



INTRODUCTION TO THE DELAWARE COUNTY ACTION PLAN

When New York City released its draft Watershed Rules and Regulations in September 1990, Delaware County undertook the lead role in responding to the draft on behalf of farmers in the watershed, and led the establishment and administration of the Coalition of Watershed Towns (CWT) to represent communities and residents in the watershed. On July 21, 1997, in a landmark arrangement between New York City, New York State, the Environmental Protection Agency (EPA), local municipalities and environmental organizations, the New York City Watershed Memorandum of Agreement (MOA) was signed. The MOA created both contractual and regulatory obligations for NYC to maintain eligibility for Surface Water Treatment Rule (SWTR) filtration avoidance through watershed management, without endangering the economic welfare of watershed communities.

The Delaware County Action Plan (DCAP), a locally led, multi-agency watershed collaboration was developed in 1998 and adopted by the Delaware County Board of Supervisors in September of 1999 to address the New York City Watershed Rules and Regulations Subpart 128-83, which mandated that a Comprehensive Plan be developed in phosphorus-restricted basins. DCAP now operates as a county wide watershed management program. The adoption of DCAP ultimately led to the formation of the Delaware County Department of Watershed Affairs.

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Specific watershed management programs conceived at the local level offered an opportunity to implement programs that support economic sustainability and strengthen the City's Long-term Watershed Protection Program, the Filtration Avoidance Determination (FAD), watershed partnerships and local stewardship. By integrating water quality protection measures through existing local legal, political and technical institutional mechanisms, such programs further reduce excess phosphorus and other pollutants of concern from entering surface waters, and eventually entering the City's reservoirs.

Initially led by a series of Committees that provided the early direction of DCAP and established its synchronicity with state and federal policies, the efforts garnered the support of the EPA, the US Army Corp of Engineers (ACOE), several state agencies, including the NYS Department of Environmental Conservation (DEC), Watershed Protection Plan (WPP) Committee, the NYS Department of Health (DOH), the NYS Department of State (DOS) and the NYS Department of Environmental Protection (DEP). DCAP continues to evaluate policies, adopt new science and identify needed data to inform future decisions. Continued collaboration with interested agencies and organizations advances interdepartmental incorporation of efforts and influences policy maker consideration. This consideration has resulted from confidence the agencies have gained in DCAP efforts. Through collaborative partnership, DCAP addresses all significant contaminant sources to meet water quality objectives.



VISION

Maintain the existing high-quality water supply while supporting the environmental integrity, rural character and economic sustainability of the watershed region by engaging and empowering local communities with the long-term stewardship of the watershed.

MISSION

DCAP's mission is to assist Delaware County's residents, farmers, businesses and communities in meeting water quality restrictions and objectives without loss of economic vitality.

GOAL

To provide the funding and technical assistance for local government to take control and responsibility for watershed management.

OBJECTIVES

Empower locally led decision making related to water quality with improved support for businesses and the local economy.

Strengthen the effectiveness of the MOA.

Better integrate existing local arrangements and programs into the protection of the water supply.

Improve coordination, communication and collaboration across the West of Hudson watersheds.

Increase integration of programs with basin specific or existing water quality standards.

Build expertise and capacity within agencies.

PARTNERSHIP

Perhaps the greatest accomplishment of DCAP has been the extent and success of its partnerships to meet its objectives.

These collaborations, coordinated by the Delaware County Department of Watershed Affairs, are intended to utilize both new and existing programming and administrative arrangements, with DCAP implementation through the following "Core Group" agencies:

- Department of Code Enforcement
- Department of Economic Development
- Department of Emergency Services
- Department of Public Works (DPW)
- Planning Department
- Soil and Water Conservation Districts (SWCD)
- Cornell Cooperative Extension (CCE)

DCAP integrates efforts with regional, state and federal partners, such as

- the Catskill Watershed Corporation (CWC),
- Cornell University,
- NYS Department of Agriculture & Markets,
- the NYS Department of Environmental Conservation (DEC),
- NYC Department of Environmental Protection (DEP),
- NYS Department of Health (DOH),
- NYS Department of State (DOS),
- NYS Department of Transportation (DOT),
- NYS Soil & Water Conservation Committee,
- SUNY College of Environmental Science & Forestry (ESF),
- US Department of Agriculture (USDA),
- the Environmental Protection Agency (EPA),
- US Army Corp of Engineers (ACOE),
- the Upper Susquehanna Coalition, and
- the Watershed Agricultural Council (WAC).

DCAP PROGRAM SUMMARY

Six key procedures apply to DCAP programming, as follows:

1. Establishes, and is based, upon a credible and sound scientific foundation using monitoring and modeling
2. Conducted cooperatively with the partners to the MOA, and complements and enhances other watershed programs
3. Led locally, and continues to develop technical capacities at the local level
4. Fosters voluntary participation and management by local governments, landowners, residents and businesses
5. Develops transferable concepts and principles for watershed management to other New York City basins and beyond
6. Encourages traditional economic and industrial development in the County outside the NYC watershed while fostering environmentally friendly initiatives in watershed communities and businesses

DCAP has invested significant resources in scientific and technical studies. As a result, understanding and knowledge has been established of the magnitudes of the sources of phosphorus and how they can best be managed. Scientific understanding equally aids in the evaluation of the results of decisions made through DCAP.

DCAP OF THE FUTURE

The *2015 DCAP Progress Report* is a compilation of findings from interviews and surveys of those partners working towards fulfilling the objectives of DCAP. This is not a strategic guiding plan, but rather a snapshot of where the group has been since the 2006 update and where it will go in the years ahead.

The Report examines the following components of DCAP:

- Legal and Administrative Framework
- Economic Vitality
- Planning Tools
- Monitoring and Modeling
- Infrastructure
- Agricultural Environmental Management
- Stream Corridor Management
- Flood Mitigation
- Outreach
- Evaluation

2006 accomplishments have been shared while Future Goals have been established. The *2015 DCAP Progress Report* is a forward-reaching documentation of the efforts required of Delaware County to maintain eligibility for SWTR filtration avoidance through watershed management, without endangering the economic welfare of watershed communities.

Common themes throughout this Report include the importance of evaluating and establishing procedures for tracking and understanding the impacts of DCAP programming; leveraging local partner expertise accrued from over 15 years implementing DCAP; and finally, that all flood mitigation efforts have an inherent water quality benefit.

DCAP has reasonably evolved from its inception, but the vision of "maintaining the existing high-quality water supply while supporting the environmental integrity, rural character and economic sustainability of the watershed region by engaging and empowering local communities with the long-term stewardship of the watershed" remains.

For a full overview of the obligations and efforts undertaken for water resources in Delaware County, please refer to the 2006 DCAP Progress Report, which can be found online at http://www.delcowatershed.com/~ecodev2/files/9313/7873/6225/DCAPDocV5bJul06_000.pdf.

