

Overview of Planning for Sustainability: A Handbook for Water and Wastewater Utilities

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Sustainable water infrastructure and utilities are critical to providing the American public with clean and safe water and ensuring the social, environmental, and economic sustainability of the nation's communities. In October 2010, EPA finalized its *Clean Water and Safe Drinking Water Infrastructure Sustainability Policy*. Based on input from stakeholders as the Policy was developed, EPA committed to develop resources to help utilities incorporate sustainability considerations into their planning processes as projects are being identified and before infrastructure solutions are selected and to help utilities actively consider how infrastructure decisions can help support other community sustainability priorities during this process.

This work is also a continuation of EPA's efforts over the past several years to promote sustainable water infrastructure and effective utility management through initiatives like Effective Utility Management¹, the Safe Drinking Water Act's Capacity Development Program, and other efforts like asset management and energy efficiency.

This Overview provides a brief summary of *Planning for Sustainability: A Handbook for Water and Wastewater Utilities* and the kinds of benefits water sector utilities are likely to see from adopting the steps provided in the Handbook. This Overview also provides a summary of the specific steps utilities can take to implementing these steps based on series of Core Elements. After reading this Overview, utilities are encouraged to use the accompanying Handbook because it provides more detailed information on how to implement the planning steps as well as a series of case examples from a range of utilities and other useful resources. The Handbook also includes a set of diagnostic questions under each core element that utilities can use to gauge the extent to which they have implemented the planning steps described in the document.

Effective planning is essential to ensure an effectively managed utility. This Overview and the Handbook are intended to help utilities enhance their existing planning processes to make the best decisions on infrastructure and/or operations to promote utility and community sustainability. Some utilities may not have adopted a formal planning process, but the practices described in this Overview and the Handbook can still help them strengthen their existing planning efforts in order to identify the best options for sustaining their infrastructure and operations.

EPA is not seeking to dictate the specific infrastructure projects or other actions utilities should take. By undertaking the actions described in this Overview and the Handbook, EPA believes utilities will make decisions that are the most appropriate to ensure their sustainability and the communities they serve. Finally, EPA intends for the Handbook to be applicable to utilities across the water sector, whether they seek funding through State Revolving Funds (SRFs) or not.

¹ See:

http://water.epa.gov/infrastructure/sustain/upload/2009_05_26_waterinfrastructures_tools_si_watereum_primerforeffective_utilities.pdf

Although not the focus of this Overview or the Handbook, EPA encourages utilities to implement an asset management program to support the planning process and develop or maintain ongoing relationships and active engagement with their communities and customers. Asset management programs include detailed information on what assets a utility has, how long they will last, and how much it will cost to replace them. As a component of an asset management program, an infrastructure inventory—which includes condition assessments; a risk-based schedule for maintenance, repair, rehabilitation, and replacement of infrastructure; and a financial plan—will provide the necessary information the system will need to make adequate planning decisions.

Active engagement with communities and customers will help utilities develop greater community and customer understanding and appreciation of the value of sustainable water infrastructure and service. Because changes to utility rates and fees typically require the approval of a governing body and can be difficult in the absence of customer support, customer appreciation of value is vital for developing support for needed infrastructure investments, including operations, maintenance, and replacement. Water utilities valued by the community are also likely to have more influence on community decisions that affect the utility.

Utilities are also encouraged to do an assessment of their operations based on the *Effective Utility Management Primer* developed by EPA and six national water associations in 2008.

Additional resources on Asset Management, effective utility management and various aspects of community engagement are provided in the Appendix to the Handbook.

EPA recognizes that some elements of this Overview and the Handbook may pose challenges for utilities with limited resources and/or capacity or those that have not adopted a formal planning process. These utilities are likely to need targeted technical assistance through federal, state, and other programs over time. Throughout the Overview and the Handbook, we have attempted to describe how the planning elements can be implemented on a smaller scale. The Handbook also provides references to additional resources that may be useful.

Finally, EPA recognizes that some period of testing and refinement of the Handbook will be necessary to refine and improve the document over time. EPA will work closely with states, utilities, and others to explore ways to undertake these refinements.

Why Incorporate Sustainability Considerations into Utility Planning?

The core mission of water sector utilities is to provide clean and safe water for the communities they serve. Incorporating sustainability considerations into utility planning can help utilities meet this core mission by making decisions that increase the sustainability of water infrastructure and utility operations. Decisions driven by such planning can improve the economic health and quality of life of communities as utilities take into account community priorities related to economic development, transportation, housing, and other relevant areas.

