Manual of Water Supply Practices

M54

Developing Rates
for Small Systems

American Water Works Association

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Developing Rates for Small Systems

Second Edition

American Water Works Association

Manual of Water Supply Practices—M54–Edition 2

Developing Rates for Small Systems

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Managing Editor: Melissa Valentine
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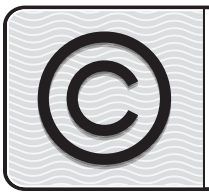

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Preface

PURPOSE

In 2012, the American Water Works Association (AWWA) published the sixth edition of AWWA Manual M1, *Principles of Water Rates, Fees, and Charges.* That manual provides comprehensive guidance on establishing rates and charges for water service. The methods and examples contained in Manual M1, while recommended and appropriate for many water utilities, may prove to be overly complex and burdensome for others. This burden applies particularly to the development of cost-of-service rates. Such rates require the determination of revenue requirements by customer class before designing and adopting a rate structure.

Recognizing the limitations Manual M1 may have for smaller systems, or larger systems without sufficient data or rate-making capability, the AWWA Rates and Charges Committee (authors of Manual M1) developed the idea for a "Manual M1-type" alternative. A rate manual for small systems provides guidelines for the development of rates for utilities that lack the data and resources needed to apply the methods described in Manual M1. For these utilities, this manual—*Developing Rates for Small Systems*—provides guidance in developing rates when data and information may be lacking. The Rates and Charges Committee encourages all utilities to use Manual M1 as the primary guidance tool but believes this manual fills a need for small systems.

INTENDED AUDIENCE

This manual is intended to serve as a resource for managers (and others) of small water systems in the determination of rates for water service. Other resources, for example, Manual M1 and state and local government agencies, may also be of value in the preparation of rates for small systems. However, this manual focuses on the unique attributes of small systems as related to financial planning and rate design. Managers and operators of small systems and their advisors (financial, accounting, and engineering professionals) should find this manual useful in preparing water rates that recover costs using generally accepted cost-based practices.

For purposes of this manual and for those who might benefit from its use, there is no reason to specifically define a small system in terms of connections or population. Rather than define a small system in either of these terms, and therefore restrict or limit the applicability of this manual, the characteristics of the systems to which this manual may apply are the primary consideration. For example, such factors include

- A lack of or limited customer or demand data
- A system that predominately serves only a single class of customers, e.g., residential accounts
- Limited system peak-day and peak-hour data
- Limited or nonexistent fixed-asset data

Regardless of size, water systems with these and other similar characteristics will likely benefit from this manual. So although this manual is generally written for systems

serving a limited population, any system having one or more of the characteristics listed above may also find it useful.

At the same time, this manual may not be applicable for many water systems. Systems with a rapidly growing or diverse customer base, those with a large industrial customer or customer base with significant outside city or wholesale service arrangements, or those with contracts requiring cost-of-service–based rates should refer to Manual M1 for guidance in financial planning, cost allocation methods, and rate design. Systems seeking to materially modify their rate design approach would also benefit from the information contained in Manual M1. In addition, Manual M29, *Water Utility Capital Financing*, should be reviewed as well when developing a financial plan.

UNDERLYING FINANCE AND RATEMAKING PRINCIPLES

The AWWA has established policies for finance, accounting, and rates. These AWWA policies provide direction to AWWA members and the volunteers that produced this manual. These policies are updated and generally available from AWWA. The policies included in the preparation of this manual were those revised by the Board of Directors on January 17, 2010.

The relevant AWWA policies for this manual include:

1. Water utilities' revenues from water service charges, user rates, and capital charges (e.g., impact fees and system development charges) should be sufficient to enable utilities to provide for:

    - Annual operation and maintenance expenses
    - Capital costs (e.g., debt service and other capital outlays)
    - Adequate working capital and required reserves

