



Feasibility Report

Regional Stormwater Management District



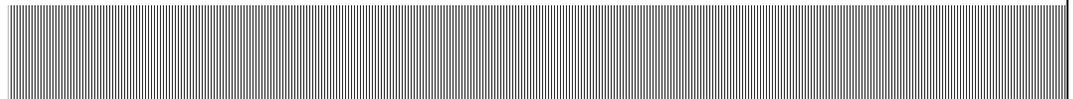


Long Island Sound Watershed Intermunicipal Council
LISWIC

Executive Summary

Feasibility Evaluation of a Regional Stormwater Management District

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Executive Summary

ES.1. Background

The Long Island Sound is easily one of Westchester's most valuable natural assets. It is beautiful, lined by the most coveted homes and office buildings, and it generates an estimated \$5.5 billion per year from boating, fishing, swimming and sight-seeing. So, in 1999 when the Sound's lobster population was suddenly decimated, finding the cause became a major concern.

Researchers concluded that pesticides, washed in with stormwater runoff, were the catalyst. In fact, a lot of harmful pollutants end up in LIS due to stormwater runoff. Fertilizer, animal waste, oil and gasoline derivatives (a ¼ teaspoon of oil can cause a 2,000 square-foot slick), have already done major damage. Within the last decade, a swath of the LIS from New York City to New Haven, Ct., and Port Jefferson, LI, has been unfit for many marine species due to hypoxia, or inadequate oxygen levels due to excess nitrogen.

Stormwater legislation, titled the National Pollution Discharge Elimination System (NPDES), was enacted urging communities to protect water quality by forming intermunicipal councils, and eventually regional stormwater utilities.

The Long Island Sound Watershed Intermunicipal Council (LISWIC), was founded in 1999 as an association of twelve municipalities in the lower Long Island Sound (LIS) Drainage Basin. Its goal is to collectively make decisions to provide for a cleaner Long Island Sound, and to this end, it commissioned this document for member communities to consider the feasibility of creating a Regional Stormwater Management District (RSMD). The intent of the RSMD would be to:

- Prevent and correct flooding problems throughout the region;
- Comply with Phase II National Pollutant Discharge Elimination System (NPDES) Stormwater Regulations;
- Form a single, regional organization that would plan, administer and fund the stormwater management program for the Long Island Sound;
- Provide self-governance with respect to finances, operations and management; and
- Be a model for creation of other, urban, RSMDs in the Northeast.

All twelve member communities of LISWIC agreed to participate in the RSMD study. These participating communities include: The Cities of Mount Vernon, New Rochelle and Rye; the Town of Mamaroneck, the Town/Village of Harrison and Scarsdale; and the

Villages of Larchmont, Mamaroneck, Pelham, Pelham Manor, Port Chester and Rye Brook.

ES.2. Data Collection and Review

The municipalities provided information for this report, including GIS and drainage maps, infrastructure inventory, staffing and equipment costs, stormwater capital improvement plans and other data explained further in Section 2.

The collected data from each municipality is summarized on a regional basis below:

Table ES-1
Summary of Reported Regional Stormwater Operations Data for Participating Communities

Budget Item	Amount
Annual SW O&M Budget	\$3,500,133
Annual Capital Improvement Budget	\$2,203,000
Annual Debt Service Payments	\$417,132
Union Staff	27
Management Staff	9
Street Sweepers	23
Vactor Trucks	8
Other Vehicles	105
Catch basins	19,635*
Stormwater Piping (miles)	413*

*Estimated based on best available data.

Table ES- 2
Summary of Regional Demographic Data for Participating Communities

Demographic Parameter	Value
Low Density Housing Units (less than 4 households)	69,372
Medium Density Housing Units (5-50 households)	18,838
High Density Housing Units (over 50 households)	13,630
Open Space (acres)	9,253
Municipal Area (acres)	38,436
Total Area (acres)	47,689
Non-Residential Area (acres)	6,200
Non-Residential Impervious Area (acres)	2,914

It should be noted that the data presented in Table ES-2 is used to evaluate the funding options and potential revenue projections for a stormwater district fee, if adopted. The funding options are presented in ES-8 – Financial Plan of this Executive Summary.

ES.3. Stormwater Management Program Description

LISWIC requested an analysis of costs, operations and maintenance activities associated with a RSMD to enable member communities to be proactive in solving watershed problems. The interrelationships between these various plans are schematically presented in Figure ES-1.

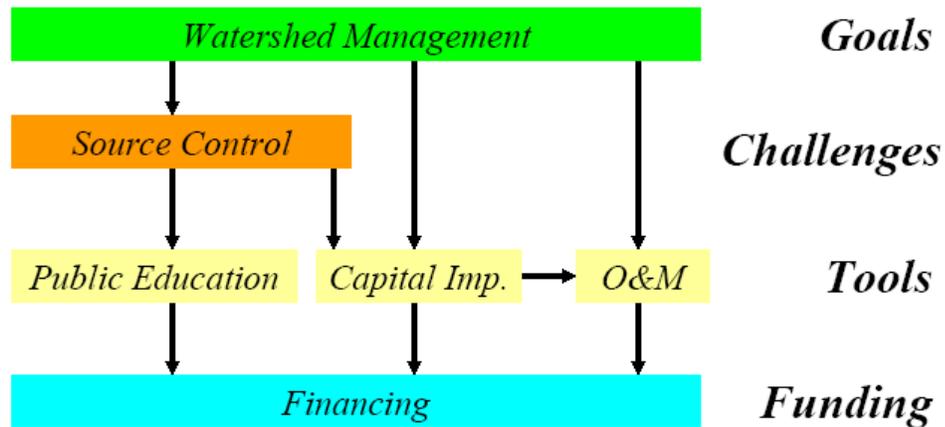


Figure ES-1: Interrelationship of the RSMD Plans

ES.4. Watershed Management Plan

The Watershed Management Plan provides member communities with an iterative process to define problems in the watershed on a regional basis, develop solutions or establish goals, and implement management practices. Specifically, the plan would address the following areas:

- Flooding of local neighborhoods;
- Fish kills in the sound;
- Declining shellfish harvests;
- Hypoxia (low dissolved oxygen, which suffocates marine life);
- Nitrogen loading;
- Illegal connections from households;
- Excessive floatables in sound and tributaries;
- Beach closings.

