

Data Preparation Guidelines for Build-Out Analysis Using CommunityViz Scenario 360

The following sections describe the minimum data requirements for conducting a build-out analysis using CommunityViz Scenario 360, including suggestions for data preparation and/or development. Data processing techniques assume the use of ArcGIS 9.x tools.

1. Tax parcel polygons with a land-use/zoning attribute

Data Requirements:

Basing a build-out analysis on a polygon layer containing tax parcels will provide optimal results. The tax parcel shapefile or feature class should be clean (polygons should be closed, free of duplicate polygons, slivers, etc.) and as current as possible, and must contain an attribute describing the zoning district (or land-use for communities with no zoning ordinance) for each polygon.

If digital tax parcel data is not available, a land-use or zoning layer would be the next best option. Again, the shapefile or feature class should be clean and as up to date as possible, and must contain an attribute describing the land-use/zoning district for each polygon.

Data Preparation:

If both a digital tax parcel layer and a land-use/zoning layer are available, the land-use/zoning attribute can be added to the tax parcel layer using overlay techniques. The process, however, is generally not straight forward. Tax parcel boundaries and land-use/zoning boundaries rarely line up perfectly, possibly requiring manual editing and judgment (see example, Figure 1).

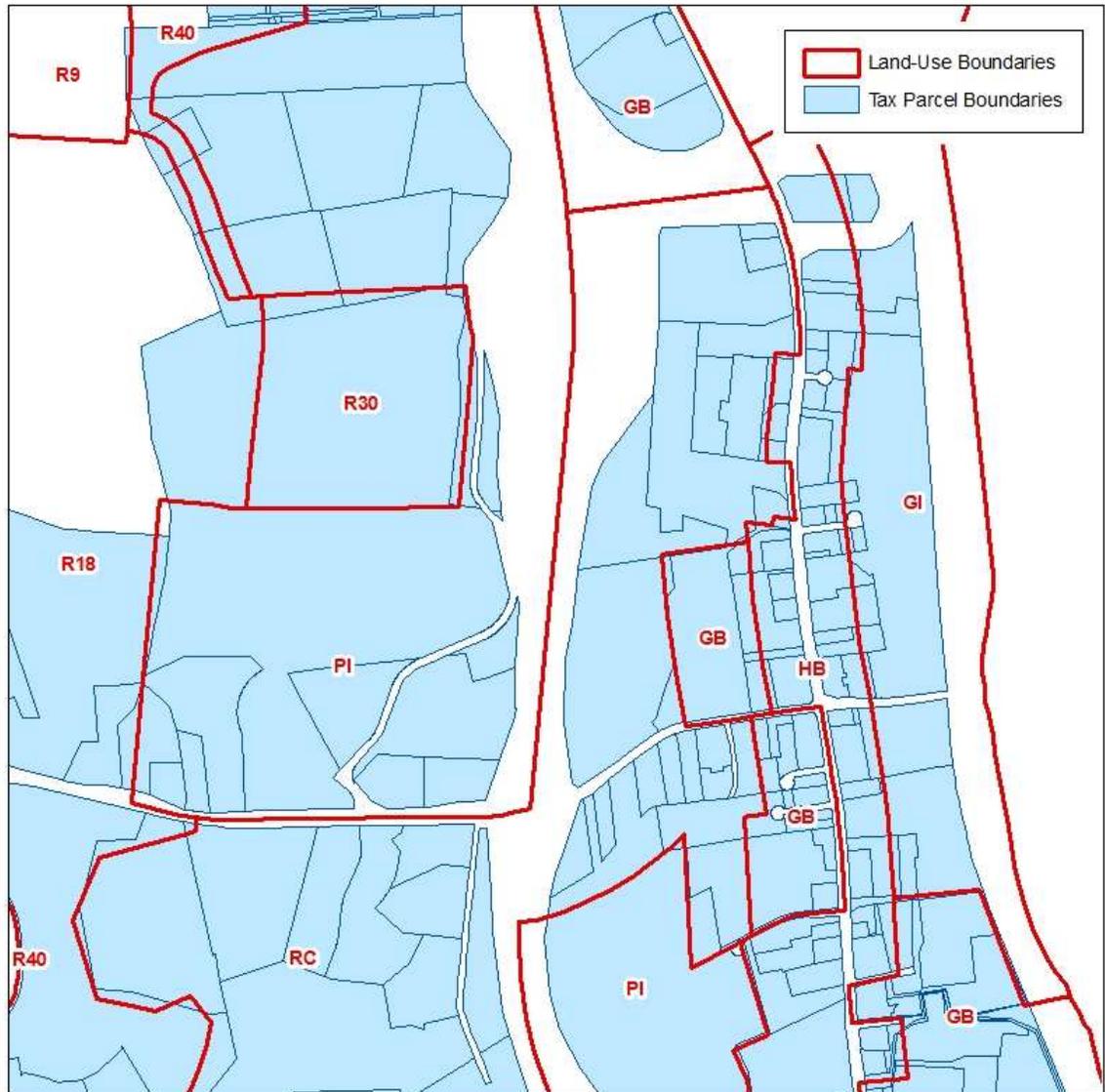


Figure 1

You can see in Figure 1 that tax parcels may overlap with several different land-use/zoning districts. There are a couple of options for dealing with this:

- a. Assign one land-use/zoning code to each tax parcel. This could be done automatically using the Spatial Join tool. You may then choose to blindly accept the software's "judgment", or you may want to review the results and make manual adjustments as necessary.
- b. Split the tax parcels into multiple polygons based on the land-use/zoning districts using the Identity tool. See results, Figure 2.

