative capital spending and operational scenarios, and other sensitivity analyses. Andy provided guidance to support the detailed cost allocation analyses for each fund, and development of alternative rate structures to ensure the City is charging fair and equitable rates for each service.

Union County, North Carolina | Project Manager

Mr. Burnham has served as project manager for the County's water & sewer financial planning model and bond feasibility study. He developed the financial planning model to simulate the utility system's particular financial dynamics over a 10-year planning horizon, including the specific financial structure and flow of funds associated with the Bond Feasibility Study.

Pinellas County | Florida | Project Manager

Andy has served as the project manager for the County for nearly ten years, including a comprehensive Water, Wastewater and Solid Waste Rate Study and several annual updates. During these studies, Mr. Burnham has used our FAMS-XL model to develop ten year financial plans for the water, sewer and solid waste enterprise funds. He has also conducted a benchmarking analysis, assisted County staff in evaluating the underlying cost of operations, and conducted detailed cost allocation and overhead studies for the Utilities Department.

City of Tempe, Arizona | Project Manager

Mr. Burnham served as the project manager on a recent Water and Sewer Rate Study for the City. The study included the development of several alternative multi-year financial plans and corresponding plans of annual rate adjustments. We also completed a detailed cost of service allocation analysis and rate design study, which resulted in recommendations for adjustments to enhance specific linkages to cost of service, and consider reasonable irrigation for larger lots sizes while continuing to provide affordability and conservation pricing for excessive use. Finally, we participated in multiple special-purpose stakeholder meetings to educate the community on the process and the new rate structure.

Water and Wastewater System Advisory | Nashville, Tennessee | Project Manager

Andy has served in multiple advisory roles to the District to address complex issues related to its multi-jurisdictional water and wastewater system. One of his first assignments was to customize a financial planning model to reflect the District's operations. He also worked collaboratively to create a financial forecasting tool in alignment with the current budgeting and capital planning processes.

Town of Gilbert | Arizona | Project Manager

Andy served as the project manager for a comprehensive Water, Sewer, Reclaimed Water, Environmental Services (Sanitation), and Stormwater Rate Study (Study) for the Town. As part of the study, for each utility system, we performed a revenue sufficiency analysis, detailed cost of service allocation, and rate structure analysis. We developed several modifications to the Town's existing rate structures, notably including a new inclining block water rate structure. Mr. Burnham also completed a cost allocation study for the wastewater system and a stormwater rate program feasibility study.

STORMWATER

City of Bismarck | Bismarck, North Dakota | Project Manager

Andy served as the Project Manager to lead the City in its comprehensive Water, Wastewater and Stormwater Rate Study. During this studies, Andy and our team helped City staff bring stakeholders together in evaluating solutions for rate structure and implementation plan recommendations. The project included justifying customer classifications with the use of AMI billing data, and detailed cost allocations in support of significant changes to customers' utility rates.

City of St. Petersburg - Water Resources Rate Studies | St. Petersburg, Florida, United States | Project Manager

Mr. Burnham created an innovative, data-driven method to understand the impacts of implementing a tier-based rate structure. Specifically, the method captured the impervious area for about 1,300 residential properties, and ensured that the properties included in the sample were consistent with the residential property size distribution of the full City. The percentage of impervious area to parcel size from the sample was applied to all residential parcels to establish an estimated impervious area database for creating a tiered structure and evaluating customer impacts. He then employed a novel data visualization approach that allowed for on-the-fly changes to the rate structure and real time GIS feedback, including a map illustrating the location of residential parcels and bill impacts. In this transparent and consensus-building way, The City and its stakeholders were able to see the likely impacts of alternative residential tier-based rate structures prior to proceeding with a very different fee schedule.

Stormwater Rate and Service Assessment | Ann Arbor, Michigan | Project Manager

Andy reviewed the level of service being provided in this comprehensive stormwater rate and level of service assessment. He looked at multiple areas and identified alternative options along with their corresponding cost and rate implications. Additionally, Andy conducted a series of interactive work sessions with representatives of various customer groups within the community to prioritize the identified level of service enhancements.

City of Columbia | Missouri | Project Manager

Andy managed a comprehensive stormwater and sewer cost of service rate studies for the City. He performed a revenue sufficiency analysis in order to develop a multi-year plan of rate revenue increases to satisfy the annual operating, debt service, and capital requirements of each utility as well as maintain adequate operating reserves. He then reviewed the rate structure (including evaluation of rates for wholesale users), and developed recommended modifications to ensure that the rates conformed to accepted industry practice and reflect a fair and equitable distribution of system costs.

City of North Port | Florida | Project Manager

Andy managed the development of an alternative cost apportionment methodology and resultant alternative road and drainage (stormwater) assessments for the City. The methodology focused on the drainage portion of the assessment, but also included a detailed apportionment of costs to the road, mowing, and drainage functions. We obtained relevant parcel data and developed compilation programs to facilitate calculation of assessments using the alternative cost apportionment methods evaluated. He has conducted periodic updates to the assessment.

