Addendum D - Cartographic Analysis

Housing is a complicated subject that is affected by a myriad of dependent and independent variables. There is no single variable that is entirely responsible for the location, price, quantity and quality of housing. Instead, housing is affected by a wide variety of interdependent demographic and socioeconomic variables. To understand the current state of housing, one must employ tactics such as observational field work with interviews and on-line research. However, to gain a better understanding of how the current housing environment came to be and where the state of housing is likely headed, a thorough demographic and map-based analysis is recommended.

For this analysis, Vogt Santer Insights employed a Geospatial Information System (G.I.S.) to provide insight into the demographic and economic character of Champaign County and its inhabitants. A G.I.S. allows for the input of a wide variety of variables collected from different sources. For example, housing data collected from the County can be cross referenced with demographic data provided by a third-party to yield insightful results that would not be attainable otherwise.

There really is no limit to the amount of information that can be represented on a map. Therefore, for this analysis we have carefully selected sets of variables that not only provide a good snapshot of the current state of housing, but also provide a window into the future of demographics and housing in Champaign County. Each cartographic analysis was undertaken at several scales which vary depending on the appropriateness of the detail.

The sources of the data used will be stated for each analysis. Much of the data was provided by Environmental Systems Research Institute (ESRI) and the U.S. Census Bureau. A detailed explanation of the data update methodology can be found in Addendum J.

The following sections contain the cartographic analysis including the maps to which the analysis refers.

2010 Estimated Median Household Income

Median income is useful for providing a snapshot of the economic health of an area in relation to its surroundings. In other words, a low or high median household income is not necessarily good or bad. Rather, it is more important to understand how it compares relative to surrounding areas. This data item was provided by ESRI. It is an estimation of the current year (2010) median household income values at the Census Block Group level. For comparison purposes, the current year median income for the United States is $54,442. For the state of Illinois this number is $60,254.

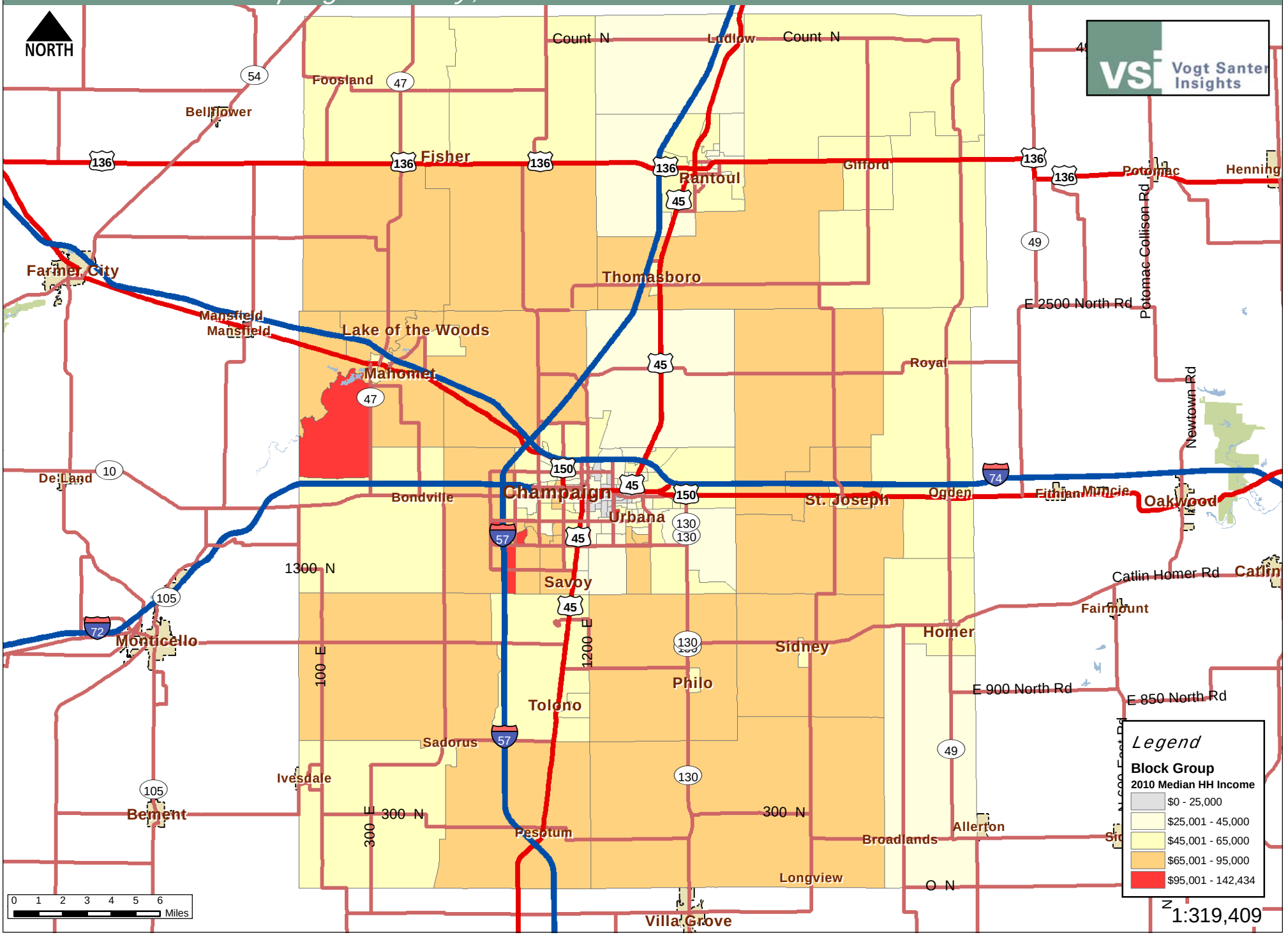
For this analysis, we examined 2010 Estimated Median Household Income for Champaign County, the City of Champaign, the City of Urbana, the Village of Rantoul, and the Village of Mahomet. Because of the size of the Cities of Champaign and City of Urbana, we have provided maps that divide the cities into "north" and "south".

The map on page D-3 displays the income data for the entire county. Income is fairly evenly distributed throughout the rural parts of the county. The median household income for the entire county in 2000 was $37,940. The current year estimate is $48,197 and the projection for 2015 is $55,087.

