International City/County ICMA Management Association

SERVICE REPORT

(formerly MIS Reports)

VOLUME 31 / NUMBER 2 FEBRUARY 1999

WETLANDS AND WATERSHEDS: SIX CASE STUDIES

Wetlands are the link between water and land. They include low spots in the landscape where water sometimes stands and vegetation grows, as well as the edges of streams, rivers, lakes, and oceans. Watersheds are the areas of land over which water drains into surrounding bodies of water, including wetlands.

The management of wetlands and watersheds is of critical importance to the economic well-being and the quality of life of communities in all regions of the United States. This month's report includes six case studies from six local governments, large and small, urban and rural, in a variety of natural environments.

The case studies provide ideas for mitigation, for financing, for building partnerships, for working with regulatory agencies, for reducing costs, and for building public understanding and support. The six case studies include:

- Village of Flossmoor, Illinois—Butterfield Creek Watershed Plan
- Lee County, Florida—Watershed Management Program
- Aiken, South Carolina—Nature's Way Wetlands
- Eugene, Oregon—West Eugene Wetland Mitigation Bank
- Superior, Wisconsin—Special Area Management Plan
- Westchester County, New York—Watershed Management and Model Wetland Protection Ordinance

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These reports are intended primarily to provide timely information on subjects of practical interest to local government administrators, department heads, budget and research analysts, administrative assistants, and others responsible for and concerned with operational aspects of local government.

IQ Service Reports are published as part of ICMA's InQuiry Service subscription package. The package also includes unlimited access (via the Internet or staff-assisted searches) to ICMA's InQuiry Service—a database of thousands of local government reports, budgets, ordinances, program descriptions, purchasing manuals, job descriptions, and other materials—a bimonthly subscriber newsletter, information packets, and a number of other valuable ICMA publications. Requests for general information concerning ICMA's InQuiry Service subscription package should be addressed to Mark Mohan at 202/962-3587, or mmohan@icma.org

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These case studies were developed under a grant from the U.S. Environmental Protection Agency (USEPA). For more information on these case studies, other wetlands and watershed management projects, and ICMA's activities in this area, contact Dorothy Morrison at ICMA, 202/962-3585, dmorrison@icma.org.

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Village of Flossmoor, Illinois—Butterfield Creek Watershed Plan

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PROGRAM SUMMARY

In the 1980s, the communities of the Butterfield Creek Watershed experienced a series of floods that overflowed homes, and subsequently, village boardrooms were overflowing. The 26-square-mile watershed located about 25 miles south of the city of Chicago was suffering the results of urbanization, and the communities of the watershed were called upon to do something to stop the ever-increasing floods. That "something" has been a 15-year cooperative intergovernmental effort engaging the communities of the watershed, the state and federal government, and regional agencies.

PROGRAM DESCRIPTION

The first step was to organize an intergovernmental group, the Butterfield Creek Steering Committee, composed of one representative from each of the seven communities of the watershed. The seven jurisdictions were the city of Chicago Heights, and the villages of Flossmoor, Homewood, Matteson, Richton Park, Glenwood and Olympia Fields.

The first action of the committee was to call upon the federal and state governments to conduct an engineering study of the watershed, which revealed some very important facts. First, the study confirmed that existing regulatory flood maps were incorrect and that flood levels were higher and floodplains more expansive than previously thought. Second, the study mapped large undeveloped areas, including wetlands, in the uplands that were holding vast amounts of stormwater; and it was found that if these natural storage areas were eliminated, flood damage could increase by up to 500 percent. Third, the study showed that detention requirements were inadequate to prevent increased flooding. These facts became the basis for the next cooperative effort of the committee, which was to develop a regulatory framework.

With the assistance of the Northeastern Illinois Planning Commission (NIPC), a regional planning agency, the group set about creating a model stormwater management code for the watershed. The model adopted the new and most accurate floodplain maps and the committee convinced the state to adopt these maps as well. The model code also addressed the natural storage areas, requiring compensatory storage if these areas were to be built upon. Finally, the code required much more conservative detention requirements. As the group worked to develop the model code, a different ethic was evolving. Rather than passing the woes of poor stormwater management downstream, perhaps the committee's efforts could be directed toward the opportunities that progressive stormwater management create for water quality and habitat improvement, recreational enhancement, and education of citizens. The decision to capitalize on these opportunities resulted in a series of model projects and programs that not only mitigate flooding, but also enhance the quality of life for the citizens of the watershed.

Four of the seven watershed communities have model projects demonstrating improved detention methodology. More stormwater is stored in conformance with code requirements, but the designs also include elements that improve water quality and provide wildlife habitat. All cases emphasize bioengineering using native plant species. The plants that are hardy to this area help filter pollutants, support wildlife, slow stormwater, and prevent erosion, and are less expensive to maintain than the usual turf grass. Studies are showing that 65 percent to 90 percent of pollutants are kept out of the stream using the new technology.