PUBLICATIONS

Westover K., A. Burnham. Balancing Storm Water Management Costs with Citizen Engagement. *Storm Water Solutions*, 2020.

Zieburtz. W., M. Coopersmith, and A. Burnham. Water Reuse Cost Allocations and Pricing Survey. *American Water Works Association*, 2019.

Bui, A., A. Burnham, W. Zieburtz. Survey Results Provide Water Reuse Cost Allocations and Pricing Guidance. . *Journal American Water Works Association*, 2019, pp. pp. 60-63..

Burnham, A., D. Hyder and P. Luce. Toho Water Authority's Unique Approach to Pricing Irrigation Water. *Florida Water Resources Journal*, 2019, pp. 56-59.

Refining Stormwater Rates and Improving Community Support. American Water Works Association Annual Conference & Exposition. *Las Vegas, NV*, 2018.

The Perks of Seeing the Peaks, American Water Works Association Annual Conference & Exposition. *Las Vegas, NV*, 2018.

Happy Stakeholders, Equity, and Conservation Rates. American Water Works Association Annual Conference & Exposition. *Las Vegas, NV*, 2018.

Burnham, A. (co-author). Money Matters - Utility Cash Reserves. *Journal AWWA*, 2018.

Paying for Stormwater - Engaging the Community. *American Public Works Association Annual Conference (PWX), Orlando, FL*, 2017.

Can Conservation Rates be Tied to the Cost to Serve?. *American Water Works Association Annual Conference & Exposition, Philadelphia, PA*, 2017.

Reclaimed Water Expansion:
An Approach that Makes Sense. *American Water Works Association Annual Conference & Exposition, Philadelphia, PA*, 2017.

Interactive Modeling Process to Improve Fiscal Stability and Sustainability. *Michigan Township Association Annual Meeting, Traverse City, MI*, 2014.

Utility Ratemaking & Management. *North Carolina Government Finance Officers Association Summer Conference, Wrightsville Beach, NC*, 2016.

Rate and Fee Panel Discussion, a National Financial Perspective. *AWWA Michigan Sector, Northville, MI*, 2017.

Cost-of Service Based Conservation Rates, Evolving from Art to Science. *Utility Management Conference, Tampa, FL*, 2017.

Water & Sewer Rate Studies. *Michigan Governmental Finance Officers Association, Lansing, MI*, 2015.

High Level Rate Making. *Florida Water Environment Association Chapter Luncheon, Sarasota, FL*, 2014.

Reclaimed Water Cost of Service Studies, an Advanced Example. *Water Reuse Symposium, Seattle, WA*, 2015.

Tackling Utility Rates the Right Way. *Michigan Municipal League Annual Convention, Marquette, MI*, 2014.

Features of Successful Inclining Block Water Conservation Rate Structures. *Texas Water Conservation Association Annual Meeting, Austin, TX*, 2015.

Co-Author, Long-Term Financial Modeling and Sustainability Analysis. *Florida Governmental Finance Officers Association School of Government, Sarasota, FL*, 2013.

PRESENTATIONS

Financial Instruments to Support Sustainability & Addressing Customer Equality and Affordability. *Canadian Water Network Blue Cities* , 2019.

Lessons Learned: Asset Management Plan Analysis. *Manitoba Planning Conference*, 2019.

Cost Allocation and Rate Design: Water. *IPU's Advanced Studies Program*, 2019.

Defining Affordability: Is Water a Right? (Panel Discussion). *2018 Water Finance Conference. Washington, DC*, 2018.

Lessons Learned - Integrating AMP Findings into a Sustainable Financial Plan. *Asset Management Seminar. Michigan*, 2019.

