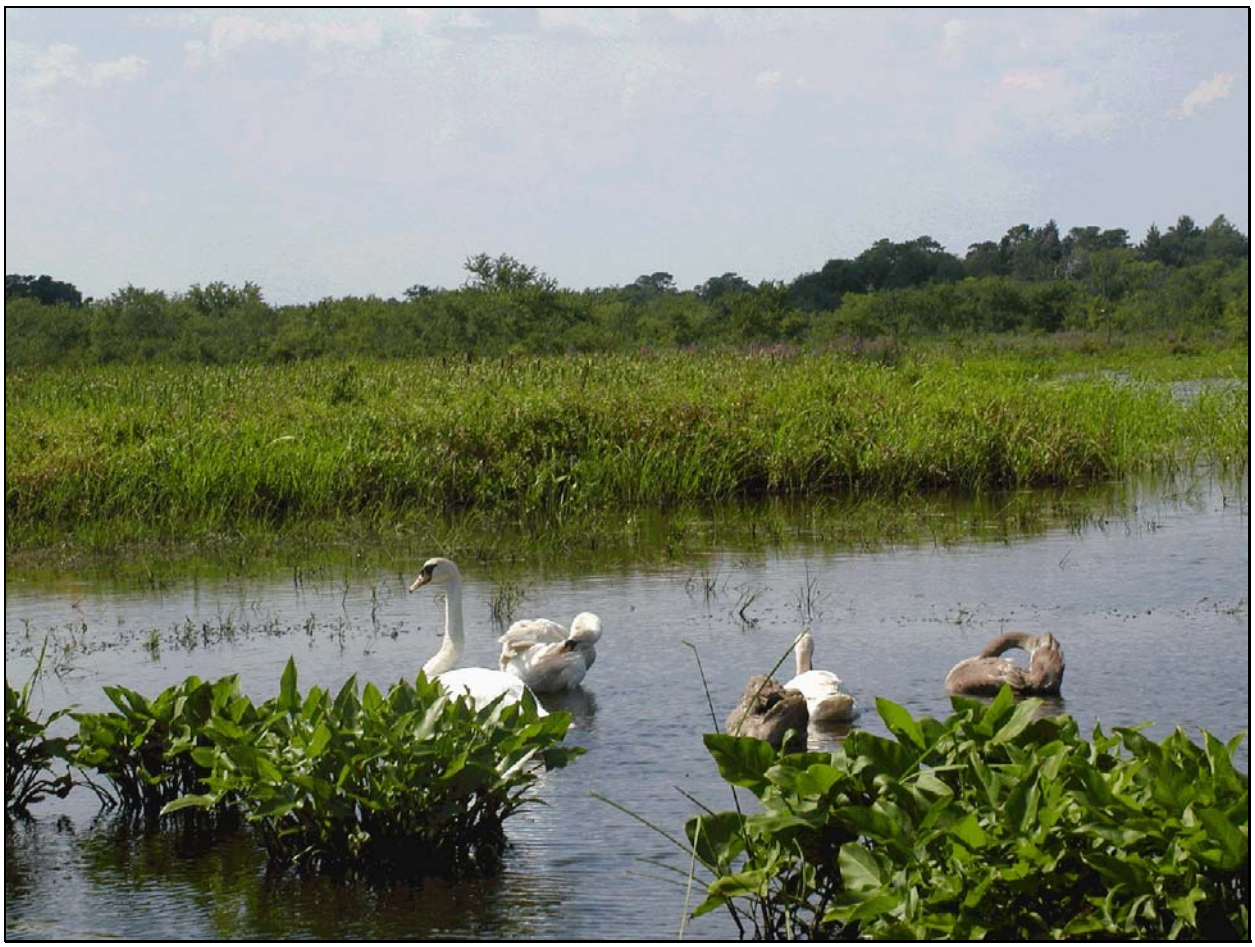

METEDECONK WATERSHED

SOURCE WATER ISSUES REPORT

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INTRODUCTION

The Metedeconk Source Water Issues Report was originally designed as a tool to guide discussion at the January Source Water Analysis Workshop. After the Workshop, we reviewed, revised, and finalized the report findings with the local committee. Our goal was to develop a report that presents a realistic and agreed-upon analysis of local source water issues and recommendations to assist the Stewardship Exchange Team and the community as they develop implementation strategies for land conservation and restoration in the Metedeconk Watershed.

Specifically, the purpose of the Report is to:

1. Provide background and context on the watershed and the jurisdictions within it for the Stewardship Exchange Team's visit in early June, 2003,
2. Outline the primary drinking water protection issues faced by the source water area,
3. Identify how land conservation, forest management and restoration tools might be used to address those issues,
4. Identify the most viable funding sources for both protection and restoration; and,
5. Present draft maps that identify potential priority areas for protection and restoration.

The Source Water Issues Report presents the analysis and observations of the project partners, based on feedback from our initial meeting and, technical research – including surveys, one-on-one discussions with local committee members, and review of the documents identified on the last page of this report. Much of the watershed data in this report was drawn from Camp Dresser & McKee's *Metedeconk River Watershed Management Plan*, Phase I, December 2000.

