

### Section 8: Natural Resources

#### Background

Stormwater management is becoming a critical issue nationally, though the Region has felt increasing pressures over the last decade as a result of the Chesapeake Bay Agreement and drainage issues associated with Lancaster County soil types. The Chiques and Little Chiques Creek watersheds constitute about 80 percent of the Region's land area. Penn Township also includes smaller portions of the Conestoga, Little Conestoga and Cocalico Creek watersheds.

As indicated in the Lancaster County Natural Heritage Inventory (2008), the Region includes large portions of the headwater areas and first order streams for these watersheds originating in the Furnace Hills Mountains. Specifically, the Chiques Creek Headwaters, Penryn Park/Walnut Run, and Indian Springs are identified as Natural Heritage Sites in the Lancaster County Update 2008. Stormwater and land management policies should protect these critical environments.

Stormwater management is currently regulated by each municipality with advisory assistance provided by Lancaster County. Each municipality has an ordinance that regulates stormwater management in new development. Penn and Rapho Townships have adopted their own ordinances. Manheim Borough utilizes the Lancaster County Planning Commission storm water management regulations as found in the Lancaster County Subdivision and Land Development Ordinance. In addition, Penn Township has signed a resolution supporting the Lancaster Conservancy in their efforts to support the Highlands Conservation Area.

In addition to municipal regulation, the Chiques Creek Watershed Alliance (CCWA) has had a strong track record of promoting good stewardship of the land within the Chiques Watershed to protect and preserve the Chiques Creek, though it is currently struggling during a leadership transition. CCWA is planning a stream assessment of the Chiques to determine the quality of the stream and identify areas for improvement projects. These might include anything from simple cleanups to planting trees and grasses along the stream banks to fencing off animal crossings. Chiques Creek is considered an impaired creek, Total Maximum Daily Load for some nutrients. Lancaster County is conducting an Act 167 watershed plan for the Chiques/Little Chiques/Donegal Creek watersheds, which is expected to be complete in the end of 2010.

The Lancaster County Water Resources Plan provides objectives and implementation tasks to safeguard the County's water supply. The County Plan also sets forth tasks intended to support local planning efforts by providing technical assistance, guidance and funding to municipalities and water providers. The current Water Resources Plan was adopted in 1996, and the County is currently updating the Plan, which is expected to be adopted in 2010.

In addition to water quality issues, project stakeholders and the Region's municipalities identified air quality and sustainable development practices as issues to address during the planning process. **Map 8.1: Community & Environmental Features** illustrates important water resources, open spaces and agricultural resources. The recommendations below also reflect Lancaster County's Greenscapes Plan – a framework for sustainable green infrastructure needed to maintain, restore and enhance critical environmental, social and economic functions within the County.