GLOSSARY OF ACRONYMS

ACOE (Army Corp of Engineers)	DOH (Department of Health)	Act)
AEM (Agricultural Environmental Management)	DOS (Department of State)	SPP (Stormwater Pollution Plan)
AHMP (All-Hazards Mitigation Plan)	DPW (Department of Public Works)	State OEM (NYS Office of Emergency Management)
BMP (Best Management Process)	EPA (Environmental Protection Agency)	SWCD (Soil & Water Conservation District)
CCE (Cornell Cooperative Extension)	ESI (Emergency Stream Intervention)	SWTR (Surface Water Treatment Rule)
CCP (Critical Control Points)	FAD (Filtration Avoidance Determination)	TMDL (Total Maximum Daily Load)
CEMP (Count Emergency Management Plan)	HMP (Highway Management Plan)	TPAS (Town Planning Advisory Service)
CPP (Continuing Planning Process)	IDA (Industrial Development Agency)	WAC (Watershed Agricultural Council)
CWC (Catskill Watershed Corporation)	LDC (Local Development Corporation)	WIP (Watershed Implementation Plan)
CWT (Coalition of Watershed Towns)	LAP (NYSDEP's Land Acquisition Program)	WPP (Watershed Protection Plan)
DCAP (Delaware County Action Plan)	LFA (Local Flood Analysis)	WQM (Water Quality Management)
DEC (Department of Environmental Conservation)	MOA (Memorandum of Agreement)	WQS (Water Quality Standards)
DEP (Department of Environmental Protection)	NGO (Non Governmental Organization)	WR&R (Watershed Rules and Regulations)
	NPDES (National Pollutant Discharge Elimination System)	WSP (Water Supply Permit)
	PFM (Precision Feed Management)	WWTP (Waste Water Treatment Plant)
	SEQRA (State Environmental Quality Review	

LEGAL & ADMINISTRATIVE FRAMEWORK

Inter-municipal and interstate water agreements encompass Delaware County entirely. From federal statutes, interstate and inter-municipal agreements to local Home Rule prerogatives, there is a complex framework of statutes and regulations governing DCAP, including 1.) The Clean Water Act, which establishes Water Quality Standards (WQS), the National Pollutant Discharge Elimination System (NPDES) and the Total Maximum Daily Load (TMDL) Process; and 2.) The Safe Drinking Water Act, which led to the New York City MOA.

Basic premises have guided DCAP's approach to navigating this intricate legal framework:

1. Municipal Comprehensive Planning is a locally effective instrument to promote land use measures to protect water quality and quantity
2. Such planning under home rule prerogatives can be assimilated with implementation of state and federal laws to best ensure their water resource goals are met through cooperative partnership
3. Institutional relationships, with state and federal entities, facilitate local capacity to meet watershed objectives

It is under these premises, for example, that DCAP has effectively contributed to a new Water Supply Permit (WSP) and subsequent revised 2007 FAD, Precision Feed Management (PFM) protocols and the Flood Mitigation Program.

The approval of the new WSP and FAD was a highly collaborative effort of DCAP's Core Group, in partnership with the DEC, DOH, EPA, DEP, DOS, and environmental groups. Without the WSP, the City cannot purchase land in the watershed nor retain their FAD.

Delaware County has established itself as a leader in watershed management, and is recognized as such through the incorporation of its program components into various state and federal programs. DCAP partners offer expertise in planning and implementation for flood mitigation, all hazards mitigation, infrastructure design and construction, stream corridor management, PFM, and whole farm planning in the NYC watershed and NYS Agricultural Environmental Management (AEM) programs of the Susquehanna and Delaware River tailwater basins.

This high-level of scientifically recognized expertise is the foundation of successful working relationships between partnering entities which now include non-watershed towns as well. Communications have been enhanced, grant money leveraged more aggressively, and problems alleviated at the meeting level rather than "in the field." However, the need remains for strengthening of locally led representation and the recognition of this representation as vital to fulfilling water quality measures.

FUTURE GOALS

Goal 1: The role and standing of watershed communities in general, and DCAP in particular, be provided more formal recognition and standing as the local partners in the state and federal legal framework governing the New York City watershed. This recognition is especially important in the FAD and in application of the Clean Water Act § 303.

Goal 2: Seek explicit acknowledgment of the role of local municipal comprehensive planning, as the first protector and manager for water resources at the land use level, in the applicable state and federal laws.

Goal 3: Seek explicit acknowledgement by federal, state and local representatives of the delegated or legislated roles of County departments in implementing components of watershed management.

Goal 4: Pursue DCAP recognition for its role in other watershed areas, such as the Delaware River tailwaters and the Susquehanna River and coordinate with the various organizations that govern these areas.

Goal 5: Seek incorporation of DCAP into state watershed management programs to demonstrate capitalizing on internal county resources to meet watershed objectives.

ECONOMIC VITALITY

The guiding principle of the MOA is that watershed protection and economic development are compatible. A healthy watershed requires good economic health. Responsible economic development and projects create new job opportunities for local residents without detriment to the water quality goals of the MOA. Delaware County considers this a fundamental principle in its role as a responsible steward of all watersheds in Delaware County and through the Department of Economic Development seeks to:

- Encourage traditional economic and industrial development in the County outside the NYC watershed; and
- Foster environmentally friendly initiatives in watershed communities and businesses.

Since the release of the *2006 DCAP Progress Report*, the Department of Economic Development has

- Increased the capacity of the Industrial Development Agency (IDA) and Local Development Corporation (LDC) to affect business development by increasing high-risk, small business loan capacity from less than \$2M in 2006 to roughly \$4.5M today (including write-offs);
- Established site development capacity with \$1.2M in new funds (plus \$1M already invested in projects);
- The IDA and LDC provided nearly \$6M in loans to 77 businesses to support the creation of 460 new jobs and the retention of 693 jobs;
- Secured over \$1.6M in Main Street program grants and financing; and
- Provided specific flood recovery funds for businesses impacted by flood events in 2006 and 2011, restoring Main Streets and making businesses more resilient for any future event.

Nearly \$37.3M in funding was awarded to assist almost 150 small businesses, fostering a total additional investment nearing \$63 million. These businesses have pledged to retain or create approximately 1,700 full-time jobs.

CASE STUDIES

INDIEPAY, Delhi

The Delaware County eCenter was founded on the premise that through the internet/telecommunications, Delaware County could provide a low-cost alternative for new and/or existing NYC Metro-based businesses. Also, second homeowners that operated such would be able to justify spending more time here while still managing their business. Further, that after establishing themselves here for a period of several years, the businesses would then move out of the eCenter and into a permanent location within the community. Businesses would get lower operating costs and the community would get new jobs, and ultimately, business investment in the community. IndiePay was the first tenant in the eCenter, starting with two employees. Now with 12 employees, IndiePay relocated to a newly redeveloped building that has capacity for up to 27 employees.

