



Governor Minner's Task Force on Surface Water Management

April 1, 2005

A report in response to Executive Order No. 62

Task Force membership

John Hughes, Secretary of DNREC, Chair
The Honorable Robert L. Venables, co-chair, Bond Bill Committee
The Honorable Roger P. Roy, co-chair, Bond Bill Committee
The Honorable David B. McBride, chair, Senate Natural Resources Committee
The Honorable Joseph W. Booth, chair, House Natural Resources Committee
The Honorable Christopher A. Coons, New Castle County Executive
The Honorable David Burris, President, Kent County Levy County
Jared Adkins, District Engineer, Kent County Conservation District
Charles Baker, General Manager, New Castle County Land Use
Jeffrey Bross, P.E., President, Duffield Associates
Eileen Butler, Environmental Advocate, Delaware Nature Society
Stephanie L. Hansen Esq., Richards Layton & Finger
Larry Ireland, District Manager, New Castle Conservation District
Edward Bender, District Engineer, Sussex County Conservation District
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Ralph Reeb, Director of Planning, DeIDOT
Jeffrey Seemans, R.L.A., Land Resource Manager, Blenheim Homes
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April 1, 2005

The Honorable Ruth Ann Minner
Governor – State of Delaware
Tatnall Building
Dover, DE 19901

Dear Governor Minner:

As chairman of the Surface Water Management Task Force it is my pleasure to submit our recommendations. I have served on and chaired many Task Forces and committees over my career, but few as ably constituted or as motivated and diligent as this one. I am proud of the work we did and endorse it without hesitation. Looking back, I now realize you were wise in asking us to complete our work on an extremely short timeline.

The problems we addressed have lain fallow for far too long and recent floods motivated us to do our work competently and quickly and we had no time to stray from the mission you set forth for us.

We offer a Delaware-based answer to our present problems of drainage, flooding, stormwater handling and dam safety. Giving Delawareans the protection they deserve from surface water management problems will require far more than good intentions. We will need:

- Cooperation between the various units and subunits of government now involved in our fragmented approach to these issues, from the United States government all the way down to community homeowner's associations.
- Support from both houses of the legislature to pass the various pieces of enabling law.
- Funding, both to get started and to support the short and long term solutions we envision.
- The active involvement and support of our citizens, both urban and rural, who will ultimately most benefit from our work.

I thank you for the trust you placed in me, the members of the Task Force who rewarded my confidence in their ability and the staff of DNREC who never failed us in our efforts.

Respectfully,

Handwritten signature of John A. Hughes in blue ink.
John A. Hughes
Secretary

Delaware's Good Nature depends on you!

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For complete minutes of the task force and subcommittees and other supporting documents and presentations, please visit the DNREC website at <http://www.dnrec.state.de.us/dnrec2000/SWMTF/>

Acknowledgements

The Chair would like to thank the Task Force members and their employers for their commitment to this intensive effort. In particular, the chairs of the four Task Force subcommittees were highly engaged and contributed an extraordinary amount of time toward generating thoughtful recommendations and completing the project on time.

They are:

- Jeffrey Bross, Professional Engineer, chair of the Finance Subcommittee
- Stephanie L. Hansen, Esquire, chair of the Governance Subcommittee
- Jeffrey Seemans, Registered Landscape Architect, chair of the Land Use and Regulation Subcommittee
- John Talley, Registered Geologist, chair of the Maintenance and Restoration Subcommittee

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Executive Order Number Sixty-Two

Establishing A Task Force On Surface Water Management

WHEREAS, in recent years, several areas of the State have been subject to chronic flooding and drainage problems; and

WHEREAS, such flooding and related problems can threaten the health, safety and welfare of our State's citizens, can damage private property, and can impose substantial costs on State and local governments, in the form of emergency response activities, property damage and infrastructure improvements; and

WHEREAS, it is appropriate to coordinate efforts within the State to ensure the best use of resources in enhancing flood prevention and control efforts and to develop a comprehensive strategy to address drainage and stormwater management issues.

NOW, THEREFORE, I, RUTH ANN MINNER, by virtue of the authority vested in me as the Governor of the State of Delaware, do hereby declare and order as follows:

1. The Task Force on Surface Water Management is created. Members of the Task Force shall include representatives of State and local governments and persons with special expertise on the issues of drainage, flood control and water management. Members of the Task Force shall be appointed by the Governor and serve at the Governor's pleasure.
2. The Task Force is directed to:
 - a. Develop a statewide surface water management strategy to integrate drainage, flood control and stormwater management;
 - b. Explore potential costs and funding sources for implementing a statewide surface water management strategy;
 - c. Recommend appropriate changes to State or local laws, regulations and policies as appropriate;
 - d. Recommend a statewide organizational structure to coordinate surface water management strategies and to respond to citizen, community and county needs;
 - e. Integrate surface water management polices with federal and State clean water requirements; and
 - f. Recommend strategies to preserve and enhance aquifer recharge, community, local government and State open space use and implement green infrastructure policies and goals, where applicable.
3. The Task Force is directed to submit its recommendations to me not later than April 1, 2005.