The committee, with funding from the Illinois Department of Natural Resources and the U.S. Fish and Wildlife Service, has targeted a new project to acquire one of the natural storage areas. This area

abuts a regional bike / hike trail and nature preserve, encompasses a wetland to be restored, and is highly valued by the local Audubon Society for its abundant bird life. The site represents the multiple objectives of progressive stormwater management by providing natural storage for stormwater and an opportunity for some added storage. It also offers passive recreation for trail riders, as well as preservation and restoration of habitat areas. The site is also an "outdoor classroom" to educate the public on the value of wetlands and natural storage areas, and has already proven to be a catalyst for intergovernmental cooperation. At a recent planning meeting for the project, 17 agencies and units of government attended to add their assistance and support of the proposed acquisition and restoration.

Another important goal of the committee is to educate the citizens of the watershed. One of the watershed communities is using the naturalized detention area that abuts a restored wetland as an outdoor classroom for the local school district. Children learn about wetland plants as they help to plant the seedlings. In another community's schools, junior high students are studying the entire watershed, learning the twin concepts of stormwater management and environmental impact. These children take field trips to the stream corridor where they take water samples and prepare reports. Over time, the data they are collecting will provide valuable information to the watershed communities. Citizen outreach has also been achieved through "open houses" where citizens are introduced to self-help ideas for preventing flood damage through floodproofing techniques.

Another emphasis of the committee has been to participate in regional greenway and bikeway planning. Five and one-half miles of a new rails-to-trails bike / hike path crosses the watershed; six more miles are planned to travel along the creek and extend to a nearby forest preserve. Through the committee's efforts, the Butterfield Creek corridor has been included in the regional greenway plan, a major planning tool to preserve open space. For the committee, this may provide an avenue to preserve those all-important watershed natural storage areas.

RESOURCES

Initially, a staff person from NIPC coordinated the Butterfield Creek Watershed effort, and then over time staff people from the municipalities took on more of the work. NIPC has continued to provide technical assistance and funding for communities to implement stormwater demonstration projects. The municipalities were able to attract additional funds with the seed money from NIPC.

The group projects have all been a result of partnerships in a constant flow of intergovernmental effort; neither the creek nor the committee has been contained by political boundaries. The following have all contributed funding or technical assistance:

- Cook County Forest Preserve District
- Illinois and U.S. Environmental Protection Agencies
- Illinois Department of Natural Resources
- Illinois Nature Preserve Commission
- Northeastern Illinois Planning Commission
- Rich Township
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- U.S. Natural Resources Conservation Service
- Will-South Cook Soil and Water Conservation District
- The seven communities represented on the Steering Committee.

OUTCOMES AND ACCOMPLISHMENTS

Recently, the committee produced a Vision Plan on a two-sided color poster that explains the concepts that the group has been developing. This visual expression of the committee's work was funded by the state and with the assistance of a multitude of state and federal agencies.

Some results of the committee's work can be measured. The model code will assure that the storage volume in the natural storage areas will not be lost. Detention standards are rigorous and will prevent flooding from becoming worse. The aggressive approach to adopting new regulatory floodplain maps will keep new construction out of harm's way. It has been demonstrated that progressive detention basin design can keep urban pollutants out of the stream and that these new designs can be cheaper to maintain.

In a day when mandates are the rule and intergovernmental trust is the exception, the communities of the Butterfield Creek Watershed stand out. The work of the steering committee has been accomplished with no mandates, very little funding, and an organization that is entirely dependent on the actions of the individual communities as they work voluntarily and cooperatively to improve the quality of life for the citizens of the watershed.

Lee County, Florida—Watershed Management Program

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PROGRAM SUMMARY

Lee County, located in Southwest Florida on the Gulf of Mexico, is consistently voted one of the most business-friendly areas in the nation, but with that comes a massive growth in population coupled with the construction to support the growth. Its population is currently approximately 405,400. The Lee County Conservation 2020 Program started with a citizens' initiative to ask the county government to purchase more land for preservation, since many of its most beautiful and environmentally sensitive areas were targeted for development. An environmentally sensitive land conservation initiative was placed on the November 1996 ballot and passed. Lee County ordinance 96-12 officially formed the Conservation Land Acquisition and Stewardship Advisory Committee consisting of 15 citizens appointed by the board of county commissioners to oversee the acquisition, preservation, and restoration of environmentally critical or sensitive lands within Lee County.

The program, in conjunction with the committee, was designed and implemented by county staff members from the county manager's office, the county attorney's office, the county lands office, the planning division, the department of natural resources, and the parks and recreation division. The committee and county staffs have been meeting since February 1997 and have already evaluated more than 80 parcels of land submitted to the committee for review. To date, the board of county commissioners has approved all 13 of the most valuable parcels submitted for acquisition by the committee. The division of county lands is well into the negotiation stage, with two of the approved parcels expected to be purchased in the near future.

PROGRAM DESCRIPTION

The Conservation 2020 Program area includes all incorporated and unincorporated lands in Lee County. The program provides land acquisition as an additional tool to implement goals, objectives, and policies of local comprehensive plans; regional and local watershed management, aquifer recharge, and flood protection plans; and the Regional Water Supply Authority plan. The land acquisition evaluation criteria for nominated sites are weighted in favor of parcels that are part of, provide connections to, or buffer natural flowway systems.

