



A New School Site Selection

Up to now, there are 28 schools in New Haven, including Yale University. To solve the problem of uneven distribution of educational resources, we should build more schools. How to find the best location? This exercise attempts to identify the ideal place which takes into account several conditions.

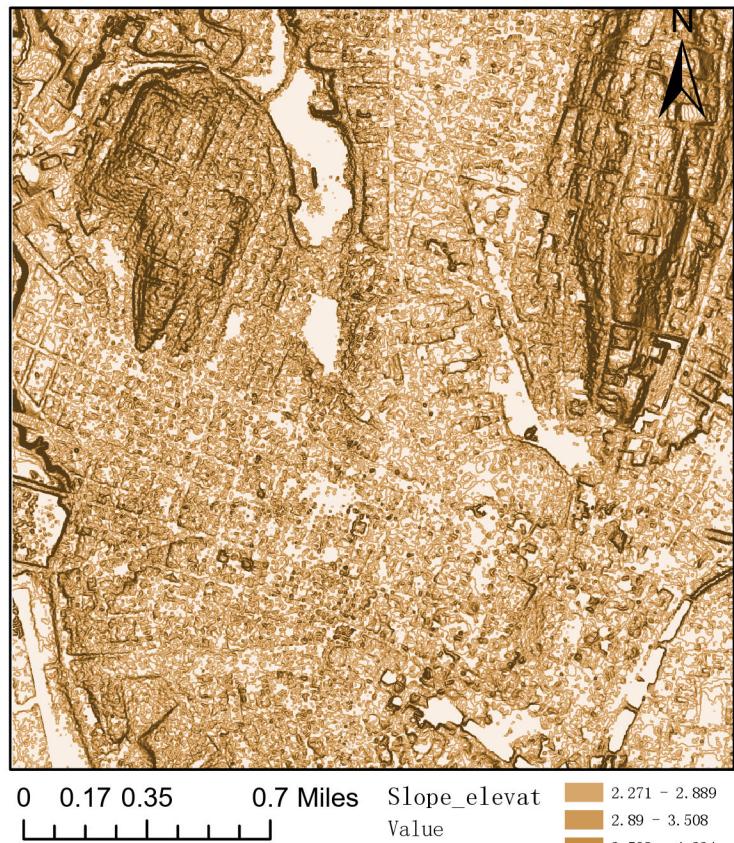
The steps are as follows:

1. Deriving the slope, "Distance to schools" data from existing elevation, landuse dataset, etc.
2. Reclassify all the derived data to a range of 1-10, the higher the value, the more suitable for a school.
3. Weighting all reclassification data to get the final result.

Slope

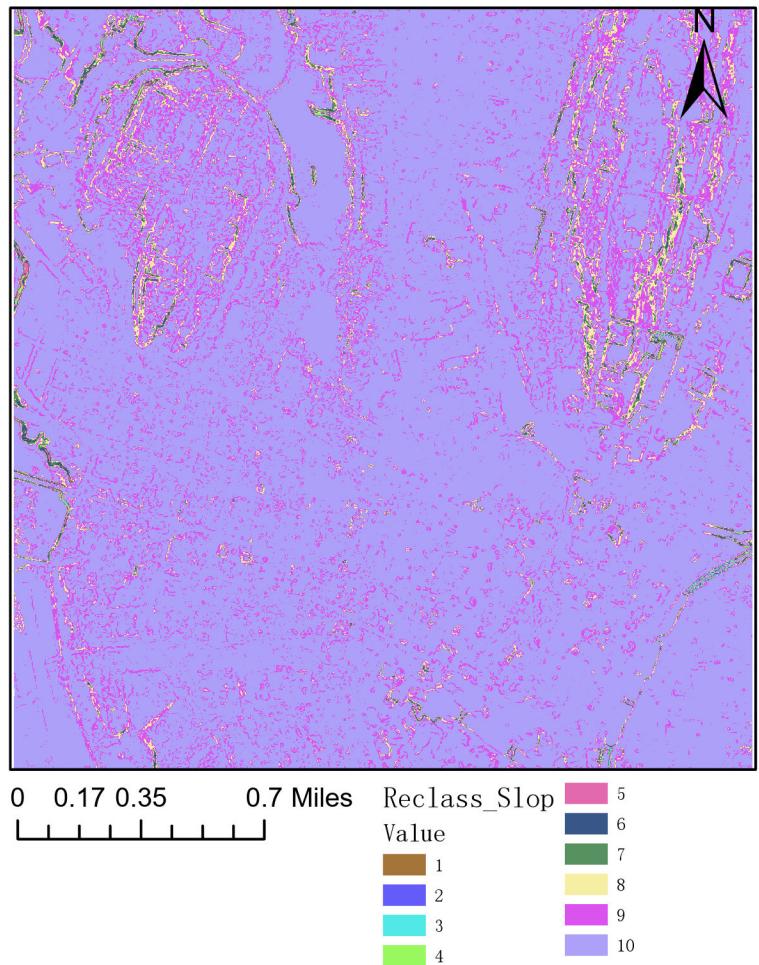
Schools should be built in areas with flat terrain and gentle slopes, using the New Haven elevation data as the input raster, a new Slope layer was generated in Map 1. Reclassify the slope data into ten classes,