AMPHENOL, Sidney

After the second flood in five years and \$40M+ in losses per flood, Amphenol was ready to leave Delaware County when the Department of Economic Development stepped in and negotiated an incentive package that retained 1,000 jobs. This demonstrated that the IDA had developed the capacity to both manage and finance large projects. DCAP partners also responded by assisting Economic Development with the site selection, environmental review, mitigation projects and grant writing. The below images show three phases of Amphenol's relocation.



FUTURE GOALS

Goal 1: Site development and building redevelopment for commercial parks in Sidney, Hancock and Deposit, as well as building redevelopment within the Watershed, will establish available space for business relocation or creation in Delaware County. With this infrastructure, the County will be better positioned for State referrals for businesses.

Goal 2: Actively promoting Delaware County to expanding or relocating businesses, particularly small businesses or those filling a specific community need.

Goal 3: Prioritize small agriculture for micro and direct lending and working with agricultural entrepreneurs on larger value-added projects. (An awarded agricultural microenterprise matching grant program will provide \$200,000 in matching funds to assist up to ten small businesses, fostering a total investment of approximately \$400,000 in agricultural development. These businesses may retain or create approximately 20 jobs.)

Goal 4: Maintain focus on existing small businesses seeking direct lending for start-ups and expansions, outside grants/incentives/financing for job-creating expansions, and meeting infrastructure needs as they arise.

PLANNING TOOLS FOR WATER QUALITY MANAGEMENT

Planning capacity to meet water quality objectives is substantially developed in Delaware County. The need to protect water in the Delaware and Susquehanna River Basins has greatly amplified the technical complexities of local land use decisions.

Water Quality Planning & Management

Each State establishes and maintains a continuing planning process (CPP) and is responsible for managing its water quality program to implement the processes specified in the CPP. Delaware County believes there is a benefit to playing a role in steps four and five of the CPP and will explore DCAP inclusion.

Through the Town Planning Advisory Service (TPAS), the Delaware County Planning Department, in collaboration with the County Planning Board, is assisting twenty-eight of the twenty-nine Delaware County communities with comprehensive planning, capital projects, watershed management, grant writing, well-head protection, the State Environmental Quality Review Act (SEQRA), land-use training and mapping services. TPAS is responsible for successfully extending DCAP initiatives countywide, through local planning boards.

Water Supply Protection Plans

Since 2006, four communities have worked with the Planning Department to develop spring and well Water Supply Protection Plans that provide valuable water system data utilized for identifying actions for improved water sourcing and infrastructure. Water Supply Protection Plan development remains a service of TPAS to be developed for interested communities.

FUTURE GOALS

Goal 1: Develop the Delaware County Comprehensive Plan inclusive of DCAP objectives and procedures, in cooperation with the municipalities in the County, for approval by the Board of Supervisors.

Goal 2: Continue to provide technical and planning support to County municipalities through the TPAS.

Goal 3: Seek funding and support for the TPAS to implement flood mitigation efforts outlined in the AHMP and the LFAs.

Goal 4: Thoroughly examine the accomplishments of TPAS since 2006 to capture the full range of technical expertise and assistance offered and update existing County and municipal documents to reflect achievements and future goals for communities.

Goal 5: Explore inclusion of DCAP in the state CPP

1. Update and annually maintaining its Water Quality Management (WQM) Plan, embodied in DCAP as element four of the CPP, including schedules for

revision, and

2. Foster and enable intergovernmental and interagency cooperation especially to control and manage nonpoint sources in Delaware County on a hydrological sub-basin and watershed scale.

Goal 6: Continue applying information and processes throughout Delaware County that were developed in the NYC watershed to the extent of community interest and where funding allows.

SPOTLIGHT ON TPAS

Delaware County's All-Hazards Mitigation Plan (AHMP) features municipality specific annexes that include information such as community profiles, risk assessment, vulnerability, capability assessment information and the mitigation actions relevant for particular projects based on other adopted County plans.

The TPAS staff role in updating the Hazard Mitigation Plan municipal annexes consisted of Planner visits with municipal leaders, Planning Boards, Code Enforcement Officers, Highway Officials and local stakeholders. The Planners worked to extract information regarding areas of re-occurring hazard conditions within each municipality. This review included a combination of maps, available data on past disaster events, and official/stakeholder input. Information on loss of infrastructure, access to emergency services and essential facilities such as hospitals and emergency shelters were outlined. Areas of need identified through this process were then translated into goals seeking to address limitations, both long term and interim. Planners then worked with each municipality to conduct the adoption process for the county-wide plan and the relevant municipal annex.

County Emergency Management Plan (CEMP)

The CEMP is recognized as a key tool in assisting communities through associated flood response and the initial inventory and assessment of emergency event impacts. The DCAP partners have strengthened the County's response and expertise to each subsequent flood event by leveraging knowledge and resources during and after emergency events.

Delaware County Multi-jurisdictional Hazard Mitigation Plan

Annexes have been developed for each town in collaboration with County Planning and Town Planning resulting in 26 projects to secure funding. With input from the DEP and local municipalities, the Planning Department developed a Hazard Mitigation Plan in 2006 that was then updated in 2012. The CEMP is currently being updated and will include partner input and reviews as well as account for the Hazard Mitigation Plan.

Local Flood Analysis

All flood mitigation efforts have a water quality benefit. Advancing the Local Flood Analysis (LFA) tool allows for sound technical output for communities throughout Delaware County in evaluating and balancing project impact, such as water quality and tax assessments. Advancing an economically feasible water quality benefit formula will justify preventative Flood Mitigation funding through the County.

The Planning Department and TPAS collaborate on other planning tools including those related to SEQRA compliance, floodplain mapping and regulations, subdivision requirements, site plans, zoning, historic districts, highway management, and agriculture and farmland protection, among others.

MONITORING & MODELING

DCAP's scientific foundation is demonstrated by the comprehensive monitoring and modeling underway. Both monitoring and modeling offer the tools and programs that assist in decision-making by aiding planners in predicting impacts on environmental systems and how these systems may react to changes made on the land.

Where funding allows, monitoring is typically used to gather information about how systems naturally operate. Due to the large amounts of time and resources needed, monitoring can only be conducted on a limited basis. As an alternative, models can be employed to simulate natural systems and provide information on what could be expected at a given site under specified conditions. Results of smaller-scale, site-specific monitoring studies can be used to construct and test models, which are then applied to larger scales and/or other locations. Models can vary from simplistic, relying on very little data input, to complex with large data requirements.

It is a scientific challenge to account quantifiably for nonpoint source controls as they are implemented within DCAP's basin-wide, multi-barrier approach to pollutant reductions, which provides some redundancy and accommodates uncertainties and variations inevitably associated with nonpoint sources. There can be a lag of many years before water quality sampling validates the effectiveness of the management with confidence. Therefore, sound scientific surrogate measures have been developed to track the effectiveness of DCAP programs to provide indicators both for water quality and other environmental systems.