SUMMARY OF FINDINGS

THE WATERSHED

BACKGROUND

The Metedeconk River Watershed (232.1 km2) is located in east central New Jersey. The Metedeconk River forms a portion of the boundary between Ocean and Monmouth County and flows into Barnegat Bay. The river, a relatively pristine water body in a densely populated area, provides drinking water to about 100,000 people in Ocean County, New Jersey. The river, which supplies the Brick Township Municipal Utilities Authority with 74 percent of its raw water supply, is fed by the 70-square mile watershed that runs through seven towns in two counties.

TOWNSHIPS IN WATERSHED		
	MUNICIPALITY	*SQUARE MILES*
MONMOUTH COUNTY		
	Howell Township	20.7
	Freehold Township	10.4
	Wall Township	0.3
	Millstone Township	0.2
MONMOUTH TOTAL		31.6
OCEAN COUNTY		
	Jackson Township	21.4
	Lakewood Township	14.9
	Brick Township	1.4
OCEAN COUNTY TOTAL		37.7

The Metedeconk watershed is a sub-watershed of the Barnegat Bay Watershed which covers most of Ocean County and has been widely studied in the last ten years for its recreational and ecological value. The Barnegat Bay Watershed was designated by the U.S. Environmental Protection Agency (EPA) in 1995 as a National Estuary Program (NEP) site. The Metedeconk itself has been the subject of extensive study by Brick Township Municipal Utilities Authority (BTMUA), and much of the background information in our

summary comes from BTMUA's Camp Dresser & McKee's Phase I Report for the Metedeconk Watershed Management Plan.[1]

The topography of the Metedeconk Watershed is characterized by low relief (sea level to 320 ft.) and the river receives most of its flow from the unconfined Kirkwood-Cohansey aquifer system. This shallow aquifer system ranges in thickness from sea level in the northwest to over 150 feet thick near the mouth of the Metedeconk River. The fine sands of the aquifer system make for high conductivity and high potential yields of water.

Annual groundwater discharge to streams, called baseflow, has historically been 63 to 79 percent of the total annual flow in the north and south branches of the Metedeconk River. During periods of low precipitation, baseflow makes up 100 percent of the flow. It is important to maintain baseflow for groundwater withdrawal for drinking water and for discharge of fresh water to Barnegat Bay to maintain a healthy estuary.

Land, People and the Local Economy

According to the New Jersey Department of Labor, between 1998 and 2008, the coastal region of the state has a projected employment growth of 14.4%, making it the fastest growing region in New Jersey. The coastal region includes Monmouth and Ocean counties. The 2000 Census shows Ocean County having 510,916 people with a labor force of 216,675 and a 5.5% unemployment rate. The health services industry has by far been the fastest growing employment sector and is now the top employer in the county.[2] In Ocean County, residents hold the bulk of jobs available in the county, with 9,968 employees commuting from Monmouth County and 2,099 commuting from Burlington County. Ocean County residents also commute to Monmouth County (33,142), Middlesex County (9,629), Atlantic County (4,703) and New York (4,454).[3]

The total population in Monmouth County is 615,301 with a labor force of 307,178 and a 5.3% unemployment rate. The county population increased 11.2% between 1990 and 2000, but in Howell and Freehold Townships in the Metedeconk watershed, the population increased by 25.4% and 27.6% respectively. In both townships, jobs are predicted to grow by approximately 17% each by 2020.[4] In Millstone Township, the population increased 77% over the last decade.

Development in both counties has traditionally occurred along the coastal beaches. During the latter part of the 1800's through the 1900's the resort industry of the New Jersey Shore was developed. The attractiveness of the coastal location triggered a huge in-migration from 1940 to 2000, making Ocean County the fastest growing county in the state during this period. Suburbanization beyond the coast is also occurring at a fast rate.

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[1] Camp, Dresser & McKee, Metedeconk River Watershed Management Plan, Phase I Watershed Characterization and Preliminary Analysis, December 2000.
[2] Ocean County Department of Planning, www.oceancountygov.com
[3] Ibid.
[4] Monmouth County Development Board, Western Monmouth County Development Plan, Draft Corridor Profile and Problem Identification Report, March 2002, www.shore.co.monmouth.nj.us.

Both counties are experiencing regular growth in subdivision and site plan approvals. With an average over the past few years of 532 approved annually in Ocean County; over 5000 new housing units are planned or permitted in Howell and Freehold townships in Monmouth County between 2000 and 2020.[5]

In general, over 50 percent of the watershed is presently classified as open space and 27% classified as residential. Commercial and industrial uses represent about 4 percent of the land. Brick is the most developed of the townships with only 18% open space, and Wall, Freehold and Jackson (all over 50% open space) have the least development. About 53 percent of the land is wetland, much of which is in the headwaters.

