Summer 6-23-2012

Rate-Setting Philosophies of Elected Officials and Funding Needs of Selected California Wastewater Districts

Jayne Strommer

Rate-setting philosophies of elected officials and funding needs of selected California wastewater districts

Submitted by

Jayne Strommer

June 23, 2012

EMPA 396

Graduate Research Project

Golden Gate University

San Francisco, California

Faculty Advisors

Dr. Joaquin Gonzalez and

Dr. Mick McGee

Abstract

This study surveyed wastewater utility elected officials from selected wastewater districts in California to examine their primary rate-setting philosophies and their utility's greatest unmet funding needs. Basic financial indicators, including operating ratio (OR) and net loss, were calculated for responding districts. Results showed that setting rates to recover costs was the primary rate-setting philosophy of the majority (59%) of elected officials, and renewing or replacing aging infrastructure was their utility's greatest unmet funding need (53%). During Fiscal Year 2009-2010, 60% of responding districts showed an OR less than 1.0, and 43% showed a net loss. There was no apparent relationship seen between rate-setting philosophy and a district's OR. Many responding districts balance the books, but do not cover the operating expense of capital asset depreciation in their user rates. Implementation of asset management plans, simplified financial reporting for the public, and increased ratepayer education are program recommendations for these districts to remain effective and financially sustainable.

Table of Contents

Chapter 1 - Introduction

Public wastewater utilities serve a vital role in public health and environmental protection by providing safe, effective wastewater collection and treatment for residents and businesses. Access to sanitation and clean water has significant positive impacts on quality of life and economic prosperity, (Green For All, 2011; Water Environment Federation, n.d.; World Health Organization, 2011), yet, performing this service comes at a cost. It requires a significant investment in infrastructure, which includes treatment facilities, pumping stations, and miles of underground conveyance pipelines.

Reports show that much of the water and wastewater infrastructure across the nation is in need of repair and replacement, resulting in an annual multi-billion dollar funding gap between utility needs and current infrastructure investment (American Society of Civil Engineers (ASCE), 2012; United States Environmental Protection Agency, 2008). Public water and wastewater systems are typical enterprise activities. As such, the costs to construct, operate and maintain public wastewater systems are borne by the residential and commercial users of those systems, and user rates or fees should be set to cover the cost of service (Bland, 2007). Yet, some studies in North Carolina, Georgia (University of North Carolina (UNC), 2008) and West Virginia (Klase, 1995) have shown that many utilities were not collecting enough operating revenue to cover operating expenses. A study by Thorsten, Eskaf, and Hughes (2009) revealed similar financial results, despite cost recovery being the highest rate-setting priority for the majority of the utility management surveyed.

This raises a number of questions: Are wastewater utilities in California showing similar results of not collecting enough revenue to cover expenses? What are the rate-setting philosophies of the wastewater utility elected officials who govern wastewater utilities? Are

there other significant unmet funding needs that these utilities are facing? This study examines financial cost recovery indicators for selected wastewater special districts in California, and surveys the utility elected officials to examine their rate-setting philosophies and funding needs. The results will be used to recommend policies or programs that will assist wastewater utilities as they strive to maintain financial viability and protect human health and the environment.

Regulatory Overview

Wastewater utilities serve the important role of public health and environmental protection, and are "some of the most heavily regulated services provided by local governments" (Hughes and Lawrence, 2007, p.3). Local governments now own and operate an estimated 16,000 wastewater treatment plants and 24,000 wastewater collection systems across the United States (U.S.) (Copeland, 2010). The development of community water and wastewater systems began in the late 1800's at many settled areas in U.S. (Baird, 2011; Hughes and Lawrence, 2007; Spacek and Matichich, 2002), including California (Hogan and Pinhey, 2012). In 1948, the Federal government enacted the Water Pollution Control Act (P.L. 845), which was significantly amended over time (United States Fish and Wildlife Service, n.d.). The State of California pioneered clean water legislation through the Porter-Cologne Water Quality Control Act of 1969 (California Environmental Protection Agency, 2009). The Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) resulted in the adoption of nationwide regulations that required wastewater facilities to obtain permits and treat wastewater to meet discharge standards. This legislation has become known as the Clean Water Act, and subsequent amendments have resulted in increasingly stringent wastewater discharge standards, often requiring wastewater treatment plant upgrades at significant cost.

Wastewater Infrastructure Needs and Funding

There is a large initial cost to construct wastewater facilities, and there are future costs for repair and replacement as the system ages. Establishing programs and setting aside funds to pay for future repair and replacement requires a long-term approach, as many pipelines can have a life expectancy of 50 years or more (Congressional Budget Office (CBO), 2002). However, there are numerous reports stating that much of the wastewater infrastructure at utilities across the United States is aging and deteriorating, and is in need of repair and replacement at significant cost (ASCE, 2012; CBO, 2002; Klase, 1995; Lang, Haskins, Hughes, and Tiger, 2011). The most recent needs survey by the United States Environmental Protection Agency (USEPA) reported nationwide capital funding needs for wastewater pipeline and treatment facilities of $187.9 billion over the next 20 years (USEPA, 2008). This dollar value refers to the capital costs of water quality related public health projects that, as of January 1, 2008, were unfunded.

As the most populous state in the nation, California also has some of the greatest infrastructure funding needs. In California, there are approximately 100,000 miles of sewers, and over 900 wastewater treatment plants that treat approximately four billion gallons per day of wastewater generated by citizens and businesses (ASCE, 2012). California reported the second highest wastewater treatment and pipeline funding needs in the nation of $24.2 billion over the next 20 years (USEPA, 2008). These costs reflect projects that are needed primarily to replace aging infrastructure or meet more stringent regulatory requirements.

These infrastructure conditions and funding needs also have been documented in the 2012 California Infrastructure Report Card by the ASCE. They reported that the San Francisco Bay Area received a wastewater infrastructure grade of C+ for 2011 (down from A- in 2005),

with an estimated $80 million per year funding need anticipated over the next several years (ASCE, 2012).

The majority of wastewater utilities are publicly owned and operated, unlike much of the power and telecommunication utilities. As such, public wastewater utilities are not allowed to profit, but are expected to operate as an enterprise, collecting sufficient revenue to cover their costs and setting aside reserve funds (Hughes and Lawrence, 2007). This is reflected in a report noting that the water and wastewater utility sector appears to have higher capital intensity than most sectors of the economy, including the electric and gas industry, telecommunications, and S&P 500 industrials (Olstein, Jennings, Geist, King, and Eisenhardt, 2009). "Yet, millions of Americans pay more each month for a cell phone, for cable television, for natural gas, and for electricity than they pay for water" (Glennon, Udall and Rogers, 2004, p. 337). The average monthly water bill in 2010 was $27.53 and the average wastewater bill in 2010 was $34.18 (Mehan, 2011). Water and wastewater customers in the U.S. pay the lowest percentage of their income for these services, when compared to other developed countries (Stallworth, 2003). While raising rates is considered a last resort, authors have cited these cost comparisons to show how undervalued clean water is in the U.S. (Glennon, et al, 2004; Westerhoff, Pomerance and Sklar, 2005). Regulators, trade organizations, research institutions, and others continue to advocate for wastewater utilities to adopt a business model of self-sufficiency with a pricing structure to fully recover costs (EPA, 2005; Mehan, 2011; UNC, 2008; Water Environment Federation (WEF), 2010).

The need for wastewater utilities to be self-sufficient has become evident as Federal funding has dramatically declined. In 1977, the Federal government provided over $14 billion in construction grants for wastewater facilities (USEPA, 2004). That amount has continually

decreased, with less than $2 billion in construction grants provided in 2000 (USEPA, 2004). In the 1990's, the federal government shifted from grants to a revolving loan program, but current budget issues are resulting in reductions to existing Federal loan programs (Copeland, 2010; Mehan, 2011). Most wastewater collection and treatment facilities are owned and operated by local government agencies, primarily municipalities and special districts. Ultimately, the residential and business users served by the local utilities are expected to provide the primary sources of funding for infrastructure improvement and replacement (Copeland, 2010; Hughes, 2005; USEPA, 2005; Westerhoff et al., 2005).

Typically, new infrastructure to serve new growth is funded through connection fees or may be financed through separate mechanisms. In contrast, day to day operations, including replacement and repair of existing infrastructure, are funded through user charges or taxes. Public wastewater utilities are governed by elected or appointed officials, who serve on public councils, boards, or commissions. Each utility is unique, and the specific funding needs vary by utility size, infrastructure age and type, customer base, financial policies, and many other factors. While enterprise activities should be self-supporting, there is research to show that many public water and wastewater utilities fail to collect sufficient revenue to cover their operating expenses (UNC, 2008), despite rate-setting objectives of the utility managers (Thorsten et al., 2009).

Even with increased cost control and efficiency implementation, it is likely that user rates will need to increase above the rate of inflation (Mehan, 2011; Olstein et al., 2009; Westerhoff et al., 2005) in order for wastewater utilities to remain effective and financially viable. Utility financial staff or consultants regularly monitor and prepare estimates of revenue and expenses. The rate setting process can be very complex, and involves various assumptions and forecasts (Forrer, Ehart, and Forrer, 2011). Regardless of the rigor applied to the rate setting process and

rate-setting objectives of utility managers, it is the utility elected or appointed officials who have the authority to vote for or against a proposed rate increase.

Factors Affecting Wastewater Rate Setting

While elected officials are expected to be concerned about the financial condition of their utility and to follow their financial policies (Kavanagh and Williams, 2004), they may also be concerned with potentially competing interests or political motivators, including public acceptance of rate increases, affordability for ratepayers, competitiveness or consistency with neighboring utilities, and re-electability. While some of these may be valid objectives, they may also be at odds with the need to set rates to recover utility costs and fund future infrastructure replacement (UNC, 2009). ASCE (2012) has stated that securing the political will to support increased wastewater rates to fund needed infrastructure improvements is one of the biggest challenges being faced by the industry.

Affordability for ratepayers is often cited as an important consideration for elected officials and utility managers (Baird, 2010; Kucera, 2001; UNC, 2008; WEF, 2005). Public pressure to keep rates low has been cited as a funding constraint for utilities (Dewees, 2002; Kucera, 2001; UNC, 2008). Thorsten et al. (2009) provided empirical evidence that utilities do consider the rates of neighboring facilities when setting their own rates, noting that this political competition or "regional benchmarking" may result in rates that are not adequate to meet the utility's needs (p. 237). This has also been mentioned anecdotally as a common utility practice by Forrer et al. (2011). There are also examples related to re-electability, and one wherein a large water rate increase caused community outrage, resulting in a successful recall campaign for those elected officials (Hall, 2009). Several studies cite this political unwillingness to raise rates and the resulting deferred maintenance as a reason for the current state of decaying infrastructure

(Glennon et al., 2004; Mehan, 2011; UNC, 2008). This creates the challenge for utilities of how to address potentially competing rate objectives, while seeking needed revenue to meet regulatory mandates and infrastructure needs.

While there are some studies and survey results of rate setting priorities for utility managers (Dziegielewski, Kiefer, and Bik, 2004; Lang et al., 2011; Thorsten et al., 2009), there are no known studies focused on the opinion and importance of these same issues for wastewater utility elected officials, who make the decisions for the utility. This study examines the rate-setting philosophy of elected officials from special districts in California, and uses simple indicators to assess financial cost recovery for their utility. The results will be used to recommend applicable policies or programs to assist wastewater utilities as they strive to meet funding needs to remain financially sustainable and protect human health and the environment.

Chapter 2 - Review of Literature

This literature review examines various papers, books, and reports from government agencies, utility trade organizations, academic institutions, and other researchers. It addresses the topics of the infrastructure funding gap, full-cost pricing and cost recovery, the rate-setting process and objectives, and political influence. While there are many sources that provide an estimate of the funding gap and describe the rate-setting process, there are very few empirical studies on rate-setting determinants, and no known studies on political influence or surveys of wastewater utility elected officials.

Funding Gap

There are a number of reports that provide an estimate of the water and wastewater infrastructure funding gap. In 2002, the Congressional Budget Office (CBO) prepared a report to address the estimated future costs for water and wastewater infrastructure (CBO, 2002).

According to their estimates, the annual costs for wastewater system infrastructure between years 2000 to 2019 would average between $13.0 billion and $20.9 billion. In addition, they estimated operation and maintenance costs for the same period at $20.3 to $25.2 billion annually. Every four years, USEPA conducts a survey to assess water, wastewater, and stormwater infrastructure funding needs. The latest USEPA report to Congress was published in 2008. It reported $187.9 billion in wastewater treatment, pipe repairs, and new pipe funding needs for a 20-year period. The needs represent the unfunded capital costs of projects as of January 1, 2008 (USEPA, 2008). As the USEPA has been conducting these surveys every four years since 1972, CBO used their data as a starting point, added assumed financing and interest rates, and made assumptions about replacement, which may explain why their annual estimates are higher.

