6.0 Introduction

This section is written in two parts. The first part, 6.0–6.5 discusses several generalized approaches to citizen participation, the particular method used in this 208 Study, some of the problems experienced during the conduct of the Program, and a recital of a specific success achieved by the citizens that proved the efficacy of having an active Citizen Advisory Committee (CAC).

The second part, 6.6–6.11, was written by the CAC and is their appraisal of the planning alternatives prepared by the 208 Study.

Governmental decisionmaking in the United States is generally based on the notion that in a federated republic the elected representatives shall act as surrogates for the citizens. The ballot box serves as the arbiter of how well the 'voice of the people' is heard. Even communities with strong attachments to the colonial home-rule town meeting format honor the concept of citizen participation in theory—not in practice. Of course, special interest groups have had access to the process by the use of lobbying, or in more limited instances seeking recourse through litigation. Either of these means is substantially limited to those individuals or organizations with sufficient financial support to wage a successful campaign.

The Johnson Administration formalized the concepts of 'participatory democracy' by mandating citizen participation in much of the domestic legislation.

A recital of the decade's short history of these efforts is one of limited success. Governmental access was made possible to a small number of publicly or politically oriented individuals who were locked out of the traditional political routes to power.

Despite some of the early creakings and groanings of disenchanted citizens, frustrated technicians and concerned politicians, the Congress has been increasingly mindful of the benefits to democratic mythos if workable citizen participation could be achieved. A strong factor was the need to recognize and respond to the growth of consumer, environmental and social planning advocacy organizations. The common thread linking these diverse groups in common allegiance was their adversary posture towards government. The common credo was simple. Each of the loose constituencies affected by governmental actions, or inactions, relative to their interests, argued that they were not able to secure relief because the government represented the "establishment" rather than the citizenry. A solution to such unresponsiveness was to use public interest lawyers to direct litigation against governmental programs and actions.

An obvious alternative to such confrontation politics is to render government more responsive by greater citizen involvement. This choice appears to be the conscious committment of Congress, specifically in domestic legislation relating to community planning, environmental and social issues.

6.1 Participation Models

The regulations prepared to implement the 1972 Amendments to the FWPC Act mandated citizen input in Section 208 planning efforts. The regulations do not, however, describe or define how such participation is to be structured, selected or operated. Unfortunately, there were no earlier examples to rely on.

Historically, professional planners have often acted as the surrogates for the public interest. In this model, technical discretion is assumed to define and prescribe the means of planning actions, but not the ends. This invariably resulted in 'shelved' planning proposals.

A second and perhaps more successful one is one in which the planners select and define the means, and also assume the responsibility of clarifying the ends. In this instance the planner presumes to know the needs of the public, but also the manner in which these needs are to be fulfilled. British town planning and implementation is a notable example of this approach.

A third and more sophisticated model involves the planner in the role of arbiter or mediator, whereby the planner has the discretion to set forth the means and to recommend the ends—so long as a feedback mechanism is operational between the planners and the actual providers and consumers during the plan formulation. In this case the planner mediates between the governmental power structure and the diverse interests among the body politic.

Since planning is essentially a governmental function, it must provide a broad and desirable rationale for attracting and holding the support of political leaders, appointed officials and the general citizenry. The appeal must be broad to cover the multitude of aspirations of such diverse groups. Obviously, the process itself, aside from the technical aspects, is basically a political activity.

6.2 Organizational Activities

The Nassau-Suffolk Regional Planning Board at the onset faced the issue of how best to meet the requirements for citizen participation. The literature and our own experiences were reviewed. It was soon evident that a new approach was needed. The earlier examples of limited or appointed citizen representation could not provide the broad inputs required for a program as complex, as costly, and as potentially unpopular as we expected wastewater management planning to be. The only guidelines were that the effort had to be as open and representative as possible. This meant that some of the approaches such as the appointment of select and elite "citizen" representatives or the hiring of a consultant to "organize the public" were to be avoided. Instead, the Board advertised widely in the press and radio media that this new program was in the organizational stage and that anyone interested in the issues of maintaining the quality of the potable and swimming waters of Long Island should attend an informational session. In addition, over 300 letters were sent to anyone who had ever contacted the Board for information about any matter related to water conservation, pollution, and/or wastewater management. In particular, the Board strove to identify those respondents whose views were antagonistic to prior governmental programs. All local governments were similarly notified about the impending project. At the conclusion of the open meeting attended by over 100 people, approximately 60 persons volunteered to participate.

At the organizational meeting the staff briefly outlined the purposes, duration and anticipated outputs of the program. The citizens were informed that the Board would prefer to have the chairman of the Nassau-Suffolk Regional Marine Resources Council serve as the non-voting chairman for the CAC. This was to insure impartiality in the conduct of the meetings and to avoid jurisdictional maneuvering over the position. The citizens were informed that the rest was entirely up to them. After a brief discussion they concluded that they would prefer a structured organization rather than an open-ended one. They agreed to meet every second week and to form subcommittees as necessary with additional meetings to occur as required. Within one month's time, the formal structure was accomplished. Ten categories of representation were selected. They included: the academic community, agriculture, business and industry, civic associations, disadvantaged citizens, environmental/conservation, government, labor, the Long Island Water Conference, and recreation. Committees were set up in each of these categories from the representatives who agreed to convene a caucus for each grouping on a regional basis, for the purpose of having each group vote for two voting members and alternates for each category. This was accomplished within one month's time. In concept the CAC had the freedom to establish its agenda, prepare and publish a newsletter on 208 activities, and to react and furnish input into the technical work conducted by the Technical Advisory Committee (TAC) as the program was carried out. The CAC, in order to foster the widest possible public information program, also agreed to inform their constituents on a regular basis as to the progress of the planning effort. In theory, the CAC should provide the widest possible dissemination of findings; and receive feedback from the general community. However, as important as *citizen participation is, it must* be kept in mind that the concept of *universal* civic participation should not be over-romanticized nor be expected to be achieved. Anyone with experience with any type of voluntary organization soon realizes that a relatively small number participate in the decisionmaking role beyond the selection of officers. This is but one of the problems inherent in the very nature of participatory democracy. As the activities of the CAC began to mesh with those of the TAC, other problems soon became apparent.

6.3 General Problems

The CAC, being representative of a broad variety of interests and differing levels of technical competence, gave rise to a set of circumstances that surfaced to the frustration of citizens and technicians alike. For example, in

order to assure a working partnership between the TAC and the CAC, it was agreed by the TAC to furnish all technical materials prepared by consultants or staff to the CAC as the material was developed. Theoretically, this was to serve two purposes: to bring the knowledge level of the CAC abreast of the activities of the TAC; and also to receive commentary and input from the citizens' point of view.

It was soon discerned that there was no happy medium in the manner of presentation. Initially, the technicians presented their findings in common language which was resented by those citizens with technical backgrounds who felt they were being talked down to. In response, further presentations were given identical to those presented to the TAC. This produced objections from the non-technicians on the CAC. There also arose a set of problems having to do with role consciousness. Many of the citizen participants joined the CAC because of their very deep and abiding concern with water conservation and wastewater management. They perceived themselves to be knowledgeable and, in fact, were, in most instances. Therefore, there was some chagrin and frustration with the TAC's scientific approach in trying to build the case 'one brick' at a time. Some of the citizens felt that the desired solutions were obvious. Other impatience was evidence of the fear that the technicians would merely produce a "plumbers approach" to wastewater management. They did not quite trust governmental technicians to be truly comprehensive, and to consider the broadest array of alternatives. In fairness, the TAC had as many misgivings about citizen participation as the citizens had about them.

As the program moved foward, another more subtle problem began to appear. The very matter of working together tended to produce an element of co-optation. The TAC perhaps over-reacted in its desire to indicate that nothing was being held back, and strong signs of growing trust between the two groups began to emerge. The potential danger in this growing harmony was that one of the prime roles of the CAC, namely to be objective critics, might have been weakened. This possibility of co-optation, however, was successfully resisted by the citizens.

The process of trying to meld so many personalities into a productive and positive process should not be construed negatively despite the recital of problems. On balance, the problems have been minimal in contrast to the merits and benefits that have already occurred. One of the more noteworthy examples follows.

6.4 A Success Story

Shortly after the inception of the 208 Program on Long Island, the CAC raised the question of why viral studies were not included within the approved scope of services. They were informed by the Director, that in fact the initial application to EPA did include such work prior to the formal establishment of the Program. This segment was not approved, since viral studies were considered to be of a research rather than applied status due to the relative embryonic state of the art. Thus, they were ineligible according to the guidelines for the program, which prohibited research projects.

The concerns voiced by the citizens, who in part joined the Program to promote recharge as a viable alternative to ocean disposal of sewage effluents, included the essential need to understand and assess the potential constraints against recharge.

They did not accept the EPA ruling that viral sampling and analysis was properly categorized as research, and therefore beyond the scope of the Long Island program. They demanded that discussions be held by the CAC and representatives from EPA to demonstrate their support of the expurgated viral section of the original application. A sub-committee was formed to meet with the two County Health Commissioners in the hope of securing professional concurrence and support. These activities took place during June and July, 1975.

By July 7, 1975, the sub-committee reported to the CAC that strong support was guaranteed. They further recommended that the CAC request the scope of services be amended to include virus studies and that funds be ear-marked for this purpose. The resolution adopted by them was forwarded to the TAC who responded favorably, subject to approval by EPA. However, it was stressed that the chances for approval appeared slim.

The CAC then invited Dr. James Vaughn, a noted virologist from the Brookhaven National Laboratory, to address the group. He accepted, and in his presentation he discussed the state of the art referring to work in other parts of the country, and further elaborated on the analytical processes used at the Laboratory to concentrate viruses. At the conclusion of his talk the CAC by resolution directed their chairman to request that a formal application be submitted to EPA.

As a result of their vigorous pursuit of the issue, the EPA agreed to conduct limited viral investigations. This response was received by August 4, 1975. By the following week Dr. Vaughn submitted a proposal to the TAC, with a cost estimate of $60,000. After a number of working sessions between Dr. Vaughn and the TAC with continuous feedback and response from the CAC, and subsequently similar meetings with the TAC/CAC and EPA, a formal application was submitted to EPA on March 12, 1976. An affirmative response was quickly received from EPA on April 27, 1976.

It is absolutely clear that the motivating force in securing approval for this integral portion of the 208 Study must be attributed to the strident efforts of the CAC. Subsequent to this experience, additional modifications have been made to the program at the initiative of the CAC. This included investigations of the presence of heavy metals and trace organics in the aquifers of Long Island. Beyond any question the citizens dared to challenge Federal rulings, and succeeded in doing the undoable. This accomplishment alone merited the difficult marriage between technicians and citizens.

6.5 Conclusion

Planning, as carried out in the context of this discussion, involves mediation between diverse groups and individuals who seek to influence land use and other policy decisions. Planning technicians conduct such mediation within the governmental framework and among the public at large. Thus, planning must be understood to be fundamentally a political activity. It is political in the following ways: It is a governmental process presumably set up to formulate and execute policy on land use activities. Administratively, most planning agencies are part of the executive branch of government. The interactions between planners and private citizens require mediation and compromise—the very essence of politics.

This reality is not necessarily negative. The crass aspects of partisan politics do not have to be the controlling factor. To the contrary, partisanship should be strenuously avoided. Politics herein, is held to be the conduct of the public business in non-partisan fashion, or perhaps more accurately stated, multi-partisan fashion. However it is viewed, planning will be more successful if it is conducted *with* the public involved, rather than *for* the people. The correctness of including public participation in the planning process, as demonstrated by the experiences on Long Island, is seen in several ways. Staff and citizenry have more access to the interests of the general public. This is invaluable for goal formulation, project design, and in selecting the most suitable plans. It should promote greater identification and hopefully a 'pride of authorship' on the part of the public with the plan. It may also help to mobilize resources and support by fostering mutual trust and understanding, particularly in instances where tradeoffs have to be made. In addition, continuous evaluation of the plan and its implementation will be encouraged by all who had a role in the plan's formulation.

Hence, public participation makes the planning process more responsive, more democratic, and often more comprehensive.

6.6 CAC Organization

"Public participation in the development, revision, and enforcement of any . . . plan or program established . . . under this Act (Federal Water Pollution Control Act Amendments of 1972) shall be provided for, encouraged, and assisted by the Administrator (of the U.S. Environmental Protection Agency) and the states." This quotation from Section 101(e) of the FWPCA is not only a statutory mandate that public participation be an integral part of water quality planning, but an opportunity as well for citizens to have a voice in the development and implementation of local wastewater management policies and decisions.

Thus, one of the first steps taken in the Nassau-Suffolk 208 Study was the estbalishment of a means whereby citizens could play a meaningful role in the planning process. This resulted in the creation of a Citizen Advisory Committee, the activities and views of which are the subject of this discussion.

It was decided to establish voting membership positions for ten different interest groups and constituencies as follows:

- —*Academia* (representatives of area colleges and universities)
- —*Business* (representatives of the business-industrial community)
- —*Citizen Associations* (representatives of such organizations as the League of Women Voters)
- —*Environmental Conservation* (representatives of such organizations as the Audubon Society)
- —*Local Government* (elected and appointed representatives of town and village governments, including planning departments)
- —*Labor* (representatives of organized labor unions)
- —*Recreation* (representatives of such recreational interests and activities as boating and fishing)
- —*Disadvantaged and retired citizens* (representatives of such organizations as the Long Island Council of Churches)
- —*Long Island Water Conference* (representatives of the water supply purveyors)
- —*Agriculture* (representatives of the Long Island Farm Bureau)

Each constituency selected two voting representatives and two alternates, with the exception of the Water Conference, which was allocated one voting representative plus two alternates.

The CAC Chairman was appointed by the Nassau-Suffolk Regional Planning Board and a Vice-Chairman was elected by the voting membership. Neither officer was granted voting privilege.

All CAC meetings were conducted in accordance with recognized parliamentary procedure. A quorum was understood to mean twelve voting members or designated alternates for policy issues and ten for non-policy matters. Non-voting members, of which there were about 25 at each meeting, were granted full floor privileges.

The CAC designated the first and third Mondays of each month at 5:00 p.m. in the Conference Room of the Dennison Building in Hauppauge as the time and location of regular meetings. A total of 75 meetings, most encompassing four hours, were held during the 30-month duration of the Study. Each meeting included a half-hour meal break with food provided by the Nassau-Suffolk Regional Planning Board. This break served as a "cooling off" and informal discussion period.

6.7 CAC Activities and Accomplishments

From the beginning, the CAC made its presence felt. It scrutinized every aspect of the Study and insisted on being kept informed of all developments.

1. The CAC reviewed the workplan which had been prepared by the Nassau-Suffolk Regional Planning Board and made meaningful suggestions relative to the direction and emphasis of the Study.