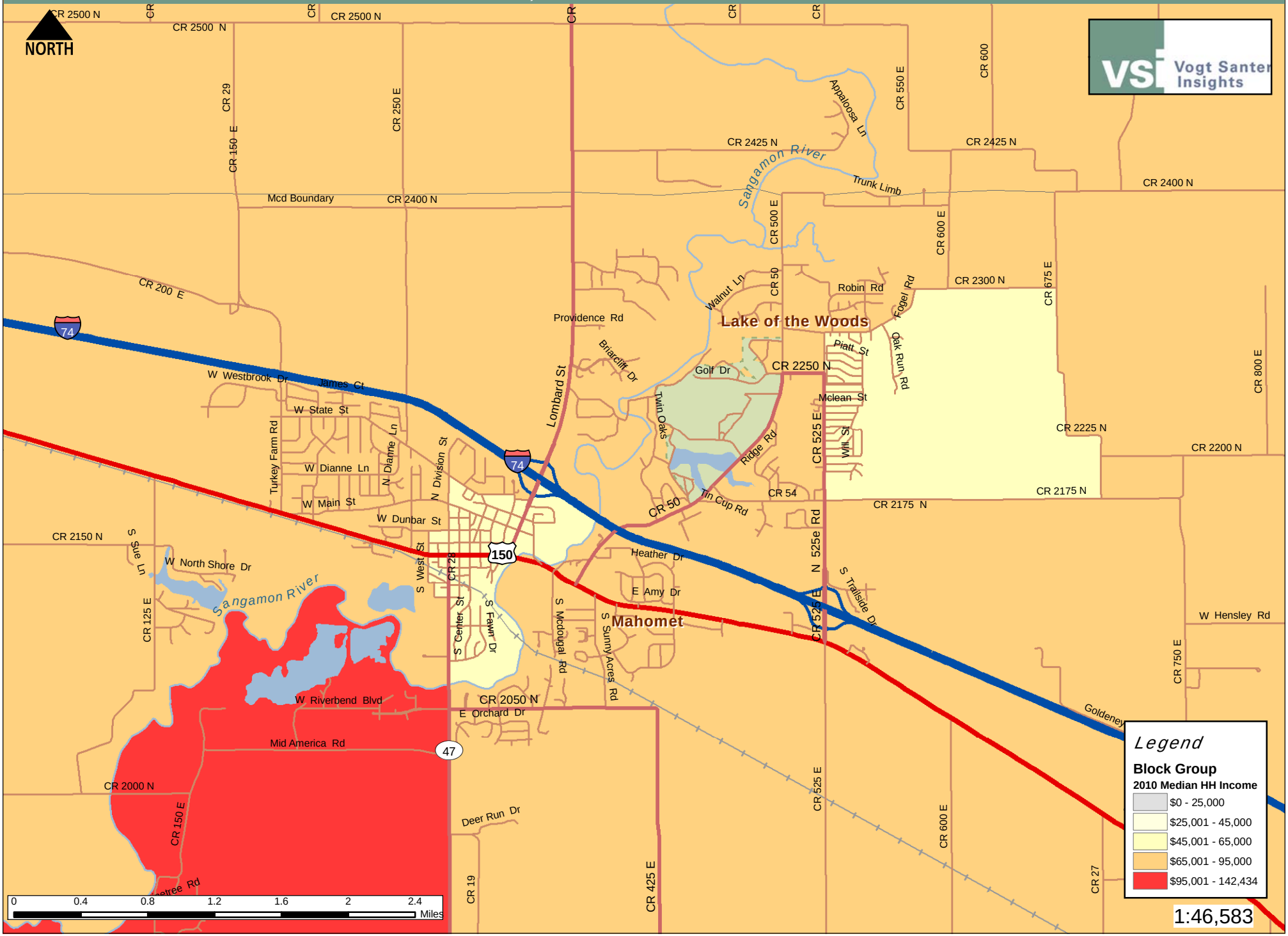
There are two clearly identifiable pockets of higher incomes: southwest Mahomet and southwest Champaign. The map on page D-4 provides a close-up view of Mahomet. ESRI estimates the area southwest of Mahomet has a median household income of over $125,000. By comparison, the area considered to be the center of Mahomet is estimated to have a median household income of $56,183. In terms of housing, we would expect the area of higher median income to continue to attract households with similar incomes, which will result in larger, more expensive homes.

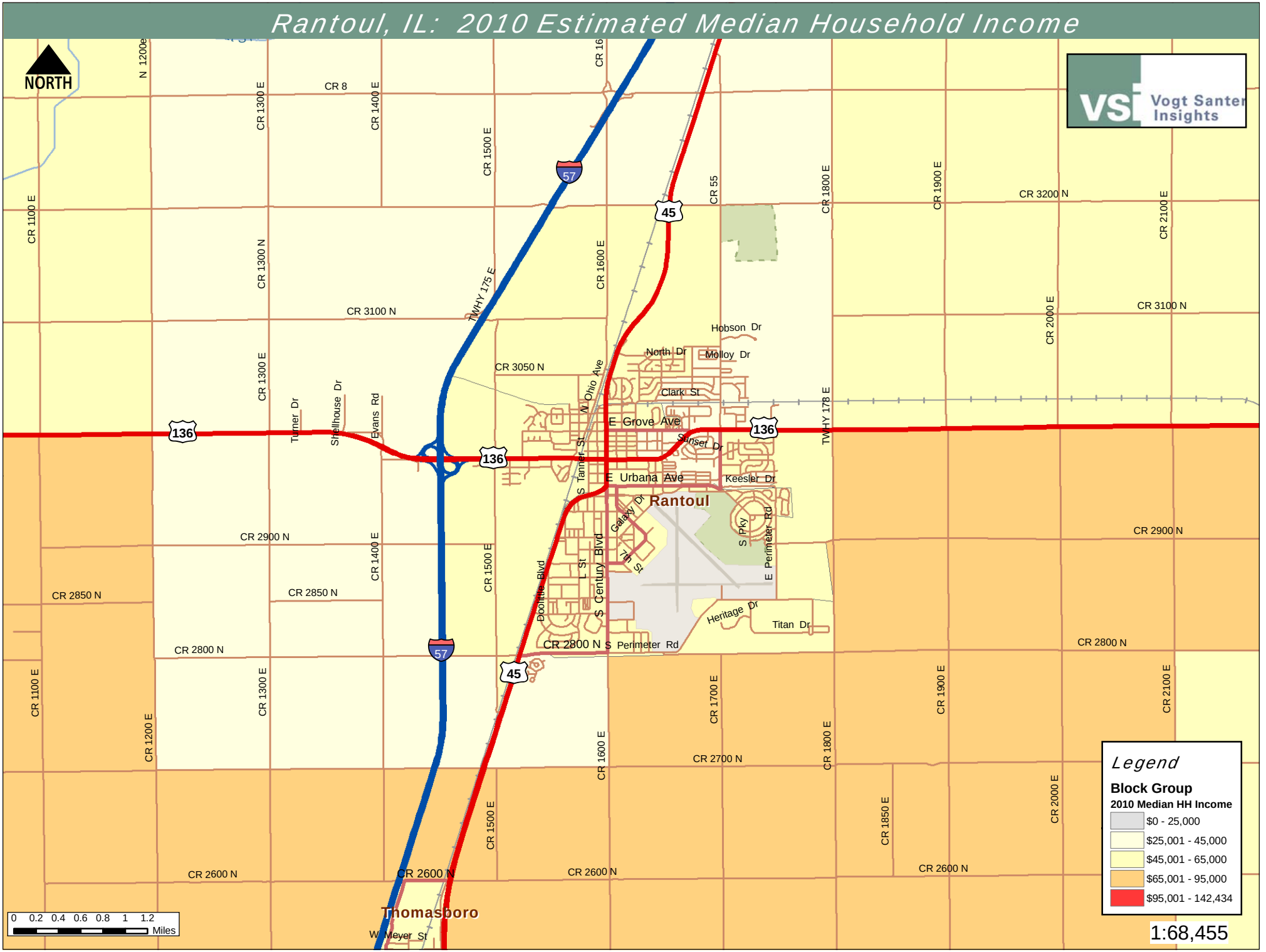
The Village of Rantoul has median household incomes that range from $30,000 to $64,000. The map on page D-5 illustrates this point. The current year median income for the entire village is $48,198. The maps on pages D-6 to D-9 show the median income distribution throughout Champaign and Urbana. The entire City of Champaign has a current year median household income estimated to be $41,470. The highest concentration of high incomes is located in the southwest corner of Champaign. The range of median incomes in this area is $125,000 to $142,000. Not surprisingly, the lowest median incomes can be found in the university area where the median income range is $14,000 to $29,000. The City of Urbana has a current year estimated median income of $35,407, which is approximately $6,000 less than the median income in Champaign. The highest incomes are concentrated in a small area where the estimated median income is more than $97,000.