There are no state requirements for this program. Land acquisition is "encouraged" in state regulations and in regional and local land use plans. The impetus for this program originated from public concern over the rapid growth and impacts of development on environmentally critical coastal areas of the county. In 1995, a grass roots effort of local citizens formed an environmental interest group known as Conservation 2020. The Conservation 2020 group gained widespread public support and successfully lobbied the county to consider an additional tax to buy environmentally endangered and sensitive lands to prevent their development.

In November 1996, the citizens of Lee County approved a referendum to raise property taxes for the purposes of acquiring and restoring environmentally critical or sensitive lands within the county. The board of county commissioners created the Conservation Land Acquisition and Stewardship Advisory Committee (CLASAC) to create a process for and implement a land acquisition program. The county's land acquisition program has become known as the Conservation 2020 Program, in honor of the citizen group that successfully lobbied for the referendum.

The CLASAC held its first meeting in February 1997 and has been meeting regularly (usually every three weeks) to review real property nominated for potential purchase by Lee County. The program is approved for seven years, subject to annual renewal.

The Conservation 2020 Program is strictly a "willing seller" acquisition program. The County does not pursue acquiring properties by its legal power of eminent domain and there are no formal procedures for the solicitation of nominations.

Nominations submitted by willing sellers are reviewed in a three-stage process. In the initial review, projects must attain at least four out of seven criteria:

- The asking price is reasonable (at or below market value).
- Matching funds are available to purchase the property.
- The property contains documented environmentally sensitive lands, including tidal or fresh water wetlands, rare and unique uplands, outstanding natural plant community, evidence of protected wildlife or plant species, or undeveloped islands, beach and dune systems, tidal creeks, and / or inlets.
- The property has water resource features which are important for surface water and ground water management including flood protection, water quality, water conservation, water supply, and aquifer recharge.
- The property is contiguous to an aquatic preserve, and outstanding Florida water, or an existing or proposed conservation land preserve.
- There is good management potential for the property (for example, land use compatibility, physical and legal access, educational opportunities, co-management potential).
- There are pending development plans on the site.

In the second stage of review, properties are rated according to more detailed criteria under the above seven categories. A property can score up to 50 points.

After 15 to 20 secondary reviews are completed, CLASAC recommends the best of them for acquisition. If the board of county commissioners approves the properties, they are turned over to the division of county lands to pursue acquisition.

RESOURCES

Financing

The Conservation 2020 Program is funded by an ad valorem property tax assessment to all property owners in Lee County. The revenue generated for the seven-year program is approximately $11 million per year. The funding is primarily used to purchase the land and to cover all costs associated with the purchase, such as the appraisals, maps, and staff time. Ten percent of the funding generated from this program is set aside for land management and associated costs such as land restoration.

Besides the ad valorem tax revenue, there are a number of other funding possibilities that are being pursued through this program. Other potential funding sources include off-site mitigation fees, matching grants, and land management partnerships. The state of Florida offers a land acquisition program that matches grants as an incentive for local government participation. One of the key criteria for acquisition of a parcel by the Conservation 2020 Program is that it be eligible for matching grants offered by the state or federal government. One such parcel that has been approved by the board is eligible for a Florida Communities Trust grant. The program is very flexible in that it can consider estate tax sales and conservation easements when accepting land for the willing seller program.

The implementation of the program did not require any change to state legislation, but the initiative did have to be approved by the board of county commissioners to be put on the ballot. Then it had to be passed by a majority of the electorate of Lee County. Once the ballot initiative was approved, the program was formally created by county ordinance.

Staffing

In May 1998, the board of county commissioners approved a full-time staff position to coordinate the Conservation 2020 Program. Other staff assist in the evaluation of criteria in the areas of biology, water resources, land management, land development, legal issues, county administration, and land acquisition. Some of these staff charge their time to the program. In the near future, CLASAC will consider funding additional positions to manage the lands after they are acquired.

OUTCOME AND ACCOMPLISHMENTS

To date, the board has approved 13 properties to be considered for acquisition. These are now undergoing the rigorous review and research necessary to complete the acquisition process. The county has used Conservation 2020 funds to purchase one property in emergency circumstances.

Staff coordinates with state environmental agencies and intergovernmental coordination committees to generate quality nominations, to strategize the successful purchase of pending projects, and to pursue cooperative funding and management opportunities. This coordination has resulted in very high quality nominations being submitted by other agency

staff. Partnerships have been formed with the Florida Department of Environmental Protection staff to coordinate the acquisition of mutual sites within the Pineland, Estero and San Carlos Bay, and Charlotte Harbor Flatwoods projects.

Although the program is in its infancy, it can be observed that there is much pressure and desire to hasten the process. The staff sees that due diligence is essential in the review of the nominations based upon the variety of problems encountered in the acquisition process. Examples of time-consuming problems thus far include misrepresentation of ownership, unclear title, lack of access, survey inconsistencies, mineral rights, and illegal dumping.

Aiken, South Carolina—Nature's Way Wetlands

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PROGRAM SUMMARY

Most municipalities find it extremely difficult to meet the costly service needs of the community and environmental mandates. This is especially true for stormwater problems that directly affect only some in the community and occur only sporadically. Aiken, South Carolina (population 25,000), allowed nature to help meet its needs, rather than turning to expensive technology.