Using the steps described in this Overview and the Handbook to incorporate sustainability considerations, utilities and the communities they serve can expect to achieve a number of benefits, including:

- **Minimizing costs** by optimizing investment choices, operating water and wastewater systems more efficiently, and pursuing cost-effective investment and management strategies, such as collaboration and partnering with neighboring systems to leverage resources and improve efficiency.
- **Maximizing results of long-range investments** to ensure a continuing source of water, treatment, and discharge capacity, as well as financing capability.
- **Improving the ability to analyze a range of alternatives**, including (as appropriate) both traditional and non-traditional infrastructure alternatives, such as green infrastructure and/or decentralized systems, **and selecting the option or mix of options that best meet the needs of the utility and the community it serves.**
- **Engendering greater support for the utility by** recognizing community values and working with the community to identify and address sustainability priorities that are consistent with other community priorities and needs identified by board members, local elected officials, the public, and key community stakeholders.
- **Ensuring that financial and revenue strategies** are adequate to finance, operate, maintain, and replace essential infrastructure throughout its operational life while appropriately considering the needs of disadvantaged households.

Reducing Costs through Greater Water Utility Energy Efficiency

Water utility planning that leads to adoption of energy efficient operational practices and technology can save utilities money. Nationally, water and wastewater energy costs are often 30-40% of a municipality's total energy bill. They are also often the largest controllable cost for these utilities.

The Hidden Valley Lake Community Service District in California, for example, found that it could save \$70,000 per year in energy costs by pumping during off-peak times when rates were lower.

Some utilities and communities may be ready to incorporate sustainability considerations into planning to address priorities beyond their current requirements. Others may be able or interested in doing so only to the extent that this planning approach helps them meet existing regulatory requirements. The steps described in this Overview and the Handbook can help utilities optimize their infrastructure and operational choices anywhere along this spectrum.

How Does a Utility Incorporate Sustainability Considerations into Planning?

To help utilities understand how to incorporate sustainability considerations into their existing planning processes, this Overview and the Handbook focus on four “core elements”:

1. **Goal-Setting:** Establish sustainability goals that reflect utility and community priorities.
2. **Objectives and Strategies:** Establish explicit, measurable objectives for each sustainability goal and identify strategies for meeting objectives.
3. **Alternatives Analysis:** Based on sustainability goals and objectives, analyze a range of alternatives based on full life-cycle costs using explicit and consistent evaluation criteria and select investments or operational changes that provide the best long-term value to utilities and communities.
4. **Financial Strategy:** Implement a financial strategy to cover full lifecycle costs through adequate revenues so that the alternatives selected—and the system overall—are sufficiently funded, operated, maintained, and replaced over time.

These four elements build on each other as utilities go through the planning process. Utilities can also choose to focus greater attention on individual elements based on their particular circumstances as a means of enhancing their planning and continually improving their performance.

Planning Element 1: Goal Setting—*Establish Sustainability Goals that Reflect Utility and Community Priorities*

To provide a foundation for incorporating sustainability considerations throughout the planning process, utilities should consider and set sustainability goals as an initial planning step. These goals should reflect utilities' internal assessment of sustainability priorities and take into consideration community sustainability priorities. Information gathering about community sustainability priorities can take many forms, from review of plans or other documents to consultation with community representatives (e.g., planning agencies, elected officials, or stakeholder groups).

Sustainability goals will help guide utilities as they move through the three subsequent core sustainability elements and select measurable objectives and strategies, analyze a range of alternatives, and develop a financial strategy to support chosen investments or operational changes. Several examples of potential sustainability goals are listed below.

Potential Sustainability Goals

The following list describes a range of sustainability goals along with examples of approaches utilities can take to meet them: The examples are illustrative only. More information on how to use the goals to make appropriate infrastructure and operational decisions is contained in the Handbook.