2. Concerned about the environmental and economic impact of any plan that might be proposed, the CAC helped draft the RFP (Request for Proposal) for the environmental/economic consultant.
3. The CAC questioned why the workplan failed to include a study to evaluate the presence of viruses in water and wastewater. The CAC argued that a lack of knowledge about viruses would limit the number of management alternatives, such as recharge, which could be considered. The CAC, with the help of the Regional Planning Board and the Technical Advisory Committee, was able to convince the U. S. Environmental Protection Agency to authorize and fund a viral study.
4. In a related matter, the CAC stressed the need for the analysis of samples for trace organics and heavy metals. Again the CAC succeeded in having these contaminants included in the sampling program.
5. The relationship of the 208 Areawide Planning Program to the 201 facilities planning provisions was yet another issue on which the CAC requested clarification. Concerned that the 201 Studies underway might contradict the recommendations of the 208 Plan being formulated, the CAC urged, without success, a moratorium on all 201 Studies until publication of the 208 Plan.
6. Throughout the 208 Study, the CAC requested and received various briefings from the technical consultants. Representatives of the CAC also attended meetings of the Technical Advisory Committee as observers, reporting back to the CAC.
7. Recognizing the need to keep the public abreast of the 208 Study and to encourage greater participation, the CAC initiated a public information effort early in the Program. Five newsletters, published at regular intervals, were compiled and distributed throughout the Region to local government units, planning boards and community groups. To assist in public understanding of the Plan, the CAC organized a speakers' bureau and prepared educational materials to be used at group presentations including a taped slide program and an informational flyer.
8. As the findings of the technical consultants were compiled, the draft reports were reviewed and discussed by the CAC and comments were forwarded to the authors. As a result of this evaluation, substantial changes were made in several of the interim reports.
9. The CAC also spent several meetings evaluating the concept and recommendations of the actual Plan. In connection with this, the CAC drafted and adopted a series of policy resolutions stating the consensus of the membership on key issues.
10. During the course of the 208 Study, Suffolk County considered discontinuing the annual funding of the groundwater monitoring program conducted by the U. S. Geological Survey. Recognizing the importance of this data for future wastewater management decisions, the CAC urged County officials to restore the funds.
11. Concern over the construction of sewage facilities in the Southwest Sewer District prompted the CAC to urge the funding of a stream augmentation feasibility study for mitigating the impact of reduced streamflows resulting from a lower water table. The CAC, on several occasions, voiced concern about the magnitude of the SWSD project.

6.8 Acknowledgements

The effective participation of citizens in the Nassau-Suffolk 208 Study through the Citizen Advisory Committee has been made possible through the support and efforts of numerous parties which the CAC hereby acknowledges with grateful appreciation.

—*The U. S. Environmental Protection Agency,* especially the Region II office, which funded the study, encouraged public participation and responded to CAC requests for clarification of policy.

—*The New York State Department of Environmental Conservation* which encouraged and supported citizen participation and responded to CAC requests for information and policy clarification.

—*The Nassau-Suffolk Regional Planning Board and staff* for actively encouraging and supporting independent citizen participation; for granting the CAC freedom to organize and function as its members desired; for providing funds to publish newsletters, reproduce articles and carry out a public information program; for arranging presentations to the CAC by technical consultants; for accepting and implementing suggestions made by the CAC; and for making available to the CAC the drafts of all reports and the Plan for evaluation.

—*The technical consultants and the Technical Advisory Committee* for attending CAC meetings to report on their work and to discuss issues.

6.9 CAC Operations: Evaluation and Recommendations

6.9.1 Organization. From an organizational viewpoint, the CAC has generally functioned smoothly and effectively. The designation of voting members representing various constituencies has worked well. The formalizing of committee membership and the instituting of a regular meeting schedule has facilitated good attendance and continuity. It also ensured balanced, broad-based input in a manner that prevented domination by any one interest group. Based on this experience, it is recommended that future citizen participation efforts be formalized in the form of a committee with

membership established on broad-based constituency representation.

6.9.2 Project Deadline. Under the terms of the Federal grant, the deadline for completion of the 208 Plan was December 31, 1977. As this deadline approached, activity intensified, hundreds of pages of technical reports were presented to the CAC for immediate review and comment. With the holiday season beginning in late November, it became very difficult for many CAC members to find the time to attend meetings and to do the necessary reading because of other commitments on their time. The setting of a deadline at a less busy time of the year would have permitted a more thorough and relaxed evaluation of the reports.

6.9.3 Citizen-Government Relations. Throughout the duration of the 208 Study, relations between the citizens serving on the CAC and their government as represented by the agencies involved in the 208 Study have varied from strongly adversary to various degrees of agreement and cooperation. In the final analysis , however, the citizens gained a better understanding of the complexities and frustrations experienced by government bureaucracies which has led to an increased respect for government. Concurrently, the CAC, through the interest and cooperation of its members, gained the appreciation and respect of the government agencies. Based on this successful and mutually beneficial arrangement, it is recommended that citizen advisory committees in general, and this CAC in particular, be continued for the purpose of providing input on future wastewater management decisions in the Nassau-Suffolk Region.

6.10 CAC Policy Positions

Out of the CAC discussions of the past two years there has evolved a consensus on numerous water quality and wastewater management concerns which the CAC has documented in 32 policy recommendations encompassing administrative, research and management issues. The following statements contain the essence of these recommendations. The full text of the concerns and recommendations appears in Section 6.11.

6.10.1 Administration

1. The design of wastewater strategies, the analysis of both monitoring data and strategies, as well as the design of stream augmentation methodologies, should be performed by a bi-county agency. Since the Nassau-Suffolk Regional Planning Board has a staff with both the administrative and technical proficiency to perform water quality management studies, this agency should not only be charged with the above mentioned duties but also be designated as the lead agency for present and future bi-county studies.

2. The NSRPB should seek additional funding to provide cost data for the alternate management strategies in each water quality management zone. In addition, all 201 Studies should be required to include cost-benefit analysis for all alternate strategies. Furthermore, 201 Studies should not be initiated until the final acceptance of the 208 Plan.

3. The provision for meaningful citizen input into water quality management studies should be provided for from the initial stages through a broadly constituted Citizen Advisory Committee. Similarly, any subsequent studies, such as the selection of a wastewater management strategy for a specific area, should receive the same scrutiny by the CAC.

6.10.2 Research

1. In the course of the Bi-county 208 Study, it has been determined that sewering addresses only a portion of the point and/or non-point contaminants entering surface and groundwaters. It is also recognized that nitrogen should be only one of many contaminants considered in water management strategies. Therefore, additional data on other parameters such as virus, metals and trace organics must be gathered and evaluated while research into the actual implications of nitrogen in drinking water must be pursued.

2. These point and non-point source contaminants are not unique to the Nassau-Suffolk Region and therefore water quality and wastewater management studies performed in this region can be applied on a National scale. Since there is a wealth of pre-exisitng data on the Nassau-Suffolk aquifers and surface waters, and this area includes a wide variety of land uses ranging from rural to urban, further Federal funding to expand this data base is recommended.

6.10.3 Management

1. The management of water supply in Nassau and Suffolk Counties should be designed to preclude both the importation and exportation of water. This can be accomplished by managing this regional resource on the basis of the innovative concept of water quality management zones as specified in the Plan. Water management strategies that require the preservation of wetlands and/or Magothy recharge areas as open space should provide for governmental purchase as a fee simple or lesser interest. In addition, a comprehensive land use management program should be Federally funded and developed.

2. Self-sufficiency would be further assured by: (1) providing for the maintenance of existing and future collection systems, treatment plants and on-site systems by dedicated funds; (2) adopting technical specifications and inspection procedures for petroleum and chemical storage tanks; and (3) by the implementation of water conservation measures, wastewater and solid waste reduction methods, and surface water runoff reduction and treatment measures.

6.11 Wastewater Management Concerns and Policy Recommendations

The following is the full text of the 32 key wastewater management concerns identified by the Citizen Advisory Committee and the policy recommendations adopted by a majority of the voting members.

6.11.1 Administration. This encompasses those concerns and recommendations that pertain to the implementation of wastewater management plans, to funding of studies and abatement projects, and to public participation in future management decisions.

1. Concern: An agency that has facility construction and operating authority would increase in size and power from wastewater management decisions that favor the solutions that are implemented by the agency.

Recommendation: The design of wastewater management studies, the analysis of data, the analysis of strategies, and the recommendation of solutions should preferably be done by an agency with only planning authority and never should be done by an agency with wastewater treatment facilities construction and operating authority.

2. Concern: Many structural and non-structural strategies are available that singly or in combination can reduce the volume of pollutants or prevent pollutants from entering the groundwater. However, funding formulas that are area-specific and strategy-specific exclude from active consideration many acceptable strategies.

Recommendation: Funding formulas to implement water quality and wastewater management strategies should equitably reflect the district and regional benefits that accrue and be goal-oriented rather than specific-strategy oriented. A specific strategy that should be examined pursuant to this recommendation follows: A management decision should be made by the responsible 208 management agency as to whether the resources of the bi-county area can be better spent to restore the quality of waters where the nitrogen concentrations exceed ten milligrams per liter such that the resulting nitrogen concentrations meet the ten milligrams per liter standard, or whether those resources should be spent to prevent degradation of high quality groundwaters.

3. Concern: Any effort by Nassau County to unilaterally reduce pollutant levels in North Shore bays near New York City will be frustrated by the high ambient pollutant levels in western Long Island Sound caused by present wastewater disposal practices.

Recommendation: USEPA and NYC are requested to give appropriate consideration to the environmental benefits that will accrue to Nassau's bays as the determination of priorities is made for the various water pollution control projects.

4. Concern: The technical complexity of wastewater management studies, the necessity for background information, and the completion of essential phases of the study prior to the end of the study generally render any technical, procedural or substantive recommendations, however meritorious, made at the conclusion of the study either difficult to integrate or too late to consider.

Recommendation: The provision for meaningful citizen input into water quality management studies should be provided for from the initial stages through a broadly constituted Citizen Advisory Committee (CAC). Similarly, any subsequent studies, such as the selection of a wastewater management strategy for a specific area, should receive the same scrutiny by the CAC.

5. Concern: The recommendations of the 208 Study can be avoided if any 201 facilities study is started prior to the adoption of the 208 Plan.

Recommendation: No additional 201 Studies should be initiated until the final acceptance of the 208 Plan.

6. Concern: Economic cost data is an essential component for a balanced evaluation of alternative wastewater management strategies. The lack of cost data enhances the likelihood of 208 recommendations not being adopted.

Recommendation: The NSRPB should seek additional funding to provide economic cost data for the various alternative wastewater management strategies in each water quality management zone. Any 201 Studies should always have a benefit/cost analysis for all alternative systems and strategies.

7. Concern: The NSRPB has developed a staff with the administrative and technical proficiency to competently manage Water Quality Management Studies (WQMS) and the NSRPB has cooperated in allowing the CAC to participate in the 208 WQMS.

Recommendation: The NSRPB should be designated as the lead management agency for any future WQMS in Nassau-Suffolk.

8. Concern: An agency that has wastewater facility construction and operating authority would be put into the position of being required to evaluate its own effectiveness and competence if that agency also has a monitoring responsibility.

Recommendation: The responsibility for monitoring wastewater quality should not be in the same agency that has facilities construction and operating authority.

9. Concern: The proper management of the environment requires that water quality be managed in coordination with air quality, wildlife, agriculture, recreation, aesthetics,

economic development and energy facilities.

Recommendation: A comprehensive land use management program similar to the Federally funded program for the coastal zone should be developed for inland areas.

10. Concern: The water quality in the aquifers that underlie Nassau-Suffolk varies from unusable, due to contamination by pollutants, to pristine.

Recommendation: Economic growth in Nassau-Suffolk can best be accomodated by managing land uses according to water quality management zones.

6.11.2 Research. This encompasses those concerns and recommendations pertaining to the need for additional studies, sampling/analysis programs, and research.

11. Concern: New research into the health effects of nitrogen in drinking water may require the adoption of more restrictive standards. Therefore, in areas of the groundwater system where nitrogen concentrations are presently less than the present standard of ten milligrams per liter, an effort should be made to maintain lower concentrations.

Recommendation: A technological feasibility study should be made to determine whether the wellhead treatment of water can reduce nitrates to the same level as highest quality water from an aquifer whose recharge areas are undisturbed by housing and agriculture. Until technology achieves such a level of proficiency, in areas of the groundwater system where nitrogen concentrations are presently less than the present standard of ten milligrams per liter, an effort should be made, within the constraints of economic and social factors, to maintain those lower concentrations.

A specific strategy which should be examined is the efficacy of preserving the native vegetative cover in the Magothy recharge areas.

Recommendation: A program for the long term systematic collection and analysis of data on nitrates, chlorides, trace organics, heavy metals, viruses and other pollutants in ground and surface waters should be implemented. The analysis of the data should include the source of each pollutant.

13. Concern: The application of fertilizers and pesticides in agricultural and residential uses may result in a certain amount of leaching of these compounds into the soil and/or runoff into surface waters.

Recommendation: A study should be made to determine the degree of degradation of ground and surface waters that can be attributed to the application of fertilizers and pesticides. Appropriate controls, which are responsive to the scope of the problem and give adequate consideration to the relevant local and regional environmental, economic and social factors, should be implemented.

14. Concern: Certain household, commercial and industrial chemicals, which are disposed of in wastewater or lagoons, are incompatible with quality groundwater.

Recommendation: An inventory of household, commercial and industrial chemicals should be compiled, and the impact of the chemicals on the groundwater should be assessed. Any recommended controls should be evaluated in terms of the relevant environmental, economic and social factors. Research to determine the public health effects of these chemicals should be accelerated in order to establish standards in the near future.

15. Concern: The chloride in de-icing salts that are spread on roads is a groundwater pollutant.

Recommendation: Research should be started to develop environmentally acceptable methods of dealing with ice on roads. In the interim, de-icing salt should always be mixed with aggregates before application, and standards should be set in order that the amount spread will not be in excess of the amount required to do the job.

16. Concern: Stormwater runoff from impermeable surfaces into groundwater and surface water bodies is a major source of pollution.

Recommendation: A pilot program should be developed for decreasing the quantity, as well as the contaminant level of stormwater runoff, if feasible.

17. Concern: The results of certain types of water quality and wastewater management research that is performed in Nassau-Suffolk can be applied to other areas of the country with similar conditions.

Recommendation: The wealth of information on Nassau-Suffolk's aquifers, and the variety of terrestrial activity from rural to urban, should be exploited by a Federally funded program to research pressing water quality problems, such as the transport and fate of trace organics, heavy metals and viruses in the groundwater.

18. Concern: The magnitude of the water quality management decisions, which are based upon the EPA standard for nitrogen in drinking water (ten milligrams per liter), is disproportionate to the confidence that can be placed

in the validity of the standard.

Recommendation: Research into the public health effects of nitrogen in drinking water should be actively pursued.

19. Concern: Improperly constructed or inadequately maintained wells are a potential source of aquifer contamination.

Recommendation: A study should be made to determine if existing wells are a substantial source of aquifer contamination and if the continuation of their present condition will render that portion of the aquifer unsuitable for its present or planned use. If the results are affirmative, then a program should be implemented to correct the conditions.

20. Concern: Commuter automobile use is a significant source of groundwater pollutants.

Recommendation: The degree of environmental degradation attributable to commuter automobile traffic should be determined, and a correspondingly appropriate combination of economic incentives and disincentives should be devised to encourage the use of mass transit systems.

21. Concern: Large quantities of stormwater runoff that transport de-icing sand, oil, grease, fertilizer and sediments are piped directly into stream and bay waters.

Recommendation: A program should be implemented to retrofit with sediment traps the existing stormwater drains that discharge into surface waters. In the interim, wherever practicable, the existing accumulated polluted sediments, which are located at the discharge point of the stormwater drain, should be removed to preclude their dispersion into the adjacent water body.

22. Concern: The environmental changes that will be brought about by the lowering of the water table in the Southwest Sewer District (SWSD), due to the use of a marine outfall, will have a moderate to severe adverse impact on freshwater wetlands, on inland stream-dependent water-related recreation, and on the Great South Bay hard clam fishery.

Recommendation: While acknowledging that the SWSD is an accomplished fact, a study should be made to devise and evaluate strategies, such as stream augmentation, that will counter the effects caused by the water table decline and decrease in average level and flow of our streams and rivers.

23. Concern: Many new concepts are being developed in laboratories to treat domestic wastewater. However, these new technological innovations cannot be considered for use on a large scale until properly conducted small scale field tests provide the basic engineering and cost data.

Recommendation: A Federally funded program to run small field evaluations of innovative wastewater treatment systems should be implemented.

6.11.3 Management. This encompasses those concerns and recommendations pertaining to the legal, institutional, scientific and technical means for implementing wastewater management plans.

24. Concern: The present practice of each public water supply purveyor supplying the entire potable water demand of its customers from wells within its district boundaries will, if continued, decrease the safe yield of the aquifer.