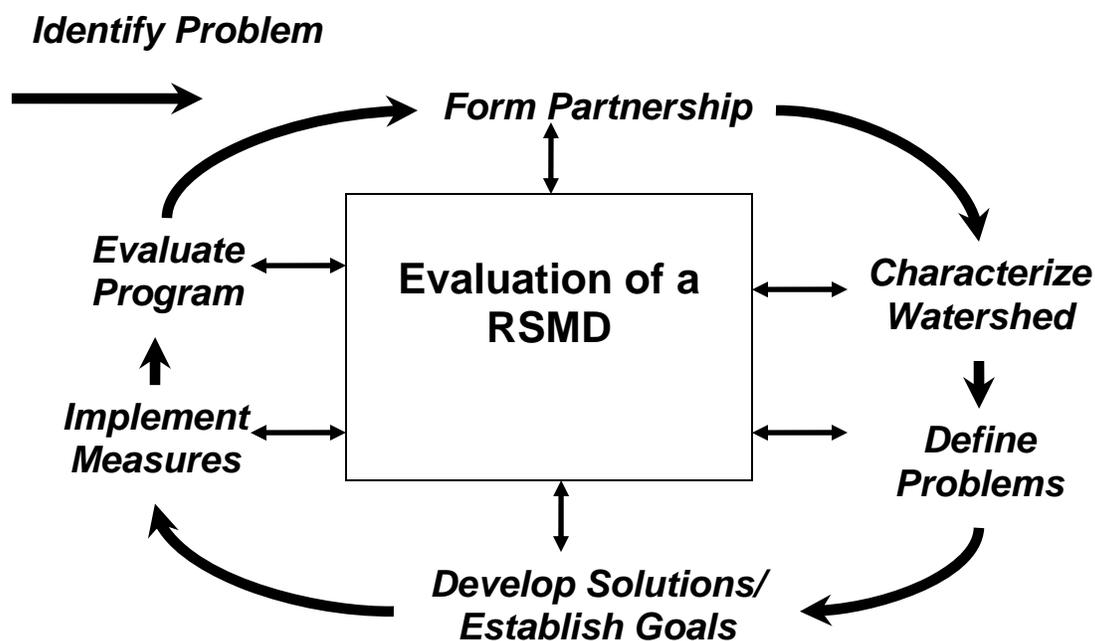


Figure ES-2: Watershed Management Planning

The following steps are to be used in the development of a watershed management plan:

- Use existing information to develop a general understanding of the hydrology and hydraulics of the watershed or subwatershed;
- Work with communities to identify issues and concerns, and to develop an overall pollution prevention/control strategy;
- Identify integral watershed links;
- Evaluate existing land use (and services) and potential changes;
- Identify management needs;
- Establish management objectives; and
- Develop a management and implementation strategy.

A focus on stormwater runoff through a watershed management plan would by its nature, include floodplain information. The end result would be an integrated hydrological model of these two elements. This model would provide the following benefits:

- Allow the RSMD to verify FEMA maps to ensure accuracy;
- Allow for the upstream/downstream effects of capital improvements to be better predicted;
- Increase the number of FEMA Community Rating System (CRS) points for the entire region, potentially lowering flood insurance rates; and
- Provide up-to-date land use maps to predict future storm flows.

A watershed plan that includes low impact development (LID) and green technologies would also save substantial public funds by requiring private developers to implement methods and technologies that reduce total storm flow. That would free up public funds for other purposes. In particular, the following LID technologies could provide substantial benefits to urbanized areas:

- Bio-retention cells, porous concrete and alternative pavers;
- Cisterns;
- Sustainable planting;
- Rain gardens; and
- Green Design for new development and redevelopment.

In addition to reducing stormwater runoff, LID technologies have a further benefit, they can create:

- Open Space/Park Design – create park-like open space, promenades, etc.;
- Beautification/Aesthetics – create “groves,” garden-like areas;
- Afforestation/Reforestation – urban forest or park-like open space (“green infrastructure”);
- Green Building – promote green building strategies (i.e., Leadership in Energy and Environmental Design (LEED): use of recycled materials, low volatile organic compound (VOC) materials, certified woods, etc.);
- Green roof technology – reduced stormwater discharges from district, potential for greenhouse gas emissions trading credits, improved air quality, urban temperature regulation, building insulation.
- Water Conservation/Energy Conservation – promote conservation of natural resources (water) or use of on-site renewable energy (solar, wind, etc.);
- Public Education – increase community awareness of conservation and ecological stewardship.

ES.5. Source Control Plan

The Source Control Plan provides a process for coordinating, compiling and exchanging information needed for compliance with regulatory goals. The advantage of a regional stormwater management plan is that it requires tracking only one plan by one department, thereby offering significant savings.

A review of Notices Of Intent (NOI’s) submitted as part of the Phase II NPDES Regulations indicate that the participating communities could realize cost savings/efficiencies in meeting the regulation’s six minimum measures:

1. Public Education
 - a. Centralized Web page
 - b. Printed Material
 - c. Hazardous Waste Disposal Program
2. Public Involvement
 - a. Central Clearinghouse for information
 - b. One Annual Report developed for all members
 - c. Central Contact Person
 - d. Watershed Organizations
 - e. Advisory/Partnership Committees

3. Illicit Discharge and Detection
 - a. Outfall mapping
 - b. System Inspections
4. Construction Site Runoff Control
 - a. Inspections
 - b. Training and Education
5. Post Construction Stormwater Management
 - a. Inspection/Maintenance
 - b. Assess management practices that reduce pollutant discharges to the maximum extent practicable (MEP)
6. Pollution Prevention and Good Housekeeping
 - a. Training
 - b. Identifying Municipal sources (Road Salt)
 - c. Street Cleaning
 - d. Catch basin and Storm drain cleaning
 - e. Hazardous Waste Management
 - f. Vehicle Maintenance/washing

The majority of each community's stormwater management plan is already in agreement. This suggests that consolidating and implementing a region-wide stormwater management plan would realize significant administrative cost savings.