Champaign County, IL: 2010 Estimated Median Household Income

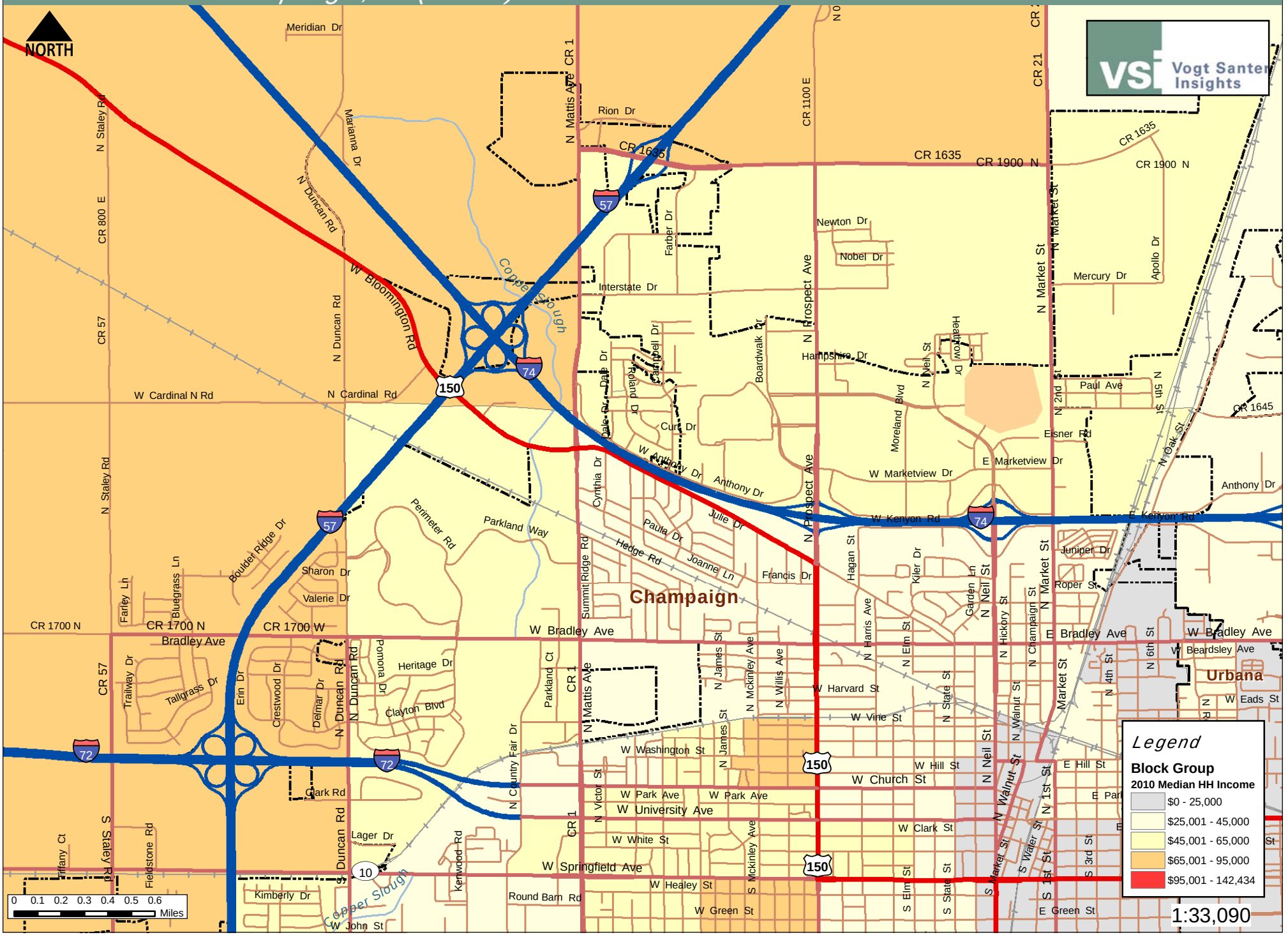


Mahomet and Lake of the Woods, IL: 2010 Estimated Median Household Income

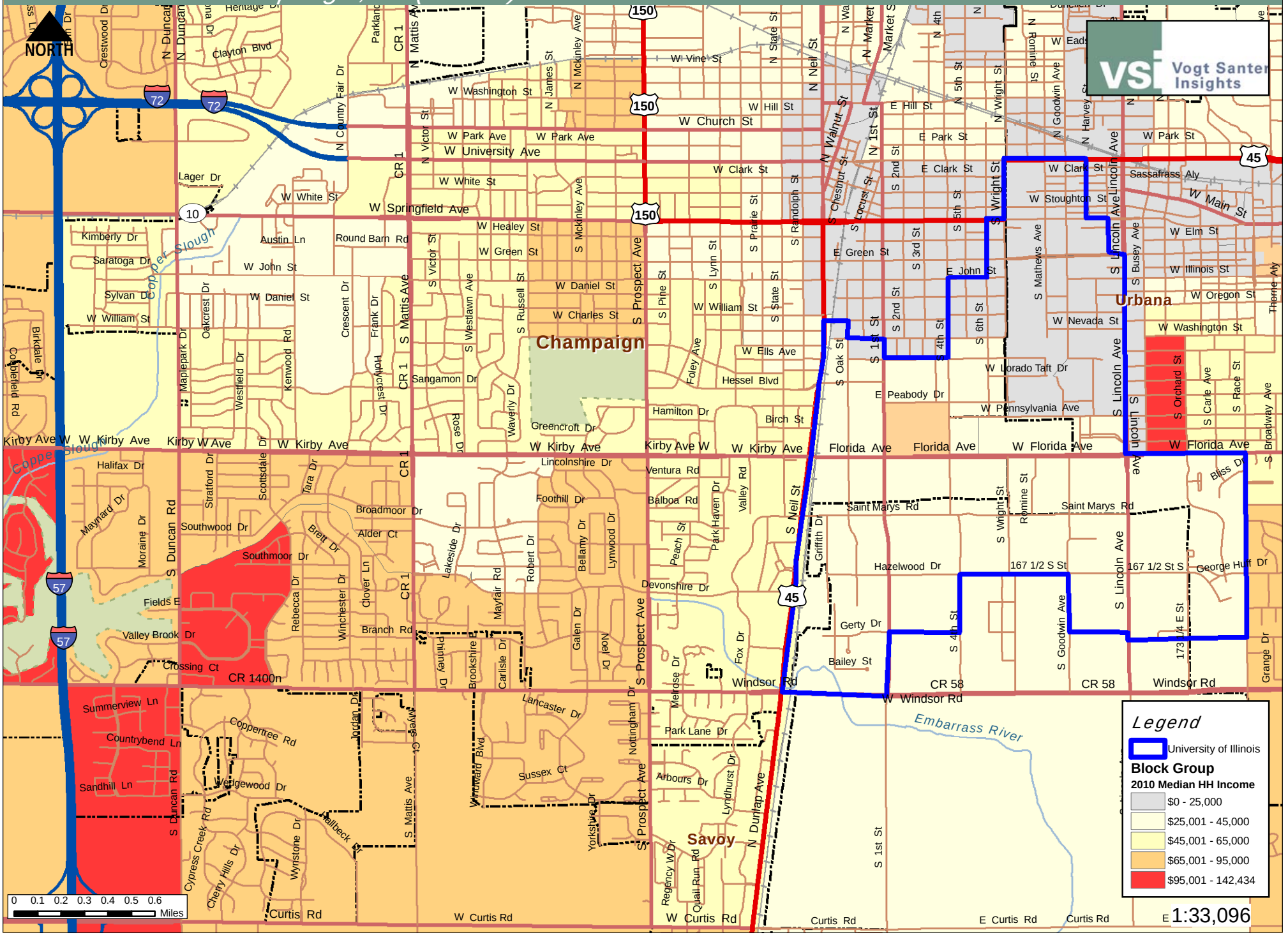



Rantoul, IL: 2010 Estimated Median Household Income
NORTH
Vogt Santer Insights
Rantoul
Thomasboro
E Grove Ave
E Urbana Ave
Clark St
Hobson Dr
North Dr
Molloy Dr
Sunset Dr
Keesler Dr
Galaxy Dr
S Century Blvd
S Perimeter Rd
E Perimeter Rd
Heritage Dr
Titan Dr
Doolittle Blvd
S Tanner St
N Ohio Ave
S Pky
TWHY 175 E
TWHY 178 E
CR 8
CR 3100 N
CR 3050 N
CR 3200 N
CR 2900 N
CR 2850 N
CR 2800 N
CR 2700 N
CR 2600 N
CR 1100 E
CR 1200 E
CR 1300 E
CR 1300 N
CR 1400 E
CR 1500 E
CR 1600 E
CR 1700 E
CR 1800 E
CR 1850 E
CR 1900 E
CR 2000 E
CR 2100 E
CR 55
Turner Dr
Shellhouse Dr
Evans Rd
W Meyer St
136
57
45
0 0.2 0.4 0.6 0.8 1 1.2 Miles
Legend
Block Group
2010 Median HH Income
$0 - 25,000
$25,001 - 45,000
$45,001 - 65,000
$65,001 - 95,000
$95,001 - 142,434
1:68,455

