

Triangle CommunityViz 2.0 Technical Overview (July 25, 2016)

Pages 1 and 2 present a TCV2 overview

Pages 3 and 4 summarize place types and development status

Page 5 gives contact information

What CommunityViz Is

CommunityViz is a tool that projects where future growth will occur based on current development and assumptions about what makes some locations more attractive than others. It can be used for a small area or an entire region. In the Research Triangle Region, an initial forecast of future growth to the Year 2040 was used to allocate growth for the region's 2040 Metropolitan Transportation Plan. The model has been refined to create Version 2.0 (TCV2).

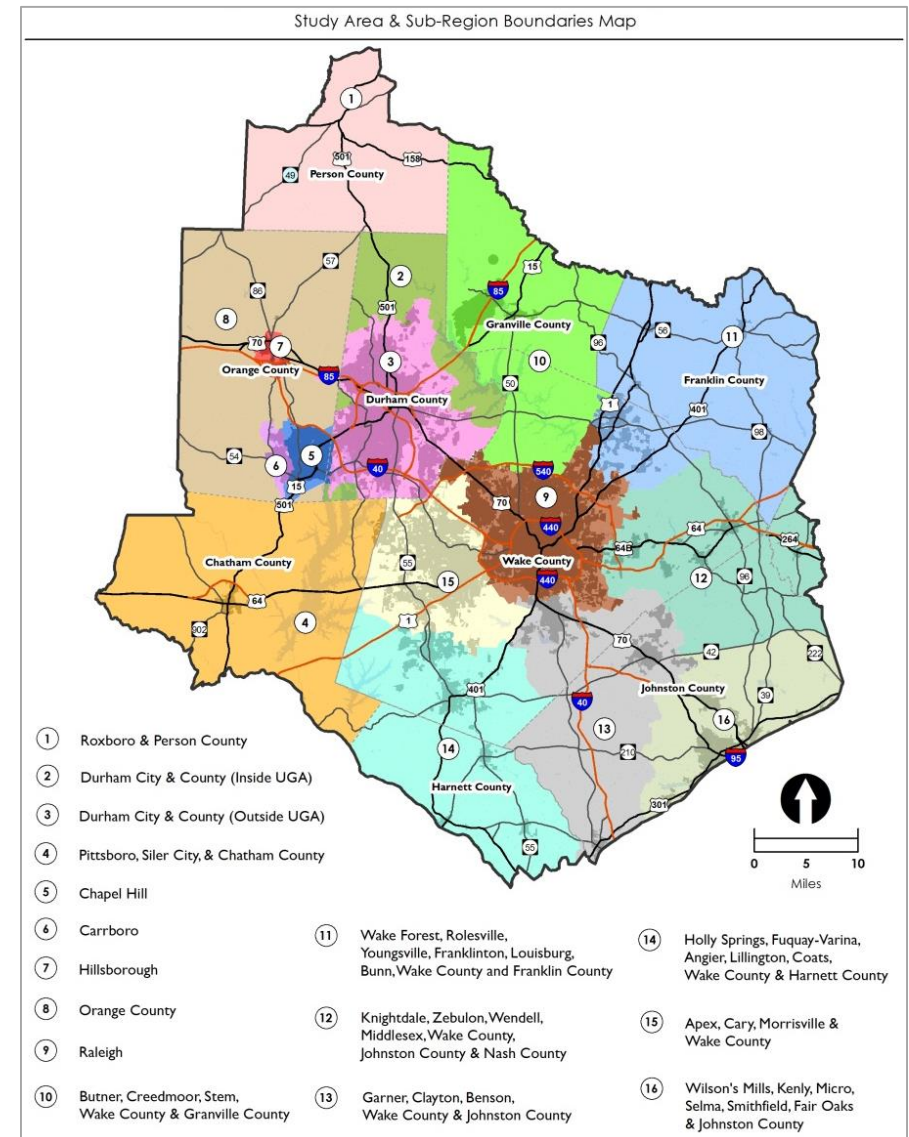
The area covered by this forecast is shown to the right. It is the “modeled area” of the region's transportation model, which converts the CommunityViz forecasts into projections of future travel on area roadways and transit routes. It consists of ~3,400 square miles covering all or parts of 10 counties.