According to 1995 NJ DEP land cover estimates, the watershed is about 60% forest and wetland (30% each), 35% development and 4% agriculture, with total impervious cover at 17%. The percent of developed land has likely increased since 1995, with a resulting loss of forests and wetlands. Research in watersheds around the country has shown that if impervious cover exceeds 10% or if forest cover declines below 75% there can be a measurable decline in water quality.[6]

Urbanization has led to the loss of forests and small isolated wetlands across the watershed. Most of the new development in the central and eastern portion of the watershed (relative to Route 9) has occurred on relatively small patches of forest, barren lands, or wetlands that were already surrounded by residential, commercial, and industrial land. By contrast, new residential subdivisions in the western portion of the watershed have converted larger areas of forest and farm land into low and medium density house lots.

Several attributes of the Metedeconk River watershed offset or counterbalance what otherwise would be a challenging situation: (1) a large portion of the watershed is wetland, (2) riparian forests are relatively intact, (3) the topography is gentle with few slopes exceeding 5%, and (4) soils are sandy, deep, and well-drained. As a result, stormwater runoff is slower and infiltrates more easily, and the large wetland forests in the headwaters contribute significantly to water quality and quantity. But the Metedeconk watershed is rapidly approaching a threshold after which development impacts on water quality could increase significantly.

Even though the river's riparian corridor is presently primarily wetland and open space, zoning within a 100 foot buffer strip on either side of the river is not protective in that 86% of the land in the riparian corridor is presently zoned for residential development and almost 13% is zoned for commercial or industrial development. Present zoning in the watershed would allow most of the open space to be developed.

The biggest challenge facing the Metedeconk watershed is the booming growth rate and the existence of zoning which would, at full build-out, transform the watershed from almost 60% open space to a watershed characterized primarily by residential development and only 18% open space.[7]

[5] Ibid., Ocean County Department of Planning; Monmouth County Development Board.
[6] Barten, et. Al. Conservation, Restoration and Stormwater Management Priorities for Source Water Protection in the Metedeconk River Watershed, New Jersey. January 2003, pg, 5.
[7] Ibid., page E-3.

PRIMARY THREATS TO WATER RESOURCES

BACKGROUND

Brick Township, Point Pleasant Borough, Point Pleasant Beach Borough, Howell Township, Lakewood Township, and Jackson Township all draw their water from the Metedeconk River watershed, most of which use groundwater. Jackson Township draws solely from private wells. Only BTMUA uses surface water in providing water service to the entire township. BTMUA pulls 6.5 million gallons per day to serve Brick Township, Point Pleasant Borough, and Point Pleasant Beach Borough. The estimated population in Brick Township in 1998 was 75,561. Total water use in 1998 was 7.9 million gallons per day. Of this total, 75% came from the Metedeconk River, 24% came from deep groundwater wells and the remaining 1% came from shallow wells. Total population served by Metedeconk intakes is just over 100,000.

BTMUA is actively working to increase the reliability of its water system by increasing storage capacity with, first, proposed temporary storage of treated drinking water within the underground aquifer for later withdrawal; and, second, the completion of a 1 billion gallon reservoir to store water from the Metedeconk during periods of peak flow.[8] The groundbreaking for the new reservoir took place in September 2002, and the reservoir should be finished by Fall 2003. Water will be pumped from the Metedeconk via 4.7 mile 42-inch diameter pipeline.

WATER QUALITY

The groundwater contributing to the baseflow of the Metedeconk River is of high quality. Based on USGS data, nitrates are generally less than 1 ppm, chlorides are only between 5 and 10 ppm, pH is generally around 5, and there are no appreciable metals in the groundwater that can migrate into the river water. The quality of the groundwater feeding the Metedeconk River is not uniform, however, due to the short flow paths from recharge areas to discharge to the river. The short flow paths make local impacts to groundwater quality significant and make the river more vulnerable to local sources of groundwater pollution.[9]

For surface water, BTMUA samples ammonia, conductivity, dissolved oxygen, fecal coliform, total dissolved solids, temperature, pH and total organic carbon. Water quality data averaged from 1996-98 were collected by Camp Dresser & McKee. Overall, the water quality was good. Lead and cadmium are a concern, as is phosphorus. Data for fecal coliform is variable, with counts spiking after rainfall events as runoff impacts the river. There is little data for total suspended solids – an indicator of soils management and erosion control; and no stormwater runoff water quality data for the river. As the watershed continues to be built out, Camp Dresser & McKee modeling data show TDS, TSS, DP, TKN, BOD, and metals to be potential problems, as well as declining baseflow.[10]

As demand for water supplies increases and development spreads into source areas, BTMUA and other suppliers will increasingly draw water from a rapidly developing watershed, where land use controls to protect water quality are limited. The water quality of the Metedeconk River is generally good, but the rate of development and its impact on stormwater runoff peak and volume will be increasingly challenging to water supply management. The loss of pervious cover and the river's riparian corridor under full build out

[8] Ibid., page 2-1.
[9] Ibid., page 4-2.
[10] Ibid., page 4-3.

to residential development could degrade water quality and damage riparian habitat. Camp Dresser & McKee's analysis of existing local ordinances in Jackson, Howell and Lakewood showed that none of these upstream townships have developed a stormwater management plan.[11]

Because ground and surface water supplies are so closely related in the Metedeconk, drinking water supplies must be managed as one interconnected resource. As groundwater supplies decrease, so do surface water supplies. As groundwater supplies become contaminated, so do surface water supplies. Therefore, threats to groundwater supplies in Lakewood or Jackson are the same as threats to surface water supplies in Brick.[12]

In September 2002, Mayor Scarpelli of Brick, in a move to further link land use and water quality management, requested State designation of the Metedeconk River as "Category 1." A Category 1 designation was granted, providing the river with the highest protection the state offers and prioritizing the lands along the river for land conservation funding from the state's Green Acres program.

