

Revenue Special Report

Secure Credit on Tap Municipal Water/Sewer Ratings Move Upward

Analysts

U.S. Water/Sewer Group Coordinator

Jason F. Dickerson
1 212 908-0684
jfdickerson@fitchibca.com

Southwestern U.S. Group Leader

Mark Campa
1 512 322-5316
mcampa@fitchibca.com

Southeastern U.S. Group Leader

Amy R. Laskey
1 212 908-0568
alaskey@fitchibca.com

Midwestern U.S. Group Leader

Joseph R. O'Keefe
1 312 214-3434
jokeefe@fitchibca.com

Northeastern U.S. Group Leader

Joseph R. Pangallozzi
1 212 908-0658
jpangallozzi@fitchibca.com

Western U.S. Group Leader

Jessica L. Soltz
1 415 732-5616
jsoltz@fitchibca.com

Purpose

This report describes Fitch's revised methodology for rating municipal water and wastewater treatment revenue bonds in light of the results of Fitch's study of municipal default risk and consideration of future prospects for the sector.

Fitch's new guidelines and rating scale for the sector strive to make its credit analysis of the industry more accurate, so that issuers can incur more appropriate borrowing costs and investors receive fair returns that are commensurate with risk.

Comments are encouraged from investors, issuers, their advisers, and regulators, as Fitch continues to engage the market in an ongoing discussion that remains responsive to developments in the industry.

■ Summary

With enduring natural monopolies for provision of highly essential services, municipal water and sewer utilities in the U.S. are an extremely creditworthy debt sector with nearly no default history during the past quarter century. In the past, the usual rating range for these bonds was between 'BBB-' and 'AA'. Fitch's study of municipal default risk, as well as consideration of future prospects for the sector, suggested that this rating range was too low. Accordingly, in most instances, ratings will now be more accurately placed between 'A-' and 'AAA'. These new rating guidelines were developed as part of Fitch's nine-month review of the sector, its prospects, and all ratings within it.

On average, governments' abilities to use their monopoly power to accumulate revenues to pay water and sewer utility expenses were shown by the default study to be comparable to their abilities to collect taxes for similar general government purposes. The default study showed an aggregate sector default rate during the past two decades of 0.05% of water and sewer bonds issued. Although data collection discrepancies make exact comparisons difficult, water and sewer default experience appears to have been at least as low as that of local general obligations. Accordingly, Fitch's sector review brings the two sectors' ratings more in line with each other.

Similar to Fitch's earlier announcements for tax-supported debt, these new guidelines promise a much sharper focus on high-quality management practices — sometimes overlooked in the past — that Fitch believes have increased operating stability in the sector in the past three decades during the implementation of history's most significant environmental mandates by the U.S. government and states. For nearly every challenge still being faced by utilities in this highly varied nationwide debt sector, many of which are discussed in this report, foresighted management efforts can determine whether the challenges are met easily or in a way that undermines credit quality.

In prior weeks and with the release of this report, Fitch has upgraded 47% of its underlying water and sewer bond ratings to reflect the initial impact of the default study and these new guidelines, affecting holders of \$27 billion in outstanding municipal bonds. Additional upgrades are possible as the new guidelines encourage issuers to better inform rating agencies of foresighted management practices and other factors mentioned in these guidelines.

■ Rating Consideration

Sector Has Been Underrated: Fitch's 1999 study of municipal default risk demonstrated the disparity between past performance and ratings for U.S. municipal water and sewer debt. For bonds issued during the past two decades, the aggregate default rate in the sector was about 0.05% of bonds issued. Not only was this default rate below that of 'AAA' rated corporate bonds as a class, it also was ¹/₁₅ that of 'AA' rated corporate bonds and a stunning ¹/₆₅ that of 'BBB' rated corporate debt.

