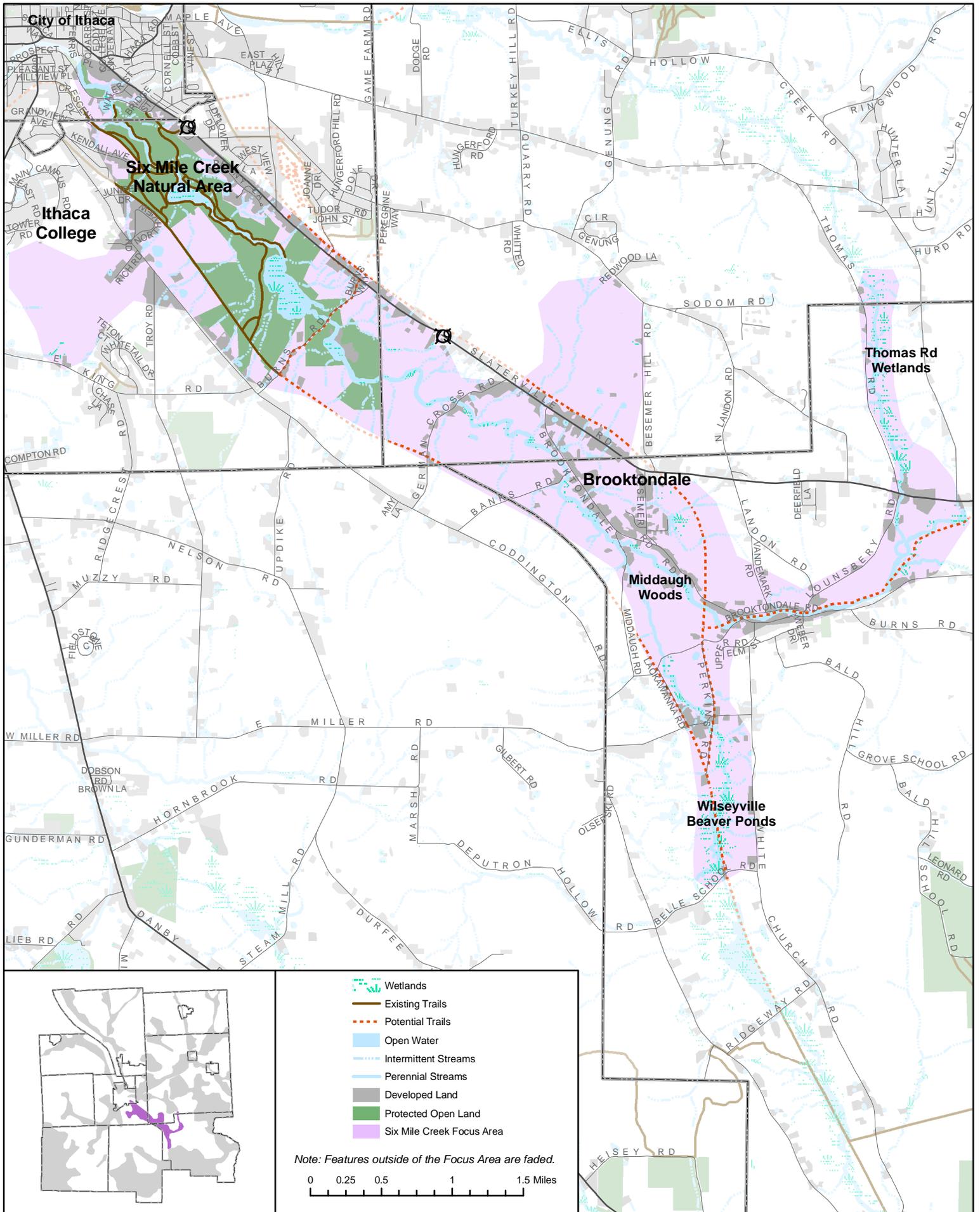


Sixmile Creek





Description of Focus Area

The Sixmile Creek Focus Area extends along Sixmile Creek from Columbia Street in the City of Ithaca, southeast to Brooktondale. The two “legs” of the Focus Area extend from Brooktondale south along White Church Road, and north along Thomas Road. Much of the landscape in the Focus Area is characterized by forested hillsides and steep banks along Sixmile Creek, with extensive residential development along Route 79 and Coddington Road and within the City of Ithaca and the hamlet of Brooktondale.

