

Appendix 1 – Calculating Constraints

Steep Slopes

Steep slopes that prevent development were considered to be slopes of 15% or greater and were calculated using the Digital Elevation Model (DEM) data. Slope was derived as a percentage from the DEM data; the land area with greater than 15% slope were calculated as raw figures (acres) and as a percentage of the municipality.

Flood Prone Areas

Flood prone areas (the 100 year floodplain) were calculated from the digitized flood insurance rate maps from the Federal Emergency Management Agency (FEMA), also known as Q3 data. The counties with this digital data available were Genesee, Livingston, Monroe, Ontario, Wayne, and Wyoming.

As was done with steep slopes, the land area of the floodplains was calculated as raw figures (acres) and as a percentage of the municipality.

Orleans, Seneca, and Yates Counties do not have digital flood data so the following alternative methods were developed and used for those counties.

Orleans County currently lacks both SSURGO (Soil Survey Geographic) data and digital flood data. To estimate of the amount of land (acres) susceptible to flooding in Orleans County, data from neighboring counties sharing similar overall geographic and topographic features was extrapolated for use in Orleans County. The percentage of flood prone land was calculated for both Wayne and Niagara counties; the average of these two figures was calculated and used as the percentage of flood prone area in Orleans County. This percentage was then applied to the land area for each municipality in Orleans County to determine the total flood prone acreage within each municipality.

For Seneca and Yates Counties, the SSURGO (Soil Survey Geographic) database was used. Soil types known to be located in flood prone areas were selected as a proxy for the floodplains themselves. These soils included Alluvial Land, Eel Silt Loam, Sloan Silt Loam, Wallkill, Angola, Caneadea, Carlisle, Edwards, Eel (Teel), Fluvaquents, Genesee (Hamlin), Holly (Wayland), Lobdell (Teel), Poygan (Fonda), Sapristis, Sloan (Wayland), Toledo (Fonda) and Wayland. The land area of these soil types was calculated as raw figures (acres) and as a percentage of the municipalities.

Wetlands

Wetlands as defined by the New York State Department of Environmental Conservation were considered to be constraints to development. Wetland data was obtained from the Freshwater Wetland coverage created by the DEC. Similar to steep slopes and flood prone areas, wetland acreage was calculated by municipality following the same steps previously outlined.

Hydrological Constraints

Since wetlands and flood plains often occupy the same geographical area, but do not exclusively overlap, it had to be determined which wetlands lay outside of the flood plains. This was calculated for each municipality to produce a constraint factor called “hydrological constraints” that took into account flood plains and wetlands lying outside flood plains.

This was done by simply performing an intersect operation of flood prone areas and wetlands to identify areas that are wetlands outside of the areas that are flood prone. Calculating the area of this coverage provided a total acreage of areas that are either flood prone or wetlands.