

Water Infrastructure Finance Committee was formed due to the increasing recognition that aging infrastructure needs immediate attention. Given the majority of the water/sewer/drainage infrastructure is underground, or in secluded areas, the philosophy of out of sight out of mind, has permeated public policy.

Just as important, if not more so, the price tag associated with maintaining and replacing aging infrastructure is measured in millions if not billions of dollars means increasing the tax burden on an already financially stressed electorate.

In Massachusetts there exists a significant resource to needs gap. The approach of fixing yesterday's financial shortfalls with today's rate increase does little to reduce the gap. As early as 2003, the USEPA recognized the fallacy of deferring costs in a report entitled "Closing the Gap: Innovative Responses for Sustainable Infrastructure. In that report the USEPA suggested public utilities adopt its "Four Pillars of Sustainable Infrastructure", which are: full cost pricing; better management; conservation efficiencies; and watershed management.

This section of this report will concentrate on ways for public utilities to follow some Best Management Practices (BMP's) to achieve full cost pricing through its rate structure.

If used wisely, water/sewer/drainage is a renewable and affordable resource. The keys to meeting affordable sustainability are: reasonable regulations; innovative technologies; reducing design and construction costs; realizing the value of water: and most importantly, the efficient use of capital.

As aging infrastructure begins to fail, the question of sustainability verses the cost delta to repair or replace moves ever closer to the top of the public policy agenda. If this problem is not communicated to the rate paying public by policy makers in a straightforward transparent manner, the problems with sustainability, as will the cost delta, will grow exponentially.

These are not new problems. Increasing demands on government funds from public safety, education, and social services often results in infrastructure needs being kicked down the road.

Unfortunately, it's usually when there is a system failure, or enforcement action, the alarm of where is the money going to come from is raised.

In the past, most communities looked to the federal government via the state for relief. Relief often took the form of grants, matching funds, and low interest rate loans. Going forward those options are fading.

More and more, municipalities are being forced to recognize the multi-million dollars costs associated with operating, maintaining, and replacing infrastructure is a burden that will fall on the local population.

The response is often a knee-jerk reaction we call "rate shock". Rate shock is a head-line grabbing percentage rate increase over a relatively short period of time. Both the public and policy makers hate this approach; yet it happens over and over. The imposition of "rate shock" therapy is usually a response rather than an intervention. This all at once dramatic rate increase is an attempt to make up for long developing deficits, rather than preparation for the future. Thinking of this sort is doomed to repeat itself.

Revenue is the life blood of public utilities. Most receive little if any direct support from the general tax base. More often, they are considered a "piggy-bank" to be dipped into to support non-utility services or operating expenditures. Many ask, what's the harm, it all comes from the same pocket anyway?

Municipal utilities are often seen as the ugly step child to education and public safety concerns. However, what is behind water and sewer services is a constant and predictable revenue stream. It is not uncommon for local policy makers to raid, borrow, steal or otherwise siphon off revenue for general fund as an assessment in lieu of taxes. Let's face it, local governments are addicted to sewage.

It is amazing how often policy makers stand in front of Town Meeting espousing the promise of SRF contributions as the solution to funding. Often they seem oblivious that SRF is a loan that needs to be paid back. Instead what usually follows the “all in favor say aye” vote for a three million dollar sewer replacement project is a vote to transfer from the sewer surplus fund a hundred thousand dollar payment “in lieu of taxes”.

The thought that no one is looking is erroneous. Since the financial crisis of 2008-2009 credit rating agencies are taking a much harder look at how a utility raises revenue and what are its base revenue requirements.

Infrastructure costs are almost always bonded. Debt service is becoming a greater percentage of budgets. The amount of interest paid on debt has a direct reflection on ability to pay down the debt. Money siphoned away from the rate base for general fund purposes is money not available to pay down debt. This is most critical in the event of an unanticipated shortfall in the revenue stream or emergency expense.

The cost of capital is a big number. Three million dollars borrowed at 4.5% for twenty years burdens a utility with one point nine million in interest. The first year debt service is \$370,000 or \$37.00 per 10,000 services on a flat rate bases. Thirty-seven dollars on an average annual water bill of \$400 is a 9.25% rate increase, and that is just to cover the debt.

Factors such as regulatory issues, growth trends, the overall economy, customer classification, and long term needs and planning are all included in the credit rating agency analysis. Some of these issues are discretionary and under the direct control of the utilities management, and some are forced and unpredictable. As such, rate transparency, stability, and predictability play an ever increasing role in determining the availability and cost of capital for infrastructure needs.