To meet the environmental concerns in a cost-effective manner, the city of Aiken went back to the natural approach, using wetlands as the solution—a simple answer, but often ignored. Many times, development destroyed this important part of the environment. Yet, when used effectively, wetlands clean the stormwater, eliminate flooding and erosion downstream, develop wildlife habitats, and create aesthetically pleasing areas.

Because its population is small, Aiken was not mandated to address water quality; however, it decided to take a proactive approach and began to incorporate a wetland design within its urban area. These artificial wetlands rely on natural plant and animal life to purify the water—no pumps, aeration, or costly chemicals are needed. Unwanted organics in the stormwater are absorbed and biodegraded by the plants and microbes in the ponds. At the same time, the pond dams slow down the flow of water and control release to keep the stormwater from flooding and eroding downstream areas.

PROGRAM DESCRIPTION

For years, cities throughout the United States allowed developers to build without any concern for flooding or erosion of property downstream. In the 1980s, some municipal public works departments started requiring detention ponds to avoid downstream environmental problems and costly lawsuits. These ponds were usually holding areas that were not landscaped and were surrounded by chain link fences. Although they took care of the flooding and erosion, they were unattractive, harbored pests, cost a great deal, and were altogether detrimental to the neighborhood.

In 1992, South Carolina's Land Resource Commission mandated that all new developments incorporate detention and erosion abatement as part of their planning process. About the same time, the U.S. Environmental Protection Agency (USEPA) required all municipalities to review stormwater quality for major operations within their jurisdiction, and urban areas with populations over 100,000 had to file permits for discharge monitoring of their stormwater.

The city's mission is therefore threefold: to control flooding and erosion control, to meet the state regulations, and to comply with all USEPA mandates.

In 1993, the city began to improve an ugly drainage ditch running through Hopeland Gardens, a pristine botanical park. It developed an artificial wetlands to demonstrate to the public, especially developers, a cost-effective way to treat the water while improving this high-traffic area.

Drainage from approximately 100 acres of urban land is piped off a major highway into the wetlands. An energy dissipater in the wetlands area slows down the destructive force of this water and allows large sediment to settle out of the stormwater. The water then passes over a spillway into a pond filled with trees, and wetlands grasses further filter the water. This detention pond, with approximately 3,000 square feet of surface area, can be up to three feet deep depending upon the intensity of the storm, and releases the water very slowly. It then spills into a second pond, which has a permanent pool of water, three to four feet deep, to help maintain aquatic life. This second pond has about 35,000 square feet of surface area. It can store an additional four feet of water if necessary after a storm. Over the past five years, it has never overflowed its spillway, despite rains of up to eight inches in a 24-hour period. Thus, the two detention ponds prevent all downstream flooding and erosion.

When it is not raining, water from the first pond slowly drains through openings in the spillway into the second pond, which has several shelves with wetlands material that filter the water and encourage wildlife habitats. Various attractive wetland plants, including flowering species such as canna lilies, have been placed in the wetlands. A catwalk lets people view the environment in the wetlands. The entire area, including vegetation, was built for about $50,000. After the water leaves this pond, it goes back into the existing stream and eventually leaves the Hopeland Gardens. This year, the University of South Carolina-Aiken will begin testing to determine improvements to the quality of the water running through the ponds.

The wetlands at the Gardens was so successful that a local middle school decided to incorporate a wetlands into its educational program. The school is in the middle of a large urban residential area, and just below it is approximately 20 acres of open fields. During major rainfalls, these fields flooded, and up to three feet of water stood on them for weeks at a time. The positive exposure and success of the Hopeland wetlands encouraged the school to seek the city's help in developing a wetlands to solve the problem.

The city's public works department developed the wetlands with the help of the local community. Students gained hands-on experience planting. Soccer fields and picnic areas can be built on the formerly flood-prone fields, creating new recreational opportunities for the school and surrounding areas. The school's wetlands also provides a living laboratory that other schools across the region can use—several classes go out to the wetlands daily.

OUTCOME AND ACCOMPLISHMENTS

The city has been able to clean and enhance the environment through an aesthetically pleasing system at a very low cost, without the high maintenance cost of a mechanical system. As a result of the city's demonstration projects, the two most recent major developments in Aiken have incorporated wetland designs into their plans. Community support has been overwhelming. In fact, a citizen group paid to have a painting and posters made of the wetlands at Hopeland Gardens. The press has supported this project from the very beginning, and many organizations and school classes have made field trips to learn about the natural way to clean stormwater and stop problems downstream. Hundreds of citizens visit each year. The middle school has received numerous national, private, and state grants to develop a curriculum on wetlands and the environment, to purchase plant material, and to train teachers on wetlands instruction. Recently, the National Wildlife Federation held a major seminar centered around Aiken's wetlands projects. Cities throughout the country, both in urban and rural areas, can use this approach to solve stormwater problems and educate the public on their role in protecting the environment.