Map 1. Slope of the New Haven



range from 1 to 10 in Map 2. Generally, schools will not be built on slopes greater than approximately 33%, even if all other conditions are ideal.

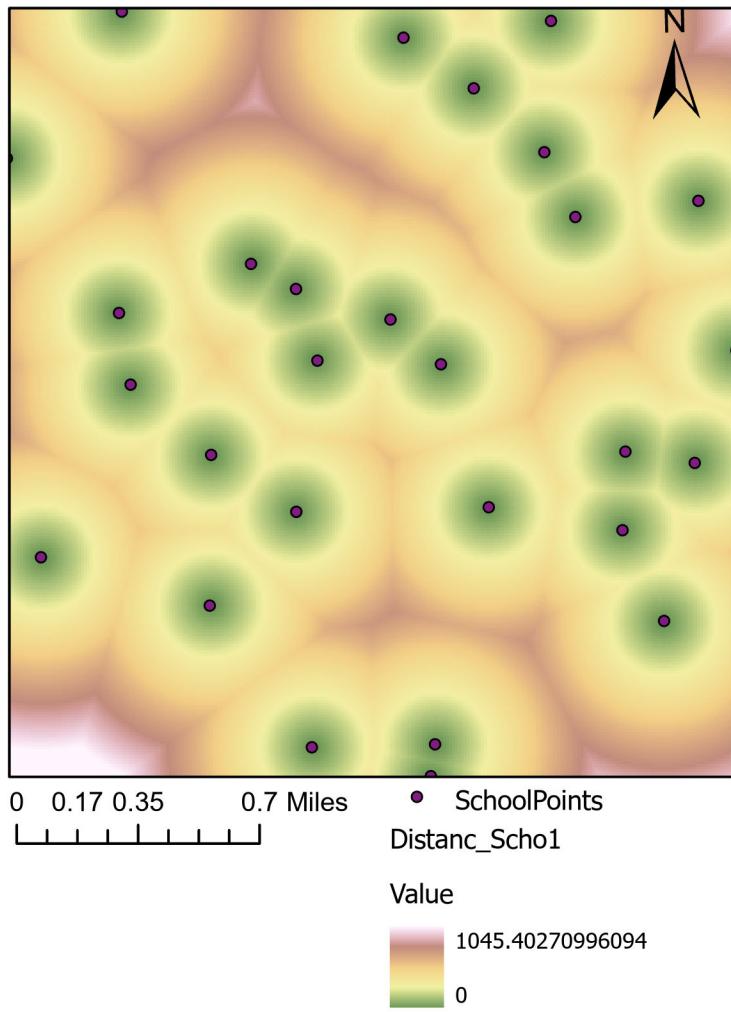
Map 2. Slope reclassification value



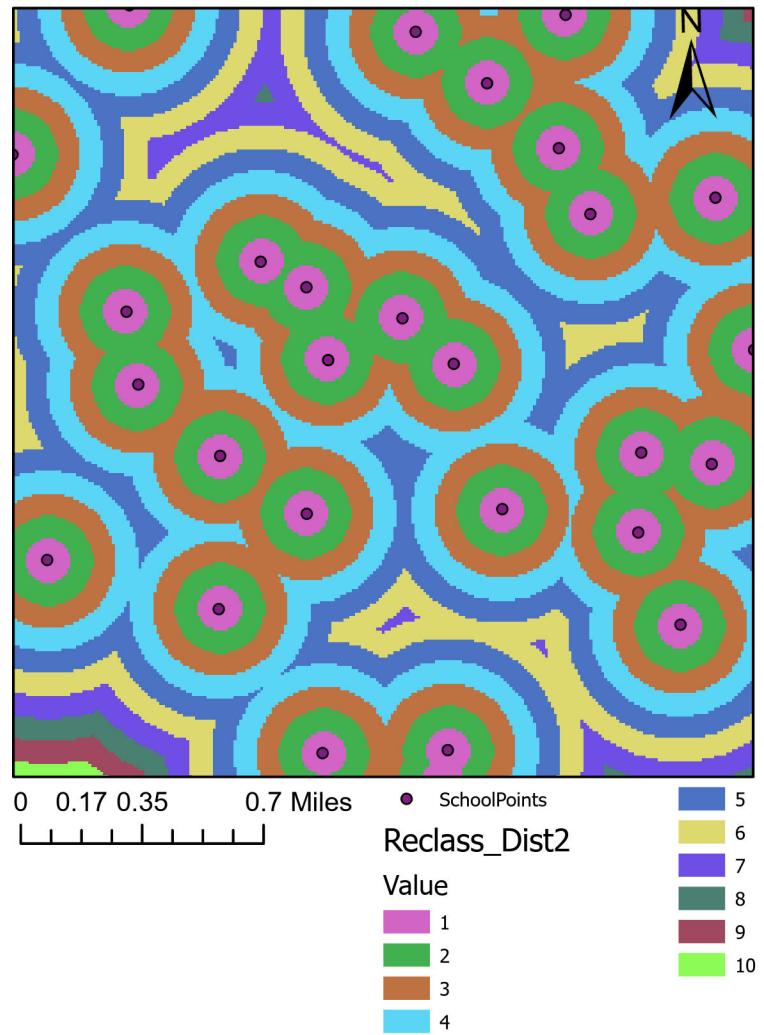
Distance to Schools

New schools should be built away from the existing schools, using the SchoolPoints as the feature source data, the distance to existing schools layer was generated in Map 3. Then, reclassify the distance data into ten classes, range from 1 to 10 in Map 4. The further the distance from the schools, the higher the value.