2. Water utilities should account for and maintain their funds in separate accounts from other governmental or owning entity operations. Water utility funds should not be diverted to uses unrelated to water utility services. Reasonable taxes, payments in lieu of taxes, and/or payments for services rendered to the water utility by a local government or other divisions of the owning entity may be included in the water utility's revenue requirements after taking into account the contribution for fire protection and other services furnished by the utility to the local government or to other divisions of the owning entity.
3. Water utilities should adopt a uniform system of accounts based on generally accepted accounting principles. Utility practices should generally follow the accounting procedures outlined in AWWA's accounting textbook, *Financial Management for Water Utilities: Principles of Finance, Accounting, and Management Controls.*
4. Modifications may be made to satisfy the financial and management control reporting needs of the utility and to meet the requirements of legislative, judicial, or regulatory bodies.
5. Water rate schedules should be designed to distribute the cost of water service equitably among each type and class of service. Rate-setting practices that are not based on cost of service may be appropriate in some situations, subject to legal review and approval, provided they reflect market conditions, the benefits received by the users of the service, and an appropriate balance of the goals and objectives essential to the public good. Any rate-setting practice not based on cost of service that is implemented by a utility should be fully disclosed to its customers, regulators, and the financial community. Such disclosure should identify each such rate-setting practice, its expected benefit, and its impact on the utility's customers.
6. Water utilities should maintain asset records that detail sufficient information to provide for the monitoring and management of the physical condition of infrastructure. These asset records should also support planned and preventive maintenance programs and budgets adequate to maintain the utility's assets at a level of service consistent with good utility practice. Utilities should annually provide comparative information to customers, the financial community, and

the general public about the utility's sustained capability to provide water service and generate revenue levels necessary to protect the financial investment of others in the utility. Such information could include historical expenditures for renewal and replacement during each of the past several years, as well as the revenues that would be generated under planned and adopted rates to support renewal and replacement during each of the next several years

OVERVIEW OF THE MANUAL

This manual contains five chapters and three appendices:

- Chapter 1: Basics of Water Ratemaking—presents an overview of the rate-setting process.
- Chapter 2: Customer Account and Usage Data—discusses the importance and use of system and customer account and usage data in the rates-setting process and begins a case study that presents this type of data for an example small utility.
- Chapter 3: Preparing a Financial Plan and Evaluating Revenue Sufficiency—discusses the types of costs often encountered in a small water utility, the establishment of reserves, and the process of developing a projection of costs and the compilation of a cash flow statement for use in projecting the need for future revenue adjustments. Continuing the case study, this chapter calculates revenues from current rates based on the customer and usage data contained in chapter 2. This chapter also discusses the process of determining revenue requirements and presents alternatives (as part of the case study) for increasing revenues, with consideration given to the use of reserves and the impact on customers.
- Chapter 4: Rate Design—discusses considerations and alternatives in the design of rates and illustrates a rate-design option based on the case study developed in the previous chapters.
- Chapter 5: The Rate Adoption Process—presents a variety of issues associated with the rate design process, including system development charges and funding of capital infrastructure, rates by customer class, affordability, public involvement, and the regulatory process for approval of rates (for investor-owned and some government-owned utilities).
- Appendix A: Alternative Cash Flow Plans—presents complete alternative cash flow plans.
- Appendix B: Examples of Financial Policies—presents various financial policies that utilities should consider.
- Appendix C: Frequently Used Financing Sources for Water Utilities—presents possible funding alternatives for small water utilities.

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Editorial Review Board Members

Daniel T. Bradley, Oak Lodge Water District, Portland, Ore.
Richard D. Giardina, Raftelis Financial Consultants Inc., Centennial, Colo.
Paul L. Matthews, Tualatin Valley Water District, Beaverton, Ore.
Margaret Medellin, American Water Works Association, Denver, Colo.
William B. Zieburtz Jr., Black & Veatch, Alpharetta, Ga.
Chris Gonzales, FCS Group, Redmond, Wash.

Contributors to the Second Edition

Joy M. Barrett, Rural Community Assistance Partnership, Boulder, Colo.
Richard Fedder, Woodard & Curran, Andover, Mass.
William L. Golightly Jr., Mount Pleasant Water Works, Mount Pleasant, S.C.
Brian Jewett, Black & Veatch, Temecula, Calif.
Shawn W. Koorn, HDR Engineering, Bellevue, Wash.
Daniel D. Lanning, 3rd Generation Engineering, Dallas, Texas
Bryan A. Mantz, Public Resources Management Group Inc., Maitland, Fla.
John M. Mastracchio, Red Oak Consulting, An ARCADIS Group, Clifton Park, N.Y.
Paul L. Matthews, Tualatin Valley Water District, Beaverton, Ore.
Lawrence A. McCartney, City of Burleson, Burleson, Texas
Kathryn Sorensen, City of Phoenix, Mesa, Ariz.
Ronald W. Thomas, City of Dahlonega, Dahlonega, Ga.
Alexis F. Warmath, Raftelis Financial Consultants Inc., Charlotte, N.C.
Christopher P. Woodcock, Woodcock & Associates Inc., Northborough, Mass.

