TOWN OF YARMOUTH, MASSACHUSETTS

Does It Make Sense Study
"DIMS"

May 2009

Final Report

AMEC Earth & Environmental, Inc.

Executive Summary

On April 28, 2009, AMEC Earth & Environmental (AMEC)[1] stormwater and funding experts conducted a stormwater workshop with the Town of Yarmouth to explore what enhancements to the existing stormwater/surface program are necessary to meet local needs and growing regulatory requirements and the feasibility of utilizing a user fee structure to support such a program. The following topics were reviewed during the stormwater exercise:

- Current stormwater-related activities and costs
- Problems, issues and needs
- Program priorities necessary for change
- Potential future cost
- Ability to generate revenue and the advisability of a stormwater user fee

The Town of Yarmouth's 2008 estimated stormwater budget was approximately $220,000. This is a significant cut from past years due to local economic conditions. Some of the program elements considered basic to stormwater management are being performed but at a relatively low level of service. This level of expenditure is insufficient when compared to other communities around the country and the level of local need.

The following issues were identified by workshop attendees as the current most compelling reasons to enhance the Town's stormwater management program and its stormwater program priorities:

- Aging infrastructure – inability to inspect and maintain the miles of pipes and hundreds of structures that are in the ground
- Flooding – inability to solve flooding problems with capital construction
- Regulatory mandates – inability to meet ongoing and anticipated regulatory mandates to clean up runoff
- Water quality – inability to get out in front of protection of shellfish beds and concern for beach closures

It was estimated that a total annual budget of roughly $1 million annually would be needed to accomplish these priorities at a moderate level of service.

Various methods to raise this funding were discussed. In the end, the only ways to raise stable and adequate revenue were through tax increases or a stormwater user fee. A stormwater user fee is similar to a drinking water or wastewater fee just as a stormwater drainage system is similar to those other two systems. It is eventually a public system which can be funded by fees that reflect "use" of the system. Use of the stormwater system is measured in terms of the amount of hard surface a property has on it – parking, rooftops, sidewalks, etc.

It was determined that Yarmouth could generate sufficient revenue to fund the stormwater and surface water program – stewarding its infrastructure and protecting valuable water resources through a fee in the range of $1.50 to $1.75 per month per 2,000 square feet of hard surface area. Eighty percent of all residences would fall within the first or second 2,000 square foot tier.

[1] Westford, MA, offices nationwide

Introduction

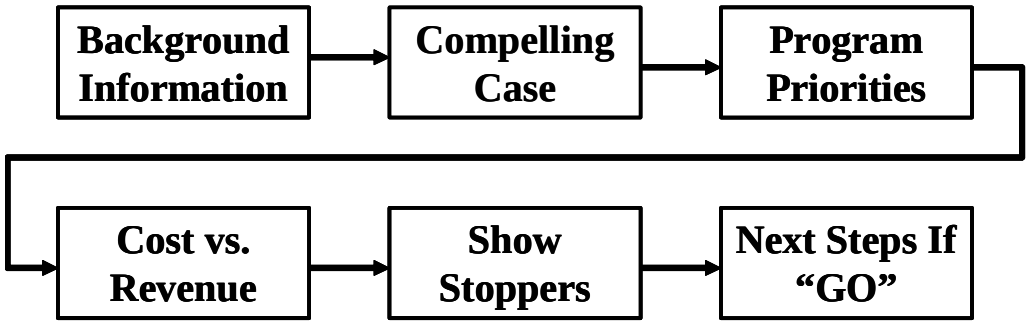
AMEC Earth & Environmental, Inc. (AMEC) is pleased to submit this Does It Make Sense (DIMS) study report to the Town of Yarmouth, Massachusetts. This report discusses the findings and recommendations of our investigation into the potential feasibility of using a stormwater user fee mechanism to fund an enhanced stormwater program. As part of this study, AMEC staff conducted a stormwater workshop with the Town of Yarmouth to explore what enhancements to the existing stormwater program are necessary to meet local needs and regulatory mandates, and the feasibility of utilizing a user fee structure to support such a program. The DIMS workshop took place on April 28, 2009, at the Cape Cod Commission Hearing Room in Barnstable, Mass., and included the following attendees:

George Allaire, Yarmouth Department of Public Works
Rick deMello, Yarmouth Department of Public Works
Bob DuBois, Yarmouth Chamber of Commerce
Bob Garcia, Yarmouth citizen
Gabrielle Belfit, Cape Cod Commission
Jo Ann Muramoto, Mass Bays Program/ Association to Preserve Cape Cod
Sam Jensen, Sandwich Department of Public Works (observer)
Andrew Reese, AMEC
Laura Chan, AMEC

The participants above engaged in a session to discuss the logistics and strategies of implementing a stormwater utility. The goal was to consider the following key questions:

1) What is the Town currently doing in terms of stormwater management?
2) Why would the Town want to pursue a study and potential funding method like this – what is the compelling case?
3) What stormwater program priorities should guide the Town in the next three to five years?
4) What basic "big rocks" program improvements would the Town make and what would the costs be? What is the user fee (and other major revenue source) revenue potential?
5) What are the major hurdles or potential "show stoppers" to going forward?
6) What are the immediate next steps should a "GO" decision come out of this DIMS study?

The structure of the workshop followed the roadmap depicted below. The remainder of this report will also follow this roadmap.



Background

What is stormwater?

Stormwater, also known as runoff or drainage, occurs when precipitation from rainfall or snow-melt flows over ground surfaces. Table 1 depicts the key elements of a typical stormwater program.

Development creates impervious surfaces such as roadways, sidewalks, parking lots, and building roof tops that impede the natural percolation of water into the ground. The Town of Yarmouth established a system of structures and pipes to collect, transport and dispose of stormwater runoff. This system is known as a Municipal Separate Storm Sewer System (MS4). In order to take advantage of the sandy soil conditions found on Cape Cod, Yarmouth has established a leaching system of drainage that intercepts the first flush from rainstorms and handles 25-year storms.

How is local stormwater management funded?

Municipalities and their subsidiary organizations employ a variety of "funding" methods, including service charges, several types of taxes, franchises and other fees, fines, and penalties. There are three main ways of providing support to stormwater programs: resources, money and revenue.

- ***Resources*** include all the non-cash ways that a local stormwater program can be supported including: free resources available from the internet, shared costs with neighbors, transformation of current programs to better support stormwater needs, volunteer programs, etc. Resources are not necessarily free in that they often require significant staff time to find, coordinate, and manage.

- ***Money*** includes all one-time infusions of funds. This includes federal and state grants, loans, penalties, bonds, special sales taxes, one-time development related fees and payments, penalties, etc. Money is often targeted to a specific need or program activity. It may, or may not, be sufficient to cover that program but its key characteristic is that it is one-time.