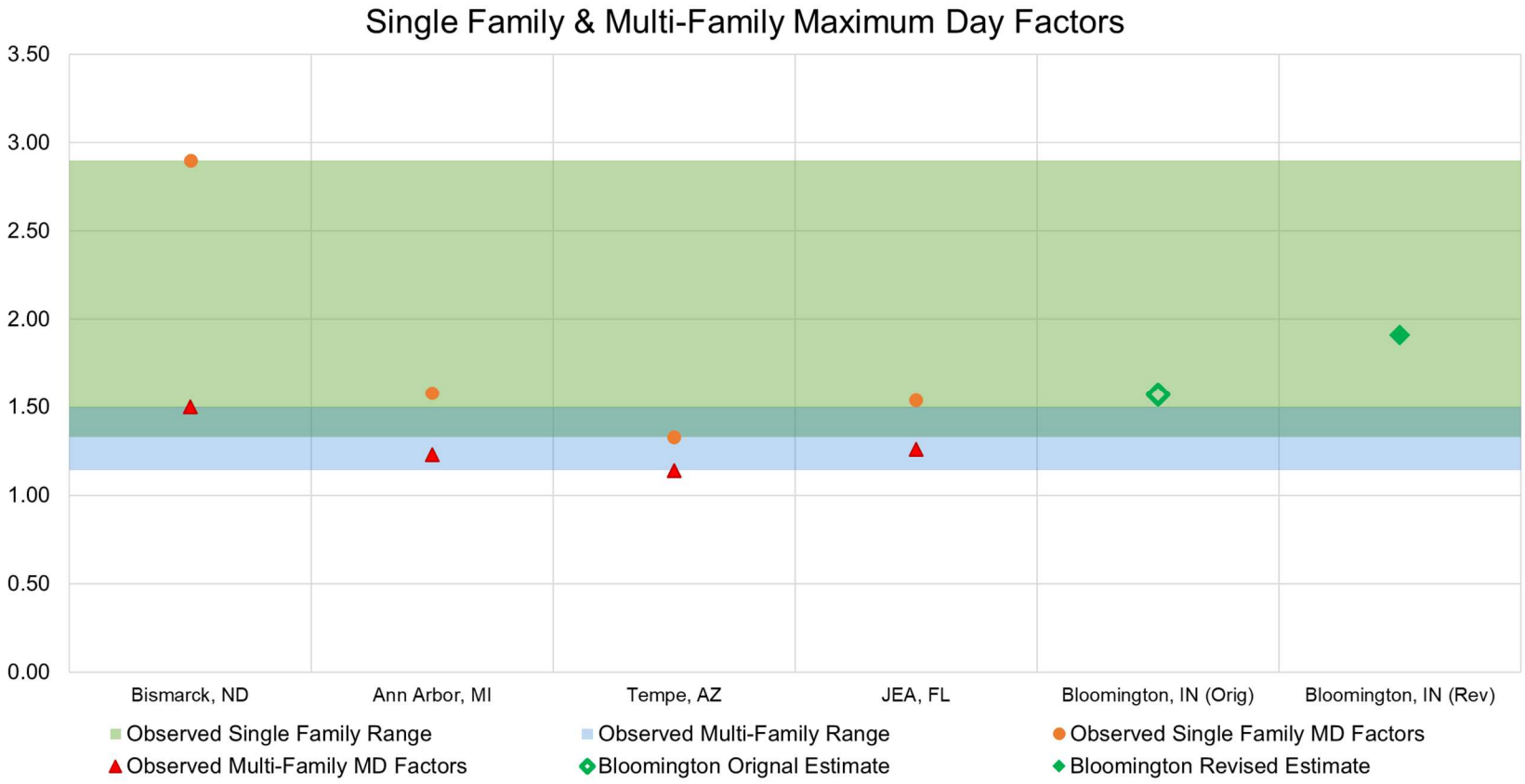
Rate and Budget Planning for Utilities. *Florida Section of the American Water Works Association Region IV Spring 2018 Seminar*, 2018.