- Improve compliance
 - *For example, establish collaborative partnerships with neighboring utilities to increase or maintain technical, managerial, or financial capacity and/or to share information and expertise.*
- Reduce energy cost.
 - *For example, invest in more energy efficient equipment, explore operational changes that can enhance energy efficiency (such as pumping at night when the rate is lower), or replace non-renewable with renewable energy sources.*
- Extend the projected adequacy of current water supplies (or reduce vulnerability to water supply disruption).
 - *For example, implement consumer water conservation programs, implement water metering, fix distribution system leaks, and/or make use of reclaimed water.*
- Address wet weather impacts
 - *For example, implement a mix of non-traditional infrastructure alternatives such as green infrastructure solutions with integrated stormwater and combined sewer overflow control.*
- Preserve critical ecological areas in the community.
 - *For example, adopt management programs for septic systems to reduce nutrient loadings to lakes*
- Improve the economic vitality of the existing community.
 - *For example, target water infrastructure projects to support existing community infrastructure.*
- Enhance community livability.
 - *For example, incorporate green space or recreational opportunities into projects.*
- Reduce long-term system operational costs
 - *For example, use natural treatment systems, such as functioning wetlands, to reduce the input of energy and chemicals for treatment.*
- Improve operational resilience
 - *For example, understand operational and financial vulnerabilities and incorporate them into alternatives analysis as part of a broader risk management strategy.*

What are the Planning Steps?

The following steps can help utilities consider and set sustainability goals at the beginning of the planning process:

Step 1. Identify sustainability priorities and potential opportunities for the utility. In this step, utilities engage in internal discussions to begin to identify what priorities are most relevant and important for the sustainability of its infrastructure and operations. They also do an internal assessment of what aspects of its infrastructure and operations may provide opportunities for increased sustainability and improved performance. These discussions will be strongly influenced by the mission and strategic direction of the utility, regulatory and legal requirements, an assessment of vulnerability related to sustaining operations and financing, considerations related to the effective operation of the utility, and

customer expectations about services and rates. Although this is an internal process, it can be informed by ongoing relationships with customers, the community, and regulatory agencies. For many utilities, the opportunities identified in this step may focus on sustaining existing infrastructure and operations as opposed to new projects.

Step 2. Identify community sustainability priorities. In this step, utilities develop an understanding of the existence and type of community sustainability priorities. This can be done by reviewing comprehensive, general, master, transportation, climate action, and watershed plans as well as review of community “visioning” documents or other community sustainability documents where they exist. For example, in this step, a utility may identify that a community has decided to focus on redeveloping its downtown core as way of improving its economic viability.

Step 3. Engage the community about its sustainability priorities. As resources and capacity allow, utilities can engage community members and/or community planning institutions about community sustainability priorities. This can be done by:

- Participating in direct discussions with planning institutions and community bodies;
- Getting involved with existing community-wide planning efforts to make sure implications for utility levels of service and costs are considered in community decision-making; and/or
- Convening a stakeholder process to get more focused input on community priorities.

In practice, the “community” may often be represented by local land use, transportation, or other agencies that help set the long-term growth and development strategy for a particular area. In some cases—and especially in small communities—this step can also be accomplished by holding discussions with key individuals in the community, such as the town manager or clerk.

Step 4. Identify and document sustainability goals. Utilities should then identify a set of goals reflecting utility and community sustainability priorities, where appropriate, to guide the utility planning process (for examples of sustainability goals, see the call-out box on the previous page). The utility should document the process it undertook and identify the sustainability goals that emerged from its internal discussions and external consultation. These goals will be used by the utility as a guide through the remaining elements of the planning process, including as it makes decisions about infrastructure investments and other potential changes to utility operations.

What if I Need to Implement the Steps Above at a Smaller Scale?

If your utility does not have the staff or funding resources to actively consult with other community institutions and/or stakeholders, consider employing less resource-intensive approaches to identifying community sustainability priorities. This may include gathering information through documents, such as community comprehensive plans, or by holding discussions with key individuals in the community who have access to this information, such as the town manager or clerk. Depending on resources and

capacity, some utilities may only be able to pursue Steps 1 and 2. These utilities may also find that Steps 1 and 2 are sufficient to understand community priorities.