The commodity of water/sewer/drainage is undervalued. The public has grown accustomed to not paying either the full cost of service, or the actual value of water/sewer/drainage infrastructure services. The idea the public infrastructure will last forever reflects decades of

public policy procrastination. As such, public utilities must communicate, educate, and continually work on changing the attitudes of their customers about the value of water.

Water and sewer services are relatively cheap. Even worse, storm water, funded through the general fund, is considered free, and usually first thing hit with the budget cutting ax. Yet, the public and policy makers are loathed to consider a forward looking approach to maintain and replace infrastructure.

The general mindset of the public is: as long as the sewer is not backing up; or when I turn on the faucet there is water everything is fine, so what's the problem, and why should I pay more? Yet the same community which raises holy hell over paying an average of a dollar fifty per day for water, happily pays five times that for cable TV, internet and phone service. Clearly, there exists a disconnect between what we pay for water/sewer services, and what its true value is.

A consistent and structured rate tariff builds credibility with customers and creditors. This requires billing practices that differentiate between consumption/usage rates; costs for additional services; debt service and system buy-in models; efficiency and best management practices; conservation and affordability pricing; economic development potential; and incorporates full cost forward looking accounting.

In general customers understand and support spending on water/sewer/drainage infrastructure improvements. Where the rub comes in answering the question is everyone paying their fair share. Costs, when spread out to maximum extent possible are usually absorbed in stride after an uproar for a vocal minority or consumer advocate groups. The use of water (demand) is an "inelastic" variable. Long term demand does not change much in response to changes to price. Non-discretionary use such as personal hygiene, cooking, laundry, and basic commercial use remains constant and is predictable.

That is not to say that there is no tipping point. This is especially true of high use industrial or food processing customers. It's a mistake to believe this customer class has no choice. If a

utility is reliant on only a handful of high volume users to support their rate base they risk a swift and unpredictable financial debacle if one or more of these customers disappear.

Do not get bogged down in allowing a few to derail the entire process. It is important to protect the ability of those with limited income. Utilizing “life-line” and affordability mean testing rates to protect this customer class is essential to deflecting any criticism of the overall goal of funding very costly infrastructure projects.

If the rate structure has not kept up with expenses, inflation or failing infrastructure need it’s advisable to admit it. An honest discussion as to where the utility is financially, and what needs to be done to rectify the situation, is always the best course.

One other thought on this subject is beware of defaulting to surrounding community “averages” in setting a rate structure. Every utility faces a unique set of challenges. The rate structure tools may be similar to all, but the application is not. However, for maintaining affordability it’s wise to measure the base rate against a matrix of 1.5% of combined medium household income.

Effective communication with customers regarding upcoming rate increases is critical. Acceptance is basic concept of the education process. People may not like the reality but will accept a fair and equitable rate structure if they believe they had a say in the process. Utility managers and governing bodies fear public confrontation. As a result of this fear, they often pass the rate increase seemingly in the middle of the night without a warning or rationalization.

Many communities have done a fine job in developing detailed capital improvement plans. They know what the needs are and when they need them. Unfortunately, these plans often sit on a bookshelf to be pulled out only when a regulatory or financial institution requires a checkmark in the block of some form. Why is this? It’s one thing to have a plan and it’s another to have the money available to carry out the plan. If this is to change, the time to start preparing financially for the future is now.

Smaller more frequent rate adjustments publicized in advance are suggested. During the capital improvement plan development is a good opportunity to implement such a practice. Presenting the public with a plan that communicates here is what we want to do, when we want to do it, and how much it's going to cost "you" is essential in gaining public acceptance and trust.

The worst enemy of any utility is a stagnant rate structure. Costs go up every year, so should the rate. Rates are no different than taxes, with the exception that people can readily see what the service they are be provided is. The benefit of receiving water/sewer/drainage services is a measurable and quantifiable commodity.

Understanding your customer's perception of what is being provided them for a given cost may be one of the most important aspects in creating and maintaining public acceptance of full-cost accounting for infrastructure improvement and replacement. The last thing any manager wants to face is the belief the utility is "rich". As such, monies dedicated for specific capital improvements must be assessed, collected, and saved in a transparent manner. Reporting the value of these segregated funds, including interest, and a progress report on when the expenditure is expected should be clearly documented and disseminated.