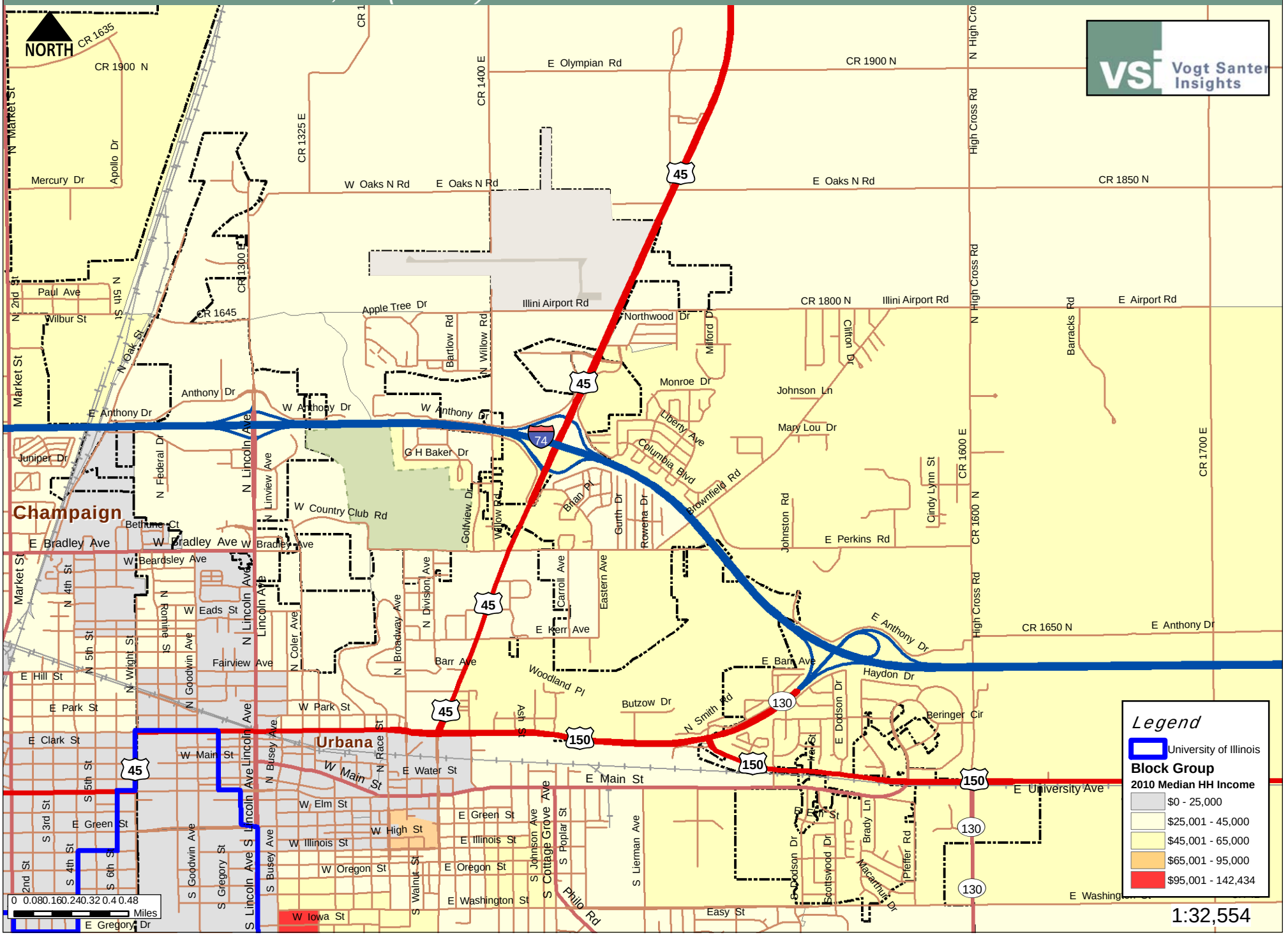
Champaign, IL (north): 2010 Estimated Median Household Income



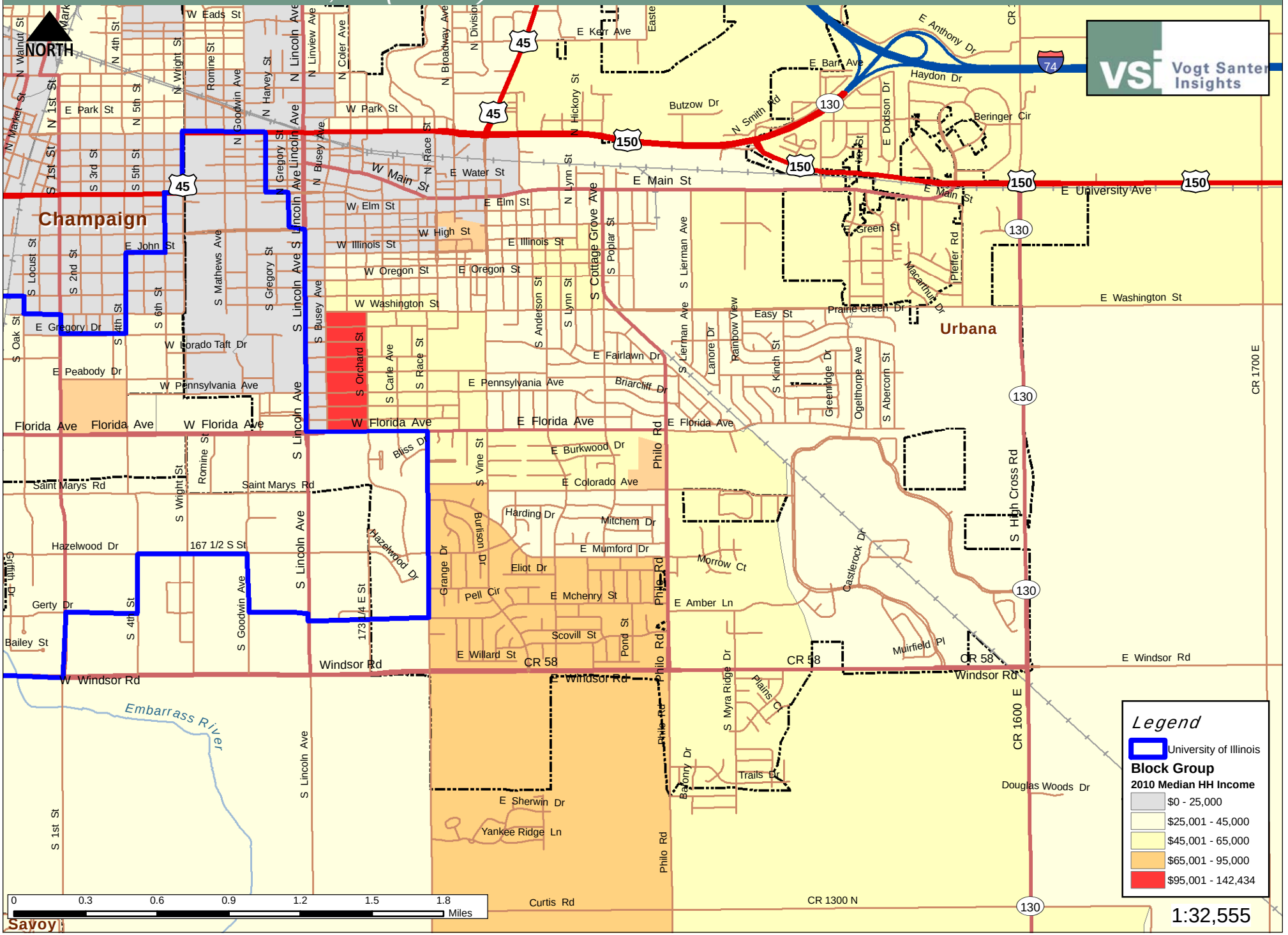
Champaign, IL (south): 2010 Estimated Median Household Income



