



Baird



## Balancing Demands for Limited Funds Between Existing Infrastructure Needs and Water Supply Projects

**M**any utilities are being faced with difficult choices about where to allocate funding for projects. The major demands seem to be divided between existing infrastructure-related needs and water supply projects. Several factors that should be considered when allocating limited reserves or available debt financing capacity include how the project is defined, who benefits from and pays for the project, and what the timing of the required funding will be.

### DEFINING THE NEED

Basic budget training for newly elected officials provides guidance about what questions to ask staff members during budget hearings. Some of the main questions are: “Why is this project important?” “What has been done in the past without this project?” “What would happen if funding was not provided this year?”

Projects should be clearly defined during the internal budget review process and long before a board member or council person asks these types of questions in a public meeting. Through the project definition process, staff members are prepared to answer the tough questions.

Typically, a project can be put into one of three major categories:

- the project is necessary for future growth,
- the project is required for the existing system and current users,
- the project addresses the needs of both existing users and future growth.

### WHO BENEFITS AND WHO PAYS?

**Growth and existing users.** Growth-related capital projects expand the system’s capabilities or capacity. An increase in population or commercial or industrial expansion creates the need for buying new surface water rights, adding new wells and stor-

age, and expanding treatment plant capacity.

The existing system's capital project needs would include infrastructure renewal defined as refurbishment/rehabilitation (which returns the asset to working order with minor enhancements) or replacement (which involves substitution of the entire asset without enhancement; USEPA, 2010).

Existing needs can arise from new regulatory requirements, aging infrastructure, increased reliability of the system, and changes in the baseline needs for the community. Evaluating the baseline needs of the system requires a careful review of historical data and current trends in water demand.

**Water demand always weighs in.** If a community defines its residential use as 160 gallons per capita per day, then it might also determine that growth should provide or pay for about 0.5–0.7 acre feet of water per new single family equivalent (SFE). Likewise, on the storage side of the equation, if the current reservoir capacity is equivalent to 1.35 acre feet per SFE, then each new SFE added to the system would need to provide or pay for 1.35 acre feet of additional storage capacity. An impact fee, developer fee, tap fee, or connection fee is paid by residential developers to connect to the system. This fee is designed to offset the costs of growth to the existing users (AWWA, 2000). In other words, fees ensure that the water supply and storage levels of the existing system are not cannibalized or that service to current customers is not reduced in order to provide for growth.

**Policy changes can shift the balance.** If the community is concerned about drought or climate change, then a new policy may be needed to change the current residential target for storage. For example, if the total system storage divided by the number of SFEs was 1.35 acre feet of storage per SFE, then the community may decide to change the baseline number to a new target of 1.5 acre feet

per SFE. Under this scenario, existing users would pay for projects to make up the difference of 0.15 acre feet through their rates. Developers could then be charged for 1.5 acre feet of storage for each new SFE.

**One state's example.** When it comes to charging for the acquisition of water rights (not including the transmission network and pumping to get the raw water to the treatment plant), the utility needs to estimate the usage per SFE. Normally this may be between 0.5 and 0.7 an acre foot per SFE. Under stricter conservation watering policies or with smaller lot sizes, the estimated water use could be much smaller. Developers could be charged the cost of the next increment of additional water rights purchases at prevailing market rates rather than historical prices. However, it is extremely important to pass on cost adjustments to developers. If the community reduces overall water consumption per SFE (0.5–0.7 acre feet) through conservation programs and pricing and it seems sustainable, then developers should only be required to pay for 0.5 acre feet of additional water supplies, and their fee should be adjusted accordingly. In Colorado, the average estimated storage price of \$5,500 an acre foot would create a developer charge of \$8,250 per SFE just for storage. The acquisition of water rights to meet this additional storage requirement would be considered the basis for additional developer fees.

In Colorado, practically every drop of water is already owned and any request for a change of use or access is greatly contested in water court. It could be argued that some entity already owns the rain in clouds passing overhead because Colorado residents are not permitted to retain or store water, allowing it to flow back to the nearest river. Water rights sales can command high prices because it may be the last time that water is ever on the market again (Gertner, 2007).

Water rights purchased from farmers on parts of the South Platte River in Colorado can cost around \$12,000 per acre foot; water from mountain sources for the Colorado River Basin can be as high as \$24,000 per acre foot. Water quality, availability, reuse potential, scarcity, and water rights' seniority all contribute to the price.

