

**NEW JERSEY COUNCIL OF
WATERSHED ASSOCIATIONS**

**Revitalizing the Watershed Management Program
to Protect Clean and Plentiful Water**

Recommendations to the
New Jersey Department of Environmental Protection
on Revitalizing the Watershed Management Program
to Preserve and Protect
the Water Resources of the State

July 17, 2002

BACKGROUND

Watershed management offers the promise of a comprehensive method to preserve and enhance our water resources. Watershed management also offers the specter of a time-consuming and process-intensive process that is disconnected from immediate accomplishment. The watershed program in New Jersey stands at a critical juncture between these two outcomes. The NJ Council of Watershed Associations (the Council) is the natural ally of watershed planning. We have undertaken an effort to assess the watershed program with an eye toward identifying mid-course solutions and thoughtful policies to move forward. We secured funding from The William Penn Foundation and hired the Center for Environmental Communication from Cook College, Rutgers University to undertake an assessment of the program. The Stony Brook-Millstone Watershed Association is the actual recipient of the grant, and has functioned as the project manager.

The following represents our recommendations to revitalize the watershed program to realize the tremendous potential of the watershed approach. We recommend that watershed management be directly tied to principles of Smart Growth, identifying both those areas in need of stringent environmental protection, and those areas where a streamlined regulatory process can encourage growth. We suggest that the evaluation and management of water resources is an excellent method to achieve Smart Growth. The main indicator of the wisdom of our development and preservation choices is water – both its quality and quantity. Development that requires water, or generates waste, that exceeds the capacity of our natural systems yields depleted aquifers, degraded streams and drinking water sources, and strips vital biodiversity from natural and human habitats. Development that is built in concert with our natural systems can co-exist with sustainable and clean water supplies, and thriving natural habitats. Watershed management is the best approach to achieve this vital balance.

These recommendations are designed to respond to many of the problems of the existing program we identified in the attached White Paper on Watershed Management, and also to build on many of the perceptions outlined in the document by the Center for Environmental Communication at Rutgers University.

ACKNOWLEDGEMENTS

We are grateful for the significant range and depth of comments, questions and thoughts we have received from leaders in the environmental and smart growth movement from throughout New Jersey. These recommendations represent the collaborative thoughts of many, and we are thankful for the generous investment of time and wisdom from so many friends. In particular, we would like to thank Professors Caron Chess and Karen O'Neil, from the Center for Environmental Communication at Rutgers University, who oversaw an important look into the perceptions of the public of the watershed program, and delivered an excellent product on a very short time-frame.

We would also like to thank several of the people whose comments and thoughts were instrumental: Steve Barnes, Sandy Batty, Rich Bizub, Tom Borden, John Brunner, Tim Dillingham, Abigail Fair, Larry Fink, Alan Godber, Steve Hammell, Ernie Hofer, Don Kirchhoffer, Suzanne McCarthy, Alison Mitchell, Carleton Montgomery, Dave Peifer, Michael Pollock, David Pringle, Julia Somers, Eric Stiles, Steve Taylor, Dan Van Abs, Fran Varacalli, and Eric Wilkinson. Last, I am grateful for the case team here at Stony Brook, without whom this project would never have been completed: Noelle MacKay, the Director of our Watershed Program, Debbie Mans and Laura Alex, the past and current Coordinators of the Watershed Institute, and Stacy Ho, the lead for information collection for this assessment.

George S. Hawkins

Chair, New Jersey Council of Watershed Associations

Executive Director, Stony Brook-Millstone Watershed Association

July 15, 2002

TABLE OF CONTENTS

Background.....	2
Seven Ideas.....	5
General Recommendations.....	7
Figure 1.....	10
Specific Recommendations	11
Track Integration.....	16
Transition.....	17

Attachments:

- Center for Environmental Communication report “Some Perceptions of New Jersey’s Watershed Management Effort”
- One or Two-page information outlines on status of watershed management in each watershed management area
- Watershed Management Area Contact Lists
- NJCWA White Paper on watershed management
- Acronyms

SEVEN IDEAS TO REVITALIZE THE WATERSHED PROGRAM

The following is a short description of seven major policy ideas that found these recommendations for the watershed program. Following this summary is both a general and detailed explanation of the recommendations, including an outline chart.