Urbana, IL (north): 2010 Estimated Median Household Income



Urbana, IL (south): 2010 Estimated Median Household Income



2010-2015 Projected Annual Median Household Income Growth Rate

This variable is similar to the previous except it is measuring the expected annual growth rate for median household income over the next five years (2015). Growth rates illustrate the pace at which incomes are rising or falling. Think of it as a percentage by which median income grows year after year. This is affected by factors such as employment trends and migration patterns. The data source for this variable is ESRI. The projected annual growth rate for the entire United States is 2.52 and the rate for the state of Illinois is 2.53.

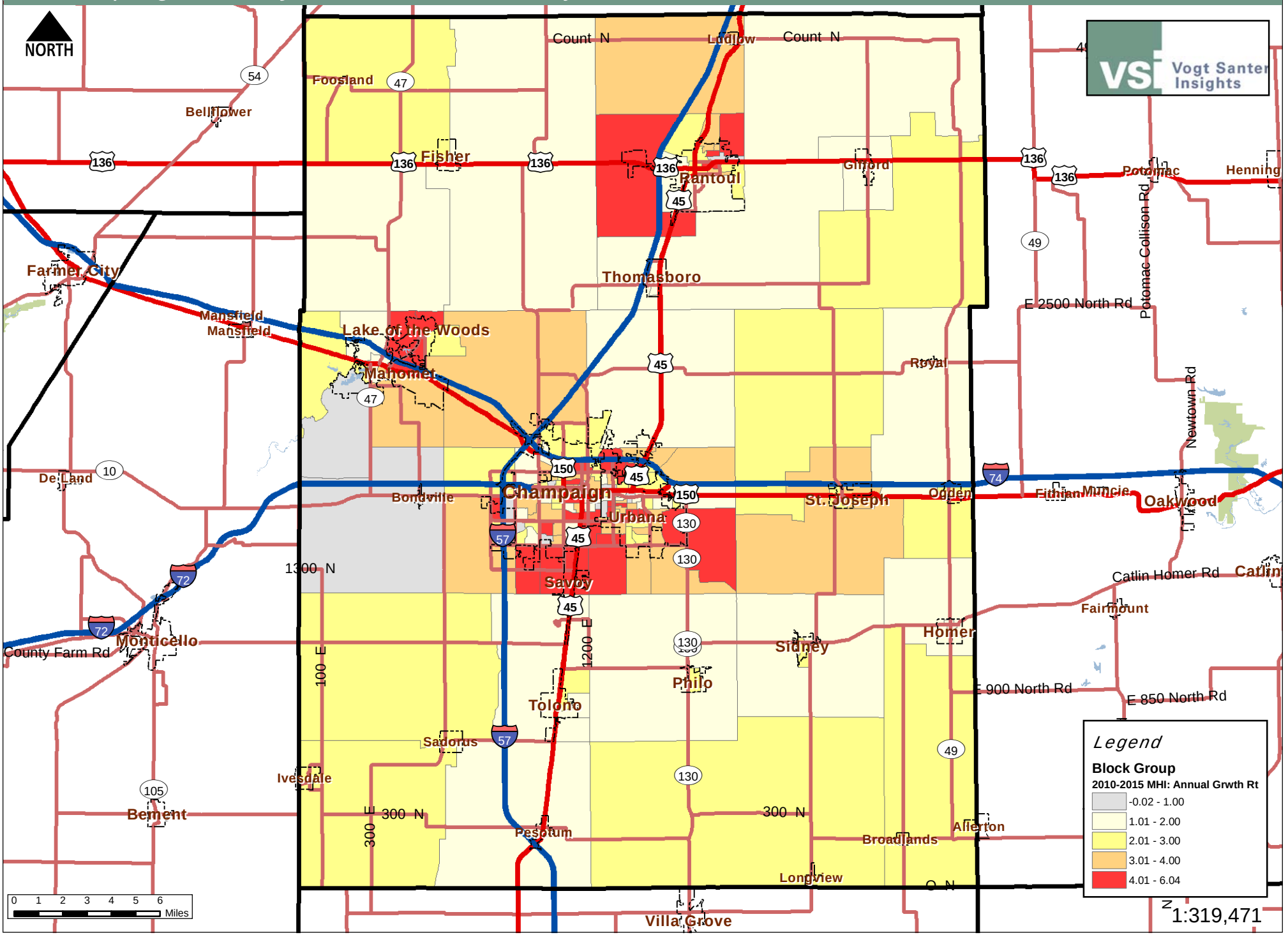
The projected annual median income growth rate for the entire county is 2.36. The county map on page D-11 clearly shows there are some areas with growth rates that stand out. One such area is the Village of Rantoul where the overall growth rate is 2.64. There are four Census Block Groups where the growth rate is 4.0 or higher. It must be noted that these areas do not have a large number of households initially so the cumulative effect of higher than average median income growth rates may not be significant.

Mahomet also has a pocket of higher growth rates worth mentioning. The Village has a growth rate of 2.5, with the west side expected to post a growth rate of 5.14 over the next five years. This is consistent with migration patterns of higher-income households we identified when examining housing growth over time (see Addendum E). The map on page D-13 provides a close-up look at the Mahomet area.