DCAP's monitoring and modeling successes, since the *2006 DCAP Progress Report*, include PFM Benchmarking; the LFA Phase I engineering analysis for flood elevation alternatives; and the emergency flood response for municipalities and contractors, which has been adopted statewide by the DEC. The AHMP annexes, while not necessarily models themselves, have established the distribution of expertise through the Planning Department's GIS staff and other core group members, which examines impacts and is critical to the LFA Phase II, the flood buyout program and relocation discussions, both inside and outside of the NYC watershed.

DCAP itself serves as the County's comprehensive watershed plan, though there is an emphasis moving forward for integration of the process outside the NYC watershed. With that, the developing SCMP for below the impoundments will mirror what has been successful above the dams. The County's residents, farmers, businesses and communities have received assistance in meeting water quality objectives without sacrificing economic vitality, through DCAP programs. Monitoring and modeling tools continue to be developed and deployed through Delaware County's comprehensive planning programs.

INFRASTRUCTURE

Sustainable and reliable solutions are continuously needed in support of the infrastructure of rural communities for highways and waste disposal systems. Therefore, local agencies in Delaware County work together to develop economically viable solutions for its infrastructure while maintaining the unique personalities of each community.

The DCAP partners work closely to repair or replace sites that will support economic development, reduce risk of bodily harm or death, reduce property damage, improve public safety, reduce costs for damage or eliminate the risk of damage to infrastructure including roads, businesses, critical community facilities and homes during flood events, while simultaneously protecting resources valuable for tourism and outdoor recreation such as boating or fishing.

Three DCAP responsibilities are expanded in this section.

- On-site Septic Systems and Wastewater Treatment Plants
- Roads, Highway and Solid Waste Management Programs
- Stormwater and Floodplain Management

FUTURE GOALS

Goal 1: Employing proven models, explore streamlining the permitting process to increase local ownership and watershed efficiency.

Goal 2: Improve and sustain the capability of partnerships and staff to use appropriate models for management and evaluation purposes.

Goal 3: Where feasible, identify existing processes or monitoring that reflect quantifiable water quality improvements.

Community Wastewater Management Program

Through the CWC's Community Wastewater Management Program, and as established in the MOA, a priority list of communities in need of on-site wastewater system updates have been addressed according to a failing system's proximity to a watercourse. 15 hamlets were named in the MOA and another seven were addressed by alternative funding.

Waste Water Treatment Plants

The Coalition of Watershed Towns (CWT) is currently researching a scaling back of septage acceptance by City owned Waste Water Treatment Plants (WWTPs). Since 2013, it has become increasingly difficult for haulers taking pump outs to these facilities.

Comprehensive Highway Stormwater Program

The DPW and Planning Department have inventoried all town roads and village streets in the County to identify structures between five and 20 feet in length. DPW is now in the process of evaluating the structures for hydraulic and structural capacity. Post-assessment, a matrix will be developed to prioritize reconstruction or replacement. (All structures with a span greater than 20 feet are already owned by the County and inspected on a biennial basis by the state.)

Engineering analysis relative to need and benefits to water quality by structure has led to planned culvert replacements of one per year for the next five years at the cost of \$250,000 each.

The need for a dedicated stormwater/highway engineer remains, as does the need for funding for implementation of Highway Management Plans (HMPs). A funding program is currently being negotiated for culvert replacement between DPW and the DEP.

Stormwater Pollution Plans and Staffing

Stormwater Pollution Plans (SPPs) have been completed for towns and villages where proximity to watercourses and disturbance thresholds required it. Additional SPPs have not been necessary due to limited development throughout the County, a long review and approval timeline, and overall County budget constraints limiting the ability to hire and train a dedicated engineer.

DPW does have the capacity to produce SPPs and will continue to use existing staff for SPP reviews. The TPAS planners assist applicants with project reviews and have helped applicants through the City process, upon request.

Solid Waste Management Program

Landfill Gas Recovery: The County, in partnership with the Delaware County Electric Cooperative (DCEC), tapped methane to generate electricity. Although an innovative effort, the benefits were eventually undermined by market forces and the supply of available gas was not large enough to sustain the project.

E-Waste: With the passage of the electronic product stewardship legislation, the County partnered with electronics waste recycling firms affiliated with the original equipment manufacturer companies

FUTURE GOALS

Goal 1: Complete post-assessment prioritization matrix for structural improvements and implement one culvert replacement per year for the next five years.

Goal 2: Reevaluate HMPs for implementation and develop a semi-annual review and update process with cataloging at the County level.

Goal 3: Seek funding to implement HMPs, specific to infrastructure safety in the

context of stream corridor management and flood mitigation, according to the LFA process.

Goal 4: Continue to pursue projects that will minimize risk to major employers in the county (see *Economic Vitality*).

Goal 5: Execute the following as part of the Solid Waste Management Program:

- Interim closure of the C&D Landfill and relocation of the C&D management ac-

tivities to Cell 6 North End, as proposed for Summer of 2015.

- Cell 7 design and permitting to take place in Fall of 2018.
- Engineering evaluation of Cells 1 & 2 remediation and area reuse to be ongoing
- Variance request for landfill expansion beyond original entitlement area continues as ongoing from 2012 to 2020

SPOTLIGHT ON HIGHWAY MANAGEMENT PLANS

The Highway Management Plans (HMPs) were comprised of two main documents: the plan itself and the mapbook. The mapbook is what the vast majority of highway superintendents utilize.

The plan contains:

- Introduction with background on Delaware County, the highway management project itself, inventory description, and definitions of hydraulic structure classifications
- Town-specific information, including comp plan excerpts, highway superintendent-identified issues, asset totals, road ratings, how-to on obtaining accident data, and budget (if provided)
- Implementation plan and recommendations, including American Association of State Highway Transportation Officials standards, general recommendations from the DPW, and specific recommendations based on the highway superintendent-identified issues
- Glossary
- Appendixes A-P, including DCAP overview, road rating sheet, sample FOIL requests for accident data, Governmental Accounting Standards Board tracking sheet, "10 Essentials of a Good Road," sample road takeover form, sample road abandonment form, sample shared services agreement, invasive species info, NYSDEC stormwater Phase II brochure, level-of-service description, sample road cross-section for major subdivisions, permit and standards for driveway access on county roads, and sample road preservation law

subject to the State law beginning April 1, 2010 that holds manufacturers responsible for providing and financing electronic recycling opportunities throughout the State. These partnerships have largely been successful, and the need for a tipping fee to recycle electronics through the County's solid waste program was eliminated. The County's tipping fees were restructured to eliminate management fees on electronics scrap.