ES.6. Capital Improvement Planning

A region-wide Capital Improvement Plan (CIP) would use stormwater system information collected from each municipality to develop its future capital improvement planning needs.

Under the current capital improvement planning system, each municipality plans and funds all capital improvements individually with limited intermunicipal assistance or guidance; all assets are owned by the municipality. This local approach is assessed on its advantages and disadvantages below.

The advantages of the local approach are as follows:

- Residents see their dollars directly benefiting them;
- Aligned motives;
- Avoid organizational risk if the new system is not as efficient as expected; and
- Direct accountability to the local residents by local officials.

There are also several disadvantages to staying with locally planned capital improvements: They are:

- Narrowly focused projects lead to reactive, as opposed to proactive, solutions;
- Local solutions may be inadequate, inefficient, or exacerbate downstream problems; and
- Limited funding is available, requiring tax increases or diversion of resources from more visible projects.
- Longer implementation schedule.

On the other hand, a regional stormwater CIP planning process, by its very nature, would be a more comprehensive and better coordinated approach to addressing regional stormwater needs. The main advantages of this approach are as follows:

- Align projects with regional goals;
- Increase value of projects by avoiding duplication and concentrating resources; and
- Accelerating capital project delivery by establishing a dedicated source of funding through the institutional expertise that would develop within the RSMD.
- Watershed evaluations are performed to coordinate upstream and downstream actions.

However, a regional planning process would also present the following challenges:

- Possibly more contentious planning process due to a larger number of stakeholders;
- Potential for lower priority given to projects with only local effects; and
- Legal hurdles with respect to jurisdiction and local decision making.

Should a regional district be formed, it would be responsible for developing improvements to the stormwater system of each community. The aim of those improvements would be to reduce flooding and maintain stormwater quality to keep the communities and the district in compliance with state and federal regulations.

The district would need to assemble a portfolio of potential regional and local capital projects for evaluation. These projects could come from in-house district staff or from petitions from member communities.

- Evaluate projects within portfolio; and
- The project portfolio needs to be evaluated according to the goals of the district by determining how well each project will help the district achieve its goals.
- Agree on projects to fund

- Regional projects would be selected by the Regional Board of the RSMD based on how well they would help the district achieve its goals. Once consensus was reached on projects to fund, local projects would be recommended to the appropriate municipalities by the district; however, each community would decide whether or not to undertake the recommended projects.
- Regional projects would be funded directly by the district while local projects would be funded from specially created community capital reserve accounts and other sources available to each municipality. These accounts would be funded by the district but under the control of each community to assist in funding the recommended local capital projects. These capital reserve accounts are described in greater detail in ES 8.

In summary, a unified, regional solution based on the overall situation will be more cost effective than multiple, independently and singularly managed projects. The efficiencies arise from specialization, expertise, and the technological and organizational capacity of a watershed-wide planning and management process.

From an organizational standpoint, a region-wide entity allows for one project to occur with fewer resources per project dollar, resulting from efficiencies of scale. In addition, coordination, communication, and consistency would be incorporated in a single organizational framework.

In addition, a regional district would work with detailed stormwater requirements on a regular basis to move projects “through the pipeline.” Project approval and implementation would therefore become progressively more efficient as district staff gained experience with the expectations of the agencies it deals with. A regional district would be able to develop that sensitivity better than a local public works department, which has to concern itself with other items unrelated to stormwater.

ES.7. Operations and Maintenance Plan

The operations and maintenance plan assesses the current status of operations and maintenance in each municipality and provides the member communities with a model for operations and maintenance planning, execution and monitoring that a future RSMD would need to accomplish. The goal of the operations and maintenance plan is to ensure that all assets are properly inventoried, maintained, and repaired; pollution control measures are carried out efficiently, and that sufficient resources are in place to carry out the functions of the district.

Under the current local operations planning approach, each municipality maintains a separate staff and vehicle fleet to maintain the community’s stormwater infrastructure. In most cases, the staff is not dedicated to stormwater operations and maintenance (O&M), but is used for the maintenance of all public works and property. This can lead to a reactive maintenance strategy of addressing problems after they occur as opposed to proactively maintaining the community’s stormwater infrastructure. Table ES-3 below

identifies the range of the study communities' stormwater operations resource utilization ratios.

**Table ES-3.
Current Range of Resource Utilization Ratios**

Resource Utilization Ratio	Range of Values
Catch basins per staff	125 to 1,067
Catch basins per vactor truck	414 to 3,200
Catch basins per street sweeper	250 to 1,643
Catch basins per other vehicles	138 to 3,200
Annual O&M costs per catch basin	23 to 416

As Table ES-3 shows, the utilization ratios vary widely among communities. A regional district would be able to assess the reasons for this variance and then select the most efficient methods to implement region-wide services, saving money and resources in the process while providing a consistent level of service.

The advantages of maintaining single operations for each municipality are similar to those of maintaining local control of the capital improvement planning process. By staying with the existing structure there are no additional costs or risks that come with restructuring.

The disadvantages of maintaining single operations for each municipality are also similar to those of maintaining local control of the capital improvement planning process. Each municipality would have a smaller asset base than a regional district and fewer resources available to deliver services during peak and/or emergency periods, which would increase reliance on outside contractors.

A district-based approach would be able to capitalize on its larger asset base and consolidate knowledge to deliver more consistent and efficient services to the member communities. In particular, a district-based approach would have the following benefits:

- Higher staff utilization by spreading demand over a larger region;
- Consistent operational level of service standards by operating under one framework and operating plan; and
- Simplified Phase II NPDES permit compliance through standardization of Best Management Practices (BMPs).
- Decreased need to rely on outside contractors during peak or emergency periods.

Consolidation under a RSMD would require a broader base of consensus to achieve legitimacy, however, and a significant investment in restructuring from local operations to an integrated regional approach. The potential difficulties associated with such a transition are as follows:

- Local resistance to loss of control over stormwater operations;
- Expense of setup and creation of systems needed to implement and track the work; and
- Potential impacts on labor agreements if staff is transferred from local departments to a RSMD. (Contracting of operations services could offer near-term stability).