Key steps to protecting groundwater and surface water resources with conservation:

1. *Focus on stormwater management*: Use the new state rules on regional stormwater management to create an action plan for regional watershed management. Identify key focus areas and develop property-specific action steps to address conservation and restoration priorities. Use the GIS-based analysis proposed in this project to identify areas in the watershed where watershed protection strategies can have the greatest impact in reducing pollutants, particularly fertilizers, pesticides, metals, chlorides and gasoline derivatives, from reaching water sources. Focus regulatory and volunteer efforts on priority hot spots. Target land conservation funds to forested sites especially in riparian areas. Focus on the creation of buffers, wetland protection and acquisition of lowlands that could be recreated wetlands with solutions that help address stormwater volume. Consider jurisdictional cost-share, stormwater utility fees and regional financing solutions.
2. *Protect and restore forests – particularly riparian forests – and wetlands.* Protecting and managing existing forests, wetlands, and natural land will protect groundwater infiltration, watershed hydrology and water quality. Healthy forests and wetlands, which are being lost to development throughout the watershed, contribute significantly to maintaining water quality and quantity and will be key to the long-term health of water resources.
3. *Targeted landowner outreach:* In addition to regulatory programs and agency cooperation, key landowners in the watershed need to be approached with education on their role in water quality protection, cost-share and technical assistance programs to help them address water quality issues, and conservation options for selling fee or easement interests. Existing cost-share programs, technical assistance programs and land management strategies offered by state and federal agencies should be re-focused by local agencies on those landowners whose property is key for water quality protection.

[11] Ibid., page E-4.
[12] Kennish, M.J., 2001. Characterization of the Barnegat Bay-Little Egg Harbor Estuary and Watershed. Journal of Coastal Research, SI(32), 3-12.

STRATEGIES FOR ADDRESSING THREATS

STORMWATER MANAGEMENT

The volume of stormwater that flows over the land has a tremendous impact on both the quantity and quality of water supplies in the Metedeconk. Pollutant loads are a factor of both the concentration of pollutants and the volume of stormwater (rate of flow); therefore, decreasing stormwater volume will simultaneously decrease the concentration of nutrients and metals reaching the treatment plant when it rains. According to the Monmouth County Health Department, significant reductions in the loading rates for fecal coliform and phosphorus will occur just by reducing the volume of stormwater from contributing land uses.

High stormwater volume also erodes streambeds, increasing sediment in the surface water. Because fecal coliform and phosphorous cling to sediment, levels are many times higher in sediment than in the water column; therefore, reducing erosion and the ensuing sediment will simultaneously reduce fecal coliform and phosphorous loadings.

Additional development, and the resulting increase in stormwater runoff, would cause an increase in phosphorus and metals, which are already high. High phosphorous levels would also lead to an increase in algae blooms in Forge Pond and the new reservoir, and a decrease in oxygen levels in the water (eutrophication). All of these water quality changes would result in an increase in taste and odor problems, potentially long term health threats from metals and would require expensive treatment procedures.

EPA's Phase II Stormwater rules and New Jersey's new rules on developing regional stormwater management plans will provide a framework for the Metedeconk watershed to address stormwater issues. The plan that emerges from the effort should include alternative stormwater practices, such as Low Impact Development (LID). LID uses innovative lot-level-based management strategies and techniques that work to preserve ecosystem functions. LID combines old and new management principles and practices with five basic steps: (1) conservation measures, (2) minimization techniques, (3) concentration of runoff, (4) use of distributed integrated management practices, and (5) effective use of pollution prevention measures.[13]

LID practices fall in line with land conservation and restoration goals and will further link land use planning and open space protection with water quality goals. As the watershed is further poised for development, LID practices can be implemented now to guide future development and identify key conservation sites. LID practices should be explored especially for guidance in stormwater retrofits and addressing existing development.

Stormwater programs historically have been under-funded, and investments in the construction and maintenance of storm sewer systems often have been made only when money is left unspent in the budget. Additionally, EPA's new pollution control requirements come at a time when most communities' stormwater budgets are already strained by reductions in federal funding and competition with other local agencies and departments. BTMUA needs to develop stable funding sources for stormwater management programs that will be critical to addressing drinking water quality, including alternatives such as stormwater utilities, impact fees, permit and inspection fees, property tax-based funding streams, and other public financing tools.

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[13] Coffman, Larry S., "Using Low Impact Development in Stormwater Management," Water Environment Research Foundation Progress Newsletter, Winter 2001.