Planning Element 2: Objectives and Strategies—*Establish Objectives and Strategies for Each Sustainability Goal*

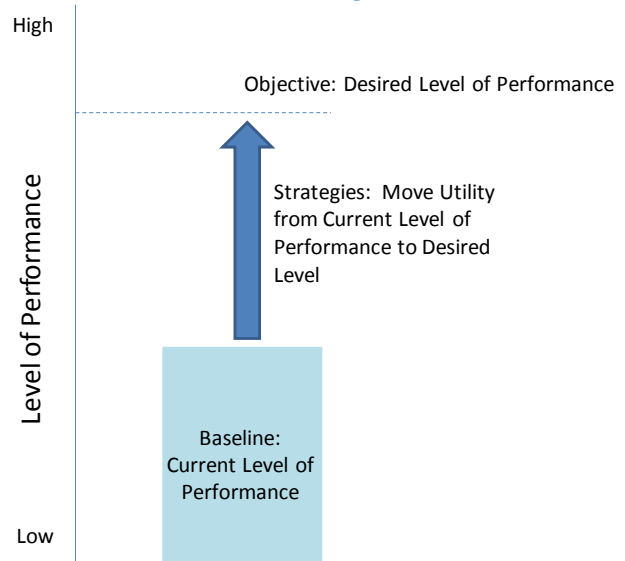
Once utilities have identified and set sustainability goals in Element 1, they should then develop one or more explicit and measurable objectives for each of the sustainability goals. These sustainability objectives translate sustainability goals into the specific achievements the utility will work toward.

Utilities should also assess their current performance (or “baseline”) relative to each sustainability objective and identify general strategies to meet their objectives.

For example, a community may have established a goal to encourage infill rather than expansion to areas outside the urban core. To align with this goal, the utility might establish a sustainability goal to “target investments to existing communities within the boundaries of current service areas.” In this case, the utility might support the goal by establishing objectives, baselines, and strategies as follows:

- Objective: *Support the community’s priority for infill by accommodating 75 percent of expected population growth within the existing service boundary.*
- Baseline: *The capacity of existing infrastructure to serve population growth in its current service area.*
- Strategies: *New infrastructure, water conservation programs, or other strategies that would be required to serve 75% of expected population growth within the existing service boundary. (For example, a necessary strategy would include coordination with planning and zoning agencies to preclude excessive growth outside the service boundary.)*

Illustration of Objective, Baseline and Strategies



The identification of objectives and the understanding of baselines and strategies will guide later steps of the planning process as utilities analyze project alternatives and develop an overall financial strategy.

What are the Planning Steps?

Step 1. Identify sustainability objectives. In this step, utilities should identify an objective (or objectives) for each sustainability goal. These objectives describe the specific accomplishments a utility seeks to achieve or the activities it commits to undertake in order to achieve its sustainability goals.

Step 2. Ensure that objectives are SMART. SMART objectives are specific, measurable, attainable, realistic and time-based. An example of a SMART objective is: *Reduce water losses before customer meters by an average of 0.2 percent per year until 2010, with a goal of reaching a 10 percent unaccounted for water level by 2024* (City of Walla Walla, Washington).

Step 3. Analyze baseline performance. Utilities should analyze their baseline operational performance relative to each sustainability objective. For some objectives, the analysis of baselines will be data-driven and quantitative. Whether the analysis is quantitative or qualitative, this step may require the utility to collect new information about operational performance.

For example, a utility with an objective to reduce energy use by 10 percent over five years will want to conduct an energy audit or similar assessment to identify its current baseline energy use.

Step 4. Identify key strategies. In this step, utilities identify key strategies for achieving sustainability objectives from the current baseline. For example, using the energy use objective above, based on the results of the energy audit, the utility could analyze the efficiency of its existing pumps or other equipment as well as other energy conservation measures as potential strategies for meeting the objective. In addition to considering strategies that would involve new infrastructure, utilities can consider, where appropriate, collaboration and partnering relationships with the community or other utilities as a way to meet objectives.

Step 5. Document objectives, baselines, and strategies. Utilities should document their objectives, baselines, and strategies as well as how their achievements will be measured and tracked over time. Identifying metrics and measurement approaches for each objective will help utilities continually improve their planning and operations over time.

The most effective objectives are SMART

SMART stands for:

- **Specific:** Utilities specify exactly what they want to achieve.
- **Measurable:** Utilities are able to measure whether they are meeting the objectives or not.
- **Attainable:** Utilities can realistically achieve the objective in the time period specified.
- **Realistic:** Utilities can achieve the objective with the capacity, funding, and other resources available.
- **Time-based:** Utilities set a timeframe for achieving the objective.

What if I Need to Implement the Steps Above at a Smaller Scale?