# Manheim Central Region Comprehensive Plan

## Community Open Space and Parks

- 1 Cornwall Fire Tower State Forest

2 Doe Run Elementary School

3 H.C. Burgard Elementary

4 Hollinger Field

5 Kauffman's Park

6 Lancaster Junction Recreation Trail

7 Logan Park

8 Manheim Central Middle School & Athletic Fields
- 9 Manheim Central Senior High

10 Memorial Park

11 Mummau Park

12 Rannels-Kettle Run

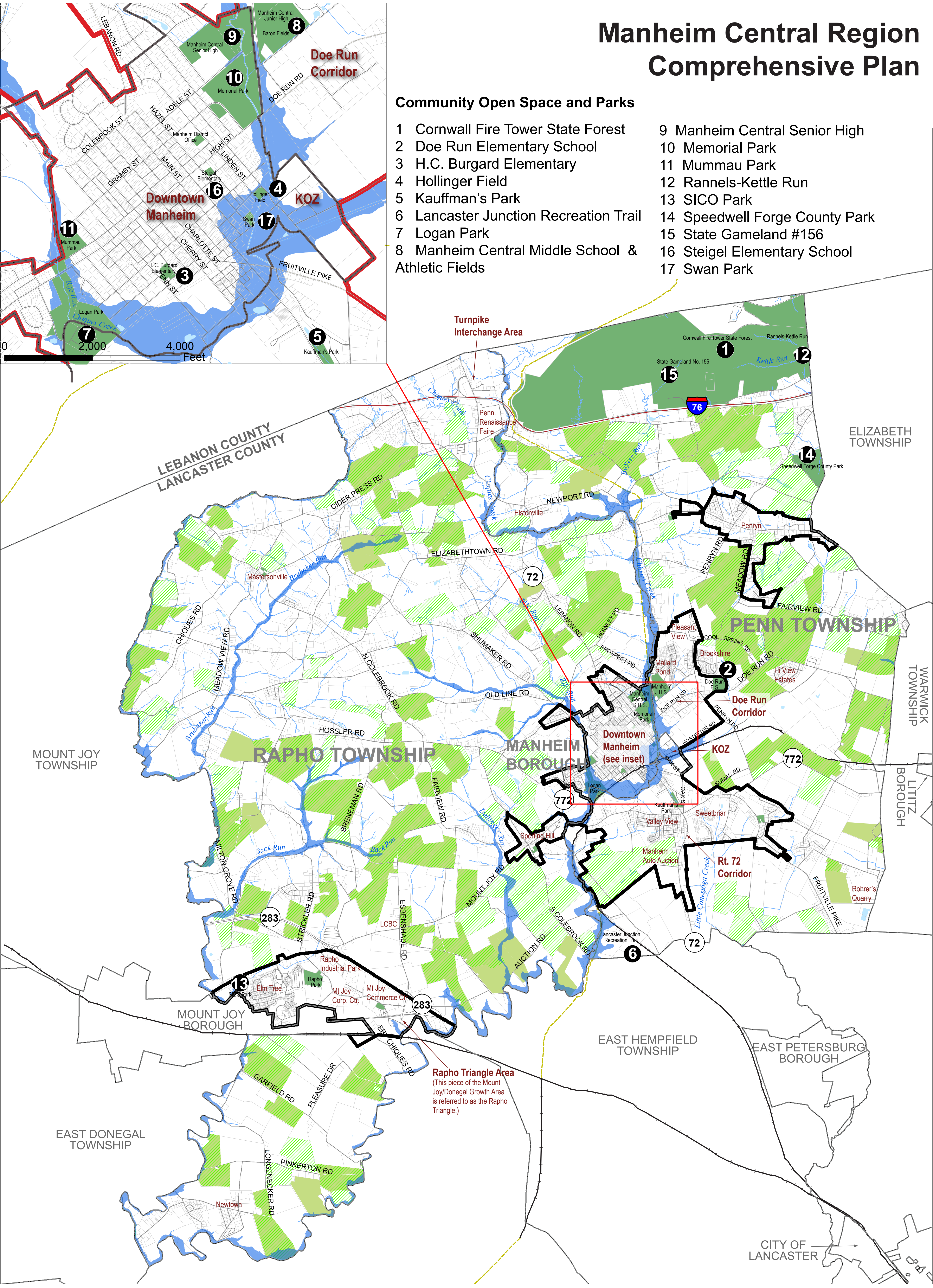
13 SICO Park

14 Speedwell Forge County Park

15 State Gameland #156

16 Steigel Elementary School

17 Swan Park



Map 8.1 Community & Environmental Features

- 100 Year Flood Plains

Parks
- Agricultural Land Easements

Agricultural Security Areas



## **Natural Resource Recommendations**

**Goal 8.1: Protect the Region's vital natural resources including water resources, agricultural soils, wetlands, floodplains, air quality, woodlands and important habitat areas.**

### **Objectives**

- Improve nutrient management
- Pursue an integrated approach to stormwater management in the Region that includes land management, structural best management practices and non-structural strategies, such as rain gardens, bio-swales, stream setbacks and others
- Pursue a regional approach to stormwater management, recognizing that 80 percent of the Region's land area is located in a single watershed
- Ensure agricultural and industrial standards provide adequate protection for air quality, noise and other potential off site impacts of economic activity
- Maintain the ecological integrity of environmentally sensitive lands

### **Strategies**

#### **8.1.1. Implement best management practices (BMPs) for sediment and erosion control and stormwater management to protect the Chiques Creek watershed**

This strategy encompasses a wide range of specific projects ranging from updating development regulations to reduce runoff to stream restoration initiatives. The recommendations below describe a range of actions to be taken to improve water quality, environmental habitat and the creeks as community amenities.