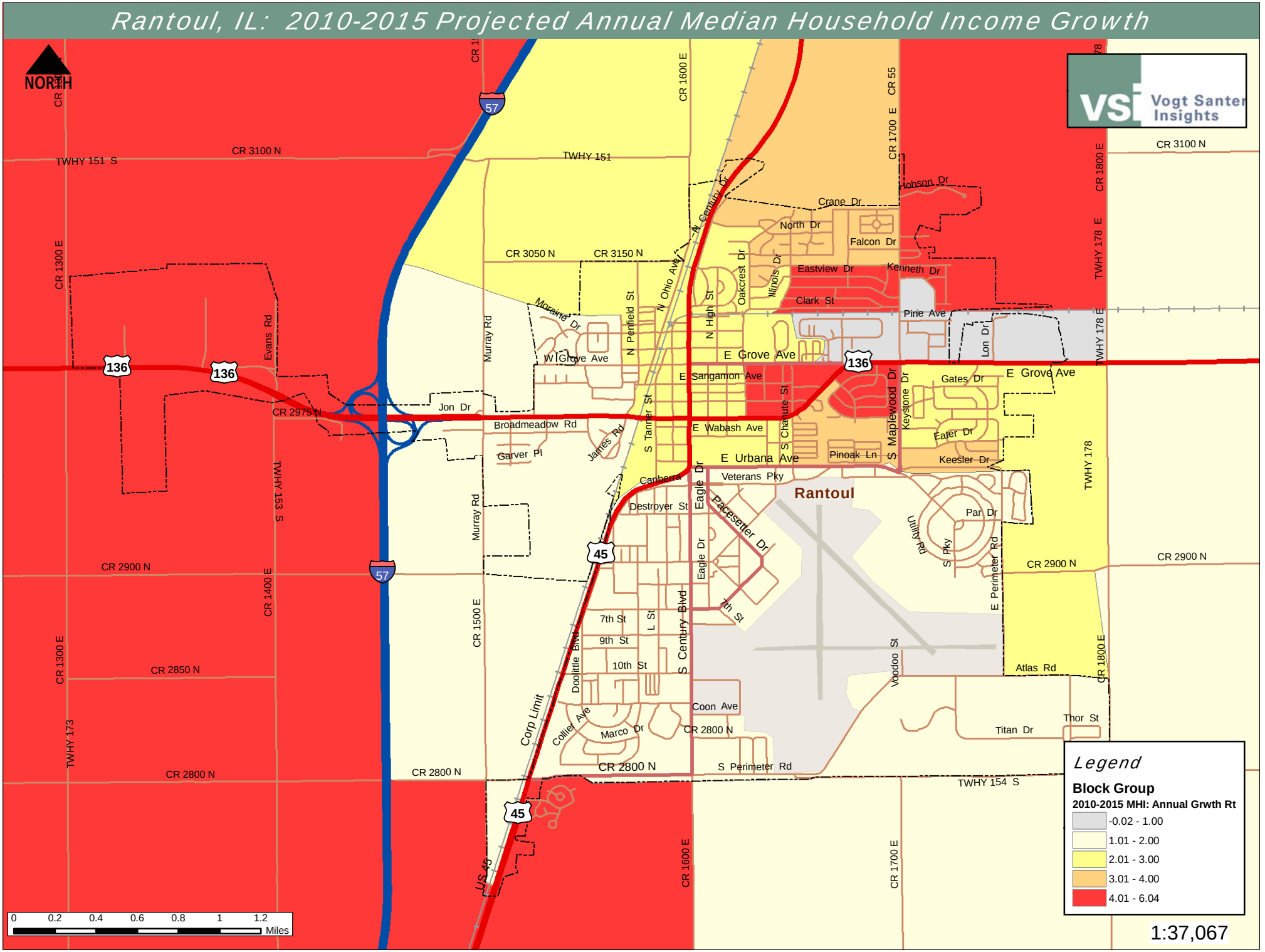
The Cities of Champaign and Urbana are expected to post annual median income growth rates of 2.32 and 2.15 respectively. This is below the county average, but these rates are heavily affected by several areas with very low rates at or below zero. This is worth noting because the maps on pages D-14 through D- 17 appear to indicate that the two cities has very healthy growth rates.

The maps on the following pages display the 2010-2015 projected annual median household income growth rates for Champaign County, the Village of Rantoul, the Village of Mahomet, and the Cities of Champaign and Urbana.

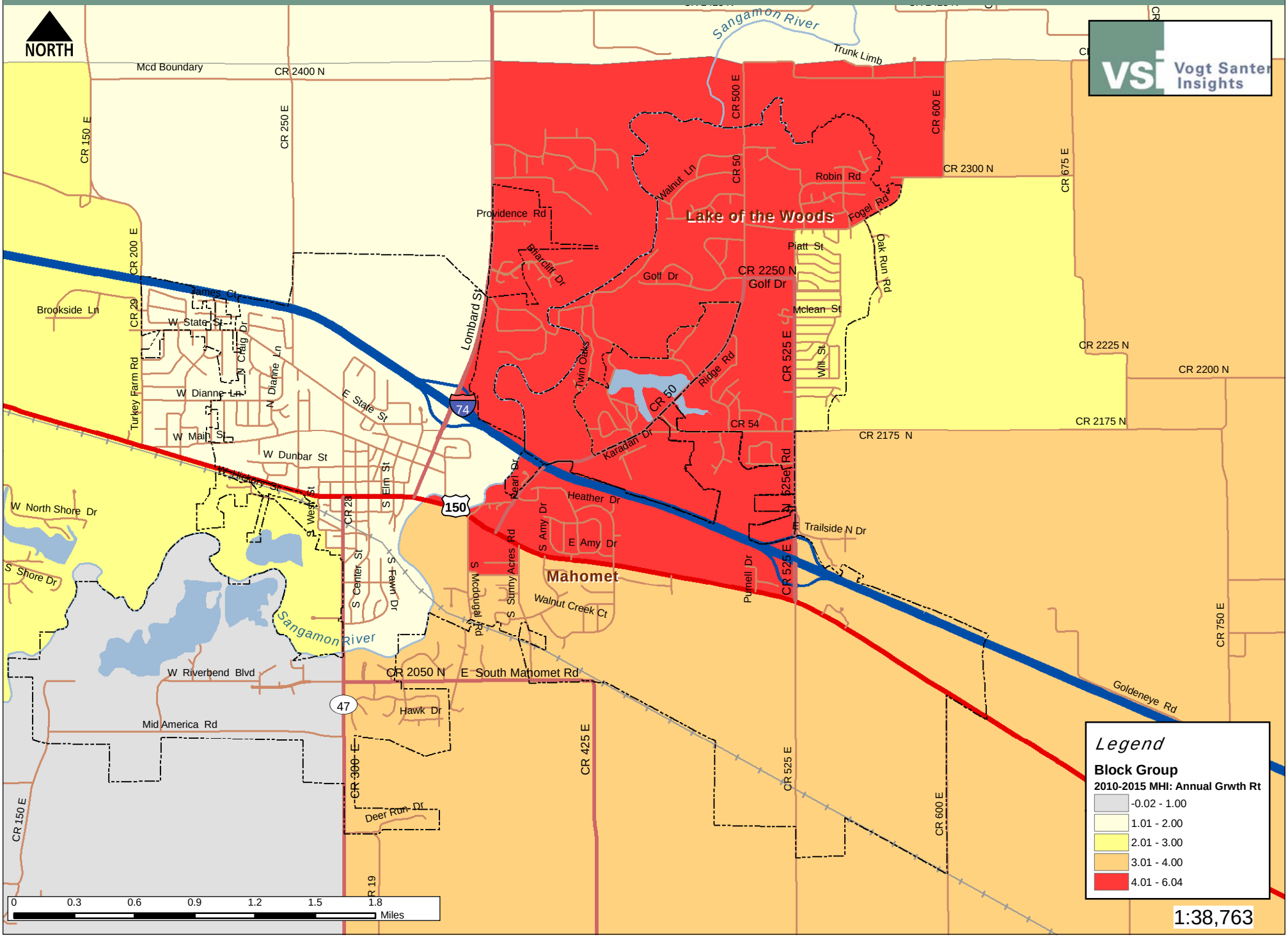
Champaign County, IL: 2010-2015 Projected Annual Median Household Income Growth