If it's been five or more years since the last rate increase there is a good chance you will have a fight on your hands. Instead of planning for the future you will be restricted to playing catch up. Delay of the inevitable results in overwhelming the customer with "rate shock" and a subsequent loss in trust and credibility.

Innovative rate structures, which include a multiple revenue streams, are necessary if public utilities are to remain independent, financial stable, and meet public purpose. What follows are some suggested Best Management Practices (BMP's) for setting a courses of action for public utilities to consider in setting out a predictable and sustainable rate structure.

- Plan on a year of preparation before implementing the rate increase; it should coincide with the start of the fiscal year.
- Make sure the operating budget is realistic and representative of actual historical costs.

- Publish on the bill and other communications with customers anticipated rate increases; if possible indicate in percentage and dollar amount.
- Small, but more frequent base rate consumption increases is more palatable than “rate shock”. Consider automate annual escalators tied to the CPI plus 0.5%.
- Incorporate “life line” or affordability means testing for low income customers.
- On the bill clearly segregate out: usage; service; fire protection; and capital improvement costs. Customers should readily see what they are being were charged for.
- Capital improvement fees should be equally distributed between various customer classifications based on consumption or some other measurable matrix.
- Determining revenue requirements for operation and maintenance needs, debt service, employee salary and benefits, and future debt is a continuous process.
- Political considerations in determining adequate revenue streams are best resolved through an open public debate.
- Avoid “targeting” large users for significant percentage of needed revenue.
- Spread out the revenue stream between the sales of the commodity, readiness to serve (fire protection) charges, additional services and inspections, application and system “buy-in” fees based on obligated or potential demand, consumption based capital improvement and water quality protection charges, and administrative service fees.
- Be able to document need using capital improvement plans, facility management/needs plans, and historical financial, and O&M information.
- Structure significant rate increases over several years; bring on-line the increases as the need materialize. Ensure this information is printed on the bill to provide customer awareness.
- Utilize escalating block rates with consumption spreads that (1) protect low volume users, but (2) are tripped to realize a substantial increase in revenue. Example: flat rate up to 10,000 gallons per quarter, followed by a higher rate for each 10,000 block above the flat rate allowance. The more you use, the more you pay – encourages conservation at all consumption levels.

- Payments in lieu of taxes (PILOT) should not be arbitrary, but calculated in accordance with generally accepted accounting principles. PILOT payment should be recovered in the rate base and be accounted for in the line item budget.
- Services and usage provided to municipal services (schools, fire, street cleaning, and recreation) should be charged at a non-discounted rate, or be accounted for in the rate base as an off-set to PILOT.
- Plan and prioritize capital improvements. You don't always need to do it all at once. Where possible "ladder" the issuance of new debt to maintain a stable debt to total budget ratio.
- Where possible coordinate water/sewer/drainage improvements with work planned by investor owned utilities, road reconstruction or resurfacing, and other projects which may have a multiplier effect to encourage commercial or other economic development. "It's not what goes in the hole that cost all the money; it's fixing the hole."
- In setting block rates consider consumption and other factors such as: peak seasonal demand; concentration/strength/make up/volume of wastewater; additional costs to produce, maintain or administer a particular demand; and readiness to serve or reserved capacity.
- Limit abatements by policy. Financial hardship and personal/political circumstances should not be considered.
- Ensure every account is billed a portion of the general overhead and administration even when there is no consumption or usage. There are costs to maintain disconnected services.
- Budget expenses and revenue realistically and conservatively. Closely monitor expenditure and revenue trends monthly to validate forecasts and assumptions.
- Provide services that can offset built-in labor expenses such as backflow testing, installation inspections, final readings and after hour service calls. Ensure equipment, parts, and labor is priced at the retail market rate or better. Include a percentage for administrative costs.
- Remember we work for the rate/tax payer and we have good jobs. Show appreciation by responding to customer requests for service and inquiries.