Water/sewer default levels were at least comparable to those of tax-supported debt. In the past, rating agencies have generally rated water/sewer bonds below general obligation debt. In some cases, this is justified when enterprise revenue streams exhibit greater volatility due to demand or seasonal fluctuations, notably more demanding capital needs, or management practices result in a less stable operating environment for the utility. However, in other cases, a community's utility may be notably less politicized than the general government, able to function with stability more consistently than general government finances, and insulated by policy and practice from general government fluctuations. In such case, a water/sewer utility can be rated on par with or somewhat higher than a community's general obligation bonds.

Why Do Water/Sewer Bonds Perform So Well?

The key credit strengths of most municipal water and sewer utilities remain their enduring, regulated natural monopolies. Most utilities exhibit few of the legal, market, or technological characteristics that have upset the solid waste, health care, and electric power bond sectors in recent years. Operations of water and sewer utilities are often less politicized on a day-by-day basis than the wide array of general government operations affecting tax-supported bond ratings.

While state and federal environmental mandates will continue to require improvements that increase the safety of water supplies, statistics have shown that utilities have generally kept rates reasonably affordable — well under 4% of household personal income — despite the past three decades of extensive mandated improvements under the U.S. Clean Water Act (CWA) and Safe Drinking Water Act (SDWA). The sector is reasonably mature technologically, and there is no reason to assume that feasible challenges to current natural monopolies, particularly for retail water and sewer utilities, could be developed in most areas.

Some utilities are introducing competition to certain elements of operations to encourage cost savings, but they seem likely to continue doing this selectively and opportunistically, actually improving financial and operational performance. In a few areas, most notably in California, water supply scarcity and unusual characteristics of utility infrastructure, specifically an existing network of water transmission facilities, should promote significantly increased competition in the wholesale water supply sector, with potential rating impacts in the medium term.

Stability Will Be the Focus of Fitch's Rating Process:

Under Fitch's new rating methodology, the most creditworthy municipal water and wastewater treatment utilities — those rated 'AA', 'AA+', and 'AAA' — will perform well in multiple areas of Fitch's 10-point rating analysis (*see box, page 9*). However, one word summarizes the characteristics of most high achievers — stability.

Utilities issuing 'AA', 'AA+', and 'AAA' bonds typically will be supported by a service area customer base demonstrating superior economic and demographic characteristics consistent with those seen for similarly rated general obligation bonds. These highest rated utilities also will exhibit multiple management practices that maximize stability by anticipating future regulatory and growth demands, reliably implementing needed rate increases to cover operational and capital costs, and ensuring liquidity sufficient to cope with unexpected sales shortfalls or emergency needs (*see box, page 4*).

While political officials play a needed role in regulating the utilities' monopolies in their jurisdictions, the most stable utilities will generally operate relatively free from day-to-day political interference or controversies concerning rate-setting policies. This is made easier by the long-term maintenance of professional financial management and planning practices, low and/or affordable rates, manageable and well planned capital programs, and segregation of enterprise fund finances from those of the general government.

Future Credit Outlook is Stable: Fitch expects the sector's credit performance to continue, thus justifying long-term stability of most ratings between 'A-' and 'AAA'. Generally, regulatory and growth demands will continue to put the greatest burden on utilities, including small enterprises, and Fitch's rating process will focus on their future effects on credit quality.

During the past three decades, ratepayers in many areas have experienced substantial rate increases to pay for mandated CWA and SDWA improvements. In some respects, to borrow a common phrase from structured and project finance, the past three decades can be viewed as a severe stress test for water and sewer operations.

While regulation continues to ratchet up requirements related to some contaminants (particularly for some small systems), the most potentially burdensome regulatory mandates for municipal enterprises, especially initial conversion to secondary wastewater treatment, appear to be in the past for most systems. Also, regulatory focus has already shifted somewhat from municipal point sources of pollution to the more amorphous nonpoint water pollution sources, which affect municipal operations less consistently.