Other organizations also conduct surveys to assess infrastructure condition and estimate funding needs. In 2012, the ASCE released their California infrastructure report card. ASCE (2012) reported an estimated capital expenditure need of $4.5 billion per year in California for the next ten years. ASCE also included capital funding needs by region, which range from $80 million per year for the San Francisco Bay Area to $560 million per year for Los Angeles County (ASCE, 2012). These are some of the most recent reports, but the funding gap is not a new issue. It has been called an "infrastructure crisis" by some (Klase, 1995; Pagano and Perry, 2008), and the American Water Works Association (2001) stated that utilities have entered the "dawn of the replacement era" (p. 5). These reports show a growing funding need for water and wastewater infrastructure improvements on both a regional level and nationwide level.

Full-Cost Pricing and Cost Recovery

With many reports and studies commenting on the aging condition of water and wastewater infrastructure, the funding gap, and declining Federal assistance, there appears to be

an increasing call for utilities to implement a sustainable pricing approach. USEPA (2005) developed four pillars of sustainable infrastructure, with one being full cost pricing. From an economic perspective, "full-cost refers to the complete societal costs (environmental, social, and actual) that stem from the production and consumption of a good or service" (Stallworth, 2003). Water Environment Federation (WEF), a not-for-profit technical and educational trade organization, published a position paper on an approach for financial sustainability of infrastructure that also advocates a full cost-of-service pricing system (WEF, 2010).

There are a number of other studies on water pricing and economic concepts addressing marginal cost. Renzetti (1999) conducted a study on pricing practices of utilities in Ontario, Canada, and found that customer charges were only one-sixth of the estimated marginal costs for wastewater treatment. Dewees (2002) recommended pricing services at marginal costs, and recommended consideration of externalities and opportunity costs. Externalities usually refers to a cost incurred by a party who was not part of the action causing the cost (such as the impact of pollution), while opportunity costs refers to the value of a scare resource – or the replacement cost using the next best alternative. Noting that this is an economic principle and not an accounting principle, marginal pricing cannot be easily calculated through utility financial data, and there is no generally accepted benchmark for it (Dewees, 2002; UNC, 2008). Dewees (2002) also noted that because marginal cost pricing is likely higher than what is currently being charged, implementing it may conflict with political imperatives.

In 2008, UNC published a paper on the state of full cost pricing among public water and wastewater utilities in the southeast. They sought to answer the question of whether water and wastewater utilities are charging enough to operate and maintain their systems, and commented that utilities had potential to cover infrastructure costs if full cost pricing principles were applied. In order to easily compare utilities and relate financial results to full cost pricing, they compared

several financial indicators for approximately 900 utilities in North Carolina and Georgia. One basic indicator was Operating Ratio (OR), which is a calculation of operating revenues divided by operating expenses. An OR less than 1.0 shows that the utility is not collecting enough operating revenue to cover operating expenses. They found that one-half to two-thirds of utilities were not exhibiting full cost pricing (UNC, 2008) based on the use of this indicator. They also noted that a utility that employs full cost pricing will have an OR less than 1.0, and they recommended a ratio of at least 1.2 as a benchmark (UNC, 2008).

It has been noted in the literature that full cost pricing is not a simple concept, and that it means much more than balancing the books (UNC, 2008). Applying the principle of full cost pricing requires the need for long-term planning and decisions, which utilities can achieve through development and implementation of asset management plans and multi-year capital improvement programs. Based on UNC studies, it appears that many utilities studied were focused on short-term financial decisions to meet cost-of-service levels or balance budgets. UNC (2009) provided a State legislature definition of full cost pricing, which meant "recovering all daily operating expenses, maintenance costs, principal and interest payments on indebtedness, or building up reserves in advance of applying for loans and grants for capital improvements" (p. 3). UNC (2009) also considered this a "bare bones" definition of full cost pricing because it didn't include future capital replacement costs. Mantz and Ori (2011) stated that at a minimum, the services that need to be funded through rates include operation and maintenance expenses; debt service; repair and replacement; and reserves to cover emergencies and rate stabilization.

Many full cost pricing definitions in the literature are vague, imploring utilities to adopt a self-sufficient business model to ensure resource and financial sustainability (Mehan, 2011). In

2006, the USEPA conducted an expert workshop to explore "full cost pricing", and agreed to the following definition:

> "Full cost pricing is a pricing structure for drinking water and wastewater service which fully recovers the cost of providing that service in an economically efficient, environmentally sound, and socially acceptable manner, and which promotes efficient water use by customers" (USEPA, 2007, p. 5).

While each utility's funding needs are unique, these broad definitions highlight the challenge for utilities to apply full cost pricing principles in order to assess their long-term funding needs, and set an appropriate rate structure to ensure financial sustainability. Determining if utilities have achieved full cost pricing may be difficult, because financial needs will vary from one utility to the next, depending upon their replacement value of assets and budgeting for capital expenses or other external costs (UNC, 2008). For this reason, it is easier to gauge when a wastewater utility is not achieving full cost pricing or cost recovery, as demonstrated by some financial indicators such as the OR.

Financial Performance

A few studies were found that examined the financial performance of water and wastewater utilities. Klase (1995) reported on the financial condition of small rural water and wastewater utilities in West Virginia by assessing various financial indicators, including OR, current ratio, and debt service coverage. Klase (1995) reported that utilities showed adequate to poor financial performance, and indications of fiscal stress (Klase, 1995). However, financial data and indicators were presented as overall means for the 100 water and wastewater utilities assessed, thus limiting the ability of the reader to determine the number of utilities showing poor financial condition and the extent of that condition.

Hassanein and Khalifa (2007) analyzed various indicators for 234 public and private water and wastewater utilities from various industrialized and developing countries in order to assess their financial and operational performance. They used this information to compare performance between public and private utilities, and between different countries. They note that a challenge for water and wastewater utilities is a lack of performance assessment tools (Hassanein and Khalifa, 2007).

Government agencies must provide accountability, and "assessing financial condition is an essential element for maintaining a system of accountability" (Pridgen, 2008, p. 1). There are many books and reports written on evaluating financial condition. One designed to assist local governments was published by the International City/County Management Association, and it provides instructions on over 30 different financial indicators (Groves and Valente, 2003). Other guides and articles have been written describing how to combine various indicators to determine local government financial condition (Brown, 1993; State of New York, n.d.), or to predict fiscal distress (Trussel and Patrick, 2009). While State and local governments may not necessarily report their financial or operational results using these indicators, they do annually report their fiscal year financial information in their Comprehensive Annual Financial Report (CAFR), in accordance with generally accepted accounting principles established by the Governmental Accounting Standards Board (GASB) (GASB, 2012). The intent of these reports, standards, and the development of numerous financial indicators is to improve accountability, comparability, and management; yet analyzing and interpreting these reports and results can be complex, and still requires a significant level of financial understanding and interpretation.

Rate Setting Objectives and Political Influence

Considering that the user is expected to pay for their water and wastewater service, and that many utilities are not collecting enough operating revenue to cover operating costs, the question arises about how utilities determine user charges and establish their rate structures. There are numerous books, manuals, and publications on water and wastewater utility rate setting. WEF is one professional trade organization that leads in this effort, and has developed a manual of practice called Financing and charges for wastewater systems (WEF, 2005). This book provides significant information to guide wastewater utility managers as they assess their customer base, estimate revenue requirements, and allocate costs.

Many utilities will hire financial consultants to perform rates studies to help determine the appropriate rate charged for services (Gianakis and Wang, 2003). Yet despite the availability of professional resources, rate setting still involves future estimates and assumptions. Forrer et al. (2011) published a case study that described the process of water and wastewater rate setting for Cape Coral, Florida. They described a previous study that had overestimated revenues, resulting in overspending by the utility. This triggered citizen mistrust and unwillingness by the council to vote on rate increases until additional audits were performed. These researchers addressed guidelines for rate studies and the need for good data in order to provide defensible revenue forecasts. They note that while rate studies can be very technically complex, "a successful rate model must meet requirements of the political, financial, environmental, and strategic plan for the municipality it supports" (Forrer et al., 2011, p. 38).

There are a number of studies and reports which identify various rate-setting objectives for utilities. While cost recovery is a primary objective, it is common for utilities to consider multiple, competing criteria and objectives (Teodoro, 2002). Potential objectives besides cost

recovery can include revenue stability, rate-payer equity, ease of implementation and understanding, conservation, and affordability (Forrer et al., 2011; Gianakis and Wang, 2003; Hoover and Raftelis, 2005; Kucera, 2001; Teodoro, 2002). The utility determines their rate-setting objectives, and these may vary from one utility to another depending on their needs and characteristics. As some of these rate-setting objectives can conflict (Berahzer, Eskaf, and Hughes, 2011; UNC, 2009), it is necessary for the utility management and their elected officials to agree on their priority objectives.

WEF (2005) stated that affordability for customers can be a key rate-setting consideration for elected officials and utility managers. Rate affordability is commonly cited as a concern (Kucera, 2001), although affordability is seldom defined and lacks a consistent benchmark. Typical affordability benchmarks include rates that are in excess of 1.5% to 2.5% of median household income (Baird, 2010; Hoover and Raftelis, 2005). Often, these benchmarks are used by state or federal agencies to determine disadvantaged community eligibility for certain grants or conditions for loan programs (State Water Resources Control Board, 2011).

A report of water ratemaking practices for Illinois water utilities included a survey on rate-setting objectives. Objectives included in their survey were recovery of costs, funding for future capital improvements, affordability for low income customers, simplicity, revenue stability, and incentives for economic development (Dziegielewski et al., 2004). They asked respondents to rate the relative importance of these criteria. The cost recovery criteria received the highest importance ratings, followed by funding for capital improvements, revenue stability, incentives, affordability, political feasibility, and simplicity (Dziegielewski et al., 2004). While 33% of utility respondents reported no political influence in the rate design, four percent cited political acceptability of rates as the sole rate-setting objective, 17% reported a high level of

political influence, and 25% reported a moderate level of political influence in the rate design (Dziegielewski et al., 2004).

There are few published empirical studies which examine the true determinants of rates or the impact of political decisions on utility financial sustainability. Thorsten et al. (2009) published a study estimating the real determinants of water and wastewater bills. Through surveys and development of differential price models, these authors analyzed the impact of multiple variables on residential utility bills. Their study confirmed that cost drivers such as long-term debt, purchased water, and treatment needs positively impacted the wastewater and water bills. This is not a surprise, considering that debt, purchased water, and treatment are typical costs that should be recovered through rates. Thorsten et al. (2009) also showed that utilities that placed a higher priority on affordability than cost recovery tended to have lower bills than other utilities. One finding of note is that while cost recovery was considered the most important rate-setting objective by 77.4% of utility managers, a majority of these utilities failed to recover operating costs (had ORs less than 1.0). This highlights the need to understand if the elected officials who adopt the rates place higher importance on other rate-setting objectives, or whether multiple and complicated objectives may impact the utility's financial sustainability.

ASCE (2012) lists political willingness to raise rates as a significant challenge for meeting current funding needs. Rate setting and water and wastewater pricing has been described as a bargaining process that involves both political and economic influences (Mann, 1973). Gianakis and Wang (2003) state that "rate design is at least partly a political process" (p. 256). Public pressure to reduce taxes or political unwillingness to raise rates is often cited as a utility funding constraint (Dewees, 2002; Glennon et al., 2004; Mehan, 2011; UNC, 2008). The USEPA has stated that elected officials are reluctant to increase user charges, but that the public

is willing to pay a fair price for something it values (USEPA, 1999). In California, ballot initiatives such as Proposition 13 and Proposition 218 have resulted in constitutional changes aimed at increasing voter rights and limiting the ability of local governments to increase taxes and fees (Howard Jarvis Taxpayers Association, 2006). While this doesn't prevent needed wastewater rate increases that comply with notification procedures and do not receive a majority of voters protesting, it certainly highlights a public desire to limit increases.

Elected officials of wastewater utilities are in a position to both represent public interests to the utility, and advocate for utility positions to the public. However, there are few studies on the extent of political influence in the rate setting process. Are elected officials hesitant to raise rates because they place greater importance on political factors or economic incentives than utility financial factors? While it is expected that elected officials and utility management communicate on these issues, there are no known studies of rate-setting priorities for wastewater utility elected officials. This research study assesses the primary rate-setting philosophy for wastewater utility elected officials from selected special districts in California, and reviews basic financial indicators from utilities to determine if they are not demonstrating cost recovery.

Chapter 3 - Methodology

Overview and Research Questions

Previous studies have shown that many wastewater utilities do not achieve full cost pricing or cost recovery, as evidenced by not collecting enough operating revenue to cover operating expenses (Klase, 1995; Thorsten et al., 2009; UNC, 2008). In addition, there is a significant funding gap between utility needs and current infrastructure investment (ASCE, 2012; CBO, 2002; USEPA, 2008). While there are some studies of rate-setting priorities for utility

management, there are no known studies which survey the elected or appointed officials who govern wastewater utilities.