1. ***Clear Roles and Outcomes.*** The Department should launch a reinvigorated and integrated watershed program with two parallel tracks, one led by the Department to establish regulatory standards (Track 1), and one led by local or regional organizations to achieve environmental improvements in the field and improve local planning (Track 2).

Principles governing each track should be:

- ✓ clear roles for each participant;
- ✓ clear connection between the process and both Smart Growth and environmental outcomes;
- ✓ clear expectations of implementation, focused by a simple report card tracking outcomes; and
- ✓ ongoing evaluation to improve performance.

2. ***Standard Process and Cost Savings.*** The Department should generate economies of scale and cost savings by requiring the use of templates for the documents, procedures and standards common to watershed efforts. The Department should harvest the best models that have been devised so far, while saving on the resources that are otherwise devoted to recreating unique processes in each watershed area. The Department should devise a uniform process, and training, on a core of issues including:

- ✓ characteristics to be studied;
- ✓ data collection and analysis;
- ✓ watershed management structure;
- ✓ municipal ordinance models; and
- ✓ outcome based planning, including a simple report card to evaluate success.

3. ***Government on Regulation and Outcomes.*** The Department should assume the lead role in Track 1, which is to develop a baseline characterization of conditions statewide, including existing water quality standards and water quantity conditions, and existing land use. This characterization would establish the boundaries for regulatory decisions (e.g. NJPDES and water allocation permits, TMDLs and antidegradation) and provide outcome targets for local watershed planning (see Track 2). Department approvals and permits for local projects would be governed by these standards.

4. **Government Studies.** In Track 1, the Department should conduct a statewide build-out analysis using composite zoning – combining similar zoning areas. The Department would compare build-out trends on impervious cover, aquifer recharge and pollutant loads to existing and targeted water quality standards, and water quantity goals, and establish updated standards to govern regulatory decisions, and target outcomes for NPS reductions and aquifer recharge. Department regulatory boundaries would identify both areas for stringent protection, and areas where a streamlined regulatory process will encourage development.

5. **Local Focus and Outcomes.** Existing Watershed Management Area organizations, local watershed associations, groups or contractors should assume the lead in Track 2 – local planning that initially targets immediate actions (action now projects) that can be undertaken to protect or improve environmental conditions. This track will focus on working within subwatersheds and will build tangible successes and outcomes with action now projects that can buttress more comprehensive improvements. The work will be focused by a straightforward “report card” evaluation process that identifies for each area a few key issues or parameters. Work in this Track will build directly on the existing watershed process and watershed management area organizations, associations and groups.

6. **Local Focus and Municipalities.** Based on outcomes identified by the Department in Track 1, local planning will focus on improving existing and future conditions in urban and suburban areas. In urban areas, planning would target areas for revitalization, enhance urban parks and landscapes, and plan for improved infrastructure and non-point source pollutant control. In suburban and rural areas, planning would target open space acquisition, Master Plan and zoning modifications, best management practices with landowners and restoration projects. Improved zoning and conditions will update Department mapping and gain proactive municipalities more flexibility in future land use decisions.

7. **Uniform Regulatory Areas.** To encourage an integrated approach, the Department should use uniform watershed boundaries for all planning programs – including water supply and drought districts, Section 208 plans, and watershed planning basins and areas.

GENERAL RECOMMENDATIONS

1. The watershed program should be strengthened, improved and revitalized. While recognizing that corrections are necessary, much initial work has been accomplished and many participants have engaged in a good-faith effort to achieve results. The State might not be able to engage in another effort of participatory democracy if this project were eliminated without recognition of its successes or a reasoned effort to improve it.

Most important, watershed management remains the best approach to protecting water quality and quantity that integrates point source and non-point source solutions, and links statewide regulatory conditions with local land use decisions. The people of this state deserve the opportunity to realize the promise of this approach. We propose a set of recommendations that represent both an evolution of the existing program – to harvest and sustain the best work; and a significant change – to build a program that will better connect future efforts with regulatory decisions and measurable local outcomes.