Eugene, Oregon—West Eugene Wetland Mitigation Bank

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PROGRAM SUMMARY

The West Eugene Wetland Mitigation Bank is a program and service operated by the water resource team in the public works engineering division of the city of Eugene, Oregon (population 129,000). Its goal is to provide a mechanism to fund wetland mitigation projects, to carry out the West Eugene Wetlands Plan, and to serve other community needs in cooperation with the city's wetland partners. The mitigation bank practices active stewardship. Following a logical and integrated plan of wetland restoration, the bank maintains a viable, contiguous wetland in the southern Willamette Valley that provides significant benefits to the community including the following:

- Enhanced air and water quality treatment for non-point source pollution
- Flood control and water quality treatment through an interconnected system of wetland and riparian areas
- A diverse array of native plants, animals, and significant wildlife habitats
- A large open space open to the public and close to the urban center
- Educational and recreational opportunities in and along the wetlands and stream corridors.

PROGRAM DESCRIPTION

The mitigation bank originated out of the West Eugene Wetlands Plan—Oregon's first wetland conservation plan—which was adopted in 1992. The plan identifies about 1,300 acres of wetlands, recommending about 1,000 of these for protection or restoration and the remaining 300 acres as lower value wetlands suitable for fill and development. The plan establishes standards for preservation, restoration, and fill of these wetlands and describes implementation processes. State and federal laws require compensatory mitigation for the loss of all wetlands, regardless of value. West Eugene's plan calls for creation of a mitigation bank to help fund restoration and enhancement in conjunction with a program to protect valuable wetlands. Bank sites are located within a connected system of existing wetlands that are managed by the West Eugene Wetland Partnership.

The West Eugene Wetland Partnership includes the city, the Nature Conservancy (TNC), U.S. Bureau of Land Management (BLM), the U.S. Army Corps of Engineers, and the Oregon Youth Conservation Corps. The city assumes the lead as coordinator of the banking program. BLM actively acquires and manages land upon which mitigation may occur. TNC staff provide technical assistance to develop and manage mitigation sites.

Early in 1997, staff from each of these organizations formed the field operations group, which facilitates coordination and communication among partners in managing and conserving the wetland resources of West Eugene. The field operations group plans and designs mitigation improvement plans (MIPs), coordinates and executes prescriptions for mitigation, monitors and maintains sites, and manages the seed procurement program. MIPs are restoration plans for a particular site or management unit. Existing site hydrology, adjacent land use, a current site delineation, and historic documentation (aerial photographs) are considered in the development of the design for a MIP and dictate the type of mitigation that will occur on the targeted site.

The bank's three major purposes are to:

- Lead the implementation of plans to restore and enhance wetland communities
- Provide certified mitigation credits to the development community that seeks to impact wetlands located within the bank's service area

- Collect fees generated from the sale of mitigation credit, which reflect the average costs of developing, designing, planning, constructing, and monitoring a credit.

Mitigation projects are forecast in the bank's annual capital improvement plan (CIP). The CIP is developed with consideration to available land base, seed availability, and the potential contribution to the conservation of the greater wetland system. MIPs prescribe restoration and enhancement of wetland functions and values. MIPs are developed and implemented independent of activities that impact existing wetland. Upon completion of the initial prescriptions (site work and planting / seeding), the prescriptions are certified by state and federal regulatory agencies. This certification officially acknowledges the prescriptions as mitigation. A specific number of mitigation credits, dictated by proposed ratios submitted in the MIP, are approved for sale by the bank.

The factor that most limits the bank in developing and implementing MIPs is availability of native plant seed. In an effort to protect the genetic integrity of the local plant community, the bank is limited to collecting seed for mitigation projects within a 25-mile radius of the plan area. The seed procurement program is dictated by the Wetland Plant Supply Strategy developed in 1996. In accordance with this stipulation, the bank commonly phases prescriptions for a site over a period of several years. To feed the banking program, the field operations group has developed a seed procurement program, which focuses on collection of wild seed source as well as cultivation of species that lend themselves to agronomic practices. A selection of 35 plant species has been targeted as the core suite of species within the wetland community from which the mitigated wetland will develop.

Once the prescriptions have been certified, the mitigation enters into a mandated period of operational management. During this period, the mitigation is periodically monitored to assess the progress and development of the wetland against performance criteria (developed in the site specific MIP). This directs a work program for general maintenance of and remedial actions for the site.

RESOURCES

Each of the wetland partners provides staff to support the banking program. The city has dedicated one full-time coordinator who conducts and tracks the bank's daily operations. Additional city staff, members of the Water Resource Team (wetlands program), provide technical assistance and consultation. Staff from TNC and BLM consult in the development, implementation, and monitoring of MIPs. BLM staff has assumed the lead in developing and coordinating the seed procurement program.

Funds for mitigation come from credit sales. The bank currently charges $30,000 per mitigation credit, of which 83 percent represents expenses associated with development, design, planning, and construction of the credit. The remaining 17 percent is budgeted towards management of the mitigation site for the extent of its mandated operational management period. To date, 32 mitigation credits have been sold to 44 bank customers totaling some $960,000 in transactions. Initially, the stormwater fund provided operating capital to support bank start-up costs. This money has been recouped and re-appropriated toward land acquisition. In essence, each developer is being charged solely for the costs of mitigation. The BLM has used $5.77 million in land and water conservation funds to support its land acquisition program based on the West Eugene Wetlands Plan.