- Use betterments and special assessments for service area expansion projects.
- System development or equity fees, when properly constructed, provide a source of revenue that essentially pays back users in the form of a lower rate tariff. Capital projects often provide capacity above what is needed by the current users. This capacity has a measurable value to those who need it. By paying a one-time properly constructed proportional share of the improvement minus depreciation, a new user “buys into” the system. MWRA utilizes a similar approach. A word of caution, Massachusetts’ courts look askance on any scheme that attempts to improperly assess a fee which is not supported by calculations or otherwise is deemed to be a tax to support general operations.
- A fully funded CIP Reserve Fund, while theoretically possible, is a impossibility for most utilities. In determining the annual revenue requirement for funding a capital reserve, depreciation is frequently used. Depreciation is an accounting concept for valuing the assets based on the estimated useful life remaining. It is not reflective of replacement costs. Even for the smallest of utilities, this number is in the tens of millions.
- Repayment of debt is a primacy obligation. Defaulting or tardiness in paying debt will have significant adverse consequences on the utility. Establishing a budget for a segregated debt balance fund should be the first annual revenue requirement.
- Utilize Construction Work in Progress (CWIP) charges in the rate base to support Bond Anticipation Notes (BAN’s) used to fund financing, engineering, and construction costs incurred prior to issuance of final bonding. This option is especially necessary for long term construction projects such as treatment plants.

Some additional ideas for inclusion in a rate tariff are :

I. General Administrative and Overhead (GAO) – charged each account regardless of usage.

II. Consumption Rate

- A. Minimum Allowance - specific volume for specific price
- B. Escalating Block Rate – higher the consumption/discharge; the higher the rate
- C. Flat Rate or Equivalent Dwelling Unit – no consideration of usage; all pay the same
- D. Lifeline Rate – minimum bill to ensure affordability for disadvantaged or disabled

III. Special Consumption Rates

- A. Seasonal Demand or Drought Pricing – premium applied to base rate
 - B. Customer Classification Rate –additional base capacity or treatment requirements
 - C. Wholesale Out-of- District Rate – negotiated set annual minimum
 - D. Irrigation/Agricultural Rate - premium applied to base rate
 - E. Construction Related Rates – new line flushing or construction related consumption
- IV. Additional Service Charges (account specific non-reoccurring)
- A. Customer Requested – turn on/off, final reads, meter install/removal, sign-offs etc.
 - B. Meter/Lateral Capacity Surcharge – proportional to meter/lateral installation
 - C. Hydrant or bulk water sale – minimum plus overage; include GAO costs
 - D. Backflow testing and surveys – charge at prevailing wage rate
 - E. Unscheduled or after hour service calls – recover overtime or “on-call” expense
 - F. Installation of service – material, labor, and equipment charged at market rate
 - G. Cost of Permits – road opening, excavation, curb cut etc.
 - H. Rule & Regulation Violation –an administrative notice cost; not a fine
 - I. Service line locations and mark outs on private property
 - J. Plan review and approval; site inspection services
 - K. Fire flow tests or hydraulic modeling
 - L. Damaged or frozen meter material and labor costs.
- V. Readiness to Serve Charges
- A. Public and Private Fire Protection (hydrants and sprinkler systems)
 - B. Capacity Reservation – payment to reserve capacity guarantees (subdivisions)
 - C. Inactive curb stop/lateral fee – pays for availability
- VI. Special Assessment Fees
- A. Betterment
 - B. Application
 - C. System Development (Buy-In)
 - D. Water Quality Protection Charge
 - E. Capital Improvement Plan Fee
- VII. Administrative Charges
- A. Finance Charges on Past Due Accounts
 - B. Return Check Fees
 - C. Certified Mail (shut-off) Notices
 - E. Special services such as abatements, research, report creation, or copying costs

Summary: Establishing an adequately funded forward water/sewer/drainage rate system is difficult for local policy makers. The public does not see infrastructure in the same way they see public safety or education. There is a significant disconnect between the value of water and the cost of water. Never-the-less the deterioration of billions of dollars of infrastructure continues. In the past, cities and town’s look to the state who in turned looked to the federal government for

subsidies in the form of grants, matching funds and low interest loans. Rarely has the full burden fallen on the rate payers. Going forward this model will be obsolete.

Recommendation: That the State adopt as a matter of law, a precondition for SRF funding that each utility making such a request has prepared a Capital Financing Plan which incorporates an approved forward looking rate tariff to adequately fund the operations and maintenance, debt service, and establishes a reserve. The plan should utilize annual rate increases of not less than the CPI of the previous year plus 0.5%. At least 85% of the annual cost of service and debt should be in a consumption guaranteed base with escalating overage rate. Plan should also incorporate a life line base rate for limited consumption. Consumption based rates would include cost of the commodity plus, any capital improvement fees, or water quality fees based on consumption. The remaining 15% should be from non-consumption charges such as: private fire protection, service calls, applications fees, system development fees, inspection fees, reserved capacity guarantees, finance charges and other administrative fees.