This study employed a descriptive survey research method to examine the rate-setting philosophies of elected officials from selected California special districts who are responsible for wastewater conveyance and/or treatment facilities. This method was selected in order to learn about the larger wastewater district elected official population by surveying a sample of the population. The purpose of this study is to determine the rate-setting philosophies of elected officials and their funding needs, and to compare these responses with financial indicators for the districts they represent. If results show a relationship between a particular rate-setting philosophy and the financial indicators, then it may be appropriate to highlight the value of a particular philosophy, or recommend specific policies or programs that will improve wastewater utility financial viability.

The research questions that guided this study are: 1) How many of the California special districts surveyed are not demonstrating cost recovery based on an operating ratio less than 1.0? 2) What unmet funding needs do elected officials identify for their utility? Answers to these questions will allow comparison with other studies to determine if California wastewater districts are experiencing similar conditions and concerns. If issues are identified, then awareness of these issues may allow utilities to focus on potential solutions.

The hypothesis is that special districts whose elected officials select "setting rates to recover costs" as their primary rate-setting philosophy are more likely to have an operating ratio greater than 1.0. Some rate-setting philosophies emphasize financial performance factors for a utility (i.e., cost recovery), whereas other philosophies are more closely related to political or economic factors (i.e., affordability, benchmarking with other utilities, or incentives). It is

therefore assumed that an OR greater than1.0 is more likely to be observed for districts whose elected officials select cost recovery as their primary rate-setting philosophy.

Definitions and Data Collection

Primary data were collected from wastewater utility elected or appointed officials through a survey instrument to assess their opinions and perceptions (see Appendix A). These responses were compared with financial indicators calculated from special district financial information, and with district characteristics such as size and annual residential user rates, also called sewer service charges.

The California State Controller Office provides the following definition of special districts:

> "Special districts are defined as legally-constituted governmental entities that are not cities, counties, redevelopment agencies, or school districts. Pursuant to Government Code section 12463.1, special districts include joint powers agencies (JPAs) formed under Government Code section 6500, as well as certain nonprofit corporations." (California State Controller, 2011, p. iii)

The sample of special districts invited to participate in this survey included 78 special districts listed in the 2012 membership directory of the California Association of Sanitation Agencies (CASA, 2012). This was a convenience sampling approach intended to maximize participation by these districts. This sample of special districts also are included in Table 7 of the Special districts annual report for fiscal year 2009-2010 (California State Controller, 2011b), which summarizes their revenue and expenses.

Operating ratio is defined as the total operating revenue divided by the total operating expenses for a specified fiscal year. For the purposes of this study, an OR less than 1.0 indicates

that a special district is not demonstrating cost recovery, as it shows less operating revenue than operating expenses.

The survey (Appendix A) was sent out by email on May 15, 2012 to the selected 78 general managers or district staff contacts provided in the CASA 2012 membership directory. These staffs were asked to forward the survey to their board members and ask for their participation by June 4, 2012. The survey could be completed on paper or through an on-line survey tool. The survey did not ask for board member names, but in order to compare responses with utility financial information, the name of the special district was requested.

The financial information used to calculate the ORs for evaluation of the hypothesis was obtained from the Special district annual report for fiscal year 2009-2010 (California State Controller, 2011b). This report is compiled annually by the California State Controller's Office, and is available on their website, along with annual reports dating back to fiscal year 1998-1999. Additional financial data included in this study were extracted from the Special district annual reports for fiscal years 2005-2006 through 2008-2009 (California State Controller, 2008a; California State Controller 2008b; California State Controller 2009; California State Controller 2011a). Data on the characteristics of the responding districts, such as population served, county location, wastewater facilities, user rates, and average dry weather flow were obtained from the State Water Resources Control Board (2008) Wastewater user charge survey report for fiscal year 2007-2008.

Data Analysis

The survey included questions based on Likert scales, or priority selection from a list of items. Survey responses were analyzed by calculating percentages and presented in charts and

tables. Narrative responses to open-ended questions were compiled and summarized in the results and findings.

Financial indicators were calculated as ratios from data presented in the fiscal year reports from the California State Controller's Office. The OR was calculated for each special district by dividing the total operating revenue by the total operating expenses for that fiscal year. The revenue to expense ratio was calculated by dividing the total revenue (sum of operating and non-operating revenue) by the total expenses (sum of the operating and non-operating expenses). The OR and total revenue to expense ratio were also calculated with depreciation subtracted from the operating expense.

Testing the hypothesis involved comparing the rate-setting philosophy responses from survey question two with that special district's OR. This was done for those elected officials who selected "setting rates to recover costs" as their primary rate-setting philosophy, and also selected "agree" or "strongly agree" to question four, which states "my wastewater utility implements my rate-setting philosophy."

Threats to Validity

Literature has shown that rate-setting is a complex process, which may involve compromise in order to address multiple objectives. Elected officials have authority to approve or deny proposed rate increases, but there may be other factors that negatively impact the OR in a fiscal year. Common issues may include an unanticipated decline in revenue or increase in expenses.

Operating revenue impacts.

The economic recession may have had negative impacts to utility revenue, which could cause an OR less than 1.0. For many utilities, revenue from new growth has declined. This revenue source is typically collected through connection or impact fees, and is used to fund new

capital expansion projects. Expansion is not the focus of this study, but revenue from connection fees may be reported in the State Controller Office annual reports in the operating revenue category contrary to how it is reported in financial statements. There may also be impacts to revenue depending on how user rates are calculated. Wastewater districts whose residential user rates are based heavily on the metered volume of potable water used may see reduced revenue if consumers have focused on water conservation efforts, or if high water-using commercial facilities have closed down or cut production. In this situation, special districts that collect user rates through property tax rolls (versus billing based on water use) are less likely to experience significant residential rate loss than districts that bill based on volume of water used.

To address this potential revenue instability, additional data were gathered on the special district rate structure, reporting of connection fee revenue, and prior year ORs. If a district uses a connection fee to generate revenue for new capital expansion projects, then any multi-year decline in this revenue source due to poor economic conditions should be accompanied by the district response of deferring future construction for these expansion projects until housing and business starts pick up and they are needed and funded. This adjustment by the special district should result in reduced expenses, thus helping to balance their revenues and expenses and prevent multi-year results of OR less than 1.0. Therefore, a better picture of a district demonstrating cost recovery can be seen by calculating OR over multiple years. For this study, ORs also were calculated for prior fiscal years for participating districts, in order to assess whether the FY 2009-2010 data represented a one-time incident or a trend. If this pattern is repeated year after year, it signals an internal financial issue within the district versus a short-term unexpected revenue or budget issue. Similarly, special districts who want to achieve cost recovery should set rates at a level that allows a portion of the user rate to be deposited into a

reserve fund that can be drawn on to help achieve revenue stability during unstable economic conditions. Because some special districts experiencing short-term revenue shortfalls may be drawing from reserves or supplementing with non-operating revenue, the net income (or loss) was also reported for each special district in this study.

Operating expense impacts.

A special district may also experience unanticipated expenses. In most cases, special districts will closely monitor expenses during the year to remain within or under budget. Typical large budget items include chemicals, fuel, and personnel costs. There have been increases in these cost categories, yet some increases can be controlled or anticipated through procurement or labor contracts. The most likely unanticipated expense is an emergency repair. Similar to a reserve fund for revenue stability, special districts emphasizing cost recovery should set rates to allow a portion to be deposited into a reserve fund that can be drawn on for emergencies. As with revenue impacts discussed above, these agencies may occasionally show an OR less than 1.0, but this would be an unlikely trend for them. Therefore, a review of the OR over multiple fiscal years will show which special districts are experiencing one-time issues, and which are showing trends that may negatively impact their financial sustainability.

Sample selection limitation.

The survey has been limited to special districts that are included in the 2012 CASA membership directory. While this convenience sampling approach impacts validity to some extent, it was intended to help maximize the response rate by special districts. It is very difficult to access elected officials from special districts and to obtain their participation in a survey. This approach was intended to improve survey response, as the email request sent to CASA member agency general managers was sent from a general manager who serves as the current CASA

president. The study also was limited to wastewater utility special districts in order to provide a consistent and simplified approach for gathering wastewater enterprise fund data.

Another limitation is related to the number of elected officials responding from a special district. While the majority of special districts have five members on their governing boards or commissions, the number may vary from three to 10 or more. There may only be one board member responding to the survey from a special district, so their opinion may not reflect the majority opinion of board members. This limitation is noted, and was generally addressed by including a question which asks them to rate their agreement/disagreement with the statement "my wastewater utility implements my rate setting philosophy." While this is their perception, it is assumed in this study to represent the philosophy of their district.

As with any survey, there is the potential for bias in the responses. A more robust survey question may have requested the elected officials to rank their priority of several typical rate setting objectives. This type of question was piloted with an elected official and general manager, and both indicated that they thought that elected officials would be unlikely to answer the question as written. Therefore, the question was revised to ask elected officials to select their primary rate-setting philosophy from a list. This may result in more officials selecting a response that they feel is the "correct" answer, and limits the ability to identify secondary or potentially competing philosophies or objectives.

Chapter 4 - Results and Findings

Data were collected and analyzed to better understand the rate-setting philosophies of special district elected officials, as well as their perception of their utility's greatest unmet funding need. Primary data were obtained using a survey questionnaire distributed to district staffs with a request to solicit the participation of their board members. Financial indicators were

calculated from revenue and expense data provided in special district annual reports compiled by the California State Controller Office.

The hypothesis for this study is as follows: Special districts whose elected officials select "setting rates to recover costs" as their primary rate-setting philosophy, are more likely to have an operating ratio greater than 1.0. Additional research questions include: 1) How many of the California special districts surveyed are not demonstrating cost recovery based on an operating ratio less than 1.0? 2) What unmet funding needs do elected officials identify for their utility?

Characteristics of respondents

Survey responses were received from 46 elected officials representing 30 special districts, which equates to 38% of the districts selected to participate. Response from 46 elected officials amounts to 31% of the officials from responding districts, and approximately 11% of the total number of elected officials governing the 78 special districts invited to participate in the survey.

The 30 special districts responding were located in 11 counties in the State of California, with the majority located in Contra Costa, Marin, Alameda, and San Mateo counties (Table 1).

Table 1.

Responding Special Districts by County

County	Number of Special Districts Responding	Percent of Districts Responding
Alameda	5	17
Contra Costa	6	20
El Dorado	2	7
Marin	6	20
Napa	1	3
Riverside	1	3
San Bernadino	1	3
San Diego	2	7
San Mateo	4	13
Santa Barbara	1	3
Solano	1	3
	30	100

These special districts are responsible for a variety of wastewater services, depending upon the facilities they own and operate and the agreements they have with other agencies. Table 2 shows that 57% of the responding districts are responsible for both wastewater collection and treatment facilities.

Table 2.

Responding Special Districts by Wastewater Facilities Owned

Facilities	Number of District	Percent of Districts
Collection Only	8	27
Treatment Only	4	13
Outfall Only	1	3
Collection & Treatment	17	57
	30	100

Source: Facility information obtained from State Water Resources Control Board (2008).

The responding special districts also vary in size, serving populations that range from less than 1,000 to over 500,000 (Table 3).

Table 3.

Responding Special Districts by Population Served

Size of population served	Number of districts	Percent of Districts
Under 1,000	1	3
1,000 to 9,999	6	20
10,000 - 49,999	7	23
50,000 - 99,999	5	17
100,000 - 499,999	10	33
Over 500,000	1	3
	30	100

Source: Population category obtained from State Water Resources Control Board (2008).

Survey Results

The majority (59%) of elected officials responding selected "setting rates to recover costs" as their primary rate-setting philosophy (Figure 1). The results from the responding

elected officials are consistent with other surveys of management from water and wastewater utilities, wherein the majority selected recovery of costs as their primary rate-setting objective (Dziegielewski et al., 2004; Lang et al., 2011; Thorsten et al., 2009). Of the 17% of elected officials who selected "other", 13% of these selected a combination of objectives which included "setting rates to recover costs". While management staffs were not surveyed for this study, these results suggest that the majority of elected officials and management have consistent primary rate-setting philosophies or objectives.