Agricultural Film Plastics and High Molecular Weight Rigid Plastics:

Starting in 2013, the solid waste management program began actively collecting, processing and marketing agricultural film plastics and rigid plastic containers. The marketplace for both commodity lines is extremely nascent and subsequently tenuous. Participation by the waste generating community has been strong, and several partial loads of material have been successfully marketed, although the revenue values do not meet handling and processing costs.

AGRICULTURAL ENVIRONMENTAL MANAGEMENT

Agriculture has been deeply woven into the socio-economic fabric of Delaware County for generations. As part of high-intensity milk production, a typical dairy farm is a complex system that processes large amounts of nutrients each year in the form of crops, animals, milk, feed, manure and fertilizers, and our farm operators are generally good stewards of the land. Nevertheless, in a working farm landscape both excess nutrients and those naturally present in soils will inevitably escape to watercourses, and efforts to protect the environment by minimizing such losses will always be needed.

Agricultural Environmental Management (AEM) is a voluntary, incentive-based agricultural program that assists farmers with making science-based decisions that protect and enhance New York State's soil and water resources while meeting the business objectives of the farm. This program, developed by the New York State Department of Agriculture and Markets in cooperation with local Soil and Water Conservation Districts (SWCD) and Cornell Cooperative Extension (CCE), meets US Environmental Protection Agency (EPA) requirements for addressing environmental issues on farms in the State of New York.

AEM consists of a five-tiered process to inventory and prioritize each farm's resource issues in order to effectively plan, implement and evaluate practices that meet environmental and agricultural objectives. This locally-led watershed-based approach is the cornerstone of helping Delaware County farms meet environmental objectives and maintaining agriculture as a vital part of Delaware County's economy.

Both CCE and the SWCD partner with the federal and state agencies, Cornell University, the Watershed Agricultural Council (WAC), USDA/NRCS, USDA/FSA and the Upper Susquehanna Coalition to provide technical and financial assistance for implementing conservation practices on Delaware County farms.

Priority Initiatives for Agricultural Conservation

Based on local research, and decades of learning and implementing conservation practices, the DCAP partners have identified the following practices and programs for conservation implementation that improve water quality and help maintain farm economic viability in Delaware County:

- Riparian stream-side buffers and animal exclusion from streams
- Soil Health Management, including:
 - No-till and reduced tillage
 - Winter cover crops
 - Crop rotation management
- Precision Feed Management, including homegrown feed production and utilization
- Manure Nutrient Management, including:
 - Manure storage and barnyard nutrient containment
 - Manure incorporation strategies
 - Manure nutrient management planning
- Grazing management

Funding Priorities through DCAP Partners

Delaware County's AEM Strategy identifies and prioritizes three major watersheds in the County.

PRIORITY 1: Susquehanna River Watershed

In 1999, the Chesapeake Bay was placed on the USEPA's list of impaired water bodies under authority of the federal Clean Water Act. In 2009, President Obama signed an Executive Order that recognized the Bay as a national treasure and empowered the EPA to oversee its cleanup in seven states.

The EPA has set specific pollution reduction milestones, or a Total Maximum Daily Load (TMDL), for each state that must be met by 2025. To keep states on track, EPA has required each state to meet 60% of its 2025 mandate by 2017 or face new regulatory consequences prior to 2025. These new regulations could include enhanced stormwater regulations, sewage treatment plant upgrades, and various agricultural restrictions.

To help insure that these milestones are met, the Upper Susquehanna Coalition and the NYS DEC have developed a Watershed Implementation Plan (WIP) which outlines New York State's strategies to meet identified goals. As a result of this regulatory threat, the Delaware County AEM Working Group has prioritized the Susquehanna River Watershed, comprised of 19.5% of the County, as the Priority 1 watershed for AEM Program delivery in Delaware County. We anticipate acceleration of conservation practices on farms in this watershed will likely assist Delaware County in meeting nutrient and sediment loading milestones set forth by EPA, thereby preventing the need for future regulations which could trigger economic decline.

PRIORITY 2: The Delaware River Watershed (Tailwaters)

The AEM Working Group has prioritized the watershed below the Cannonsville and Pepacton Reservoirs (26.5% of the County) as AEM Priority 2. Although farming is still prevalent in this watershed, there are fewer farms in operation than in either the Susquehanna or New York City Watersheds. While there is no enhanced regulatory threat at present, the Tailwaters maintains a world-class, self-sustaining Brown and Rainbow Trout fishery and is home to a scenic and recreational river corridor.

PRIORITY 3: New York City Watershed

The New York City Watershed comprises 54% of Delaware County and maintains the largest number and highest concentration of farms, while the Cannonsville and Pepacton Reservoirs provide roughly 50% of the drinking water for nine million people in New York City. As a result of the Safe Drinking Water Act, New York City was ordered to filter this water or enact programs and regulations to maintain water quality. As a result, the DCSWCD and CCEDC petitioned the State of New York to broker an agreement between the City of New York and watershed counties. New York City agreed to pay 100% of the cost of all agricultural conservation practices that enhance and protect water quality, unless such practices were otherwise required by State or Federal regulations. From this agreement, the Watershed Agricultural Council (WAC) was formed to represent farmers in the Watershed. The WAC now administers the Watershed Agricultural Program and contracts with both the DCSWCD and CCEDC to provide conservation planning and implementation assistance to farms in the Watershed. As a result of this significant technical and funding assistance that is made available to these farms, the New York City Watershed is Priority #3 for Delaware County's AEM program.

FUTURE GOALS

Goal 1: Help implement the NYS Watershed Implementation Plan by partnering with the Upper Susquehanna Coalition and the NYS DEC, to ensure all nutrient and sediment milestones are met. All reductions will be documented by the SWCD, CCE and the Upper Susquehanna Coalition.

Goal 2: Implement Delaware County's AEM Strategic Plan.

Goal 3: Work with USDA/NRCS, USDA/FSA and the NYS Department of Agriculture and Markets to secure technical assistance and grant funding for implementation of

prioritized conservation practices and establishment of riparian buffers on prioritized farms. Provide survey, design and construction oversight services.

Goal 4: Continue to develop, promote and implement the Precision Feed Management program.

Goal 5: Continue to promote and implement soil health management practices that improve soil health and function, including no-till crop production, winter cover crops, crop rotation, soil sampling and nutrient management.

Goal 6: Continue to partner and contract with the WAC for the implementation of the Watershed Agricultural Program.

Goal 7: Develop classroom and on-farm information and educational seminars and presentations that enhance farm economic viability and sound environmental stewardship.

Goal 8: Expand CRP/CREP/riparian buffer implementation on inactive agricultural land by working with local, state and federal partnering agencies and organizations.

STREAM CORRIDOR MANAGEMENT

Like most areas in our region of New York State, working in and around streams has had a long history. We have repeatedly modified our streams, often without even realizing it, as our patterns of settlement and resource development have evolved. Seeking to control our landscape to suit our needs, much of our forested hillsides were logged and then converted to hay and crop production just a few generations ago; this led to widespread soil erosion and sediment transport to stream channels. Villages expanded onto floodplains, and a network of roadways were cut and graded across the landscape. Some of these efforts in the landscape inadvertently set the stage for unforeseen stream instability issues the County faces today.