2. Principles. These principles have guided our development of these recommendations:

- a. Be clear about purpose, roles and structure.
- b. Be clear about what decisions are to be made, when, and by whom.
- c. Drive an open, integrated watershed process at the Department that clarifies the criteria and boundaries of decision making.
- d. Drive a focused, action-oriented watershed process at the local level that reduces NPS loadings and increases recharge – compared to existing and projected future conditions – by providing relevant information in a usable format to local officials.
- e. Be clear and certain about how these two planning efforts interact.
- f. Call for stakeholder involvement when their purpose and role is clear and directed by specific plans, goals and a definitive schedule.
- g. Be clear about timelines – conceivably on a six year cycle to coordination with the six year municipal Master Plan and zoning reexamination process.

3. The program should be an integrated program with two parallel tracks:

a. *Track 1:* The Department would develop a baseline characterization of conditions throughout the state using existing information, and would map

existing and target water quality standards and water quantity conditions. Initial targets to protect existing resources and to reduce identified problems would focus local action. The Department would commission a **statewide build-out analysis** using composite zoning areas. The Department would compare water quality and quantity targets with projections of flow and loading from the build-out and identify areas of existing and potential problems.

The Department would identify **parameters and standards** for regulatory decisions within the context of these projections in statewide and areawide water quality management plans, the statewide water supply plan, and establish target outcomes for NPS reductions and aquifer recharge. Parameters would be updated on a regular basis by the Department, or as the result of improved local planning undertaken in Track 2.

Department regulatory decisions, including point-source limits and enforcement, water quantity allocations and water quality designations and classifications and the development of TMDLs and waste load allocations, would be based on these standards and boundaries. The Department would also identify areas where development would be encouraged by offering a streamlined regulatory decision-making process.

b. Track 2: Local watershed planning would immediately begin working with municipal leaders, citizens and landowners to protect, improve and manage water quality and quantity, directed in part by a straightforward **report card system** that targets key issues in need of improvement or protection targets identified by the Department in the statewide characterization. The Department would both help create the report cards and oversee the implementation in each watershed, and would help foster communication between the groups to educate and inform about successful strategies.

Watershed planning would follow a short standardized protocol, but would yield varying implementation strategies depending on the degree of urbanization. **Planning in urban areas** would include a focus on protecting and enhancing urban parks and preserved natural areas, improving urban “greening” efforts, remediation of areas of existing contamination, responding to non-point source and stormwater runoff and combined sewer overflows, and identifying and encouraging the revitalization of brownfield sites.

Planning in suburban and rural areas would expand to reduce future projected losses to aquifer recharge or water quality by identifying and implementing results-based

strategies, including open space acquisition, master plan and zoning improvements, best management practices and design standards, and restoration projects. Completed implementation strategies would be communicated annually to the Department to update projections and allow future planning flexibility.