Major Benefits

The Sixmile Creek Focus Area provides drinking water to approximately 35,000 residents of the City of Ithaca and portions of the Town of Ithaca. Since it is a surface water supply, management of the watershed is vital for public health. A dense network of trails, from a multi-use recreation way to steep hiking trails to trails that wander along the streamside, offer outstanding outdoor recreational experiences that are easily accessible year-round to thousands of residents and visitors. The natural characteristics of the Area also make much of it suitable for the production of agro-forestry products such as ginseng, goldenseal, and maple syrup.

The Area is also significant in that many organizations, both youth- and adult-oriented, use this Focus Area as an outdoor classroom to study natural systems and cycles. Many different entities have also worked to protect lands within the Focus Area with the goal of preserving water quality and the variety of habitats that support a diversity of species.

Drinking Water Quality and Flood Mitigation

Protecting water quality in this Focus Area is critical for public health, as Sixmile Creek provides drinking water for the City of Ithaca and portions of the Town of Ithaca. It is so critical that many studies of the watershed have been conducted over the years, yielding detailed information about the key issues influencing management of this watershed. The most serious water quality issues identified in this Focus Area include erosion, sedimentation and flooding.

Several studies reveal that erosion in this watershed is largely the result of natural geological processes rather

than human impact on the landscape, which suggests that management measures that help the stream disperse its energy will be most effective at reducing erosion and sedimentation. Due to the presence of ancient glacial lakebeds, erosion in and along Sixmile Creek is more common between Bethel Grove and Brooktondale, though data show a decrease in the amount of sedimentation since the mid 1990s. Studies show that erosion is much less prevalent in the areas south and east of Brooktondale, likely because of differing geologic conditions. Upstream wetlands in this Focus Area absorb and filter water, playing an important role in addressing critical water quality and flooding issues.



Erosion along Sixmile Creek is a major concern. Several studies reveal that this erosion is largely the

Multiple entities have worked together for years to protect drinking water quality and conserve land in this area, including the City of Ithaca, Town of Ithaca, Town of Caroline, and Finger Lakes Land Trust, and numerous volunteers who monitor water quality and the spread of invasive species.

Outdoor Recreation

The Sixmile Creek Focus Area offers a variety of recreational opportunities, including walking, hiking, biking, bird watching, and some fishing. Near population centers in the City and Town of Ithaca, more than 10 miles of public trails meander along the Creek. The primary recreational features are the multi-use South Hill Recreation Way and the hiking-oriented Sixmile Creek Natural Area and Mulholland Wildflower Preserve, which offer peaceful natural experiences close to the City of Ithaca. Old railroad beds along the edge of the Focus Area, as well as the creek corridor through Brooktondale, provide possible routes for future trails. Several locations along the Creek,



More than 10 miles of public trails meander along the Creek, including those at the Muholland Wildflower Preserve.

although not officially designated for public swimming, are popular destinations for many in the summer time.

Education and Research

Protected open lands throughout this Focus Area provide important educational opportunities for the general public that range from volunteer inventories of invasive species and the testing of their eradication methods to monitoring of water quality trends. Of particular interest to these groups is learning how the populations of riparian and aquatic species thrive in and respond to changes in their environments. The Sixmile Creek Natural Area and lands near the Caroline Elementary School are particularly popular locations for youth and adult educational programming. Ithaca College also owns natural lands within this Focus Area that are managed specifically to maintain the educational value and ecological benefits provided by these lands.