**8.1.1.1 Explore the removal of small dams in the Chiques Creek watershed to increase stormwater capacity.** The Region is already taking steps to remove the White Oak Dam. The municipalities in the Region should would to revitalize the Chiques Creek Watershed Alliance and work through the organization to pursue Growing Greener or other funding sources to perform a study to identify other dams that might be suitable for removal.

**Include stormwater retrofits in redevelopment and street rebuilding projects.** Each municipality should amend its stormwater management regulations to ensure that all redevelopment and street rebuilding projects include stormwater retrofits. This is a critical issue for the Borough, much of which was built before the advent of modern stormwater management practices. The County's ACT 167 Plan currently under development may make such retrofitting mandatory.

#### **8.1.1.2 Incorporate Best Management Practices in local development ordinances.**

The most effective way to manage stormwater is to reduce runoff. By containing water on site, allowing it to percolate into the soil, it becomes a water resource, recharging the groundwater supply, a critical issue for the Manheim Central Region.

To reduce urban runoff, each municipality should review and revise its development ordinances as appropriate to include development standards that minimize impervious coverage and encourage mitigative measures such as pervious paving materials.

Ordinances should also include street and parking lot design standards that encourage or require on site bioretention.

To reduce agricultural runoff, each municipality should require the planting of riparian buffer zones, contour strips, and cover crops. The municipalities should require better animal waste management systems and the installation of stone ford cattle crossings, stream bank stabilization and fencing.

### **8.1.2. Pursue enhanced nutrient management regulations.**

Tools to solve nutrient management challenges run the gamut from high-tech, high-cost technologies to relatively low-tech, affordable techniques that can be readily adopted by many farmers.

For individual farmers who operate under small profit margins, changes are driven by economics. "Sustainable agriculture" often simply means agriculture that pays for itself. On the other hand, external forces, such as the push to support renewable energy, hold new opportunities for more complex technologies that are waiting for the right mix of good timing, public policy and available resources. Increasingly, the growing surplus of animal manure is examined as part of a larger waste management stream, and opportunities exist to treat and use animal, human, and industrial waste jointly to produce marketable products that are good for the economy and the environment.

Penn and Rapho Townships should review their existing nutrient management policies and identify opportunities to provide stronger regulation or economic incentives to farmers to reduce nutrient runoff.

### **8.1.3. Consider a regional approach to stormwater management.**

As a long-term strategy, the Region could consider developing a regional stormwater management plan. A comprehensive regional approach is likely to yield better results than each municipality could achieve on its own. As an interim step, each municipality should review relevant development and stormwater ordinances for opportunities to implement consistent protection standards across all three municipalities.

### **8.1.4. Revise land use and development regulations to enhance preservation of riparian corridors and planting of riparian buffers along stream banks.**

Planting trees and grasses creates a "green sponge" that filters water flowing into the stream and traps excess sediment. Sediment is problematic because it blocks light to underwater vegetation and lowers the water oxygen levels that fish and other organisms need to survive. Riparian buffers are ideally 50 feet wide on either side of the stream and comprised of forested area. Each municipality should revise its development ordinances to require adequate development setbacks and appropriate improvements to degraded corridors. Ordinance language should set minimum widths for development setbacks, parameters for planted buffers and identify appropriate trees and other plantings for the buffers. As a part of this initiative, each municipality might elect to delineate primary and secondary conservation corridors and develop separate standards for protecting each.

**8.1.5. Pursue stream and floodplain preservation and/or reconstruction in new development and redevelopment projects.**

The floodplain is meant to store water after a hydrologic event. Development in floodplains is at risk of periodic flooding, and such development reduces their capacity to store water, increasing flooding downstream. Each municipality should consider amending its development ordinances to limit and/or prohibit fill and development in the 100-year floodplain. They can go further and offer incentives for new development to restore a disturbed floodplain. A portion of the Doe Run Creek floodplain has been reconstructed as a part of redevelopment in the KOZ. As with Strategy 4 above, each municipality might elect to delineate primary and secondary conservation corridors and develop separate standards for protecting each.