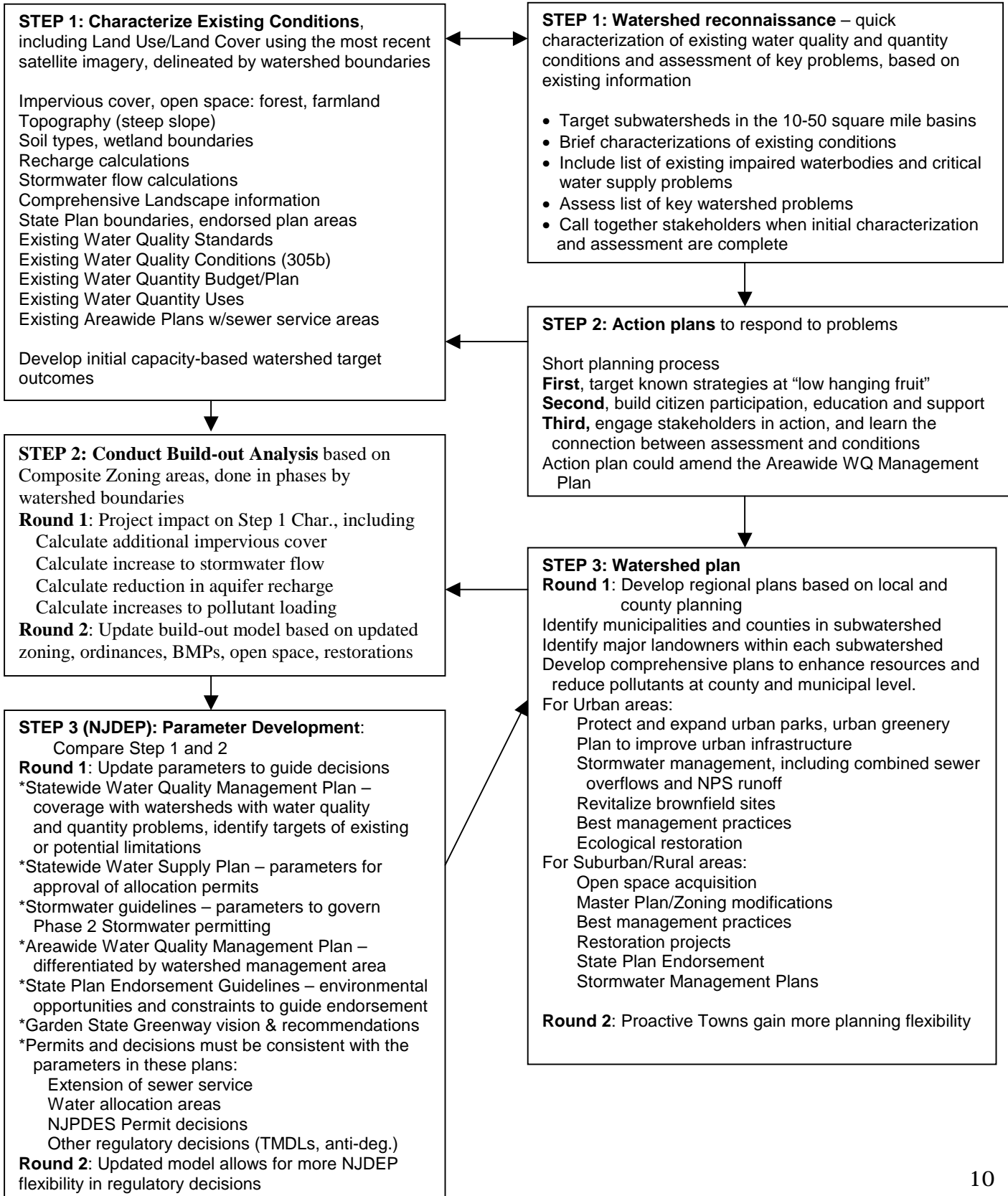
4. Practical and standardized procedures should be developed: Too often, practices and procedures that could be common across watershed management areas have been re-invented in each. Successful models and approaches developed in one area are not sufficiently presented and offered to others. The Department should establish a set of model documents, procedures and practices, selected from the creative efforts so far. The Department should adopt some of these procedures as the “standard” format, to be used in each area and only modified as unique conditions warrant. The development of these models, and experience using them, will reduce the amount of time and effort in the process of the program. These models should include:

- a. Model organizational documents, including bylaws, basic structure;
- b. Standard characterization process, including parameters for data collection and analysis, and model outline;
- c. Model monitoring program materials;
- d. Model watershed implementation plan;
- e. Biannual meetings of participants, contractors and subcontractors to exchange and share information on practices, models and successes; and
- f. Implementation tool chest:
 - Model Master Plan language
 - Water budgets and capacity-based planning
 - Model zoning ordinances, including steep slope, tree cover, stream corridor, aquifer recharge and source water protection, cluster, lot size averaging
 - Procedures for assessing nitrate dilution and septic density analysis
 - Model restoration manual for design and implementation
 - Best management practices manual (stormwater reduction, aquifer recharge)
 - Design model practices (clustering, averaging, density bonuses, etc.)