OUTCOMES AND ACCOMPLISHMENTS

The value of the mitigation bank should be considered on several levels. The bank provides a means to realize true wetlands mitigation. Traditional mitigation often results in incremental and disconnected wetland pockets, which is not the case in West Eugene. MIPs developed and implemented by the bank complement a wetland system that is protected by a locally adopted conservation plan. The bank is able to implement prescriptions that restore individual wetlands (lands that exhibit appropriate criteria of hydrology, soils, and vegetation). Cumulatively, this benefits the broader ecological community by restoring the functions and values of a degraded wetland system in the Willamette Valley.

By coordinating with alternative transportation projects, a transportation corridor was developed with alignment considerations that complement the plan. The community is provided an opportunity to experience first-hand its native landscape—a landscape that has been all but lost.

The bank has proven to be a tremendous benefit to the development community. It makes the wetlands permitting process easier and relieves the developers of the responsibilities associated with mitigation. Developers who contact the bank indicate that its "in-lieu-of" system is a welcome relief from the lengthy and complicated process for conducting individual mitigation projects.

The public is also encouraged to visit the bank's holdings and learn about wetlands. Interpretive trails and educational areas are located along the perimeter boundary of the wetland with additional boardwalks carefully placed in the wetland area. The design and siting of the interpretive areas was planned by an interdisciplinary group composed of ecologists, botanists, resources managers, and landscape architects.

Publications about the mitigation bank include the *1996 West Eugene Wetland Mitigation Bank Annual*

Report, the *1997 West Eugene Wetland Mitigation Bank Annual Report*, and *The West Eugene Wetlands: Wetland Plant Supply Strategy*. The numerous general publications about the plan include *The West Eugene Wetlands Plan, Case Study: West Eugene Wetlands from Crisis to Opportunity*, and annual reports. Two videos, titled *Speaking for Wetlands* and *It Can Be Done*, are also available. A broad overview of the plan is available on the Web at *www.rice.edu/wetlands* and *www.edo.or.blm.gov/wetlands* and *www.ci.eugene.or. us/pdd/wetlands/*.

Superior, Wisconsin—Special Area Management Plan

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PROGRAM SUMMARY

Superior, Wisconsin, is a small city of 27,000 people. Its Special Area Management Plan (SAMP) guides land use decisions, streamlines the regulatory process, and offers wetlands protection that goes beyond previous wetland mitigation requirements. The plan's overall purpose is to protect and preserve high quality wetlands in balance with sustainable development. The major benefit in terms of local economic development is that the SAMP makes an expedited wetlands permit process possible. The city of Superior's planning and public works departments designed and implemented the program.

PROGRAM DESCRIPTION

The city was concerned that the permitting process was hampering local economic development. The city was unable to assemble a tract of five acres or larger that did not have a wetland impact, and the individual fill permit process could take more than a year per project with no assurance that the permit would be issued. In addition, the state of Wisconsin did not recognize mitigation as a legitimate wetland management tool. Local officials wanted to proactively streamline the permitting process to promote job growth within the city.

The 7,130 acres of wetlands within the city's boundaries represented 25 percent of the total land area and 65 percent of the land available for development. Many proposed projects required Clean Water Act (CWA) Section 404 permits (U.S. Army Corps of Engineers). The permit process was cumbersome and controversial because of the lack of long-range plans and comprehensive information on the extent of wetlands and sites that could minimize wetland impacts.

In 1990 the Corps (St. Paul District) and the U.S. Environmental Protection Agency (USEPA) suggested that the city prepare a Special Area Management Plan (SAMP) to expedite permit decisions. The goals of the SAMP were to identify both upland and wetland areas suitable for development; expedite the permitting process; protect moderate- and high-value wetlands and other important natural resources while allowing for development of less valuable wetlands; and create an effective plan to mitigate for wetlands lost to development under the SAMP.

The strategy for developing the program was to involve the regulatory agencies and resources in the process and to develop a long-range development plan. Once the city agreed to develop the SAMP, a steering committee was established consisting of city officials and agencies, the regional planning agency, and University of Wisconsin Extension. Its role was

to make recommendations regarding the scope and nature of the SAMP. The city also established a technical advisory committee that included representatives of federal and state regulatory and resource agencies and an environmental consultant retained by the city. The Wisconsin Department of Natural Resources played a significant role. The technical advisory committee's role was to advise the steering committee on which regulatory agencies must be addressed by the SAMP, and on which methodologies were appropriate to identify and evaluate wetland impacts.

Wetlands in Superior were inventoried and their functional value evaluated for water quality, flood control, stormwater management, groundwater discharge and recharge, fishery values, and wildlife habitat. Natural scientific areas and scenic values were also identified. After considering various scenarios of population growth and development patterns, a plan was developed to authorize filling 143 acres.

Additional accomplishments included drafting a SAMP ordinance to authorize and control development under the proposed SAMP general permits; identifying and setting mitigation site priorities; identifying all upland areas available for development; and addressing concerns about endangered and threatened plant species. As of 1998, the Superior SAMP was in the second year of a 10-year plan. The permit process has been greatly streamlined—permits are now issued within 20 days after a complete application has been filed.