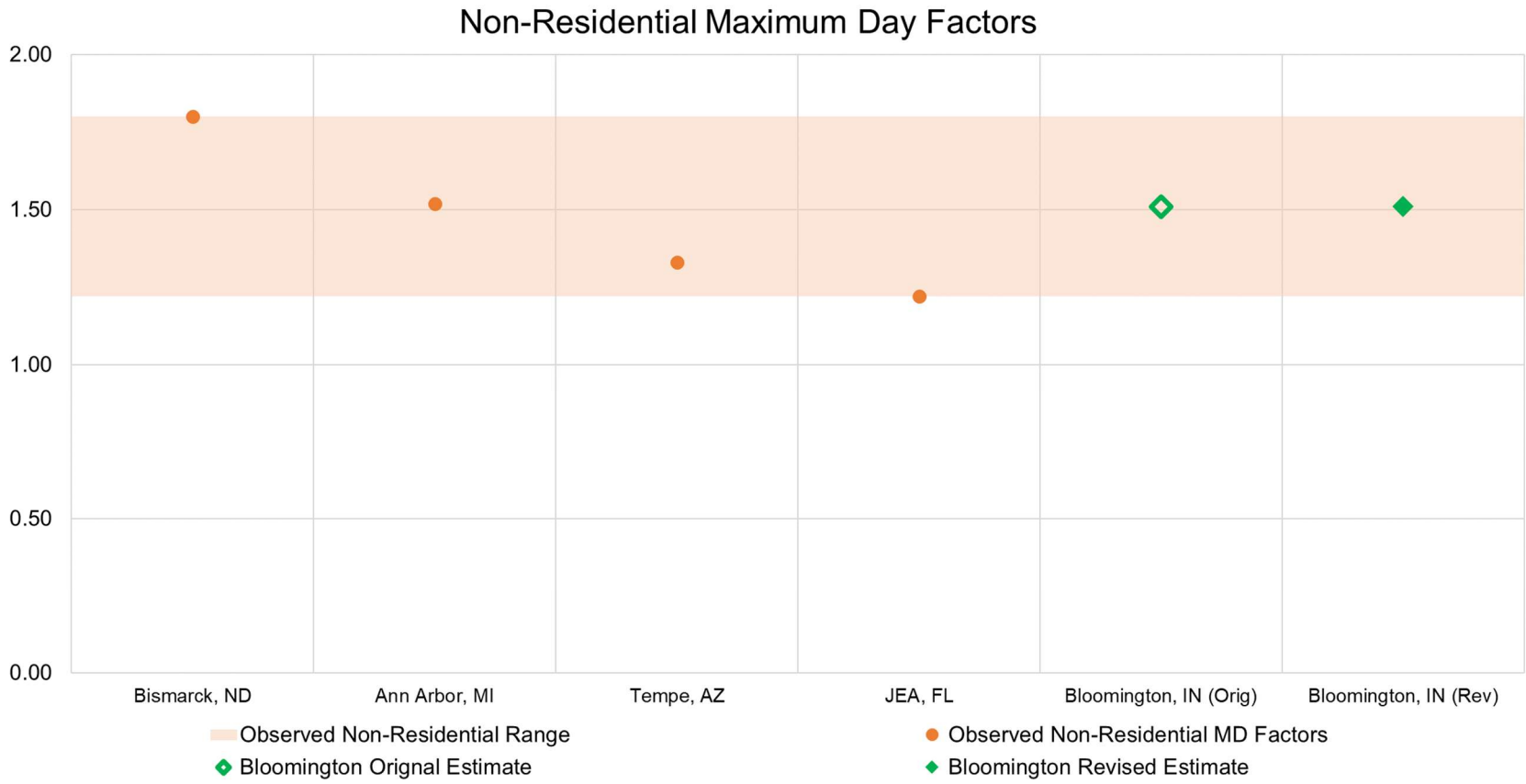
Expert Witness Experience | Utility Ratemaking Issues