All utilities should set realistic sustainability objectives regardless of whether they are large or small and regardless of their level of capacity. However, when implementing the planning elements at a smaller scale, utilities may want to articulate objectives qualitatively—at least until they have a higher level of implementation experience to guide them in setting quantitative objectives. For example, a utility may choose to set an objective to “reduce unaccounted-for water” and, based on further experience and information gathering, consider setting a specific quantitative objective later on, such as “reduce unmetered losses by 25% over 5 years.” All utilities can take advantage of tools that have been

developed to estimate baselines and identify strategies. A number of these tools are described in the appendix to the Handbook.

Planning Element 3: Alternatives Analysis—*Analyze a Range of Alternatives Based on Consistent Criteria*

Analyzing a range of alternatives using consistent criteria is a critical component of planning. It allows utilities and local officials to make infrastructure decisions consistent with sustainability goals and objectives that are best suited for the utility and the community. A replicable, consistent, and transparent approach to alternatives analysis will ensure that each alternative is considered on a “level playing field.”

When done well, this approach will lead utilities to choose a mix of projects or other activities that meet customers’ service expectations and that optimizes the sustainability of utility infrastructure and operations, consistent with other relevant community priorities. The selected alternatives will thus represent “best value” projects for the utility and for the community as a whole.

Alternatives analysis should explicitly incorporate sustainability criteria alongside conventional criteria

Examples of potential sustainability criteria include:

- Cost-effectiveness based on an assessment of full lifecycle costs.
- Ecological and economic impacts, such as the extent to which projects damage (or create) important habitat, or create green space and recreation opportunities.
- Preference for treatment or operational functions that rely on natural systems for lower life cycle operating costs through reduced energy and chemical inputs.
- Greater energy efficiency through reduced reliance on the energy grid.
- Water efficiency, such as the extent to which projects increase or decrease lost “revenue water.”
- The extent to which projects focus on sustainability of infrastructure in a utility’s existing service area.

Conventional criteria often include considerations such as:

- Ability to meet future demand growth.
- Ability to improve reliability.
- Ability to meet regulatory requirements.

What are the Planning Steps?

Step 1. Identify alternatives. Based on the objectives and strategies identified in Element 2, utilities should identify and list a range of project alternatives, including non-traditional alternatives, to be analyzed. For example, a facility may have identified source water protection as a viable strategy for protecting groundwater to meet future demand and identified key source water locations and protection strategies. In the alternatives analysis, the utility would evaluate specific source water

protection options that specifically identify candidate source water areas, protection strategies, time frames, and other specific characteristics.

Step 2. Develop sustainability criteria. Utilities should develop and document a list of sustainability criteria based on the sustainability objectives identified in Element 2. Examples of potential sustainability criteria are identified in the call-out box on the previous page. Setting and applying project selection criteria is the critical juncture at which utilities select the economic, environmental, and social benefits they will weigh in selecting among alternatives and choosing the mix of projects that optimizes the sustainability of utility operations. For example, Louisville and Jefferson County Metropolitan Sewer District in Kentucky convened community stakeholders to identify a series of community values that could be used to analyze and select among options for reducing wet weather flows. The community values, which included “public health enhancement” and “economic vitality” among others, were used to calculate benefit scores for each project alternative that could be combined with cost information for a benefit-cost comparison across alternatives (see the Louisville case study in the Handbook).

Step 3. Assess the benefits of each alternative. Based on the sustainability criteria, utilities should assess the benefits of each alternative using a consistent methodology. Different types of analysis may be appropriate for different types of plans or for utilities with different levels of capacity. Some options include:

- A narrative, qualitative assessment of potential benefits and risks of each alternative.
- A qualitative “scoring” of potential benefits and/or risks.
- A quantitative assessment, such as monetizing benefits and/or risks using economic valuation techniques.

The analysis of each alternative’s benefits should be documented using a common template. Utilities should use the same methodology for all of the alternatives so that they can be easily compared. Consistent tools and templates make analysis and documentation of a potentially large number of projects efficient. Examples of tools to analyze benefits based on consistent criteria are included in the Handbook.

Step 4. Assess the full lifecycle costs of each alternative. After assessing benefits, utilities should analyze the full life cycle costs of each alternative. Life cycle costs are the net present value of all costs for a project over its lifetime, including direct project costs, operations and maintenance, and the cost of rehabilitation, repair, and replacement.

Step 5. Compare and select alternatives. Utilities should use information about the benefits and costs of each alternative to select alternatives that help optimize social, environmental, and economic criteria and achieve the goals set by the utility. The approach should allow for the comparison of a wide range of alternatives.

