

Tewksbury Collection System Expansion: The Development & Implementation of a Major Infrastructure Program

Public acceptance of publicly funded construction projects depends on establishing lines of communication, adapting project components to public input and paying attention to details.

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One of the most difficult challenges faced by municipal officials and public works professionals is the need to gain widespread public support for the financing of large infrastructure projects. This task has become even more difficult in recent

years since reductions in federal and state aid have placed increased pressure on local budgets and forced necessary infrastructure investment to be deferred indefinitely or eliminated altogether due to competing demands for limited public funds.

In October 2002, Tewksbury, Massachusetts, residents approved funding for an \$80 million sewer expansion program that, over an eight-year period, would provide sewer service to all town residents. This town meeting vote is one of the largest single funding articles ever approved in Massachusetts for sewer construction, and represents a progressive approach to infrastructure investment for a community with a population of approximately 30,000. In May 2008, town residents approved another \$19 million to address the extraordinary increases in the cost of pipe, pavement, fuel and other commodities that

occurred from 2004 to 2008, and to fund additional road improvements. This second funding authorization increased the total budget for the program to \$99 million.

These positive votes were the culmination of several years of work in the development of an implementation plan that addressed community concerns and intensive public outreach and education that built grassroots support for this major infrastructure program. The inclusive approach to gain public support and approval for the Tewksbury program provides a model for other communities seeking public approval for the funding of new infrastructure and/or rehabilitation of existing infrastructure.

Background

Like most Massachusetts communities, Tewksbury has periodically expanded its wastewater collection system over the past thirty years as funding was available, with priority placed on providing sewer service to the older, more densely populated areas of the town. Between the years 1980 and 2000, over twenty sewer construction contracts were completed, providing service to approximately 45 percent of Tewksbury's residents.

By 2000, town leaders felt that, while significant progress had been made in expanding the town's collection system, a new plan for providing service to the remaining unsewered areas of town was needed. This renewed emphasis on the sewer program was brought about by several factors, including:

- Title V regulations (Massachusetts regulations governing the siting, construction and maintenance of on-site sewage disposal systems) that increased pressure on homeowners with aging or faulty septic systems to repair or replace their systems, particularly at the time of sale of a property;
- Increased cost of septic tank repair and replacement from 1998 to 2002;
- A sense that the historical piecemeal approach to funding articles may no longer be successful when over 50 percent of the population receive sewer service;
- A desire to meet the public expectation created in the early years of the program

(1980s) that all residents would have sewer service in future years; and,

- Environmental and health concerns resulting from people delaying septic system repairs due to the cost or a desire to wait until sewer service becomes available.

In response to these pressures and in recognition that the above factors had raised public awareness of the benefits of sewer service, a sewer committee comprised of residents and town officials was formed to develop a plan to provide sewer service to the entire town and gain public support for this initiative.

Program Development & Implementation

The sewer committee reviewed previous plans for expanding the existing collection system and, based on its knowledge of the town and the needs of the general public, developed a new plan that was highlighted by an aggressive program schedule that would reduce the impact of inflation on total program cost. The committee noted that a major sewer funding article had been voted down at town meeting in 1998 and reflected on the reasons for this negative vote. This older article included a schedule that required many residents to wait over ten years for sewer service and thereby receive the benefit of a positive vote. Additionally, the lack of a strong economic driver for the program (such as the cost of septic tank repair and replacement) and the lack of a strong committee to champion the issue throughout the public decision-making process were believed to be factors in the defeat of the 1990 article.

The committee realized that, to be successful, these perceived shortfalls would need to be addressed by the new plan. The committee's recommended plan included construction of over 90 miles of gravity sewer and force main over fifteen construction contracts and six phases of work (see Table 1 and Figure 1). Phasing priorities were based on a number of considerations, including the need to address concentrated areas of old or failing on-site septic systems, protect the water quality of the Shawsheen River and facilitate construction

TABLE 1.
The Recommended Program Included Over 90 Miles of Sewers
Installed Over Fifteen Construction Contracts

Phase	Number of Construction Contracts	Approximate Length of Pipeline (linear ft.)	Number of Pumping Stations	Approximate Number of Properties Served
6	1	24,600	1	290
7	4	121,900	9	1,300
8	3	92,300	8	880
9	3	97,400	3	880
10	2	62,400	1	610
11	2	78,200	7	790
Total	15	476,800	29	4,750