- ***Revenue*** includes all ongoing flows of funds. For local governments this includes property and other ad valorem taxes, sales or gasoline taxes, franchise fees, user fees, etc. The key characteristic of this type of support is that it is ongoing.

Each of these basic types of support has advantages and disadvantages that can be targeted toward different aspects of the stormwater program. As the elements in Table 1 are considered, it is clear that the bulk of the cost of stormwater programs must be borne by revenue-producing support sources and not by resources or money. Since stormwater cannot compete effectively for general fund tax dollars, most local governments have found that only legally dedicated revenue will last the test of time and competing priorities.

Table 1. Stormwater Functional Areas

1. **Administration & Finance**
   - General Administration
   - General Program Planning & Development
   - Billing Operations
   - Customer Service
   - Financial Management
   - Capital Outlay
   - Overhead Costs
   - Cost Control
   - Support Services

2. **Special Programs**
   - Public Awareness and Involvement
   - GIS and Database Management
   - Special Program Planning & Development

3. **Stormwater Quality Management**
   - Quality Master Planning
   - Retrofitting Program
   - Comprehensive Monitoring Program
   - Best Management Practice (BMP) Program
   - Pesticide, Herbicide and Fertilizer
   - Used Oil & Toxic Materials
   - Street Maintenance Program
   - Spill Response and Clean Up
   - Program for Public Education and Reporting
   - Leakage and Cross Connections
   - Industrial Program
   - General Commercial & Residential Program
   - Illicit Connection and Illegal Dumping
   - Landfills and Other Waste Facilities
   - Septic Programs

4. **Engineering and Planning**
   - Design Criteria, Standards and Guidance
   - Field Data Collection
   - Stormwater Management Master Planning
   - Design, Field and Operations Engineering
   - Hazard Mitigation
   - Zoning Support
   - Multi-Objective Planning Support

5. **Operations**
   - General Maintenance Management
   - General Routine Maintenance
   - General Remedial Maintenance
   - Emergency Response Maintenance
   - Infrastructure Management
   - Public Assistance

6. **Regulation and Enforcement**
   - NPDES Stormwater Permitting
   - TMDL Implementation
   - General Code Development & Enforcement
   - General Permit Administration
   - General Drainage System Inspection
   - Flood Insurance Program
   - Multi-Objective Floodplain Management
   - Erosion Control Program

7. **Capital Improvements**
   - Major Capital Improvements
   - Minor Capital Improvements
   - Land, Easement, and Right-of-Way

The various funding methods also have distinctive characteristics which separate them legally, technically, and in terms of public perceptions. Four major categories of municipal revenue generation methods are taxes, service charges, exactions, and assessments.

- Taxes are intended primarily as revenue generators, and with some exceptions (such as special local option sales or earmarked taxes), without any particular association with the activities or improvements that they fund. They can be used for the general purposes of local government. These include property tax, income tax, sales tax, etc.

- Service charges are not established simply to generate revenue, but must be tied to the objectives of a specific program to which they are associated. For example, water and sewer service charges are structured to cover the cost of those programs, not to simply generate revenue which is used for other purposes as well. Thus the total revenue

generated must be tied to the cost of providing services and facilities and the amount each rate payer is charged must be related to the impact or "use" of the system (rational nexus).

- Exactions are related to the extension of an approval or privilege to use. Franchise fees for the privilege of using the right-of-way for cable and phone companies limited to a certain percentage of revenue by federal or state laws are an exaction. Licenses, tap fees, impact fees, fees in lieu of detention, capital recovery charges of all kinds and the mandatory dedication of infrastructure during development are also exactions.

- Assessments are geographically or otherwise limited fees levied for improvements or activities of direct and special benefit to those who are being charged. The benefit must be direct – tied to a specific and measurable or estimable property improvement. And it must be special - a benefit which is not realized generally in the community or area.

A major source of funding for stormwater management is in the form of a user fee system under the auspices of a stormwater utility. This form of funding has several advantages over other competing forms of finance including its equitability, stability and adequacy. The user fee concept of a stormwater utility based funding method is fast growing. In the early 1970s, there were only one or two true stormwater utilities in existence. By 2008, the number had grown to over 1,200. This number is expected to more than triple in the next decade as the financial impacts of stormwater quality legislation reach the many small municipalities. A number of communities throughout New England have implemented or are in the process of investigating the feasibility of implementing a stormwater user fee program.

A number of communities throughout New England have implemented or are in the process of investigating the feasibility of implementing stormwater user fee programs. The legality of setting up and operating a stormwater utility was established by the Commonwealth of Massachusetts through the Stormwater Management Bill passed in 2004 and enacted through amendments made to existing legislation under Massachusetts General Law (MGL) Chapter 83 Section 16 pertaining to Sewers, Drains and Sidewalks. The Town may adopt, through regulations authorized by a local stormwater bylaw, a stormwater utility pursuant to MGL Chapter 83 Section 16 and Chapter 40 Section 1A. Appendix A provides references to these chapters of Massachusetts General Law.

A stormwater utility falls primarily under the second of these funding categories: a service charge. It is based on the premise that the urban drainage system is a public system, similar to a wastewater or water supply system. When a demand is placed on either of these two later systems the user pays. In the same way when a forested or grassy area is paved a greater flow of water is placed on the drainage system. This is the demand. The greater the demand (i.e. the more the parcel of land is paved), the greater the user fee should be.

The distinctions of the four revenue categories are very important. One of the critical issues which typically must be resolved if a utility service charge of any type is legally challenged is whether the service charge is clearly related to and incidental to the activities and improvements of the utility, or is in fact merely a means of creating revenue for all governmental purposes generally (a tax), or is a special assessment (which is supposed to reflect a direct and special benefit). Thus a stormwater utility must be based on a stormwater program and not simply a perceived financial need or willingness to pay.

A stormwater utility is seen as an umbrella under which individual communities address their own specific needs in a manner consistent with local problems, priorities and practices. It is

understood in three ways: a means of generating revenue, a program concept, and potentially an organizational entity. A stormwater utility may provide a vehicle for:

- consolidating or coordinating responsibilities that were previously dispersed among several departments and divisions;
- generating funding that is adequate, stable, equitable and dedicated solely to the stormwater function; and
- developing programs that are comprehensive, cohesive and consistent year-to-year.

A stormwater utility is equitable because the cost is borne by the user on the basis of demand placed on the drainage system. It is stable because it is not as dependent on the vagaries of the annual budgetary process as are taxes. It is adequate because typical stormwater program enhancements can be funded with payments that are generally felt to be affordable to customers within the service area.

How do stormwater fees work?

The basic rate methodology defines the basis for the rate that users will be paying. The three main impacts on surface water of urban development are increases in peak flow, volume of discharge, and amount of pollution. All impacts can fit into these three basic categories. The variable most positively associated with each of these three major impacts is the conversion of pervious areas (forests and fields) to impervious areas (pavement, roof tops, and other hard surfaces).

