

## **CHAPTER 4. LAND USES AND TRENDS APPENDIX**

### Methodology for Land Use Digitization for the Seneca Lake Watershed

The geographic information system land use coverage was created using United States Department of Agriculture Farm Service Agency 1"=660' aerial photos. Genesee/Finger Lakes Regional Planning Council researched and purchased the entire set of aerial photography for the Seneca Lake Watershed. Mylar was placed over the aerial photos so that each land use parcel could be delineated on a convenient medium for both delineation and digitization. The delineation of land use was done under the direction of the Yates County Soil & Water Conservation District. The delineated mylars were then sent to Genesee/Finger Lakes Regional Planning Council for digitization.

Using the New York State Department of Transportation County Base Map Series road files, a master tic file was created by placing tics at multiple intersections at a scale approximately 1:1700.

Since the New York State County Base Map Series road files are in the Universal Transverse Mercator (UTM) zone 18 projection system, the master tic file and each coverage file created from it are also stored in UTM meters. As each land use mylar created from aerial photographs was received, existing tics from the master tic file were transferred to the corresponding road intersections depicted on the mylar. Since it was impossible to foresee the need of every intersection that would require a tic, the tic file was continually updated where each mylar required additional tics.

Once a mylar had the proper tics, the master tic file was copied to create a new coverage to hold the features from the mylar. Where feasible, one coverage was used to hold the features from up to three mylars. A mylar was placed on the digitizing tablet, and the recorded tics were used to register it to the coverage. After registering the mylar, the root mean square (RMS) error was checked to determine if the error was acceptable. An ideal RMS error is 0.003 or less. While average RMS error values encountered were around 0.060, we had a few mylars where we were forced to accept an RMS error that approached 0.500. Following this procedure, each mylar was registered and its features digitized into a coverage. Where multiple mylars were combined into a single coverage, the boundary of each mylar was manually matched with adjacent mylars within the coverage.

After each coverage was digitized, there were several steps necessary to create topology (turn line or arc features into regions or polygons). First the coverage was cleaned to define feature topology and create feature attribute tables. The act of cleaning a coverage can potentially move arc coordinates based on tolerance distances. Each land use coverage was cleaned at a tolerance of five meters, then was carefully error checked for any movement. After the file was successfully cleaned, each polygon was given a label point which is used to the attribute data to the polygon. The label points were numbered in a series to the user-ids of each coverage began were the coverage before it had ended. Each coverage was then sent to Yates County to be encoded with land use values and appended into one complete land use coverage.

4 - 1