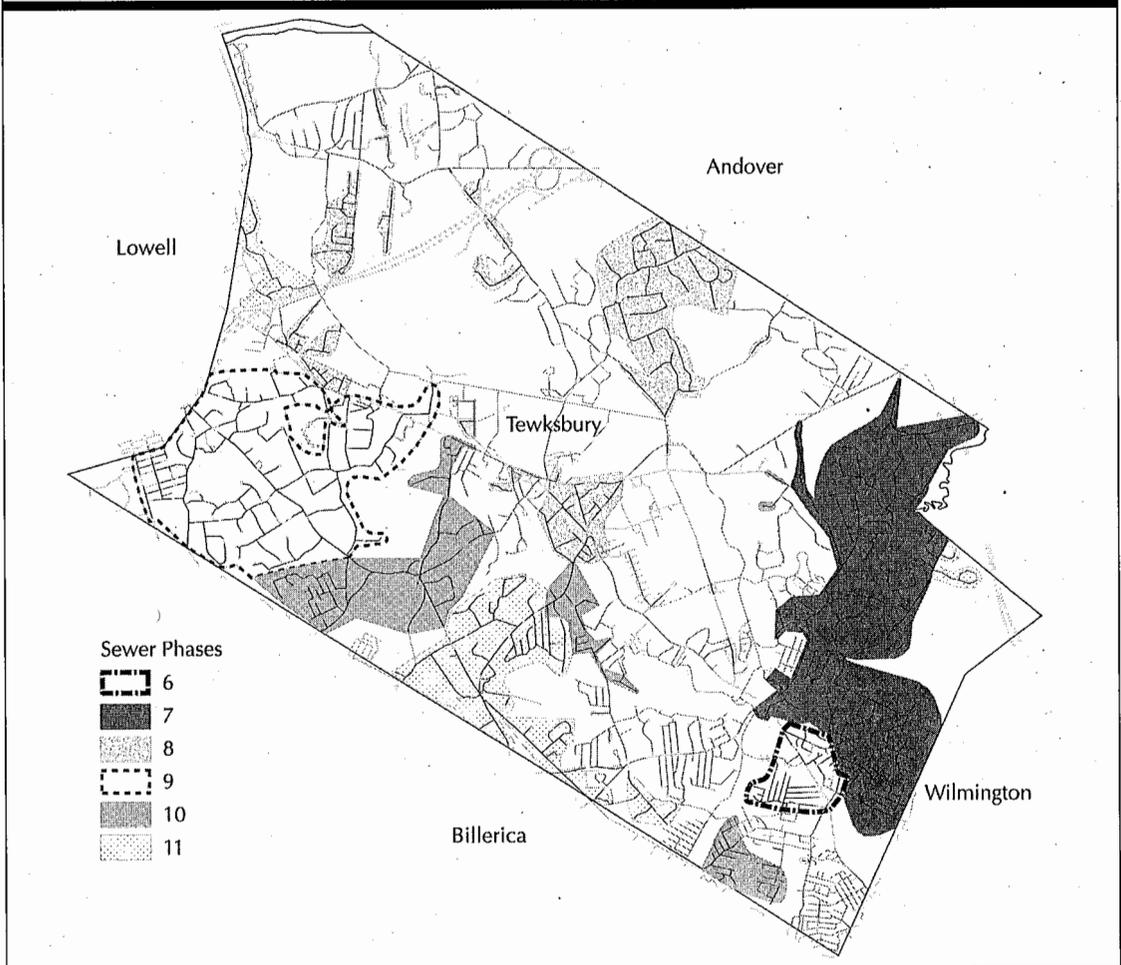


FIGURE 1. Town-wide sewer construction was divided into six phases of work.

selectmen and other public meetings. Additionally, the town initiated an outside audit of the program, the results of which confirmed for the public that the program was being well managed and that the additional program costs were justified and could not have been reasonably anticipated at the onset of the program. This effort culminated in the presentation of an additional funding article at town meeting in May 2008. The article would provide for an additional \$19 million in program funding, which would allow the original program scope to be completed in its entirety. Again, while it was believed that town meeting approval of the article would be difficult due to competing pressures on town finances, the article was approved overwhelmingly as residents made the decision to follow through on the commitment made in 2002 to provide service to all Tewksbury residents.

In any infrastructure project, the communications and public relations aspects of the project are often as important to the project's success as the technical dimensions. This belief was particularly true for the Tewksbury program given the size and intense nature of the construction program and the need to successfully obtain two major town meeting appropriations to allow for full funding of the program.

Keys to Success

Reflecting on the success of the Tewksbury program, certain critical factors have been identified and highlighted as issues that should be considered by other communities that seek to build public support for the funding of an infrastructure improvements program.

Dedication & Persistence. In January 2001, the newly formed sewer committee met for the first time to develop plans for a town-wide sewer expansion program that could be brought to town meeting for consideration in October 2002. Over the following twelve months, this group of volunteers would participate in twenty-two meetings and presentations, including twelve meetings of the sewer committee and five with the public, and presentations to the town's board of selectmen, the board of health and the finance committee.