Until recent times it was common practice to manage stream-related problems one project at a time. There was little understanding that individual problems were often caused by ongoing issues in the entire stream corridor – the stream, floodplain and its watershed. But there was seldom enough time, funding nor local stakeholder involvement to tackle such interrelated problems as a whole. However, after a string of significant, declared flood events that ravaged Delaware County between 1996 and 2011, coupled with trends of increased precipitation amount and intensity, and a relatively new understanding of stream dynamics, it has repeatedly been made clear that significant efforts would be required to improve stream health and stability.

Stream Corridor Management Planning

The need for science-based stream corridor management planning had been recognized by local, state and federal agencies for several decades. And so the Delaware County SWCD and the New York City DEP developed a contractual relationship to prepare locally driven stream corridor management plans for the New York City watershed portion of the East and West Branches of the Delaware River. Fueled by the New York City FAD and the local need to stabilize rivers and streams, a long-term, vibrant partnership between the SWCD and DEP developed, with strong cooperative support from the Delaware County Departments of Economic Development, Emergency Services, Planning, Public Works, Watershed Affairs and the Watershed Agricultural Council. Delaware County has embraced and is now a regional leader in the stream corridor management renaissance sweeping through America.

As a result of this cooperation, Stream Corridor Management Plans have been completed for both the East Branch and West Branch by watershed stakeholders. Initial assessments found patterns of

streambed incision, eroding stream banks, rotational slope failures, increased stream velocity and higher peak storm events; all of these have led to excessive sediment deposition elsewhere in the corridors, creating further management challenges. Inappropriate stream responses such as berming, channelization and dredging have exacerbated problems of streambed and streambank instability that threaten the well-being of our communities both now and into the future. These completed community-approved plans document the state of health of both rivers and their watersheds, and now offer a more holistic approach to making specific recommendations for future efforts. Lessons learned by developing the plans have also contributed to the award-winning educational program created by the DCSWCD known as Post-Flood Emergency Stream Intervention.

Implementation of Stream Corridor Management Plans

The DCAP partnership that supports stream corridor management has enabled the completion of management plans for both the East and West Branches of the Delaware River, and Third Brook in the Village of Walton. These plans include years of extensive field surveys and detailed observations of stream corridors. They include basin-specific recommendations, the final product of science, engineering, public policy and local perspectives as agreed to by stakeholders in the Project Advisory Committees. These efforts helped identify and secure funding for stream rehabilitation projects that began to be implemented in 2004.

DCAP-enabled stream rehabilitation projects are of various types, which have evolved over time. Early (2004-2008) projects were largely focused on full channel restoration and streambank stabilization, with extra efforts taken to demonstrate restoration principles and to educate stakeholders and the public; 2009-2014 focused on post-flood channel restoration, riparian buffer plantings, floodplain restorations, stormwater remediation, culvert replacements and stream bed and bank stabilization.

Months of additional field study, engineering design, discussions, scheduling and permitting prepare the way for each project, followed by construction oversight and years of follow-up monitoring and evaluations. In all, \$7.1 million has been spent rehabilitating and stabilizing streams over the last 10 years.

The majority of projects included in the figures above occurred in the NY City watershed. The DEP funded over 30 percent of the work completed, with federal, state and other sources often providing matching funds. In addition, the stream and floodplain expertise gained through each successful project completion has built technical staff capacity, agency wide. Being able to distinguish where to work vs. where not to work in flood-affected streams has proven invaluable throughout the county by avoiding damages incurred by ill-conceived efforts to better control streams. The Department of Public Works also continues to incorporate elements of natural stream design whenever possible as they maintain and improve our extensive network of roads and bridges that cross watercourses of all sizes.

Stream corridors rely on effective and appropriate types of vegetation and natural features to provide long-term stability and healthy biologic function. To this end the Catskill Stream Buffer Initiative was started in 2009 by the DCSWCD to provide a comprehensive and seamless connection between the physical and biological aspects of stream corridor rehabilitation within the NY City watershed. Significant attempts have been made to remove invasive plant species, such as Japanese knotweed, from stream banks and floodplains in project areas. However, the uncanny ability of this invasive to spread with its great difficulty to eradicate has overshadowed these efforts.

With this new understanding of natural stream design by resource managers, the efforts used to rehabilitate streams have been relatively straightforward. However, the task of raising the level of public understanding of stream issues and the acceptance of fluvial geomorphology principles and natural stream design will be ongoing for many years. With each project implemented, excavating contractors are slowly becoming advocates of the new methods, once they become familiar with them. Public understanding and acceptance of stream corridor resilience that comes from following natural stream design principles advances in the aftermath of each damaging flood event when it becomes clear that completed project areas have survived remarkably well, compared to adjacent reaches up or down stream from the rehabilitated area. Specific project examples include Town Brook at the Dave Post farm (2004), Margaretville Pavilion Park in the Village of Margaretville (2007), Terrace Avenue in Walton (2008) and the Walton Floodplain Restoration (2011) in the Village of Walton. Once nearby landowners and the general public realize how potential catastrophes may be mitigated by following new methods, each implementation project tends to sell itself and the current approach to stream rehabilitation it represents.



Looking upstream at the eroding bank with Thomson Cross Road at the top of the bank.



Looking upstream after construction at rock riprap toe with bench Thomson Cross Road at the top of the bank.

FUTURE GOALS

Goal 1: Continue the implementation of stream projects that demonstrate Natural Stream Design techniques to the general public and municipal officials.

Goal 2: Develop new strategies and techniques for enhancement of the Post Flood Emergency Stream Intervention training protocol.

Goal 3: Continue to work with the Watershed Agricultural Council in stabilizing stream banks that facilitate the implementation of streamside buffers.

Goal 4: Facilitate and provide floodplain management training for code enforcement officers and cooperating agency staff (i.e. Certified Floodplain Managers, Community Rating System.)

Goal 5: Seek funding for sediment transport studies that will build a regional curve for sediment transport for varying runoff events.

Goal 6: Facilitate development of the Stream Corridor Management Plan in the Delaware River Tailwaters.

Goal 7: Update the recommendations of both the East and West Branch Delaware River Stream Corridor Management Plans to reflect evolving stream management and flood hazard mitigation programs and opportunities.

Goal 8: Explore funding opportunities to expand Stream Management Program technical services into the Susquehanna and Delaware River Tailwaters Watersheds.

Goal 9: Establish a manual of grade control and bank stabilization practices for tributaries to reduce sediment supplies in stream systems. Implement demonstration projects.

Goal 10: Work with regulators to streamline and expand existing permit authority to facilitate efficient implementation of approved stream management practices under the DCSWCD's current General Permit.