FIGURE 1: Integrated, Two-Track Watershed Management Program

Track 1: NJDEP

Track 2: Local Planning



SPECIFIC RECOMMENDATIONS

Our approach is outlined in Figure 1 and proceeds in two integrated tracks. NJDEP would identify the parameters and standards upon which it will make regulatory decisions by characterizing existing and projected development, existing and proposed standards, and most pointedly, comparing the two. Implementation of strategies to improve existing or future conditions need not wait until the comparison is complete. Local efforts can and should be responsible for undertaking this work immediately, developing into a more comprehensive process over the longer term. Each track should be subject to definitive timelines and a regular cycle, which could be undertaken in a six year cycle to coordinate with the six year municipal master plan reexamination process.

TRACK 1: NJDEP

The Department would be responsible for identifying statewide conditions, comparing them to existing standards, and forming parameters for regulatory decisions and targets for local watershed planning. The Department would lead this effort within an accelerated timeframe, would take advantage of existing information already collected, and would hire contractors as needed. The Department would also be responsible for coordinating regulatory and enforcement actions in concert with parameters set in this track. Work in this track would be conducted according to timeframes and schedules established after understanding resource availability and workload constraints.

Step 1-1 Characterize Existing Conditions: The Department would be responsible for developing statewide mapping of existing environmental conditions. This mapping would be undertaken using existing information from the Department, from the existing watershed planning effort, from other related organizations (NRCS, USGS), and from organizations that have provided information to the Department in response to “Solicitations for Water Quality Related Data.” Mapping will include water quality standards, water quality monitoring information, water budgets and allocation parameters. Mapping will also include existing impervious cover, topography, approved and existing sewer service areas, flood plains, soils characterization, wetland delineations and landscape information on rare and endangered species, and an

assessment of aquifer recharge areas and stormwater runoff calculations. Baseline comparison of existing conditions to existing water quality standards will yield initial target outcomes for local watershed planning. The Department should also identify data gaps and develop a plan to fill the gaps to update boundary conditions. This process would be undertaken by watershed management area, and information should be updated on a regular schedule.

Standards, boundary conditions and parameters developed in this process would help guide the development both of areas for stringent environmental protection (by water quality classifications, water allocations, point source discharge levels...) and areas that are targeted for future growth by offering a streamlined approval process.

Step 1-2 Conduct Build-out Analysis: The Department would commission a statewide build-out analysis using composite zoning areas – which combines similar zoning areas to simplify and accelerate the analysis. The build-out could be accomplished in phases and undertaken by watershed boundaries. This build-out will be similar to modeling done by the CommunityViz program, the analysis done by Environmental Defense for the Highlands, or the GOZ program developed by the Regional Planning Partnership. The build-out will project impacts on the characterization developed in Step 1-1, including future levels of impervious cover, stormwater runoff, aquifer recharge, changes to areas important for rare and endangered species, and pollutant loadings. Of critical importance is the assessment of the cumulative impacts on regional resources due to the projected changes from local zoning decisions. The Department might decide to develop a standard build-out methodology, and then allow other groups to help undertake this task using the uniform process. Alternatively, the Department should consider developing a model that uses existing statewide and regional forecasts of population and employment growth to project future loading and water quality impacts.

Step 1-3 Parameter Development: The Department will compare existing conditions and water quality standards with projections for future growth, runoff, recharge and loadings. The Department will therefore be able to identify existing and projected watersheds and subwatersheds with existing or projected water quality or quantity limitations. Based on existing or projected parameters, the Department can both modify existing NJPDES permits and water allocation decisions where conditions

warrant, and identify parameters for future regulatory decisions on NJPDES permits, water allocations, Total Maximum Daily Loads (TMDLs), anti-degradation review, sewer service areas, septic service approvals and related decisions.

These decision parameters will be articulated in the statewide water supply plan, the statewide water quality management plan and delineated in areawide water quality management plans for each watershed management area. Permitting and other regulatory decisions for future projects must be consistent with parameters in these plans, including targeted reductions in projected future changes to loading and recharge. Improvements to local zoning and performance achieved in the local planning effort can allow greater planning flexibility. Linked to a regular update of characteristics (Step 1-1) and build-out (Step 1-2), an ongoing evaluation process would determine whether the standards and parameters established are successful in preserving and enhancing water quality and quantity and other natural resources.