Additionally, in preparation for the May 2008 town meeting vote, town leaders provid-

ed opportunities for public discussion regarding the need for additional funding and options to mitigate the size of the additional funding. These presentations included detailed discussion of the rate and scope impacts of the various alternatives, thereby allowing the public to make an informed decision regarding whether to complete the original program scope within the original timeframe. An outside audit team was also used to provide independent confirmation that the cost information provided to the public was reasonable and reflective of actual construction market conditions.

This extraordinary level of commitment ensured that information provided to the public and town officials was carefully considered and accurate, and presented professionally. Additionally, this high level of dedication built trust and credibility with the public since residents recognized that committee members were genuinely seeking to deliver a comprehensive plan that addressed financial, technical and public concerns.

Communicate Early & Often. Although the town meeting vote was not until October 2002, the sewer committee first met with the board of selectmen in March 2002 to present the outline for the proposed sewer expansion program and began a series of public meetings in June 2002 to describe the program to the public and invite public feedback. Five public meetings were held between June and the town meeting in October. These meetings were well publicized and well attended, with over a hundred people at many of the meetings. Additionally, several meetings were broadcast multiple times on the local access television channel to further increase public awareness of the program. Similarly, program funding issues were discussed publicly for several months prior to the May 2008 town meeting vote, including presentations at meetings of the board of selectmen and articles in local newspapers.

These steady, frequent communications created a productive dialogue between the sewer committee and residents, thus allowing the public to be an active partner in the development of the program. Also, beginning the public process early — a full six to twelve months before the town meeting vote — allowed time

for public education and debate, and avoided any sense that the sewer committee was forcing a last-minute decision from the public.

Invite & Accept Feedback. A critical factor in winning public support for the proposed program was the willingness by the sewer committee to not just present information at public meetings, but to listen carefully to public feedback received at these meetings and incorporate this feedback into the proposed program.

For example, the sewer committee initially proposed an approach to program financing that relied heavily on betterments to be paid by residents receiving service as a result of the program, with a relatively small portion of the costs applied to sewer user rates. At early public meetings, the committee received strong feedback on this issue, with most meeting participants expressing the view that a more equitable method of financing the program would be to have a relatively small betterment (or connection fee) and more program costs applied to user rates. This view was shaped by past practice in Tewksbury, where sewer projects had traditionally been financed by the general fund in combination with a modest connection fee. Residents felt that the imposition of a large betterment fee would be unfair to new users, given that existing users had not been subject to such fees. The public meetings provided a forum regarding the equitable distribution of costs between new and existing users, and the committee eventually adopted a financing plan that reflected the majority view expressed at the public meetings.

This willingness of the sewer committee to invite and accept feedback from the public created buy-in and support for the program. Ultimately, while all residents may not have agreed with every aspect of the proposed program, there was a strong sense that all participants had the opportunity to present their views and ideas, and that these ideas received a fair hearing. While this public process was difficult at times, it improved the proposal because of the intense discussion and debate.

Provide the Details. In many cases, the general public has a natural skepticism of large, long-term public works programs. At public meetings, residents often question whether fundamental program decisions regarding

schedule, phasing and financing could be modified or reversed in the future and express concern that such changes could adversely impact their situations. This skepticism regarding how the program will actually be implemented can lead undecided or unsure voters to question whether they will receive the promised benefit of the program and, because of these lingering doubts, ultimately oppose funding for it.

To address this skepticism, the sewer committee's plan included great detail regarding the issues most important to the public — project schedule, phasing and financing. Detailed maps and street listings were developed so that every resident could easily determine which program phase would provide service to his or her home and the years of construction for that phase of work. Regarding project financing, a detailed financial model was developed so that sewer rate impacts could be projected and presented to the public with confidence. This level of detail took significant effort but was critical in building public confidence in the program and assuring the public that program fundamentals would not be significantly altered due to changed financial or political priorities or other unforeseen circumstances. This assurance that the program would proceed in accordance with a detailed, well-constructed plan was essential to the two positive town meeting votes.

Build Support Among Town Leaders. In addition to building public support for the proposed program, it was just as important to be sure that town leaders and officials were fully informed and supportive. Accordingly, several town officials (town manager, superintendent of public works and finance director) were part of the sewer committee, providing the committee with the benefit of their experience in developing other town-wide programs and their knowledge of the community. Also, the sewer committee met with the board of selectmen regularly and met with the board of health and the finance committee at appropriate times to inform them of the sewer committee's progress and solicit feedback on both the content and public presentation of the program.

This dialogue with public officials built support for the program and created a network of advocates who could assist in informing the

public regarding its key issues and benefits. This "word of mouth" distribution of information is, in many respects, the most effective and credible means of communicating the key elements of a complex issue, such as the approval of a major capital works program.