Step 6. Document the alternatives analysis. Utilities should document which projects were selected through the alternatives analysis and why they were selected—with reference to the criteria and scoring system. As part of this description, utilities should also describe what other alternatives were considered and why they were not selected. Utilities should document their criteria and methodology.

What if I Need to Implement the Steps Above at a Smaller Scale?

Some utilities use highly sophisticated quantitative methodologies to analyze projects according to sustainability criteria. However, a utility can use a more qualitative and descriptive approach. Using this kind of approach—especially if it is well documented—utilities can still be rigorous and consistent in their analysis.

Planning Element 4: Financial Strategy—*Ensure that Investments are Sufficiently Funded, Operated, Maintained, and Replaced over Time*

An effective financial strategy ensures that utilities have revenues that are sufficient to cover all costs of constructing, operating, maintaining, and replacing infrastructure investments over the short and long-term. In establishing a financial strategy, utilities should use the cost information gathered from their alternatives analysis in Element 3—as well as information from their asset management program—to understand how the selected project alternatives will affect the utility’s cost and revenue structure. This will help the utility establish a financial strategy that ensures adequate revenues to support new capital investments over their complete life cycle as well as cover ongoing operating expenses.

Typical indicators of a successful financial strategy include:

- Maintaining or improving the utility’s bond rating (if relevant),
- Meeting and/or maintaining required or desired debt coverage ratios and/or required reserves, and
- Avoiding future deferred maintenance, repair, or replacement conditions for the new infrastructure.

Setting rates and fees as part of a revenue strategy involves balancing several considerations

These considerations include:

- The timing, amount, and structure of any needed rate increases (e.g., phasing in increases over time).
- Alterations of the rate structure to reflect changes in the full cost of service to different classes of customers (e.g., industrial, commercial, and residential) and/or explicit acknowledgement of any cross-class subsidization.
- Deviations from full cost of service pricing to accommodate special community conditions (such as low income customers).
- The structure and amount of system development fees (placed on, for example, developers) to help cover the capital cost of providing service to new customers.
- The structure and amount of direct customer service connection fees.

What are the Planning Steps?

Step 1: Account fully for all project capital costs. Project capital costs fall into two categories. *Primary* project capital costs typically include: construction; engineering and technical services; environmental review and permitting; bidding and contracts; legal services; land and right-of-way acquisition; commissioning, and construction management. *Secondary* capital costs are

Strategies for Reducing Direct Capital Costs of Projects

Utilities can employ a number of strategies to reduce construction-related direct costs, including:

- Value engineering
- Using construction management to minimize cost overruns and change orders
- Providing clear specifications for projects
- Requiring performance guarantees (e.g., through special performance bonds for construction)

linked to the capital financing method and include the cost of capital (interest rate), capital acquisition costs (such as financial advisory fees, rating agency fees, closing costs, etc.), and costs related to creating any required reserve funds and/or meeting debt coverage covenants.

Step 2: Account fully for operations and maintenance costs. The selected project alternatives will likely change overall operations and maintenance (O&M) costs for the utility (either up or down). Although these costs should have been fully considered during alternatives analysis (typically drawing on information from an effective asset management program), it is important to thoroughly review the estimates at this point in the process. This will ensure revenue requirement estimates are fully reflective of any changes in O&M costs resulting from the new project(s).

Step 3: Account for the impacts new projects may have on overall utility system costs and revenues.

To ensure revenue requirements associated with the new projects are correctly established, utilities should examine the following potential impacts on costs:

- Changes in the cost of service to different classes of customers;
- Changes in the utilization (and therefore the operations, maintenance, and depreciation expense) of potential new projects;
- Changes in the type and utilization rates of personnel;
- Changes in the need to provide emergency services; and
- Changes in the resiliency of existing infrastructure and facilities (with potential implications for emergency preparedness and insurance costs).

New project(s) may also affect revenues available to the utility. The utility should therefore examine if the project(s) will affect any of the assumptions used in its revenue projections. Key areas for consideration include any changes to the size of the customer base and any changes to customer utilization rates. For example, conservation pricing has the potential to decrease utilization rates as customers conserve water, which may reduce revenues and potentially make them less predictable. Similarly, an economic downturn can reduce the number of utility customers or their ability to pay. This decreased rate payer base can place substantial financial pressure on the utility.