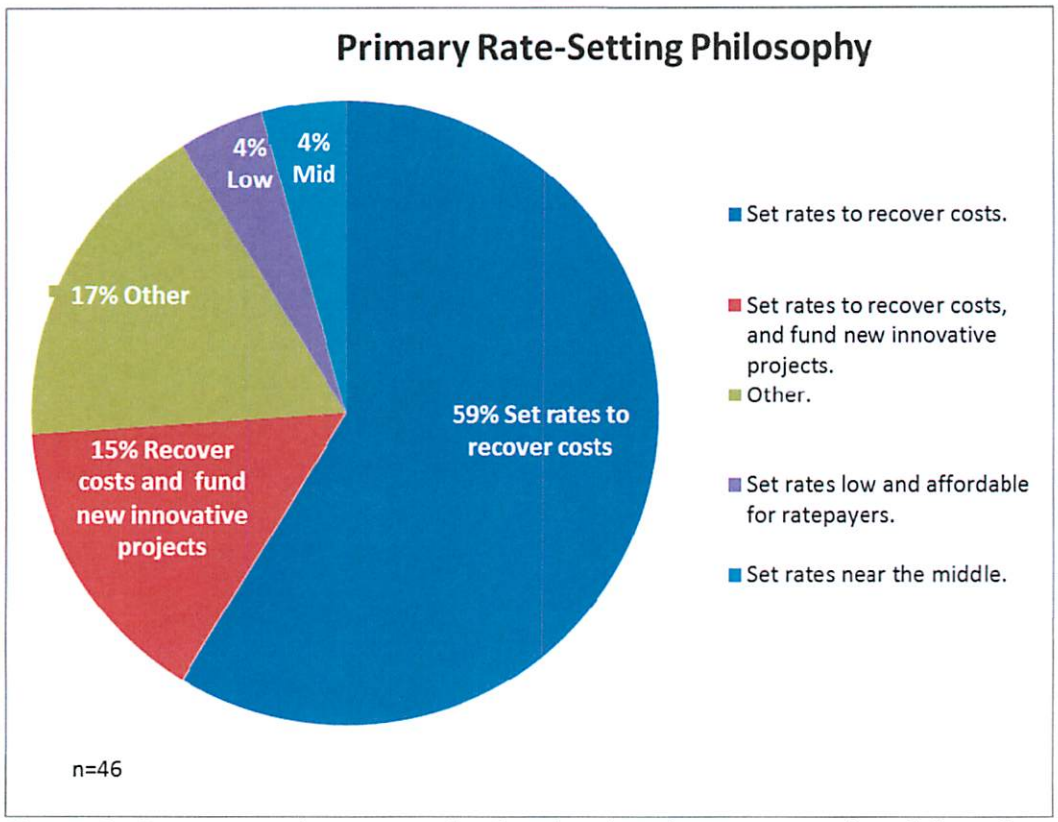

Figure 1. Survey question two results showing the primary rate-setting philosophy of elected official survey respondents.

Question three of the survey asks the elected official if their rate-setting philosophy has changed significantly in the past four years, or since they have been in office if less than that. The results are shown in Figure 2, with 85% of elected officials answering "no".

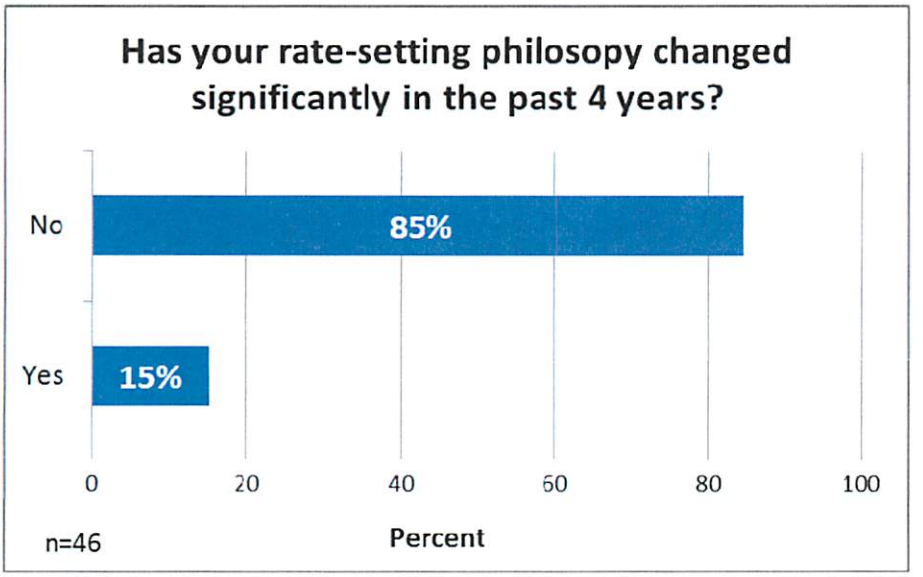

Figure 2. Question three survey response regarding a change in rate-setting philosophy.

The following is a list of the responses provided by those elected officials who selected "yes" to question three, to explain why they had changed their primary rate-setting philosophy.

- "Will have to do more capital improvements than previously required."
- "More attuned to the need to fund future needs (thinking ahead)."
- "Need to maintain adequate reserves."
- "We had consultants perform studies to establish justifiable rates that include a level of capital expenditures."
- "My emphasis on low rates has diminished. Sustainable rates are much more important. I also believe gradual CPI-like rate increases are better than holding rates steady for long periods of time then having large increases."
- "We had a lot of catch up to do…rates were not changed for many years. Now we plan to keep up with the costs and not have to do catch up."
- "I used to think keeping rates as low as I could was in the best interest of the

ratepayers, but I have come to realize that that might mean deferring badly needed maintenance."

What is telling about these responses is that all of the elected officials who reported a significant change to their rate-setting philosophy selected either "setting rates to recover costs" as their current philosophy, or added on to this philosophy by specifying the need to set rates to fund replacement of sewer lines, treatment plant upgrades, and capital projects. Although the survey does not identify what the respondent's prior primary rate-setting philosophy had been, these responses reflect a relatively recent concern or recognition of a need to set rates at a level adequate to fund capital improvements, maintain reserves, conduct repair and replacement, and consider future needs.

Survey question four asks the respondent to rate their agreement/disagreement with the following statement: "My wastewater utility implements my rate-setting philosophy." Figure 3 shows that 76% of respondents agree or strongly agree that their rate-setting philosophy is implemented at their wastewater utility. While 13% neither agreed nor disagreed, only 11% disagreed or strongly disagreed.

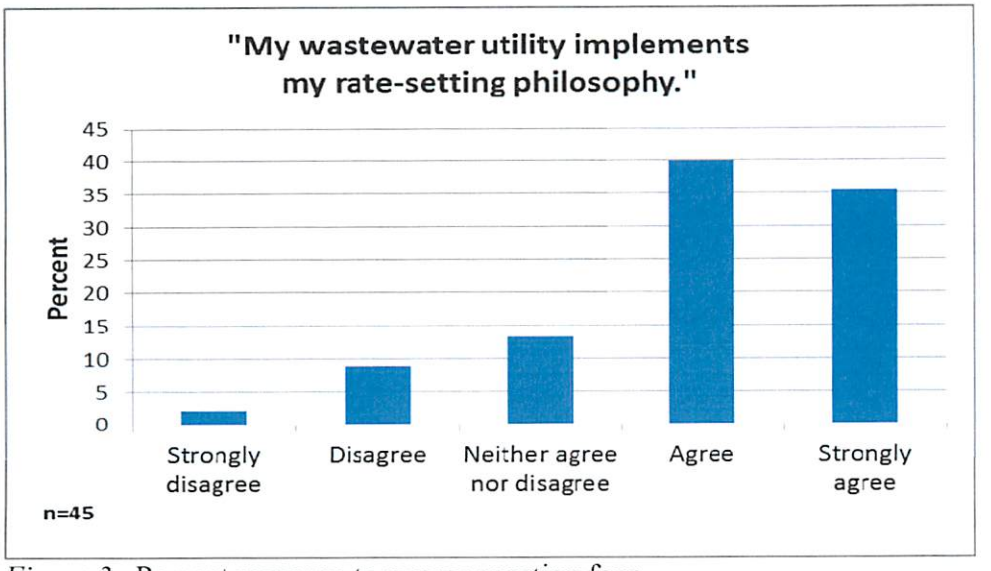

Figure 3. Percent response to survey question four.

Survey question five asks the elected official to identify their utility's greatest unmet funding need. Fifty-three percent of respondents identified "replacing or renewing aging infrastructure" as their utility's greatest unmet funding need (Figure 4).

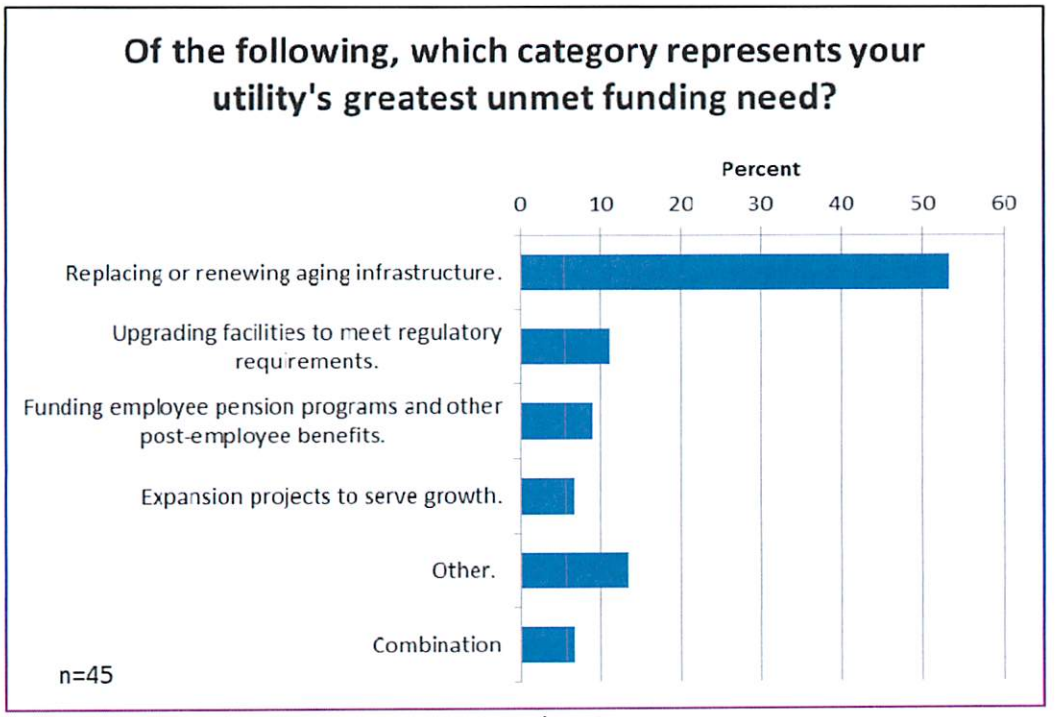

Figure 4. Percent response to survey question 5.

The category "upgrading facilities to meet regulatory requirements" was identified as the greatest unmet funding need by 11% of respondents. These results are consistent with the USEPA needs survey and other surveys which have identified the significant funding gap for infrastructure replacement and treatment upgrades. Of the 13% of respondents selecting "other", a few identified a combination of needs, and others commented that they were currently meeting all of their utility's funding needs. These comments are provided below:

- "Tie between aging infrastructure and pensions."
- "Combination of aging infrastructure and upgrading facilities."

- "We are adequately funded. Laterals are the unmet problem."
- "Funding employee pension program and current benefits."
- "Debt reserves. Historically, all debt was paid from connection fees. As our utility ages, we are shifting some debt burden to ratepayers."
- "Funding to replace aging infrastructure was the greatest unmet funding need until a few years ago."
- "We are currently funding all existing needs. Sewer line replacements and improvements required to meet regulatory requirements may cause greater funding needs."
- "We are currently meeting all of our necessary funding needs."

Also of note with these results is that only about 10% of respondents selected "funding employee pension programs and other post employee benefits" as their greatest unmet funding need. This is surprising in light of the common news media stories and reports over the past year that make statements such as "the pension crisis is the number one budgetary problem for cities, counties and states across the country" (Taxpayers United of America, 2012). It may be that special districts with their enterprise funds are less impacted by the economic recession than local governments relying on general funds, and this may be a factor for why personnel costs have been less of an issue for them than for other government operations. Some districts may have implemented changes to employee pension programs to address their issues, or employee pensions may present a smaller need than the infrastructure funding need.

Research Hypothesis

The hypothesis is that special districts whose elected officials select "setting rates to recover costs" as their primary rate-setting philosophy, are more likely to have an operating ratio

greater than 1.0. For this test, the special district's OR was calculated for those respondents who selected "cost recovery" as their primary rate-setting philosophy, and also selected "agree" or "strongly agree" to question 4, which states "my wastewater utility implements my rate-setting philosophy."

There were 23 elected officials whose responses fit the hypothesis criteria. These officials represented 19 special districts. The duplicate district responses were removed to tally the number of districts with an OR greater than 1.0 and the number of districts with an OR less than 1.0. The results are summarized in Table 4. These results show that the hypothesis was not supported, as there were a greater number of districts with an operating ratio less than 1.0, despite the elected official(s) selecting cost recovery as their primary rate-setting philosophy and stating that their utility implements their rate-setting philosophy.

Table 4.

Hypothesis comparison of the number of districts with an Operating Ratio (OR) <1.0 and >1.0 for elected officials who selected "setting rates to recover costs" as their primary rate-setting philosophy, and selected "agreed" or "strongly agreed" with the statement "my wastewater utility implements my rate setting philosophy."

Special District ID	OR <1.0	Special District ID	OR >1.0
15	0.13	25	1.00
11	0.45	4	1.07
7	0.69	5	1.11
6	0.69	16	1.27
9	0.77	29	1.33
14	0.83	23	1.33
12	0.86	8	1.34
28	0.90		
26	0.91	7 Districts with OR >1.0	
2	0.91		
27	0.96		
19	0.96		
12 Districts with OR <1.0			

Source: OR data calculated from Table 7 of California State Controller Office (2011b). Survey responses collected during May 15 through June 4, 2012.