There are options to mitigate staffing issues. These include establishing a new organization with personnel, transferring personnel from the existing communities' workforce, and contracting for services. The potential impact of the first two options on existing labor agreements would have to be reviewed. However, contracting with existing local communities' public works can offer the advantage of utilizing the resources of a district-wide organization and avoiding the duplication of staffing and effort. It would have the further advantage of the following:

- Developing a regional model for operations planning will require that the district perform the following activities:
 - Assess local operations in terms of efficiency/effectiveness;
 - Develop BMPs based on assessment of activities;
 - Assess infrastructure and determine maintenance level of service needs via an asset inventory and assessment
 - Schedule maintenance tasks to ensure that there are no lingering needs but emergency situations are corrected quickly.
 - Determine staffing requirements to meet maintenance schedule
 - Plan operations to carry out maintenance schedule
- In summary a regional model for operations planning will involve the district assuming responsibility for assessing the current state of the district's infrastructure and then acquiring and mobilizing the correct resources to accomplish the district's operations requirements.
- A regional district would be able to maintain a larger fleet and keep it better utilized compared to a local approach because resources in areas experiencing low demand could assist areas dealing with peak demand.

- In addition a centralized approach can deliver more consistent operations compared to a local approach. The district could evaluate the merits of different local approaches and choose the ones that will deliver the best service overall. Data tracking and management would be enhanced through the use of one maintenance planning system.
- A staff dedicated to stormwater operations would become steadily more expert and efficient as employees gain familiarity with stormwater operations.
- A regional approach would bring the various municipal plans into a combined regional stormwater management plan in compliance with the Phase II NPDES regulations.
- Participation in the FEMA Community Rating System (CRS) could save citizens money when purchasing flood insurance.
- The consolidated approach would create efficiencies of scale by requiring fewer staff than would be required if each municipality implemented its own stormwater management plan.

ES.8. Financial Plan

Based on the financial experience of other stormwater utilities, the primary way to fund a district would be through adoption of a user fee. The user fee has been selected because it is a legally defensible and reliable method of allocating stormwater costs to user customers. A fair and equitable user fee would account for the actual contribution of each user to the total cost of stormwater services. The main way this could be done is through an incentive-based fee system where initial fee assessments are made based on impervious area and then adjusted to compensate for the unique stormwater features of the site. In this way, the fee would provide an incentive for users to carry out their own stormwater compliance measures or to adopt recommended stormwater measures. It also provides a means to properly address non-compliance with stormwater pollution regulations. Therefore, the fee structure should also be tied to the ability of properties to design on-site stormwater management systems and it should encourage developers to reduce their impact on the municipal stormwater system. By example, the baseline design criteria for the district as a whole may be to design/maintain the system to accommodate a 10-year storm. Properties that implement measures to improve stormwater management on their own site to reduce the 10-year flow or design to a 20 or 50-year storm should receive some benefit.

A typical fee structure would consider the following factors:

- Total impervious area

Typically, all single-family residences are assessed a flat fee for simplicity's sake while commercial properties are assessed based on actual impervious area on the property.

- On-site management credits

Used to reward individuals and businesses that take a proactive and/or advanced approach to managing on-site stormwater runoff.

These two factors (impervious area and management credits) could be combined to calculate each user's fee in a way that fairly and equitably allocates the cost of service to individual users. Typically, the unit of measure used for calculating user fees for individuals is the Equivalent Residential Unit (ERU), defined as the average impervious surface area (e.g. 2,200 square feet) of a single family housing unit. Generally, single-family homes constitute one ERU, and the annual fee is very modest (\$3-20/month).

The revenue raised through the user fee would be used to fund operations and maintenance and would allow various financing options to fund the capital improvement plan as follows:

- Cash from operating revenue (pay as you go);

If cash is to be used to fund part of all of the district's CIP then the district can split the available operating revenue between local and regional projects. Local projects can be funded from specially created capital reserve accounts for each community. These accounts would be funded by taking a percentage of the district's net operating revenue and allocating it to local projects. Each community's reserve account would then receive a portion of this local money in proportion to the community's overall contribution to the district. Table ES-4 below illustrates this concept with a 30% local allocation.

**Table ES-4.
Example LISWIC Annual CIP Funding Allocation**

	O&M Scenarios			
	Low ¹	Medium ²	High ³	
Total Revenues*	\$7,200,000	\$7,200,000	\$7,200,000	
O&M Costs[†]	\$3,500,000	\$5,200,000	\$7,000,000	
Available for CIP	\$3,700,000	\$2,000,000	\$200,000	
Municipal CIP Allocation (%)	30%	30%	30%	
Municipal CIP Allocation (\$)	\$1,110,000	\$600,000	\$60,000	
CIP Amount to Communities				% Share (ERU Basis)
City of Mount Vernon	\$193,627	\$104,663	\$10,466	17%
City of Rye	\$77,700	\$42,000	\$4,200	7%
City of New Rochelle	\$244,200	\$132,000	\$13,200	22%
Town of Harrison	\$190,320	\$102,876	\$10,288	17%
Town of Mamaroneck	\$55,543	\$30,023	\$3,002	5%
Village of Scarsdale	\$88,073	\$47,607	\$4,761	8%
Village of Larchmont	\$22,795	\$12,322	\$1,232	2%
Village of Mamaroneck	\$69,605	\$37,624	\$3,762	6%
Village of Port Chester	\$78,302	\$42,325	\$4,233	7%
Village of Pelham	\$21,148	\$11,432	\$1,143	2%
Village of Pelham Manor	\$21,915	\$11,846	\$1,185	2%
Village of Rye Brook	\$49,997	\$27,026	\$2,703	5%
Regional CIP Allocation	\$2,590,000	\$1,400,000	\$140,000	

1 Current O&M costs

2 1.5 times current O&M costs

3 Twice current O&M costs

* Based on \$5/ERU, 2,200 sq ft/ERU, and 80% collection efficiency.

† Typical overhead will vary from 5%-10% in initial years to 15%-20% in an established district but usually results in an overhead savings of 10% compared to a municipal government.

- Debt from bonds; and
- Federal and state grants

It should be noted that for grant funding, the RSMD would have the advantage of specialists to prepare and submit grant applications.