Critical Habitat and Biodiversity

The Sixmile Creek corridor, nearby wetlands, and surrounding upland areas provide for a wide variety of high-quality habitat. Many amphibian, reptile, and bird species are found throughout the Focus Area, as well as a variety of other animal and plant species. Five key areas within the Focus Area are particularly notable for the quality of habitat. 1) The City-owned Sixmile Creek Natural Area provides choice habitat for riparian forest birds. 2) Nearby lands owned by Ithaca College and Cornell University, and surrounding properties, provide a variety of forested, early successional, and wetland habitats, including an important ecological community identified by the New York

Natural Heritage Program¹. This area is also noted as being one of the most important Unique Natural Areas in Tompkins County, South Hill Swamp. 3) The Middaugh Woods area in Caroline provides riparian forest habitat, including one of the best examples of old growth forest in the county, although recent timber harvesting in this area may have reduced the viability of this habitat. Cornell University owns more than a hundred acres of undeveloped land in this area. 4) The nearby Thomas Road wetlands connect to similar habitat in the Cascadilla Creek Focus Area and are notable for the presence of amphibians and reptiles. 5) South of Middaugh Woods, the Willseyville Beaver Ponds provide unique creek-side early successional habitat.

¹ New York Natural Heritage Program, New York State Department of Environmental Conservation, May 2005. Biodiversity Databases, Element Occurrence Record Digital Data Set. Albany, New York.



Wetlands along Thomas Road provide important habitat for amphibians and reptiles.

Protection and Management Issues

Drinking Water Quality

- n Pollutants in the waters (such as sediment, pesticides and herbicides, fecal contamination and other inputs) can negatively impact human health and increase the costs of treating drinking water. Vegetated buffers along permanent and intermittently flowing watercourses, wetlands, and associated floodplains help filter pollutants from water, and are critical for sustaining water quality. Although specific buffer needs vary from site to site based on topography, vegetation, soils, and land uses, in general a 100-foot vegetated buffer is the minimum needed to provide nutrient and pollutant removal. A wider buffer width may be required for bank stabilization or additional water filtration, depending on local site characteristics.
- n Wetlands and riparian areas are sometimes filled or degraded, which negatively impacts the ability of those systems to slow the flow of stormwater and provide storage for floodwaters (reducing the amount of floodwater entering streams, ponds, and Cayuga Lake). Development in these areas can increase the volume and rates of stormwater runoff and increase the potential for flooding, property damage and erosion during storm events. Preservation of wetlands in this Focus Area is particularly important because there is a distinct lack of upland wetlands that provide floodwater storage and water purification.
- n Excavation of gravel from streams, and other in-stream management activities, can cause erosion and change the natural course of the stream.
- n When areas are developed, precipitation and runoff flowing across developed areas accumulate pollutants, such as sediment and oil and gas products.
- n Although many of the key water resources in the Sixmile Creek Watershed are found within the Focus Area, these resources are affected by activities that occur throughout the watershed. As a result, water resource management efforts must address issues that extend beyond the boundaries of the Focus Areas

Outdoor Recreation

- n Scenic views and tranquility are important components of the outdoor experience, and are threatened in some areas by human development and incompatible land uses.
- n When trails are not properly maintained, they are less inviting for people to use. Well-maintained trails that are clearly marked not only provide for a better recreational experience, but also encourage people to stay on the trail, thereby limiting the impact of recreational use on sensitive areas and adjacent private property. When designing new trail routes consideration should be given to potential impacts on fragile plants and animals in the area.
- n Generating awareness of available recreational opportunities can facilitate greater public enjoyment and appreciation of public resources and natural amenities. Education of the public about the nature and purpose of particular trails is also necessary to protect the amenities and designated use of the trail (be it a footpath, horse trail, or mechanized use trail) and to ensure that trail users have the experience they anticipate.

Education and Research

- n School groups, as well as conservation volunteers and members of the public, frequently use publicly owned natural areas as outdoor classrooms. Additional access to lands that represent a broad range of natural environments would enhance learning opportunities and facilitate greater use of nature as an educational resource.
- n Public use of education and research lands is usually restricted in some way, in some cases because unauthorized visitors to these properties may inadvertently trample sensitive species used for research purposes or interfere with specialized management practices in use. Where restricted, these lands should not be visited without permission from the owner or manager of the property.