Some communities will need substantial facility upgrades to deal with new regulations limiting the effect of wet weather pollution, such as combined sewer overflows (CSOs), and safeguarding surface and ground water supplies from microbial and disinfectant byproduct contamination. Implementation of new guidelines for arsenic and other contaminants, as well as federal and state regulators' newly enhanced powers to regulate total maximum daily loads (TMDLs) of certain contaminants in biologically impaired waterways, will affect some, but not all, issuers.

More consistently affecting municipal utilities will be the combined effects of mandated facility improvements and rising operational costs from aging facilities built in the past 30 years. Some are pushing for the revival of federal and state environmental grants, which were reduced in the 1980s to make way for low-cost revolving loan funds, as a way of combating cost pressures. However, Fitch believes this is highly unlikely in the current federal budgetary environment.

The aforementioned challenges will affect some utilities much more than others, and ratings should be differentiated accordingly. Nevertheless, most water and sewer enterprises in the U.S. should remain essential and monopolistic, exhibiting significant price inelasticity. While some ratings may fluctuate, most will remain strong.

■ What Is Fitch Changing?

Adjustments to Fitch's Rating Scale for the Sector: Because the sector has been underrated, Fitch has upgraded many bonds in the U.S. municipal water/sewer sector by one to three rating notches. In the past, the typical rating range was 'BBB-' to 'AA'. The more appropriate rating range to be used in the

foreseeable future will be 'A-' to 'AAA'. With these adjustments, Fitch's average rating for the sector rises to the 'A+' to 'AA-' range, similar to its rating range announced in May 2000 for general obligation bonds.

A prime analytical reason for many of Fitch's upgrades is the default study's clear historical finding that water sewer utilities' abilities to accumulate revenues have been at least comparable to general governments' abilities to tax for debt and operational needs. Fitch believes the sectors should be rated more closely with each other.

Distinct credit vulnerabilities will be shown in 'BBB' category and lower ratings, including poor financial management, unstable customer bases, and severe performance problems. Notably higher default risk is typically reflected in 'BB' category and lower ratings.

"10 Cs" of Fitch's Analysis: Fitch now differentiates bonds in this low-risk sector following a comprehensive analysis of system operations, management, capital planning, and the customer base. Fitch will continue considering 10 areas of utility operations, although some areas will now be weighed more or less than they have in the past. As described in this report, these areas can be remembered as the "10 Cs" of Fitch's analysis — community characteristics (service area), customer base, capacity, compliance with environmental laws and regulations, capital demands and debt policies, coverage (including financial position), cash (balance sheet), covenants, charges (rates), and the "crew," an informal term for management strength. These elements are interactive in that strengths in one area can offset risks in another.

Fear of Federal and State Mandates and Effects on Rate Affordability: The credit risk of mandates has constrained many utilities' ratings. Yet, the last three decades, the most intense period of regulatory pressure ever, have had little discernible effect on the sector's default history. There are multiple reasons for this, including the essentiality of the services, their price inelasticity, and increasingly strong government management practices during the period. Ratings will continue to reflect specific vulnerabilities that will likely pressure future operations due to increasing regulation. This will affect some enterprises much more than others, and, for nearly all, foresighted planning and management efforts can be beneficial.

Where mandates or potential regulation is a concern, ratings will also reflect a sharp concern for rate affordability and competitiveness, both alone and