Executive Summary

TO ADDRESS EXECUTIVE ORDER 62, the Governor's Surface Water Management Task Force focused its efforts in four major areas through the creation of subcommittees:

- **Governance.** This subcommittee reviewed how the various levels of government involvement in drainage, flood control and stormwater management fit together and where there are disconnects, fragmentation of services and a lack of seamlessness in response that may confuse citizens and result in inefficient delivery of services.
- **Finance.** This subcommittee estimated the state's projected capital funding needs over the next five years for planning, construction and maintenance of stormwater management and drainage control.
- **Land Use and Regulation.** This subcommittee reviewed current laws and regulations governing stormwater management and drainage control, and identified opportunities to update and strengthen them.
- **Maintenance and restoration.** This subcommittee reviewed the issues surrounding the maintenance of tax ditches and stormwater facilities, including opportunities for stream restoration and conservation-oriented "greener" design to replace more traditional concrete stormwater management structures.

State's stormwater needs quantified

Statewide, the Finance Subcommittee identified stormwater capital requirements of \$207.3 million over the next five years and projected annual maintenance requirements of \$13.73 million (see pages 12-13). The subcommittee reviewed existing watershed plans, 21st Century Fund requests, tax ditch needs and recent emergency appropriations in arriving at its projection.

For its maintenance projection, the subcommittee estimated the cost of major maintenance on stormwater ponds in residential subdivisions, county and municipal needs, and the ongoing maintenance of the state's 240-plus tax ditches.

The Task Force generated 31 recommendations, of which 30 were approved. The key recommendations include:

Surface Water Advisory Council

The Task Force recommended establishing a Surface Water Advisory Council (SWAC) to provide guidance and policy advice to the Governor and the Secretary of DNREC and oversight to potential stormwater utilities regarding drainage, stormwater management, and flood control.

The SWAC would provide consistent state-level direction to DNREC and stormwater utility operating units in the development of standardized processes and procedures for identifying and prioritizing problems; development of watershed-based solutions; and prioritization of projects. The SWAC also would oversee the quality of customer service and review annual localized work plans.

While the SWAC would operate at the State level, implementation and operations would occur at the county or municipal level. Areas of responsibility between the State and local entity would need to be clearly defined and coordinated.

Streamlined customer response and service

A central response unit coordinated by DNREC in conjunction with county or municipal utilities should be created for handling public calls related to drainage, stormwater, and flood control. A new process and response procedure for addressing citizen complaints related to stormwater facilities and flooding needs to be established. Citizens should be provided with a single point of contact.

Even though an appropriate response may require the participation of several agencies, the process should appear seamless to the citizen calling for assistance.

Establishment of stormwater utilities

The Task Force recommends that stormwater utilities operating at the county or local level should be formed as a funding vehicle for the purpose of providing a simplified and comprehensive approach to drainage and flooding problems throughout each county. The utility would be a mechanism to provide necessary funding for implementing improved surface water management.

A stormwater utility fee should be utilized for the purpose of planning, maintenance, capital construction and administration.

Stormwater utilities are operating in more than 400 jurisdictions nationwide. Most utilize GIS mapping to measure the impervious surface generated by residential and commercial development, and the utility fee is based on that property's Equivalent Runoff Unit (ERU).

Enhanced stormwater standards

Delaware's 1990 Sediment and Stormwater Law was ahead of its time. But regulations should be updated to establish performance standards for sediment and stormwater practices, operations and maintenance, and appropriate bonding.

Design and engineering standards at the State level should be strengthened. Minimum standards should address volume management, conveyance adequacy, pollutant loadings, floodplain

management, strict standards for operation and maintenance of structures and management areas. Minimum statewide design and construction standards for work in stormwater facilities, ditches, and natural streams should be established.

Some regulatory changes will require amending the state law through legislation.

Funding of Dam Safety program

Delaware is the only state without a funded dam safety program to inspect and repair aging and hazardous dams. The Task Force recommends that the Dam Safety Program be funded under the provisions as specified in the Dam Safety Law Title 7 Chapter 42. This support would allow for the development of the regulations and position the State to leverage Federal funds for dam safety related improvements and emergency planning.

Repairs and reconstruction could be funded by stormwater utilities.

Watershed-based planning

There are 17 high-priority watersheds in Delaware that need immediate attention. The Task Force agreed strongly that planning for flood control, stormwater management and development should occur on a watershed basis. Each plan will include, at a minimum, hydrologic and flood modeling and shall determine carrying capacity and water-quality impacts of the watershed. The impact of a build-out plan for each watershed shall also be included.

As part of watershed planning, improved topographic and hydrologic data should be developed to support the accurate mapping of floodplains. Estimates for a detailed watershed master plan range from \$500,000 to \$750,000 each.