Accommodating the runoff that occurs when pervious area that typically absorbs rainwater, is converted to impervious area requires Yarmouth to invest in the public drainage system. Therefore, it is appropriate to use some measurement of impervious area or surrogate of impervious area in the rate methodologies. Most stormwater programs in the United States have taken this approach and a 2007 survey found that 74 percent of all stormwater programs responding used impervious area as a factor for rate calculation[2]. While impervious area does not directly account for all of the stormwater program costs, urbanization of land as reflected in intensity of development is, by far, the best measure of cost causation and provides a court-tested rational nexus for the fee amount on any property.

Figure 1. Example of Non-Residential Parcel Impervious Area

Impervious area is typically billed in units of an equivalent residential unit (ERU) or, if data is available on all properties, on a convenient unit of measure (e.g. per 2,000 square feet of impervious surface).

Figure 1 to the right shows an example of the impervious coverage on a non-residential parcel in West Yarmouth. Impervious area includes

[2] "Stormwater Utility Survey", Black and Veatch, Kansas City, 2007.

such things as roof tops, sidewalks, parking areas, patios, tennis courts and gravel traveled ways – any man-made surface that water cannot penetrate effectively and thus, must run off.

There are, however, additional ways to configure the rate methodology to emphasize certain other impacts or recognize the benefits of certain kinds of development practices. Many of these considerations are handled with a stormwater crediting or secondary funding system, but some factors can also be handled in the makeup of the basic rate methodology itself. Two factors commonly considered are:

- Some communities charge for gross parcel area in addition to impervious area, reasoning that stormwater runs off all parcels and thus, all should pay.
- Some communities want to encourage green space and set up charges based on an intensity of development factor – so that the same amount of imperviousness would be charged less if it were located on a larger lot with more green space.

These latter two approaches are almost opposites of each other in how they treat open space. The 2007 Black & Veatch survey, which found that a majority (65%) of stormwater programs base charges on impervious area only, found that of the remaining stormwater programs:

- 9% charge based on gross area plus impervious area.
- 12% recognize the benefits of green space through an intensity of development factor.
- 14% use another basis for fees.

A summary of the impervious area data in Yarmouth is provided in Appendix B.

Current Program

Yarmouth has a population of about 26,000 and is one of the larger towns in the mid-Cape region of Massachusetts. Yarmouth has a total area of 28.2 square miles of which 4.0 square miles is water. Located approximately 75 miles southeast of Boston, Yarmouth is bordered by Cape Cod Bay to the north, Dennis to the east, Nantucket Sound to the south, and Barnstable to the west. There are over 15,700 land parcels within the Town's database (according to MassGIS) and approximately 17,000 housing units.

Due to the sandy soil conditions on Cape Cod, most of Yarmouth's drainage systems are leaching type, which infiltrate stormwater run off into the ground. While the Town has some piped systems, they have worked on eliminating them or intercepting the initial flush of pollutants associated with runoff and percolating it into the ground. Since most systems are leaching facilities, like septic systems, they have limited life and must be replaced on a cyclical basis. As with most areas of the Cape, Yarmouth has no sanitary sewers; the Town is currently undergoing the initial stages of design and permitting for its initial sewer system.

Current broad estimates for stormwater program spending are presented in Table 2 below:

Table 2. 2008 Estimated Stormwater Budget

Catch basin cleaning	$100,000
Engineering & Installation	$120,000
Total	**$220,000**

These costs do not include street sweeping which was estimated at $110,000 per year but was cut from the budget last year, nor do they include capital improvement projects (CIP) that typically ranged from $500,000 to $600,000 per year but were also eliminated in 2008. Additional capital construction associated with stormwater quality best management practices (BMPs) have all been supported by Mass Highway grants and CIP bonds. These grants and bonds ended last year.

The Town of Yarmouth's current stormwater program, excluding the activities that were eliminated last year is funded at approximately $20/developed acre. This is depicted in Figure 2 below. The values on the chart are expressed in terms of dollars per developed acre per year spent on stormwater and provide a broad level of comparison and bracketing for planning purposes.

The expenditures listed in Table 2, when compared to other comparable communities around the United States, show an "incidental" level of stormwater program investment – few resources, little focus, deferred maintenance, none but emergency construction. Unless recent funding cuts are replaced, our estimate and that of the staff/citizen group is that the stormwater program and its system will begin a slow downward slide. Many of the program elements considered basic to stormwater management (routine maintenance, remedial maintenance, engineering, and water quality compliance) are currently not being done, or are done at a relatively low level of service.