Goal 11: Seek opportunities to programmatically integrate the Catskill Stream Buffer Initiative with the Conservation Reserve Enhancement Program.

FLOOD MITIGATION

Those who know the true significance of flood mitigation have either been directly affected by flooding themselves or have helped to provide emergency/response services to those who have. In the wake of severe flooding in 2006, the managers of Delaware County agencies involved with flooding began to rethink strategies for how best to deal with floods.

Delaware County has experienced significant flooding in 1986, 1996, 2004, 2005, 2006, 2007 and 2011, with many smaller localized events in between. Research studies describe a pattern of climate change leading to increased rainfall amount and intensity, with decreasing time intervals. Major steps had to be taken to avoid a future where successive storm events would inevitably cause escalating and unsustainable flood damages to our communities and their support infrastructure.

Multi-Jurisdictional All-Hazard Mitigation Plan (AHMP)

Progress has been made on multiple fronts and with the assistance of all levels of government within the County, to effect an orderly assessment of short- and long-term risk as seen from County, watershed, town and village perspectives. A Multi-jurisdictional All Hazard Mitigation Plan (AHMP) was created for the County in 2006 (updated in 2012) approved by State OEM and FEMA, then subsequently adopted in all municipalities. In 2013 the Delaware County Planning Department (enabled towns and villages to submit 23 hazard mitigation grant applications based on projects identified in the All Hazard Plan.

County DPW Bridge and Culvert Replacement Standards

In an effort to protect transportation infrastructure, the DPW initiated a culvert and bridge design and “take-over” standard, which has allowed the County to capitalize on FEMA 406 mitigation funds to decrease the risk of critical highway failures during floods. Available immediately after a flood event, the funding allows the DPW to upgrade failed culverts and bridges to a more appropriate size and design with increased hydraulic capacity, and for town highway departments to follow such increased standards as well. Thus, as the climate changes, the improved design standards will eventually allow storms of greater magnitude to pass safely beneath bridges, and help reduce flood elevations and stream instability problems.

Delaware River Basin Commission

In 2006, Delaware County was invited to participate in the Delaware River Basin Commission’s interstate flood mitigation task force to develop a set of recommendations to mitigate and alleviate flooding impacts along the Delaware River and its tributaries. In 2007, 45 recommendations targeted improvements in these interrelated activities: flood warning, reservoir operations, floodplain regulation and mapping, structural and nonstructural measures and storm-water management. The County Planning Director served on the Floodplain Regulation Evaluation Subcommittee that produced a white paper exploring the recommendations included in the action agenda. Delaware County’s contribution to the white paper was formulated by Planning, DPW and SWCD and approved by the Core Group and Board of Supervisors. The Delaware County Director of Emergency Services currently serves on the Flood Advisory Committee (FAC) that considers and advises the Commission on flooding issues in the Basin.

Long-term Community Recovery Strategies

Following the 2011 Irene/Lee flooding event, DOS made funds available to severely affected communities to do a flood recovery plan. The Planning Department, working with the local municipalities, applied for and received \$200,000 for the Villages of Fleischmanns,

Margaretville and Sidney and the Town of Middletown. The Planning Department has been part of a multi-jurisdictional team of experts that has been assisting the Village of Sidney in implementing their ‘Recovery Plan’ to create a flood resilient and sustainable community. The Recovery Plan includes feasibility studies for senior housing and hotel location as well as a Main Street Green Infrastructure Program, all of which have been funded to date. The Village has also applied for and received funds to extend water and sewer to a parcel adjacent to the Village where residents have the ability to relocate after their parcels/homes are purchased through the flood buyout program.

Post Flood Emergency Stream Intervention Program

The flooding of 2006 prompted the SWCD to develop Post-Flood Emergency Stream Intervention (ESI), an educational program specifically designed for municipal officials, highway departments and those excavating contractors who effectively become “first responders” immediately after floodwaters recede. By setting standards and practices for the period immediately following a flood, ESI has been extraordinarily successful in teaching participants how to 1) understand stream conditions, 2) prioritize unstable stream reaches for treatment, and 3) use a provided tool box of stream-friendly techniques, complete with instructions to quickly approximate proper stream channel dimensions. Agencies across the state have recognized the value of this training, and in December 2013, the SWCD’s Stream Program received an Environmental Excellence Award from the NY State DEC for its efforts.

Delaware County Flood Hazard Mitigation Projects

In 2013 and 2014, 33 Emergency Watershed Protection projects costing \$3.5 million were designed and implemented through the SWCD’s Stream Program staff and the DPW. Financial support was provided by the USDA/NRCS, the DEP and an Empire State Development Grant. In true DCAP partnership, grant writing and administration was provided by Planning and Watershed Affairs and for the Amphenol mitigation project Economic Development coordinated the private funding contribution. These flood response projects utilize natural stream design principles and restored stream channels, stabilized stream banks and reclaimed floodplains that helped lower flood elevations. Periodic monitoring has revealed that many of these projects have weathered multiple floods well since their installation, and helped reduce flood damages both on-site and elsewhere within the stream corridor – a testament to the effectiveness of such practices that recognize the critical importance of keeping floodplains accessible to the streams that created them.

In some cases, the most practical way to avoid flood damages to property is to simply remove the structures that interfere with proper floodplain function. The Planning Department has conducted three flood-prone property buyout programs since the 2006 events. Grants through FEMA and the Greater Catskill Flood Remediation Program allowed the County to purchase and remove 29 substantially damaged homes within the floodplain. After the 2011 flood, the Planning Department submitted four phases of buyout applications funded through FEMA and the Community Block Grant Program. The first three phases will relocate 58 damaged homes in multiple towns; the fourth phase aids 136 homes in the Village of Sidney, as part of a larger recovery effort.

NYC Watershed Flood Mitigation Program

Local flood response personnel have repeatedly witnessed the large volumes of pollutants and myriad forms of flood debris, such as

those created by Hurricane Irene and Tropical Storm Lee, carried downstream to New York City drinking water supply reservoirs. And so in 2011 Delaware County proposed a Comprehensive Flood Mitigation Program to regulators of the NY City watershed to curb this threat to the filtration avoidance determination, by helping County municipalities to create more stable stream corridors and programs to reduce flood elevation levels. Using existing partnerships and institutional arrangements, this program defined steps towards 1) community education; 2) the assessment and prioritization of flood risks to municipal infrastructure and private properties; 3) physical relocation of high priority business, public and residential structures within communities; 4) provide needed financial and technical assistance; and 5) encourage regulatory streamlining.

The SWCD's Stream Management Program has actively promoted and coordinated efforts towards items 1), 2), 4) and 5) mentioned above. A new Local Flood Analysis (LFA) Program was created to help communities identify flood risks and projects to mitigate

FUTURE GOALS

Goal 1: Assist Communities with Residential, Business and Critical Community Facility Relocation and flood resiliency efforts and seek supplemental funding from the Catskill Watershed Corporation for buyout, outreach and demolition related to the Voluntary Flood Buyout Program, when requested by municipalities.