- **Consider implementing a LID framework for stormwater management**. LID's multiple systems generate one-third less flow than conventional sites for small storm events.[14]
- **Consider new stormwater fees** to help with restoration, conservation and new LID stormwater management practices.
- **Consider creating a watershed association** for the Metedeconk River watershed. The association can be a loose collection of agencies or it can be an organization created with some governmental authority with regulatory powers. The association can act as an umbrella organization to establish links between political jurisdictions since its jurisdiction is the watershed; it can serve as a clearinghouse for activities including mapping and monitoring; and it can set goals, and review and prioritize management strategies. Most importantly, it can advocate for funding at the regional level. New Jersey state stormwater management planning goals provide an opportunity for the watershed to consider a new entity to address the cooperative effort that will be needed to conduct a watershed planning and implementation exercise.

FOREST AND NATURAL RESOURCE PROTECTION

A major finding from the Camp Dresser & McKee report is that current zoning is not sufficiently protective of existing wetlands or forests in the riparian zone. According to CDM, "…over 86% of the land [within a 100-foot buffer on either side of the river] is presently zoned for residential development, and almost 13 percent is presently zone for commercial or industrial development."[15] The protection of mature healthy forests, particularly in contiguous tracts in riparian areas, should be a primary goal throughout the watershed. According to the Barnegat Bay Characterization Report, only 6.7% of the Metedeconk River Watershed is in public ownership. This is the lowest percentage of public ownership of any subwatershed in the Barnegat Bay watershed.[16]

- **Conserve and restore forests** (wooded areas), particularly riparian forests. Forested areas hold back up to 1/3 of stormwater runoff.
- **Protect current, and create new, wetlands**. Wetlands hold storm flow, reduce coliform and nitrates and increase infiltration.
- **Coordinate regulatory controls** of buffer and riparian area development among townships, particularly Jackson and Howell where growth is fastest. Offer this project as a demonstration to the State for coordinating new stormwater rules; source protection planning and watershed management plans.
- **Identify riparian corridors** using GIS-based analysis that would be well suited for public ownership or conservation easement and target those areas for land conservation. These areas may also be well suited for wetland protection and creation for stormwater management, recreation, and/or habitat protection.

TARGETED LANDOWNER OUTREACH

State and federal cost-share and assistance programs were originally created to benefit land owned and managed for agriculture, with programs that addressed best management practices and water quality. But these programs are slowly evolving as the nature of land ownership changes. Urbanization, increasing development and different land ownership goals are beginning to impact how assistance programs work.

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[14] Coffman, Larry S., "Low Impact Development Creating a Storm of Controversy," Water Resources Impact, vol. 3, no. 6, page 7.
[15] Ibid. Camp, Dresser & McKee, page 7-3.
[16] Kennish, M.J., 2001. Characterization of the Barnegat Bay-Little Egg Harbor Estuary and Watershed. Journal of Coastal Research, SI(32), Table 13.

Many of the 2002 Farm Bill programs – the Wildlife Habitat Incentives program, the Wetlands Reserve program, and the Forest Stewardship program, for example – now include eligibility for forested properties, and specifically address water quality, and the protection of wetland and riparian areas.

The forest management plans that are often a requirement for landowner participation in cost-share and assistance programs are fostering an increased local knowledge that can provide a database of information to help target those properties where protection and restoration can have the greatest benefit. Technical assistance can take the form of helping landowners complete management plans, sharing information on cost-sharing programs, providing information on tax incentives, and offering information on acquisition programs where landowners are interested in selling their property.

- **Create an annual goal for landowner outreach**. Counties should use their GIS-based information and other information to identify key landowners – with larger properties that can be of strategic importance for protection – and work with those landowners annually on a longer term strategy for protection, restoration or management best practices. Use the proposed 'threshold analysis' cited above as a basis for identifying key landowners for water quality protection purposes.
- **Revisit current extension/outreach technologies.** Use the stewardship exchange process to seek out best practices and new ideas regarding landowner outreach that meets growing differentiation of landowner type and need.

PAYING FOR PROTECTION: FUNDING STRATEGIES

LAND CONSERVATION

If the effort to protect land within the Metedeconk watershed is to be considered a success, it is essential to move beyond assessing priorities and actually protect land. In order to accomplish this goal, a range of funding options must be utilized to create a "funding quilt" that will sustain land acquisition both in the near term and over the long term. The specific recommendations will help draw upon a combination of local, state and federal funding to protect land in the Metedeconk Watershed.

LOCAL

New Jersey is the unquestioned national leader in local government participation paying for land conservation. As a result of state-enabling legislation first approved in 1997, roughly 200 municipalities and 20 of 21 counties have established local open space taxes based on the property tax. Local governments have an incentive to create their own open space taxes since the state's Green Acres grant program will provide 50% matching grants for land conservation projects if they have dedicated open space funding and an open space plan. Otherwise, grants are limited to 25% of a project's costs.