Management Practices That May Contribute to Higher Ratings

- Long-term financial forecasting that considers future growth in demand, regulations, and infrastructure renovation and renewal needs.
- Policies to ensure appropriate financial margins, including debt service coverage levels and levels of reserves for operating, maintenance, and debt service needs. Issuers with variable-rate debt should establish financial reserves to enable them to cope with interest rate fluctuations.
- Rate affordability guidelines, considering absolute levels of rates and their affordability relative to income levels.
- Prioritized capital improvement plans that consider growth, capacity, regulatory, and replacement and renewal needs.
- Regular financial reporting and monitoring systems that allow policymakers access to timely information on fiscal performance relative to budget.
- Collection policies that regularly track the rate of timely payment receipts and enforce penalties against late payers.
- Strategies to track and anticipate future regulatory mandates, including active membership in state, regional, and national trade associations by some utility officials.
- Limiting operating exposure to growth-sensitive revenues, such as tap, connection, or impact fees.
- Regular consultation with regional and local growth planners, community development officials, and demographers to predict and, if possible, limit infrastructure needs related to population and business growth.
- Informing customers of drinking water quality and other environmental benefits made possible by their rate payments.
- Use of professional engineers, either within the utility or outside of it, to prepare objective reviews of system performance and needs on a regular basis.
- Limited exposure to financial operations of the general government, so that system revenues can be relied on for use to operate and improve the utility. Where transfers to the general fund are used, policies should specifically limit their scope and growth.
- Budget and financial reporting awards from the Government Finance Officers' Association or other similar groups.

relative to income, especially when policymakers have shown reluctance to preserve past financial margins through revenue enhancement or cost containment. Nevertheless, Fitch believes its new rating range accurately reflects overall affordability of the sector, especially relative to environmental utilities in other industrialized nations.

Strong Management Practices Emphasized: As stated in Fitch Research on “Credit Ratings in the 21st Century” (dated March 16, 2000, available on Fitch’s web site at www.fitchratings.com), strong management practices have not been given sufficient and consistent credit in municipal finance. Yet, experience has shown that strong management practices can dramatically improve a system’s prospects for stable financial performance. Throughout this report, best management practices in the water/sewer sector — relevant to each of the 10 areas of the rating review — will be emphasized (see box above). In general, strong institutionalized management practices help ensure stable performance by improving a utility’s ability to cope with unexpected demands, plan for future needs, and maintain healthy, vibrant fiscal operations in a cooperative manner with elected officials and regulators.

Credit Risks of Rural and Poorer Communities:

In the past, utilities of rural communities — particularly those with a large agricultural presence — and poorer urban communities have earned significantly lower ratings than other enterprises due to considerable focus on wealth levels, economic growth, and sectoral diversification. Often, utilities in rural and poorer areas have been unable to achieve ratings higher than the ‘BBB’ category. Service area characteristics will remain a rating factor. However, there is little evidence that these types of service areas translate into substantially more defaults, especially when their populations are fairly stable and customer bases are not concentrated. Accordingly, utilities of these communities should be able to earn ‘A–’ or higher ratings if other system characteristics warrant.

Covenants Still Matter: In recent years, a general trend in the water/sewer sector toward relaxed covenants has developed. For instance, senior lien additional bonds tests requiring 1.15 times (x) or less coverage have become more common, and some issuers are considering lower debt service reserve requirements and other changes. A utility deemed likely to experience financial and operational pressures

could receive stricter scrutiny when covenant changes are considered. The particular rating impact of more relaxed covenants will depend on the system, its characteristics, and the specific proposed changes.

The highest rated bonds of retail water and sewer utilities will still typically have senior lien additional bonds and/or rate covenant requirements to maintain 1.2x coverage of debt service by net revenues annually. Covenants requiring set-asides for operational, maintenance, and other financial reserves are also highly positive credit features, as they heighten prospects for stable financial management.

Monopolies and Privatization: As stated, the regulated monopoly power of the sector is its key credit strength, providing the environment in which operating stability is made possible for a broad range of urban, suburban, rural, retail, and wholesale water and sewer utilities. Because of this, ratings must be especially attuned in the future to situations when monopolies may be eroded, as such an occurrence changes many aspects of a utility's operating environment.

Considering this, Fitch now expects to be especially sensitive to situations when supply scarcity, available infrastructure, and/or political will make likely the loss of some or all of a water or sewer utility's monopoly power. The most important credit vulnerabilities for the foreseeable future should be those instances — still likely to be rare nationally — when wholesale providers cease being the sole supplier of a resource to a customer base, similar to what has happened in the electric power, gas, and solid waste bond sectors with some rating impact.