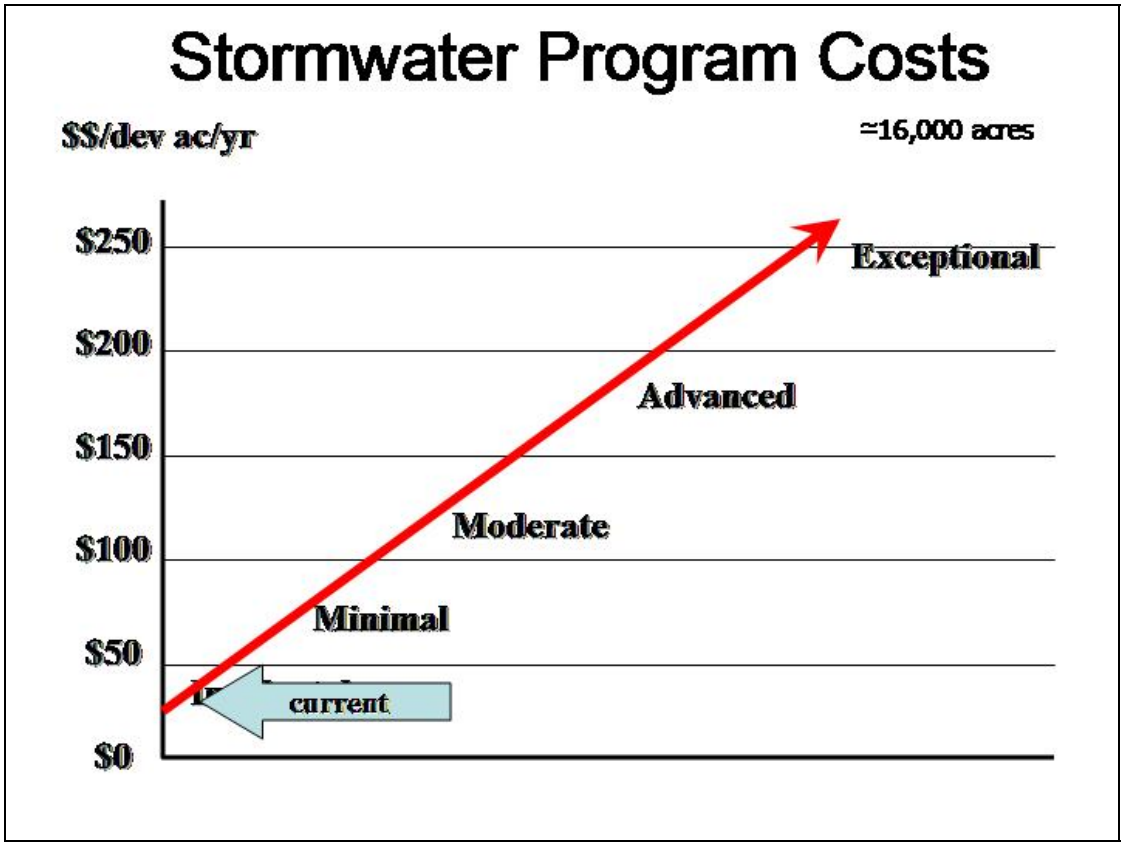


Figure 2. Stormwater Program Costs

Based on Figure 2 above, the annual cost to reflect a moderate stormwater program level[3] is estimated at approximately $1.0 million based on $100/developed acre. This is not the target number but is simply a bracketing level to give some idea of Yarmouth's stance compared to national norms. It also reflects the potential level of investment needed to round out the stormwater program, thus transforming it into a more comprehensive and robust program.

[3] Termed the "low mileage used Camry with leather seats" program

Compelling Case

What local government "sells" is service—services that local citizens feel they need. In most communities there are compelling reasons to improve stormwater programs (i.e. localized flooding issues, water quality violations, large backlog of capital needs). Improving stormwater services costs money, so the compelling reasons for each community to enhance services need to be determined and clearly communicated to convince stakeholders and citizens to spend more on the stormwater program.

Unlike other public works problems, such as wastewater or solid waste management, stormwater issues are rarely visible to the majority of the community. So it is incumbent on the organizations that manage stormwater to make these problems, issues, and opportunities known in an effective way. Experience has shown that in many cases, when the public is educated effectively, most citizens will acquiesce in allowing the organization to solve the problems, address the issues, and take advantage of the opportunities.

In discussions with Town staff, a series of key problems, needs, and issues emerged that are either facing the Town today or will face them in the near future. The group developed a top list of issues and messages that resonated with them. These messages were then multi-voted on by the group; each participant was given five votes to select what they thought would be important to citizens and other stakeholders in the community. The outcome is summarized below in order of ranking done by the multi-voting.

1. Meet Regulatory Mandates – The National Pollutant Discharge Elimination System (NPDES) Phase II stormwater regulations are unfunded federal mandates which place a significant burden on the Town's resources and it is anticipated that the impending renewal of the Town's MS4 permit will require additional resources above and beyond what is currently being expended to meet current regulations. Of local importance, the Massachusetts Estuaries Project (MEP) has identified that nutrient (nitrogen) reductions are needed in parts of Yarmouth to restore and preserve long-term water quality.
2. Protect Water Quality and the Environment– There was an expressed desire to protect the valuable water resources upon which the Town relies economically for its tourism industry. Many participants expressed concerns regarding shellfish bed closures.
3. Stewardship of Infrastructure – With the recent budget cuts, there was a concern about the Town's ability to provide maintenance and adequate stewardship for the Town's stormwater system valued at an estimated $20 million. The Town felt that proper maintenance of the system would prolong its useable life and protect the sizeable investment already made in constructing the stormwater system.
4. Protect Property Values – Paired with Number 2 above was the desire to protect property values in Yarmouth which could be achieved through protection of water quality and developing a reputation as a leader on Cape Cod for being an environmentally proactive or "green" community in which to live and visit.
5. Reduce Flooding – There is a desire to reduce the number of flooding incidents that have caused substantial damage in Yarmouth. There are currently at least 100 existing stormwater-related problems that still require attention throughout the Town and will cost approximately $1 million in total to address.
6. Protect Beach Quality – Although the number of beach closures in recent years has not been noted to be higher than normal or higher than that of neighboring

communities, participants expressed the desire to be proactive in the protection of beach quality to protect the environment and prevent loss of tourism.

7. Improve Quality of Impacted Ponds – There was a desire to improve protection of the freshwater resources in Yarmouth, particularly ones that are impacted by stormwater pollution.
8. Reduce Sewer Area – There was interest in addressing stormwater pollution to potentially reduce the amount of area that would have to be sewered, thereby reducing costs in the wastewater program.
9. Ability to Leverage Other Funds – There was an interest in increasing the ability of the Town to leverage other sources of funds by having the funds to provide as match, which often increases one's ability to obtain grant funding.

Program Priorities

Following the compelling case discussion, input from workshop attendees was solicited regarding stormwater program priorities. The development of program priorities typically involves the synthesis of the compelling case issues into a core plan that guides the development of an enhanced stormwater program. The following is a brief description of the top three identified program priorities presented in the order of importance as determined by workshop attendees.

1. **Stewardship of Infrastructure**
   The Town feels that proper maintenance of the system will prolong its useable life and protect the sizeable investment (estimated at $20 million) already made in constructing the stormwater system. Workshop attendees identified the need to take a proactive stewardship approach, rather than the current reactive approach, towards planning, constructing, operating, and maintaining stormwater infrastructure as being extremely important to the Town of Yarmouth. The Town also wants to develop a better ability to construct rapid remedial projects on failing infrastructure in a cost effective manner by catching and correcting issues prior to total failure or damage to property and streets.

2. **Meeting Regulatory Requirements**
   The Town is facing significant increase in a variety of water quality related regulatory requirements. The NPDES Phase II stormwater regulations are unfunded federal mandates which place a significant burden on the Town's resources. The permit associated with these regulations is in its second round, and significant increases in the requirements for catch basin cleaning, street sweeping, and monitoring are anticipated in the impending permit renewal. Also of importance, the Massachusetts Estuaries Project (MEP) has identified that nutrient (nitrogen) reductions are needed in parts of Yarmouth to restore and preserve long-term water quality. Based on conversations with regulators, as the impacts of unmanaged stormwater runoff become better understood, it is very likely that the regulatory community will react and that unfunded state and federal mandates relating to stormwater management will continue to become an increasing responsibility in future years through the development of total maximum daily loads (TMDLs) and the proposed statewide stormwater regulations.

3. **Improvement of Water Quality**
   There was an expressed desire by workshop participants to protect the valuable water resources upon which the Town relies economically for its tourism industry. Many participants expressed concerns regarding shellfish bed closures. Although the number of beach closures in recent years has not been noted to be higher than normal or higher than that of neighboring communities, participants expressed the desire to be proactive in the protection of beach quality to protect the environment and prevent loss of tourism. Tied to water quality and the local economy are the preservation of property values in Yarmouth and the development of a reputation as a leader on the Cape for being an environmentally proactive or "green" community in which to live and visit.