Recommendation: Water supplies in Nassau and Suffolk should be developed with the objective of maximizing the long term safe yield of the aquifer.

25. Concern: The conservation of potable water can reduce the volume of wastewater and decrease the drawdown rate on the potable aquifer.

Recommendation: Potable water should be conserved by initiating a public information program and revising industry standards and building codes that lead to wasteful water practices. Water pricing schedules should be revised to encourage water conservation. A study should be implemented to determine the feasibility of using grey water for industrial and limited commercial uses. Use of shallow wells in a degraded aquifer should be encouraged for irrigation, industrial, fire fighting and other compatible uses.

26. Concern: Current solid waste disposal practices are wasteful of resources, and are a source of leachate.

Recommendation: Municipal composting, recycling, beverage container reuse and other techniques for the reduction of the volume of solid waste should be encouraged with suitable incentives. Water quality monitoring in the vicinity of existing and closed landfills should be conducted, and an assessment should be made of the necessity of implementing interim abatement measures.

27. Concern: The quality of water, rather than the quantity of water, is the relevant problem for the supplying of potable water from Nassau and Suffolk's aquifers.

Recommendation: It is preferable to dispose of treated sewage effluent in areas where flow lines do not enter a potable aquifer unless the effluent is of equal or better quality than the affected aquifer and within the limits of health

standards.

28. Concern: The vast reservoir of potable water that underlies Nassau and Suffolk Counties will through wise management meet all future demands which are predicted for this area.

Recommendation: The management of water supply and wastewater in Nassau and Suffolk Counties should be designed so that the bi-county area need not import any of its potable water supplies from outside of the two counties.

29. Concern: Sewering addresses only some of the sources of pollutants in Nassau and Suffolk's groundwater. Contaminants other than nitrates may be more detrimental to public health.

Recommendation: Nitrogen should be only one of the many contaminants (such as organic and heavy metals) that are considered in water management decisionmaking, and a variety of management alternatives should be considered as abatement techniques.

30. Concern: The proper maintenance of both existing and future sewage collection and treatment systems, and on-site systems is essential for protecting the quality of ground and surface waters.

Recommendation: The maintenance of both existing and future sewage collection systems and treatment plants and on-site systems should be required and provided for by dedicated funds.

31. Concern: The role that wetlands and Magothy recharge areas have in surface water and drinking water quality is knowledge that was not known when these lands were first sold to private owners.

Recommendation: Water quality management strategies that require the preservation of wetlands and Magothy recharge areas as open space should provide as a matter of course for government purchase of a fee simple or lesser interest in the property.

32. Concern: The storage of petroleum products in underground tanks is a potential and, in some cases, an actual source of groundwater pollution.

Recommendation: Technical specifications for underground petroleum storage tanks should be adopted, and all existing tanks should be routinely inspected to determine their integrity. The frequency of the inspections should be based upon the determined likelihood of tank failure and the water quality management zone in which the tank is located.

Section 7 Implementation

7.0 Introduction

The Act and the regulations drafted by EPA thereto, require a commitment from the 208 agencies to indicate how implementation of the planning recommendations will be carried out. Responsible units of local and state governments must agree to support existing or new agencies to do the work and to have sufficient taxing, budgeting and regulatory authority to finance the various tasks.

This implies that technical, fiscal and political objectives can be achieved and that major constraints will somehow be ameliorated. The Areawide 208 Plan developed for Nassau and Suffolk Counties is implementable. The ease of implementation, though, is partially dependent on knowledge of the constraints that inhibit public action, and thorough preparation to cope with them. This is true for minor projects and even generally popular ones, let alone costly and less favored ones. Constraints often are complex and not easily identified or categorized. Attempts must be made to reduce these limits to implementation as though they were singular. For this purpose it is assumed that all barriers fall into three neat classes: technical, fiscal and political. Unfortunately, an apparent technical limit to some observers may justifiably be considered to be really fiscal in origin by others. Such potential definitional disputes are recognized. We dispense with this dilemma by taking a firm grasp of this disclaimer: *The following paragraphs are illustrative and can be re-defined as to category, but are accurate in that they all tend to hinder implementation of public programs.*

7.1 Constraints

7.1.1 Technical Limits. Technical limits include the availability and quality of the data on which technical alternatives are identified, prioritized and chosen; the state of the art of equipment and methodology; and the existence of suitable agencies to design, construct, operate, monitor, maintain and regulate the structural devices and facilities.

One concern that permeated this program was the adequacy of the input data that was used to verify the models and identify the "real world" of Long Island's hydrogeological/ecological system. Serious researchers can never be complacent when considering the relative completeness of technical data. More should be known about organic chemicals, metals and viruses. More wells should have been installed for test purposes. More should be known about the movement of contaminants through the aquifers. More monitoring should be conducted, and on a continuous basis. More has to be known about health and environmental standards. The list is awesome! The unknowns constitute an important set of recommendations for future work and are mentioned in the previous section. Fortunately, sufficient information and experience were available to enable the preparation of this initial 208 Plan. When implementation is considered, however, it must be in the context of a *continuous* planning effort. As the data and knowledge base improve, modifications of the Plan may become necessary.

Waste treatment processes and equipment currently available (from the standpoint of proven reliability and efficient performance) can meet the recommended needs of the Nassau-Suffolk Program. However, some management alternatives, such as large scale recharge to the aquifer, will not become operationally reliable until ongoing demonstration tests at Cedar Creek are completed. Another example of state of the art deficiency is the obvious need for improved means of producing organic-free potable water.

The administrative aspects of technical implementation are perhaps the least difficult set of problems to resolve. Existing county and State agencies in both counties are now implementing many monitoring, regulatory and operational waste treatment programs. Land use controls, to a lesser extent, are also being carried out. Non-point source control measures have to be significantly strengthened. The main administrative questions relate to new opportunities to improve the quality and efficiency of service for the future.

7.1.2 Fiscal Limits

7.1.2.1 Availability of Funding. Fiscal constraints fall into two general classes. One is the availability of money. The other is the legal requirements that must be met prior to spending public funds.

Federal and State transfers of revenue to local governments are the major source of funds for major public works, *e.g.,* highways, sewers, etc. These grants are often the major catalyst in generating local initiation of projects. Yet these monies also deter action due to the following:

1. There might not be an adequate amount to fund all the requests throughout the country or state. Prorated shares would necessitate a larger local contribution, regardless of the aid formulas. Thus, instead of moving local actions, the deficiencies deter them.

2. The funds are often categorical, *i.e.,* monies are earmarked for specific projects and/or specific construction solutions, *e.g.,* at one time, the Federal Government would fund outfalls, but not recharge. (The law has now been changed to make more items eligible.) Local governments are forced to choose between a technology they may not want, but can be funded; or if a different solution is chosen, pay for it with local revenues. This latter case is crucial to 208 implementation, since most non-point pollution abatement techniques and facilities are not currently eligible for Federal grants, except for agricultural areas.

Another fiscal constraint is the low priority accorded the subsidization of sewer lateral construction, which can amount to 90 percent of a sewering program's costs.

3. The condition of the bonding market also affects the availability of funds. Recent experiences in Suffolk County indicate that due to the unstable fiscal situation in New York City, the bond market was reluctant to invest heavily in municipal works, except at exorbitant interest rates. One alternative to this impasse would require the county to partially guarantee the district bonds with earmarked revenues from the county general sales tax. The County Legislature chose this path to avoid default on the partially constructed Southwest Sewer District. The controversy over the financing of this District has already created a strongly negative county-wide attitude towards any further major structural programs for waste treatment.

7.1.2.2 Legal Limits on Spending. State constitutional limits and other State and local statutes related to public spending often slow implementation. Although conceived of as a means of providing fiscal integrity and protection for the citizenry, these laws can impede and sometimes prevent the creation of necessary public works.

1. Most Federal and State grants require that the local governments provide a matching share. If the project is small enough or popular enough, the local share may be obtained by the issuance of bonds for the purpose. This can often be authorized by local legislative resolution after a public hearing is held on the matter. If the local government cannot come up with their share, the grants are cancelled.

2. Projects that are costly and/or controversial are subject to either permissive or mandatory referendum. Permissive means that the legislative body may act in the prior case, but can be challenged by a segment of the public to submit the action to a public vote. It is rare that elected bodies risk permissive actions. This means that the proposal is put to referendum as though it were mandated. In most instances the vote takes place at the next regularly scheduled election. This process alone can delay action for almost one year.

7.1.3 Political Limits. In the last analysis, political limits determine the "go/no-go" real world climate; they are the most complex and, therefore, the most interesting ones to resolve in moving any public program or policy towards successful implementation. Although related to and affected by technical and fiscal issues, political constraints are more reflective of the democratic system, which must be responsive to the public will. There are virtually no limits, technical or fiscal, if the public support is favorable.

The development of an implementation program and schedule is the concluding phase in the preparation of a planning study. It requires that there be a recommended course of action, or at least the identification of resonable alternatives, *e.g.,* the specfic objectives to be attained including timing; the administrative agencies to conduct the initiation and operation of programs, facilities and regulatory procedures; the fiscal resources to fund the effort; the legal provisions to substantiate and protect the program content; and the fostering of citizen interest to assist in making the action politically supportable.

7.1.4 Summary. Secton 3 presented a detailed recital of the many alternatives that may be used for waste management in the two counties. Section 4 commented on the environmental consequences of each alternative. Sections 5 and 6 concentrated on preferred responses. (Section 5 represents the TAC point of view.) The CAC recommendations are in Section 6. Fortunately, there is a strong overlap indicating a healthy, independent consensus on major issues.

The remaining task is to pull the administrative, fiscal, legal and policy elements together into a workable and therefore implementable package. The following pages summarize these matters under the headings of Management Agencies, Fiscal Needs, Legal Needs and Public Informational Program.

7.2 Management Agencies

7.2.1. Introduction. At the present time, all agencies required to implement the various portions of the Nassau-Suffolk Comprehensive Areawide Waste Treatment Management Plan are extant. The Nassau County Department of Public Works and the Suffolk County Department of Environmental Control are statutorily established, with full powers and authority for the planning, design, construction, operation and maintenance of public sewage collection and treatment systems. These agencies, in conjunction with the two County Health Departments, currently can implement the monitoring

and regulatory functions relating to all of the public health matters that are addressed in the Plan.

These four agencies, in conjuction with the powers of the New York State Department of Environmental Conservation, cover the entire gamut of point and non-point concerns called for in the Plan. Land use recommendations contained in the Plan are currently administered by the Nassau and Suffolk County Planning Commissions in accordance with State and/or County Charter provisions.

The Federal law and regulations, which set forth the requirements of 208 planning (40 CFR 131.11 (n) (3) (i), state that, "to the extent practicable, waste treatment management shall be on a statewide and/or areawide basis . . . ." It must be stressed that this goal should be measured in the context of economy of scale. In Nassau and Suffolk Counties, the planning is conducted on an areawide basis (the two counties are an SMSA), and, therefore, meets the general requirements. The operating and regulatory functions, though are carried out by the respective counties. Since the two counties are sufficiently large (almost 3 million people) and have well established agencies that would not gain effectiveness by further centralization, the NSRPB does not recommend any major changes. The areawide 208 planning function can continue to serve as a bridge for the two counties to ensure coordination and cooperation of mutual water quality management objectives.

There are, however, several management agency options that should be considered, since this study would not be complete if it did not analyze the efficacy of existing structures.

The balance of this section contains a discussion of management agency options for the operation and regulation of point and non-point source controls, water development and areawide planning. This is followed by NSRPB recommendations for designated agencies to carry out the various tasks.

7.2.2 Point and Non-point Source Controls. The control of point and non-point sources of pollution involves regulatory and operational activities. Most county units of government that undertake these responsibilities share the task along functional lines. The County Health District (department) assumes the regulatory activities. The County Department of Public Works undertakes the design, construction and operation of structural facilities. This is the pattern in Nassau County.

Suffolk County has developed a more complex approach. Initially, a separate Sewer Agency was created to undertake the planning, design, construction and operation of the Southwest Sewer District. It was never attached to the extant Department of Public Works. Subsequently, a Department of Environmental Control was established, which assumed all the functions of the sewer agency and also included some regulatory and monitoring functions. Some of the prior duties of the Department of Health Services in these fields were transferred to the new agency. However, the Health Department could not relinquish those duties that were mandated to it by virtue of N.Y.S. Public Health Law. Thus, Suffolk County has two agencies whose duties in regulation and monitoring potentially overlap. To address this concern, the two agencies have signed a memorandum of understanding, intended to clarify jurisdictional assignments.

The following pages describe the responsiblities, operations, environmental monitoring, proposed additional functions and advantages of the present administrative structure. This is followed by several questions and observations that may require future action.

7.2.2.1 Suffolk County Department of Environmental Control Responsibilities. The following are the representative examples of the functions performed by the individual units of the SCDEC that fulfill Charter responsibilities: Realty Subdivision, Planning, Engineering, Construction, Operations, Environmental Monitoring (Freshwater Resources, Marine Resources, Air Pollution Control, and Water Pollution Control) and Special Services/ Energy Programs.

7.2.2.2 Suffolk County Department of Health Services Responsibilities. The County Charter, Public Health Law, New York State Sanitary Code and the Suffolk County Sanitary Code have mandated environmental programs to the Health Services Department. This includes the supervision and control of public water supplies, bathing beaches, public swimming pools, individual water supplies and sewage disposal systems, realty subdivision and ionizing radiation. In addition, the Department is responsible for the enforcement of standards regarding operations of county-owned facilities. Thus it appears that the Health Department and Environmental Control Department share duties relative to realty subdivisions and fresh and marine water monitoring and regulation.

7.2.2.3 Administrative Considerations. The present management structure in Suffolk County appears to have created potential impediments to more effective operations. One is philosophical in nature, the others are jurisdictional.

Generally, agencies are assigned either operational or regulatory functions. This is to avoid, to the degree possible, potential internal conflicts of interest. The State and Federal environmental protection agencies' duties include enforcement, monitoring, standard setting and the administration of grant programs. They generally do not build or operate sewage treatment facilities. In New York State this latter function is the responsiblity of a separate New York State Environmental Facilities Corporation.

The opposite argument is that substantial benefits are derived from maintaining within one agency comprehensive, interdisciplinary capabilities for addressing environmental matters. In addition, dual participation of an agency (*e.g.,* SCDEC) in both the 208 Study and 201 facilities planning assists in assuring that the recommendations of the 208 Plan are implemented on the 201 level.

Jurisdictional issues are considered here solely for the objective of understanding where the practice of shared responsibilities breaks down. The main problem appears to be with enforcement. When responsibilities

for enforcement are shared among several agencies (in this case, NYSDEC, SCDHS and SCDEC) disputes are bound to occur. The shortcomings of current enforcement capabilities provide the basis for implementing a local environmental law as described in Section 7.4.11.

7.2.2.4 Administrative Options. There are several models that may be considered for point and non-point management agency assignments. In Suffolk County, they include:

1. a. Assign *all* monitoring and regulatory functions to the Health Department.

b. Assign *all* operational activities to the Department of Public Works.

This model is close to that used in Nassau County. In all other New York State counties, save upstate Erie County, shared responsibilities do not exist. The monitoring and enforcing of environmental control standards is carried out by county health departments.

2. a. Assign *all* monitoring and regulatory functions to the Health Department.

b. Assign *all* operational activities to the Sewer Agency.

3. a. Assign *all* monitoring and regulatory functions to the Department of Environmental Control as an agent of NYSDEC and NYSDH.

b. Enact a local environmental regulatory law with responsibilties assigned to the Department.

c. Assign all operational activities to DPW or an independent Sewer Agency.

4. Maintain the current administrative status quo.

At this time, Nassau County does not have to re-evaluate its agency structures. The county's sewer program is well established and functioning. The areas of responsibility are clear-cut. Finally, the agencies are conducting their respective duties successfully.