The region is divided into 16 sub-regions (map at right) for better reporting of results and more efficient software processing. CommunityViz uses data from individual land parcels and assigns it to over 100,000 grid cells for analysis. These grid cell data are then translated into the 2,857 “traffic analysis zones” (TAZs) used in Version 6 of the Triangle Regional Travel Demand Model.






What CommunityViz Needs From Local Planners

CommunityViz needs five basic things, summarized on the following pages:

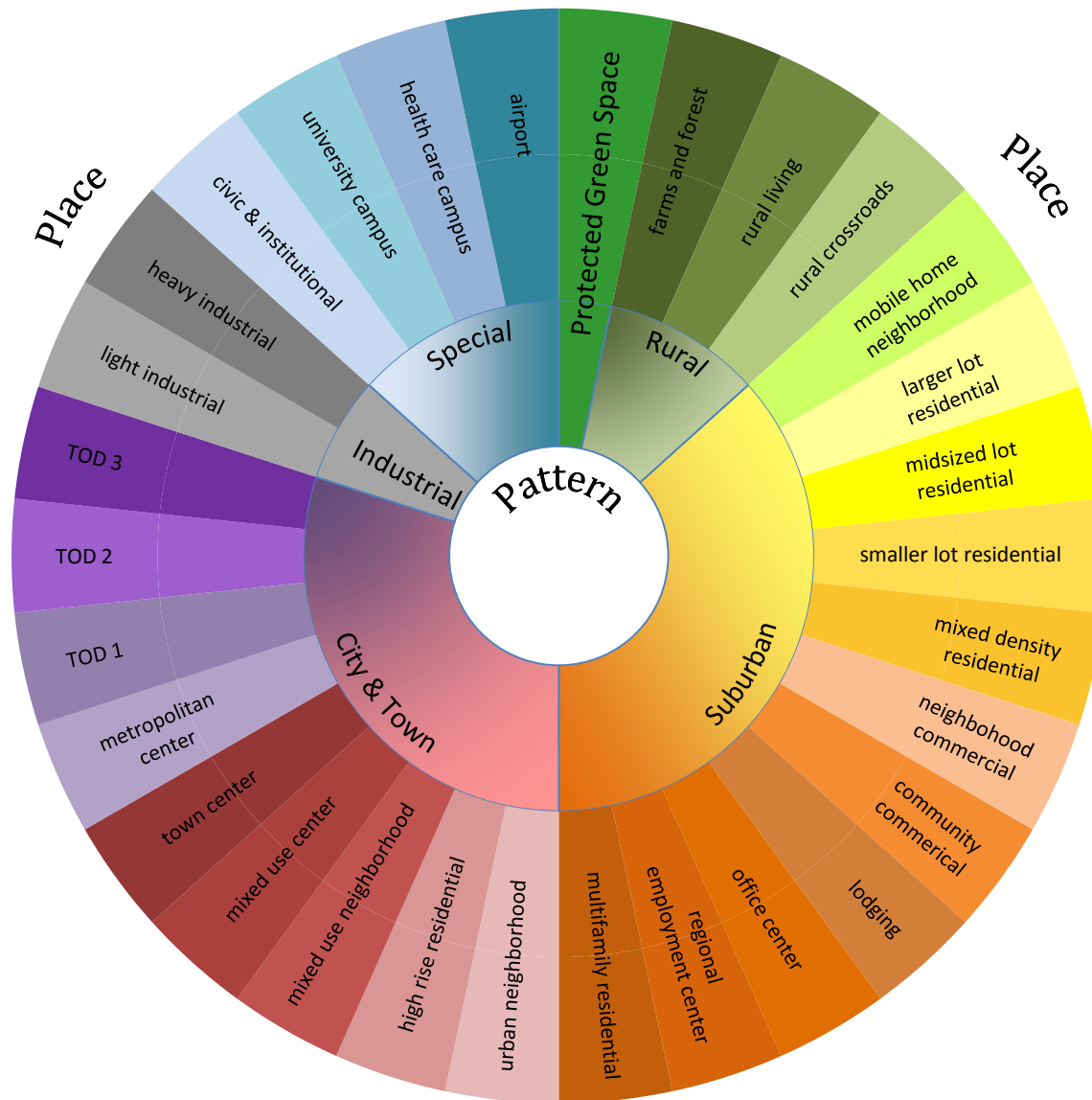
1. The location of features that constrain development, such as water bodies, wetlands and stream buffers,
2. The type of place each parcel is **today** and **will become** (and the intensity of each place type for each jurisdiction),
3. The current development status of each parcel,
4. The factors that will determine how attractive each parcel is for development, termed land suitability (to be decided regionally); and
5. The types and amounts of growth that will be allocated, termed “control totals” (also to be decided regionally).