Both Monmouth and Ocean Counties have open space taxes, along with five other communities in the Metedeconk watershed. Ocean County approved an open space tax of 1.2 cents per $100 of assessed value in 1997, which raises $4.8 million per year. In November 2002, Monmouth County voters approved an increase in their open space tax to 2.7 cents, with 72% support. This levy will raise $16 million per year. [17]

At the municipal level, five of the seven municipalities that comprise the source water supply area of the Metedeconk watershed have open space taxes. Brick (1 cent) and Jackson Townships (1.5 cents) in Ocean County, along with Freehold (2 cents), Howell (1 cent) and Millstone Townships (5 cents) in Monmouth County all have open space taxes. In 2001, these communities each raised between $260,000 and $450,000, although it is unclear whether acquisitions were focused on projects that protect drinking water sources. Establishing open space taxes in the two communities that lack them —Lakewood and Wall Townships— would be an important step to expand protection of open space in the Metedeconk Watershed. Increasing the existing taxes in Brick, Howell and Jackson Townships, as well as Ocean County would also help expand funding for open space and drinking water source protection.

Beyond the open space tax, there are several other funding options that may be considered – a stormwater management fee and a water supply protection fee.

A stormwater utility is an independent authority whose primary focus is to ensure water quality and provide flood control protections. It receives its funding by levying a fee on impervious cover (pavement, roofs). Stormwater utilities have been used around the country to cope with stormwater management issues, although they typically have not used land conservation as a solution. Lenexa, Kansas, however, has successfully used its stormwater utility to acquire land for open space; their practices could serve as a model for the Metedeconk. A common alternative to creating a stormwater utility is to have existing water and sewer utilities or departments of public works provide stormwater management and to levy a stormwater management fee. Since the research for this report did not turn up any examples of stormwater utilities in New Jersey, it may be more practical for the existing municipal utilities (water and sewer) to address the stormwater management issue, including land conservation.

[17] Of the $16 million approved by voters in 2002, $12 million is funding parkland preservation, $2 million is funding park development, and $2 million is funding cooperative municipal projects.

One additional option would be for the local water suppliers to levy a fee on monthly water utility bills to acquire land for watershed protection. This has been successfully used by a number of water suppliers across the country, including Salt Lake City, Utah, described in Appendix B. With at least three primary water suppliers —Brick, Freehold and Lakewood Township Utility Authorities— it may be a challenge to establish such a surcharge uniformly, but it should be considered.

RECOMMENDATIONS FOR LOCAL FUNDING:

1. **Seek passage of new open space taxes or increase existing open space taxes:** There are seven municipalities that comprise the water supply area of the Metedeconk River. Of these municipalities, only two —Lakewood and Wall Townships— do not have open space taxes. A thorough feasibility analysis should be undertaken to determine what the prospects are for establishing open space taxes in these two places. Brick and Howell Townships both levy 1-cent (per $100 of assessed value) open space taxes and might consider whether these could be raised; as context, Jackson, Freehold and Millstone levy 1.5, 2 and 5 cents, respectively. Ocean County might also explore whether it can boost its current 1.2-cent open space tax, approved in 1997, to increase the annual revenue above the current $4.8 million/year. In 2002, Monmouth County approved its second increase to $2.7 million, which will raise $16.million/year.
2. **Include stormwater management as part of local utility responsibilities**: With stormwater management being an important issue for the entire Metedeconk Watershed, local leaders should examine whether establishing stormwater management fees on impervious cover could fund a range of stormwater management efforts, including land conservation. Since this report uncovered no examples of stormwater utilities in New Jersey, it may be more practical to incorporate stormwater management functions into existing water and sewer utilities. The most notable example of a community that is using a stormwater utility for land conservation is Lenexa, Kansas, discussed earlier in the report.
3. **Watershed protection rate surcharge:** A number of local governments around the country — notably Salt Lake City— have ratepayer surcharges (e.g., $1/month) for the acquisition of watershed supply lands. One means of protecting land across the watershed would be to incorporate such a surcharge into the rate structures of the different water suppliers comprising the Metedeconk. If this idea has any viability, it would be necessary to examine the feasibility of this from fiscal, legal, and political perspectives.

STATE

For more than 40 years, New Jersey voters have strongly supported state funding for land conservation, approving 9 separate bond issues totaling $1.4 billion. In 1998, New Jersey voters approved a constitutional amendment creating the Garden State Preservation Trust, which will receive $98 million annually over 30 years for land conservation ($92m) and historic preservation ($6m). New Jersey land conservation funding supports the Farmland Preservation Programs as well as the Green Acres Program. The Green Acres Program, part of the NJ Department of Environmental Protection, provides grant and loan funding to local governments and non-profits as well as provides direct state aqusition of land.

As noted earlier, the Green Acres Program has been a critical factor in local adoption of open space taxes. In the Metedeconk region, over the past five years, local governments (five municipalities and two counties) have received nearly $23 million in Green Acres grants and loans to help protect 2,270 acres of land.

Overall statewide, the state has protected 20,000 acres with $200 million in grants and loans. In addition, the state's farmland preservation program provides 60% of the cost of county farmland preservation efforts. In Monmouth County, the state has provided roughly $20 million of the $33 million spent between 1987 and 2000 to protect 6,000 plus acres.

At present, the state of New Jersey is facing a significant fiscal crisis that has led to sizable budget cuts to state land conservation program. In the fiscal 2002 budget approved earlier last year, $35 million was not re-authorized from the Green Acres Program and the Farmland Preservation Program. Although these were presented as one-time cuts, local supporters of land conservation in the Metedeconk need to work diligently to preserve the state funds that are critical to leveraging local (and private) land conservation dollars.