In the case of Suffolk County, the NSRPB has offered some models to consider. The Board fully recognizes that ultimately these are decisions to be pondered by the newly formed Citizens Charter Commission, considered by the County Executive and Legislature, and finally, determined by either permissive or mandatory referendum.

7.2.3 Water Development. The 208 Plan indicates that the quantity of groundwater should be adequate through the planning horizon. However, it is possible that a part of this resource may become polluted and, therefore, effectively limit the available potable supply through time. In such event, it may become necessary to ensure the adequacy of supply through the following actions:

- Limit the withdrawals from individual wells or well fields, or establish district-wide limits.
- Require the inter-district allocation of water supply.
- Require the inter-county allocation of water supply.
- Sequence and coordinate the capital investments necessary to provide an adequate distribution network, inside each county, between counties and outside the Region.
- Establish pricing policies throughout the SMSA to achieve significant water conservation.

Provisions for these activites do not now exist throughout the Region. At the present time, each county copes with the problems of water production, quality control, distribution and sale through a variety of administrative mechanisms. Suffolk County has an Authority with county-wide powers to carry out the above mentioned functions. Although individual wells and private and municipal water companies exist, the Authority has powers of condemnation and purchase. Since the mid-1960's, the Authority has striven to build a coordinated system. Some of the municipal water districts purchase water from the Authority, and then retail it to local customers.

Water production and supply in Nassau County is currently managed by 46 separate independent water companies—43 in municipal and three in private ownership. The balkanization of water management obviates the county's ability to efficiently respond to the reality that water is a county-wide resource and concern and should be managed as such.

This observation is neither new nor startling. In 1963, the Greeley-Hansen, *Summary of Report on Water Supply,* recommended the consolidation of Nassau's water supply. In 1971, an updated report by the same consulting firm modified their positions to stress the need for supplemental water. Since this report was published, the NCDH has revised the projected "deficit" from 126 MGD to 47 MGD in 2000. The "deficit" is the estimate of the difference between projected water supply demands and the calculated safe yield of the resource.

The county has partly responded by the creation of a Water Resources Board charged with a review of the 1971 recommendation as a prime responsibility. Their first report urged: (1) the development and adoption of a master plan, (2) creation of a new department or division to implement, when necessary, any part of the Master Plan that calls for the provision and transmission of supplemental water, (3) acquisition by Nassau of the large water main under Conduit Boulevard and Sunrise Highway and (4) action by NYSDEC to reduce the heavy groundwater pumpage in Queens County. Additional actions should now be taken. There are at least three options that the county government should consider.

An obvious option entails the creation of a county-wide authority or department that would have the sole resonsibility for the production, quality control and distribution of water. This would mean the absorption of the county of the 46 existing companies.

A second possibility would be similar to the first for the production of water, *i.e.,* the location and operation of wells, control over pumping rates, and the sole responsibility for water quality monitoring and control. The 46 existing companies would remain for the purpose of local distribution and sale of water. Presumably, the county agency could acquire any of the inde-

pendent companies by purchase as is the case in Suffolk County.

The third alternative would be that water production can be assigned to the Department of Public Works. In this case production of water and construction of a county-wide distribution system would be assigned to the Department, with monitoring and quality control assigned to the Health Department.

Several additional advantages to be considered as a result of centralization include:

1. The ability to foster water conservation through the use of pricing schedules.

2. The establishment of uniform, continuous and sophisticated monitoring surveillance of the groundwater resource.

3. The development of a formal reporting system to ensure that the County Executive and Board of Supervisors receive adequate and timely information regarding the county's water supply situation.

4. The ability to create an administrative mechanism to address intercounty water problems and solutions.

On this last point it must be recognized that Nassau and Suffolk Counties are one region in several senses. There is general understanding that demographically and economically the counties constitute a clearly identifiable Standard Metropolitan Statistical Area (SMSA). Transportation is another obvious regional activity and concern. Certainly, this is also true for water. The aquifer, already designated by the EPA as a "sole source aquifer," does not relate to municipal boundaries. It is a common resource. In fact, if anything defines the unity of Long Island in a physical sense, it would be the groundwater underlying the Region.

Since self-sufficiency of water supply is a good possibility, assuming intelligent management, it is essential that regional policies be formulated and established.

This is an important concern for Nassau County in that it must choose from three possible alternatives of obtaining supplemental water that represent widely divergent approaches. Self-sufficiency may be maintained by (1) recharge of an advanced treated wastewater effluent or (2) by having Suffolk County water made available to Nassau County users.

The third alternative is for Nassau County to consider joining with New York City to implement the U.S. Army Corps of Engineers proposal to skim the floodwaters of the Hudson River. This requires the construction of a new water tunnel and distribution system.

Although this was a wastewater management study, water treatment at the wellhead should not be ignored as a management tool. Public water supply treatment in many areas may, in fact, be required regardless of the structural or non-structural recommendations cited in the Plan. Every effort should be made to prevent further degradation of the resource.

State and/or local legislation that would permit public water supply wells to be located on public lands should be considered. In many cases such locations afford maximum protection for the water supply. These installations can be constructed in a manner that would still preserve the initial integrity and use of the land for which it was originally set aside.

7.2.4 Areawide Planning. Since December 28, 1974 the Nassau-Suffolk Regional Planning Board has been the designated Section 208 areawide planning agency. Between January of 1975 and June 30, 1978, this agency has been responsible for the conduct of the $5.2 million 208 Program. With the completion of the initial plan, questions remain as to continuity of effort for periodic updating and for subsequent work related to any portions of the initial plan subject to conditional approval. Several options exist for the future. They would include:

1. continuance of the Nassau-Suffolk Regional Planning Board as the areawide agency,

2. the designation of Tri-State Regional Planning Commission as the areawide agency, and

3. the assumption of these functions by the New York State Department of Environmental Conservation in accord with the similar responsibilities in other portions of the State of New York.

The first option offers several benefits. The NSRPB and its 208 affiliates—the TAC and CAC—have developed a good working relationship among the responsible agencies and a very active and broad based citizen group. A comprehensive and strongly controversial planning process was conducted relatively on time, and with a remarkable degree of consensus among the participants. Both advisory committees expressed almost unanimous recommendations that the NSRPB continue its 208 planning functions. The administrative mechanisms are in place and functioning, and the decisionmaking process is directly available and open.

The second option is not recommended. The Tri-State Planning Commission has not been involved in 208 planning and would not be able to guarantee smooth continuity.

In view of new EPA/State agreements whereby the relationships between the Federal Government and the State for waste treatment planning purposes are being clarified, one could build a good argument for Option Three to take place. Since the State has the full responsibility for the entire State, it would make sense to coordinate these activities in one agency. Local input could then be achieved through the review process. In short, the Nassau-Suffolk Regional Planning Board would review and comment on the periodic updatings prepared by the State as they affect Nassau and Suffolk Counties.

This would require a significant increase in staff trained in land use planning to handle the land use and other non-structural aspects of 208 work. At the present time, NYSDEC is not responsible for state planning functions. After the demise of the Office of Planning Coordination, modest planning responsibilities were assigned to the Secretary of State. That office is currently specializing in coastal zone management planning.

7.2.5 Designations. One responsibility in the formulation of an areawide water quality management plan is the designation of, and acceptance of, implementation responsibility by regulatory, planning and operating agencies to carry out the adopted plan. The following pages contain the NSRPB recommendations. In general, the NSRPB believes that all management agencies required to implement this water quality management plan are currently in place and have adequate legal and administrative jurisdictions. Agency acceptance of functions designated in this water quality management plan constitutes a moot point, because they already have such responsibilities and their authority is demonstrated to derive from existing legislation, *i.e.,* N.Y. State Public Health Law, N.Y. State Environmental Conservation Law, Federal Law, General Municipal Law of the State of N.Y., regulations of local Health Districts, County Charters, local laws.

The designations are identified for point source control, non-point control, water development and areawide planning. The NSRPB has taken a conservative approach. Although a range of management alternatives has been discussed in previous pages, as required by law, the major focus must be on the successful implementation of the 208 Plan. Thus, the recommendations made now are workable.

Several of the options mentioned in 7.2.2 and 7.2.4 that call for new agencies or shifts in functions between agencies are certainly premature in view of the statutory and/or Charter amendment procedures that must occur and can be quite time consuming.

The NSRPB recommends the following designations:

7.2.5.1 Point Source Control, Operations. The facilities planning, design, construction, operation and maintenance of collection systems, treatment plants and disposal facilities are currently the responsibility of State, county, municipal and private groups. The NYSEFC, NCDPW and SCDEC should be the prime agencies. Municipalities within the two counties that currently operate sewage treatment plants should also be designated. We do not recommend the continued practice of private operation and maintenance of sewage systems.

7.2.5.2 Point Source Control, Regulatory. The NYSDEC, ISC, NCDH, SCDEC and SCDHS be designated the regulatory agencies for each county for the promulgation, monitoring and enforcement of standards, laws and regulations concerning the safe operation of sewage treatment plants for health and environmental control.

7.2.5.3 Residual Waste Disposal, Operations. The NCDPW and the SCDEC be designated for the management of hazardous wastes and sludge waste for county facilities. The municipalities be designated for the management of solid wastes and sludge waste from municipal facilities.

7.2.5.4 Residual Waste Disposal, Regulatory. The NCDH, SCDHS, SCDEC and NYSDEC be designated for the regulation of residual waste disposal.

7.2.5.5 Non-Point Source Control, Operations. Municipalities and county agencies now responsible for street sweeping, catch basin maintenance, storage and use of road salts, and the regulation of Best Management Practices, be designated.

7.2.5.6 Non-Point Source Control, Regulatory. The NYSDEC, NYSDH, NCDH, NCPC, SCDHS, SCDEC and SCPC be designated to carry out the regulatory duties involved in non-point controls.

7.2.5.7 Non-Point Source Control, Advisory. The Suffolk County and Nassau County Soil and Water Conservation Districts, USDA, SCS, NYSDEC, ASCS, Cornell University and CES function in an advisory capacity to the non-point source regulatory and operations agencies in the preparation of regulations and standards, the review of permit applications and inspections of operations relating to industrial discharges, the storage and transportation of chemicals and hazardous materials, storm runoff, erosion control and agricultural chemicals application, as well as continue their function in agricultural non-point source control.

7.2.5.8 Areawide 208 Planning. The NSRPB be designated for continuing land use aspects of waste management planning. The NYSDEC be designated for overall 208 planning.

7.2.5.9 Regulation of Land Use and Zoning. The municipalities be designated for the initiation, local planning, and regulation of land use and zoning, and that the NCPC and SCPC be designated the agencies responsible for review, override and consistency of local land use actions with the 208 Plan.

7.2.5.10 Water Production, Operations. The SCWA be designated for the production and distribution of potable water in Suffolk County. The 46 independent water districts and companies in Nassau County be designated for the local distribution and sale of water. An existing Division within NCDPW could be assigned expanded, county-wide responsibilities for water production policy, including well locations, pumpage rates and design, construction, operation and maintenance of these water production facilities, and for the implementation of any plan adopted by Nassau County for the acquisition, transmission and distribution of water, whether inter- or intra-county. Other administrative options, such as a new department, could also be considered.

7.2.5.11 Water Production, Regulatory. The NYSDH, NCDH and SCDHS be responsible for drinking water quality and be assigned all monitoring and related quality control functions for potable water in the two counties.

7.2.5.12 201 Planning. The NCDPW and SCDEC be designated as the lead agencies for all 201 Programs.

Figure 7—1 depicts the recommended table of organization for planning operations, monitoring and implementation of the Water Quality Plan.

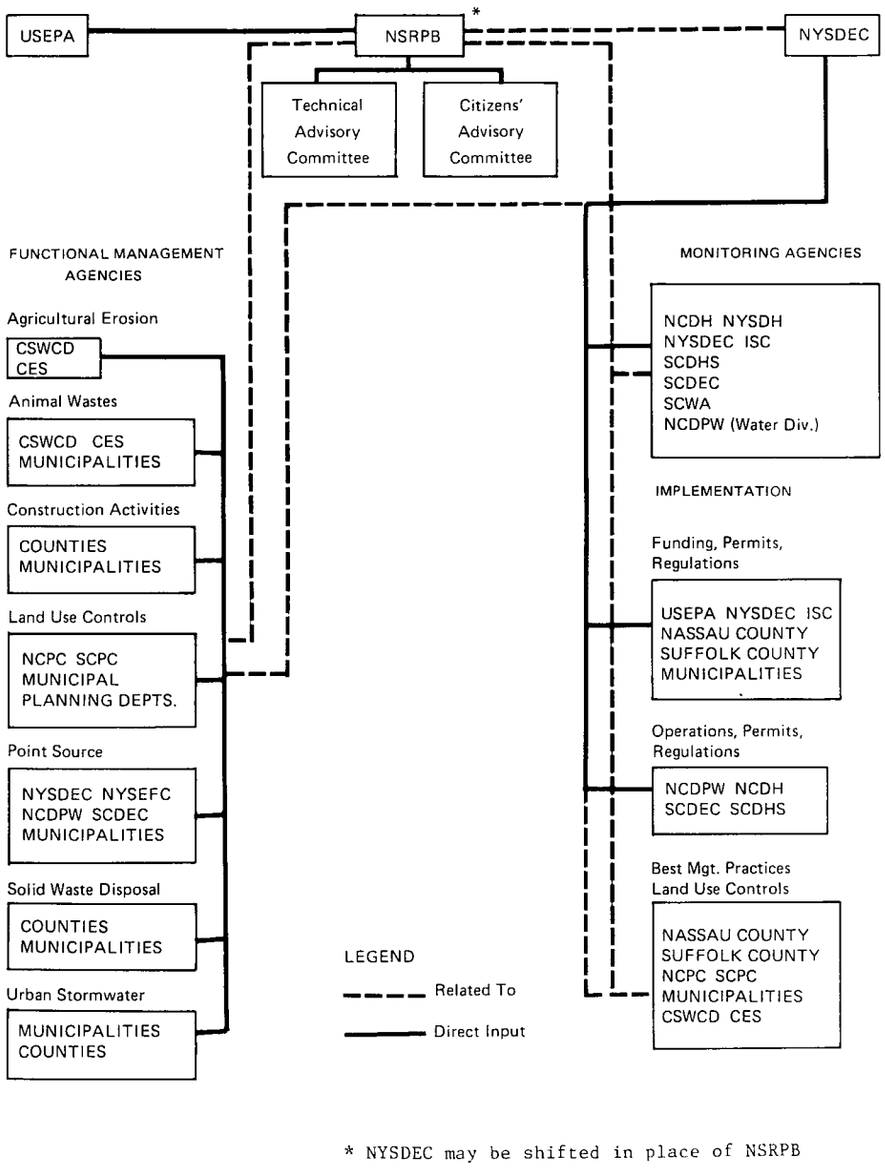

FIGURE 7–1 *Management Organization: Ongoing 208 Planning*

7.3 Fiscal Needs

7.3.1 Introduction. Historically, waste treatment programs centered around engineering solutions. Thus, it is not surprising that the Federal response in terms of intergovernmental relations has been to sponsor major grants for construction. Present sewage construction projects eligible for EPA and state support may receive grants up to 87½ percent of the total project's costs. This is a very necessary and strong support if the communities are to meet the needs for a water pollution-free society. However, in view of the impetus set forth in the Act, which encourages non-point source and planning control measures, it is perhaps timely for Congress to consider adequate funding to achieve these ends as well. For example, the Southwest Sewer District in the Towns of Islip and Babylon, N.Y., is a network of collection systems, treatment facilities and an effluent disposal outfall, that is estimated to eventually cost approximately $1.0 billion, including financing costs. Major segments will receive 87½ percent funding from EPA and the State. Even the 12½ percent balance to be financed by the users places a heavy burden within the district. If this is to be the future pattern, aid will have to be greatly magnified.