The Town of Yarmouth is not alone in the problems identified with its existing stormwater program. Many U.S. towns and cities have dealt with or are currently dealing with similar program priorities through the development of an enhanced stormwater management program and associated user fee funding approach. The identified program priorities of infrastructure

stewardship, regulatory requirements, and water quality issues are considerable and should be addressed through a consistent and predictable management approach.

Cost vs. Revenue

Yarmouth's stormwater program

An adequately funded stormwater management program is the foundation of a successfully operated and maintained stormwater system.

There is a clear understanding by the staff that the Town currently does not have the budget to fund an enhanced stormwater management program nor to return it to the level of funding it relied upon last year.

Discussion was held with Town staff to explore current stormwater activities to estimate typical stormwater program expenditures. Obtaining accurate information on all of the town's stormwater activities was challenging, because many of the activities are not accounted for nor tracked in a manner that allows for financial or even functional segregation from other programs or activities. Since Town stormwater services are currently performed through different departments and funded through different budgets, the staff reviewed the *Stormwater Management Program Functions* table and made educated estimates of resources expended on applicable functions.

The majority of the Town's current stormwater program is administered by the Public Works Department and consists of two main items: catch-basin cleaning (Line Item #1) and general engineering support (Line Item #2). Costs are shown in Table 3 below.

At this time, the biggest known stormwater needs and related costs pertain to the following:

- Maintenance and capital improvement of the current stormwater system, including periodic replacement of leaching facilities with limited life span are currently underfunded (Line Item #4). There are currently at least 100 existing stormwater-related problems in the Town estimated at a total cost of $1 million to mitigate.
- The budget for annual street sweeping was recently eliminated.
- Meeting regulatory mandates including the NPDES Phase II stormwater permit and the TMDL program (Line Item #3).

Table 3. Stormwater Management Program Costs

Line Item	Function	Estimated Costs	
		Existing	Future
1	Catch-basin cleaning	$100,000	$100,000
2	Engineering	$120,000	$120,000
3	MS4 permit requirements	$0	$150,000
4	Capital Improvement Projects	$0	$600,000
TOTALS		**$ 220,000**	**$ 970,000**

Detailed discussions were held concerning the types of improvements needed and cost increases. These estimates represent a consensus of the staff present. In every category presented, current expenditures fall short of projected future needs.

EPA Region 1 will soon be renewing the general MS4 permit for stormwater Phase II communities in Massachusetts. It is anticipated that the updated permit may include more prescriptive requirements for catch basin cleaning, street sweeping, and monitoring than what was required in the initial permit. The estimated cost for meeting these requirements is approximated at $250,000 per year based on comparisons and estimates from comparable communities. This is expressed as $100,000 in catch basin cleaning which is already part of Yarmouth's stormwater program and $150,000 in anticipated future costs for street sweeping (which was eliminated from Yarmouth's program this year due to budget cuts) and other activities that will be required in the renewed permit.

Capital improvement projects estimated at $500,000 to $600,000 were eliminated from Yarmouth's program this year due to budget cuts as well as a Mass Highway grant for $100,000. This program was restored.

Yarmouth's revenue estimates

Figure 3 below provides an estimate of the amount of revenue that could be generated with an impervious-based user fee. These numbers are based on using a billing unit size of 2,000 square feet of impervious area. We estimate that for every one dollar per ERU per month the Town can generate roughly $575,000. To generate the projected $970,000 required annually to fund all projected future stormwater needs, a charge in the range of $1.50 to $1.75 per month per 2,000 square feet of impervious area or part thereof would be needed.

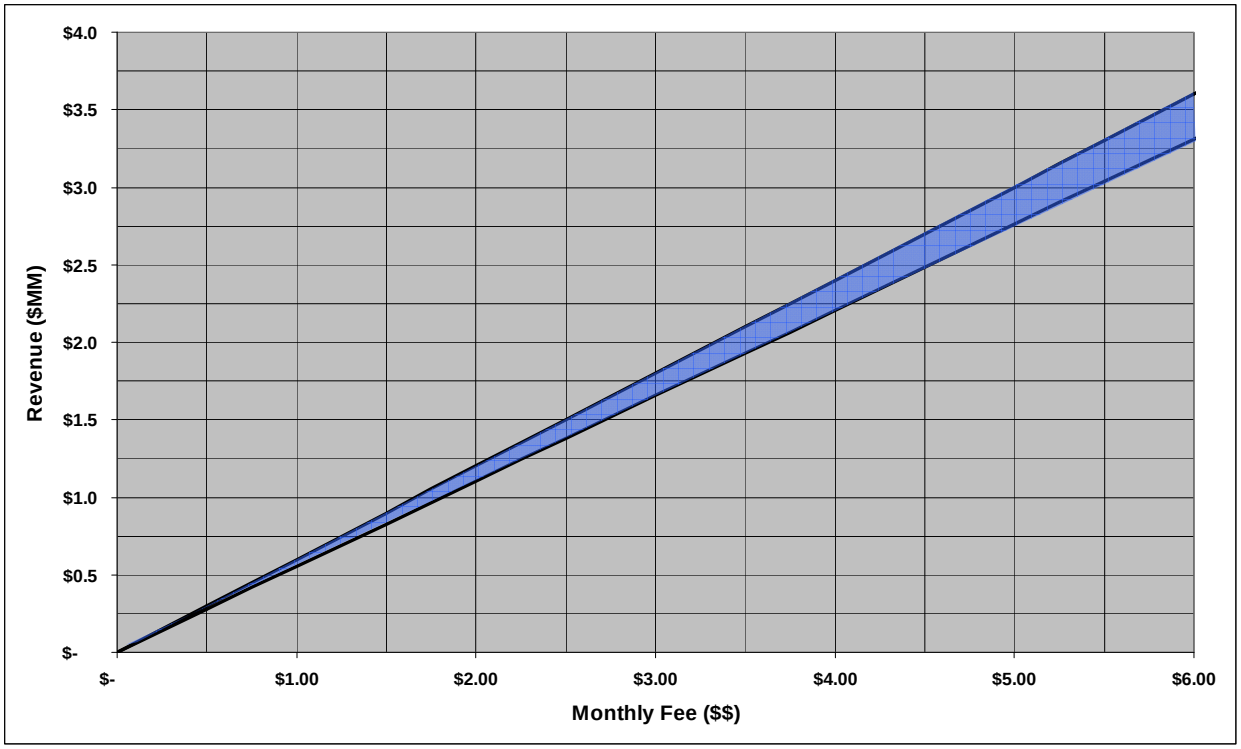


Figure 3. Revenue Estimates

Show Stoppers/Hurdles

The group then identified the local issues that, if not handled appropriately and proactively, can become "show stoppers" or "hurdles" that can slow or derail the transition to a more comprehensive stormwater management program with user fee funding. The hurdles identified by the group are:

- Given the current difficult economic climate, a stormwater user fee may not be well-received in the community at this time. Timing could be an issue.
- The public may feel that "we pay this already," in other utility bills. With proper outreach and education, this type of message can be addressed. Additionally, tying a stormwater user fee to the current wastewater efforts and sending the message that this is a step towards proper wastewater management could be beneficial to program acceptance.
- Those on a fixed income may have difficulty paying a fee.
- There are some "big users" in the Town that may object to their stormwater fees.
- Schools may not be able to afford any additional fees. This issue could be addressed by offering an education credit.
- Drainage to state roads may be an issue. There are three state highways that run through the Town of Yarmouth, and abutting properties may feel that they should not pay the fee because their property drains to the state highway which is managed by Mass Highway.
- Some people may feel that a stormwater user fee looks like a way to get around Proposition 2 ½.