TRACK 2: Local Watershed Planning

Local watershed planning will depend on leadership and direction from existing watershed management area organizations or groups, local watershed associations, groups, contractors or other entities. This track will build on existing watershed planning efforts and on the success of action now projects. These efforts will be guided by targets and parameters established in the statewide assessment, and supplemented by the comparison between existing standards and projected conditions. Management of this process is designed to be undertaken as “close” to the relevant county and municipal officials as possible. The focus would be on implementation strategies that can be measured against outcomes in a report card developed for each watershed management area or subwatershed.

One of the important distinctions to consider is the difference between implementation strategies for urban areas, and those for suburban or rural. The steps to identify and evaluate the key issues would be the same, but the outcomes would obviously be different for areas of almost total current build-out in comparison to those with significant forested, farms and other open lands. Again, this work should be conducted according to timeframes and schedules that would be established after resource and funding issues are settled.

Step 2-1 Watershed Reconnaissance: Watershed management area organizations and local groups will engage in rapid watershed planning in response to existing conditions. Planning will start with a short watershed reconnaissance designed to identify key issues in the area, particularly “low hanging fruit” that can be subject to immediate action plans. “Low hanging fruit” means the steps that can be taken that will improve the local environment, or respond to a clear problem, but for which detailed planning and analysis is not necessary. For example:

- ✓ Storm drain filters: available and low cost technologies exist to filter out non-point source pollutants during rain events;
- ✓ Stream corridors: the enhancement of stream corridors would be the subject of local ordinances and restoration projects – and should be considered for statewide protection;
- ✓ Stormwater drainage: distributed drainage systems, which use swales and vegetation to increase recharge and reduce the discharge of polluted stormwater directly to streams.

Local groups will call stakeholders together when the characterization is complete and ask their assistance in prioritizing issues and identifying action steps. To the extent that the statewide characterization has identified existing water quality or water quantity problems, rapid watershed planning will be targeted to achieve reductions in these parameters. Information collected in the rapid watershed planning effort should be integrated into the statewide characterization when possible. An important goal for this step and the next (Action Plan) is to build citizen, landowner and governing support through hands-on, tangible activity, that can exemplify the comprehensive solutions to be part of the Watershed Plan (Step 2-3).

Step 2-2 Action Plan: Watershed Management Area organizations and/or regional and local groups would develop an action plan to implement a series of action steps to improve existing conditions. These action plans should be guided by the development of a simple and straightforward “report card” which identifies the key issues generated in the watershed reconnaissance. The Department would help develop these report cards and oversee their implementation in local planning, and would foster communication between local planning efforts to support successful strategies. The

report card establishes clear and understandable outcomes that would drive and evaluate implementation strategies.

Action steps would be very different for urban areas than for suburban and rural areas. Urban strategies could include enhancement of urban parks, waterfront revitalization, reduction strategies for stormwater and non-point source pollutants, and community greening. Steps for suburban and rural areas could include improved land use ordinances, restoration projects, best management practices, and improved design of new developments. Organizations should consider whether to adopt these action plans as amendments to the areawide water quality management plan – so that regulatory decisions by the Department would be consistent with these local efforts.

Step 2-3 Watershed Plan: Watershed Management Area organizations, and regional and local groups will develop comprehensive watershed plans to “manage” the difference between target conditions (NJDEP standards and parameters) and existing or projected build-out conditions. One key purpose will be to identify those areas that need more stringent regulatory protection, and those areas where a streamlined regulatory process could encourage future development. The essence of the management effort will be to adopt a continuum of actions to reduce water quality and quantity limitations, and thereby improve existing conditions in an urban area, and to improve local flexibility for future development in suburban and rural areas.

Implementation strategies for urban areas include urban park enhancement, waterfront preservation and revitalization, non-point source, stormwater and combined sewer overflow planning, infrastructure improvements, and site redesign to reduce impervious cover and expand community greening.

Implementation strategies for suburban and rural areas would include master plan and zoning changes, best management practices, improved design standards, restoration projects and open space acquisitions.