Permit applicants (developers or others proposing to fill wetlands as part of a development project) are required by the SAMP ordinance to submit applications to the city's director of public works (DPW). The DPW determines that they are complete in terms of providing wetlands delineation, final grading plans, a mitigation plan, a survey of state-listed endangered and threatened plant species, and proposed steps to avoid and minimize impacts. The Corps and the Wisconsin Department of Natural Resources agree to an abbreviated review of each proposed activity, with electronic notice to the USEPA, U.S. Fish and Wildlife Service, and the state historic preservation officer. Unless the Corps or Wisconsin Department of Natural Resources notifies an applicant otherwise within 20 days, a proposed project becomes authorized under the appropriate general permit for the type of project (residential development, commercial development, industrial development, public use project, or institutional project).

The city is responsible for establishing and operating the SAMP compensatory mitigation plan. Two types of mitigation credits are possible: replacement credit through wetland construction, and preservation credit.

Replacement credit allows that for each acre of wetland filled through authorized development projects, the city agrees to construct one acre of wetland within the city limits, on a break-even cost basis. The city expects to construct most or all of the wetlands within its 4,200-acre municipal forest. The city contracts with private firms to construct wetlands, and then charges the developers that filled the wetlands. In the first two years, developers have been charged $2,500 per acre, and the city has been able to contract for constructed wetlands at approximately the same cost per acre. The first contract, for 30 acres of constructed wetland, was completed in the fall of 1998. If costs rise in the future, the city will raise the rate it charges developers.

The city can also arrange for mitigation credit through land preservation. For each acre of wetland filled as a result of a development project, the city must identify four acres of high quality upland that it agrees to preserve in perpetuity. The Wisconsin Department of Natural Resources helps select the upland to be preserved, which is typically shore land acreage within the municipal forest that abuts the St. Louis River.

The SAMP incorporates habitat and buffer protection through the city's mitigation process. Part of the city's mitigation credits can be achieved by preserving high quality uplands for shoreline protection and buffer as well as maintaining and protecting high quality wildlife habitat.

RESOURCES

Two staff members led the process—the city's planning director and director of public works. The mayor, the city attorney, and the administrative engineer were also substantially involved.

Approximately $300,000 was expended—primarily on consulting services, including the services of the Northwest Regional Planning Commission, based in Spooner, Wisconsin. Legal fees were also paid to a law firm. The funding sources for the program included the city of Superior and Douglas County. The Northwest Regional Planning Commission and a law firm specializing in environmental law provided technical assistance.

OUTCOME AND ACCOMPLISHMENTS

The city council adopted the SAMP ordinance in January 1997. Development projects completed during 1997 were mainly public use projects (school soccer fields and school expansion, with a small amount of wetland filled for residential development).

The effectiveness of the Superior SAMP has gone well beyond the original expectations. The economic development benefit has been considerable, since developers no longer have to go through a lengthy permitting process.

Having mitigation credits readily available for

prospective developers of SAMP sites gives the city an effective marketing tool. City staff report that the expedited permit process has helped attract new business, throughout 1998. Specific examples of SAMP-related development include both public and private projects, including the following:

- Soccer fields. The city seized the opportunity to receive free fill material from a developer's construction site to construct three soccer fields on wetlands on public school property. This significantly reduced the cost of developing the fields, and facilitated development of an important recreational amenity.
- Site development. Two major development projects, one retail and one industrial, each over 10 acres, have been completed. The SAMP facilitated the process with virtually no regulatory agency concerns expressed.

The lesson learned is that commitment and persistence pay off. The process took nearly seven years and involved a major commitment of staff time on the part of the city and the regulatory agencies.

The city developed strong partnerships with the regulatory agencies involved—especially the Wisconsin Department of Natural Resources and the Army Corps of Engineers. Another key player was the Northwest Regional Planning Commission.

The city maintains a large file of materials related to SAMP development and implementation. Certain material are available upon request, although a fee may be charged if the request for materials is substantial. A suggested publication is "The Making of the Superior SAMP," by Ben A. Wopat, in the *National Wetlands Newsletter*, The Environmental Law Institute (Vol. 20, No. 3), May-June 1998.

Westchester County, New York—Watershed Management and Model Wetland Protection Ordinance

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PROGRAM SUMMARY

The Westchester County Soil and Water Conservation District, staffed by the Westchester County Department of Planning, is responsible for watershed protection in an urban area that is home to 893,412 people. The conservation district developed a technical assistance program for wetland management in 1985 that has three major components:

- Public training workshops
- Assistance in reviewing development and other activities, including wetland boundary verification and delineation, wetland functional analyses, impact assessment, and reviews of site development and mitigation plans
- Assistance in revising and developing municipal ordinances to regulate wetlands.

In the course of reviewing and commenting on dozens of proposed local laws governing land uses in and around wetlands, the district noted significant variations in regulatory approaches, definitions, scopes of applicability, and degrees of protection afforded wetlands by municipalities in Westchester County. To strengthen wetland protection in the county and standardize local regulations to the extent practicable, the district published the Model Ordinance for Wetland Protection in 1988. This model encouraged municipalities to seriously consider wetland protection and sound management in addition to standardizing their approaches to wet-

land management, both in terms of criteria used to define these ecosystems and regulatory philosophy.

The 1988 model was extensively revised in 1997 to reflect current state and federal guidelines, policies and laws, recent developments in wetland science and mitigation technology, and past experiences with the administration and enforcement of wetland regulations.