The district would need to meet a number of operating expenses and fund/reserve targets to ensure that it is financially prepared to carry out its mission. Specifically, the following cash reserves and ratios would need to be addressed:

- Working Capital Requirements; and
- Debt Service Coverage Ratio.

Various scenarios were considered to identify a starting monthly user fee per Equivalent Residential Unit (ERU). The typical range of user fees found in the marketplace is \$3 - \$20/ERU, with the majority of the user fees less than \$10/ERU. To be conservative, yet realistic for the region, a \$5/ERU user fee (increased by 3% each year) was selected for further modeling. The actual user fee would need to be evaluated based on level of service requirements. From this modeling, the financial values likely to be encountered by the RSMD were calculated.

Table ES-4 summarizes the results of the financial analysis. Each scenario was a combination of O&M Cost (High, Medium, Low) and a Capital Expenditures Funding Method (100% debt load, 50% debt load, and 100% cash). The selected scenario was entered into the model and the amount of funds raised in the first five years for capital expenditures was determined.

Table ES-5.
Example Capital Improvement Revenue Scenarios in First 5 Years

Capital Ex. Funding Method	O&M Cost Scenario		
	Low (1x)	Medium (1.5x)	High (2x)
100% Cash	\$20.8M	\$12.1M	\$3.3M
50% Debt Load	\$30.5M	\$18.5M	\$6.3M
100% Debt Load	\$40.5M	\$24.9M	\$9.2M

Source: Tables ES-1 and ES-2

Assumptions:

- Monthly User Fee: \$5/ERU - \$5.63/ERU [\$60 - \$67.56 per year];
- Annual Gross Revenue: \$7.2M - \$8.1M; and
- Annual O&M Costs: \$3.5M - \$7M
- Amount Available for Capital Projects in first 5 years: \$3.3M - \$40.5M
- Bonding Capacity: \$1M - \$27M

Please note that this analysis was based on a \$5/month per ERU user fee. This user fee was conservatively selected based on the typical user fee range of \$3-20/month found in the marketplace. The actual user fee adopted by the RSMD will need to be evaluated against the required level of service provided by the RSMD.

Startup funding typically requires approximately 10% of annual revenues as a one-time expense. Depending on the funding method chosen, the district can fund its start-up in a number of ways:

- Cash only start-up,
- Short-term financial aid for start-up,
- Bond financing for start-up, and
- Grant funding.

If the district will be financed by cash only, then building up the working capital reserve would be the first financial priority. This could best be accomplished by not performing any capital improvements for the first few years of operation. Instead, only the needed O&M activities would be performed. Once the working capital reserve is established, the district could then begin capital improvements. In this scenario, more than any other, the user fees may need to begin high and then come down to the targeted level.

In lieu of higher initial user fees, the district could get short-term financial aid (from a grant program) to finance the first few years of operation. This would give the district more freedom to select rates, as well as ensure that the necessary amount of working capital was in place prior to starting operations. In addition, the interest rate on the short-term financial aid would be lower than the interest for a typical 20-year bond.

A bond could be issued by the district to finance all or part of the district's operations for the initial few years. This would be the most costly option due to the higher interest rate. However, the longer term bond would translate into a lower yearly cost allowing the user fees to stabilize more rapidly than with either of the above options.

Finally, grant funding can be utilized to supplement the other sources of revenue.

Figure ES-3 provides a financial flow diagram for the RSMD.

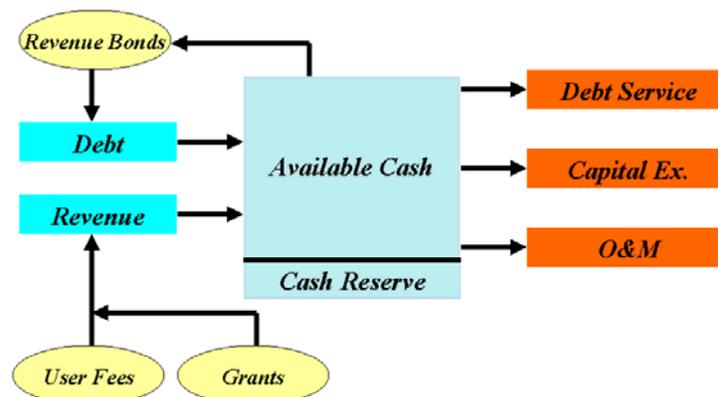


Figure ES-3: RSMD Financing Flow Diagram

ES.9. Public Education Plan

The Public Education plan provides the member communities with an approach to gaining input and guiding the decision-making process. The creation of a RSMD for the LIS communities will require positive public support. This support depends on formulating an effective, proactive outreach and communication process that addresses public concerns, problems and needs.

The intent of this program is to manage flood-prone areas, reduce non-point source pollution, minimize flooding and to develop a strategy that informs and educates the citizens of the watershed. The following are program objectives:

- Set measurable goals for demonstrating permit compliance.
- Provide participating LISWIC municipal officials with a better sense of the public perspective on the creation of a RSMD.
- Establish early communication with the public; including key stakeholders and interested organizations.
- Encourage dialogue between regulatory agencies and the general public.
- Solicit the opinions of, and address issues and concerns from the public, stakeholders, and interested parties during the development of the RSMD.
- Make the technical aspects of the RSMD clear and understandable.
- Build awareness of the issues associated with stormwater and involve the public throughout the development process.

The target audience for the program would include the following:

- The participating LISWIC communities' ratepayers/taxpayers and residents.
- The elected and appointed leadership of each of the participating LISWIC communities.
- The leadership, ratepayers and residents of communities contributing stormwater flows to the LIS.
- LIS business operators.
- Environmental groups interested in the LIS.
- Recreational users of the LIS and their organizations.

We recommend that two committees facilitate communication between the district and the public. They are as follows:

- Technical Committee (TC): Directs the creation of the RSMD, develops plans and makes recommendations to legislatures and stakeholders.

- The Citizen Advisory Committee (CAC): Works with TC to identify issues important to the public and assists in their solution.