RECOMMENDATIONS FOR STATE FUNDING:

1. **In a challenging fiscal climate, local supporters of land conservation must advocate for strong statewide conservation funding**: The Green Acres Program, through its Planning Incentive Grants, has been a major factor encouraging county and municipal governments to establish their own open space taxes. Both Ocean and Monmouth counties have greatly benefited from Green Acres Program grants and loans, as well as the five municipalities that have adopted their own open space taxes. With Green Acres and the Farmland Preservation Program sustaining sizable budget cuts last year, it is important that local supporters of land conservation continue to make the case in Trenton that strong state support of conservation funding is critical.

2. **Maintain or expand New Jersey Environmental Infrastructure Trust's (NJEIT) land conservation funding**: Over the past few years, New Jersey has been a leader in using its CWSRF funds to help fund loans for land conservation. With strong demand for the program, NJEIT should continue to support the land conservation loan program and expand it, if possible.

FEDERAL

At the federal level, there are three distinct types of funding for land conservation: 1) State directed programs, in which states receive grants from the federal government, but are given broad discretion to allocate funds (subject to federal program rules); 2) Direct federal programs, in which the federal government makes direct grants to local recipients, usually local governments; and 3) Direct Federal Acquisition.

State directed federal grants include the Clean Water State Revolving Fund (CWSRF) and the Drinking Water State Revolving Fund (DWSRF). The CWSRF provides grants to states, which then make loans to local governments for water quality improvements, most commonly wastewater treatment plants and water quality equipment. New Jersey, through NJEIT, has made extensive use of its CWSRF funds (along with other state funds) to fund land conservation for clean water protection. The Fund provides 0%/20 year loans for half the project costs and the Trust provides loans for the other half the costs at less than half of market rates (in 2001, the rate was 2.19%).

In fiscal 2001-2002, NJEIT loaned nearly $30 million to 18 land conservation projects; for fiscal 2003, the state's financing program lists 8 land conservation projects totaling $37 million in costs, including a $4.8 million project in Brick Township, part of the Metedeconk Watershed. By its innovative use of CWSRF funds for land conservation, New Jersey is already at the leading edge nationwide. Moving forward, NJEIT's sustained, or increased, commitment to land conservation funding can play an integral role in efforts to protect important watersheds like the Metedeconk.

The DWSRF makes loans to improve public drinking water systems, with funding often used for water treatment plants. States have the ability to set aside up to 10% of their annual federal grant for source water land conservation. With New Jersey receiving an average of $18.4 million per year, setting aside 10% per year would total $1.8 million annually statewide. In order to stimulate demand for DWSRF loans for land conservation, New Jersey might explicitly list land acquisition in its Intended Use Plan.

The Farmland Protection Program may be an option for land conservation in the Metedeconk. The FPP recently received a boost from the 2002 Farm Bill, which has made $600 million available over the next five years for the purchase of development rights (PDRs), or conservation easements, on productive agricultural land. Grants for fifty percent of the cost of a permanent conservation easement (PDRs) are awarded on a competitive basis.

A new program of direct federal land acquisition is being considered by the Department of Defense (DOD) aimed at protecting land around the perimeter of military installations from encroachment. Encroachment is defined as any non-DOD related action that has the potential to impede military readiness. Among the primary encroachment factors is growth and development near military installations. The Lakehurst Naval Air Station sits squarely on the outer boundary of the Metedeconk Watershed, with the surrounding area of Jackson Township experiencing rapid growth.

At present, DOD has taken action to acquire land surrounding some of their installations – Fort Bragg, South Carolina for example~ and has been examining if a broader approach is warranted at military installations across the country. Support of the local base commander is very important to participation in the program. It would be a good first step, for local elected officials, community leaders, land conservation supporters and others to reach out to the commander of Lakehurst NAS to see if they feel it is a suitable candidate for land conservation efforts.

RECOMMENDATIONS FOR FEDERAL FUNDING:

1. **Farmland Protection Program:** With the significant increase in available funding available under the newly signed Farm Bill, local officials and/or nonprofit conservation partners should apply for FPP grants. Since these grants are competitive and require a 50 percent match, local governments might draw upon funds included in previously successful bond measures.

2. **Department of Defense Land Conservation Efforts:** The Pentagon has indicated that it is very interested in preserving land near its military installations in order to prevent encroachment. The Lakehurst Naval Air Station is situated near the headwaters of the Metedeconk, which is also a high growth area of the watershed. With the Pentagon interested in curbing encroachment, it may be advisable to see if Lakehurst may be a potential participant in the Pentagon's land conservation efforts. The New Jersey Congressional delegation is in the logical place to pursue this initiative.