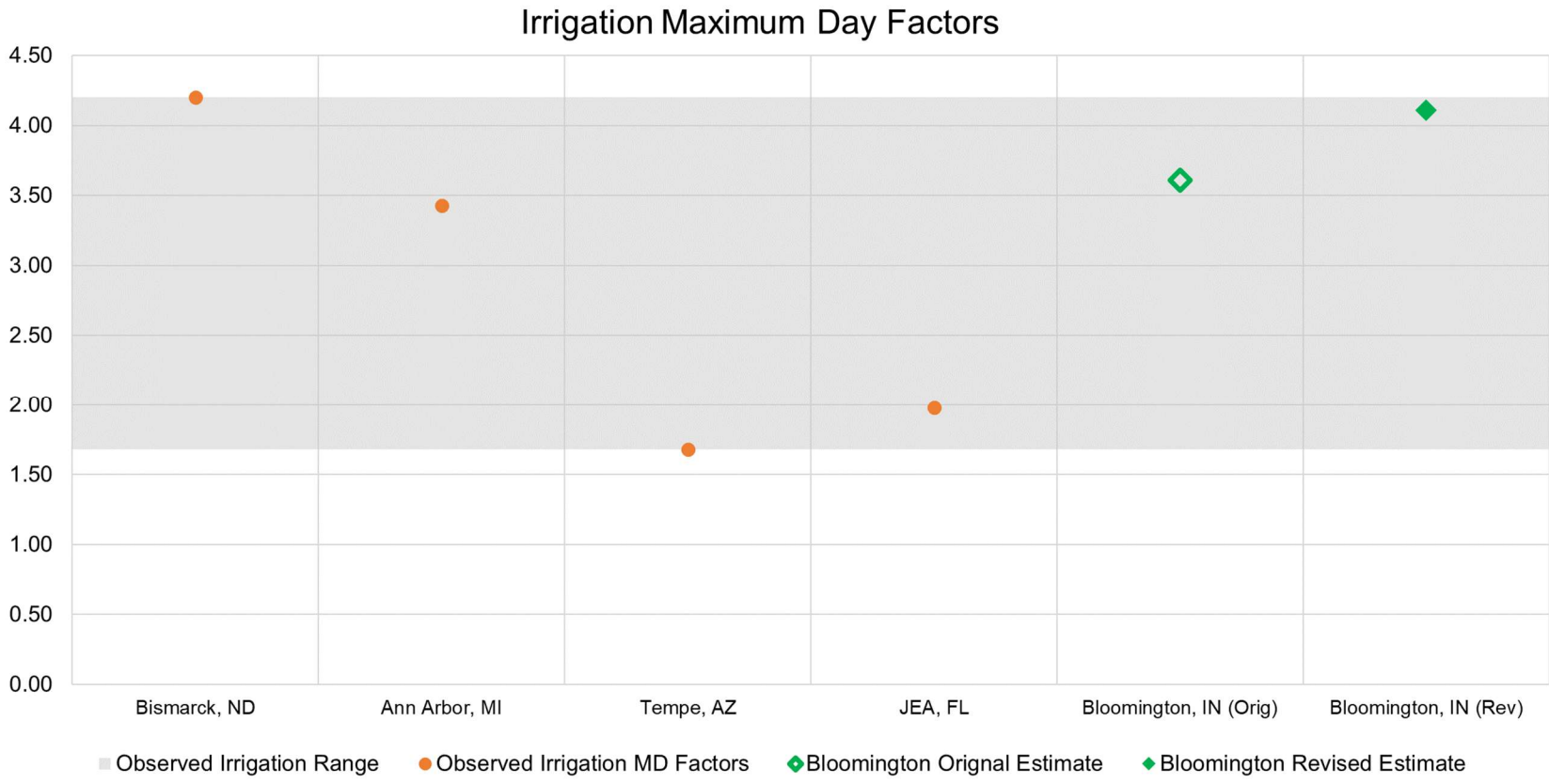
AGENCY/STATE	PROJECT DESCRIPTION	YEAR
Arizona	Testimony in Docket No. WS-01303A-02-0867, et. al before the Arizona Corporation Commission on behalf of the Town of Youngtown relative its utility provider's proposed increase in revenue requirements and rate adjustments.	2003
Federal Energy Regulatory Commission	Testimony in Docket No. ER03-574-000, et. al, relative to appropriate cost of service allocations and pricing of short and long-term electric transmission service within and between regional transmission organizations, including utility revenue sharing mechanisms.	2003
Florida	Testimony in Docket No.: 04-0007-0011-0001 before the St. Johns County Water & Sewer Authority relative to the calculation of additional water rate revenue required to recover the return of and on water plant investments on behalf of a private, investor-owned utility (Intercoastal Utilities, Inc.).	2004
	Affidavit and deposition in Case No. 8:09-CV-01317-T-33MAP before the United States District Court, Middle District of Florida, Tampa Division on behalf of the City of St. Petersburg, Florida relative to the basis and methodology employed by the City in setting its wholesale sewer rates.	2009
	Affidavit in Case No. 12-3155-CAB before the Fifth Judicial Circuit Court in and for Marion County in support of the acquisition of and rate structure for a private water and sewer system on behalf of the City of Dunnellon.	2013
Michigan	Affidavit in Case No. U-13739 before the Michigan Public Service Commission on behalf of Consumer Energy in regards to the classification of electric transmission and distribution facilities of a service provider.	2003
	Direct and rebuttal testimony in Case No. U-13917 before the Michigan Public Service Commission on behalf of Consumer Energy in regards to electric transmission cost forecasting, rate structures and service types, current wholesale industry trends, and appropriate cost recovery mechanisms for local distribution companies.	2004
	Testimony in File No. 15-5343-AW before the Circuit Court of Lenawee County, Michigan on behalf of Gaslight Village Assisted Living, LLC in regards to the proper level of connection and benefit fees for Adrian Township applicable to the assisted living facility and other customers	2016
	Testimony in File No.: 14-006077-CK before the 26th Circuit Court for the County of Alpena, MI on behalf of Alpena Township as to appropriate water and sewer rates for service provided by the City of Alpena to the Township.	2018
Minnesota	Affidavit in Court File No.: 62-CV-18-2356 before the 2nd District Court for the County of Ramsey, MN on behalf of the City of Saint Paul, Board of Water Commissioners, and Saint Paul Regional Water Services regarding the appropriate application of and methodology for calculating base fees and right of way recovery fees.	2019
United States Virgin Islands	Testimony in Docket No. 554 before the Government of the U.S. Virgin Islands Public Service Commission relative to the establishment of a wastewater user fee on behalf of the Virgin Islands Waste Management Authority. The testimony presented the basis for and methodology employed in calculating the user fee and supporting data.	2007

