Tract and Block Group Variables

(also known as **Claritas Variables**)

These variables were added to describe the characteristics of the areas where the NHTS were surveyed. This allows the data analyst to look for patterns in travel behavior, not only by individual characteristics, but by neighborhood characteristics. The data user can examine how characteristics such as population density, housing density, renter occupancy rate, and urbanicity of the household location may affect individual travel behavior.

Sources of Tract and Block Group Variables

The data contained in these variables was derived from Decennial Census and American Community Survey data and estimated to 2009 by Nielsen Claritas, Inc. An annual demographic update is developed by this company to serve as a source of estimates of population, households, and housing unit characteristics. These estimates are made at relatively small units of geography, such as census tracts and block groups, which make this update effective for use in supplementing the NHTS data. The update is a comprehensive process that relies on a number of additional data sources, including regional and city planning agencies, federal agencies (e.g., Bureau of Labor Statistics, Bureau of Census, Bureau of Economic Analysis) U.S. Postal Service, the direct mail industry, the real estate industry, and experts in the fields of geographic information systems and mapmaking.

Variable Naming Scheme

The variable names were designed so that:

- many of these variables would fall together in an alphabetic listing, and
- the variable name would help in describing the contents.

The naming scheme is:

First letter -	H for household descriptor
Second letter -	B for block group level data T for tract level data
Third letter of Household variables -	H for housing characteristic P for population characteristic

For example, HTHRESDN is a household descriptor, at the tract level, describing a housing characteristic, specifically, residential density (RESDN).

The last 5 letters of the variable describe the data in the variable, e.g. POPDN = population density.

The set of tract and block group variables derived by Nielsen Claritas are:

Household Descriptor, Block Group Level

HBHRESDN - housing units per square mile
HBHTNRNT - percent renter-occupied housing
HBHUR - urban/rural code (see below)
HBPPOPDN - population density (persons per square mile)

Household Descriptor, Tract Level

These are the same as the Block Group variables, but a "T" (tract) replaces the "B" (block group) in the second letter of the variable name. The first entry on this list is the one additional household descriptor variable at the tract level that is related to the amount of employed people in residence in this census tract:

HTEEMPDN -employed persons per square mile (i.e., employed persons at their residence location)
HTHRESDN - housing units per square mile
HTHTNRNT - percent renter-occupied housing
HTPPOPDN - population density (persons per square mile)

Urban-Rural Continuum

The remainder of the Appendix describes the urban/rural continuum developed by Nielsen Claritas used in the variable named HBHUR-Urban/rural code, block group. This breakout of urban/rural should not be confused with the variable URBAN, which is the Census-defined urban area status of the sample household.

The categories of the Nielsen Claritas Urban/Rural Continuum, and the distribution of NHTS households within these categories, are presented in the following table, showing the distribution of the weighted and unweighted (number of respondent households) across the urban/rural continuum.

Urban/Rural Continuum – Distribution of Weighted and Unweighted NHTS Sample

	Weighted NHTS Households	Percent of households **weighted**	**Unweighted** NHTS Households	Percent of HHs **unweighted**
Second City	20,632,917	18.24	27,082	18.04
Suburban	27,430,457	24.25	34,991	23.30
Town and Country	45,041,531	39.82	71,126	47.37
Urban	19,964,251	17.65	16,937	11.28
Unassigned	8,899	0.01	9	0.01
Not Ascertained	23,274	0.02	2	0.00
Total	113,101,330	100.00	150,147	100.00
2009 Claritas urban statistics available at the **Block group level** only				

The Urban-Rural Continuum

Claritas, Inc., the predecessor of Nielsen Claritas, developed an urban-rural dimension to incorporate into their lifestyle cluster system, which is used primarily for research and marketing applications. The goal was to establish objective classifications that were less boundary-dependent than previous topologies.

The classification that is reflected in the Urban/Rural variable is based on population density, but not just the density of a specific geography, but the density in context of its surrounding area, or "contextual density". To establish this classification, the United States was divided into a grid to reduce the impact of variation in size (land area) of census tracts and block groups. Density was converted into centiles, that is, the raw numbers (persons per square mile) were translated into a scale from 0 to 99.

<u>Urban</u>
• Urban areas have highest population density scores based on density centiles
• 94% of block groups designated Urban have a density centile score between 75 and 99
• Downtown areas of major cities and surrounding neighborhoods are usually classified as urban

<u>Suburban</u>
• Suburban areas are not population centers of their surrounding communities
• 99% of block groups designated Suburban have a density centile score between 40 and 90
• Areas surrounding urban areas are usually classified as suburban

Second City
• Second Cities are population centers of their surrounding communities
• 96% of block groups designated Second City have a density centile score between 40 and 90
• Satellite cities surrounding major metropolitan areas are frequently classified as Second Cities

Town/Rural
• Town/Rural areas include exurbs, farming communities, and various rural areas
• 100% of block groups designated Rural have a density centile between 0 and 20
• 98% of block groups designated Town have a density centile between 20 and 40
• Exurban towns have slightly denser populations than rural areas

NOTE that in the 2009 NHTS, there is one category for Town/Rural containing both types of areas. To compare with the 2001 NHTS, the user needs to add the Town and Rural categories to make them comparable with the combined category used in the 2009 data.

Nielsen Claritas Urbanization Methodology

Urbanization measures have been developed and refined by Nielsen Claritas over the past 30 years because the U.S. Census Bureau does not provide adequate standard measures. Although the Census does classify areas as being part of a central city, Combined Statistical Area (CSA), or Core Based Statistical Area (CBSA), these measures are insufficient for precise neighborhood classification.

In the 1980s, Nielsen Claritas developed new algorithms using a density grid to classify neighborhoods based on density of population. The density grid was created to cover the entire United States using latitude and longitude coordinates. Each grid cell, and ultimately each census block, was assigned a population center and its density character—using a sophisticated algorithm that searched for peaks (the local maxima) and valleys (minimum density points between maxima) to separate the central city from its suburbs, exurbs, and rural areas.

Nielsen Claritas creates a 2-mile radius around each block group centroid. Using a network of circles in place of the square grid provides a more robust estimate for the block group because, in situations where only a fraction of a block group is included within the radius, the new technique allocates the population of that fraction to the radius. The result is a technique that even allows statisticians to establish the difference between a local maximum (a peak) and a blemish (a high density score that doesn't really belong).

Nielsen Claritas statisticians evaluated many of the individual radii by hand. Fringe areas were assessed to judge the area as more similar to a city or a suburb. In addition, the circle-by-circle reviews allowed Nielsen Claritas to create a touch list of geographies that have special constraints for their density context. For example, if a neighboring block group's two-mile ring requires crossing a bridge or is subject to some other barrier, it would not be included in a given block group's contextual assessment, even though the cell touches the block group of interest.

Assessing all of the block groups in the U.S. one-by-one for barriers that merited being added to the touch list was not a trivial task, but one that Nielsen Claritas deemed necessary for the most precise assignments. For additional information on this urbanization methodology please refer to the *2009 PRIZM Methodology* document., which can be found at http://www.tetrad.com/pub/prices/PRIZMNE_Methodology.pdf