Map 3. The distance to existing schools



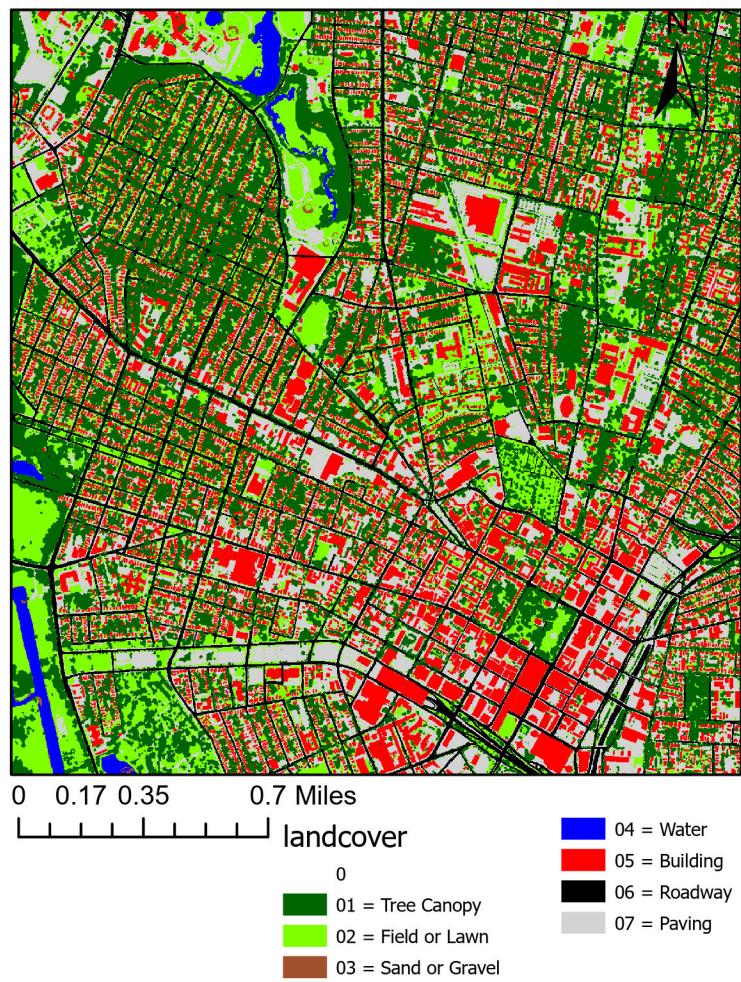
Map 4. Distance reclassification value



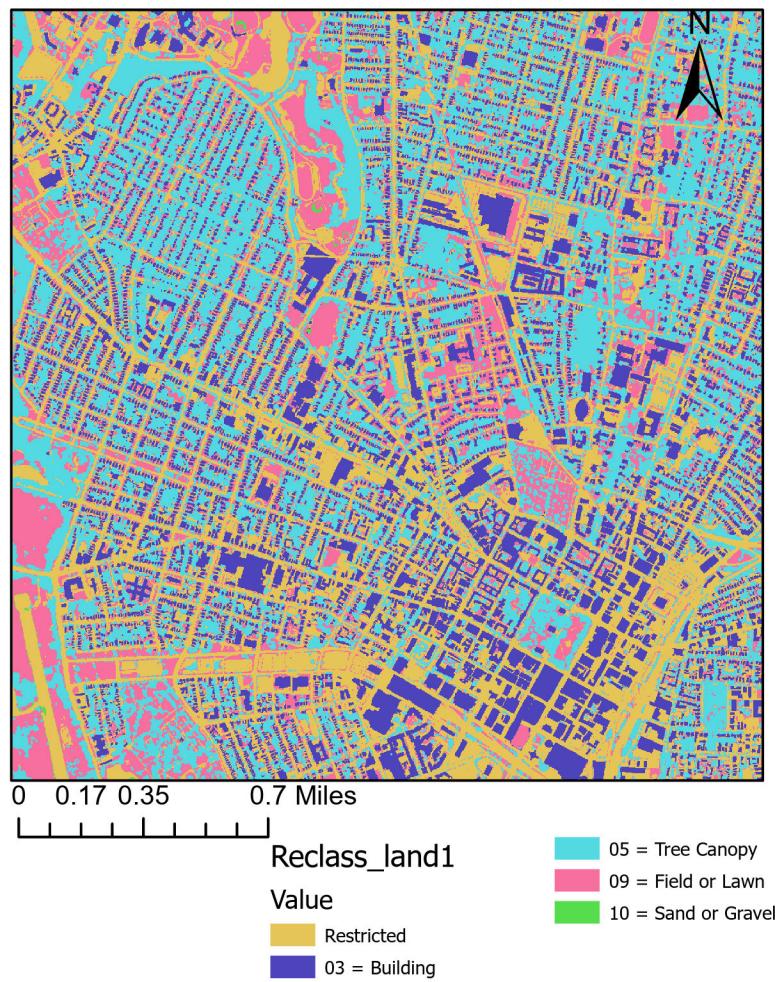
Landuse Data

For the land use data, Map 5 shows the current land use distribution , reset the values as follows: Building = 3, Tree Canopy = 5, Field or Lawn = 9, Sand or Gravel = 10, set the Water to restricted in Map 6.

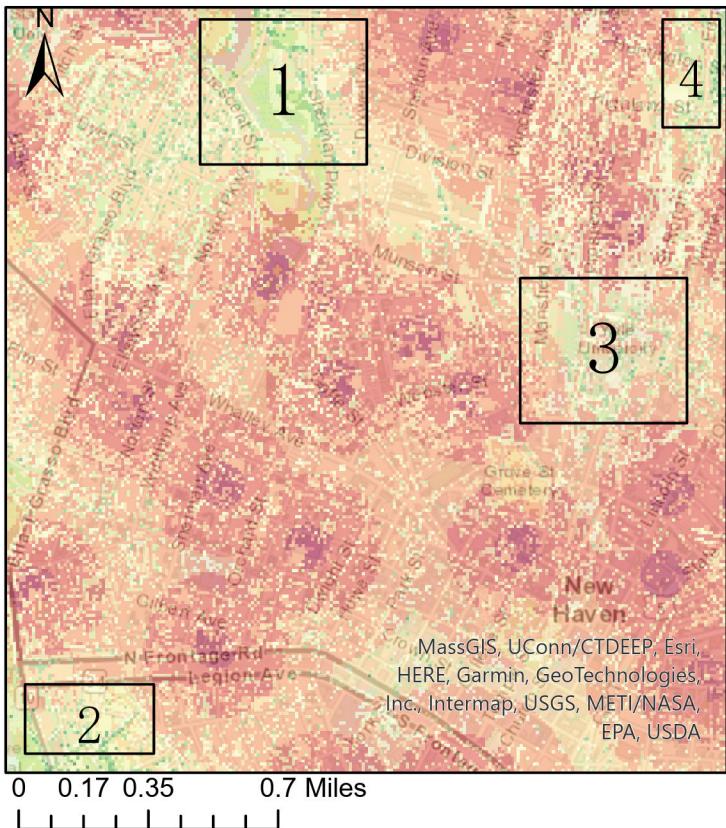
Map 5. Land use distribution



Map 6. Land use reclassification value



Map 7. Result



Set the weight of land use dataset to 20%, the weight of distance to schools is 50%, the slope dataset is 30%. Then utilizing the "Weighted Overlay" tool to get the final result in Map 7. Adjust transparency. The higher the value, the more appropriate for building schools. There are four potential areas . Area 1 and 2 are near the river park, not in consideration. Area 3 is Yale University, actually it's in the SchoolPoints dataset, but with no boundary information, which will mislead the "Distance to schools" attribute. On the other hand, the exist of Yale University also verifies the reliability of the experimental results. Area 4 is in the northeast of New Haven, which meets all the requirements, flat terrain, away from schools, proper land use type.