Every effort should be made to develop local implementation strategies that are consistent with existing regional or statewide planning efforts. For example, open space acquisition plans should be devised in concert with the statewide Garden State Greenway plan for open space conservation.

If implementation strategies generate projections of future loading or recharge that improve on existing or projected conditions, the appropriate areawide plan should be modified to help direct Department regulatory decisions and to allow successful communities additional flexibility. For example, if the location and density of development is reduced or modified below thresholds that would exceed carrying capacity in the watershed, the municipality should receive flexibility on where and at what density the remaining development can be located. Development of comprehensive strategies to improve local planning should be integrated with the plan endorsement process under the State Development and Redevelopment Plan.

TRACK INTEGRATION

Although this approach is designed in part to separate the components of watershed management that should be led by the Department from the components managed at the local level, significant attention needs to be paid to integration.

1. Characterization Information – information exchanged between NJDEP and Local Planning Tracks.

Information from the statewide characterization should be made immediately available to the rapid local program. The statewide characterization could comprise most of the background information to target action steps. Conversely, information uncovered in rapid local efforts that is more detailed than statewide data should be provided to the Department to update and improve the statewide characterization. Improvements to local conditions due to local planning should be reflected in the statewide characterization.

2. Rapid Planning Targets – targets from NJDEP Track to Local Planning Track.

The Department would provide rapid local planning efforts with parameters and target outcomes based on the statewide characterization of existing conditions compared to existing or proposed standards. These could be developed into straightforward report-cards for targeted watershed management areas or smaller subwatersheds. Local action plans that improve local protections would be adopted into areawide water quality management plans to guide Department decisions on permits and regulatory decisions.

3. Watershed Planning Targets – parameters and targets from NJDEP Track to Local Planning Track.

The Department should provide parameters within which future growth will be approved based on build-out projections compared to existing or proposed standards. Local watershed planning should evolve from rapid achievement of initial improvements into a long term effort to reduce existing problems, to avoid future problems, and to enhance favorable conditions by modifying master plans and zoning, by preserving land, and by implementing improved plans and design.

4. Watershed Planning Success – improvements to future conditions from Local Planning Track to NJDEP Track.

When local planning efforts change local zoning, preservation or practices that modify variables driving future projections, these modified variables should be provided to the Department. The Department should update the statewide build-out scenario and indicate where projected future changes to future water quality or quantity have been averted. In many cases, proactive planning by municipalities should lead to endorsement and funding incentives under the State Plan, and financial incentives under the Garden State Preservation Trust for open space, farmland and historic preservation. Local plans that further protect resources should also be incorporated into areawide water quality management plans to help guide Department regulatory decisions. The Department should seek public input from the Track 2 local planning to advise a range of regulatory and rulemaking decisions, including water quality classifications and TMDL development.

TRANSITION

1. Existing Information. The Department should assess what information has already been collected to jumpstart the statewide characterization. The Department should also move quickly to make this information available to the public and to the local planning efforts.

2. Restructure the Department's personnel to take charge of Statewide Characterization and Build-out Comparison, and to identify and/or develop model watershed procedures.
3. Restructure the Department to use characterization and build-out projections to develop statewide and areawide water quality plans, and the statewide water supply plan, that will guide and coordinate regulatory decisions.
4. Restructure watershed management area contracts to focus local process on rapid watershed action and eventually, watershed planning based on build-out parameters.
5. Focus local process on watershed planning at the WMA scale or smaller.
6. Undertake area-by-area review of current arrangements with lead organizations to determine the appropriate lead entity for the future. The lead could be the existing or a new organization, and could be contractors, watershed associations, county government bodies, or potentially water utilities. Ongoing funding decisions will be made in concert with a case-by-case assessment of the resources of selected lead organizations.
7. Consider targeting this approach for several watershed management areas before rolling it out statewide.
8. Design a regular system to update the information used to support these plans, and to evaluate the success of this approach, or its main components, of preserving and enhancing clean and plentiful water and other natural resources.
9. The watershed program should be a complement and context for, rather than a replacement of, the range of rulemaking and regulatory efforts that are upcoming, including Total Maximum Daily Loads, stormwater management, stream water quality classifications and septic and groundwater protection