Delaware stormwater and drainage regulations need to be updated and strengthened, setting tougher standards that will protect water quality and prevent flooding and erosion .

Other recommendations

Additional recommendations of the Task Force include:

- Enabling a stormwater utility to acquire buffers and easements to protect lands from development and/or degradation and to enhance flood control, flood prevention, protect wetlands, enhance water quality, improve stream bank stabilization, and protect vegetation that will lessen sedimentation and erosion;
- Including urbanized, suburbanized or defunct tax ditches in the local stormwater utility;
- Requesting first-year funding of \$980,000 (see below) to fund a Dam Safety program, provide engineering support and a customer service

liaison, and engage consultants to develop utility framework and revise regulations; and

- Encouraging the implementation of conservation design as a way to reduce reliance on structural stormwater management practices. If Conservation Design utilizing non-structural stormwater management approaches is widely used, the number of structural facilities will be reduced with an associated reduction in operation and maintenance costs for those facilities.

The Task Force asked DNREC to prepare an implementation plan for all of its recommendations by April 30.

First-year funding request for implementation

Constituent Relations Coordinator for Surface Water Management – \$60,000

This position will coordinate all constituent contacts that are received at the State DNREC office related to stormwater, drainage and flood management. Public inquiries will be handled through this position to coordinate agency response and follow up to complaints, problems, requests for assistance and investigation.

Engineer III position to support the Surface Water Advisory Council – \$75,000

This position will work with developing the scope of watershed planning and modeling and providing technical support for the stormwater utility development.

Support for the above two positions— \$40,000

Database development, and program administration contractual costs.

Funds for Dam Safety Program – \$180,000

- Engineer IV (\$80,000) to provide the lead for the State Dam Safety Program. Provides the leadership to coordinate the program with FEMA and the Association of DAM Safety Officials.
- Contractual services (\$100,000) to complete the development of Dam Safety Regulations, begin the scope of work for Emergency Action Plans for dam owners, provide training for dam owners, and seek funding and implementation for developing inspection protocol.

Stormwater Utility Development Consultant – \$300,000

To assist the State and local agencies with stormwater utility development.

Watershed Modeling and Planning Development Consultant – \$200,000

To assist the State and local agencies with initial planning for watershed modeling and planning efforts.

Sediment and Stormwater Regulation Development Consultant and Legal Assistance – \$125,000

TOTAL: \$980,000

Background

DRAINAGE ASSISTANCE as a public program of the Delaware Department of Natural Resources and Environmental Control (DNREC) was formalized in Delaware Code under Title 7 Chapter 41, "Drainage of Lands and Management of Waters; Tax Ditches," established in 1951. The purpose of the law in the declaration of policy states: ". . . *drainage and the prevention of flooding of lands, and the management of water for resource conservation shall be considered a public benefit and conducive to the public health, safety and welfare.*"

While the Tax Ditch program today remains a robust, working program providing technical assistance and establishing, financing, administering and maintaining Tax Ditch organizations under DNREC's Division of Soil and Water Conservation, the realm of public drainage and water management responsibilities throughout the State of Delaware has grown significantly over the last 50 years.

For several decades, as growth and suburban development occurred in the state, the responsibility of drainage was primarily the domain of towns, municipalities and Delaware's Department of Transportation for highway construction and improvements. The goal of drainage programs was to construct a network of hydraulically efficient conveyance systems to drain water and provide an outlet to the closest body of water. Not until the 1980s did local governments and public works agencies begin to adopt water management and drainage codes that were designed to better manage drainage from new development and construction.

The early water management codes and regulations focused on the need to provide some method of stormwater detention on site for large

storm events. This was accomplished for the most part by the construction of "detention basins." This stormwater strategy was not uniformly applied throughout the state, and the stormwater requirements did nothing to address management of smaller, more frequent precipitation events.

Landmark stormwater law passed in 1990

The management of stormwater to improve the quality of stormwater runoff generated from a land development project was not established formally until the Delaware Sediment and Stormwater Law was enacted in 1990. Under the provisions of Delaware Code Title 7, Chapter 40, all land disturbing activity greater than 5,000 square feet would be required to operate under a plan that encompassed temporary erosion and sediment control during construction, as well as permanent stormwater management controls for both water quantity and water quality.

Before this legislation was adopted, DNREC conducted an extensive educational program to document the State's serious water quantity and quality problems. As a result, elected officials, affected industries, and the general public acknowledged the need for a comprehensive approach to sediment control and stormwater management. State-wide legislation supported by local conservation districts was unanimously approved in four committees and in the State Senate and House of Representatives.

The Statement of Policy in 4001 of Title 7 declares: ". . . *it is the policy of this Chapter to provide for control and management of stormwater runoff consistent with sound water and land use practices.*" Delaware's Sediment and Stormwater Program became one of the first programs nationwide to adopt criteria for stormwater quantity and quality management on all land development projects.

