A Model for Transportation-Oriented Development in Westchester County, New York

Introduction
An increasingly important issue in contemporary development is Transportation-Oriented Development (TOD) because it enables individuals to live and work without the use of a car. This lifestyle is growing in popularity among environmentally-minded individuals as well as those who cannot afford to own and maintain a car. This issue is particularly salient to Westchester County, New York because it is a largely suburban area where most residents depend on use of cars in their daily lives. At first glance, Westchester would appear like a poor place for a TOD suitability analysis because many of the residents are wealthy enough to drive cars and most of the county has been planned and laid out as such. However, Westchester County’s close proximity to New York City (just south of the county) enables individuals to access the city’s job and labor markets. Access to a large and diverse market such as New York should serve as a crutch for up-and-coming TOD areas because it enables opportunities for both commuting and reverse commuting.

Methods
Even though Westchester County is mostly suburban in nature, it does have extensive coverage by the Metro-North Railroad, which is a prototypical commuter railway. TOD depends on the existence of a significant transit center which fits the description of all of the Metro-North stations in the county. For the purposes of this model suitability analysis, Metro-North serve as the only transit centers utilized. Because studies have found that most people are willing to walk a half-mile to get to transportation or other locations, the areas of interest are within a half-mile from each station.

The factors which are considered relevant indicators of suitable places for TOD are population density as well as proximity to parks, mixed-use zoning, schools and libraries. Since each half-mile buffer area around a station has the same area (approximately 0.785 square miles), population and not population density is used as the primary metric. The factors which are considered relevant for TOD suitability analysis were derived from their relative importance as indicated in literature on TOD as well as the quality of the dataset that was obtained. For example, zoning is an important element of TOD, but most municipalities in Westchester County have not yet (or had not when the data was gathered) adopted mixed-use zoning statutes. Because many municipalities lacked any inclusion of mixed-use zoning, it was decided that this factor should not receive heavier weighting for fear that it would skew the results.

If this analysis were not just a model for TOD and aimed to actually find the most suitable location for TOD in Westchester, several changes would be made. The first step would be the collection and analysis of additional relevant factor datasets such as the locations of grocery stores and walkable sidewalks and paths. Furthermore, a formula for more accurate weighting of factors would be devised and utilized in a more professional TOD suitability analysis.

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Results

It is not surprising that the most suitable areas for TOD are in the southern part of the county where a majority of people and higher population densities are located. However, it is surprising that the area surrounding the Fleetwood Metro-North Station in the most suitable for Transportation-Oriented Development. The Fleetwood area is not particularly walkable in large part because it is wedged between the Cross County Parkway and the Bronx River as well as very near to the Bronx River Parkway. Because my calculations failed to take walkability into account, certain areas like Fleetwood are inappropriately deemed most suitable.

Even if this analysis is not truly accurate, it is only a model which hopefully will inspire more comprehensive analyses both in Westchester County and in other locations. Because if communities can work together to develop with transportation in mind, they will face the future with greener and more environmentally-friendly prospects.

Cartography: Robert Joseph

Class: Intro to GIS, Fall 2012
Date: December 14, 2012
Data Sources: Westchester County GIS, giswww.westchestergov.com (November, 2012); NYS GIS Clearinghouse, gis.ny.gov (December, 2012)
Projection: NAD 1983 State Plane New York East