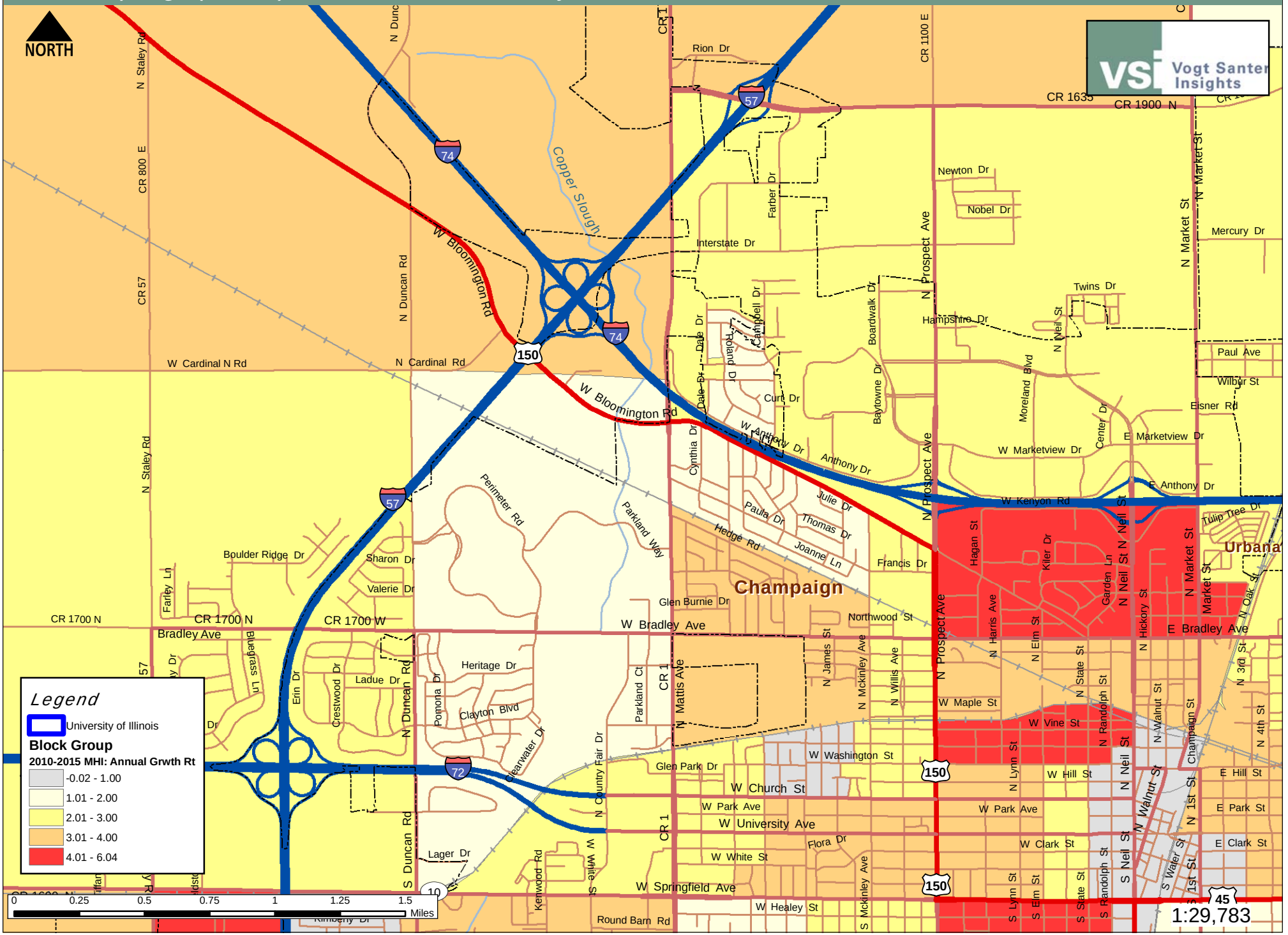
Rantoul, IL: 2010-2015 Projected Annual Median Household Income Growth



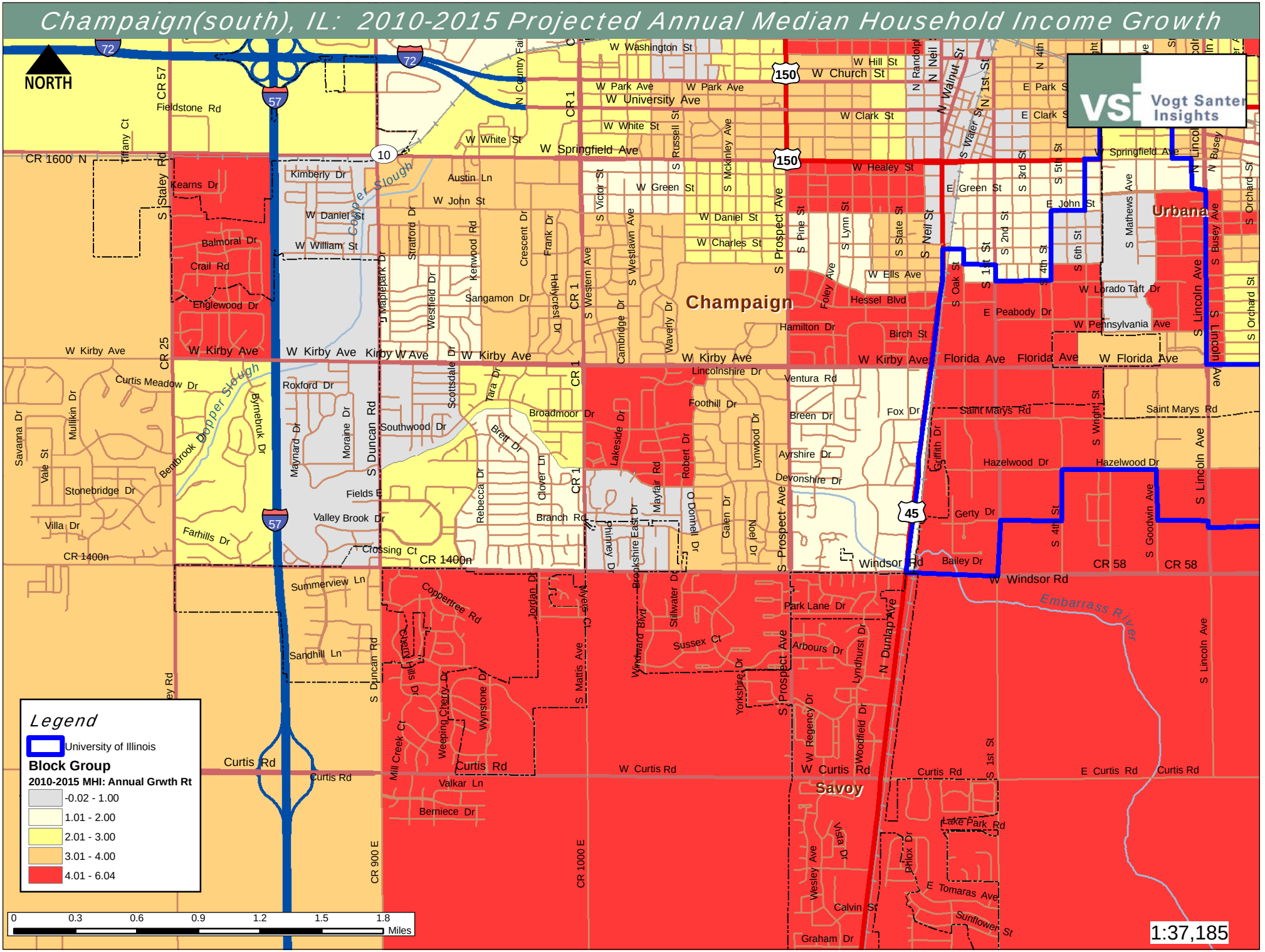
Mahomet, IL & Lake of the Woods, IL: 2010-2015 Projected Annual Median Household Income Growth