Conclusions and Next Steps

A poll was taken at the end of the workshop to determine how the staff felt about a stormwater user fee being developed for the town. Each participant was asked to vote along a sliding scale from one to five, with one being strong negative feelings and five being strong positive feelings. The number of votes cast for each expression is in parenthesis.

1. It won't work. (0)
2. This is probably not the right approach. (0)
3. Let's move to the next step with some conditions. (4)
4. Let's move cautiously toward implementation. (2)
5. I strongly support implementing a stormwater user fee right now. (0)

The group consensus was that a stormwater utility was a practical solution to the Town's funding problems. They agreed that it was a concept worth further investigation and that we should move forward conditionally, insuring Selectmen were aware of and supportive of the exploratory process.

The Town is undergoing the initial phases of design and permitting for its initial sewer system with anticipated costs around $300 million. There was also discussion about the overall message and strategy given the wastewater efforts now ongoing.

One option mentioned is to explore a jointly planned "water quality" utility that deals with both sanitary and stormwater. It might be that the stormwater or surface water part of the fee could be established ahead of the wastewater portion to fund immediate water quality and infrastructure needs which cannot wait the years necessary for the wastewater program to come on line. This fee would be coordinated with the wastewater charge when that system is activated.

Another alternative option is to explore creating a regional stormwater utility with other Cape Cod municipalities. There are many options on how this may be organized which, for example, allow local towns to retain autonomy for local systems but share resources for shared problems. This alternative may be explored further through facilitated discussions with Cape Cod Commission and Association to Preserve Cape Cod at future workshops with participants from other stormwater Phase II communities in the middle and upper Cape. Another way to explore this option may be through the Integrated Water Resources Committee.

The staff then brainstormed key components and key next steps. It was agreed that a briefing of the Town's Selectmen was necessary to gain permission to explore public support for a stormwater initiative. The overall plan for the Town to move forward might contain the following actions:

- Gather more data on the stormwater system condition and needs.
- Organize a similar exercise as this one with Town Selectmen to broaden the base of support and understanding.
- Gain permission from Selectmen to develop a Stormwater Management Business Plan (SMBP).
- If the Selectmen give permission, develop the scope and process for SMBP.

- Based on the results of the SMBP, gain permission from Selectmen to begin the process of user fee implementation – defining decision points throughout the process to allow for GO/NO GO consideration.

If the Town decides to move forward with the stormwater program, a formal process of establishing an enhanced stormwater program and user fee funding methodology would be required. Tasks would include, but not be limited to, the development of various program policies, a five year program strategy, an organization and staffing approach, a formalized crediting mechanism, and a cost of service analysis and rate determination, data analysis, impervious feature coverage, master account file and billing system development and error elimination necessary for the preparation of accurate user fee bills. This work would conclude with the adoption of a rate ordinance or bylaw. Also included in this phase would be the development and support of a public outreach plan, customer service training, development of complaint response measures and other program implementation assistance services.

A summary of the general implementation process is provided in Appendix C.

Appendix A: Legal Framework

CHAPTER 83. SEWERS, DRAINS AND SIDEWALKS
SEWER ASSESSMENTS
Chapter 83: Section 16. Charge for use of sewers

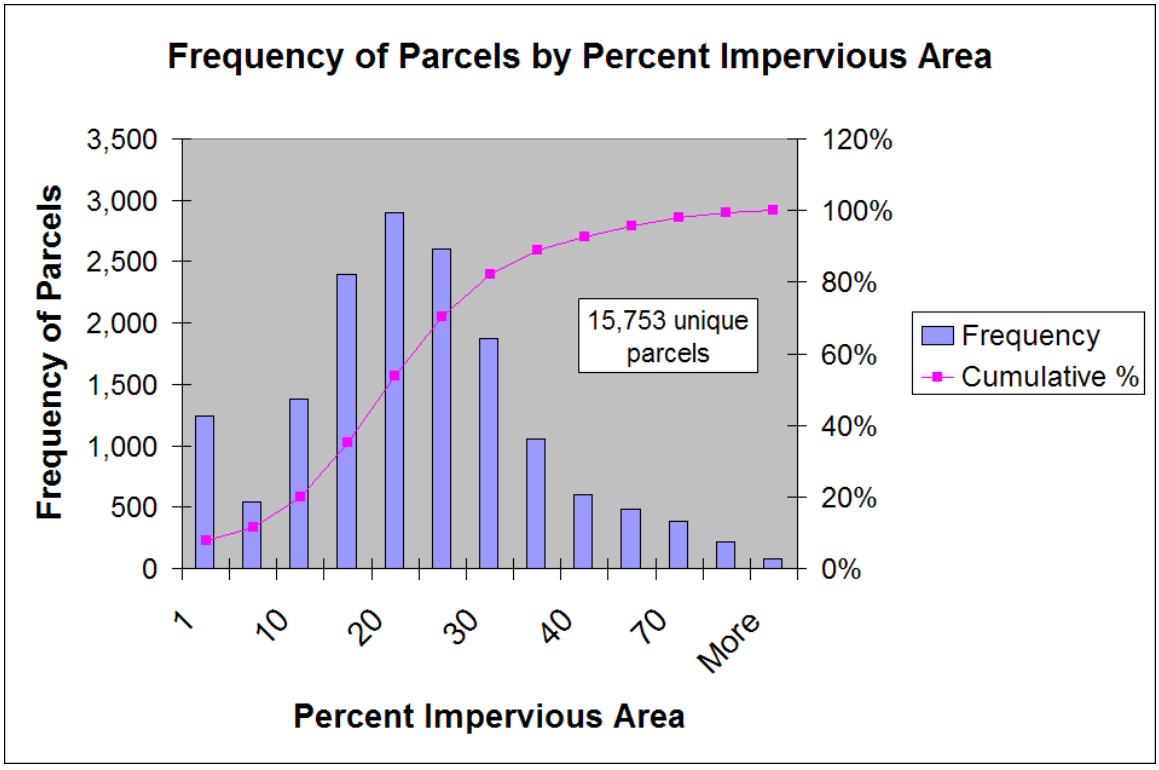
Section 16. The aldermen of any city or the sewer commissioners, selectmen or road commissioners of a town, may from time to time establish just and equitable annual charges for the use of common sewers and main drains and related stormwater facilities, which shall be paid by every person who enters his particular sewer therein. The money so received may be applied to the payment of the cost of maintenance and repairs of such sewers or of any debt contracted for sewer purposes. In establishing quarterly or annual charges for the use of main drains and related stormwater facilities, the city, town, or district may either charge a uniform fee for residential properties and a separate uniform fee for commercial properties or establish an annual charge based upon a uniform unit method; but, the charge shall be assessed in a fair and equitable manner. The annual charge shall be calculated to supplement other available funds as may be necessary to plan, construct, operate and maintain stormwater facilities and to conduct stormwater programs. The city, town or district may grant credits against the amount of the quarterly or annual charge to those property owners who maintain on-site functioning retention/detention basins or other filtration structures as approved by the stormwater utility, conservation commission, or other governmental entity with appropriate authority.