The Delaware Sediment and Stormwater Program was designed to be developed and administered by DNREC and implemented at the local level by agencies delegated that authority by the state. This relationship has served the state well throughout the past 15 years with the Conservation Districts and local governments developing their own capacity and expertise in stormwater management.

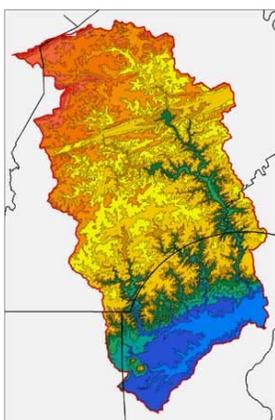
Industry, cities focus of NPDES

The federal government developed a program during the same time in the early 1990s with the National Pollutant Discharge Elimination System (NPDES) Stormwater Program. Regulations for industrial stormwater dischargers including land development were adopted by the U.S. Environmental Protection Agency (USEPA) and administered by most states including Delaware. In addition, this program was designed to charge large municipalities with stormwater requirements that were both costly and unexpected.

The federal program has grown in scope over the last 15 years, with some of the regulatory responsibilities being met under the Sediment and Stormwater Regulations. The heavy burden of responsibility for maintenance of stormwater management facilities although identified as a regulatory responsibility in both state and federal statute, is not being adequately addressed. The transfer of responsibility to private landowners has not been successful. Public agency involvement in stormwater facility maintenance must increase.

While the efforts of DNREC and the local delegated agencies and conservation districts are still

consistent with goals and objectives of the Sediment and Stormwater Regulations, further program development is mandatory. The current regulations contain provisions for stormwater and drainage to be considered on a watershed wide basis, but there is very little planning that occurs at this scale. Watershed planning and studies are costly and demand a consistent level of dedicated funding.



Current regulations contain provisions for stormwater and drainage to be considered on a watershed-wide basis, but there is very little planning that occurs at this scale.

The current stormwater regulations do not adequately address volume management of stormwater. This program deficiency has been recently addressed by surrounding states with new program requirements. Increased emphasis on recharge and infiltration of stormwater where technically and environmentally feasible, has to be endorsed by changes to the existing body of law.

Adequate conveyance of flows across private property to a suitable outlet has long been identified as an impediment to solid land use planning that is also not substantially addressed within the current regulations. The balance of providing for adequate drainage of developed lands while respecting private property rights is a subject that deserves additional attention.

Drainage problems throughout the state needed to be resolved at some level with specific funding. The General Assembly in 1996 began funding Resource, Conservation and Development (RC&D) projects through the 21st Century Fund. In nearly ten years, the Division and Conservation Districts have administered 1,100 water management projects including flood abatement and drainage totaling \$57 million from the 21st Century Fund. 57% or 645 of these projects have been completed.

Project funding falls short

While the 21st Century funds are an important funding source for providing individual drainage solutions, it is not sufficient to meet the long term needs identified by watershed evaluations and long term planning.

Statewide shortfalls in funding, the need for better interagency coordination and the necessity to plan for the future have been underscored by the wet weather and rainfall conditions in Delaware during

the past three years. Storms of record in the last 12 months have caused flooding and significant property loss in many developed areas of the state.

The Governor's Task Force on Surface Water Management created by Executive Order 62 may provide the basis for the next iteration of future surface water management policy, regulatory changes and long term solutions to drainage, flood control and stormwater management in Delaware.

Table 1. Preliminary Projections of Statewide Stormwater Capital Requirements Over the Next 5 years (2005 dollars)
(Source: Finance Subcommittee)

Pending and Future 21st Century Fund Requests*	
FY 2006 Requests	\$ 7,500,000
Sussex County (future)	\$10,750,000
Kent County (future)	\$ 3,700,000
New Castle County (future)	\$31,200,000
Watersheds	
Watershed Planning (17 priority watersheds @ \$750,000 each)	\$12,750,000
Watershed Capital Implementation (Shellpot and Naaman's Creek watersheds)	\$19,700,000
Watershed Capital Implementation (assumes 8 additional prioritized watersheds)	\$80,000,000
Tax Ditches	
Sussex County	\$ 5,000,000
Kent County	\$ 2,400,000
New Castle County	\$ 600,000
Other Identified Needs	
Sussex County	\$ 3,100,000
Kent County	\$ 2,250,000
New Castle County	\$11,350,000
New Castle County Recent Emergency Funding**	
	<u>\$17,000,000</u>
Total 5 year Projected Capital Needs	\$ 207,300,000
Projected Annualized Capital Needs	\$ 41,460,000

* 21st Century Funding request were used as a means of identifying needs but are not expected to be used as a constant source of capital funding.

** Included as ongoing capital needs since subcommittee viewed as catch-up funding. May, however, reduce future capital funding.

Estimate of capital needs

The Finance Subcommittee sought estimated capital and maintenance needs from the Conservation Districts in each county, the County governments and major municipalities.