The model helped municipalities protect wetlands and watercourses within their boundaries. To date, 16 municipalities in Westchester County have incorporated, in whole or in part, the essential components of the model ordinance into their existing or pending wetland protection ordinances. Model ordinances in other counties also have been patterned after the district's model.

PROGRAM DESCRIPTION

The district's model ordinance is intended to bring a degree of standardization to wetland protection in each of the county's 43 municipalities (incorporated villages, towns, and cities). Such standardization would provide a common level of wetland protection throughout the various watersheds in Westchester County.

The district's model ordinance allows for a streamlined process of regulating wetlands. Many of the provisions in the model, such as impact avoidance, minimization, and mitigation, satisfy the requirements of state and federal agencies. Therefore, it is assumed that applicants who comply with the requirements of the model ordinance also will comply with many, if not all, of the wetland protection requirements of state and federal agencies. However, this does not alleviate the obligation of applicants to acquire permits from appropriate local, state, and federal agencies. The model ordinance comprises 13 primary sections, including:

- Applicability of ordinance, including rules for establishing and interpreting wetland boundaries, as well as non-conforming activities
- A glossary of technical definitions of wetlands
- Permit requirements, including a list of permitted and regulated activities
- Standards and procedures for permits, including permit approval authorities, mitigation policy and plan requirements
- General powers of permit approval and enforcement authorities.

The revised model ordinance adopted in 1997 reflects regulation changes and new research information, including new state and federal manuals for delineating wetlands, the maturation of the science of wetland restoration and creation, and changes in state and federal guidelines, policies, and laws.

It is the district's formal policy to further the protection, preservation, and conservation of wetlands in a number of ways, including disseminating the model ordinance; encouraging municipalities to protect wetlands not regulated under state statutes; assisting municipalities with wetlands protection, identification, and delineation; and providing wetlands education to municipal officials and the general public. The district has formal memoranda of understanding with 38 of the 43 municipalities in the county to provide the technical expertise of district staff in the areas of wetland science, management, and regulation.

The Westchester County Department of Planning is involved in a number of major watershed planning initiatives, including those for the Long Island Sound, New York City drinking water supply, and Hudson River watersheds. In each of these planning efforts, the department facilitates the involvement of all levels of government, environmental organizations, educational institutions, and the public. It also provides much of the technical assistance for these efforts.

The district's model ordinance serves as a tool in each of these efforts by offering a standardized approach to wetland management. Because wetlands effectively remove many of the pollutants that adversely impact water quality, their protection should be paramount in any watershed planning process.

In the case of the Long Island Sound watershed, the county planning department provides the technical and administrative support to inter-municipal watershed advisory committees to help them develop subwatershed plans to control nonpoint source pollution. A major component of the planning process was the evaluation of existing municipal regulations impacting water quality.

Based on a comparison of existing regulatory controls to the model ordinance, specific recommendations were made for each municipality to amend existing ordinances or adopt new ordinances with the goal of bringing all municipalities to the same standard of wetland protection. The municipalities involved have endorsed the recommendations made in each of the two nonpoint source pollution control plans completed to date. Some of these recommendations already have been implemented.

The implementation of regulations protecting the New York City water supply watershed in Westchester County has begun. As part of this process, a plan for the protection of the Croton Reservoir watershed in Westchester, which is part of the city's larger reservoir system, also is being prepared. This plan is expected to include an assessment of existing municipal wetlands and watercourses protection ordinances, which will use the district's model ordinance as the benchmark for evaluation.

RESOURCES

The Soil and Water Conservation District is staffed by the county department of planning. One staff person is devoted full time to the district, while another spends a substantial amount of time furthering the district programs and services. Other department staff persons are available as needed. In general, however, staffing limitations have constrained the outreach efforts associated with the wetlands assistance program, particularly the training workshops. The district does continue to provide the other major components of the wetland assistance program, as requested.

OUTCOME AND ACCOMPLISHMENTS

The district is extremely pleased with its model ordinance and its ability to provide the technical assistance program for wetland management. A survey conducted in 1997 indicated that 30 of the 43 municipalities in Westchester County have some type of wetlands protection ordinance and 16 have used all or part of the district's model ordinance for wetland protection in the development of their ordinances. The survey was published with the updated model ordinance and was distributed to all of Westchester's municipalities. The district continues to encourage municipalities with existing ordinances to update and strengthen these ordinances to the standards recommended in the model ordinance. The district also supports other municipalities in their efforts to adopt wetland protection ordinances.

The program continues to teach municipalities about the benefits of more uniform wetlands and watercourse protection ordinances, in addition to the benefits of more stringently protecting wetlands and watercourse. It continues to be an important model for municipalities to follow when they develop wetlands and watercourse protection ordinances in New York State. The district has also gained valuable insight into the local regulatory process from a municipal viewpoint. For example, while representatives from the less developed municipalities supported the 100-foot-wide regulated setback from wetlands, those from urban municipalities doubted a setback of this width would be feasible in the densely populated communities of southern Westchester. The district retained its recommended 100-foot-wide setback in the model ordinance, but noted that this width could be changed in accordance with the desires of municipalities.

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