In addition to the committees, we recommend two meeting forums to solicit feedback from stakeholders:

- Municipal Leadership Meetings: Present status of district to municipal elected officials to elicit their input.
- General Public Meetings/Hearings: Elicit public opinion focusing on the structure of the program, financing, and current capital improvements.

A legislative presentation would also be provided to TC members to address legal issues and questions.

Finally, a Web site should be established to distribute materials to the public as well as to solicit feedback.

Successful negotiation with the municipal entities is critical to the success of this project. For example, one option would be for the municipalities to transfer their stormwater assets to the RSMD, so the RSMD must be able to identify win-win propositions for each municipality. It has been our experience that stakeholders need to understand the program strategy so they have an idea of how they fit into the process and can readily support the transaction.

ES.10. Legal Requirements

State enabling authority is the touchstone of all intergovernmental cooperation efforts. In New York, potential sources for that authority are the State Constitution and State Statutes. Both generally enable municipal cooperation and authorize specific vehicles for intergovernmental action, and municipal home rule powers.

**Table ES-6.
Legislative Options to Form a RSMD**

Source of Authority	Relevance to RSMD Formation
Intergovernmental Relations Councils (IRC)	The creation and operation of an RSMD is beyond the IRC's purview.
Intermunicipal Agreement (IMA)	An IMA may not be the most suitable vehicle to establish and fund an RSMD given its limited powers compared to a public authority, potentially limited duration, inability to issue revenue bonds and questionable ability to fund operation and capital expenses through user fees.
County and Town Districts	Town districts have limited territorial jurisdiction: county districts generally do not provide for municipal decision-making authority.
Public Authority	This is the best way to create an RSMD. Authorities are independent and autonomous and authorized to function with greater freedom and flexibility than a State agency or a municipality. However, this approach also requires approval by the state legislature.

Based upon review and analysis of the scope and limitations of existing New York State enabling legislation and home rule authority, we recommend that the member communities pursue additional state legislative authority to create a RSMD. We believe that the establishment of an RSMD with the powers and responsibilities as set forth in Section 10.4 of this report would be the optimal legal mechanism to centralize stormwater management policy-making for the region. The authority model would invest such centralized authority with the powers necessary to efficiently and effectively coordinate, manage, operate, construct, deliver, maintain and finance stormwater facilities, resources and services within the region.

Creating a proper legal structure that effectively balances regional management and municipal home rule powers will be a critical first step in convincing constituent municipalities to support RSMD legislation. A consensus must be reached among the prospective participants regarding membership and voting powers, the division of powers and responsibilities between the RSMD and its constituent local governments and a uniform regulatory regime to apply throughout the territorial jurisdiction of the RSMD.

An agreement must be reached on an equitable fee structure to be adopted to finance operations and capital improvements. Also, a fair formula for establishing priorities for capital improvements within the region must be developed.

Once the basic elements of the organizational, operational and financial structure of the RSMD are agreed to, a strategy for approaching the State Legislature must be developed to include the following:

- To overcome political challenges, the member communities must convince the State Legislature that economic, environmental, public health and service benefits can be realized by developing a legislative model to foster cooperation among local governments. Notwithstanding the Legislature's traditional focus on county-wide and/or county-controlled entities to provide regional services, the smaller geographical and managerial unit being proposed here is appropriate to address regional stormwater management concerns. Additional support for this argument may be provided from a DEC-financed study now underway, which is examining how to pay for Municipal Separate Storm Sewer Systems (MS4) programs in New York. That study will also examine approaches to funding under existing law and the need for new or additional state legislative authorization to establish districts and to impose impact fees.
- A determination must be made whether to pursue generic model legislation to be used on a state-wide basis or a specific statutory template just for LISWIC;
- Home rule messages from all participating local governments, whether legally required or not, should be obtained to demonstrate local commitment to the RSMD. Enlisting the support of the Westchester County government for this initiative would also be politically beneficial.

Enabling legislation must be drafted which embodies the statutory powers, authority, responsibilities, and other essential legislative components of an RSMD as described in Section 10.4.5 of this report. Such legislation must be drafted to avoid the potential constitutional pitfall presented by Article X, § 5 of the New York State Constitution as discussed in Section 10.4.4 of this report.

Finally, sponsors must be found in both houses of the State Legislature to introduce the legislation, and the support of the Westchester legislative delegation must be obtained.

ES.11. RSMD Evaluation

The evaluation of the RSMD, which includes the proposed organizational and operational structure and an overview of the proposed management, focuses on the following areas:

- Defines the mission and authority of the RSMD;
- Provides pathways for accomplishing regional stormwater management cooperation, and the present and future overhead functions and related personnel for the proposed RSMD;
- Describes the organization and decision-making process of the RSMD;

- Reviews the existing infrastructure assets, and assesses potential infrastructure ownership options.
- Identifies existing personnel for management, engineering, operations, maintenance, enforcement, and support, along with a staffing profile for the RSMD;
- Describes the strategic workshops needed to gain support for the RSMD.

The evaluation of the RSMD is based on the scenario options outlined in Figure ES-4.

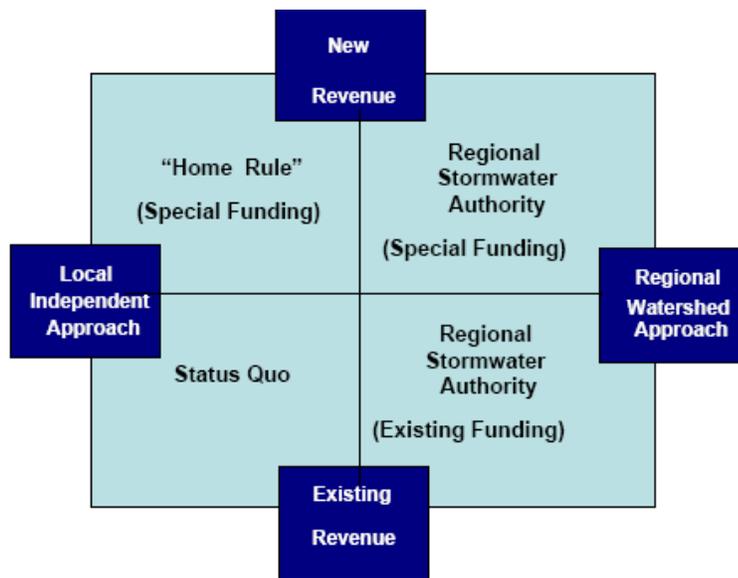


Figure ES-4: Scenario Options for Consideration by Member Communities

The benefits derived by considering scenario options, include:

- Identifying and managing risks in decision-making;
- Providing a structured approach to simplify the derivation of complex issues;
- Providing a process for communication of options;
- Creating alignment around decisions; and
- Educating stakeholders about proposed decisions

Based on these goals and objectives, the proposed mission of the RSMD for Long Island Sound communities is proposed as follows:

“The mission of the Regional Stormwater management district for the selected Long Island Sound communities is to provide the member communities with a fiscally-responsible means to balance the goals of floodplain management, and a cleaner Long Island Sound, along with meeting regulatory requirements and the environmental and quality of life needs of the communities.”