Cash vs. Debt Financing

When considering financial strategies for new projects, utilities should consider the pros and cons of cash vs. debt financing. Key considerations include:

- The opportunity cost of using cash that could be deployed elsewhere or kept as a liquid asset
- The need to manage and protect asset replacement funds over time
- The cost of capital (i.e., don't use cash for something you can inexpensively finance)
- Whether or not benefits will accrue to future customers, which favors spreading out the repayment terms through debt financing
- The useful life of an investment (i.e., don't borrow for 30 years if the useful life is 10 years).

Step 4: Develop a capital financing strategy. A utility should seek a capital financing strategy that reduces financing costs and keeps the repayment schedule (principal and interest) consistent with revenue capacity (cash flow). This will be influenced by the mix of financing options used by the utility and how that debt is structured.

Step 5: Determine current revenue adequacy and develop future revenue strategy. Steps 1 through 4 will provide the utility with a full accounting of the annualized costs and revenue impacts of the new projects. This information can be overlaid on the utility's current revenue projections to determine revenue adequacy. In some cases, cost savings from new capital projects (e.g., from reduced maintenance costs or more efficient operations) and current revenue generation will be sufficient to cover new debt payments. In other cases, major capital projects may require the utility to increase revenues.

What if I Need to Implement the Steps Above at a Smaller Scale?

Utilities implementing at a smaller scale may face challenges in developing sustainable financial strategies due to a lack of credit (e.g., to seek out favorable financing or do necessary analysis of revenues and rates), lack of asset management programs, and/or pressure not to increase rates. These utilities need to be aware of and utilize resources that are available to help them obtain favorable financing rates and receive technical assistance. Some of these resources include state financing agencies, state drinking water capacity development programs, environmental finance centers, and water sector associations among others.

These utilities need to be aware of and utilize resources that are available to help them obtain favorable financing rates and receive technical assistance. Resources include various Federal and State resources for building technical, financial, and managerial capacity, such as EPA's resources for small public water systems and capacity development.²

A number of utility associations also provide resources for utilities. While EPA does not formally endorse the resources, they include:

- The Rural Community Assistance Partnership, which works with small, rural communities to build sustainable water systems.³
- The National Rural Water Association, which has state affiliate "circuit riders" that can provide assistance to smaller utilities, including assistance in applying for SRF loans.⁴
- The American Water Works Association's Capacity Assistance Program, which assists smaller utilities with "business planning."⁵

² See: <http://water.epa.gov/type/drink/pws/smallsystems/index.cfm>

³ See <http://www.rcap.org/>

⁴ See: <http://www.nrwa.org/>

⁵ See: <http://www.awwa.org/files/Resources/SmallSystems/CAPSelfAssessmentChecklist.pdf>

Conclusion

Water and wastewater utilities that incorporate sustainability considerations into their planning processes can:

- Reduce lifecycle costs by operating more efficiently, pursuing cost-effective investment strategies and optimizing investment choices;
- Optimize social, environmental, and economic benefits by selecting projects through a systematic process of setting sustainability goals and objectives and consistently assessing a range of traditional and non-traditional infrastructure alternatives;
- Increase fiscal sustainability by analyzing the full lifecycle costs of investments, developing low cost financing strategies, and ensuring that revenue needs are accurately assessed so that utilities can maintain, renew, and replace infrastructure while meeting all regulatory requirements;
- Provide the information for making replicable, consistent, and transparent decisions that consider the sustainability benefits of long-range investments or operational changes and for explaining decisions to board members, local elected officials, the public, and others.
- Increase community support through upfront dialogue with community members and active consideration of other community priorities as alternatives are considered.
- Increase customer support through clear rate expectations (and avoided “rate shocks”), increased system reliability, and increased responsiveness when disruptions occur.
- Enhance the technical, financial, and managerial capacity of the utility.

The case studies in the Handbook provide utilities with examples of how to undertake certain aspects of planning. The Handbook and tools referenced in its appendix give utilities helpful resources. Utilities using this Handbook and Overview should utilize the process described on an iterative basis to support the sustainability of their infrastructure and operations, refining them over time.

As the practice of planning for sustainability evolves, more effective practices will emerge. EPA envisions this Overview and the Handbook as resources that can continue to be updated to provide water utilities with advice and resources to more effectively use this planning approach over time in order to optimize their infrastructure and operational decisions.