**8.1.6. Support and coordinate with private watershed preservation organizations to implement natural resource goals and promote individual involvement in local environmental protection.**

The Chiques Creek Watershed Alliance (CCWA), founded in 2000, has been successful in obtaining grant funding and implementing a number of projects in the watershed, including stream restoration, riparian buffer establishment, annual clean ups, stream monitoring and educational outreach. As mentioned above, it is currently struggling through organizational issues. The Region's municipalities should work with CCWA stakeholders to understand its needs for moving forward and to identify strategies for reinvigorating it so that it can again be an effective agent for environmental preservation.

**8.1.7. Expand air quality management tools.**

Specific issues to consider include development of burn ordinance and standards for the use of methane digesters to increase on farm treatment of waste.

**8.1.8. Review zoning performance standards to ensure adequate protection for noise, air quality and glare.**

Performance standards in many zoning ordinances are outdated, using obsolete measurement systems or lacking enforcement mechanisms. Each municipality should review its zoning ordinance to ensure that the performance standards meet each community's goals for environmental protection.

**8.1.9. Consider including conservation subdivision standards in local Subdivision and Land Development Ordinances.**

Conservation subdivision standards incorporate a range of green development strategies that can help preserve open space and natural areas in residential housing developments. By reformulating the approach to conventional subdivision design, such standards strategically concentrate home construction on the development site in order to protect sensitive and valuable open space, habitat and other environmental resources. Penn and perhaps Rapho should consider adopting conservation subdivision standards as a tool to protect such resources.

**8.1.10. Consider the development of an Environmental Protection Overlay District**

Environmentally sensitive land areas, such as woodlands, steep slopes, riparian corridors and wetlands are sprinkled throughout the Region, and are present in many different

zoning districts in each municipality, both inside and out of designated growth areas. Protection of such resources is a challenge facing communities throughout the Commonwealth and the nation. Many communities are looking to a zoning overlay as a tool to protect natural resources. Commonly referred to as an environmental protection overlay district (EPOD), the development standards of the EPOD supplement the base zoning and contain specific standards such as setbacks or density transfers that move development away from environmental features.

Each municipality should consider amending its Zoning Ordinance to include an environmental protection overlay district (EPOD) that would supplement underlying zoning to protect natural features such as floodplains, wetlands, steep slopes and woodlands.

### **8.1.11. Consider establishing Effective Conservation Zoning**

In large contiguous areas of natural resource lands outside of the designated growth areas, Rapho and Penn townships should consider adopting effective conservation zoning districts. Similar in concept to effective agricultural zoning, conservation zoning seeks to preserve large areas of resource lands and connections between resource areas to maintain the integrity of the natural systems. Lancaster County has developed a model conservation ordinance that is available in Lancaster County Planning Commission's Toolbox that the townships could use as a guide to draft and implement local ordinances.

### **8.1.12. Establish Environmental Advisory Councils**

Lancaster County's *Greenscapes* recommends the formation of Environmental Advisory Councils to assist in the protection, conservation, management, promotion and use of natural resources. An Environmental Advisory Council (EAC) is an advisory board made up of community residents who are appointed by local elected officials. They can act on a municipal or multi-municipal level.

EACs, as part of local government, work directly with municipal officials to help them make environmentally sound decisions. In the Pennsylvania Commonwealth, EACs are authorized to:

- Identify environmental problems and recommend plans and programs to protect and improve the quality of the environment
- Make recommendations about the use of open land
- Promote a community environmental program
- Keep an index of all open space areas to determine the proper use of such areas
- Review plans, conduct site visits, and prepare reports for municipal officials
- Advise local government agencies about the acquisition of property

Each municipality in the Region should consider whether to create its own EAC or to create and participate in a Manheim Central Region EAC, which can act as an advisory body to all municipalities in the Region.

**8.1.13. Consider incorporating incentives energy efficiency, green building and other sustainable building practices**

The Region's municipalities should encourage green design in all new development and redevelopment by amending their zoning and subdivision ordinances to provide incentives – or where appropriate requirements – for environmentally sensitive building and site design as well as for public improvements, such as streets and sidewalks.