However, partial or complete utility privatization does not eliminate an enterprise's monopoly power. Privatization efforts must be examined on a case-by-case basis to determine the effects, if any, on monopoly provision and likely impacts on both utility revenues and expenditures. In instances where privatization produces cost savings, positive rating effects are quite possible, all other credit considerations being relatively equal.

■ "10 Cs" of Fitch's Analysis

Community Characteristics: A community's economy and demographic characteristics are key drivers in determining whether most general obligation ratings are in the 'A', 'AA', or 'AAA' categories. These also should be determining factors for water/sewer utilities since the essentiality of the enterprises' services provides localities with a de facto ability to tax for their provision. Accordingly,

the vitality and diversity of the tax, or user charge, base is central to determining credit health.

While Fitch's rating elements are interactive, in that strengths in one can offset weaknesses in another, the three main rating categories have generally come to reflect distinct local economic characteristics. The 'AAA' general obligation and water/sewer ratings will typically reflect service areas with broad, fairly wealthy economies since they are less vulnerable to sectoral downturns and economic shifts. At the other end of the typical rating spectrum, 'A' category ratings reflect reasonably stable but less wealthy or diversified economies. The 'AA' category ratings are typically associated with utilities in the middle of this range, when considering wealth and sectoral diversification. This rating category should continue to include many urban and suburban service areas.

Service areas with prospects for significant future population, commercial, and industrial volatility are more likely to have 'BBB' or lower water and sewer bond ratings. Tourist-based communities with relatively weak prospects for consistent attraction of visitors are perhaps the most likely to fall into the 'BBB' category. The presence of agricultural activities in and of themselves does not preordain 'BBB' ratings. Rather, a detailed examination of the precise nature of the agricultural presence, its prospects for future stability, and the utility's direct and indirect dependence on it should be considered.

Service base volatility can have its most severe effects when the largest customers, particularly industrial entities, pull out of a community. Generally, utilities with a large customer concentration will continue to find it difficult to achieve the highest ratings. To do so, the utilities must have a strong chance of surviving a large customer withdrawal relatively unscathed due to significant financial flexibility from existing revenues and reserves or low existing rates that would allow easier absorption of moderate rate increases to cope with the loss.

Customer Base: Related to service area demographics is growth in a utility's residential, commercial, industrial, and government customer bases. Strong customer base growth or the lack of it drives many financial and capital decisions of utilities and can be a negative rating consideration. Particularly noteworthy are credit impacts of both high-growth and declining customer bases and how governments' management practices can offset credit risks related to customer base growth issues.

A high-growth environment poses special challenges for utilities, particularly in terms of the timing and funding of capital improvement. As a community expands, water and sewer infrastructure must often be put in place in advance of growth. Potential vulnerabilities include instances when growth does not occur as fast as anticipated. In such cases, user charges must be raised for existing customers to cover debt costs. Not only can this provoke political difficulty for the utility, resulting in pressured financial margins, but it also can reduce the community's attractiveness to new residents and businesses, compounding the growth challenge.

Declines in an enterprise's customer base also can necessitate higher than expected rate increases for existing customers, as they must support capital and operating expenses related to expanding regulatory requirements and previously built facilities.

These growth challenges pose credit concerns, but management can largely offset these risks through the development of capital and financial plans that minimize growth risks. In high-growth locales, higher rated utilities will tend to favor modular capital expansion plans, which can be accelerated or slowed based on actual demand trends.

Similarly, a utility with a declining customer base is well advised to use long-term planning to find savings through cost or personnel reduction and less reliance on underused assets, when possible. Credit benefits of these management practices will be more pronounced when they are institutionally implemented on an ongoing basis, preparing for future challenges instead of merely responding to such demands in an ad hoc way.

