

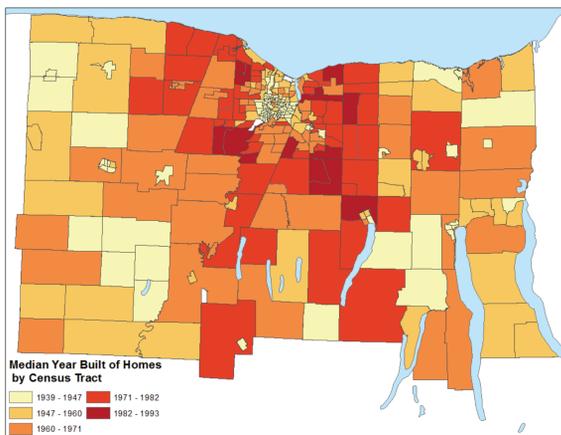
Visualizing Sprawl in New York State's Genesee-Finger Lakes Region



Regional Overview:

The Genesee-Finger Lake Region is comprised of nine counties in upstate New York bordered by Lake Ontario and several Finger Lakes. The metropolitan center of the region, Rochester, has been shrinking in population since the 1950s. From 1950 to 2000, the City of Rochester shrank by 34% while the region grew by 27% from 1960 to 2000. As evidenced by these figures, much of the population left the high-density center city in exchange for newly developed low-density suburban and exurban tracts. Sprawl has caused various negative consequences to the region's social and physical health. It has encouraged racial and class segregation, overdependence on cars, and the destruction of open space to name a few. Although the effects of sprawl are easily sensed, they are not easily measured or quantified. The literature on this topic supports the notion that the presence or absence of sprawl in a growing region cannot be confirmed by one growth characteristic, but requires the temporal intersection of various growth characteristics.

Map 1 Patterns of Home Construction in the 9-County Region



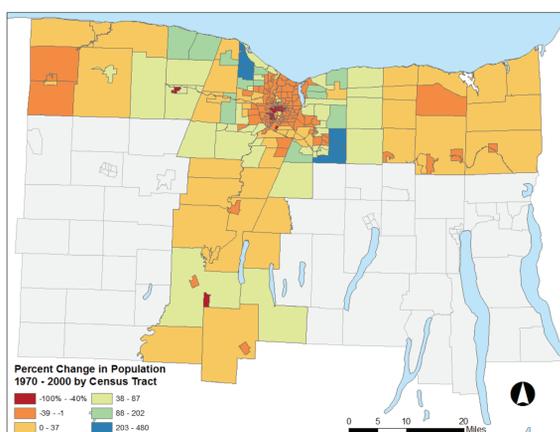
Sources: 2010 American Community Survey, TIGER Census data
Projection: NAD 1983 UTM Zone 18N

Moving out of the City:

Map 1 illustrates the median year of residential units built for each census tract in the nine county region. The oldest homes in the region are, on average, in the center of the City of Rochester or in historically agricultural sections of the region, most likely representing old farm homes. The most recent development of homes is predominantly in low-density second-tier suburbs and exurban sections of the region, infringing on the region's prime farmland. This data was generated by joining results from the 2010 American Community Survey and Census TIGER (Topologically Integrated Geographic Encoding and Referencing system) data for the census tracts in the 9-county region.

Map 2 illustrates the percent change in population from 1970 to 2000 for the four counties in the region that had census tract data for the entire study period. Although the region was steadily growing during this 30-year period, several tracts lost population – decline within the City of Rochester is consistent and evident. Several village and town centers also lost population, while the surrounding exurban and second-tier suburbs gained significant populations. The data for this map was generated by using Census Geolytics to normalize census tract population data from 1970 to 2000. Calculations were performed to show the percent change in population over the study period.