In addition to Federal and State funding (87½ percent) for sewage treatment works, which include treatment plant and interceptor construction, permanent provision should be made for the extension of governmental subsidizing for lateral sewer construction, which would greatly reduce the local financial burden. Another obvious alternative would be to limit the density of growth and thereby avoid the need for communal sewage systems. This objective can be partially realized through zoning controls and successful enforcement. In addition, extensive watershed management will be required, including the reservation of significant areas of open space. These types of public programs are virtually dependent on local fiscal resources. Specifically in regard to 201 Programs, Federal and State funding for non-point and non-structural solutions should also be strengthened.

It should be noted that the high cost of providing the facilities of the Southwest Sewer District are directly related to the fact that action was taken after extensive development had occurred, and substantial water quality degradation had been discerned.

A more fiscally sound approach is to install sewerage facilities in accordance with the 208 Plan as development occurs, as one of the preventative measures for protecting water quality. Therefore, in areas where land use controls are not implemented, sewering should be conducted in accordance with the 208 guidelines.

The purchase of development rights and/or the fee simple for open-space lands, or for the maintenance of low density communities should be construed as a modified form of construction project. Wherever land development has not already occurred, this option has to yield a greater return on the public investment. Perhaps fiscal policy improvement can occur if waste treatment programs were written in a format similar to that of the Communi-

ty Development Act, namely, assign block grants to communities with the general requirement to reduce water pollution. Let the local governments decide the most efficacious way of doing this. The states and localities would then have a greater incentive to exercise more stringent land controls.

7.3.2 Estimated Costs of Structural Alternatives. Tables 7–1 and 7–2 present estimates of the costs of the various structural options present in Plan Section H. These costs do not include the construction of interceptors or laterals, and will require update and reevaluation at the 201 study level.

7.3.3 Estimated Costs of Non-Structural Control Measures. The cost of non-structural, non-point source pollution controls will vary with the selection of control measures and the level of effort. It is expected that these controls will be implemented by New York State, the two counties, and the municipalities. Table 7–3 presents estimated annual costs for Nassau and Suffolk County non-point source pollution control efforts. Municipal and State costs are not estimated.

Table 7–1

ESTIMATED COSTS FOR STRUCTURAL RECOMMENDATIONS: NASSAU COUNTY(1)

	Total Present Worth (2) (7) (Millions of Dollars)
Southwestern Nassau County Planning Area	
–Relocate Bay Park Outfall to ocean	52
–Reroute Long Beach to connect with Bay Park outfall	0.5
–Lawrence	
a. AWT with present discharge location	2.1
b. Diversion to Bay Park and incremental cost of treatment at Bay Park	4.7
c. Diversion to Reynolds Channel	See Note(3)
Cedar Creek Facilities Planning Area (Sewer Disposal District No. Three)	
–Terminate Freeport and divert to Cedar Creek	14
Northwest and Northeast Study Areas (North Shore Facilities)	
–Divert North Shore plants to Cedar Creek (Oyster Bay, New York Institute of Technology, C.W. Post, Great Neck Sewer District, Village of Great Neck, Port Washington, Roslyn, including flows generated from high population densities in Plandome, Sands Point, Kings Point and parts of Manhasset). Incremental treatment costs at Cedar Creek included.	54
–Northwest sub-regional facility at Port Washington (divert Great Neck Sewer District, Great Neck Village, Roslyn and Port Washington flows generated from high population densities in Plandome, Sands Point, Kings Point and parts of Manhasset).	33
–Northeast sub-regional facility at Glen Cove (divert Oyster Bay and the following unsewered areas, Sewanhaka, East Norwich, Bayville, Locust Valley and Sea Cliff-Roslyn Harbor to Glen Cove after sewering).	33

Table 7–1 . . . Cont'd.

–Individual treatment plants.	
a. Village of Great Neck: discharge of 1.5 mgd at present location, with AWT (denitrification).	8.7
b. Roslyn: discharge of up to 2 mgd at present location with AWT (denitrification).	7.9
c. Great Neck Sewer District	

	Total Present Worth (Millions of Dollars (2) (7) (8)		
Possible Flow (mgd)	Secondary Treatment	Mid-Bay Outfall	Total
2.7	5.6	11	16.6
3.5	11	11	22
5.5	15	12	27
7.0	18	12	40

d. Port Washington Sewer District

	Total Present Worth (Millions of Dollars) (2) (7) Option 1		Option 2	
Possible Flow (mgd)	Secondary Treatment	Mid-Bay Outfall	AWT	Existing Outfall
4.50	13	7.5	22	1.9
6.50	18	8.8	30	2.2
13.5	29	9.5	50	2.4
14.45	30	9.7	52	2.5

e. Glen Cove.

	Total Present Worth (Millions of Dollars) (2) (7) Option 1		Option 2	
Possible Flow (mgd)	Secondary Treatment	Mid-Bay Outfall	AWT	Existing Outfall
7.5	19	5.4	33	0.042
11.5	25	5.9	44	0.046
18.5	35	6.3	62	0.046

	Total Present Worth (2) (7) (Millions of Dollars)
Oyster Bay STP(10)	
–Discharge with secondary treatment to present outfall location	13
–Diversion to Cedar Creek including incremental treatment cost at Cedar Creek	11
Bayville	
–Diversion to Oyster Bay, including incremental treatment cost at Oyster Bay	7.5
–Build new facility in Bayville area (Sound outfall)	9.7

See end of Table 7–2 for notes.

Table 7–2

ESTIMATED COSTS FOR STRUCTURAL RECOMMENDATIONS: SUFFOLK COUNTY[1]

	Total Present Worth Cost[2] [7] (Millions of Dollars)
I. Huntington/Northport 201	
Regional Alternative Sites	
1. Huntington Sewage Treatment Plant, or	62
2. Crab Meadow	68
Sub-Regional Alternative Sites	
1. Huntington Sewage Treatment Plant and Northport Village Sewage Treatment Plant	57
Small Treatment Plants	57
II. West Central 201 Study Area	
1. Northern Area	
a. Sub-Regional Alternative Sites	See Note (3)
1. Suffolk State School and	
2. Facility located in the eastern portion of this area	
b. Small treatment plants	See Note (3)
c. Diversion to the Suffolk Co. Sewer District No. 3 Water Pollution Control Plant (Bergen Pt.)	See Note (3)
2. Southern Area—Diversion to SWSD	120
III. SWSD	See Note (9)
IV. Kings Park 201 Study Area	
A. Regional Alternative Site	
1. Kings Park Sewage Treatment Plant	59
B. Sub-Regional Alternative	
1. Kings Park Sewage Treatment Plant and Suffolk County Center	76
C. Small Plants	110
V. Port Jefferson 201 Study Area	See Note (3)
VI. South Central 201 Study Area	
A. Regional	150
B. Sub-Regional Alternative Sites	200
1. West of Lake Ronkonkoma	
2. Oakdale Vicinity	
3. Sayville	
4. Parkland III and SCSD No. 7	
C. Small Plants	260
Village of Patchogue	See Note (3)
VII. Yaphank 201 Study Area	
A. Sub-Regional Alternative Site	
1. Three Sites (Selden, Suffolk County Property at Horse Block Road, and Mastic Beach east of William Floyd Parkway.)	280
2. Six Sites (three sites above plus Rocky Point, Artist Lake vicinity, and Center Moriches east of Forge River)	270
B. Small Plants	330
VIII. Riverhead 201 Study Area	
A. Regional Site	
Riverhead Sewage Treatment Plant	27
B. Sub-Regional Sites	
1. Riverhead Sewage Treatment Plant and Manorville	31
2. Small Plants	31
IX. Greenport/Southold 201 Study Area	
A. Small Treatment Plants	
1. Greenport	24
2. Additional Sites	See Note (3)
X. Disposal District 14—Shelter Island	
Shelter Island	14
XI. Disposal District 12	
Small Treatment Plants	See Note (5)
XII. Disposal District 15	
Sag Harbor	See Note (4)
XIII. Disposal District 16	See Note (6)
XIV. Disposal District 17	
Fishers Island	2.6

(1) Area specific alternatives correspond with those in Chapter 5 of the Summary Plan.

(2) Present worth costs include interceptors, force mains, pump stations, treatment plant, treatment plant outfalls (excluding mid-bay or ocean in Suffolk), and operation and maintenance. The costs are based on a sewering criterion of 2 DU/acre everywhere (1995 population), present worth at 6 3/8% interest amortized over twenty years, CRF = .08986 (ENR = 2580, mid-1977 costs).

(3) To be determined in 201 Study when additional detailed information is available.

Table 7–2 . . . Cont'd.

(4) *Plant already constructed. (Further expansion will be a cost.)*
(5) *Sites to be selected; costs to be determined in future 201.*
(6) *Sewage treatment to be implemented as need arises.*
(7) *Costs include 75% replacement of equipment if any wastewater treatment plant greater than fifteen years old was to be utilized in the twenty year planning period.*
(8) *It was determined with the use of a water quality model that AWT could not meet water quality criteria, hence, only Mid-bay outfall was evaluated.*
(9) *Total sewerage facilities capital cost (collection and treatment) $601,000,000 (May 1977).*
(10) *Includes other areas, such as Sewanhaka, East Norwich, Bayville and Locust Valley.*

7.3.4 Funding of Comprehensive Structural Programs. The Southwest Sewer District in Suffolk County has undergone severe financing problems in recent years. Litigation, inflation and rising interest rates on bonds have all contributed to sizable increases in the initial cost estimates made over a decade ago. Local shares must currently be raised by benefit taxes charged to residents and commercial/industrial users within the district.

In order to achieve favorable interest rates on construction bonds, the Suffolk County Legislature pledged a portion of the county-wide sales tax revenue as a guarantee of the worthiness of the bonds. County participation should now be evaluated on a more permanent and direct basis. Obviously the theory of cost/benefit taxation, namely, those who benefit should be the ones to pay for the benefit, is logical. The issue though is, who are the beneficiaries? Certainly the users are direct beneficiaries. In addition, the balance of the people in the county are indirect beneficiaries wherever the quality of a segment of the county's ground and surface waters is enhanced. Therefore it is reasonable to propose that a portion of the District costs be assumed as a general county expenditure. In principle, this is analogous to the justification for county acquisition of parks, farmlands and other county facilities as a general obligation, even though the properties are located in specific areas of the county, on the grounds that all residents indirectly benefit even if they never use the facilities. Numerous funding formulas would apply. Perhaps a base charge could be levied against the users to cover the majority of local costs, thus paying respect to the narrow definition of cost/benefit. Any remaining costs in excess of the base could then become a general county charge.

Financing for the various structural recommendations made in this plan can and will be met by existing authorized programs. Sewage treatment plant upgradings, extension of outfalls, improvements in solid waste management and the development of local subdivision sewage treatment plants are generally within the fiscal means of Nassau and Suffolk County governments—assisted by Federal and State grants.

An alternative would be to increase the assesed valuation within the district. The district's transportation system, and the availability of public water facilities and public sewer systems, make this increased density possible. The rezoning of these areas in a prudent, comprehensive fashion should act as a catalyst for the redevelopment of property, with the consequent reduction of the individual tax burden.

7.3.5 Funding of Research Programs. Financing for needed research programs is dependent almost entirely on Federal support. Table 7–4 identifies the recommended research programs and, wherever possible, an estimate of cost has been made.

7.3.6 Funding of Non-Point and Non-Structural Programs. The most difficult to estimate are the non-point and/or non-structural recommendations. Many Best Management Practices, *e.g.*, fertilizer applications, catch basin maintenance, control of animal wastes, depend more on public informational efforts, and financing should not constitute an impediment to implementation. Local governmental controls and current programs can achieve great strides with little or modest budgeting increases. Stormwater runoff control, if requiring structural means, can run as high as $1100/acre according to EPA. (See Section L of the Areawide Waste Treatment Management Plan.) This would be for control of erosion and runoff from construction sites and, presumably, would be borne mainly by the private developer. Local communities should also be able to utilize a portion of their Community Development funds for stormwater control projects. Thus the fiscal impact on local governments should not be significant. Watershed management, however, could engender significant costs. Zone III contains approximately 45,000 deep recharge acres. Much of this is zoned for low density use. If this pattern is maintained, then the need for public funds will be minimized and less crucial. However, in the most severe case, if these lands had to be acquired either by fee simple or purchase of development rights, the per acre cost could range from $3,000 to $10,000. Suffolk County's farm program already represents a sizable county allocation ($21 million for Phase I) and should enable the purchase of the development rights for approximately 6,000 acres. To the extent possible, priority should be given to those farms within the watershed conservation zone. Other land use mechanisms are also available, *e.g.*, agricultural districting, planned unit development (PUD), transfer of development rights and clustering. These mainly represent non-cost techniques for preserving open space. The recommended land use research would be directed towards the detailing of geographically specific plans designed to assist local governments and Suffolk County to maximize water quality improvement and watershed conservation through the proper application of planning techniques.

For agricultural non-point source control, part of PL 95–217 was amended (The Culver Amendment) to provide cost-sharing to owners and operators of rural lands who implement conservation practices that relate to the improvement of off-site water quality. $200 million has been appropriated to the Secretary of Agriculture for this purpose for 1979, and $400 million

Table 7–3

ESTIMATED ADDITIONAL MANPOWER REQUIREMENTS AND COSTS FOR NON-POINT SOURCE POLLUTION CONTROLS[1]

Non-point Pollution Source	Nassau County Dept. of Health: Yearly Control Costs[2]	Nassau County Dept. of Health: Yearly Manpower Requirements (man-years/year)		Suffolk County Dept. of Health: Yearly Control Costs[2]	Suffolk County Dept. of Health: Yearly Manpower Requirements (man-years/year)		Suffolk County Dept. of Env. Control: Yearly Control Costs[2]	Suffolk County Dept. of Env. Control: Yearly Manpower Requirements (man-years/year)	
1. Stormwater Runoff	93	Assist. Eng. Assist. San. Sr. Chemist	(1) (1) (1)	10	Sanitarian Chemist Engineer	(.4) (.1) (.02)	110	Sanitary Eng. Eng. Tech. Sr. Eng. Aide	(1) (2.5) (.5)
2. Domestic Onsite Disposal Systems	60	Assist Eng. Assist. San. Sr. Chemist	(.5) (.5) (.5)	185	Sanitarian Chemist Engineer Eng. Aide Clerk/Steno.	(4) (.9) (2) (2) (1)	24	Eng. Tech. Sr. Eng. Aide	(.5) (.5)
3. Subsurface Leakage from Sewage Collection Systems		(See 10. Misc.)		150	Sanitarian Engineer Eng. Aide	(6) (1) (1)	125	Assist. San. Eng. Labor Foreman STP Helper	(1) (2) (4)
4. Product Storage, Wastepiles, Pipelines, etc.	209	Senior Eng. Assist. Eng. Sr. Sanitarian Assist. San. Sr. Chemist Assist. Chem.	(1) (1) (1) (3) (1) (1)				60	Assist. San. Eng. Environment. II	(1) (2)
5. Industrial Waste Discharges	189	Assoc. Eng. Senior Eng. Sr. Sanitarian Assoc. Chem. Sr. Chem.	(1) (1) (1) (1) (1)				18	Environment. II	(1)
6. Landfills	60	Assist. Eng. Assist. San. Sr. Chemist	(.5) (.5) (.5)	30	Engineer Sanitarian	(1) (.5)	24	Eng. Tech. Sr. Eng. Aide	(.5) (.5)
7. STP's (Groundwater Recharge)		(See 10. Misc.)		5	Engineer	(.4)	99	Sanitary Eng. Eng. Tech. Sr. Eng. Aide Eng. Aide	(1) (1.5) (.5) (1)
8. Well Construction & Abandonment		(See 10. Misc.)		80	Sanitarian Engineer Clerk/Steno.	(4.5) (.6) (1)			
9. Groundwater Development	59	Senior Eng.	(1)					(See 10. Misc.)	
10. Miscellaneous	91[3]	Assist. Eng. Assist. San. Assist. Chem.	(1) (1) (1)				75[4]	Sanitary Eng. Eng. Tech. Sr. Eng. Aide	(1) (1) (1)

Table 7–3 . . . Cont'd.