Significant operating exposure to growth-sensitive revenues, such as tap, connection, or impact fees, will continue to be a credit concern for some utilities. When growth-sensitive fees represent more than 20% of annual revenues, scrutiny will be most intense during the rating process. Steps to mitigate these concerns include excluding or limiting reliance of rate covenants and additional bonds tests on these growth-sensitive fees, implementing conservative budgeting strategies for such revenues, or meticulously tracking these fees as they accumulate and strictly limiting their use to growth-related capital, rather than operating, spending.

Capacity: Capital development and asset management strategies should consider capacity at every stage of the water/sewer utility's service delivery process — supply sources, treatment facilities, collection,

transmission, and distribution, as well as management, technological, and personnel capacity to deal with anticipated service demands. Fitch believes that cooperative service management efforts with local land use and growth planners can be especially helpful in this regard. Such interactions can produce more accurate estimates of expected aggregate service area expansion and determine where and when such growth may occur.

With these facts, managers can make better informed decisions on where, when, how, and in what priority service capacity should be expanded. For slow-growth or declining customer bases, planners can help determine the priority of certain assets to be considered for downsizing.

In the Sun Belt states, such as Florida, Texas, Arizona, and California, many municipalities have significantly enhanced efforts to manage potentially strained regional water sources and encourage various forms of customer and government conservation. Water is a finite resource, and Fitch believes the coming decades will show that this is true in more and more communities, particularly in high-growth regions. Climate change related to global warming could also increase volatility of water supply sources. The highest rated water and sewer utilities will carefully consider their water supply source capacity on an ongoing basis as part of their capital and financial planning processes, considering not only their demands on such sources, but also those of neighboring jurisdictions.

Compliance with Laws and Environmental Regulations: Mandates have been the dominant factor in water and sewer utility credit analysis since passage of the CWA and the SDWA. They continue to threaten some enterprises, as described, but utilities can reduce credit risk by consistently attempting to predict and stay ahead of expected regulatory requirements. From the viewpoint of operating stability, anticipating and financing improvements over time are generally preferable to doing so under the threatening restrictions of orders and fines from the state, the U.S. Environmental Protection Agency (EPA), or the judiciary.

Staying ahead of regulations not only reduces the potential need for financing costly improvements through rate increases in a short period, but also can improve the products being delivered to a utility's consumers. These products are safe and tasty drinking water from the tap and clean water effluent from wastewater treatment facilities. A minor factor that may have supported the sector's credit health during the past few decades was the burgeoning

environmental movement, particularly following the 1970 Earth Day event. Utilities may continue to benefit from consistently demonstrating to consumers the tangible benefits of their user charge payments through water quality reporting and reasoned public information campaigns. Both of these have been promoted in recent legislation and facilitated by the relative ease of on-line data transmission.

Capital Demands and Debt Policies: Regulations, customer growth, and capacity constraints, as discussed, are each major determinants of a utility's capital improvement burden. In Fitch's view, higher rated utilities will integrate all these diverse considerations into a comprehensive multiyear capital improvement and asset management strategy. The plan should attempt to prioritize expansion, improvement, and maintenance needs and determine their financial impacts for rate-setting officials. This can facilitate informed long-term discussion of funding and construction alternatives, minimizing political and consumer rate shock in some cases if additional revenues are required. Utilities playing "catch-up" on capital and asset management practices will tend to be rated lower than those consistently maintaining their infrastructure.

Water and sewer utilities are capital intensive, with annual debt burdens often surpassing those of general governments as measured by the percentage of expenditures. Higher rated utilities will generally limit debt exposure by utilizing annual "pay-as-you-go" revenues, including excess user charges and growth-related fees, to fund a significant part of their capital programs. The highest rated utilities often fund 50% or more of their capital requirements from pay-as-you-go sources.

Coverage and Cash (Finance and Balance Sheet Considerations): As evident from the aforementioned discussion of capital demands, Fitch views long-term planning as a highly desirable credit feature for a water or sewer utility. Nowhere is this more true than for operations and finances of the enterprise, where long-range planning can illustrate clear future structural deficits necessitating revenue development or expenditure containment or both. Fitch believes that utilities are more likely to be stable when such decisions are considered in advance, as a result of financial forecasting, than when they are made haphazardly under pressure and with acute political controversy.