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Chapter 1

Basics of Water Ratemaking

BASIC PREMISE

Water utility services are best provided by autonomous and financially independent utilities. Autonomous service means that the utility does not rely in any substantial way on outside agencies or entities for financial support. This also implies that the revenues collected by the utility are sufficient to operate and maintain the fixed assets as well as meet the ongoing operational needs of the utility over time while minimizing long-term financial costs for the users.

WATER UTILITY SERVICE

Although water itself, whether obtained from surface water or groundwater sources, is often free, the collection, treatment, and distribution of water to customers are not free. Services that are typically provided by water utilities include: water supply, storage, treatment, transmission, distribution, fire protection, metering, administration, billing, and customer service. The cost of each of these functions may be tracked in the utility's cost accounting system by various levels of detail. The cost of water utility service is typically expressed in annual operations and maintenance and annual capital costs.

FINANCIAL SELF SUFFICIENCY

The financing of water utilities in North America relies substantially on rates and fees charged to the utility's customers. Other sources of financing (e.g., property tax revenue,

support from the community's general governmental funds, federal and state grants) have become increasingly less common. Meeting the financial needs of the utility has become an important responsibility of the utility's management and policymakers.

THE FINANCIAL PLAN

A financial plan is (see chapter 3) used by a utility to ensure its long-term capital and operating needs are met by future water rates. Figure 1-1 presents a basic schematic of a financial plan. In addition to annual operation and maintenance costs the plan should also address the capital costs needs of the utility. For utility planning, a multiyear financial plan is recommended that determines the annual revenue needs to prudently fund the utility's operating and capital needs.

An engineering master plan is the ideal starting point for determining capital costs. An engineering study of the infrastructure needed to serve projected levels of water demand in the longer term provides such information. The next step is the development of a capital improvements program (CIP). A CIP is a systematic listing of needed improvements ordered by priority and year. It usually spans a minimum of five years but may be longer. Ongoing operational costs also need to be studied. These include treatment costs, staff, administration, ongoing maintenance, meter reading, billing, and so on.

COST-OF-SERVICE RATE STUDY

Figure 1-2 presents six commonly followed steps to conduct a cost-of-service rate study. These steps are more fully described in AWWA Manual M1. A brief description of the process follows.

The first step in developing cost-of-service rates is to determine the revenue requirements. The revenue requirements for most utilities are taken directly from the utility's financial plan discussed in later in chapter 3 of this manual. The rates calculated by the cost-of-service study are set to generate an amount of revenue equal to the revenue requirements.

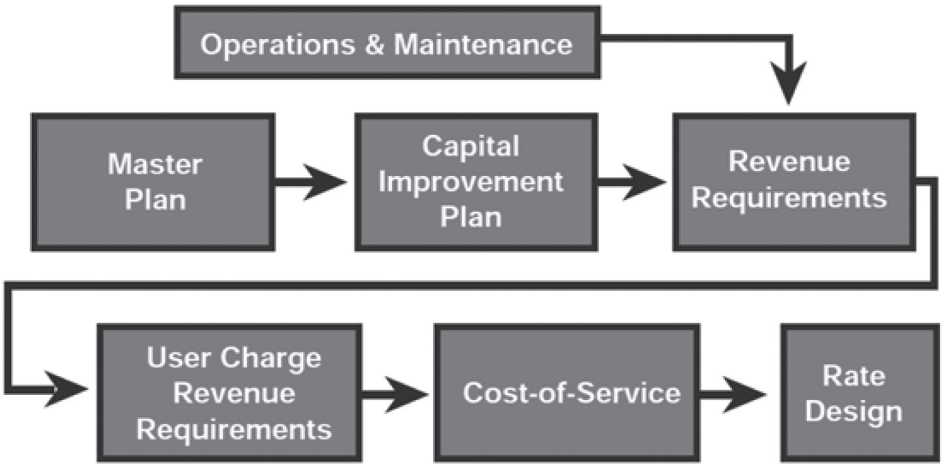

Figure 1-1 Schematic of a financial plan