11. Additional[5]			220	Attorney	(2)
				Sr. Chemist	(1)
				Lab. Tech.	(2)
				Well Driller	(1)
				Heavy Equip. Op.	(1)
				Laborer	(2)
				Clerical	(3)
Total[5]	**761**	**460**	**755**		

[1] *See Section J of the Areawide Waste Treatment Management Plan.*

[2] *In thousands of dollars; includes personnel, fringe benefits, overhead, new equipment, supplies, etc.*

[3] *Includes Subsurface Leakage from Domestic Collection Systems, Sewage Treatment Plants, Construction Related Erosion, Well Construction and Abandonment, Agricultural Chemicals, Highway Deicing, Well Disposal of Cooling Water, and Animal Wastes.*

[4] *Includes costs for Highway Deicing Materials, Groundwater Development, Well Disposal of Cooling Water, and Agricultural Chemicals.*

[5] *Does not include the required initial purchase by each county of one additional well drilling rig at approximately $250,000 per rig.*

These figures do not include manpower and costs presently being applied to non-point pollution source controls. These figures are preliminary estimates and represent minimum requirements; actual manpower requirements will depend on the priorities of selected programs, and the scope of work and scheduling required to accomplish these programs.

Table 7–4

SUMMARY OF ESTIMATED COSTS OF PROPOSED STUDIES AND DEMONSTRATION PROJECTS

	Estimated Cost
Ongoing 208 Studies	
1. Further Definition of Groundwater Management Zones	$ 400,000
2. Application of the Regional Digital Models to Evaluate Regionwide Effects of Man-Induced Changes in Groundwater Elevation	300,000
3. Detailed Mapping of Land Uses, Natural Resources, and Environmental Constraints for the Deep Flow Aquifer Recharge Area	400,000
4. Extent and Causes of Organic Chemical Contamination	400,000
5. Evaluation and Monitoring of the Movement of Metals and Organic Chemicals in the Aquifer System	750,000
6. Assimilative Capacity of Subsoils	75,000
7. Determination of the Impact of Leakage and Spills from Hazardous Materials Storage and Transport; Identification of the Best Means of Control	320,000
8. Measurement of Groundwater Underflow Quantity and Quality and Impacts of Duck Sludge Deposits	75,000
9. Determination of the Effects of Inlet Closure on the Water Quality of Moriches, Shinnecock and Mecox Bays and of Inlet Creation on the Water Quality of Great South Bay	300,000
10. Fertilizer Research	100,000
11. Groundwater Screening for Aldicarb	25,000
12. Heavy Metals in Sediments	125,000
Total	**$ 3,270,000**
Demonstration Projects	
1. Marsh-Pond Treatment of Sewage	$ 100,000
2. Marsh-Pond Treatment of Runoff	200,000
3. Street Sweeping	200,000
4. Structural Treatment of Stormwater	2,500,000
5. Comprehensive Monitoring as an Aid in Making Wastewater Management Decisions	150,000
6. Denitrification of Individual Subsurface Sewage Disposal Facilities	110,000
7. Removal of Nitrates from Drinking Water Supplies	450,000
Total	**$ 3,710,000**
Total Ongoing 208 Studies and Demonstration Projects	**$ 6,980,000**
Research	
1. Viruses in Aquatic Systems	$ 450,000
2. Air Pollution and Wastewater Management	300,000
3. Evaluation of the Nitrate Standard for Drinking Water	N. A.

for 1980. Thus it appears that financial support for erosion and sediment controls will be available for agricultural lands.

However, this will not provide funds for the implementation of other non-point source control measures.

It is therefore recommended that PL 95–217 be amended to provide for the funding of all Best Management Practices that will reduce pollution caused by non-point sources. This should also allow for the funding of such programs as catch basin maintenance, street vacuuming and other measures. The funding level should be commensurate with that provided for structural solutions.

The areawide recommendations for insuring the proper functioning of on-lot waste disposal systems also includes local and county government responsibility for the provision of scavenger waste treatment and disposal facilities. This would be especially necessary where the non-structural land use controls recommended in this Plan have been implemented, thus obviating the need for central collection and treatment of sewage. However, it is presently the State's position that costs for such facilities are not eligible for state construction grant funding.

It is therfore recommended that the State revise its position relative to the funding of such facilities and provide grants similar to those presently given for central collection and treatment facilities.

7.3.7 Funding of Comprehensive and Sub-Regional Groundwater Monitoring Programs. An integral part of the Nassau-Suffolk 208 Plan is that general comprehensive groundwater monitoring and area-specific monitoring programs (such as 201 study areas) be initiated immediately, in order to determine the extent of groundwater contamination and the need for implementation of structural and/or non-structural controls.

These monitoring programs are a key link in the decisionmaking process and are not presently provided for by funding in sub-regional or "201" Studies. In order to integrate the areawide 208 Plan with ongoing and future 201 Studies, funding at all levels (Federal, State and local) is essential and recommended.

7.3.8 Funding of Structural Stormwater Control Programs. The Nassau-Suffolk 208 Program has identified a number of structural stormwater control measures that may provide a cost-effective solution to surface and groundwater pollution problems in certain areas. Site-specific studies are necessary to determine the most cost-effective solution in areas where stormwater discharges have a significant impact on surface and groundwater quality.

Section 211(C) of the Clean Water Act of 1977 (PL 95-217) prohibits the funding of treatment work for the control of pollutant discharges from separate storm sewer systems. This restriction could severely limit the investigation and implementation of stormwater control measures.

Therefore, it is recommended that the Clean Water Act of 1977 be amended to remove the restriction on the funding of stormwater pollution control measures.

7.3.9 Funding of Operation and Maintenance Costs. Operation and maintenance costs for the structural recommendations contained in Tables 7–1 and 7–2 are estimated to be approximately $20–25,000,000 per year. This will be a substantial portion of the total costs of the recommended projects.

Originally, Section 17-1905 of the Environmental Conservation Law provided for State assistance of up to one-third of the approved annual operation and maintenance costs. However, this assistance is subject to the limits of annual appropriations of the State Legislature. In recent years, the rate of reimbursement has varied between 33 percent and 10½ percent. However, Section 17-1905 has been amended to reduce the level of maximum assistance to one-fourth and funding is presently at the 25 percent level. On the Federal level, a similar program does not exist.

It is recommended that a Federal Operation and Maintenance Assistance Program be developed, which is similar to the current New York State program and that funding be provided at least at a 25 percent reimbursement rate.

Such a program would insure protection of the multi-million dollar investment of State, Federal and local funds that have been used to construct sewerage facilities in Nassau and Suffolk Counties.

7.3.10 Funding of Bi-County Hazardous Waste Facility. The U.S. Environmental Protection Agency has indicated an unwillingness to provide funding for a centralized hazardous waste treatment facility to serve the two counties. The recommendation for the creation of this facility was contained in Plan Section K, "Residual Waste Control Needs", and was supported by the Technical Advisory Committee and the Nassau-Suffolk Regional Planning Board.

7.3.11 Caveat. This section discusses costs in order to provide a frame of reference as to the relative scope of water management. It is done with a great deal of reluctance. Structural costs, which are the easiest to estimate based on average prices derived from previous projects, can be in error by a factor of two. First of all, accurate estimating must be based on detailed designs and specifications. This is the province of 201 work. Future costs affected by inflation, bond market responses, new materials, techniques and equipment, and the status of the construction industry are some of the latent factors that affect prices. Indeed, the reader must keep in mind that pricing based on general planning can only lead to the dimension of future investment needs—not the real dollar cost. Consider the difficulty of the defense establishment in building a plane, tank or warship within the estimated budget after the device has been designed in excruciating detail. For that matter—how many homeowners or car buyers pay the "sticker" price.

The advantages of even going through a pricing exercise do exist however. First, it focuses attention on the general magnitude of the Program needs. Second, it alerts State and Federal agencies of future capital support budgets they may have to consider if local governments are to get the job done. Third, it is possible to achieve closer harmony with reality where cost

estimates are made for projects that should be undertaken immediately, *e.g.,* moving an outfall or initiating monitoring or research. Fourth, it clearly indicates that in most cases prevention is less costly than remedial action. Non-structural and land use solutions do require less public expenditure to achieve water quality protection than structural solutions built after pollution occurs. This does not include secondary impact analysis. Fifth, it also provides relative costs for structural alternative comparisons.

7.4 Legal Needs

7.4.1 Introduction. In general, existing laws and regulations are sufficient to cope with the majority of sewage and solid waste management needs. Point and non-point pollution sources are covered under New York State Health and Environmental Conservation laws and, additionally, by Nassau and Suffolk Charter provisions and/or ordinances. Land management and land use planning controls originate with the General Municipal Laws of the State of New York and are amplified by the two counties' charters. Thus, it is currently possible to operate a successful areawide waste treatment program in Nassau and Suffolk Counties in the framework of existing laws. Nevertheless, recommendations are contained herein to strengthen the management agencies' abilities to control non-point sources of pollution. In most instances, local statutes enacted by the counties and/or municipalities will be sufficient.

The initial portion mentions point source control for sewage treatment systems. This is followed by a discussion of legal needs covering water production, erosion and sedimentation, animal wastes and land use control. The last portion contains a proposed county environmental law designed to achieve strong control over non-point pollution sources.

7.4.2 Point Source Control. The NSRPB believes that the existing body of legislation, and administrative control relating to municipal sewage treatment plants and other point sources of pollution is adequate to ensure compliance with the Water Quality Management Plan.

Provisions of New York Environmental Law, Article 17, Title 8 (The SPDES program) are legally adequate to control all significant point sources and can be extended to control many non-point sources of surface water pollution in the Nassau-Suffolk SMSA. Permits are required for the discharge of any pollutant to insure compliance with 306 FWCPA, 1972 and "Any other applicable water quality standards and applicable effluent standards and limitations."

The provisions of SPDES are legally and administratively adequate to control all significant point pollution sources in the Nassau-Suffolk area. The program must be continued, supported and expanded. Limitations in the effectiveness of the program are due to inadequate enforcement and a conservative interpretation of the legal mandates conferred by PL 92–500 and the New York State Conservation Laws. Therefore, the NSRPB recommends that deviations from compliance schedules be minimized.

All schedules should be subject to a thorough review by NYSDEC, the EPA, the permittee and a representative of the Health Commissioner of the appropriate County Health District. Compliance is a permit condition and must be enforced.

7.4.3 Water Production. Existing provisions of Nassau County law provide for the effective centralization of water supply within the county. The relevant sections of this law are Article XII, §1202, 1207, 1208, 1212. Suffolk County has a management agency (Suffolk County Water Authority) that controls water production throughout most of the county. It has sufficient legal authority to continue the absorption of local companies.

The main legal needs apply to the process of well drilling. Proposed revisions to the New York State Environmental Conservation Law (S.3896: A.5311) relating to water well drilling and groundwater protection will fulfill these needs.

The NSRPB recommends that the revisions be fully supported. The Board, however, suggests that this draft be modified as follows:

1. Re §15–1603 and 1625. Large-capacity agricultural wells, or an aggregate number of smaller wells having the same general capacity, must not be exempted, either directly or by implication.

2. Re §15–1623. No well, other than a low-capacity private supply well, shall be permanently sealed, demolished or abandoned by any person, prior to determining the potential usefulness of the well in a groundwater monitoring program. This bill should create the possibility of public access to any well so designated.

3. Re §15–1629. The NSRPB agrees with the logic of establishing critical groundwater areas. However, the bill should recognize the fact that the groundwater resource may be endangered by various chemical contaminants which constitute a real or potential threat to the potable water supply that is equal to, and perhaps greater than, any threat caused by drought and/or overpumping.

In addition, a water supply utility should have the resources available to develop the aquifer containing the best quality water or, if necessary, transport and distribute water from neighboring areas.

Where a public water utility does not have the economic resources or legal authority to finance water main extensions, the same rationale employed in fostering the construction of wastewater collection and treatment systems by Federal and State grants should also be employed in grants for financing water supply expansion. The public health benefit is immediate and directly measurable in contrast to the potential long term benefit assigned to most sewering projects. It is, therefore, strongly urged that legislation be recommended and encouraged to provide this vital protection to the general health and welfare.

7.4.4 Non-Point Source Control, Erosion and Sedimentation. The major source of erosion and the resultant sedimentation in Suffolk County is primarily due to construction activities. Numerous state laws and local

ordinances concerned with land use and water resources can be used to implement some level of erosion control. The Soil and Water Conservation District Law is the only State law that deals specifically with soil erosion and sediment control.

The law states that by January 1, 1980, the Districts will have provided a plan to each owner and occupier of agricultural land within the District boundaries who have requested a plan. The law is deficient on two counts. It only applies to agricultural lands and contains no enforcement procedures to assure compliance.

The NSRPB recommends that the State law be amended to overcome the current deficiencies, thus assuring positive control for the agricultural areas of Long Island. This would be timely and not impose a burden on owners due to the recent passage of the FWPQA amendments of 1977.

Construction related erosion can be managed by extending the Conservation District approach into non-agricultural areas or by strengthening existing development controls, *e.g.,* subdivision ordinances, grading and filling permits, etc. The NSRPB recommends the latter approach with the added requirement that "site clearance and development plans" be part of the approval process. Such plans would identify, step-by-step, all of the activities to be undertaken on a given site and would also indicate the procedures to be followed to minimize runoff and erosion.

7.4.5 Non-Point Source Control, Fertilizers. The NSRPB recommends that the following three steps be implemented.

1. An educational effort be immediately adopted to discourage any excessive use of fertilizers and to promote adoption of low-maintenance lawns;
2. Research to be undertaken to:
   a. Further monitor the use and fate of nitrogen applied to turf;
   b. Investigate the feasibility of developing satisfactory low-maintenance lawns; and
3. Update the New York State law to require a label on turf fertilizers identifying them for use in Nassau and Suffolk.

7.4.6 Non-Point Source Control, Animal Wastes

7.4.6.1 Introduction. Dogs and semi-wild White Pekin ducks were found to be unregulated sources of non-point animal waste pollution. Urban runoff containing dog waste and other animal waste is responsible for most of the recent closures of shellfish growing areas. An information program and new laws are recommended to control dog waste disposal. Semi-wild White Pekin ducks and their descendants are also serious sources of pollution in many ponds and lakes. New laws and public awareness concerning the problem are needed to control these wastes.

Market duck waste has been a pollution hazard in the past and is now regulated by Federal and State laws. Under these laws, duck farmers have been required to achieve very limited discharges of wastewater by July 1, 1977, and zero discharge to any receiving surface waters by 1983.

Zoning ordinances in some municipalities are used to control horse waste and, indirectly, the waste related problems. However, there are many small non-point horse waste pollution sources affecting surface waters. These may require control.

The following discussion offers specific recommendations for new or amended legislation and/or local statutes to control animal wastes.

7.4.6.2 Non-Point Source, Animal Waste, Dogs. Dog curb laws may have a negative effect on the environment. East Hills and Rockville Centre have dog curbing laws requiring that owners walking dogs allow their pets to defecate only at or near the street curb. In theory, animal waste will then be swept up by street cleaning operations. In fact, animal waste in or near the road is easily flushed into the storm drainage system by rainstorm runoff. The drainage system empties into bays and estuaries, recharge basins, etc.

The NSRPB recommends that the following be implemented:

1. That affected municipal governments be encouraged to repeal dog curbing ordinances.
2. That all municipalities on Long Island, either by statute and public informational efforts, prohibit owners from permitting dogs to defecate on roads, sidewalks, parking lots, play areas, parks or other places where people congregate, unless there is prompt cleanup and removal of feces; and prohibit the free roaming of dogs, with or without license and collar.

