

O u r F i n i t e R e s o u r c e s

PRINCIPLE

Finite resources that provide needed community goods, services, recreational opportunities or environmental benefits should be protected and used appropriately.

Preserving the Irreplaceable

Finite resources such as drinking water, prime agricultural soils, and waterfront lands, as well as some elements of our built environment, contribute to our local economy and the unique character of Tompkins County. These resources serve multiple uses and functions that cannot be replaced if they are destroyed. While many natural systems exhibit a remarkable resilience to disruption, others are vulnerable to small incremental changes which can undermine, or delay indefinitely, their benefits to our community.

Water Resources

Foremost among our finite resources is drinking water. Not long ago water seemed like an inexhaustible resource, but sufficient water of a quality and quantity to serve human needs is becoming an increasingly scarce commodity worldwide.

Tompkins County is blessed with diverse water resources that provide for the domestic, commercial, and recreational needs of the community, and are necessary for the survival

Water resources do not function as separate systems but are part of an interconnected whole.

of many plants and animals. Water is a regional resource. Tompkins County is a major contributor to the Cayuga Lake watershed, with about 80 percent of Tompkins County's water draining north into the Finger Lakes and eventually into Lake Ontario, and 20 percent draining south to the Susquehanna River and eventually into the Chesapeake Bay.

The three major categories of water resources are surface water, groundwater, and wetlands. Surface water consists of streams, creeks, lakes and ponds. Groundwater is water that is stored in the underground spaces between deposits of sand, gravel, and silt, and in the cracks in bedrock. Groundwater deposits that can be expected to yield significant quantities to wells are called aquifers. Areas where surface water infiltrates into these aquifers are called recharge areas and are particularly important to the protection of groundwater quantity and quality. Wetlands include land areas that are inundated with water year-round, as well as areas that are dry for part of the year but collect water seasonally. Wetlands and riparian areas (lands associated with streams and rivers) are important because they provide flood protection, control erosion and sediment, supply surface

water flow and recharge groundwater supplies, and provide habitat for fish and wildlife. Tompkins County contains about 19,800 acres of identified wetlands.

These three major classifications of water resources are distinct parts of a larger interconnected water resources system and should be considered and managed as a system. The United States Geological Survey has recently determined that approximately 60 percent of the flow in surface water streams in central New York originates from groundwater resources. Wetlands along rivers and streams can help temporarily store floodwaters and filter pollutants from surface waters. Similarly, groundwater contributes to stream flow during low water periods.

Drinking Water Supplies

Surface water provides drinking water for approximately 55 percent of Tompkins County residents. Three water treatment facilities in the county rely on surface water. Bolton Point, operated by the Southern Cayuga Lake Intermunicipal Water Commission, draws its water from Cayuga Lake; the Cornell Water Filtration Plant draws from Fall Creek; and the City of Ithaca Water Treatment Plant uses water from Six Mile Creek.

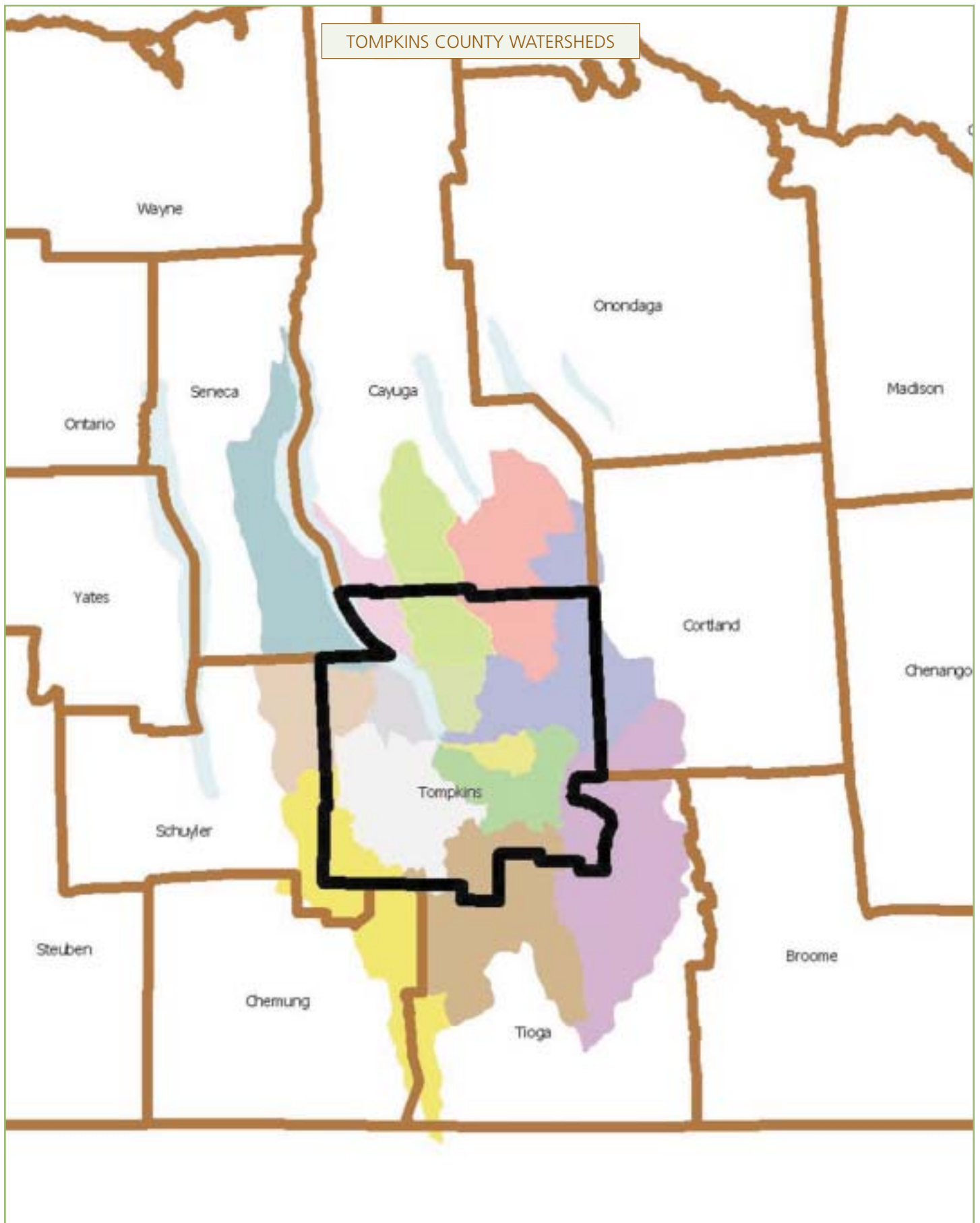
Groundwater is the source of drinking water for approximately 45 percent of county residents, including those with individual wells or on one of the two municipal drinking water systems, and over 170 small private systems.