**Allocating the benefit and cost for mixed use projects.** Mixed use or combination projects, which stem from the needs of both existing users and the potential needs from growth, is normally verified by the use of a transmission and distribution system hydraulic model. Hydraulic models contain a wealth of information for each pressure zone, including storage, flow, and pressure. As the inputs of changing water demand by residential, commercial, or industrial customers are manipulated in the hydraulic model, system problems are identified. Normally, adding new pipe, looping systems for redundancy, or providing more storage for pressure concerns will address the less complex issues. Some hydraulic engineers will even take the next step of allocating projects by current users and future users (capacity). For water finance professionals, this allocation is an important engineering justification used for developing impact fees. Historically, hydraulic models have been underused. In fact, most utilities maintain some hydraulic-related data, but fail to fully deploy analytical functionality to optimize assets while reviewing cost-saving alternatives. An up-to-date, robust hydraulic model and supporting analytical software are imperative when it comes to defining and justifying project needs and costs (Optimatics, 2010).

Allocation of the capacity or use of defined projects creates the legal nexus of benefit that provides the basis of determining who should pay and how much. The community policies of "growth pays for growth" are either proved or disproved on the basis of the engineer's

report, and those findings are infused into a rate or developer's fee calculation. Transparency in this process is critical when dealing with development needs and private investment in the community.

## FUNDING AND TIMING

A critical planning function for every utility is the creation of its capital improvement plan (CIP)—a plan for capital purchases. Every effort to make this plan as concise and accurate as possible is needed to help communicate the requirements of the system and maintain a consistent level of public trust and transparency.

Understanding the condition of assets, both above- and belowground, is vital to accurately budgeting funds in the CIP (Baird, 2010). Estimating growth and future water demands generates data that indicate adjustments that may need to be made to the CIP. The financial plan is developed to support the capital plan and system operating requirements. When cash reserves dedicated for capital projects are low and the projects are not able to be delayed, bond financing maybe the only alternative. Planning for existing system capital needs can be a more predictable process (if the asset condition is known) than planning for future growth. Growth-related projects, especially water supply projects like reservoirs and water rights acquisition, not only require a plan but also provide an opportunity.

**Tipping the scales for opportunity purchases.** The challenge, therefore, is properly budgeting for water supply opportunities that may or may not occur, and if they do, may drastically change the required timing of the funding. Added to the complexity of the situation is the revenue stream from growth projects. The timing of growth revenue paying for the future projects will never truly match in any given year. Scenario forecasting of growth revenue assumptions against various future growth project plans is required to review the risks associated with temporarily using rate-

based funding to pay for growth-related projects, which will in turn affect available money needed for existing infrastructure replacement. To make accommodations for these scenarios, financial models reviewing the use of contingency reserves, rate stabilization funds, short-term borrowing, and adjustments to the developer fees to pay interest back to the existing users should be considered.

## WATER REALLY CAN FLOW UPHILL

The water business concept that water can flow uphill toward money may normally be applied to the idea that whoever has the most money can buy the water, but in this article's simplified examples the phrase can be applied to the source of the funding for projects. Water "projects" should flow (be funded) uphill toward money (the funding source). The source of the funding for the project should be based on the project and should fund the project. To achieve this, the revenue streams for utilities must be tracked and monitored closely. The source of the available funding (fund balance) is a critical element when deciding on where to allocate the money between existing project needs and future growth projects. How this money is actually allocated under certain conditions may also require a reevaluation of the methodologies used to calculate user rates and developer fees. When allocating funding between competing projects:

- Carefully review how the project was defined and who benefits.
- Continually update and revise the capital plans and financial plans on the basis of any significant change in water demand, project costs, or timing.
- Make sure the project is incorporated into the correct user-rate or developer-fee calculation on a timely basis.

Utilities have one chance to charge developers their fair share; otherwise, the burden will always fall back on existing system users. Avoid the situation in which capital

costs are being incurred without a valid funding source. Properly calculating, collecting, monitoring, and allocating funding for capital projects is required to be more transparent to better maintain the public trust. Always remember, it is the public trust that is in the balance and offers the opportunity to request rate increases, get budgets and contracts approved, and adopt new policies.

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