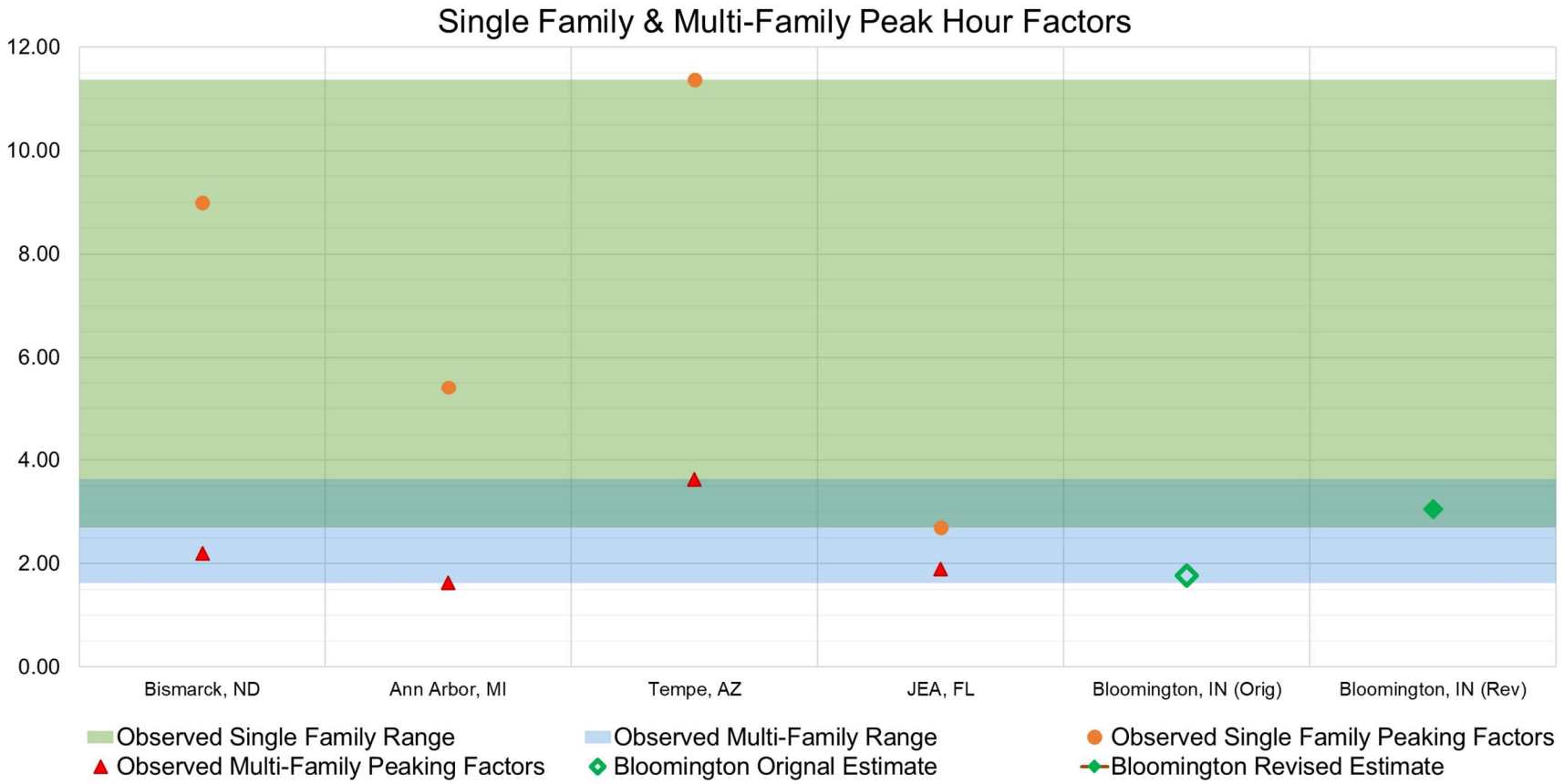
Community	Single Family Max Day	Single Family Peak Hour	Multi-Family Max Day	Multi-Family Peak Hour	Non-Residential Max Day	Non-Residential Peak Hour	Irrigation Max Day	Irrigation Peak Hour	Source
Bismarck, ND	2.90	9.00	1.50	2.20	1.80	2.90	4.20	15.30	Jan-Dec 2016 AMI data
Ann Arbor, MI	1.58	5.42	1.23	1.63	1.52	3.88	3.43	6.62	Jul 2015-Jun 2016 AMI data
Tempe, AZ	1.33	11.37	1.14	3.63	1.33	4.63	1.68	8.59	Jan-Dec 2019 AMI data
JEA, FL	1.54	2.70	1.26	1.89	1.22	1.83	1.98	3.96	Oct 2015-Sep 2016 AMI Data