RESTORATION AND STEWARDSHIP

2002 FEDERAL FARM BILL

Among other sources for funding, the 2002 Federal Farm Bill will increase current baseline spending for USDA conservation programs by 80 percent. Existing programs are being expanded and some new ones have been created, that in partnership with states, will create the bulk of opportunity for funding restoration and stewardship. The Farm Bill provides greater access to the programs by making more farmers and ranchers eligible for participation. The most significant programs are listed below, with more details to be found in the appendix. These programs, not unlike the land acquisition funding programs cited above, can also be threaded together in a 'funding quilt.' The Natural Resources Conservation Service (NRCS), with state and local offices across the country administers the following programs and can provide assistance to landowners seeking funding:

Wildlife Habitat Incentives Program (WHIP): WHIP is a voluntary program that encourages protection of wildlife habitats. Provides for up to 15 percent of annual WHIP funds for increased cost-share payments to producers to protect and restore essential plant and animal habitat using agreements with a duration of at least 15 years. States administer this program with a ranking system and there is typically less competition for funding here than in the EQIP program.

Wetlands Reserve Program (WRP): Reauthorizes the program through 2007 while increasing acreage cap for project eligibility. This program provides technical and financial assistance to eligible landowners to restore, enhance, and protect wetlands. Landowners have the option of enrolling eligible lands through permanent easements, 30-years easements or restoration cost-share agreements.

Also through the USDA, two forestry programs provide limited funding for stewardship. These programs are offered in partnership between the U.S. Forest Service and the State Forester:

Forest Stewardship Program (FSP): Provides professional natural resource management expertise to non-industrial private forest landowners to help them develop a management plan for their forested land. Brings the expertise of State service foresters, biologists, and private consultants to private landowners. Generally, FSP participants own less than 1,000 acres. There is no maximum acreage restriction, but some States do establish a minimum acreage. Participation is open to individuals and non-commercial landowners who agree to maintain the land as outlined in their management plan for at least 10 years. FSP is not a cost-share program. Instead, it provides technical and planning guidance.

Forest Land Enhancement Program (FLEP): Authorized in the 2002 Farm Bill, FLEP will provide $20 million per year over the next 5 years. Through FLEP, State forestry agencies can provide incentives to achieve a wide array of objectives including forest stewardship plan preparation, afforestation and reforestation, forest stand improvement, agroforestry implementation, water quality improvement and watershed protection, fish and wildlife protection, forest health and protection, invasive species control, and wildlife related practices. Currently, guidelines are being prepared for implementation of this program, with initial start up in early 2003.

STORMWATER MANAGEMENT FINANCING

Section 319(h): Available to prevent and control nonpoint source pollution, a 319 grant covers up to 60% of the cost of a best management practice from improving the agricultural practice of an individual landowner to implementing a watershed-wide stream or lake project, to basinwide public education efforts.

Stormwater Utilities (service charges): Historically, stormwater management has been financed with revenues from property taxes, but flat fees or fees based on impervious surface are becoming increasingly popular. Stormwater utilities have become one of the most popular options for funding stormwater programs in the last thirty years in an effort to find a stable dedicated funding source for improving water quality. A utility can be set up for the specific stormwater management needs of a community and a program developed based on the demands placed on the system property by property. Nearly 500 exist around the country.

Stormwater Revenue Bonds: Generally these bonds provide the funding for building infrastructure based on a capital improvement plan that calculates need.

Hazardous Mitigation Grant Program: The purpose of this funding source is to provide assistance for projects that reduce or eliminate long-term risk to human life and property from the effects of natural hazards such as flooding. The Federal Emergency Management Agency program has a 75% match and the state administers the program. Eligible projects include acquisition of property. Griffin Georgia used funding to address business location on roadways that flooded during significant storm events.

Clean Water State Revolving Loan Fund: These loans pay for infrastructure investments such as wastewater treatment facilities and can pay for land conservation to allow for wetland protection or creation. These funds are often blended with the State's Green Acres Program through NJEIT.

Impact Fees: This tool involves charging fees to developers based on the impact that new development will have on the stormwater system. Communities applying impact fees must develop sound and equitable program with proven numbers that substantiate the fee.

Stream Restoration Mitigation Bank: Communities assess their streams for restoration, preservation and enhancement, submitting a plan to the Army Corps of Engineers for approval and the establishment of the bank. If local governments develop the bank on their own, they can sell the credits for the restoration of the stream segments. If a partnership is established, a bank is created and credits sold for development of the streambank program.

TEA-21: The federally funded Transportation Enhancements Act can be used by local governments for any roads not functionally classified as local or rural minor collectors. Enhancements can include wetland mitigation, control technologies that prevent polluted highway runoff, and land conservation and buffer acquisition.

The analysis in this report is based on information from the following sources:

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- Monmouth County, Growth Management Guide, December 1995.
- Monmouth County, Western Monmouth Development Plan, 1999.
- New Jersey Water Supply Authority, 2001 Annual Report.
- Ocean County Government: www.oceancountygov.com
- Ocean County Soil Conservation District, Forked River, New Jersey, "Understanding and Communicating with People About People Pollution in the Watershed of Barnegat Bay," prepared for Barnegat Bay Watershed Partnership for Nonpoint Source Pollution Control, March 5, 1998.
- Summary notes from the Source Water Stewardship Project Kick-off Meeting.
- Surveys, conducted by TPL, with representatives from Ocean County, Monmouth County, Manasquan River Watershed Association, Brick Township, Monmouth County Health Department and BTMUA.
- Watershed modeling conducted by the University of Massachusetts.