

Implementing a Water System Project

Woodsville was successful in obtaining a low-interest loan for 60% of its project; the 30-year loan will be repaid through user fees and charges. Two grants were received totaling 30% of the total project cost. One was granted to allow the mobile home park to properly abandon its contaminated well and connect to the community system. Another grant was awarded because it was demonstrated that the project would result in job retention and/or creation. The community

is expected to pay 10% of the total project cost up-front to cover design services. An additional grant will be available to assist low-income and elderly households directly with the cost of extending laterals.

The community must now hire a contractor to construct the treatment plant and distribution system and hire an operator to run the system.

..... There are two choices.....

Hire Construction Contractor (pay \$1,000,000)

Contractors are often selected based on the lowest bid. Unfortunately, not every issue regarding system construction can be identified in a bid document. Contractors are working in residents' lawns and in front of their homes. Easements must be obtained to construct on private property. Permits must be obtained to ensure the project meets all regulatory requirements. Unforeseen obstacles can be encountered that create delays. Without a mechanism in the community to facilitate communication between the contractor and residents, misunderstandings can arise. Hiring a contractor can sometimes be a "roll of the dice."

Roll #1—Cost overruns of \$50,000; RETURN TO NEED FINANCING.

Roll #2—Construction delays, contractor defaults; IMPLEMENTATION PROCESS STARTS OVER.

Roll #3—Complaints about construction nuisances; mayor and council voted out; GIVE YOUR GAME PIECE TO THE NEXT PLAYER.

Roll #4—Failed to obtain necessary permits; PAY FINES AND PENALTIES OF \$1,000 BEFORE YOU PROCEED WITH IMPLEMENTATION.

Roll #5—Hire attorney to enforce construction contract; PAY LEGAL FEES OF \$1,000 and GO TO "SET UP CONSTRUCTION TEAM."

Roll #6—Lucky you! PROCEED TO OPERATION (pages 17-20), repeat for 20 years, then PROCEED TO NEED SYSTEM UPGRADE (pages 21-24).

Continue Community Involvement Process (pay \$200)

The community involvement process should not stop after the project is financed. Facts about the community and its infrastructure can greatly aid in the construction process. Policies regarding when construction can occur impact timelines. When roads and lawns are excavated, people's concerns about access and landscaping must be considered. The community involvement process yields important community information for the contractor to help keep the project on time, on budget, and to avoid conflicts.

Select Management Structure (pay \$200)

While it may seem early, a management structure for the water system should be outlined. If a water system management structure is already in place, this is a good time to re-evaluate it. Additional management responsibilities may come with an upgrade, requiring more staff or at least more staff training. By establishing a management structure early, a chain of command can be outlined, staff training can be identified, and procedures can be laid out before too many "irreversible" decisions are made during construction.





Identify Operator (pay \$200)

A qualified operator is critical to providing water and protecting the health and well-being of the citizens in a community. The size and level of treatment at a plant will determine what class of operator is necessary. In addition to the required certification, it is important for the qualified operator to have good organizational and communication skills, be resourceful, and be able to work as part of a team. Finding a qualified operator can be accomplished through placing a job advertisement in a local or regional paper and by contacting a water professional association or organization. It is important for the operator to be identified early so that he or she is able to do the following:

- Know the reasons why the system was developed a particular way
- Know where all of the system components are before they are buried
- Guide the implementation of the system to make it easier to operate



Set Up Construction Team

It is important to continue local oversight of the construction process to assure that everything runs smoothly and according to schedule. In addition to the design engineers and the contractor, a construction team might include the superintendent and operator, as well as representatives from community leaders, community members, and major water users. At the beginning of the implementation phase, it may be necessary to meet weekly in order to share information. After that, monthly meetings may be more appropriate. A local official should be named who can attend every meeting and has the authority to make decisions regarding the contract, because matters such as change orders and partial payment orders may arise (and if Council meets once a month, delays can be avoided).



Hire Construction Contractor (pay \$1,000,000)

The design engineer will help develop the bid specification documents and assist in the evaluation of bids. It is important that the selection of a construction contractor be based on the qualifications of the firm (and its subcontractors), not just price. Factors to consider are the reputation of the firm, its ability to keep on time and on budget, and small community experience.

#7

Read #7—Congratulations on a job well done; proceed to OPERATION (pages 17-20), repeat for 20 years, then proceed to NEED SYSTEM UPGRADE (pages 21-24).

Lessons Learned

Cost control is important in maintaining community support for the project and confidence in the local elected officials and the managing authority. Cost overruns and fines are often not covered by grant or loan agencies and usually have to be covered by already tight local budgets.

Hire the superintendent and operator early in the process to represent community interests and save the community money in design and construction. It also contributes to their commitment to the project.

Management structure selection is critical to the successful operation of a water treatment system. It is important to start thinking about this in advance of construction.

Selecting a contractor that will build the system as designed by the engineers with input from the superintendent and operator will also ensure the successful operation of the system. This is a critical element in implementation because it will protect the significant capital investment of the community.

Once the contractor was selected and an operator hired, the construction management team began meeting weekly. This made it possible to foresee any problems early and respond to them before construction delays occurred. Especially important was coordinating road closings and excavations on front lawns to minimize inconvenience in the community. The superintendent and operator also noticed that a ladder in the original plan would have restricted the ability to move chemicals and suggested that stairs would be more appropriate.