In order to determine if there were any other relationships between the rate-setting philosophy and that district's OR, other combinations of responses were analyzed. There were only two respondents who selected "setting rates low and affordable for ratepayers" and agreed that their philosophy was implemented. Yet of these two responses, one represented a district with an OR less than 1.0 (0.53), and the other represented a district with an OR greater than 1.0 (1.02). The sample size was small, but there was no apparent relationship between a specific rate-setting philosophy and the district's OR in this study.

Analysis of Financial Indicators

The FY 2009-2010 ORs were calculated for the responding districts using the data in Table 7 of the Special district annual report prepared by the California State Controller Office (2011b). Based on these data, 60% of the responding utilities had an OR less than 1.0, showing that they are not collecting sufficient operating revenue to cover operating expense (see Appendix B). This answers the research question regarding how many of the California special districts surveyed were not demonstrating cost recovery based on an OR less than 1.0. This high percentage is similar to results obtained in the North Carolina and Georgia water and wastewater utility surveys (UNC, 2008).

In order to assess if these results represent a one-time event, or were impacted by the great recession which began in December 2007 (Isadore, 2008), the ORs were calculated for each previous fiscal year going back to fiscal year 2005-2006. These results showed that even in fiscal year 2005-2006, over 55% of surveyed districts had an OR less than 1.0, and this number increased to fiscal year 2008-2009 (Figure 5).

Table 7 of the State Controller Office annual reports shows that many special districts collect significant non-operating revenue, which may include interest income, taxes and

assessments, and intergovernmental revenue. The effective utility management primer by WaterEUM (2008) recommends use of total revenue to expense as a short-term financial sustainability indicator. In order to take this revenue into account, as well as any non-operating expenses, the total revenue to expense ratio was calculated (operating + non-operating revenue/operating + non-operating expenses). While this indicator is not exclusive to operating revenue and operating expense, it shows if the utility is experiencing a net loss or gain for that fiscal year. The percent of responding special districts with a net loss by fiscal year is shown in Figure 5.

Groves and Valente (2003) recommend that enterprise fund programs use an operating revenue indicator, which is the operating ratio excluding depreciation. These results are also shown in Figure 5.

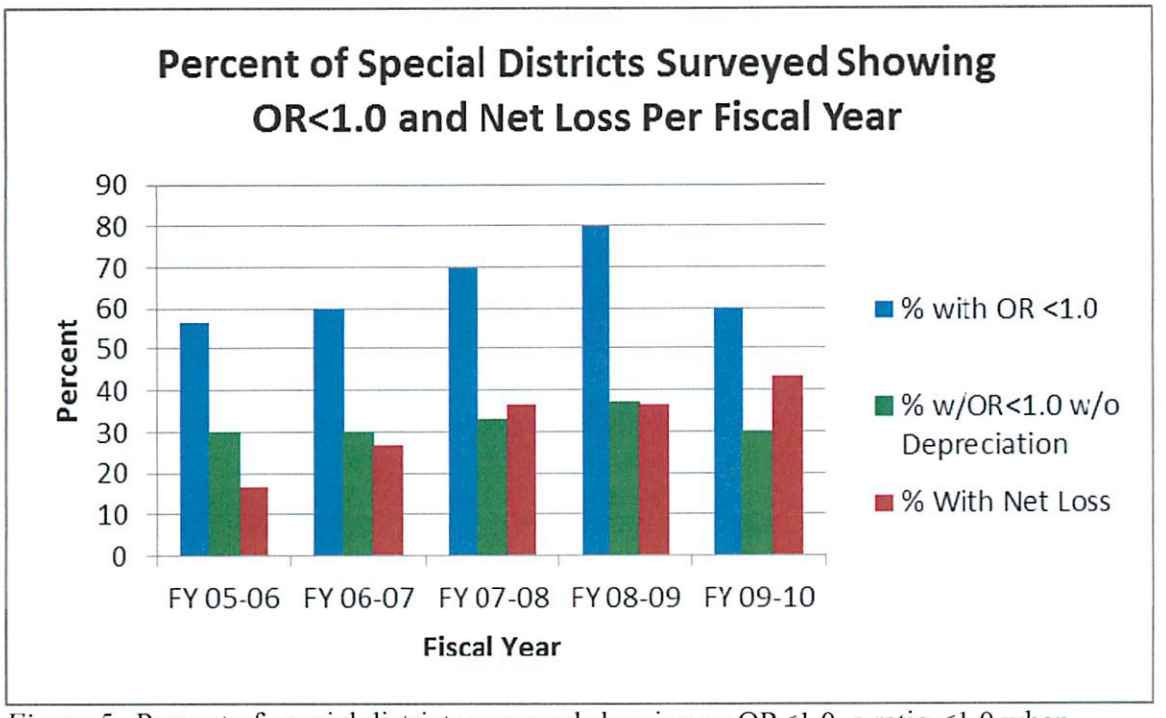

Figure 5. Percent of special districts surveyed showing an OR<1.0, a ratio <1.0 when depreciation is excluded as an expense, and a net loss by fiscal year.

Source: Calculated from California State Controller Office Special districts annual report (2008, 2009, 2010, 2011a, 2011b).

The results in Figure 5 show an increasing number of districts with OR less than 1.0 or net loss from FY 2005-2006 through FY 2008-2009, with a slight decrease in FY 2009-2010 for the OR indicators. When all operating and non-operating revenues were considered, 43 percent of responding districts showed a net loss during FY 2009-2010. This was an increasing trend through all fiscal years analyzed.

The information presented in Figure 5 was further analyzed to determine how many of the individual special districts are showing ORs or net losses over three or more consecutive years. Observing a poor outcome for a financial indicator over three or more years should be a warning signal for the utility to pay closer attention and determine what may be causing this trend (Groves and Valente, 2003). These results are summarized in Table 5, and all data are presented in Appendix B.

Table 5.

Responding Special Districts Showing Three or More Consecutive Years of OR <1.0 or Net Loss

Indicator	Number of Districts	Percent of Total Districts (n=30)
OR <1.0	19	63
OR <1.0 without depreciation	7	23
Net Loss	7	23

While the financial data presented in Table 7 of the California State Controller Office special district annual reports are very limited compared to the information provided in individual CAFRs, these results show a concerning trend about the financial sustainability of some districts, and their ability to fund the repair or replacement of their infrastructure.

Do the financial indicator results in Figure 5 and Table 5 mean that these utilities are not financial viable? How are these districts continuing to operate at a net loss? There are a couple of possible explanations, but unfortunately the California State Controller Office reports alone do not provide enough financial information to determine how these districts are covering any revenue shortfalls. This would need to be determined by reviewing an individual district's CAFR. However, the author has personal knowledge that some districts conduct inter-fund borrowing, as well as drawing down reserve funds to cover revenue shortfalls. While this may be a good short-term solution, it is not long-term sustainable solution.

Another explanation for the significant number of districts showing ORs less than 1.0 is due to the reporting of asset depreciation. GASB Statement No. 34 requires local governments to report depreciation as an operating expense, or to provide evidence that they are maintaining infrastructure assets at a specified target condition level (Vermeer, Patton, and Styles, 2011.). While depreciation is not a cash transaction, reporting it as an expense shows the need to collect revenue to cover costs of eventually replacing these assets that are reaching their useful life. UNC (2009) states "utilities should be recovering a significant (if not all, or more) portion of their depreciation expense through their rates to be able to fund future capital costs" (p. 4). The fact that many agencies have an OR less than 1.0 when depreciation is included suggests that they are not be collecting sufficient revenue through service charges or rates to fund infrastructure replacement. Yet when depreciation was excluded from the total revenue to expense ratio, all responding districts except three had an OR greater than1.0 for Fiscal Year 2009-2010. This shows that the net loss is "on paper", and is not necessarily a cash loss. Therefore, most responding wastewater districts are "balancing the books", but the results from

this study suggest that many districts are not collecting sufficient revenue to cover asset replacement costs.

As no apparent relationship was observed between rate-setting philosophy and OR, it was questioned whether other utility characteristics may explain why some utilities have an OR less than 1.0 or show a net loss, and others don't. Could these results be related to the annual user rate charged by the district, or district size? Are districts who charge higher annual user rates more likely to have an OR greater than 1.0? To answer these questions, district characteristics and annual user rates were obtained from the State Water Resources Control Board (2008) Wastewater user charge survey report: FY 2007-2008. Data were available for 26 of the responding districts, and are provided in Appendix C.

The average annual user charge for these districts for FY 2007-2008 was $336, with a median of $310 and range of $95 to $628 (Appendix C). Average dry weather flow (ADWF) for these districts was plotted against the annual user rate (Figure 7). The ADWF may be comparable to a district's size (population), as districts serving higher populations typically have higher ADWF than districts serving smaller populations. Figure 7 shows an expected relationship wherein smaller districts tend to have higher annual user charges. A probable explanation is that smaller districts have fewer users to allocate their fixed infrastructure costs, and thus have to charge a higher rate. This suggests some economy of scale for larger districts.

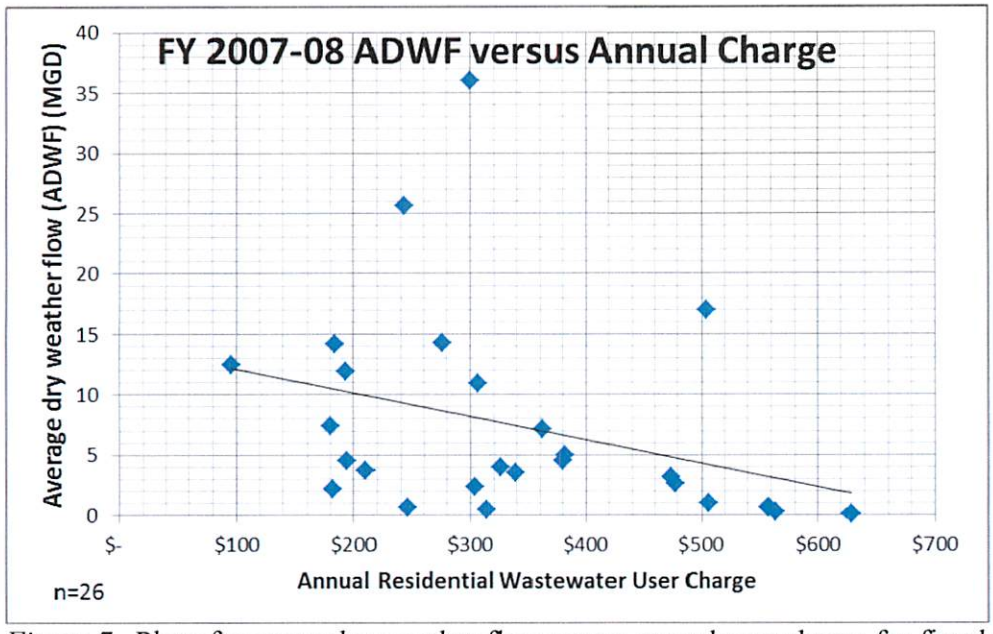

Figure 7. Plot of average dry weather flow versus annual user charge for fiscal year 2007-2008 for responding special districts.
Source: ADWF and annual user charge from State Water Resources Control Board (2008).

When the fiscal year 2007-2008 ORs for the responding districts were plotted against the annual residential wastewater user rate, no apparent relationship was observed (Figure 8). By itself, the annual user charge is not an indication of cost recovery. This confirms the uniqueness of each special district and the need to set user rates to meet the district's individual needs.

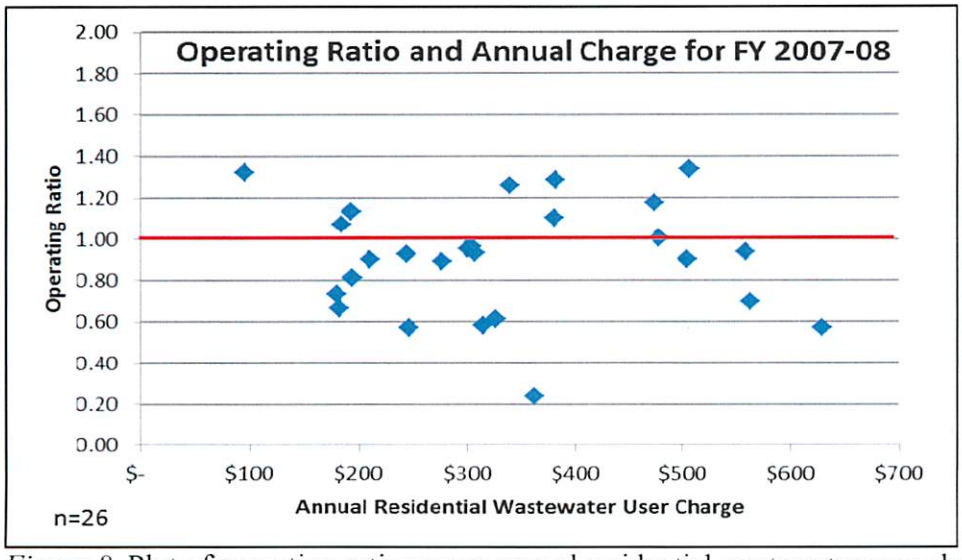

Figure 8. Plot of operating ratio versus annual residential wastewater user charge for fiscal year 2007-2008 for special districts responding by survey from May 15-June 4, 2012.