To move toward a regional district with stormwater district funding, LISWIC would need to centralize both its financial and stormwater operations in conjunction with its stormwater services. The centralization of finance and stormwater services will take time to implement and is expected to involve a phased approach. A framework for evaluating phased implementations is presented in Figure ES-5, which is based on the scenario options provided in Figure ES-4.

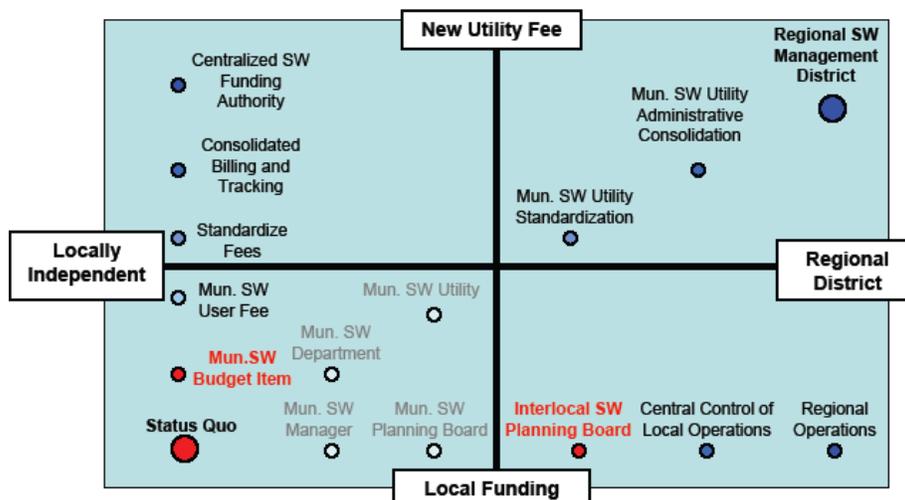


Figure ES-5: Possible Pathways to Regional Stormwater Management Cooperation

The steps needed to centralize revenue generation are as follow:

- Establish municipal stormwater funding at the local level;
- Consolidate billing, collection, and tracking of funding under one organization
- Establish a centralized stormwater funding district to begin processing and disbursing funds as a separate entity.

The following steps should be followed in conjunction with financial centralization:

- Establish interlocal planning board (such as LISWIC) to coordinate intermunicipal efforts in a non-binding manner;
- Consolidate control of local operations under one organizational framework; and
- Transition from local operations to regional operations.

Once established, a RSMD should provide the following:

- Water quality monitoring to define conditions and evaluate progress;
- Public education about watershed issues and actions;
- System modeling, floodplain mapping, watershed planning, and performance evaluations;
- Stakeholder involvement to mobilize support and facilitate action; and
- Development and support of common data management and communication tools.
- Establish Community Rating System (CRS) program for participating communities.

The combining of Local and Regional Stormwater Management Services would:

- Establish consistent and coordinated local regulations;
- Offer opportunities to reduce program costs by avoiding duplication and leveraging economies of scale; and
- Provide a framework for defining services and developing a defensible revenue strategy.

For a RSMD to govern effectively and legitimately there must be both fair representation of the member communities and a way to maintain focus on the regional district's overall goals. Figure ES-6 provides an organizational and decision-making framework for the governance of the RSMD.

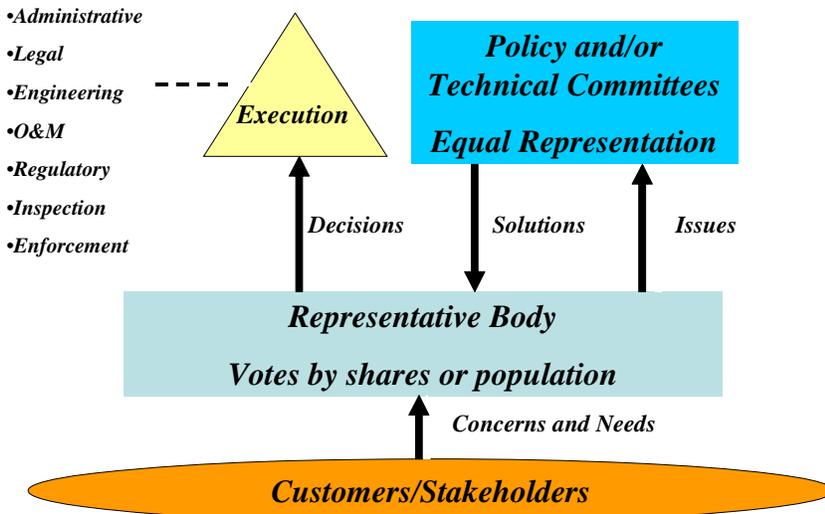


Figure ES-6: Organization and Decision-Making Framework

The proposed approach to voting and governance involves a regional body consisting of a key official from each municipality with each municipality getting one vote. A simple majority would be required to pass all motions, but the approach ultimately selected by the RSMD will require research, debate and agreement by all municipalities involved.

Asset Management

One of the first steps needed to create a regional district is to perform an independent assessment of the fair value of stormwater assets. This assessment would need to take into account existing conditions, future requirements, capacity and capability.

The following are the preliminary steps needed to initiate the transfer of assets to the RSMD.