The subcommittee also reviewed current and pending requests for stormwater related funding from the State's 21st Century Fund. The State and New Castle County had also recently completed two major watershed studies in Northern New Castle County. These studies identified capital needs in each watershed and were relied upon to project capital needs in other high priority watersheds.

Also included was the emergency allocation to address deferred flooding and drainage projects in New Castle County. While this emergency allocation money likely will be expended over the next 2 years and while it may partially offset other future capital needs, it was included by the subcommittee.

Finally, the subcommittee estimated the cost to complete each of 17 highest pri-

(Continued on page 13)

(Continued from page 12)

ority watershed studies and both the study costs and expected capital costs to remedy identified watershed drainage and flooding problems were utilized to project typical capital needs.

The capital projections which the subcommittee estimated were needed for stormwater projects were extrapolated over a five year outlook and are summarized in Table 1 on page 12. These capital cost figures formed the basis for preparing a preliminary estimate of the annual stormwater related capital costs on a statewide basis which a utility(ies) would likely need to fund.

Estimate of maintenance needs

Preliminary estimated projections for annual stormwater related major maintenance (e.g., repairs, minor reconstruction and preventative maintenance) were developed using a similar methodology and are summarized in Table 2.

These projected major maintenance costs were difficult to develop given the reported amount of deferred and soon to be required maintenance activity which the subcommittee heard about. An attempt was made to identify the anticipated costs for major maintenance to existing stormwater management facilities and best management practices being implemented throughout the state.

Table 2: Preliminary Projections of Annual Statewide Stormwater Maintenance Requirements (2005 dollars)*

(Source: Finance Subcommittee)

Tax Ditches	
Current Costs	\$ 1,500,000
Needed Funding	\$ 1,750,000
County and Municipal	\$ 4,000,000
Major Maintenance on Stormwater Ponds and New Management Practices	\$ 6,000,000
Program Staffing (state)	\$ 480,000
Total Annual Projected Major Maintenance Needs (e.g., repairs, preventative maintenance)	\$13,730,000

* Does not include DeIDOT maintenance



Recommendations of the Task Force on Surface Water Management

Administrative recommendations

Recommendation #1 (approved 3/24/05). A Surface Water Advisory Council (SWAC) should be formed to provide guidance and policy advice to the Governor and the Secretary of DNREC and oversight to potential stormwater utilities (see Financial Recommendations) regarding drainage, stormwater management, and flood control.

The Task Force proposed that the SWAC be comprised with one representative each from the following: Governor's office, Senate, House, each county, Delaware Association of Conservation Districts, Delaware League of Local Governments, DNREC appointed environmental representative, American Council of Engineering Companies, and the Delaware Institute of Planning and Design.

The SWAC would direct a more local level (county, conservation district, municipality, or other entity as appropriate) utility or operating unit to develop standardized processes and procedures for identifying and prioritizing problems, develop watershed-based solutions, and prioritize projects. The SWAC would also oversee the quality of customer service and review annual localized work plans. While the SWAC would operate at the State level, implementation and operations would occur at the county or municipal level. The SWAC would hold planning roundtable discussions to coordinate activities. Areas of responsibility between the State and local entity would need to be clearly defined and coordinated.

Also, the existing Soil and Water Advisory Committee could be sunsetted once the SWAC is in place and operating.

This recommendation was made by the Governance, Finance, and Maintenance & Restoration Subcommittees.

Recommendation #2 (approved 3/17/05). A central response unit coordinated by DNREC in conjunction with county or municipal utilities should be created for handling public calls related to drainage, stormwater, and flood control. A new process and response procedure for addressing citizen complaints related to stormwater facilities and flooding needs to be established. Citizens should be provided with a single point of contact.

This recommendation was made by the Governance and Maintenance & Restoration Subcommittees.

Recommendation #3 (approved 3/17/05). The State Department of Safety and Homeland Security and local emergency response agencies should review flooding emergencies and determine that adequate protocols exist to ensure seamless and effective communication, coordination, and response to endangered citizens and property, and that their respective responsibilities be clearly delineated.

This recommendation was made by the Governance Subcommittee

Recommendation #4 (approved 3/17/05). A detailed implementation plan should be developed by DNREC for the Task Force's approved recommendations that include accountabilities and timelines for each recommendation, any staffing or other fiscal impact, and whether a recommendation requires policy, regulatory, or legislative action to implement. This implementation plan should be completed by April 30, 2005.

This recommendation was made by the Subcommittee Chairs.

Financial recommendations

Recommendation #5A (approved 3/17/05). Stormwater utilities operating at the county or local level

should be formed as a funding vehicle for the purpose of providing a simplified and comprehensive approach to drainage and flooding problems throughout each county. The utility would be a mechanism to provide necessary funding for implementing improved surface water management.