CHAPTER 40. POWERS AND DUTIES OF CITIES AND TOWNS
Chapter 40: Section 1A. District defined

Section 1A. Except as otherwise expressly provided, the word “district” as used in this chapter shall mean a fire, water, sewer, water pollution abatement, refuse disposal, light, or improvement district, or any other district, howsoever named, formed for the purpose of carrying out any of the aforementioned functions, whether established under general law or special act.

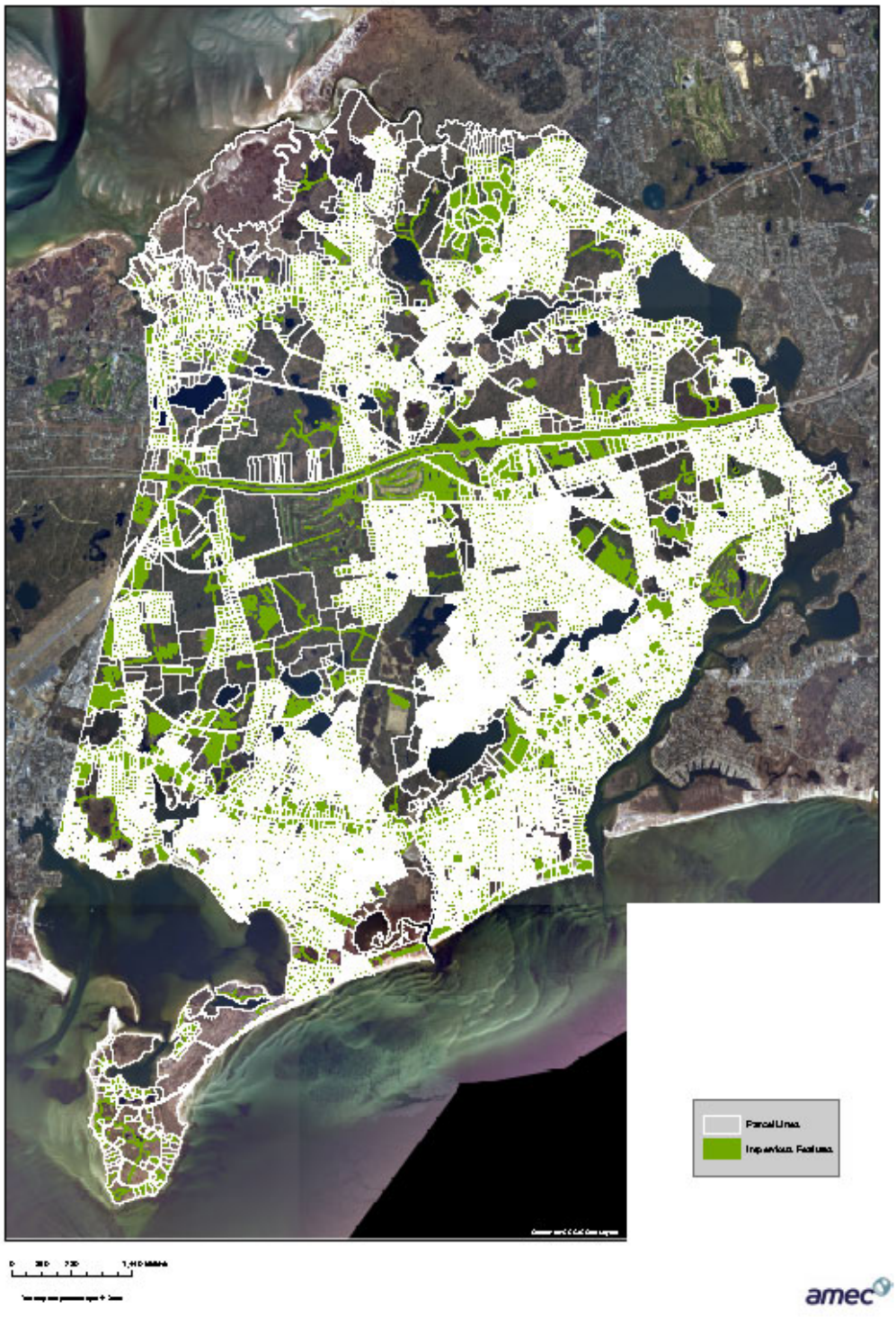
Appendix B: Yarmouth Impervious Area Data

YARMOUTH PARCEL AND IMPERVIOUS AREA SUMMARY DATA*		
Number of parcels:	**15,753**	(unique parcel IDs; there are some multi-polygon parcels)
Average parcel size:	**0.90**	acres
Total gross land area:	**15,940**	acres
Total land area (ROW excluded):	**14,237**	acres
Total impervious area:	**2,860**	acres
Total impervious area (ROW excluded):	**1,886**	acres
Draft data subject to change.		