Goal 2: Implement projects identified in an LFA and approved by municipalities that will reduce water surface elevations, alter flow paths, reduce velocities and otherwise minimize the potential for flood damage.

Goal 3: Implement Community Wide Activities for the Elimination of Potential Sources of Manmade Pollution, as identified in an LFA, which could result from a flood event.

Goal 4: Expand the capacity of communities for post-flood response, including expansion of the Emergency Stream Intervention training.

Goal 5: Delaware County agencies will coordinate with the Catskill Watershed Corporation to implement the following:

- Critical Community Facility Relocation for public facilities if damaged or destroyed, would immediately impair a community.
- Business Relocation for anchor and LFA-recommended businesses that, if damaged or destroyed, would immediately impair a community.

Goal 6: Work with state and federal agencies and the New York City Department of Environmental Protection to create a Re-

gional Flood Commission with the ability to resolve programmatic and regulatory issues.

gional Flood Commission with the ability to resolve programmatic and regulatory issues.

Flood mitigation progress is often painfully slow and incremental due to many reasons, including insufficient funding, the regulatory process and the complexity of flooding issues. Each project can take years to envision, discuss, design and permit before being implemented, followed by years of monitoring. Yet there is cause for optimism since, for the first time, these investments towards long-term flood resiliency are beginning to be coordinated at the local, state and watershed level, with unprecedented levels of education and informed vision of how communities may coexist.

Goal 7: Continue information and education efforts in flood hazard mitigation, natural stream dynamics, sediment management and other related topics.

Goal 8: Expand flood forecasting opportunities in order to increase community safety.

Goal 9: Seek funding for all interested communities outside the NY City watershed to conduct a Local Flood Analysis (LFA).

Goal 10: Continue to update and implement the County Multi-Jurisdictional All Hazards Mitigation Plan (AHMP) and submit grants to FEMA, CWC, State OEM in support of mitigation activities and projects Countywide.

OUTREACH

Outreach efforts related to DCAP are expansive. The core group maintains relationships with departmental stakeholders as well as funders, regulators and researchers. As an example, TPAS planners are consistently providing DCAP policies and programs for local communities.

With the change of elected and appointed officials, and DCAP evolving to address immediate needs, it has been difficult to maintain an understanding of DCAP at the county and local level. Outreach has been successful when time allowed. With the significant education and outreach needs associated with the WSP and Flood Mitigation, the overall DCAP effort has not been realized.

A comprehensive outreach plan that specifically calendars tactics derived from an audience and program examination needs to be developed and launched. This plan should include messaging that highlights the expertise of local partners supported by evaluation and recognized by regulators and funders as demonstrated capability.

Examples of successful outreach efforts since the 2006 DCAP Progress Report include:

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- Expanded understanding of PFM by the farmers, feed and fertilizer dealers, throughout the county and beyond
- The adoption of HMPs by towns outside the watershed
- Developed knowledge has been incorporated into town plans, in part or in whole, through TPAS
- How to develop a stream corridor management plan is becoming more widely understood. (Below the dams, six municipalities and an NGO have been awarded a grant for the development of the SCMP in the tailwaters)
- Throughout the County, contractors have been trained to respond to damage in streams according to the SWCD response program (that has been adopted statewide) so they are repaired based on scientific findings
- The importance of stormwater management and its relationship to flooding and stream corridor management is being adopted in and out of the watershed
- Gathering understanding of what the LAP means to the county, the future growth of communities and the tax base is gaining. It affects the entire county
- The benefits of flood mitigation are essentially recognized throughout the county, by municipalities and many residents and businesses

- The local flood analysis recently developed in the NYC watershed in response to the 2011 floods is being used outside the watershed and will continue to expand and time and money allows.
- The knowledge gained, of what the impacts of Total Maximum Daily Loads mean to farmers, communities and costs of upgrading WWTPs in the Cannonsville basin, provided excep-

tionally helpful in the negotiation of the development of TMDLs for phosphorous, nitrogen and sediment in the Susquehanna Basin.

- The extension of calf management for pathogen reduction
- SWCD's pilot programs to illustrate the relationship of HMPs, stormwater management and stream corridor management

FUTURE GOALS

Goal 1: Through an interactive informational program, promote the understanding, input and engagement of businesses and residents in the County in DCAP activities, and to thereby secure sustainable management of the County's water resources in local, regional, state and federal contexts.

Goal 2: Develop a comprehensive outreach plan that specifically calendars tactics

derived from an audience and program examination to grow awareness of DCAP locally and extend its benefits elsewhere in New York State.

Goal 3: Modify an existing staff person's job responsibilities, or seek funding to hire staff or a contractor, to execute the outreach plan in a continuous and targeted fashion.

Goal 4: Expand demonstration and education pilot programs to illustrate the relationship of HMPs, stormwater management and stream corridor management.

EVALUATION

Are DCAP programs delivering on their objectives? Planning tools, monitoring and modeling, legal and administrative procedures have been developed and are employed to ensure that water quality standards are met. Due to time and staff constraints, however, DCAP is not formally evaluating these processes and measures against established objectives.

Institutionalizing Evaluation

The establishment of evaluation procedures will focus on the goals set forth in this report within a five-year review process.

DCAP Goals: The goals set forth in this report require the establishment of plans for achievement. Core group partners must establish the means by which DCAP will realize the benefit of success for each goal, as well as the role of each entity in the plans. From this exercise, a rubric will be developed, updated routinely and shared with the Core Group.

Review Process: A five-year internal and external evaluation, where funding is available, must be institutionalized, by which the Department of Watershed Affairs facilitates the development of a report of activities and accomplishments. The goals rubrics provide the baseline for information gathering. The report will be shared with an external review panel and input, from the panel as well as the core group, establishes the goals of the next DCAP progress report.

This report also acknowledges that DCAP was formed just over 15 years ago, in 1999. The core group defined its purpose and has executed it with focus, reprioritizing and reallocating time and funding to its efforts as determined by emergency situations and immediate needs. DCAP recognizes these intense contributions and the legacy that the core group brings to the programs, while recommending the identification of department staff for transition to core group participation. As group members begin to retire, the knowledge attained through and for DCAP is retained.

FUTURE GOALS

Goal 1: For all goals set forth in this Report, the appropriate core group teams will establish evaluation rubrics to be completed routinely for report back to the core group.

Goal 2: A five-year internal and external review is institutionalized, and utilizing goals rubrics, facilitated exploration and information gathering, forms the basis for the production of an updated report, which establishes DCAP goals for the coming five years.

Goal 3: The departmental members of the core group develop transition plans for DCAP participation. This is deemed necessary in those departments where contributors will be retiring in the coming years or other team members are interested in engaging in DCAP efforts.

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