7.4.6.3 Non-Point Source, Animal Wastes, Ducks. Duck farm animal waste is regulated by Federal and State laws. Under those laws, duck farms are required to achieve zero discharge of wastewater to any receiving surface waters by 1983. A majority of the present Long Island duck farmers now plan to meet this requirement.

Semi-wild ducks are not specifically controlled or protected by law. The State law, authorizing towns and municipalities to establish dog catchers as peace officers with certain police powers, is not clear as to whether such persons can enter properties to capture and remove semi-wild ducks. Property owners can, under this law, have the town or municipality receive and impound the ducks removed by an owner from his property.

This study has found no law or section of a law that can be construed to support the contention that semi-wild ducks are a public nuisance. However, Article 26, Section 354 and Article 25B, Section 35 of the Agriculture and Markets Law do address aspects of the problem. The first, which attempts to discourage the sale of baby ducks for pets, states that, "No person shall sell, offer for sale, barter or give away living baby chicks, ducklings or other fowl under two (2) months of age in any quantity less than six (6)." In attempting to solve the problem of domestic ducks polluting local ponds, these laws may have complicated the issue by encouraging larger purchases. The second, which applies to dogs and other animals as well as ducks, states that, "The owner. . . of an animal, who abandons such animal. . .is guilty of misdemeanor, punishable by imprisonment of not more than one year or by a fine of not more than $500 or both."

The NSRPB recommends that Nassau and Suffolk Counties and/or the municipalities enact local laws authorizing and directing dog wardens, park employees and law enforcement officers to remove White Pekin ducks and their offspring and hybrids from publicly controlled reaches of inland bodies of water.

It is further recommended that local laws be enacted at the county level prohibiting the sale of White Pekin ducks as pets anywhere in the two counties.

7.4.6.4 Non-point Source, Animal Wastes, Horses. The present primary document for statewide control of horse waste is the New York State Public Health Law, which cites animal wastes as sewage when they are waterborne, whether carried by storm runoff or base flow seepage, and as a public nuisance when the waste is offensive to neighboring property owners. Upon complaint, a health department representative may investigate, cause a hearing to be held relative to the nuisance, and require the abatement of the problem.

Zoning ordinances are often used to control the keeping of horses and, indirectly, the related problems. In the more densely populated areas in western Nassau County, such ordinances frequently prohibit the stabling of horses or limit such activities to a few selected locations.

The NSRPB recommends that all municipalities with horse populations adopt local ordinances that provide a limit on the number of horses per acre on residential land, and specify the management of disposal of horse wastes. The following clauses should be included in order to insure adequate waste management:

1. Not less than one half acre of open, unpaved land shall be provided for a single horse or other equine livestock; not less than one fourth acre of open, unpaved land shall be provided for each additional horse.

2. Each premise having less than one half acre of open, unpaved land per horse shall have and meet the provisions of an approved animal waste management plan (agency to be specified), or be in violation.

3. Animal waste, including manure and soiled bedding, shall be kept in weatherproof containers at least 50 feet from adjoining property lines.

4. Paved or otherwise unvegetated or bare soil areas used for horse yards, paddocks, pastures or similar purposes shall be graded or controlled so that no storm runoff wastes from one year frequency rainstorms falling on such areas, shall flow from the horse owner's property to other public or private lands.

7.4.6.5 Conservation Plan for Animal Wastes. Under present State law agricultural producers must develop a plan to reduce sediment and related animal waste pollution by January 1, 1980. This plan is to be developed with the assistance of the Nassau and Suffolk County Soil and Water Conservation Districts. The NSRPB recommends that the present law be amended to require non-agricultural animal owners, who have high concentrations of animals per acre, to develop a plan, with Soil Conservation District assistance, for the control of animal waste. Table 7–5 indicates the maximum number of animals that should be allowed per acre of open land without a conservation plan.

Table 7–5

MAXIMUM ANIMALS PER ACRE OF OPEN LAND WITHOUT A CONSERVATION PLAN

Equine Livestock	2	Hogs	14
Beef Cattle	3	Ducks	400
Dairy Cows	2	Sheep	24
Turkeys	160	Dogs	20
Chickens	500		

or any combination of animals exceeding 2,000 pounds of body weight.

7.4.7 Ensure the Proper Functioning of On-Lot Waste Disposal Systems.

a. *Provide for Routine Maintenance of On-Site Disposal Systems.* Provision should be made for routine pumping and maintenance of on-site systems in order to extend the service life of the leaching facility and to ensure its continued efficacy. Local or county government should be responsible for the provision of scavenger waste treatment and disposal facilities.

County sponsored public education to encourage voluntary implementation is recommended. The promulgation of legislation mandating routine pumping and maintenance is not proposed at this time.

b. *Prohibit the Use of Certain Chemical Cleaners in On-Lot Systems.* If organic solvents and other chemical agents contain ingredients which might reasonably be expected to impair groundwater quality, their use for cleaning or extending the service life of on-lot sewage disposal systems should be prohibited or controlled. A program to identify such products is presently being conducted by Nassau County Health Department and Suffolk County Departments of Health Services and Environmental Control, and should be continued and emphasized. This should be coupled with specific county legislation banning the local sale of these products within Nassau and Suffolk Counties.

7.4.8 Strengthen and Enforce Regulations Pertaining to Industrial Wastes, Product Storage and Transportation, and Residuals.

a. *Expand Regulations and Enforcement Regarding the Disposal of Industrial Wastes.* Where industrial wastes are discharged to municipal sewer systems, strict enforcement of sewer use ordinances should be insured. Suffolk County is revising its sewer use ordinance to conform to applicable State and Federal guidelines. This revision will be implemented by October, 1978. Nassau County has already adopted such an ordinance. These county ordinances should be the model for all other municipalities or sewer districts within each respective county and as such should be adopted by each of these entities. Each municipality or sewer district should be responsible for the

enforcement of the ordinances and should maintain an adequate staff for such enforcement.

Present regulations covering the discharge of industrial wastes to the ground should be expanded to include greater coverage of specific contaminants and to prescribe allowable discharge levels. This applies primarily to organic chemicals and heavy metals.

b. *Regulate the Storage and Transportation of Chemical Products.* Permits and other controls should be required for the storage and transportation of chemical products that pose a threat to either the groundwater or surface water. The regulations should cover prescribed practices, safety requirements, inspection of equipment and contingency plans for interim storage and clean-up. The county agencies should be responsible for enforcing the permit regulations and control measures; the individual operator should be responsible for maintaining records and monitoring. In addition to industrial chemicals, these products include chemical wastes and sludges, de-icing salts and petroleum products. Salt storage facilities should be designed to prevent leachate contamination of groundwater.

Particular emphasis should be placed on the regulation of gasoline storage facilities at automobile service stations and, to a lesser degree, home heating oil storage tanks. Criteria should be developed and enforced to ensure the integrity of all storage facilities. The 208 Study has recognized these two types of facilities as major potential pollutant sources but has not been able to define the precise magnitude of the problem.

c. *Provide for the Treatment of Hazardous Wastes.* The industries in the Nassau-Suffolk region and the wastewater treatment processes they employ generate two kinds of hazardous wastes: small volumes of strong, toxic industrial wastes, and industrial waste treatment sludges.

In view of the environmental sensitivity of the study area, continued disposal of these types of hazardous wastes outside of the area should be encouraged. However, if this disposal option is not available in the future, treatment facilities or landfills for the disposal of hazardous wastes will have to be provided in the bi-county area. The 208 recommendation is for a regional hazardous waste treatment facility for both counties. If a single facility cannot be implemented, individual county facilities are then recommended.

Treatment facilities should, wherever possible, be located at a sewage treatment plant with an ocean outfall. The effluent from the hazardous waste treatment facility should be disposed via the outfall, not to the plant influent. The outfall disposal will provide a temporary discharge in the event of a hazardous waste facility upset.

If a hazardous waste treatment facility cannot be located at a sewage treatment plant with an ocean outfall, it can be located somewhere in the area served by the plant, and can discharge *treated* effluent to the sewer system. Effluent monitoring must then be intensive so that, in the event of a plant or process upset, a slug of toxic waste can be prevented from reaching the downstream treatment plant.

If a hazardous waste treatment plant is not connected to a treatment plant ocean outfall, and is located in the deep-flow aquifer recharge area, special provisions must be made to contain any waste spillage. The wastes must not be allowed to percolate into the ground. Consequently, impermeable retention lagoons must be provided, large enough to take the entire plant inventory, in the event of a radical plant failure.

The hazardous waste treatment facilities should provide treatment for both organic and inorganic wastes where feasible. Radioactive wastes should not be handled at the facilities.

7.4.9 Stormwater Runoff Control. Pollution of surface waters from runoff water can be reduced by controlling the amount of pollutants in the streets, the flow of water transporting the pollutants, natural treatment of the runoff, and mechanical treatment and disinfection of collected stormwater.

It is recommended that a uniform procedure be adopted for estimating the total and peak rates of runoff by all the municipal and county planning agencies. This requires amendments to at least some of the existing subdivision regulations.

It is also recommended that the Conservation Farm Planning Law be amended to provide for enforcing of agricultural stormwater runoff where offsite damage occurs.

In order to implement these recommendations, the NSRPB should establish an ad hoc committee of municipal and county planners, engineers and water resource specialists to prepare a handbook of guidelines and standards for Best Management Practices (BMP) for the control of stormwater erosion and non-point sources of pollution.

7.4.10 Land Management/Land Use Authority. Various sections of the FWPCA (101, 201, 303 and 314) make reference to land use management requirements, the preservation of land resources, and generally indicate that land use regulations should be utilized to control point and non-point sources of pollution.

Section 208 provides that the areawide treatment management plan include "the establishment of a regulatory program to regulate the location, modification and construction of any facilities within such area which may result in any discharge in such area, . . .". This appears to require indirect authority for the 208 Plan to regulate location of all pollutant discharges by seeking appropriate changes in land use plans from the agencies possessing land use control jurisdiction in the 208 area.

A more explicit authority for the 208 Plan to consider land use in the 208 area is provided in Section 208 (b) (2) which states that the plan will set forth procedures and methods, including use requirements, to control to the extent feasible non-point sources of pollution. The term "land use requirements" in Section 208 (b) (2) should be interpreted to include those land use controls (legally permitted uses) and those land management regulations (regulations of activities conducted on land) that contribute to the attain-

ment of water quality standards.

The nature of the "land use authority" that is required by FWPCA is discussed in EPA, Draft Guidelines for Areawide Treatment Management, (May, 1974), Chapter 4. These guidelines provide that:

"primary reliance will be placed on utilizing existing land use plans and controls. In some cases it may be necessary to update these in order to incorporate changes responsive to water quality objectives. In such cases, the 208 planning agency *must work closely with the local governments possessing legal authority* for land use planning and controls. It is also possible that some jurisdiction within the 208 area will not have land use plans and/or controls. In this case, the 208 agency should work with the appropriate jurisdiction to gather enough information about the area so that current and future development patterns and policies can be identified and, if necessary, updated to incorporate water quality objectives."

Acting pursuant to the provisions of the General Municipal Law and County Charter provisions, Nassau and Suffolk have authorized their respective County Planning Commissions to review certain actions. Municipalities are required to submit to the county planning commission: new zoning regulations, amendments to zoning regulations; changes in zoning district classifications, variances from zoning ordinances; special use permits, special exceptions or other special authorizations.

Municipalities are required to refer the zoning actions to the county planning commission when the action will affect real property lying within a distance of 500 feet of: municipal boundary lines; existing or proposed county or state parkways, thruways, expressways or highways; existing or proposed rights-of-way of any stream or drainage channel owned by the county or for which the county has established channel lines; and existing or proposed state and county-owned land on which public buildings or institutions are located.

7.4.10.1 Nassau County. The Nassau County Planning Commission reviews four basic types of zoning actions: (1) amendments to zoning ordinances; (2) variances; (3) zone changes; and (4) special use permits and special exceptions. The Commission evaluates the effects of zoning applications in relation to adjacent properties, arterial highways, public parks and other recreation areas, public institutions, the environment and the projected needs of the community. In this way, the Commission attempts to encourage comprehensive and coordinated planning between all communities in the county.

Depending on circumstances, the Commission adopts resolutions recommending either disapproval or modification of the application. The Commission may also recommend that the matter be determined locally, *i.e., when it has no objections, which constitutes a majority of the actions.* When the Commission recommends disapproval of the application, the local board may overrule with a majority-plus-one vote, accompanied by a statement as to the reasons of its action within seven days, either overruling or modifying the application.

7.4.10.2 Subdivision Plat Approval. §1610, as amended, of the Nassau County Charter, gives the Planning Commission conclusive authority to approve subdivision plats, establish standards for public improvements such as road, utilities and storm drainage, and to supervise the installation of required improvements in the unincorporated areas of the county, and reviews subdivisions that are located either within a distance of three hundred feet of city and village boundaries, or in unincorporated areas.

7.4.10.3 Suffolk County, Zoning Review. Article XIII of the Suffolk County Charter provides for review by the Suffolk County Planning Commission of zoning actions, special permits, variances and land subdivision plats that are within one mile of a nuclear power plant or airport; or within 500 feet of the boundaries of: villages, towns; county, State or Federal parks; rights-of-way for county or State roads; rights-of-way of county-owned streams or drainage channels; boundaries of other county, State or Federal land; or the Atlantic Ocean, Long Island Sound, any bay in the county or estuary of those waters.

Planning Commission response may be: (1) no recommendation (a matter for local determination); (2) disapproval (or with modification recommended) for stated reasons; or (3) approval for stated reasons. The municipality may override by vote of a majority-plus-one, with a statement of reasons therefore.

§1330 of the Suffolk County Charter provides that any adopted zoning ordinance or amendment thereto (excluding variances and special permits) occurring within 500 feet of a town or village boundary must be submitted for review to the Planning Commission. The Commission has forty-five days in which to act on these referred zoning actions. If an objection is registered within twenty days of receipt, the Commission must schedule a public hearing and render a decision which can only be negated through court action.

If an objection is registered with the Commission by a state agency concerned with environmental protection a public hearing will be scheduled and decision rendered by the Commission within forty-five days. A proposed municipal zoning action disapproved by the Commission may not be adopted by the town or village that referred it, and if an action is approved by the Commission with change, it may not be adopted by the referring body except as amended in accordance with the Commission's report.

7.4.10.4 Subdivision Plat Referral. The Suffolk County Charter also provides for Planning Commission review of proposed subdivisions. Section 1333, Article XIII, of the Suffolk County Charter provides for the referral of certain proposed plats by the authorized municipal agency to the Suffolk County Planning Commission.

Plats must be referred to the Suffolk County Planning Commission if located wholely or partly within one mile of a nuclear plant or airport, or within a distance of five hundred (500) feet from: any municipal boundary, existing or proposed county, State or Federal parks, roadways, other public

lands and the coastal edge including county designated streams.

The Commission response may be: (1) local determination; (2) disapproval; (3) conditional approval; or (4) approval as submitted.

These rules and regulations of the SCPD establish subdivision plat review criteria that are relevant to water quality management. For example, subdivisions are required to provide stormwater collection systems so designed that no water running across or falling on the tract shall reach a county road or roads. Further, stormwater cannot be directly disposed of into any creek, stream, brook, bay, harbor or any other body of water. In the case of waterfront lots in shoreline areas: no buildings can be placed at the top of slope or at the edge of bluff. Additional setbacks are required to compensate for the effects of erosion on the shoreline. No stormwater drainage or concentrated runoff is permitted to flow down the face of the bluff or shoreline slope. All grading and clearing on shorefront lots is restricted to insure stability of the face of slope or bluff against erosion.