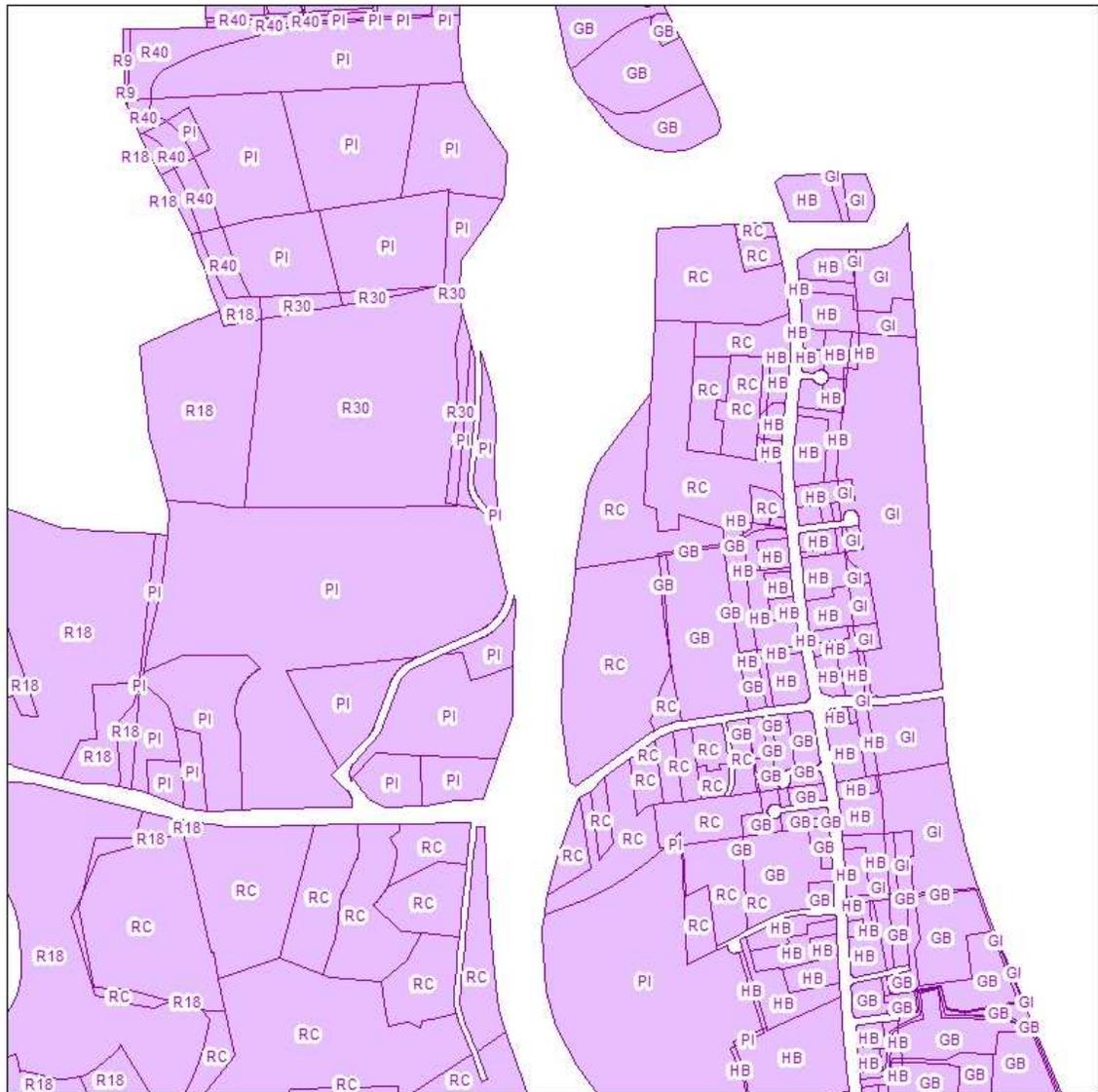


Figure 2

You can see in Figure 2 that this option can result in small, “sliver” polygons that will have areas that are likely too small to be considered “buildable”, and could create potential problems when processing your build-out analysis.

Data Development:

There is no common standard in New Hampshire for developing digital tax parcel data. Generally, tax parcel data is digitized from hard copy sources, and corrected using aerial photography or other base data. Developing and maintaining digital tax parcel data is of course a major undertaking, and may need to be contracted to a regional planning commission or private company.

Developing land-use data can also require significant effort, however NH GRANIT has developed a land-use mapping standard, in consultation with the NH Office of Energy and Planning and the nine regional planning commissions in the CTAP/I-93 corridor. The standard can be found on the NH GRANIT website:

<http://www.granit.unh.edu/resourcelibrary/GRANITresources/standards/landusestandards.html>

Following this standard is not required for analysis in CommunityViz, but doing so does provide conformance to existing New Hampshire land-use data and thereby facilitates regional and/or multitemporal analyses.

2. Existing building point locations

Data Requirements:

Build-out analysis results will reflect the **remaining** capacity for an area, excluding the existing buildings. A build-out can be conducted without an existing buildings layer; however the build-out will not be able to subtract existing buildings from the capacity calculation. Additionally, attributes containing the number of dwelling units or floor area associated with each building point would further refine the build-out results.

Data Preparation:

If building footprints are available, building points can be generated using the Feature to Point tool.

Data Development:

If neither building footprints nor building points are available, data development can be time consuming. Creation of an accurate building point layer generally involves manually digitizing the points of primary buildings from aerial photography. Populating attributes containing number of dwelling units and commercial floor area requires up-to-date assessment data.

3. Road centerline data

Data Requirements:

Basic road centerline data is required when specifying setback distances.

Data Preparation:

No data preparation/development is required, as statewide road centerline data from the NH Department of Transportation is available from the NH GRANIT website:

http://www.granit.unh.edu/data/search?dset=roads_dot

4. Development constraints

Data Requirements:

Constraints keep development out of areas that should not be developed due to statutes, local ordinances, local guidance documents, and other factors. The constraint layers required will depend on zoning regulations and/or laws for each town, as well as the project goals.

Data Preparation:

Many of the commonly used constraint layers are available from the NH GRANIT website (www.granit.unh.edu), and thus data preparation/development is generally not necessary. These layers may include:

- Conservation Lands
- Wetlands
- Floodplains
- Soils (for septic suitability, etc.)
- Steep Slopes (e.g. extracted from Soils data or Digital Elevation Models)
- Surface Water

Additional (or larger scale) constraint data may be available directly from the town.

5. Zoning/land use code document

Data Requirements:

If the town has a land-use/zoning code, the document will need to be obtained. This document will provide the build-out inputs such as density rules and setbacks requirements.

About the NH CommunityViz Technical Resource Center

Through the NH CommunityViz Technical Resource Center, NH GRANIT staff at UNH Complex Systems Research Center is available to provide guidance and technical support to CommunityViz users throughout the state. We are also working in collaboration with staff from UNH Cooperative Extension to develop and present educational resources.

<http://www.granit.unh.edu/resourcelibrary/specialtopics/cviz/cviz.html>



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