Map 2 Shrinking City, Growing Region



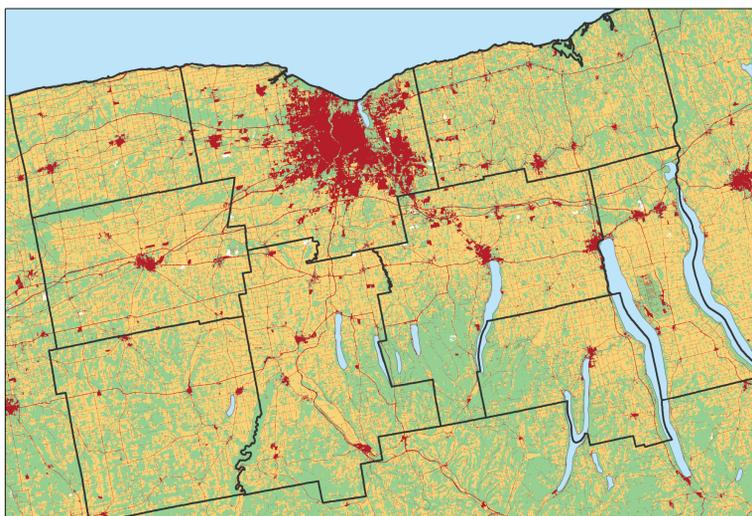
Sources: Census Geolytics, ArcGIS
Projection: NAD 1983 UTM Zone 18N

Fragmentation of Land Uses –

Fragmentation of Social and Physical Landscapes

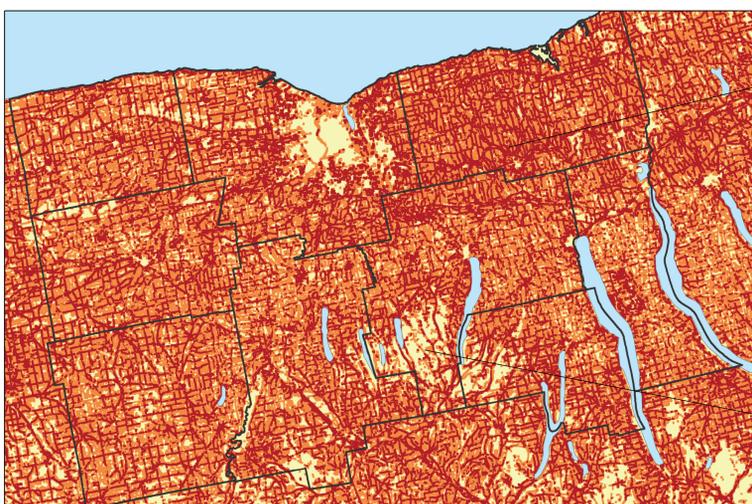
Map 3 is the land use map that was the basis for the preceding fragmentation map. The region's significant agricultural industry is evident as is the "leap-frogging" development following major roadways. This map was generated from the National Land Cover Data's land use map from 2006 and then reclassified to show only the three basic land uses in the region.

Map 3 Three Primary Land Uses in the Region



Land Use
■ Developed ■ Undeveloped ■ Farmland

Map 4 Fragmentation of Land Uses in the Region



Fragmentation of Land Uses Within Quarter Square Mile Zones

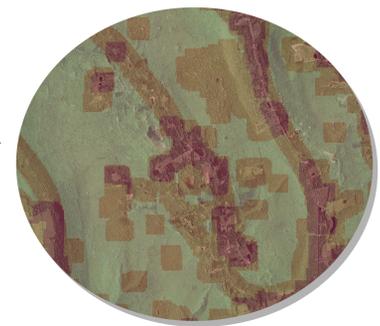
■ Low ■ Moderate ■ High

Sources: NLCD 2006, ArcGIS
Projection: Albers Conical Equal Area



Conclusion:

Independently, these maps cannot definitively prove sprawl in the Genesee-Finger Lakes Region. Analyzed as a whole, however, they illustrate that the region's population has left the high-density city for low-density suburbs and exurbs. Much of this newer development is located on former agricultural land and follows along major roadways. The method of visualizing fragmentation of land uses in a region will become more elucidating once the same techniques are applied to other regions with different growth patterns so that these various regions can be analyzed concurrently.



Based on the land use map above, **Map 4** illustrates the interaction of these three principal land uses. Low levels of fragmentation are indicated by areas on the map that have only one land use in the surrounding area – this could be a completely urban environment with no undeveloped land or it could be a completely forested area of land with no nearby development. As evidenced by the map, the vast majority of the region is highly fragmented, meaning that all three land uses are interacting. In this region, it most likely means that low-density residential development is infringing on agricultural land. Future fragmentation studies of regions with varying land use and growth patterns will elucidate the severity of the land use fragmentation of this region.

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