CommunityViz Major Elements

	<p><i>Development Constraints – Constraints were reviewed and updated, but do not change significantly from the previous version</i></p> <p>Development constraints are special conditions that restrict the amount of development a parcel or grid cell can receive, even if the underlying parcel or grid cell might be undeveloped and zoned for development. The development constraint used in this version of CommunityViz is a <i>Resource Conservation</i> designation, which consists of water bodies, stream buffers, wetlands and permanent conservation areas where development is precluded.</p>
	<p><i>Place Types – Place type names are refined, but the number and categories are similar to the previous version</i></p> <p>Each parcel of land is assigned one of 30 different CommunityViz place types spanning a range of residential, commercial, industrial and mixed-use development possibilities. Each place type in each jurisdiction is assigned a density or intensity measure designed to reflect the average value for that jurisdiction. Densities and intensities may be further modified by special conditions such as watershed protection or historic preservation designations. Residential place types include the % of land that is single family vs. multifamily. For mixed use place types, the designation includes the % of land that is residential and % of residential land that is multi-family. Place type may be one thing today and another in the future.</p>
	<p><i>Development Status – the treatment of under-developed and re-developable land is more flexible than the previous version</i></p> <p>Parcels of land receive one of 5 development status assignments (excluding water, open space & agricultural designations):</p> <ul style="list-style-type: none"> • developed: already built and can not accept additional growth • committed: additional growth manually assigned based on buildings that are under construction • undeveloped: can accept new growth up to the capacity of the place type • under-developed: can add development to what is already there (each parcel with this status will include a user-designated percentage of the parcel capacity that is <u>already</u> developed and can not accept more growth) • re-developable: can accept new growth up to the capacity of the place type, but what is there now will be subtracted.
	<p><i>Land Suitability – Suitability factors are simplified and refined from the previous version</i></p> <p>Land suitability is a measure of how “attractive” a parcel or grid cell is for new growth, relative to all the other parcels or grid cells in the county. TCV2.0 uses 14 different suitability factors, although some may not apply to a particular scenario (e.g. high frequency transit stations in a scenario without such service). A full list of factors, and the weights assigned to each factor in each scenario for TCV2.0, is available.</p>
	<p><i>Growth Allocation & Control Totals – The allocation method is done in increments with updated software; job categories changed</i></p> <p>The final step is to assign new growth to parcels or grid cells based on their relative suitability. Growth is based on control totals that are developed for each county, and for each of the 7 categories of growth that are forecast: single-family residential units, multi-family residential units and 5 categories of jobs: Office, Industrial, Retail, Service-high visitor rate, Service-low visitor rate. The updated CommunityViz software includes a more refined version of the growth allocation method, called Allocator5.</p>

Triangle CommunityViz Development Pattern & Place Type Wheel



Existing parcels of land can be assigned one of 30 place types, shown on the wheel at left.

In general, particular place types describe a development pattern: rural, suburban or city & town, with industrial and special place types possible as part of any development pattern.

In practice, the link between place type and development pattern is not so neat, but considering the development patterns of an area can help in deciding how to assign place types to parcels.