The amount of available drinking water is primarily an issue in rural areas of the county that obtain drinking water from groundwater. As more homes and businesses are built in these areas, they are supported by new wells withdrawing more water from the aquifers. In some parts of the county

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new wells can noticeably decrease the supply of water from wells in nearby areas.

Drinking water quality, however, is an issue countywide. Some of our public water supplies are threatened by the potential contamination of an entire aquifer or water body that can result from a single accidental chemical spill or leaking fuel storage tank. Land uses that pose the greatest threat should be located away from areas that contribute to drinking water supplies.



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Threats to Water Quality and Quantity

Many of the threats to water quality in Tompkins County come from more dispersed, “non-point” sources. Since 1969, low-density development in the county has increased by 10,000 acres and the amount of impervious surfaces has increased by nearly 1000 acres. These changes, accompanied by intensification of land use, have led to increased erosion and sedimentation, loss of wetlands and riparian areas, greater amounts of stormwater runoff and pollutants carried by the runoff, as well as an increase in flooding. Other impacts of increased rates of stormwater runoff include accelerated channel erosion and alteration of streambed composition, which can dramatically degrade aquatic habitats. A New York State Department of Environmental Conservation water quality study highlights these changes and found that from 1992 to 2002, water quality throughout New York State declined, attributable in large part to changes in land use and the intensity of land use.

In Tompkins County, the impacts of land use change on water resources culminate in Cayuga Lake, where it takes

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approximately 10 years for one drop of water to travel the length of the lake from south to north. The shallow southern end of Cayuga Lake is inherently more vulnerable to pollution than other, deeper portions and suffers from a number of water quality problems including elevated sediment and phosphorous levels, algae blooms, odors, and elevated levels of coliform bacteria. Low levels of agricultural chemicals have also been detected in the lake.

The loss of wetlands that once acted as sediment traps, as well as streambed and streambank erosion, contribute to sedimentation in the southern end of Cayuga Lake. Though sedimentation is often related to changes in land use, construction, and land management practices, it can also result from natural geological processes. A watershed assessment of the Six Mile Creek watershed, revealed that much erosion and sedimentation in that watershed could be directly attributed to natural processes.

Stormwater Runoff and Flooding

Increased stormwater runoff has a significant impact on floodplain management. As land area is converted to more urbanized uses, the amount of impervious surface associated with that land use generally increases, causing a reduction in groundwater replenishment and increased non-point source pollution and flooding. This increases both the frequency and magnitude of flood events. Flooding and stormwater runoff concerns are exacerbated in many parts of Tompkins County because of the steep slopes and glacially-dominated soils that do a poor job of absorbing runoff during heavy rains or snowmelt. Major storm events occur relatively frequently, and the capacity of our many streams can be quickly overwhelmed.

Population centers that are clustered in valleys and along the shores of creeks are particularly vulnerable to repetitive flooding. Many of Tompkins County’s manufactured homes are located in designated floodplains, increasing the vulnerability of these residents to flood events.