Higher rated utilities will set goals for appropriate financial margins, including debt service coverage levels, debt affordability, and reserve funding, and

will consistently establish rates and budgets that comply with their goals. Coverage itself as a rating factor has been overemphasized somewhat in the past. Fitch believes that, in many instances, 1.5x–2.0x coverage can support 'AA' category ratings if other system characteristics demonstrate a suitably stable credit profile. However, more comfortable margins are clearly a very important positive credit consideration and can be one way managers overcome risks related to other credit factors to achieve a very high bond rating.

Numerous factors can cause financial volatility during one fiscal year or over time, including variations in rainfall. Coverage and liquidity goals should be developed with historical climate volatility in mind. In short, enterprises operating in areas with past rainfall volatility should consider the effects of such issues on their revenues and establish financial cushions to deal with potential weather events. Also, higher rated utilities will demonstrate regular financial reporting and accountability systems that report on year-to-date financial performance to rate regulators so that midyear revenue and expenditure adjustments can be considered, when needed.

Because of the huge variation in operating profiles of utilities across the nation, specific recommended formulae for coverage and liquidity margins leading to higher ratings are not possible. For utilities in the most stable operating environments with a suitably diverse and healthy service area economy, 1.5x annual coverage, with consistently maintained unrestricted financial liquidity of 60 days of operating revenues, could be sufficient for 'AA-' or higher ratings. For utilities with substantial growth or compliance demands or significant annual volatility in revenues or expenditures, greater financial flexibility may be necessary.

Covenants: Covenants promote a certain degree of credit stability for investors. If adhered to, they can provide a high degree of protection against water and sewer bonds ever being downgraded to speculative status. Standard bond covenants consistent with 'A' and higher ratings for retail water and sewer utilities include ones limiting parity bond issuance to instances when projected revenues cover annual debt service by at least 1.2x, requiring sum sufficient or greater rate setting annually to cover both operations and debt service costs, creating debt service reserve funds at the maximum levels allowed under tax law, and establishing other reserve funds for maintenance needs of the system. In nearly all cases, Fitch will consider financial performance on a net revenue basis, even if a gross revenue debt security pledge is present, as creditworthy systems must reliably cover operating

expenditures from the same revenue streams used to pay debt service.

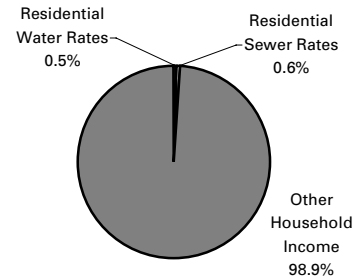
However, most retail water and sewer enterprises amply exceed their covenant coverage and liquidity requirements and should continue to do so. For them, the focus of a rating review should be actual and likely future performance, not minimum guaranteed performance in a dire scenario.

Covenants will receive the most scrutiny during the rating process when utilities, particularly retail utilities, show a likelihood of testing or breaching them altogether. In these cases, the covenants may dictate actual, rather than theoretical, financial performance.

Charges (Rate Affordability): Political leaders play a key role in overseeing utilities' rates. Higher rated utilities should consistently consider the impact of operational and capital programs on rate affordability. While Fitch believes credit is due to those systems that consistently raise rates to preserve financial strength, these activities will be more sustainable when rate affordability is a focus of policymakers and cost containment is regularly employed. Fitch believes that not only should the level of rates for particular customers be considered in these reviews, but also the affordability of rates relative to income, particularly for residences, which tend to pay most user charges of retail systems.

While various rate affordability levels have been suggested in recent decades by government regulators, academics, and others, one prominent expert considers rates for water or sewer service higher than 2% of household income to be unaffordable. As regulations continue to increase and the cost of maintaining CWA and SDWA infrastructure grows, some studies, including one conducted by officials at the EPA, show that more communities may be forced to approach and surpass this target; however, today, few do.