Recommendation #5B (approved 3/17/05). A proposed stormwater utility fee should be utilized for the purpose of planning, maintenance, capital construction and administration. To minimize additional administrative costs associated with the utility, the fee should be set and collected at the county or municipal level, possibly utilizing the existing real estate tax or sewer billing process. The individual counties or municipalities should receive compensation for billing and collection costs. Funds and funding decisions should be kept at county or municipal level but associated annual work plans should be presented to the Surface Water Advisory Council (SWAC). Municipalities may elect not to join a county level utility but must establish their own utilities or other funding sources that meet the established statewide standards.

Recommendation #5C (approved 3/17/05). The fees would be established at a level appropriate to fund the needs identified without the use of general obligation or other special or exceptional (e.g., 21st Century) funding. The utility operating units should have the latitude to make modifications to its fee for credits and enhancements as appropriate subject to the approval of the SWAC. The county level units would establish cooperative agreements with municipal level units or local governments. Financial audits to be provided to the SWAC on an annual basis.

Recommendation #5D (approved 3/17/05). The Stormwater Utility fee should be levied on all property in the state recommended for inclusion by the SWAC. The fee should be assessed on residential customers using a flat rate fee structure for all residential properties of a specific nature (e.g., residential properties with similar zoning would be assessed identical

rates). The fee will be levied on all developed non-residential properties using equivalent residential runoff units which are essentially a measure of impervious surface. A credit system should be established for developed non-residential utility customers that recognizes existing and/or planned on-site stormwater quantity/quality management practices. A Board of Appeals at the utility level or similar board should handle appeals.

These recommendations were made by the Governance and Finance Subcommittees.

Recommendation #6 (approved 3/17/05). Stormwater utilities should have the ability to sell revenue bonds to leverage the collected fee to the extent practicable.

This recommendation was made by the Finance Subcommittee.

Recommendation #7 (approved 3/24/05). Urban, suburban, and defunct tax ditch organizations may be considered for inclusion into the county or municipal stormwater utility. This would minimize the duplication of efforts and provide adequate funding to allow these organizations to better address development pressures and environmental concerns. The SWAC or the county or municipal utility is suggested as the appropriate entity to set funding levels.

This recommendation was made by the Finance Subcommittee.

Recommendation #8 (approved 3/17/05). First year funding, in the amount of \$980,000, should be provided by the General Assembly to pay for DNREC personnel (Program Manager, Water Ombudsperson, Administrative Support) and consulting services (utility planning, regulatory research, and to develop the scope of watershed planning and studies). This would also allow for the funding of the Dam Safety Program (see Regulatory and Legal Recommendations).

This recommendation was made by the Subcommittee Chairs.

Regulatory and legal recommendations

Recommendation #9 (approved 3/17/05). State regulations should be updated to establish performance standards for sediment and stormwater practices, operations and maintenance, and appropriate bonding.

Design and engineering standards at the State level should be strengthened through a revision to the Sediment and Stormwater Regulations. Minimum standards should address volume management, conveyance adequacy, pollutant loadings, floodplain management, strict standards for operation and maintenance of structures and management areas. No opting out of standards should be allowed unless pursuant to specific local land use regulations (i.e. re-development).

Minimum statewide design and construction standards for work in stormwater facilities, ditches, and natural streams should be established. Such design and construction standards should be consistent among those agencies (county or municipal level operating units, DNREC, conservation districts, and delegated agencies) tasked with sediment and stormwater responsibilities. Some variability may be required because of differences in soils, geology, hydrology, topography, land use, etc., across Delaware.

Coordinated and consistent Operation and Maintenance plans or guidelines, including standards for inspection, enforcement, maintenance, repair, reconstruction, retrofitting, ground-water quality monitoring

if appropriate, and anticipated costs, should be developed for each type of stormwater facility and that such plans should be based on the anticipated life expectancy of such facilities, perhaps up to 20 years.

It is further recommended that individual and specific Operation and Maintenance plans be established early in the planning process for each approved stormwater facility and that such plans be provided to the responsible party(ies) so that those responsible (county or municipal level operating unit, county, conservation district, maintenance/homeowner association, etc.) have a checklist of scheduled events. A management process must be in place to ensure that



Minimum standards should address volume management, conveyance adequacy, pollutant loadings, floodplain management, strict standards for operation and maintenance of structures and management areas.

required action (repairs, ground-water quality monitoring, etc.) has taken place to address issues identified during inspections.

A clear definition of routine and major maintenance should be made. Property owners should be responsible for routine maintenance.

As-builts and periodic inspections are needed to assure that what is built is reflected

in the plan. Post development data needs to be provided to DNREC in a format compatible with the State's data system.

This recommendation was made by the Governance and Maintenance & Restoration Subcommittees.

Recommendation #10A (approved 3/17/05). The 1990 State Sediment and Stormwater Law should be updated to address 1) the establishment of criteria for on-site drainage design, lines and grades, open and closed channel drainage system capacity, 2) "Right to discharge" issues, 3) definition of off-site impacts, and 4) Operation & Maintenance require-

ments to assure implementation. It is also recommended that State Sediment and Stormwater regulations be updated to include requirements for stormwater recharge, runoff volumes, land use cover conditions, turbidity limits, adequate conveyance, and pollutant loads.