Prime Agricultural Soils

The United States Department of Agriculture Natural Resources Conservation Service classifies soils according to their suitability for agricultural use. According to this classification, Prime agricultural soils are limited in Tompkins County.

Higher quality soils with greater potential to support agricultural activity and productivity in the county are concentrated in Ulysses, northwestern Enfield, and northern Lansing. Smaller pockets are located throughout the County. The county’s best agricultural soils account for less than 25 percent of the land area in the county, highlighting the need to develop measures that effectively protect important agricultural resources and local farms.

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The Loss of Farmland

Although most of the prime agricultural soils in Tompkins County are used for agriculture, these soils are also well suited for rural residential and commercial development, and the land area devoted to farming has been shrinking. Since 1982, Tompkins County has lost 21 percent of its farmland base. Farmland and other open space in the county are

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being consumed by residential, commercial, and sometimes industrial development. Randomly scattered development is common in most areas of the county, primarily in the form of single-family homes along rural roads or as commercial strip development along highways. Between 1969 and 1995 approximately 1,500 acres of open land was converted to commercial and industrial uses, and 14,000 acres for residential uses.

These trends of decentralization and suburbanization threaten the economic viability of farming by fragmenting the land base and intensifying conflicts between farmers and non-farm neighbors.

Waterfront

We are fortunate in Tompkins County to have approximately 26 miles of shoreline along Cayuga Lake, a magnificent environmental, recreational, social and economic resource. The shoreline of the lake is dominated by recreational and residential land uses. Several prominent parks are located along Cayuga’s shores: Taughannock Falls State Park, Lansing Town Park at Myers Point, Stewart Park, and Cass Park. Much of

Waterfront lands should be reserved for water-dependent uses and complementary water-enhanced uses.

the remainder of the shoreline outside the City of Ithaca is characterized by residential development.

In addition, the waterfront is home to businesses and utilities that depend upon or are related to the lake. Facilities such as marinas, boat rental services, boathouses, and the like, are absolutely dependent on a waterfront location. Many utilities are also dependent upon a location on or near a water body. Examples in Tompkins County include waste-

water treatment facilities in the City of Ithaca and the Village of Cayuga Heights, Bolton Point Water Treatment Plant, AES Cayuga power plant, and the Cornell Lake Source Cooling heat exchange facility.

Some businesses, while not dependent on a waterfront location, are strongly linked to and benefit greatly from a location on the waterfront. Restaurants, hotels, and water-related attractions can help draw tourists to the waterfront.

The City of Ithaca’s waterfront, along Cayuga Inlet, offers a tremendous opportunity to develop an urban waterfront experience for both residents and tourists alike. Recent and ongoing efforts to enhance this waterfront include the Inlet Island Promenade; the Cayuga Waterfront Trail – which will eventually connect the Visitors Center to Cass Park – and relocation of the New York State Department of Transportation’s Maintenance Facility.

Policies

Development can impact our finite resources in a variety of ways. The loss of these resources to commercial, residential, or other land uses, is often permanent, highlighting the need to develop measures that can effectively protect these important resources.

It is the policy of Tompkins County to:

- Promote appropriate development of waterfront lands for water-dependent or water-enhanced uses, including enhancing public access to Cayuga Lake.
- Protect water quality and quantity in the County’s streams, lakes, and groundwater.
- Protect drinking water supplies from contamination.
- Protect stream corridors, wetlands, and land areas that are seasonally inundated by water.
- Protect prime agricultural land for agricultural use.

Action Items

Action items are activities that Tompkins County government or community partners can undertake to implement policies.

- TO DO** Complete watershed assessments for the Fall Creek and Six Mile Creek drinking water sources.
- TO DO** Continue to conduct aquifer studies.
- TO DO** Initiate an inspection and maintenance program for individual on-site wastewater treatment systems.
- TO DO** Update the county flood hazard mitigation program to incorporate watershed-based approaches to reducing the risk of flood damages.
- TO DO** Update floodplain maps.
- TO DO** Review municipal ordinances and management practices related to water resources management to ensure consistency within watersheds and among municipalities.
- TO DO** Develop or identify model stream buffer ordinances and stormwater ordinances.
- TO DO** Develop a system to ensure regular maintenance of existing drainage systems and use of appropriate road ditching techniques on County maintained roads, and encourage the use of such techniques on other roads in the County.
- TO DO** Provide education and training programs for public works professionals on techniques for reduction of sedimentation and erosion, and for re-vegetating disturbed areas, when constructing and maintaining bridges and culverts, performing roadside ditching, etc.
- TO DO** Develop boat docking, boat service areas, and waterfront commercial district on, and in the vicinity of, Inlet Island in the City of Ithaca.
- TO DO** Redevelop the NYSDOT Maintenance Facility site with water-dependent and/or water-enhanced projects to provide economic benefits to the City and the County and provide public access to the water's edge.
- TO DO** Dredge Cayuga Inlet and find an appropriate method for disposal of dredge spoil material, for example, using dredged material to create new, functioning wetlands at the south end of Cayuga Lake.