Summary of Findings

The majority of elected officials responding to the survey (59 %) identified setting rates to recover costs as their primary rate-setting philosophy. The majority of elected officials (76%) also agreed that their rate-setting philosophy was implemented by their district. When the operating ratio was calculated for these 30 special districts for fiscal year 2009-2010, 60% showed an OR less than 1.0, indicating that they are not collecting enough operating revenue to cover their operating expenses. An increasing trend in the number of special districts showing an OR less than 1.0 is observed from fiscal year 2005-2006 to fiscal year 2008-2009.

The majority of elected officials surveyed (53%) identified repairing and replacing aging infrastructure as their utility's greatest unmet funding need. Calculation of simple financial indicators for FY 2009-2010 reveals that 43% of districts show a net loss, and 30% of districts have an OR less than 1.0 even when asset depreciation is excluded from the equation (Figure 5). There also was an increasing trend over five consecutive fiscal years for the number of special districts showing a net loss.

The hypothesis from this study was not supported. Special districts whose elected officials select "setting rates to recover costs" as their primary rate-setting philosophy, are not more likely to have an OR greater than 1.0. Regardless of the primary rate-setting philosophy, the majority of districts are not recovering operating costs based on the calculated ORs. This study was unable to assess if there are other competing rate-setting objectives that are impacting the district's setting of user rates.

It should be noted that the financial information presented in the State Controller Office reports is limited compared to the individual CAFR's that each special district prepares, and the reason for these financial results or use of other funds by individual districts cannot be evaluated

from these data. Likely, many special districts are supplementing revenue shortfalls by drawing from reserves. This can be beneficial in the short-term, but it is not a long-term solution.

When depreciation is excluded from the total revenue to expense ratio, all but three districts showed a ratio greater than 1.0. This shows that the majority of districts are balancing the books, as depreciation is a non-cash transaction, but many are apparently not recognizing asset depreciation as an expense that they should cover through operating revenue collection.

Chapter 5 - Conclusions, Program Recommendations, and Areas for Further Research

It is difficult to draw many conclusions from this study due to the limited data from the small number of participating districts and elected officials. Results from this study show the following for responding elected officials and districts: 1) the majority of elected officials identified replacing or renewing aging infrastructure as their utility's greatest unmet funding need; 2) the majority of elected officials chose setting rates to recover costs as their primary rate-setting philosophy, and the majority of elected officials believed that their district was implementing their philosophy; 3) sixty percent of responding districts had an operating ratio less than 1.0 for fiscal year 2009-2010 and 43% showed a net loss; and, 4) no relationship was observed between a particular rate-setting philosophy and the OR.

What becomes apparent from the financial indicators used in this study is the limited usefulness of the operating ratio as an indicator of cost recovery for comparison across multiple districts. In the strictest sense, it does show whether operating revenues are greater or less than operating expenses, but this is somewhat confounded in the State Controller Office annual reports which include impact fees or capacity charges in the operating revenue category. This is typically reported in CAFRs as non-operating revenue. Many of the districts in this study rely on non-operating revenues, and thus use these revenue sources to balance the books. However, the

financial data as well as the survey responses suggest that many of the districts in this study are ignoring their capital asset depreciation expense and are not collecting revenue to fund repair and replacement of their aging infrastructure. This will have to change in order for wastewater districts to remain financially viable and effective. The following sections provide areas for further study and three recommendations.

Areas for Further Research

This study was unable to assess the presence or impact of secondary or potentially competing rate-setting philosophies of elected officials. While knowing this may provide interesting academic knowledge, the author believes that an approach focused on practices and performance of individual wastewater utilities will provide more value and practical application.

Using summary reports, such as those compiled by the State Controller Office, limits the ability to make meaningful assessments and comparisons of the financial condition of wastewater districts. This study did not identify the extent that districts are currently relying on reserve funds to fill current revenue gaps, or are conducting inter-fund borrowing. This can only be determined by closely examining the CAFRs and Capital Improvement Plans for individual districts. It is also not known whether these districts are developing plans for increasing revenue to fund these replacement needs, or are simply postponing those decisions.

This highlights the difficulty of using a few simple indicators to compare results for multiple districts, and the value that a focused case study approach could bring by learning more about how individual districts are performing and how they plan to address their infrastructure needs.

Implement Asset Management Programs

This study confirmed that many wastewater districts are not meeting their infrastructure funding replacement needs. While this study did not determine how they are planning to address these needs, a proactive and sustainable approach involves implementing an asset management program. Asset management programs are used to create an inventory of a utility's infrastructure assets; determine the condition of the infrastructure; prioritize replacement, repair or rehabilitation based on the greatest risk; estimate costs; and create a financial plan to fund the needed work (USEPA, 2012). A new website was recently launched by Water Environment Research Federation which is intended to provide one site for wastewater utilities to connect to share knowledge and learn more about asset management best practices (www.waterid.org).

Based on the results suggesting that many districts are not currently covering infrastructure replacement costs through their rates, it is likely that many will need to raise rates or secure financing for projects through loans or issuing bonds. Asset management programs are intended to be on-going programs that will help the wastewater utility conduct long-range planning and make financially viable and sustainable decisions.

Prepare Citizen or Popular Financial Reports to Improve Accountability

All special districts in this report annually prepare their CAFR, which is an audited document containing the district's financial statements. Most districts post their CAFR on their website, or make it available to the public; however, these reports are typically around 50 pages long, and follow accounting and financial reporting standards. This information is seldom presented elsewhere in a manner that is easy to understand for someone without a financial background. This includes members of the public, but may also include elected officials, as they represent a variety of backgrounds and fields of study.

There are numerous articles which recommend that government agencies prepare and publicize a "popular financial report", a citizen's financial report, or a financial dashboard (Ganapati, 2011; Herrmann, 2011). The purpose of these reports and tools is to translate the financial information into a format and language that is easy to understand. While this is not a requirement, doing this will help special districts improve public accountability on financial condition and funding needs.

Ideally, a wastewater utility would implement an asset management program, and use a popular financial report to communicate their infrastructure needs and funding strategy for replacement and repair. If that is not being done, then it may be important for these districts to recognize that even though asset depreciation is a non-cash transaction, the district needs to plan and determine how they will meet their funding needs for infrastructure replacement or upgrade.

Educate the Ratepayer

While no one likes the thought of increased user rates, it will likely be necessary for many districts, even after all cost efficiencies have been implemented. Because the bulk of the cost burden for infrastructure repair and replacement will fall on the ratepayers, it is important that wastewater utilities educate their customer on the infrastructure needs, costs, and value. This is not an easy task, given that an estimated 80 percent of the replacement value of wastewater infrastructure is below-ground (ASCE, 2012). Therefore, it is difficult to build support for ratepayers to fund structures that they can't see. However, delaying needed repairs or replacements is likely to result in increased failures and even greater costs, including fines, and this information must be communicated to the ratepayers.

The USEPA recommends a series of steps for wastewater utilities to take to educate the public and gain understanding and support for necessary rate increases. They state that "an

effective public education program is the single most important factor in a successful rate increase" (USEPA, 1999, p. 4). Critical in this communication is for the public to understand the importance of having effective wastewater treatment, which reduces diseases, protects the environment, and provides economic benefits (USEPA, 1999). Industry associations, such as WEF, have created wastewater education campaigns that can be adapted for use by individual wastewater utilities (www.waters-worth-it.org).

Failing to act can have significant negative consequences, not only for health and the environment, but also for the economy. If we continue at the current pace where needs significantly exceed infrastructure investment, "pipes will leak, new facilities required to meet stringent environmental goals will be delayed, operations and maintenance will become more expensive, and sources of water will become polluted" (Economic Development Research Group, 2011, p. 38). We rely on clean water for drinking, bathing, cooking, irrigation, manufacturing, fire protection, recreation, and wildlife enhancement (National Geographic, 2011). Clean water is fundamental for life, and there is no replacement for water (Economic Development Research Group, 2011, p. 38). If the USEPA (1999) is correct that people pay for what they value, then all wastewater utility staff, management and elected officials must do a better job at educating the ratepayers on the value of clean water.

References

American Society of Civil Engineers. (2012). *California Infrastructure Report Card: A Citizen's Guide – 2012.* Retrieved April 12, 2012 from http://www.ascecareportcard.org/citizen_guides/Citizen's%20guide%202012_Revised.pdf

American Water Works Association. (2001). *Dawn of the replacement era: Reinvesting in drinking water infrastructure.* Retrieved May 21, 2012 from http://www.win-water.org/reports/infrastructure.pdf

Baird, G.M. (2010, December). Water affordability: Who's going to pick up the check? *Journal-American Water Works Association,* 16-23.

Baird, G.M. (2011, June). The silver bullet for aging water distribution systems? *Journal-American Water Works Association,* 14-23.

Berahzer, S.I., Eskaf, S., and Hughes, J. (2011, September). Benchmarking utilities' rates and finances for decision and policy makers. In H. Alegre (Chair), *Fourth leading edge conference on strategic asset management.* Symposium conducted at the International Water Association, Mülheim an der Ruhr, Germany.

Bland, R.L. (2007). *A budgeting guide for local government.* (2nd ed.). International City/County Management: Washington, D.C.

Brown, K.D. (1993). The 10-point test of financial condition: Toward an easy-to-use assessment tool for smaller cities. *Government Finance Review*, 21-26.

California Association of Sanitation Agencies. (2012). *2012 membership directory.* [Sacramento, California. www.casaweb.org]

California Environmental Protection Agency. (2009, January 7). *The history of the California Environmental Protection Agency*. Retrieved May 18, 2012 from http://www.calepa.ca.gov/about/history01/swrcb.htm

California State Controller. (2008a, March 20). *Special districts annual report for fiscal year ended June 30, 2006* [56th ed.]. Retrieved May 14, 2012 from http://www.sco.ca.gov/ard_locarep_districts.html

California State Controller. (2008b, October 30). *Special districts annual report for fiscal year ended June 30, 2007* [57th ed.]. Retrieved May 14, 2012 from http://www.sco.ca.gov/ard_locarep_districts.html

California State Controller. (2010, February 12). *Special districts annual report for fiscal year ended June 30, 2008* [58th ed.]. Retrieved May 14, 2012 from http://www.sco.ca.gov/ard_locarep_districts.html

California State Controller. (2011a, April 26). *Special districts annual report for fiscal year ended June 30, 2009* [59th ed.]. Retrieved May 14, 2012 from http://www.sco.ca.gov/ard_locarep_districts.html

California State Controller. (2011b, December 13). *Special districts annual report for fiscal year ended June 30, 2010* [60th ed.]. Retrieved March 7, 2012 from http://www.sco.ca.gov/ard_locarep_districts.html

Clean Water Act of 1972, 33 U.S.C. §1251 et seq.

Copeland, C. (2010, December 16). *Wastewater treatment: Overview and background*. 98-323. United States Congressional Research Service.

Congressional Budget Office. (2002, November). *Future investment in drinking water and wastewater infrastructure*. The Congress of the United States. Retrieved March 12, 2012

from http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/39xx/doc3983/11-18-watersystems.pdf

Dewees, D.N. (2002). Pricing municipal services: The economics of user fees. *Canadian tax Journal, 50*(2), 586-595.

Dziegielewski, B., Kiefer, J., & Bik, T. (2004, July). *Water rates and ratemaking practices in community water systems in Illinois: Project completion report.* Southern Illinois University. Retrieved April 19, 2012 from http://web.extension.illinois.edu/iwrc/pdf/236.pdf

Economic Development Research Group. (2011). *Failure to act: The economic impact of current investment trends in water and wastewater treatment infrastructure.* American Society of Civil Engineers. Retrieved June 4, 2012 from http://www.nh.gov/water-sustainability/publications/documents/asce-infrastructure-report.pdf

Forrer, D.A., Ehart, C., & Forrer, A.S. (2011). Water and wastewater utility affordability. The Cape Coral Florida experience. *Journal of Business Case Studies, 7*(3), 37-48.

Ganapati, S. (2011). Key features for designing a dashboard. *Government Finance Review, 27*(5), 47-50.

Gianakis, G.A., & Wang, X. (2003). Procuring expertise: The case of local government water and sewer rate analyses. *Journal of Public Procurements, 3*(2), 250-273.

Glennon, R., Udall, M.K., & Rogers, J.E. (2004). The price of water. *Journal of Land, Resources, & Environmental Law, 24*(2), 337-342.

Governmental Accounting Standards Board (2012). *Facts about GASB.* Retrieved May 18, 2012 from htttp://www.gasb.org

Green For All. (2011). *Water works: Rebuilding infrastructure, creating jobs, greening the environment*. Retrieved April 19, 2012 from http://www.greenforall.org/resources/water-works

Groves, S.M., & Valente, M.G. (2003). *Evaluating financial condition: A handbook for local government.* (4th ed.). Nollenberger, K.Washington, D.C.: International City/County Management Association.