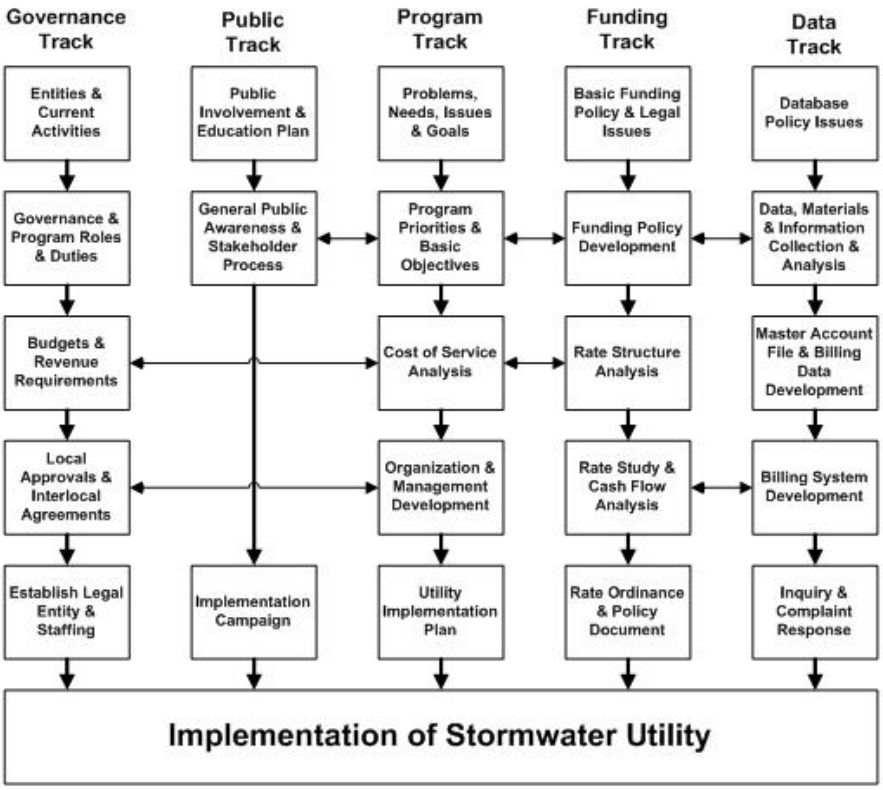
The frequency histogram above shows the distribution of homes in the Town of Yarmouth based on impervious area amounts. The x-axis depicts the percentage of impervious surface area on each parcel. The y-axis depicts the number of unique parcels that fall within each of the impervious area ranges on the x-axis. Taken together, the graph shows how frequently various ranges of impervious surface area amounts occur in the Town. This data is considered draft and subject to change.

Town of Yarmouth
Parcel and Impervious Feature Data



Appendix C: Utility Implementation

This section discusses the implementation of a stormwater utility. Short-term coverage of the stormwater program with street fund increases or increased wastewater budget will eventually have to give way to a more robust consideration of stormwater. In a City the size of Burlington, without other options, the eventual consideration of stormwater as a utility is almost inevitable. Should a utility be approved, a process of "due diligence" is recommended. In the figure below, a typical stormwater utility development follows four inter-related "tracks" of activity. It is crucial that these four tracks are coordinated and timed to occur as shown. While there are almost infinite variations on this figure, the key activities within the figure are all important and should not be skipped.



The **Governance Track** comes into play if there is more than one entity involved in the user fee establishment. In that case a series of policies concerning significant equity, policy, legal and other issues would need to be resolved.

The **Public Track** goes through four basic phases: planning the program, stakeholder involvement and general public education, implementation campaign, and short and long-term customer service. Often there is a citizen's stakeholder group involved to assist in policymaking and to serve as eventual proponents of the utility. Stormwater utilities are rarely infeasible

technically and legal constraints can usually be overcome. It is in development of public, stakeholder, and political support that the difficulties often arise. Thus, the Public Track is often the key to success of the utility. In Burlington's case, this is especially true. There is moderate support from political leadership to go forward, but little actual keen and focused interest in stormwater. In this situation, opposition to the utility could knock it off course.

The **Program Track** builds on basic problems, needs and goals through a setting of program priorities, laying out a program for a three to five year period, a costing of that program, and setting up implementation steps. The program must drive the final rate and rate structure, although due regard must be given for the customer's willingness to pay for stormwater given other demands on the limited resources of the citizens. The program is the key to selling the utility concept. What is the bang for the buck? How do we convince citizens and stakeholders of the need for an alternate funding source? How do we craft a stormwater program that meets the needs of the City without exceeding the available funding?

The **Finance Track** sets some basic financing policies first. Then, based on program input, it goes from development of a rate structure to meet the program needs, to a rate study and cash flow analysis, and ultimately to a rate ordinance. In order for this track to be successful, you need both strong financial background and experience and the practical experience that comes from actually setting up and managing a stormwater utility.

The **Database Track** has two main purposes: to develop the master account file and to develop a mechanism to deliver the bill to the customer. Inherent in these two purposes are myriad decisions on who to bill, how to arrange certain properties, etc. The City has expressed a preference to have an impervious area methodology. The GIS capabilities of the City currently do not directly support such an approach and will require significant handwork to accomplish such an approach. There are other less rigorous approaches that may be appropriate for the City such as the use of the Tax Assessor's file or satellite imagery, though the loss in accuracy must be balanced against the reduced initial cost.

The legal definition of "due diligence" is, "a measure of prudence, activity or assiduity, as is properly to be expected from, and ordinarily exercised by, a reasonable and prudent person under the particular circumstances." It includes the formulation and execution of a plan with appropriate levels of investigation, establishment of facts, estimation of future prospects, framing of assumptions and inherent risks, and establishment of a plan of action-or refraining from action.

Attempted stormwater utility implementations have failed for a number of reasons, most of which have to do with inadequate due diligence. For example, some key reasons given in failure post-mortems include:

- Not understanding the process and cutting key corners;
- Failure to establish stakeholder support;
- Failure to identify and account for hurdles;
- Inadequate legal assessment of the authority for a particular rate structure to be established;
- Failing to work with the media;
- Inability to focus the stormwater program on citizen felt needs;
- Highly inaccurate databases without ability to appeal;
- Poor citizen or customer service;

- Illegal rate structures without rational nexus;
- Rate structures too complex to explain and seemingly inequitable; and
- Failure to understand political timing.

Due diligence is important along four tracks or major areas of concern:

- Program – Does the program make sense? Is it compelling? Is it within ability and willingness to pay? Does it meet citizen perceptions? Is it action oriented?
- Finance – Are legal tests satisfied? Is it simple yet fitted to the local situation? Does it have the perception of equity? Have proper steps been followed? Does it support the stormwater program?
- Public – Is there appropriate levels of involvement of key stakeholders? Has the general public been handled correctly? Is the media appropriately involved? Is customer service accounted for? Are staff and political leadership elements accounted for and handled appropriately?
- Governance – are all parties appraised of the details of the organization and governance and are all in agreement? Have issues of equity, history, authority, and function been resolved?
- Database – Is the database accurate within legal requirements? Is there an appeals process? Is it maintainable within reasonable cost constraints? Are anomalies accounted for? Is customer service appropriate and responsive?

The cost of appropriate due diligence is significant, but should be put in perspective. Experience has shown that should a stormwater utility fail for whatever reason, it normally takes five to seven years for there to be a staff willingness and political forgetfulness to make another attempt. The opportunity cost of failure is then five to seven years' revenue. The cost to do a thorough job in due diligence along the tracks mentioned is rarely more than one to three months' revenue, at the low end of the range for larger utilities.

Additional benefits of appropriate due diligence on the front end include:

- More efficient long-term database maintenance leading to lower costs and better customer service;
- Better initial and long-term public knowledge and cooperation leading to greater support and participation;
- A funding rate structure that matches and meets short and long-term program needs, thus leading to stable and adequate funding for program needs;
- A stormwater program that can meet both the capital and operations needs of the local community leading to better services and ability to meet regulatory demands.