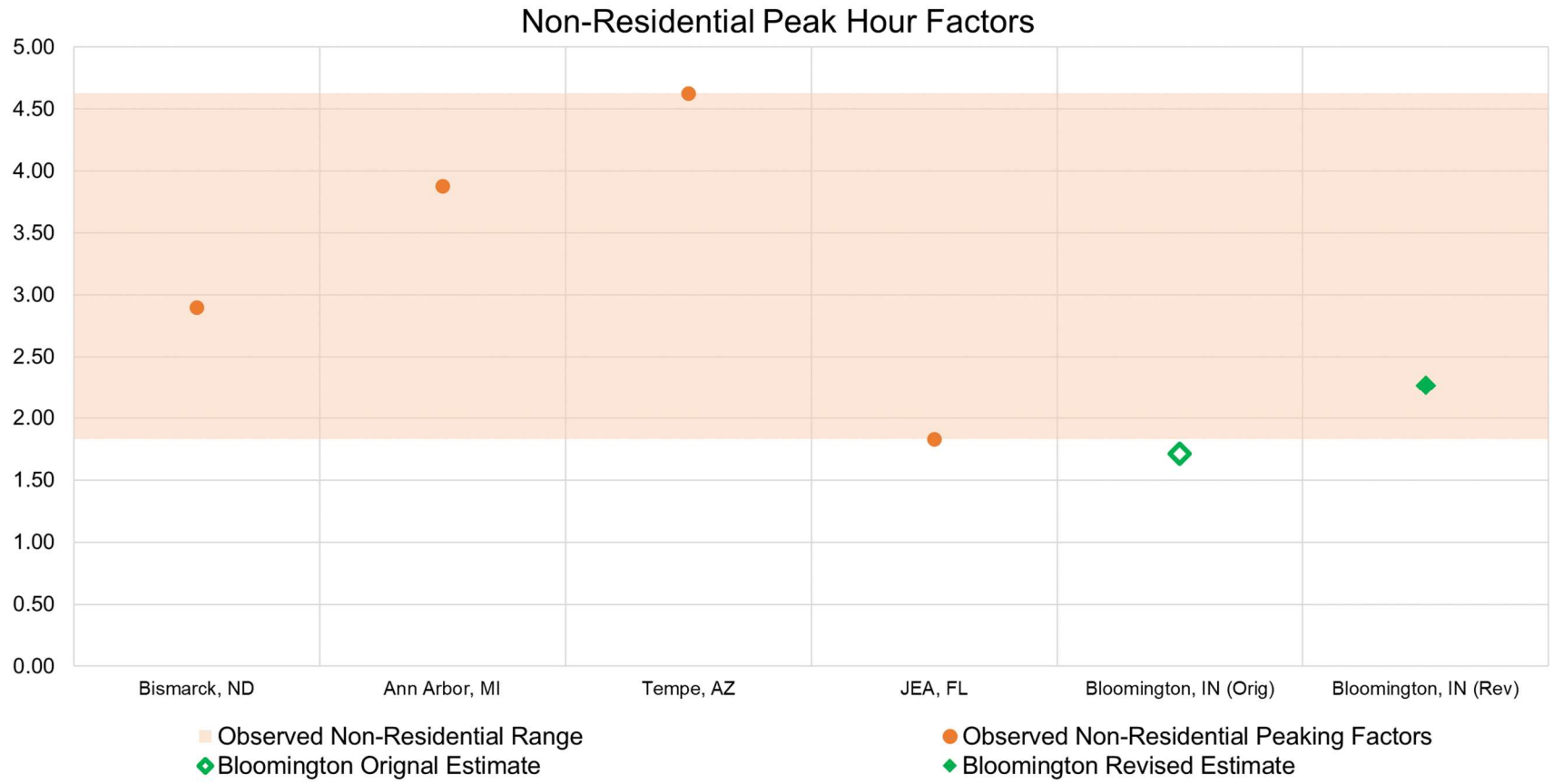
Ratios of Maximum Day and Peak Hour Demands to Average Day Demands