Hall, D.C. (2009). Prescriptive public choice: Application to residential water rate reform. *Contemporary Economic Policy, 27*(4), 555-565. doi: 10.1111/j.1465-7287.2009.00163x

Hassanein, A.G. & Khalifa, R.A. (2007). Financial and operational performance indicators applied to public and private water and wastewater utilities. *Architectural Management, 14*(5), 479-492.

Herrmann, K.R. (2011). Creating an excellent popular financial report. *Government Finance Review, 27*(5), 41-44.

Hogan, M.T. & Pinhey, N. (2012, April). Wastewater collection and treatment in California (1890 to 1928): The prehistory of CWEA part 1. *Wastewater Professional, 48*(2), 9-15.

Hoover, H.W. & Raftelis, G.A. (2005). How healthy are your utility's financial fundamentals? *Journal - American Water Works Association, 97*(4), 80-89.

Howard Jarvis Taxpayers Association. (2006, May 11). *Background on Proposition 218.* Retrieved April 21, 2012 from (http://www.hjta.org/propositions/proposition-218/background-proposition-218

Hughes, J. (2005). The painful art of setting water and sewer rates. *Popular Government, 70*(3), 4-14. Retrieved March 12, 2012 from http://sogpubs.unc.edu/electronicversions/pg/pgspsm05/article1.pdf

Hughes, J.A. & Lawrence, D.M. (2007). *Local government water and wastewater enterprises. County and Municipal Government in North Carolina: Article 38*. University of North Carolina, School of Government.

Isadore, C. (2008, December 1). It's official: Recession since Dec. 07. *CNNMoney.com* Retrieved June 5, 2012 from http://money.cnn.com/2008/12/01/news/economy/recession/index.htm

Kavanagh, S., & Williams, W.A. (2004). *Financial policies: Design and implementation. GFOA Budgeting Series* (Volume 7). Chicago, IL: Government Finance Officers Association.

Klase, K.A. (1995). Financial performance of water and wastewater utilities: Case of West Virginia service districts. *Public Administration Quarterly, 19*(3), 321-341.

Kucera, D. (2001). Water rates: Is it time for a new paradigm? *Water Engineering and Management, 148*(8), p. 10-12.

Lang, A., Haskins, S., Hughes, J., and Tiger, M. (2011). Water utility challenges in meeting revenue gaps. *Drinking Water Research, 21*(3), 16-20. Retrieved April 5, 2012 from http://www.drinkingwaterresearch-digital.com/drinkingwaterresearch/20110709#pg18

Mann, P. (1973). The political influence of residential consumers on water rates. *Journal of the American Water Resources Association, 9(*5), 976-984.

Mantz, B.A., & Ori, R.J. (2011). Utility rates and the political environment. *Journal-American Water Works Association, 103*(8), 51-62.

Mehan, G.T., III. (2011). The business of water: It is time to embrace a new model for water service. *The Bureau of National Affairs: Daily Environment Report*. Retrieved January 10, 2012 from http://www.thehorinkogroup.org/pubs/BNAWater.pdf

National Geographic. (2011). The value of tap water: Our most vital resource is a true bargain. *Water for Tomorrow, 3*(2), 4-5.

Olstein, M.A., Jennings, J.D., Geist, R., King, R., & Eisenhardt, P. (2009). *Improving water utility capital efficiency.* Water Research Foundation. Retrieved April 15, 2012 from http://waterrf.org/ProjectsReports/PublicReportLibrary/91257.pdf

Pagano, M.A., & Perry, D. (2008). Financing infrastructure in the 21st century city. *Public Works Management & Policy, 13*(1), 22-37. doi: 10.1177/1087724X08321015

Porter-Cologne Water Quality Control Act, Cal. Stats. 1969, Ch. 482.

Pridgen, A.B. (2008). *Analyzing the financial condition of local government using the GASB No. 34 governmental financial reporting model* (Unpublished doctoral dissertation). University of Mississippi, University, Mississippi.

Renzetti, S. (1999). Municipal water supply and sewage treatment: Costs, prices, and distortions. *Canadian Journal of Economics, 32*(3), 688-704.

Spacek, J., & Matichich, M. (2002). Gaining funding support for infrastructure programs. *Journal of the American Water Works Association, 94*(1), 70-78.

Stallworth, H. (2003). *Water and wastewater pricing: An informational overview.* United Stated Environmental Protection Agency, Office of Wastewater Management. EPA 832-F-03-027. Retrieved April 17, 2012 from http://www.epa.gov/owm/waterinfrastructure/pricing/pdfs/waterpricing_final2.pdf

State of New York. (n.d.). *Local government management guide: Financial condition analysis.* Office of the New York State Comptroller. Retrieved March 12, 2012 from http://www.osc.state.ny.us/localgov/pubs/lgmg/financialconditionanalysis.pdf

State Water Resources Control Board. (2008). *Wastewater user charge survey report: FY 2007-2008.* Retrieved May 31, 2012 from

http://www.waterboards.ca.gov/publications_forms/publications/general/docs/wastewatersurvey0708.pdf

State Water Resources Control Board. (2011). *Helping achieve the goal of clean water...financially: Clean Water State Revolving Fund annual report 2010-2011.* Retrieved May 21, 2012 from http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/pubs/annlrprt10_11.pdf

Taxpayers United of America. (2012, May 15). Governor Brown fails Contra Costa. *TUA News Release.* Retrieved June 12, 2012 from http://www.taxpayersunitedofamerica.org/latest/governor-brown-fails-contra-costa

Teodoro, M.P. (2002). Tailored rates. *Journal of the American Water Works Association, 94*(10), 54-64.

Thorsten, R.E., Eskaf, S., & Hughes, J. (2009). Cost plus: Estimating real determinants of water and sewer bills. *Public Works Management Policy, 13*(3), 224-238. doi: 10.1177/1087724X08324302

Trussel, J.M. & Patrick, P.A. (2009). A predictive model of fiscal distress in local governments. *Journal of Public Budgeting, Accounting & Financial Management, 21*(4), 578-616.

University of North Carolina. (2008, October 10). *The state of full cost pricing: Full cost pricing among public water and sewer utilities in the southeast.* School of Government, Environmental Finance Center. Retrieved March 12, 2012 from http://www.efc.unc.edu/publications/2008/Full_Cost_Pricing.pdf

University of North Carolina. (2009, June). *Designing rate structures that support your objectives: Guidelines for NC water systems.* School of Government, Environmental

Finance Center. Retrieved March 12, 2012 from http://www.efc.unc.edu/publications/2009/GuidelinesDesigningRateStructures.pdf

United States Environmental Protection Agency. (1999, July). *Building support for increasing user fees*. Office of Water. EPA 430/09-89-006. Retrieved March 20, 2012 from http://water.epa.gov/polwaste/wastewater/FinancePubs.cfm

United States Environmental Protection Agency. (2004). *Report to Congress on the Impacts and Control of CSOs and SSOs*. Retrieved April 17, 2012 from http://cfpub.epa.gov/npdes/cso/cpolicy_report2004.cfm

United States Environmental Protection Agency. (2005). *Case studies of sustainable water and wastewater pricing*. EPA 816-R-05-007. Office of Water. Retrieved March 5, 2012 from http://www.epa.gov/safewater/smallsystems/pdfs/guide_smallsystems_fullcost_pricing_case_studies.pdf

United States Environmental Protection Agency. (2007). *Expert workshop on full cost pricing of water and wastewater service: Final summary report*. EPA 816-R-07-005. Office of Water. Retrieved April 26, 2012 from http://water.epa.gov/infrastructure/sustain/upload/2009_05_26_waterinfrastructures_workshop_si_fullcostpricing.pdf

United States Environmental Protection Agency. (2008). *Clean watersheds needs survey 2008: Report to Congress*. EPA-832-R-10-002. Retrieved April 8, 2012 from http://water.epa.gov/scitech/datait/databases/cwns/upload/cwns2008rtc.pdf

United States Environmental Protection Agency. (2012, February). *Planning for sustainability: A handbook for water and wastewater utilities*. EPA-832-R-12-001. Retrieved June 12, 2012 from http://water.epa.gov/infrastructure/sustain/upload/EPA-s-Planning-for-Sustainability-Handbook.pdf

United States Fish and Wildlife Service. (n.d.). *Digest of Federal Resource Laws of Interest to the U.S. Fish and Wildlife Service: Federal Water Pollution Control Act (Clean Water Act)*. Retrieved May 18, 2012 from http://www.fws.gov/laws/lawsdigest/fwatrpo.html

Vermeer, T.E., Patton, T.K., & Styles, A.K. (2011). Reporting of general infrastructure assets under GASB Statement No. 34. *Accounting Horizons, 25*(2), 381-407. doi: 10.2308/acch-10029

Water Environment Federation. (2005). *Financing and charges for wastewater systems: WEF Manual of Practice No. 27*. New York: McGraw-Hill.

Water Environment Federation. (2010, February 5). *Financial sustainability for water infrastructure*. WEF Board of Trustees. Retrieved January 20, 2012 from http://www.wef.org/GovernmentAffairs/PolicyPositionStatement/WaterInfrastructure/

Water Environment Federation (n.d.). *Water is life, and infrastructure makes it happen*. Retrieved May 13, 2012 from http://208.88.129.72/wil.aspx?ekmensel=c57dfa7b_82_0_154_1

WaterEUM. (2008, June). *Effective Utility Management: A primer for water and wastewater utilities*. Retrieved January 23, 2012 from http://www.watereum.org/resources/

Westerhoff, G.P., Pomerance, H. & Sklar, D. (2005). Envisioning the future water utility. *Journal of American Water Works Association, 97*(11), 67-74.

World Health Organization. (2011, March). *10 Facts on Sanitation*. Retrieved March 22, 2012 from http://www.who.int/features/factfiles/sanitation/en/index.html

Appendix A

Survey

Survey for Board Members of Special Districts Providing Wastewater Services

Response Requested by June 4, 2012: Please use web link or see contact information on Page 2.

Introduction:
My name is Jayne Strommer and I'm a Program Manager at Delta Diablo Sanitation District in Antioch, CA, working on my Executive Master of Public Administration degree from Golden Gate University (GGU). I'm interested in understanding rate-setting philosophies of the wastewater utility decision-makers, so am surveying elected/appointed officials who oversee special districts in California that provide wastewater services. This survey is part of my final thesis. I will not be collecting names or any information that would identify an individual completing a survey. I will be gathering the utility name and publicly available data on participating utilities to compare their characteristics, such as size, structure, and financial information, but results will be reported generically (utilities will not be named). Survey results will be made available to participating districts. The final product of this research will be a thesis paper that will be available through the GGU library.

I know your time is very valuable, and your opinion is also valuable. The survey is estimated to take five minutes or less, and can be completed anonymously by web access at http://www.surveymonkey.com/s/KGQXTCB, or by printing & returning this form (please see contact on bottom of page 2). I greatly appreciate your participation in this survey.

SURVEY:

1. **Utility: Please write the name of the Special District/wastewater utility you represent:**

_____

Note: This will be used only by me to assess results, but will be kept confidential for the study (reporting only a generic identifier, such as "Special District A").

2. **Please review the list of potential rate-setting philosophies in the table below and select the one that best describes your rate setting philosophy as a board member.**

Rate-Setting Philosophy of Wastewater Utility Board Member	Select
Set rates low and affordable for ratepayers.	O
Set rates near the middle (neither significantly higher nor lower than comparable utilities).	O
Set rates that are similar to neighboring/adjacent utilities, or provide economic incentives for businesses.	O
Set rates to recover costs (including operation & maintenance, debt service and reserve coverage).	O
Set rates to recover costs and fund new, innovative projects.	O
Other (please write in)	O

3. **Has your rate-setting philosophy changed significantly in the past four years (or since you've been in office if less than that)?** Yes____. No____. If yes, please describe what has changed for you and the reason for the change.

_____

_____

_____

4. **Please rate your agreement / disagreement with the following statement:**

"My wastewater utility implements my rate setting philosophy."

Strongly Disagree	Disagree	Neither agree nor Disagree	Agree	Strongly Agree
O	O	O	O	O

5. **Of the following, which category represents your utility's greatest unmet funding need?** (Check one.)

_____ Replacing or renewing aging infrastructure.

_____ Upgrading facilities to meet regulatory requirements.

_____ Funding employee pension programs and other post-employee benefits (OPEB).

_____ Expansion projects to serve growth.

_____ Other (list)_____

Optional:

If you have any comments or additional information on these survey topics that you would like to share, please feel free to include it below.

_____

_____

_____

Closing and Contact Information:

Thank you so much for your time. I appreciate your participation. Survey results will be made available to participating districts. Completed hard copies can be sent by fax to 925-756-1960, scanned & emailed to jaynes@ddsd.org, or mailed to Jayne Strommer, DDSD, 2500 Pittsburg-Antioch Hwy, Antioch, CA 94509. Feel free to contact me by email or phone (925-756-1910) if you have questions.