The current 5,000 square foot disturbance exemption should not be changed. A policy of mitigation, credit, or banking should be investigated within these regulations for on-site stormwater quality or water quantity requirements where such transfer of standards or requirements has been determined to be a more effective practice than on-site management of stormwater.

This recommendation was made by the Land Use & Regulation Subcommittee.

Recommendation #10B (approved 3/24/05). A quality improvement process should be implemented within the State Sediment and Stormwater Program, including all delegated agencies, for the purpose of improving the quality of sediment and stormwater plans submitted for review and approval. The improvement process should identify all current impediments to quality plan submittal and efficient review as well as specific measures to improve the process. The measurable outcome is a reduction in the number of plan submittals prior to approval with the goal of initial plan submittals meeting all applicable requirements and standards.

This recommendation was made by DNREC.

Recommendation #11 (approved 3/17/05). The development of a Statewide Activity Approval (SAA) for use by New Castle County Special Services and the New Castle Conservation District for projects in New Castle County is already underway. The development and promulgation of additional Statewide Activity Approval “general permits” to allow remediation by other agencies in other areas of the State needing immediate mitigation should be developed. The SAA

would provide relief from the need to file an individual permit application and receive individual permit authorization pursuant to the State's Subaqueous Lands Act (7 Del. C., Chapter 72) for each project site.

This recommendation was made by the Maintenance & Restoration Subcommittee.

Recommendation #12 (approved 3/24/05). The stormwater utilities, DNREC, designated agencies, and delegated agents should have the authority to enter onto private lands or waters for the purpose of surveys, assessments, and emergency repairs. However, entry except for emergency repairs will require a 48 hour notice and said agency would at all times be responsible for any and all damages which shall be done to the property of any such person or persons.

This recommendation was made by the Governance and Maintenance & Restoration Subcommittees.

Recommendation #13 (approved 3/24/05). The stormwater utilities should be authorized and empowered to acquire by gift, device, purchase, exchange, or any other method of acquiring real property or any estate, interest, or right therein, provided that such acquisition shall not be made through the exercise of the power of eminent domain.

The goal is to protect these lands from development and/or degradation to enhance flood control, flood prevention, protect wetlands, enhance water quality, improve stream bank stabilization, and protect vegetation that will lessen sedimentation and erosion.

This recommendation was made by the Land Use & Regulation Subcommittee.

Recommendation #14 (approved 3/24/05). Right of entry for essential maintenance and repairs, in the form of recorded easements, should be a condition of approval if public funds are used or if the maintenance is to be assumed by a public entity (such as

stormwater utilities). A 48 hour notice would be required.

This recommendation was made by the Maintenance & Restoration Subcommittee.

Recommendation #15 (approved 3/24/05). The 1990 Land Protection Act should be fully implemented and the State Resource Areas (SRAs) should be considered in the Preliminary Land Use Service (PLUS) process project review. State agencies should develop minimum natural resource protection levels to be implemented through county and municipal codes.

This recommendation was made by the Land Use & Regulation Subcommittee.

Recommendation #16 (This recommendation was not acted upon on 3/24/05). The timetable of Statewide implementation of the Source Water Protection program legislation should be accelerated so that current and future aquifer recharge can be preserved and enhanced.

This recommendation was made by the Land Use & Regulation Subcommittee.

Recommendation #17 (approved 3/24/05). State funding for property buyouts on a reactive basis (after damage) should be legislated at the State level for consistency. The possession of flood insurance should be a prerequisite for buyouts which should also consider FEMA funding and processes. No stormwater utility fees should be used for buyouts.

This recommendation was made by the Governance Subcommittee.

Recommendation #18 (approved 3/24/05). The

Dam Safety Program should be funded under the provisions as specified in the Dam Safety Law Title 7 Chapter 42. This support would allow for the development of the regulations and position the State to leverage Federal funds for dam safety related improvements and emergency planning.

This recommendation was made by the Governance Subcommittee.

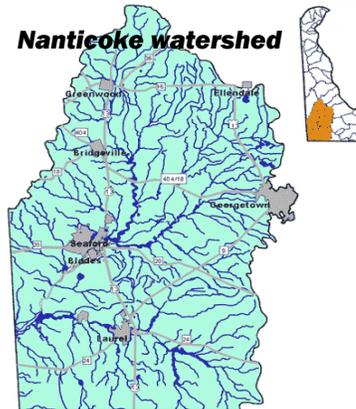
Technical recommendations

Recommendation #19A (approved 3/24/05). Detailed watershed studies, managed by DNREC in consultation with the Surface Water Advisory Council and stormwater utilities, should be developed for highest priority watersheds in the State over the next five

years with the goal of completing all watersheds within ten years.