Sections 1321 and 1322 of the Suffolk County Charter further provide that the Planning Commission may recommend a comprehensive zoning plan to any town or village in Suffolk County and may make such other recommendations involving the performance of the planning function by towns or villages as the Commission deems appropriate. The Planning Commission may, on request of any town or village in Suffolk County, furnish the town or village with requested planning services.

7.4.10.5 Recommendations. Thus, it is evident that most municipal zoning requests and subdivision designs are already subject to review, advice and/or regulation by the county planning commissions.

Subdivision review is consistent with the requirements of 208 planning and is completely handled by Nassau County and local municipalities. In Suffolk, the preponderance of cases is reviewed by the county.

It is recommended that Section 1333, Article XIII of the Suffolk County Charter be amended to provide that all proposed subdivision plats be referred to the Planning Commission to insure that non-point source runoffs will not occur as a result of subdivision construction activities.

It is also recommended that similar amendments be made to Section 1330, Article XIII of the Suffolk County Charter and Article 12—b, Subsection 239 n of the General Municipal Laws. Obviously, any zone changes that produce use density increases, will have a direct impact on water quality management. Intensification of use may require an increase or the creation of additional collection and treatment facilities. Since the two counties have the lead responsibility for implementation of the 208 Plan, it is imperative that the counties are aware of, and participate in, the total zoning process. It is recommended that NCPC be authorized to implement 239 n.

Realistically, this should be within the current budgetary and staffing capabilities of the two county planning departments, since those agencies now handle well over 90 percent of such actions.

7.4.11 County Environmental Law. This discussion on "Legal Needs" contains a number of recommendations for new or amended legislation and ordinances to augment the existing authorities. However, the passage of laws does not automatically guarantee compliance and implementation. Federal and State environmental laws have often been permissively enforced. Persuasion rather than penalty has been the rule. In Suffolk County there has been discussion of providing a strong comprehensive county environmental law—analogous to the State law, except that it provides for strong local legislative control. It must be stressed that this is a draft and subject to revision.

7.5 Public Informational Program

7.5.1 Introduction. Implementation of planning programs depends on the translation of "good planning" into "good politics." The public must perceive that there is a real crisis confronting them that must be resolved, and this collective perception must be made known to the elected decisionmakers. All too often, public officials are confronted by the "naysayers." Rarely is affirmative general support brought to their attention. Yet this is the key. It is the essence of all successful policies and programs.

The scientific and technical findings of this 208 Program has convinced the participants that a real crisis exists in the two counties about waste treatment management. The quality of the Island's potable and swimming waters, the opportunities for rational growth, the potential for sound economic development, the protection and enhancement of the living resources—in sum the future quality of life on this Island—depends on sound areawide waste treatment management.

We must now expand efforts to share the results of research efforts, findings and recommendations with the broadest array of citizens possible. This will include the dissemination of reading materials, public hearings and a broad-based speaking program.

7.5.2 Publications. The TAC has published a special report on animal wastes, six interim reports, and this Plan Summary. In the aggregate these reports constitute a summary of the more than 150 reports, studies and data memoranda produced during the conduct of the Study. (See Appendix A for a summarization of the data and printed material.)

All public libraries in the two counties will be furnished with the set of TAC reports. The complete set of basic documents and data printouts will continue to be available at the NSRPB office for viewing during regular working hours.

The news media—radio, television and papers—have given fair coverage of the Study during the past two years. Steps have been taken to assure broad coverage of this Plan Summary in the media to aid in the widest distribution possible.

7.5.3 Public Hearings. Formal presentations have been made to the two county legislative bodies this spring. Additional hearings will be held in various locations to afford town and village governments a direct opportunity

to question the technicians. These public hearings will be presented by the NSRPB staff, members of the TAC and the appropriate consultants.

7.5.4 Speaking Program. It is obvious that a region of 1200 square miles and almost three million people will require more than a limited number of public hearings if the general public is also to receive a live explanation of the 208 Plan. The staff will endeavor to also respond to business, civic and environmental groups. We expect to be ably assisted in this opportunity by members of the CAC. They independently established a speakers bureau and prepared their own printed materials and a very ably executed slide presentation.

During 1978, the NSRPB anticipates that the public informational program, which has been in effect since 1976, will reach every interested group in the two counties. Funding for the staff presentations will be a NSRPB responsibility. If continuing 208 funds will not be available for the CAC informational efforts, the NSRPB will cover these costs as well.

Although the campaign to secure implementation will be quite arduous, it is certainly worth the commitment of time, money and energy. The 208 Plan is a sound one, technically and fiscally, often imaginative, and absolutely vital if Long Island's most basic natural resources, its superb potable and marine waters, are to be preserved and enhanced.

7.6 Implementation Schedule

7.6.1 Nassau County Municipal Point Source Abatement Dates

a. *Bay Park—Designated 201 Facilities Planning Area*
(Including the Bay Park, Inwood, Cedarhurst, Lawrence, West Long Beach and the Long Beach Sewage Treatment Plants)

PHASE 1. Expand to 75 million gallons per day with Bay Outfall

Step 1	Approved	2nd quarter 1978
Step 2	Completed and Approved	2nd quarter 1980
Step 3	Completed	1982/83

PHASE 2. Ocean Outfall

Step 1	Approved	1st quarter 1979
Step 2	Completed and Approved	1st quarter 1981
Step 3	Completed	1983/84

Note: a. Lawrence Sewage Treatment Plant—Further investigation recommended as regards diversion or AWT
b. Long Beach Sewage Treatment Plant—Possibility of a 201 Study to be conducted by City and County
c. Unsewered areas (such as Point Lookout) will be considered in this schedule

b. *Cedar Creek—Designated 201 Facilities Planning Area*
(Including the Cedar Creek, Farmingdale, Meadowbrook, Grumman and Freeport Sewage Treatment Plants)

Step 1	Initiated	3rd quarter 1978
Step 1	Completed (including pilot studies)	3rd quarter 1981
Step 2	Completed and Approved	3rd quarter 1983
Step 3	Completed	1986/87

Note: Plants already scheduled to divert flow:

Farmingdale Sanitarium	Cease discharge 1981
Meadowbrook	Cease discharge 1978
Grumman	Cease discharge 1981
Freeport	Cease discharge 1979

c. *Port Washington Peninsula—Designated 201 Facilities Planning Area*
(Including the Port Washington and Village of Roslyn Sewage Treatment Plants)

Step 1	Initiated	4th quarter 1977
Step 1	Completed and Approved	4th quarter 1979/80
Step 2	Completed and Approved	4th quarter 1982/83
Step 3	Completed	4th quarter 1984/85

Note: All unsewered areas will be considered in the above timetable.

d. *Oyster Bay and Surrounding Areas—Designated 201 Facilities Planning Area*
(Including the Oyster Bay and Sewanhaka Yacht Club Sewage Treatment Plants)

Step 1	Initiated	2nd quarter 1978
Step 1	Completed and Approved	4th quarter 1980
Step 2	Completed and Approved	4th quarter 1983
Step 3	Completed	4th quarter 1985/6

Note: All unsewered areas such as Bayville will be considered in the above timetable.

e. *Great Neck Peninsula—Undesignated 201 Facilities Planning Area*
(Including the Belgrave, Village of Great Neck and Great Neck Sewer District Sewage Treatment Plants)

Step 1	Designation	3rd quarter 1978/9
Step 1	Completed and Approved	1st quarter 1981/2
Step 2	Completed and Approved	1st quarter 1984/5
Step 3	Completed	1986/7

f. *Glen Cove—Designated 201 Facilities Planning Area*

Step 1 and Completed	1978
Step 2	
Step 3 Completed	1981/2
AWT (N Removal) or mid-bay outfall	1985/6

Secondary treatment with a nitrification stage is presently being constructed. Due to studies undertaken during the 208 Study it may be necessary to conduct further studies in this area.

g. *Plants not Included in a 201 Designated Area*

New York Institute of Technology AWT or Diversion	1985/6
C. W. Post AWT or Diversion	1985/6

7.6.2 Suffolk County Municipal Point Source Abatement Dates

a. *Southwest Sewer District*

- commence operations 10/78
- complete construction 1980
- design flow 1986

1. Central Islip State Hospital Sewage Treatment Plant
2. Republic Aviation Sewage Treatment Plant
3. Farmingdale Agricultural and Technical Sewage Treatment Plant
4. Islip Scavenger Waste Sewage Treatment Plant
5. Babylon Scavenger Waste Sewage Treatment Plant

b. *Port Jefferson*

201 Step 1 Complete	4th quarter	1978
201 Step 2 Complete	4th quarter	1980
201 Step 3 Complete		1984

1. Port Jefferson Village Sewage Treatment Plant
2. Strathmore—Stony Brook Sewage Treatment Plant

c. *Yaphank* (assumes county approval in 1978)

201 Designation	1st quarter	1979
201 Step 1 Completed	4th quarter	1980
201 Step 2 Completed	4th quarter	1982
201 Step 3 Completed		1985/1986

1. Selden Sanitary Sewage Treatment Plant
2. Brookhaven Scavenger Waste Sewage Treatment Plant

Permit Compliance 1978

d. *S. Central* (assumes county approval in 1978)

201 Designation	1st quarter	1979
201 Step 1 Completed	4th quarter	1980
201 Step 2 Completed	4th quarter	1982
201 Step 3 Completed		1985/1986

1. Patchogue Village Sewage Treatment Plant

Permit Compliance March 1983

e. *Kings Park* (assumes county approval in 1978)

201 Designation	1st quarter	1979
201 Step 1 Completed	4th quarter	1980
201 Step 2 Completed	4th quarter	1982
201 Step 3 Completed		1985/1986

1. Kings Park Sewage Treatment Plant

f. *West Central* (assumes county approval in 1978)

201 Designation	1st quarter	1979
201 Step 1 Completed	4th quarter	1980
201 Step 2 Completed	4th quarter	1982
201 Step 3 Completed		1985/1986

1. Suffolk State School Sewage Treatment Plant
2. Strathmore—Huntington Sewage Treatment Plant
3. Pilgrim State Hospital Sewage Treatment Plant

g. *Riverhead*

201 Step 1 Completed	2nd quarter	1978
201 Step 2 Completed	2nd quarter	1980
201 Step 3 Completed		1984

1. Riverhead Sewage Treatment Plant

h. *Huntington*

201 Step 1 Completed	4th quarter	1979
201 Step 2 Completed	4th quarter	1981
201 Step 3 Completed		1985

1. Huntington Sewage Treatment Plant
2. Northport Sewage Treatment Plant

i. *Greenport*

201 Step 1 Completed	4th quarter	1979
201 Step 2 Completed	4th quarter	1981
201 Step 3 Completed		1985

1. Village of Greenport Sewage Treatment Plant

7.6.3 Nassau County Industrial Discharges

- Powers Chemco: 6/78 to meet NPDES permit.
- Fairchild Camera: currently meeting SPDES permit; will connect to sewer by 12/84.
- Grumman: currently meeting SPDES permit; will connect to sewer by 9/81.
- Liberty Industrial: currently meeting SPDES permit; will relocate to Suffolk County by 6/78.
- Metallurgical Processing Corporation: 6/78 to meet SPDES permit; will connect to sewer by 12/84.
- TOD Manufacturing: currently meeting SPDES permit; will connect to sewer by 12/81.
- Li Tungsten: currently meeting NPDES permit.

- Cerro Wire: 12/78 to meet SPDES permit; will connect to sewer by 12/84.
- General Instruments: currently meeting SPDES permit; will connect to sewer by 12/81.

7.6.4 Suffolk County Industrial Discharges

- Circuitron
- Fairchild Republic
- Fairfield Noble
- Deltown Foods
- Suffolk Processing Corporation

The above firms are within the Southwest Sewer District and, are anticipated to be discharging to municipal sewers by 1980.

- Hazeltine Corporation: has converted to a completely closed system.
- Liberty Industrial: will relocate to Suffolk with a closed system.
- Bellport Islip Cleaners
- Bluepoint Laundry
- Strebels Laundry
- Arrow Laundry

Compliance schedule will be modified on NYSDEC approval of engineering report. The above firms currently operate in violation. Full compliance expected by January 1980.

- Entenmann's Bakery: compliance by 6/78.
- Stimson: no abatement date established.
- Q. C. Circuits: compliance by 1/79.
- Oak Tree Farm: schedule modified, compliance by 3/78.

7.6.5 Nassau-Suffolk Industrial Non-Point Discharges. The following programs and schedule dates apply to industrial source control programs in both counties. The majority of the industrial sources have been identified and are being inspected and sampled on a regular basis.

Salt Stockpiles. Identification, inspection and sampling are presently underway and SPDES applications are scheduled for completion by 1/79.

Industrial Storage Practices. Identification, inspection and sampling are presently scheduled to be undertaken by 6/78 and SPDES permit applications are scheduled for completion by 6/79.

Petroleum Storage Practices. Identification, inspection and sampling are presently scheduled to be undertaken by 1/79 and SPDES permit applications are scheduled for completion by 1/81.

7.6.6 Solid Waste Management Facilities

a. *Landfills.* Article 27, title 5 of the New York State Environmental Conservation Law authorizes NYSDEC to regulate the design, construction and operation of all solid waste management facilities to protect the public health and the environment of the State. 6 NYCRR360 was adopted in September 1973 and established a permit system to insure compliance with design and operations standards and provides, in part, as follows:

- that all new solid waste management facilities must comply with the provisions of 360 as a permit/operating condition.
- that existing facilities that do not comply with 360 must furnish an improvement schedule as a permit condition.

The NSRPB Water Quality Management Program incorporates all compliance dates and schedules developed pursuant to Part 360 by reference.

Specific recommendations for solid waste management facilities are contained in Chapter Six of the Plan Summary and Section K of the Water Quality Management Program.

b. *Incinerators*

The Black-Clawson facility is expected to begin shakedown operations by July 1978. At a later date, when the facility is fully operational, the following facilities will cease operations:

- N.C.S.D. No. 1
- Valley Stream
- Garden City
- Long Beach

Target dates for other incinerators are as follows:

• Glen Cove Co-Disposal Facility	operation:	1980
• Patchogue	cease operation:	1980
• Huntington	cease operation:	June 1981*
• Islip	cease operation:	June 1981*
• Babylon	cease operation:	1981*
• Multi-Town Solid Waste Management Facility	operation:	1981

*These facilities will cease operation when the Multi-Town Facility is operational.

c. *Scavenger Waste Treatment Plants*

• Southold	permit compliance:	10/79
• Shelter Island	permit compliance:	10/79
• Riverhead	permit compliance:	10/79
• Southampton	permit compliance:	10/79
• East Hampton	permit compliance:	10/79
• Brookhaven	permit compliance:	10/79

At present, Southold, Shelter Island, Riverhead, Southampton and East Hampton discharge scavenger wastes to disposal pits. The facility at Brookhaven does not meet discharge requirements. Permit compliance will entail providing facilities within each respective municipality, or hauling scavenger waste to other approved facilities in the County.

• Babylon	cease operation:	6/79
• Islip	cease operation:	6/79

These facilities will be phased-out after the Southwest Sewer District facility at Bergen Point commences operation: 10/78

7.6.7 Stormwater Control. The NSRPB does not believe that it is possible to establish definite abatement dates relating to stormwater control. The Nassau-Suffolk Water Quality Management Program, however, can establish a generalized phased approach to stormwater control that will entail a number of sequenced activities. This sequence assumes that USEPA will approve the NSRPB Water Quality Management Program by mid-1978, and that Congressional funding of USEPA will permit the required demonstration.

- Develop a detailed plan of study relating to various stormwater control options in the Nassau-Suffolk SMSA, including, but not necessarily limited to, improved street cleaning, diversion, detention, and treatment. Study dates are outlined below:
  - —Study outline completed—June 1978.
  - —Demonstration projects approval—June 1979.
  - —Demonstration, alternative assessment monitoring program, non-structural approaches—end 1983.
  - —Implementation of selected approaches—1984, depending on nature or extent of construction requirements.