- ▢ Some education and research lands are generally open to the public for personal enjoyment and relaxation. For these areas, staying on the trail is important, especially where off-trail use may cause damage to the site or trampling of sensitive species. Certain sites are very sensitive, and may not be appropriate for large groups or children.
- ▢ The spread of invasive species, herbicides, pesticides and fertilizers from adjacent lands can compromise the integrity of the ecological, plant and animal communities being studied.
- ▢ Overgrazing by whitetail deer negatively impacts the quality and regeneration of ecological, plant and animal communities being studied.

Critical Habitat and Biodiversity

- ▢ Although specific habitat size requirements vary by habitat type and from species to species, contiguous open space of at least 135 acres is generally needed to support diversity and abundance in plant and animal communities, and to enhance species survival by providing habitat for larger populations of animals and allowing for species movement and migration. Many species; however, are more sensitive to habitat size and generally require a much larger contiguous area of at least 6,000 acres for suitable habitat.
- ▢ Wildlife corridors promote genetic diversity among species and help counter the negative effects of habitat fragmentation by connecting otherwise isolated patches of suitable habitat.
- ▢ The introduction of non-native species, pesticides, herbicides, and fertilizer can inhibit growth of native plants critical to biodiversity.
- ▢ Beavers physically alter habitats by cutting down trees, building dams, digging canals and building lodges. This activity affects the distribution of many other plant and animal species. In some situations beavers are desirable, whereas in other circumstances their presence may be detrimental to habitat management goals. As a result, areas inhabited by beaver may require active beaver management. The nature of the management depends on the particular conditions and resource priorities of the site.
- ▢ Many riparian forest birds are particularly sensitive to habitat fragmentation. Fragmentation of riparian forest habitat decreases the ability of certain species to utilize migration corridors and increases competition from species that dominate edge habitats. In addition, fragmentation increases light penetration into riparian forests, which can alter understory composition and forest microclimates. There are two critical components of functioning and unfragmented riparian habitat: 1) forested buffers along creeks of at least 330 feet; and 2) large contiguous tracts of adjacent forestlands. Protecting patches of at least 150 acres is particularly critical around Middaugh Woods, given the existing fragmentation in this area.
- ▢ Species that live in and around stream corridors and floodplains require clean water to thrive. Poorly managed riparian areas, and riparian areas that are cleared for development, negatively impact water quality and reduce the viability of these habitat areas.
- ▢ Vernal pools, found in the forests throughout the Focus Area, provide critical habitat for species of greatest conservation need, such as the Jefferson Salamander. A vernal pool is a depression in the ground that fills with the rising water table of fall and winter, or with the meltwater and runoff of winter and spring snow and rain. This unique habitat, and associated wetlands and upland forests, are particularly sensitive to alterations or destruction resulting from development.
- ▢ Some timber harvesting practices can adversely impact forest habitat for particular species (for example, by reducing canopy coverage and forest litter, damaging understory vegetation, and increasing erosion on steep hillsides and along creeks). Vernal pools in forests are particularly sensitive to intensive timber harvesting, while some forest species, such as the Canada Warbler, benefit from modest timber harvesting. Timber harvesting practices should include considerations for plant and animal species and water quality. Timber harvesting is also a particular threat to Middaugh Woods.
- ▢ Illegal collection of seeds, plants, and animals can have a negative impact on plant and animal populations that are critical to biodiversity in this region.
- ▢ Species found at the waters edge or near frequently used trails may be sensitive to disturbance by high-intensity uses and by people going off-trail. Sixmile Creek Natural Area, and Ithaca College Natural Areas are particularly vulnerable to disturbance by visitors.

- n Overgrazing of forested areas by whitetail deer can inhibit native plant growth, forest diversity, and forest regeneration. Deer particularly like eating saplings, which can interfere with the viability of understory habitat that is particularly critical for many riparian birds. With limited hunting opportunities found in this Focus Area, white tailed deer are a particular concern.
- n There is not enough protected or actively managed early successional habitat in the County. Most early successional habitat species are not sensitive to the size of the habitat patch, so even small habitat conservation efforts can be beneficial. Several patches of early successional habitat are found in the Ithaca College and Willseyville Beaver Ponds areas. These early successional habitat areas may require periodic disturbance to maintain the right
- n mix of vegetation.
- n The area around and upstream of the City-owned Sixmile Creek Natural Area is particularly sensitive to impacts from potential development due to the steep slopes along the stream corridor, use of the stream as a public water supply, importance of the area to bird and plant species, high-use and appreciation of the natural qualities of the area by local residents, and the pressure to subdivide and fragment the landscape due to its close proximity to downtown Ithaca.
- n Vernal pool species are vulnerable to road mortality during migrations to and from breeding sites. In this Area, vernal pool species migrate from the forested slopes west of Thomas Road to the vernal pools east of Thomas Road and, thus, are particularly vulnerable to automobiles using Thomas Road during critical breeding times.