Each plan will include, at a minimum, hydrologic and flood modeling and shall determine carrying capacity of the watershed. The impact of a build-out plan for each watershed shall also be included. Livable Delaware community design principles, outlined in "Better Models for Development in Delaware" should be considered in the development of the watershed plans.

This recommendation was made by the Governance, Land Use & Regulation, and Maintenance & Restoration Subcommittees.



Detailed watershed studies, managed by DNREC in consultation with the Surface Water Advisory Council and stormwater utilities, should be developed for highest priority watersheds in the State over the next five years

Recommendation #19B (approved 3/24/05). As part of watershed planning, improved topographic and hydrologic data should be developed to support the accurate mapping of floodplains. Floodplain studies should be performed to accurately define the

extent of flooding both horizontally and vertically. Priority criteria should be given to areas where floodplains have never been mapped and pose significant threats to human health, safety, and welfare; existing floodplain maps are inaccurate, existing floodplain maps were produced using insufficient data, and where at-risk development is likely to occur without accurate floodplain mapping.

This recommendation was made by DNREC.

Recommendation #20 (approved 3/24/05). As the watershed plans in each County are completed, they should include quantity and quality control recommendations. Land development review and approvals on an individual site basis should be consistent with the watershed plan.

This recommendation was made by the Land Use & Regulation Subcommittee.

Recommendation #21 (approved 3/24/05). The development and utilization of “shared” stormwater facilities should be strongly encouraged to minimize costs, encourage environmental protection, and support ecosystems. Decisions should be made by teams of competent and qualified engineering, scientific, technical, and regulatory personnel (interdisciplinary teams).

This recommendation was made by the Maintenance & Restoration Subcommittee.

Recommendation #22 (approved 3/24/05). Conservation Design should be implemented as a way to reduce reliance on structural stormwater management practices. Conservation Design is defined as community design that encourages the preservation of open space and natural areas while enhancing the market value of land development (Arendt).

Because Conservation Design is relatively new, maintenance costs associated with them are unknown at this time. Accordingly, estimated costs need to be determined for planning purposes. Local land use and zoning ordinances should be modified to allow and encourage Conservation Design. DNREC developed a document called “Conservation Design for Stormwater Management” that recommends less reliance on structural practices and greater use of the natural features of a site and open space to minimize stormwater impacts.

If this concept is endorsed, standards, specifications, and guidelines should be reviewed to ensure statewide coordination and consistency. If Conservation Design utilizing nonstructural stormwater management approaches is widely used, the number of structural facilities will be reduced with an associated reduction in operation and maintenance costs for those facilities.

This recommendation was made by the Maintenance & Restoration Subcommittee.

Recommendation #23 (approved 3/24/05). Stormwater management outreach and education, such as creation of materials related to “Green Technology,” Best Management Practices, and Conservation Design should be continued.

Educational efforts provide the public with a greater understanding of the environmental importance of stormwater facilities. Program materials should be coordinated among State agencies, counties, and conservation districts. For example, the DNREC Sediment and Stormwater Program recently compiled a document entitled “Five Simple Steps to Maintaining and Enhancing Community Open Space and Storm-



“Green” alternatives that rely more on the natural features of a site and less on structural stormwater management solutions should be encouraged.

Conservation Design should be continued.

water Management Areas” that can be used statewide.

This recommendation was made by the Maintenance & Restoration Subcommittee.

Recommendation #24 (approved 3/24/05). The concept of restoring stream channels to “stable” conditions should be promoted and incentives offered wherever possible to reduce future maintenance costs and improve water quality and habitat, and to ensure that proposed solutions will not contribute to additional stream channel instability.

Stable channels provide the benefit of conveying their water and sediment through the watershed resulting in fewer “maintenance” problems that will require outside attention. Stable channels, while not unchanging, are those that maintain their general dimension (channel cross-sectional area), pattern (bird’s eye view meander pattern), and profile (slope) without aggrading (excessive sediment deposition and accumulation) or degrading (excessive down-cutting and erosion).

This recommendation was made by the Maintenance & Restoration Subcommittee.

Recommendation #25 (approved 3/24/05). Aquifer recharge should be considered as part of the design, construction, operation, and maintenance of storm-water facilities.

Recharge of surface water in developed areas with impervious surfaces will result in reduction of overland runoff (surface water volume reduction), improved surface and ground-water quality, and increased base flows of streams.

This recommendation was made by the Maintenance & Restoration Subcommittee.

Recommendation #26 (approved 3/24/05). The use of public lands for retention of floodwaters, enhancing floodplains and stormwater retrofits and ensuring stream stability should be encouraged wherever possible. Land management practices on public lands should be conducted in a manner consistent with the objectives above. Educational opportunities should be provided to local, state, and federal land managers to ensure that public lands are managed to enhance stream stability and flood control capabilities.

This recommendation was made by the Maintenance & Restoration Subcommittee.