Average Affordability of U.S. Water and Sewer Rates — 1999
(As % of Median Household Income)



Source: Raffelis Financial Consulting 2000 Water and Wastewater Rate Survey; survey for all systems, based on 1,000 cubic feet of monthly residential water use.

Crew (Management): Management links all these credit features together. Throughout this report, Fitch has described numerous management practices related to each aspect of an enterprise's credit that should be actively considered during a rating review. They are summarized in the chart on page 4.

Issuers and their advisers are welcome to bring these practices to Fitch's attention, both during and after the rating review process. Over time, Fitch expects to expand and modify its list of best management practices as new ones become apparent.

Above all, these rating guidelines are intended to promote consistent review of such rating practices for investors, whether the managers affected are those of large, well known municipal issuers or small, rural utilities. Institutionalized management practices can often endure even trying times of economic downturn or unexpected system demand. Therefore, Fitch believes emphasizing them can result in greater rating stability and accuracy over time.

Fitch's "10 Cs" of Water/Sewer Bond Analysis

- Community Characteristics
 - Economic diversity.
 - Income and property wealth levels.
 - Population growth.
 - Potential for residential, commercial, or industrial sector volatility, including customer concentration.
 - Typically a key determinant for rating placement in the 'A', 'AA', or 'AAA' categories.
- Customer Base
 - Stability, growth, or decline?
 - Effect on the capital program, rates, and financial flexibility.
 - Operating reliance on growth-sensitive fees derived from customer base growth.
- Capacity
 - Water supply sources.
 - Treatment facilities.
 - Collection, transmission, and distribution infrastructure.
 - Management, technological, and personnel capacity.
 - Regional demands on water supplies.
- Compliance with Environmental Laws and Regulations
 - Is the utility staying ahead, keeping up, or falling behind regulatory mandates?
 - Status of consent decrees or compliance litigation.
 - What developing regulations could affect the utility?
 - How much will meeting the regulations costs in the five- to 10-year timeframe?
- Capital Demands and Debt Policies
 - Costs of growth, regulations, and maintenance.
 - Impact of costs on rates.
 - Cost effects on financial flexibility.
 - Pay-as-you-go versus debt funding sources.
- Coverage and Financial Performance
 - Goals for annual financial performance.
 - Reasonableness of future budget assumptions.
 - Payment enforcement and account delinquencies.
 - Cause of past financial volatility, if any.
 - Policies to limit transfers to general fund are preferable.
- Cash and Balance Sheet Considerations
 - The less stable the operating environment, the larger the needed financial cushion.
 - Operating reserve levels.
 - Repair and replacement reserve levels.
 - Rate stabilization reserve levels.
 - Debt service reserve levels.
 - Unrestricted cash and investments.
 - Reserves for variable-rate fluctuations if the utility incurs variable-rate debt.
- Covenants
 - Annual debt service coverage of 1.2 times (x) in rate covenants and/or additional bonds tests are typical.
 - Does the system regularly exceed typical covenant requirements?
 - If so, does it show strong prospects of continuing this trend?
 - Level of minimum credit protection provided if utility is likely to test or breach covenants.
- Charges and Rate Affordability
 - Do political leaders and utility officials regularly raise rates when needed? Is review by an outside entity required?
 - Affordability of rates for residential, commercial, and industrial classes.
 - Comparison of rates to those in nearby communities, and whether they affect the ability to raise rates when needed.
- "Crew" (Management)
 - Important for linking these credit features together.
 - Are management and administrative practices institutionalized, recognized by political leaders and management officials, and able to withstand personnel changes?
 - Have management and administrative practices withstood prior periods of operating volatility, if any?

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London, 011 44 20 7417 4222, Fax 011 44 20 7417 4242; San Francisco, CA, 1-800-953-4824, (415) 732-5770, Fax (415) 732-5610
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