Priority Actions for Sixmile Creek

The Natural Features Focus Area Project has identified 35 priority action items to be initiated over the next five years. The action items have been established to bolster and coordinate the region's many existing conservation efforts. They are not intended to replace or replicate those efforts. The action items reflect the broad range of unique uses in the identified Focus Areas. Below is a list of actions that are particularly relevant to Sixmile Creek Focus Area. For a complete list of actions and designation of principal agencies that will lead implementation efforts please see the *Implementation of Priority Actions* section of the complete county-wide plan.

Water Quality

- è Encourage semi-pervious paving, bioretention, and infiltration practices.
- è Provide education about and access to hydrologically sensitive area data through the Natural Resources Inventory (NRI) on-line interactive mapping tool.
- è Educate highway departments about the impacts of roadside ditching on water quality as well as the spread of invasive species and water quantity, and provide highway departments with information about appropriate best management practices to address this issue. Conduct trainings for local planning boards about flood plain management.

- è Initiate inspection and maintenance requirements for individual on-site wastewater treatment systems, as also recommended in the Tompkins County Comprehensive Plan.

Outdoor Recreation

- è Provide emergency responders with better trail maps to improve incident response time. Create and distribute a guidebook for the county's recreational amenities that highlights trails, swimming areas, and bird watching opportunities.

Critical Habitat and Biodiversity

- è Work with municipalities to protect wetlands and vernal pools smaller than 12.4 acres in size and not regulated by the NYS Department of Environmental Conservation.
- è Map small wetlands and vernal pools using data on hydrologically sensitive areas.

Invasive Species and Native Plants

- è Inventory and identify high priority areas for the control of invasive species.
- è Establish a coordinated approach for distributing invasive species information to landowners throughout identified high priority areas.
- è Develop and distribute a list of popular landscaping plants and appropriate native species substitutions.
- è Conduct a comprehensive “natural lawns and gardens” campaign to limit the use of pesticides, herbicides, and fertilizer, and increase the use of native plants in landscaping.
- è Develop a policy for using native plants for all county maintenance activities and on all county properties, and work with local municipalities to institute a similar policy.
- è Provide a wide selection of native plants as part of annual plant sale, and eliminate all invasive species from the sale.

Rural Landowner Outreach and Education

- è Enhance existing rural landowner education efforts with an emphasis on sustainable forestry practices, impacts of ATV use, invasive species, wetlands management, grassland habitat, and targeted outreach to new rural landowners.
- è Identify and coordinate the dissemination of information about grants available to private landowners for habitat management and enhancement.

Technical Assistance for Municipalities

- è Provide technical assistance to municipalities working on projects that implement the recommendations of the plan.
- è Provide training and information to municipalities on the full-range of conservation tools available, the Plan and the Natural Resources Inventory, flood plain management strategies, and vernal pool and small wetland habitat conservation.

Coordination

- è Convene a group of partners (Tompkins County Conservation Partners) involved in local conservation efforts twice a year. Meetings will facilitate regular information sharing as well as coordinated educational efforts such as periodic field trips for municipal officials to key sites in the Focus Areas.

Land Protection in Priority Areas

- è Protect open space system through partnerships with area agencies and municipalities by purchasing land and acquiring conservation easements.
- è Educate landowners about tax incentives available for conservation efforts through various formats including town/village newsletters with special emphasis on landowners within the open space system.
- è Develop or identify a model conservation zoning ordinance for use in key portions of the Focus Areas.
- è Engage key land protection stakeholders to assess the financial resources available for land conservation and work to establish additional funding as needed.