- Data Management;
- Facilities Condition and Valuation;
- Evaluation of Operations and Maintenance Practice;
- Assessment of Past Regulatory Compliance;
- Evaluation of Capital Improvement Program;

- Ability of Facilities to Meet Future Needs;
- Finalization of Transfer Documents; and
- Implementation of Transfer

The RSMD would also require the development of a staffing plan. A common element to staffing plans is the development of a staffing profile of the disciplines required to provide regional stormwater management services. A starting point for developing this staffing profile is presented in Table ES-6.

**Table ES-6
Staffing Profile and Disciplines for Regional Stormwater Services**

Discipline	Description
Administrative/Management	Leadership, coordination, and processing.
Political Liaison/Public Relations	Liaison to each municipality to address local needs and gauge public sentiment. Develops public programs. Maintains relations with all stakeholders.
Legal	Essential in early stages of district if lawsuits are filed by stakeholders that do not see advantages of district or are seeking damages due to flooding. Will be needed to establish and maintain authority charter and legal authority within each municipality. All legal contracts/agreements will need to be assessed.
Regulatory	Charged with ensuring Phase II NPDES regulations are met. Maintain current minimum control measures and performance. Keeps up with regulatory changes relevant to district. Will coordinate with local legislatures to ensure consistent regulations.
Financial	Assess best financing approach for capital and operating expenses. Maintain accounts and track revenues. Carry out bonding process.
Engineering	Needed to handle the significant amount of capital improvement planning and design that will be required; especially in the beginning stages. Specifications will need to be developed and assessed. Design firms need to be selected, tracked and coordinated. Submittals need to be evaluated.
Information Technology (IT)	Data management and maintenance.
Water Resources/Environmental Scientists	Water quality and hydrological assessments to aid in capital improvement planning and performance benchmarking.
Inspection/Enforcement	Improper land use, illegal connections
Operations & Maintenance	Perform the majority of the ground work. May be broken up into regional units to keep work orders closer to each other.

Finally, strategic planning workshops would need to be developed and implemented to determine action items required for the completion of the district.

ES.12. Conclusions and Recommendations

The findings of this report demonstrate that the existing method of providing regional stormwater management is inadequate. Operations and capital improvements are not coordinated and are under-funded relative to the true needs of the watershed to solve flooding and water quality problems. In addition, the approach to meeting the MS4 permit is fragmented, as each municipality is pursuing its own method of fulfilling the permit requirements. This fragmentation leads to inefficient use of resources as work must be duplicated by each municipality.

Based on these conclusions, a RSMD is the best way to deliver stormwater management services. It can achieve the benefits of maximization of resources, adequate flood control, improved enforcement, and operational consistency.

Utilizing the insights from this study, a recommended RSMD model has been developed to provide a framework for developing a RSMD. This recommended model is outlined below:

Structure and Governance

The RSMD should be established as a Public Authority under NY State law, since this should provide the broadest powers and the most flexibility to the RSMD. A central decision making body, which is representative of the member communities and is responsible for approving all policy decisions of the RSMD, should oversee the operation of the RSMD. Individual issues should be dealt with by sub-committees that submit solutions before the body for approval. Once approved, the policies should be carried out by the RSMD staff.

Financing

Revenue should be generated via a user fee that assesses a flat rate to single-family households and a pro-rated fee to non-residential properties based on the impervious surface area of the property. Capital improvements should be funded by a mix of revenue bonds, operating revenue, and grant funding.

Watershed Management

A watershed management plan should be developed that determines the major issues facing the LIS watershed. These issues should be translated into goals for the district. Based on an assessment of the current issues, the two main goals of the RSMD should be to reduce the pollutant load to the LIS and to reduce or eliminate local flooding problems.

Capital Improvements Planning

Capital improvements should be planned based on a capital needs assessment of the entire region. The RSMD capital improvements committee should develop a portfolio of potential capital projects from this assessment, and then prioritize projects according to the goals identified in the RSMD watershed management plan. The final list of capital improvements should be reviewed and approved by the representative body.

Operations and Maintenance Planning

Operations and maintenance activities should be coordinated, tracked, and controlled from a centralized base of operations. All assets should be owned, operated, and maintained by the RSMD. The stormwater infrastructure in each municipality should be jointly owned by the RSMD and the respective municipality. Operational efficiency should be tracked and measured against performance benchmarks to ensure that the most efficient methods are being utilized.

Pollution Control

A region-wide stormwater management plan should be developed that replaces the need for individual communities to develop and implement their own plans. This plan should focus on meeting the Phase II NPDES Regulations.

Public Education and Participation

A public education program should be developed to facilitate communication between the RSMD and the public. The program should consist of a Technical Committee and a Citizen Advisory Committee that would consolidate the needs and concerns of the member communities and to determine the actions required by the RSMD to meet those needs.

Next Steps

- Consensus reached among member communities on membership and voting powers; division of powers and responsibilities between the RSMD, constituent local governments and ex-officio members (e.g., Westchester County); uniform regulatory regime to apply throughout the RSMD's territory, equitable fee structures; and formula for establishing priorities for capital improvements.
- Develop a strategy for approaching the State Legislature by addressing the following issues: Pursuing generic model legislation for state-wide use or a specific statutory template just for LISWIC; acquire home rule messages from local governments, and the Westchester County government; draft enabling legislation; identify sponsors in both houses of the State Legislature to introduce the legislation and obtain the support of the Westchester legislative delegation.
- Develop a region-wide GIS database that encompasses the entire watershed. This can be accomplished by working with the information that has been developed by the Westchester County GIS.

- Determine the total number of ERUs for the RSMD (i.e. residential, commercial, governmental, and tax-exempt properties).
- Perform a capital needs assessment for the watershed to determine capital improvement program.
- Perform an asset and infrastructure condition evaluation to determine the current operations and maintenance needs.
- Determine the current level of service provided by each municipality.
- Refine the stormwater staffing levels and spending to determine the true cost of providing the current stormwater services.
- Assess the effectiveness of each municipality's stormwater management plan and identify the most effective method.
- Decide on a staffing method for the RSMD. Potential options include transferring municipal staff to the RSMD, hiring new staff for the RSMD, or having the RSMD contract with local municipalities for the services.