Different communities will define categories differently; the mechanics of CommunityViz allow for finer distinctions based on the development intensities input for each category in each jurisdiction.

Note that in CV1, Chapel Hill had 2 MUC place types; place type variants may be used in CBDs or at Anchor Institutions if warranted.

Development Status

Every parcel is assigned a development status from 8 possible choices, shown in the table below. The default value, which is pre-populated in the data set, is the status from the CommunityViz 1.0 data set used in the 2040 Metropolitan Transportation Plan (MTP).

Five of these choices are designed to help people understand how development on the parcel today relates to the type of place the parcel is planned to be under an associated scenario (e.g., the “default” 2045 MTP scenario, which is based on the 2040 adopted MTP scenario).

Two of the choices – “water” and “open space” – are designed to avoid confusion when selecting a development status, since a parcel consisting of water or protected open space would logically be thought of as undeveloped, but for the purposes of allocating growth, it needs to be treated as if it is fully developed, i.e., it can accommodate no additional development.

The final choice – “agriculture” is used to allow a calculation of how much agricultural land is converted to development under a growth allocation.

Development Status	What it means	How CommunityViz will actually treat it	What other information is needed?
Developed	Development on the parcel will be the same in 2045 as it is in 2015	As fully developed – no additional growth	
Undeveloped	The parcel will develop based on the CV2 algorithm	As able to add 100% of the place type capacity	
Under-developed (also used for redevelopable parcels in CV1)	The parcel will develop based on the CV2 algorithm	As able to add only the % of the place type capacity that is not already on the site	The % of the site capacity already taken up by existing development that will stay (pull down menu)
Redevelopable (new for CV2)	The parcel will develop based on the CV2 algorithm	As able to add 100% of the place type capacity, but the existing development will be subtracted	Dwellings & non-residential square footage that exist and will be removed
Committed	Development of the parcel will be asserted prior to the CV2 model run	As fully developed – no additional growth. The committed development is manually added.	Dwellings & non-residential square footage that will be on the site
Water	Development on the parcel will be the same in 2045 as it is in 2015	As fully developed – no additional growth	
Open Space	Development on the parcel will be the same in 2045 as it is in 2015	As fully developed – no additional growth	
Agriculture	The parcel will develop based on the CV2 algorithm	As able to accommodate 100% of the place type capacity	Any easements or other protections that would preclude development

For parcels designated under-developed, re-developable or committed, it is important for the local planners to understand the additional information that is needed to accurately reflect future growth on those parcels, including how TCV2 allocates new growth by area (acreage).

Guidance & Assistance

Need help? Unsure of something? Want some guidance on a particular place type or how to handle an unusual situation?

Please don't hesitate to contact Triangle J COG staff.

For guidance on the **CommunityViz software**, (Version 5, including Allocator5), contact:

Ben Bearden bearden@tjcog.org 919-558-2701

For guidance on **what** a particular place type or development status means, contact:

John Hodges-Copple johnhc@tjcog.org 919-558-9320

For guidance on **how** to enter or edit place type or development status information into TCV2, contact:

Ben Bearden bearden@tjcog.org 919-558-2701

For assistance on **the definitions and sources** for development constraints in TCV2, contact:

Ben Bearden bearden@tjcog.org 919-558-2701

For assistance on **place type development factors** ("look-up tables") for individual jurisdictions in TCV2, contact:

Aspen Romeyn aromeyn@tjcog.org 919-558-9319

For assistance on **development** associated with anchor institutions, Large Scale Developments, and committed development in TCV2, contact:

Matt Day mday@tjcog.org 919-558-9397

For guidance on **future scenarios, suitability factors and growth control totals**, and associated housing type distributions, and job and population ratios, contact:

John Hodges-Copple johnhc@tjcog.org 919-558-9320

Additional information is available to provide greater detail; the most recent versions, along with much other information, are posted on the project website at: <http://www.tjcog.org/imagine2040/downloads.aspx> under the TCV2 heading.