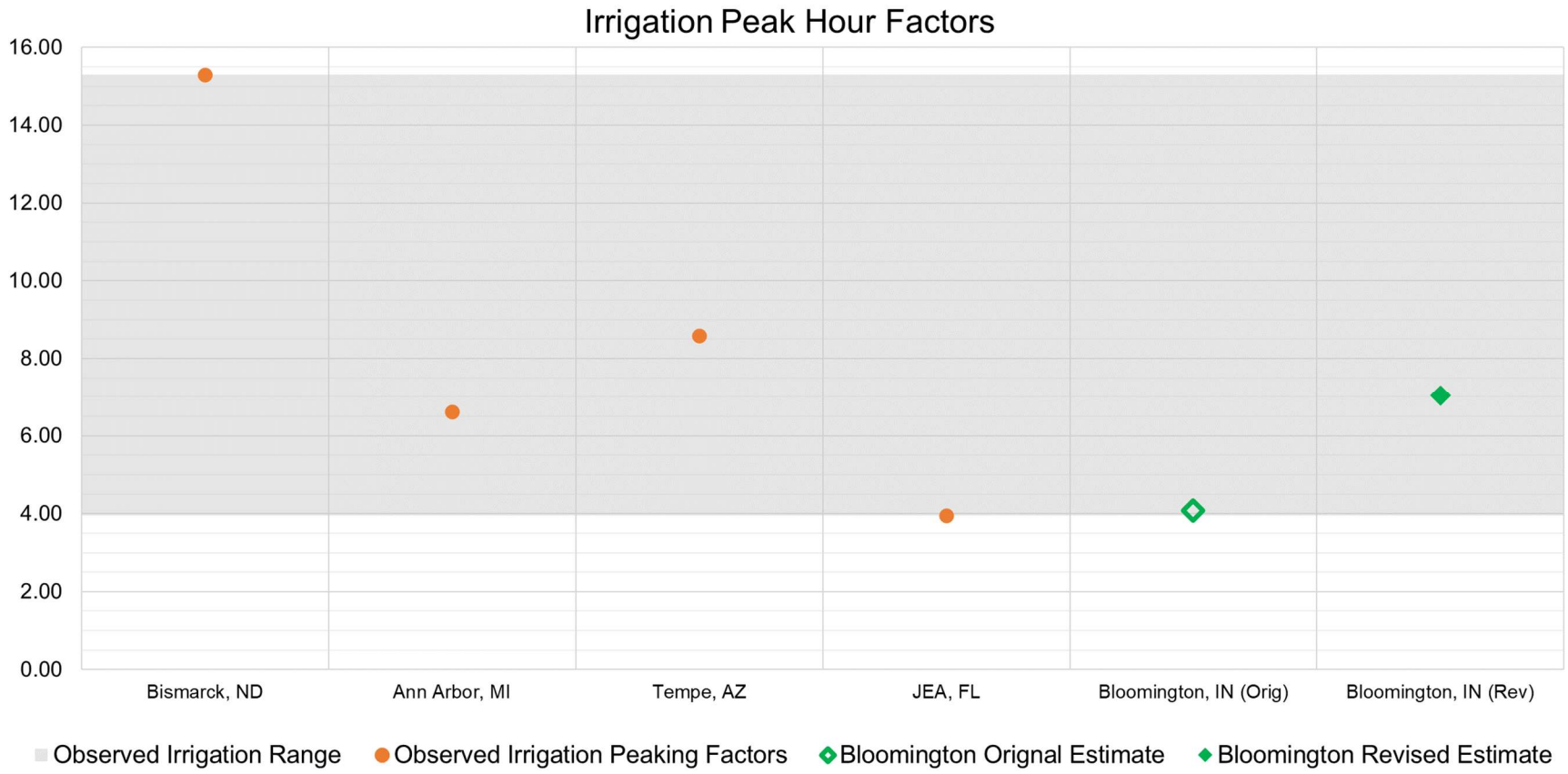

Single Family & Multi-Family Maximum Day Factors
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Bismarck, ND
Ann Arbor, MI
Tempe, AZ
JEA, FL
Bloomington, IN (Orig)
Bloomington, IN (Rev)
Observed Single Family Range
Observed Multi-Family Range
Observed Single Family MD Factors
Observed Multi-Family MD Factors
Bloomington Orignal Estimate
Bloomington Revised Estimate


Non-Residential Maximum Day Factors
2.00
1.50
1.00
0.50
0.00
Bismarck, ND
Ann Arbor, MI
Tempe, AZ
JEA, FL
Bloomington, IN (Orig)
Bloomington, IN (Rev)
Observed Non-Residential Range
Observed Non-Residential MD Factors
Bloomington Orignal Estimate
Bloomington Revised Estimate


Irrigation Maximum Day Factors
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Bismarck, ND
Ann Arbor, MI
Tempe, AZ
JEA, FL
Bloomington, IN (Orig)
Bloomington, IN (Rev)
Observed Irrigation Range
Observed Irrigation MD Factors
Bloomington Orignal Estimate
Bloomington Revised Estimate


Single Family & Multi-Family Peak Hour Factors
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Bismarck, ND
Ann Arbor, MI
Tempe, AZ
JEA, FL
Bloomington, IN (Orig)
Bloomington, IN (Rev)
Observed Single Family Range
Observed Multi-Family Range
Observed Single Family Peaking Factors
Observed Multi-Family Peaking Factors
Bloomington Orignal Estimate
Bloomington Revised Estimate


Non-Residential Peak Hour Factors
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Bismarck, ND
Ann Arbor, MI
Tempe, AZ
JEA, FL
Bloomington, IN (Orig)
Bloomington, IN (Rev)
Observed Non-Residential Range
Observed Non-Residential Peaking Factors
Bloomington Orignal Estimate
Bloomington Revised Estimate


Irrigation Peak Hour Factors
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Bismarck, ND
Ann Arbor, MI
Tempe, AZ
JEA, FL
Bloomington, IN (Orig)
Bloomington, IN (Rev)
Observed Irrigation Range
Observed Irrigation Peaking Factors
Bloomington Orignal Estimate
Bloomington Revised Estimate