Provide Strong, Collaborative Project Management. Throughout the duration of the program, representatives of the town, the engineering design team and the construction oversight team met regularly to anticipate, discuss and resolve potential problem issues and minimize community impacts resulting from project construction. Strong inter-department cooperation between the police, school and other town departments allowed construction on major school bus routes to occur during school vacation periods and allowed a number of traffic management issues to be addressed in an orderly, coordinated manner. The ability of multiple town departments and the professionals supporting the design and construction of the sewer system to communicate effectively and function as a single integrated team helped reduce community impacts and the negative publicity that often accompanies such impacts, and served to strengthen public support for the overall program.

Get Out the Vote! While the program development's public education component extended for several months, the three weeks prior to town meeting were particularly critical in building momentum and ensuring a high turnout for the vote. This final push was intended both to maintain engagement among voters who had been involved since the early public meetings but may be suffering from "issue fatigue" and to engage voters who, as town meeting approached, were only now focusing on this major funding article.

As part of this final public education effort, two public meetings — a presentation to the board of selectmen and a presentation to the finance committee — were all held in September, within four weeks of the town meeting vote. Also, a project "fact sheet" was prepared and distributed by mail to town residents and was posted at public locations throughout the town (see Figure 3). The result was one of the highest voter turnouts ever recorded at a Tewksbury Town Meeting, with

Tewksbury Sewer Committee
Fact Sheet

- Installation of sewers throughout the town will eliminate need for septic system (Title V) compliance
- Currently average cost of septic system replacement is \$15,000
- Article 4 proposes a connection fee of \$3000 without interest payable over 5 years to fund sewer availability
- If Articles 1-4 pass town meeting septic system (Title V) waivers will be available.
- Waivers will enable home sellers to postpone compliance with current Title V rules
- All sections of town without sewer will be available for hookup by the year 2011
- In addition, all sections of town without sewer will have a newly paved street.
- Sewer connections town wide will substantially increase the quality of water in the Shawsheen River.

Please vote yes on Articles 1-4

TUESDAY OCTOBER 1, 2002
TEWKSBURY MEMORIAL HIGH SCHOOL
7:00 P.M.

FIGURE 3. A project fact sheet provided information to town meeting voters.

718 residents voting on this important issue. The final vote was overwhelmingly in favor of the program, with 675 votes in support of the \$80 million funding article and only 43 votes against the article — a 94 percent approval.

Summary

Since it was approved by town meeting in 2002, the Tewksbury sewer expansion program has proceeded precisely in accordance with the schedule presented and approved at that town meeting and, as a result, all sewer pipe will be installed by the end of 2009 and final paving will be completed in 2010. (Figures 4 and 5 show views of project construction.) Adherence to schedule has been critical to maintaining public support for the program and reducing the impact of considerable construction cost escalation over the past few years.

Additionally, total program costs are projected to be at or below the budget approved at the May 2008 town meeting. With over ten construction contracts active at any time, effective public relations have continued to be critical to the success of the program. The



FIGURE 4. Over 90 miles of new sewers serving almost 5,000 properties were installed over an eight-year period.



FIGURE 5. With over ten construction contracts active at a given time, careful coordination of construction activities was critical to the success of the program.

town has used several methods to inform the public of project progress and minimize community disruption due to construction, including:

- Public meetings for impacted neighborhoods before initiating construction;
- Regular traffic updates posted on the town Web site and in local newspapers;
- Frequent progress meetings with town officials, the media and the public;
- Reverse 911 telephone calls to inform the public of critical project information;
- Extensive use of message boards to notify drivers of detours and other traffic impacts; and,
- Restriction of work on major streets to certain times of the year to reduce public inconvenience and minimize impacts to the school busing program.

These methods have helped identify and address public concerns in a timely fashion, allowing the program to proceed on schedule while minimizing community impacts.

The Tewksbury program demonstrates that, to be successful, a major public works project must not only have a sound technical basis, but requires careful planning and program management, an effective and inclusive public communications program, a viable plan for project financing and, perhaps most importantly, a willingness to actively engage project stakeholders (including the general

public) and incorporate their comments and suggestions into the project implementation plan. When these factors are addressed, it is possible to gather and maintain public support for required infrastructure investment.



JEROME SELISSEN served as a member of the Town of Tewksbury's Board of Selectmen from April 2003 to March 2009, including one year as Board Chairman. Previously, he served as Chairman of the Tewksbury Sewer Advisory Committee, and was named Citizen of the Year by the Lowell Sun in 2002. He has been a resident of Tewksbury for thirty-seven years and works as deputy chief financial officer for the Electronic Systems Center's Joint STARS Program Office at Hanscom Airforce Base in Bedford, Massachusetts.



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