Appendix B

Table of Operating Ratios for Participating Districts from Fiscal Years 2005-06 to 2009-10

	Fiscal Year 2009-2010				Fiscal Year 2008-2009				Fiscal Year 2007-2008				Fiscal Year 2006-2007				Fiscal Year 2005-2006			
Special District ID	Operating Ratio (OR)	OR w/o Deprec. Expense	Total Revenue to Total Expenses	Total R:E w/out Deprec.	Operating Ratio (OR)	OR w/o Deprec. Expense	Total Revenue to Total Expenses	Total R:E w/out Deprec.	Operating Ratio (OR)	OR w/o Deprec. Expense	Total Revenue to Total Expenses	Total R:E w/out Deprec.	Operating Ratio (OR)	OR w/o Deprec. Expense	Total Revenue to Total Expenses	Total R:E w/out Deprec.	Operating Ratio (OR)	OR w/o Deprec. Expense	Total Revenue to Total Expenses	Total R:E w/out Deprec.
1	1.15	1.40	1.45	1.75	0.97	0.97	1.24	1.24	0.90	1.11	1.23	1.52	0.81	0.81	1.16	1.16	0.96	0.96	1.30	1.30
2	0.91	1.25	1.05	1.43	0.88	1.17	1.04	1.38	0.95	1.28	1.15	1.53	0.99	1.33	1.20	1.59	1.06	1.44	1.17	1.56
3	1.02	1.30	1.18	1.47	0.86	1.05	1.08	1.31	0.69	0.79	0.96	1.09	1.57	2.00	2.09	2.62	0.95	1.07	1.13	1.27
4	1.07	1.40	1.20	1.52	0.97	1.20	1.12	1.37	1.07	1.34	1.22	1.50	1.08	1.37	1.20	1.50	1.08	1.35	1.10	1.35
5	1.11	1.37	1.09	1.32	0.77	0.92	0.84	0.99	0.93	1.09	1.05	1.21	1.15	1.38	1.21	1.42	1.51	1.82	1.73	2.04
6	0.69	0.88	0.81	1.01	0.71	0.93	0.85	1.09	0.54	0.65	0.72	0.86	0.62	0.79	0.82	1.01	0.70	0.94	0.87	1.14
7	0.69	0.89	0.73	0.89	0.73	1.00	0.79	1.01	1.01	1.32	1.10	1.38	0.92	1.21	1.18	1.48	1.04	1.36	1.04	1.30
8	1.34	1.83	1.41	1.92	1.40	1.85	1.48	1.94	1.34	1.78	1.46	1.92	1.73	2.31	1.78	2.35	2.00	2.73	2.06	2.79
9	0.77	1.00	0.77	1.00	0.81	1.03	1.27	1.62	0.73	0.96	2.31	3.02	0.74	0.96	2.88	3.73	0.80	0.97	1.75	2.12
10	0.90	1.21	0.89	1.18	0.92	1.17	0.91	1.15	0.89	1.09	0.94	1.13	1.04	1.27	1.16	1.40	1.05	1.26	1.12	1.33
11	0.45	0.50	0.72	0.78	0.37	0.41	0.74	0.82	0.58	0.66	0.95	1.06	0.84	0.96	1.32	1.50	0.64	0.73	1.01	1.15
12	0.86	0.91	1.25	1.33	0.87	0.94	1.33	1.43	0.97	1.04	1.54	1.65	1.14	1.21	1.72	1.83	0.76	0.80	1.20	1.27
13	1.29	1.88	1.41	1.99	0.93	1.36	1.10	1.56	0.96	1.46	1.17	1.71	0.91	1.35	1.08	1.56	0.74	1.02	0.92	1.24
14	0.83	1.25	0.91	1.28	0.77	1.12	1.02	1.46	0.81	1.23	1.28	1.89	0.88	1.36	1.33	1.97	1.01	1.53	1.24	1.82
15	0.13	0.21	0.95	1.49	0.14	0.23	1.08	1.62	0.24	0.32	0.80	1.02	0.21	0.26	0.67	0.83	0.28	0.39	1.00	1.33
16	1.27	1.57	1.24	1.48	1.43	1.59	1.59	1.75	1.29	1.43	1.50	1.65	1.20	1.34	1.46	1.62	1.49	1.49	2.09	2.09
17	1.02	1.24	1.05	1.29	1.01	1.23	1.05	1.27	1.14	1.39	1.22	1.48	1.23	1.44	1.35	1.57	1.37	1.62	1.46	1.72
18	0.53	0.61	1.20	1.36	0.53	0.60	1.24	1.41	0.57	0.65	0.77	0.83	0.40	0.44	0.97	1.07	0.54	0.61	1.16	1.33
19	0.96	1.16	1.04	1.25	0.98	1.19	1.09	1.32	0.94	1.15	1.06	1.29	0.95	1.13	1.15	1.37	0.92	1.08	0.96	1.13
20	1.26	1.43	1.39	1.58	1.17	1.33	1.31	1.49	1.18	1.35	1.37	1.57	1.21	1.42	1.40	1.64	1.06	1.26	1.20	1.42
21	0.90	1.32	0.92	1.33	0.78	1.08	0.80	1.11	0.81	1.18	0.85	1.23	0.82	1.23	0.87	1.31	0.79	1.23	0.80	1.22
22	0.63	0.78	0.64	0.79	0.61	0.77	0.63	0.79	0.67	0.89	0.71	0.94	0.80	1.10	0.86	1.19	0.68	0.92	0.74	1.00
23	1.33	1.53	1.33	1.49	0.92	1.06	1.13	1.30	0.90	1.05	1.19	1.39	0.99	1.18	1.38	1.65	0.86	1.05	1.02	1.25
24	0.59	0.78	0.98	1.27	0.66	0.88	1.10	1.44	0.61	0.82	1.04	1.36	0.66	0.91	1.09	1.46	0.70	0.98	1.07	1.47
25	1.00	1.22	1.11	1.34	1.11	1.30	1.28	1.49	1.26	1.45	1.48	1.69	1.30	1.53	1.57	1.82	1.19	1.20	1.19	1.19
26	0.91	1.42	0.89	1.38	0.67	0.75	0.92	1.04	0.57	0.64	0.78	0.87	0.61	0.68	0.92	1.02	0.82	2.25	1.04	2.88
27	0.96	1.40	0.99	1.38	0.89	1.44	0.90	1.44	0.93	1.52	0.94	1.52	0.89	1.55	0.89	1.50	0.87	1.48	0.93	1.51
28	0.90	1.49	0.89	1.46	0.92	1.41	0.93	1.42	1.32	1.71	1.37	1.76	1.61	2.08	1.74	2.22	2.17	3.03	2.25	3.11
29	1.33	1.44	1.21	1.30	1.01	1.10	1.04	1.12	1.11	1.19	1.16	1.24	1.02	1.10	1.11	1.21	0.97	1.07	1.02	1.12
30	0.78	0.99	1.00	1.25	0.73	0.92	0.89	1.11	0.74	0.93	0.92	1.17	0.74	0.95	0.96	1.23	0.95	1.24	1.10	1.43
Average	0.92	1.19	1.06	1.34	0.85	1.07	1.06	1.32	0.89	1.12	1.14	1.42	0.97	1.22	1.28	1.59	1.00	1.30	1.22	1.56
Std. Dev.	0.29	0.37	0.22	0.28	0.26	0.33	0.22	0.26	0.26	0.34	0.33	0.43	0.33	0.43	0.44	0.56	0.393	0.565	0.380	0.54
#<1.0	18	9	13	3	24	11	11	3	21	10	11	4	18	9	8	1	17	9	5	0
%<1.0	60	30	43	10	80	37	37	10	70	33	37	13	60	30	27	3	57	30	17	0
Median	0.91	1.25	1.05	1.34	0.87	1.07	1.07	1.34	0.91	1.13	1.12	1.39	0.93	1.22	1.19	1.50	0.95	1.21	1.11	1.33

Source: Calculations based on data presented in Table 7 of Special districts annual report (California State Controller, 2008a; California State Controller, 2008b; California State Controller, 2010; California State Controller, 2011a; California State Controller, 2011b).

Appendix C

Table of Survey Responses and Participating District Characteristics

Special District ID	FY 07-08 Data: 2007-08 Annual User Rate	Bill based on water use?	Service Provided	Population Index	Connection Fee?	FY 09-10 OR	Survey Question Responses: Question 2 Q.2	comment	Question 3 Q.3	comment	Q.4	Question 5 Q.5	comment	Data: 3 or more years of OR<1.0	3 or more years of net loss?
1	$ 210	No	Collection only	4	Yes	1.15	4		No		0	1		Yes	No
2	$ 300	No	Collection & Treatment	5	Yes	0.91	4,5,6	x	N, N, N		SA, A, D	3		Yes	No
3	$ 563	No	Collection & Treatment	2	No	1.02	2		No		0	1		No	No
4	$ 184	No	Collection & Treatment	5	Yes	1.07	4		No		A	1	x	No	No
5	$ 307	No	Collection & Treatment	5	Yes	1.11	4, 4		Y, Y	x	A, A	5, 4		No	No
6	not avail.	Yes	outfall only	6	No	0.69	4		N		A	1		Yes	Yes
7	$ 478	No	Collection & Treatment	3	Yes	0.69	4		N		SA	1		No	No
8	$ 506	No	Collection & Treatment	2	Yes	1.34	4, 4		N		SA, SA	1, 1		No	No
9	not avail.	Yes	Treatment only	5	No	0.77	4		N		SA	1		Yes	No
10	$ 276	No	Collection & Treatment	5	Yes	0.90	4		N		SD	1		Yes	Yes
11	$ 314	No	Collection only	2	Yes	0.45	4		N		SA	1		Yes	Yes
12	not available		Collection only	1	No	0.86	4		N		SA	1		Yes	No
13	$ 303	No	Collection & Treatment	3	No	1.29	5, 5		N, N		A, SA	1, 1		Yes	No
14	$ 194	No	Collection only	4	Yes	0.83	4		N		A	1		Yes	No
15	$ 362	No	Collection & Treatment	4	Yes	0.13	4, 4	x	Y, N	x	A, SA	1, 1		Yes	No
16	$ 382	Yes	Collection & Treatment	4	Yes	1.27	4, 4, 5	x	N, N, N		SA, A, A	1/3, 1, 1		No	No
17	$ 193	No	Collection & Treatment	5	Yes	1.02	1	x	N		SA	5	x	No	No
18	$ 246	No	Collection only	2	Yes	0.53	1		N	x	SA	5	x	Yes	No
19	$ 558	No	Collection & Treatment	2	No	0.96	2, 4		N, N		0, SA	2, 1		Yes	No
20	$ 474	No	Collection only	3	Yes	1.26	4		N		D	1		No	No
21	not available		Collection & Treatment	3	No	0.90	4		N		0	1		Yes	Yes
22	$ 182	No	Treatment only	3	No	0.63	5, 4/6	x	Y, Y	x	A, 0	4		Yes	Yes
23	$ 504	No	Treatment only	5	No	1.33	4/6, 4	x	N, N		A, A	5, 1	x	Yes	No
24	$ 326	No	Collection & Treatment	3	Yes	0.59	5, 4/6, 5	x	N, N, N		0, 0, D	1, 5, 1	x	Yes	No
25	$ 339	No	Collection only	3	Yes	1.00	4, 4/6, 4/5	x	N, Y, N	x	A, A, A	2, 2, 1/2		No	No
26	$ 628	No	Collection & Treatment	2	No	0.91	4		N		A	1		Yes	Yes
27	$ 243	No	Collection & Treatment	5	Yes	0.96	6, 4	x	N, N		D, SA	3, 5	x	Yes	No
28	$ 95	No	Treatment only	5	yes	0.90	4		N	x	A	4	x	No	No
29	$ 380	No	Collection only	4	Yes	1.33	4		N		SA	1	x	No	No
30	$ 180	No	Collection & Treatment	5	Yes	0.78	4/6	x	Y	x	SA	3/5	x	Yes	Yes
Average	$ 336														
Std. Dev.	$ 141														
Median	$ 310														
Range	$95-$628														

Key to Survey Question Responses

Q. 2 Rate-setting philosophy
- 1 = Set rates low and affordable for ratepayers
- 2 = Set rates near the middle
- 3 = set rates similar to neighboring utilities
- 4 = Set rates to recover costs
- 5 = set rates to recover costs and fund new innovative projects
- 6 = Other (write in)

Q. 3 Has your philosophy changed significantly in last 4 years?
- N = No
- Y = Yes
- If yes, please describe

Q. 4 Please rate agreement/disagreement "my wastewater utility implements my rate-setting philosophy".
- SA = Strongly Agree
- A = Agree
- 0 = Neither Agree nor disagree
- D = Disagree
- SD = Strongly Disagree

Q.5 Which category represents your utility's greatest unmet funding need?
- 1 = replacing aging infrastructure
- 2 = upgrading facilities to standards
- 3 = funding pensions & OPEB
- 4 = Expansion to serve growth
- 5 = other (write in)

Source: Survey responses obtained during May 15 to June 4, 2012. Special district characteristics obtained from Wastewater user charge survey report: FY 2007-2008 (State Water Resources Control Board, 2008).