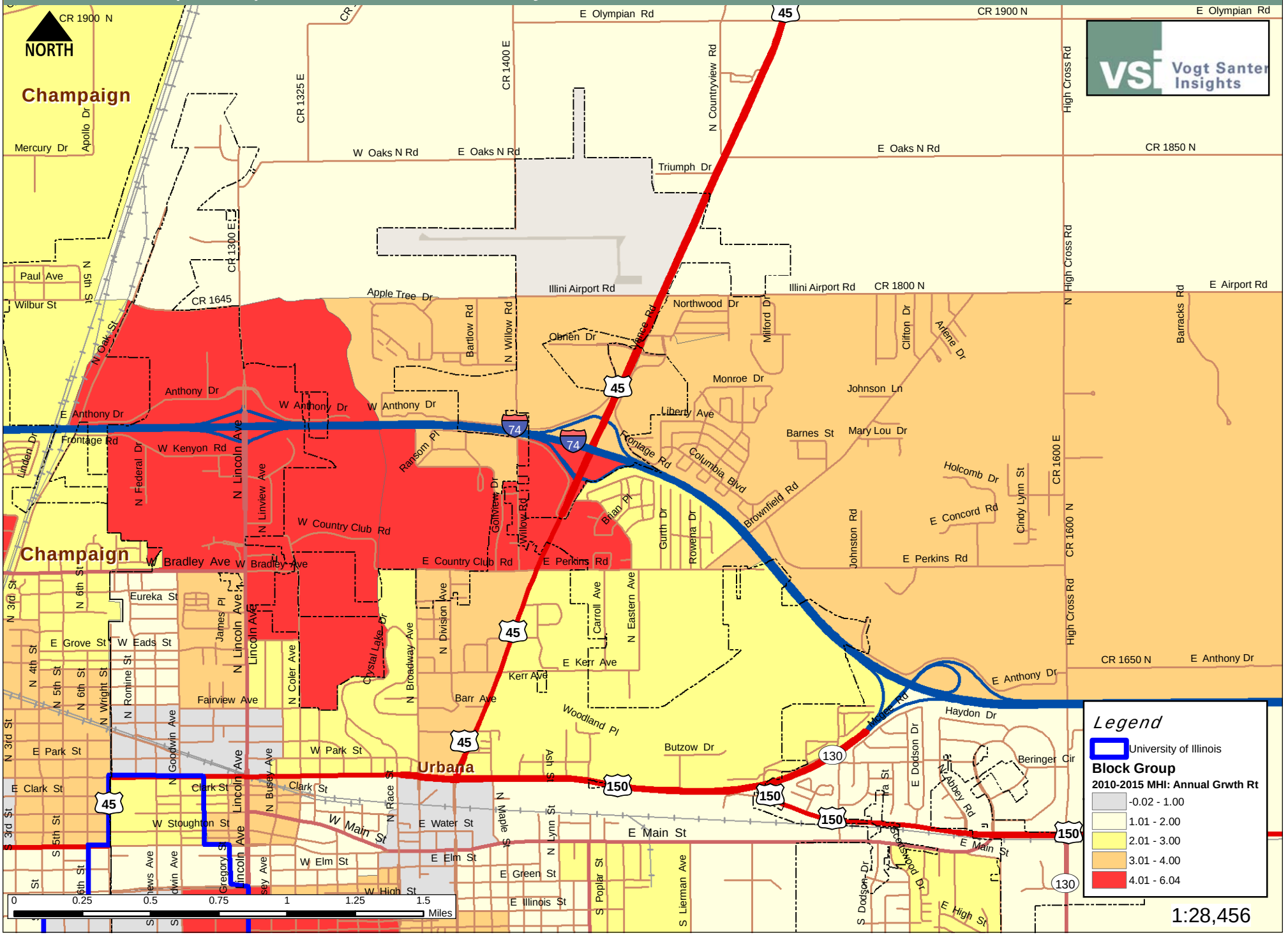
Champaign(north), IL: 2010-2015 Projected Annual Median Household Income Growth



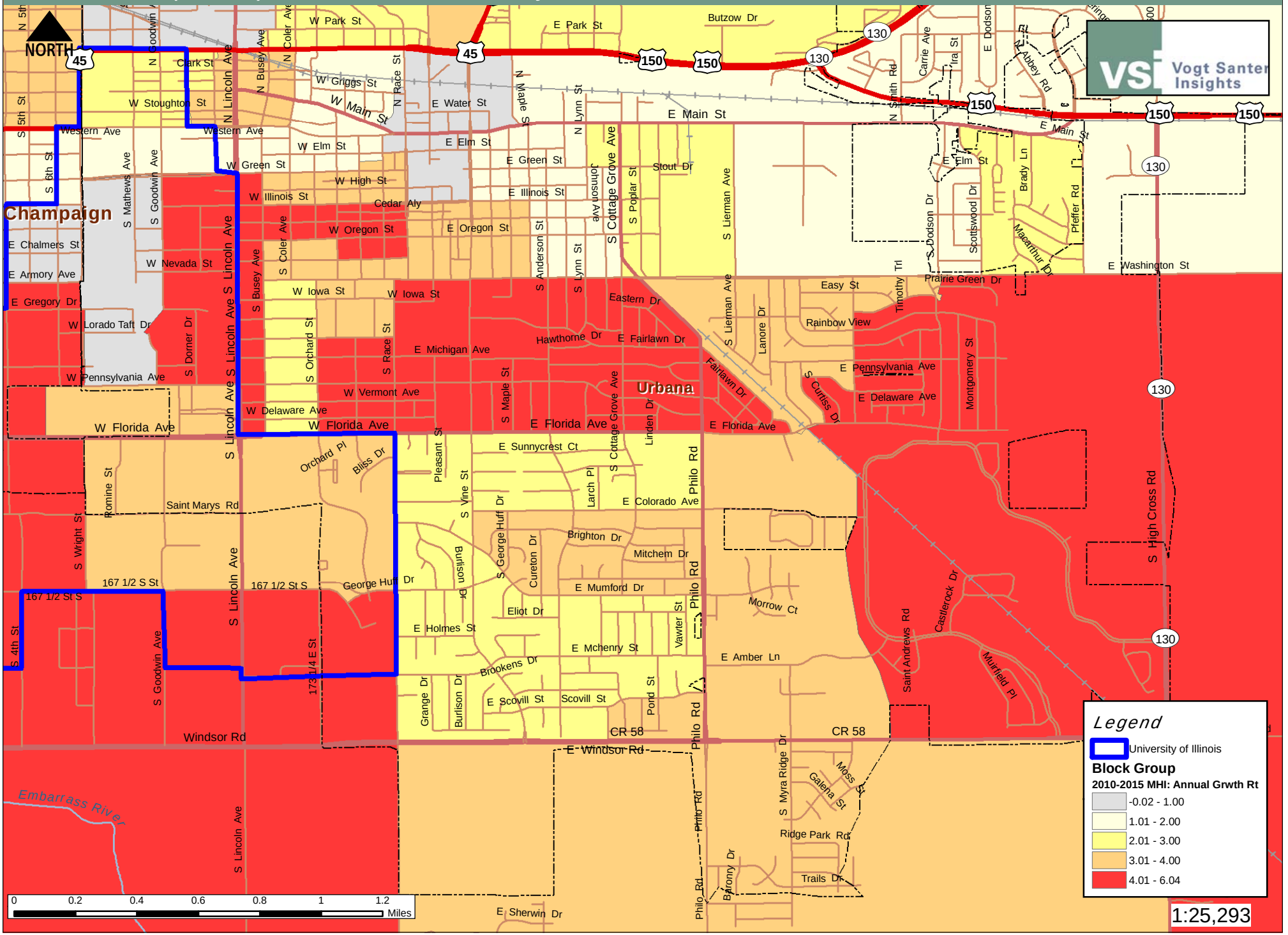
Champaign(south), IL: 2010-2015 Projected Annual Median Household Income Growth



Urbana (north), IL: 2010-2015 Projected Annual Median Household Income Growth



Urbana (south), IL: 2010-2015 Projected Annual Median Household Income Growth



2010 Estimated Median Home Value

Home values have declined across the United States in recent years. The greatest decreases have generally occurred in areas where there were rapid appreciation and speculative home building. Champaign County never experienced the housing boom of the past decade and therefore home values are stable.

The following analysis uses data provided by ESRI updated to reflect the recent change in home prices (see Addendum J for a detailed explanation of the methodologies used). Estimated median home value refers to owner-occupied housing only.

The median home values in the United States and the state of Illinois for 2010 are $157,913 and $177,601, respectively. The map on page D-19 shows the current distribution of median home values across the county. Not surprisingly, the home values appear to have a strong correlation with median household income (see map on page D-3).

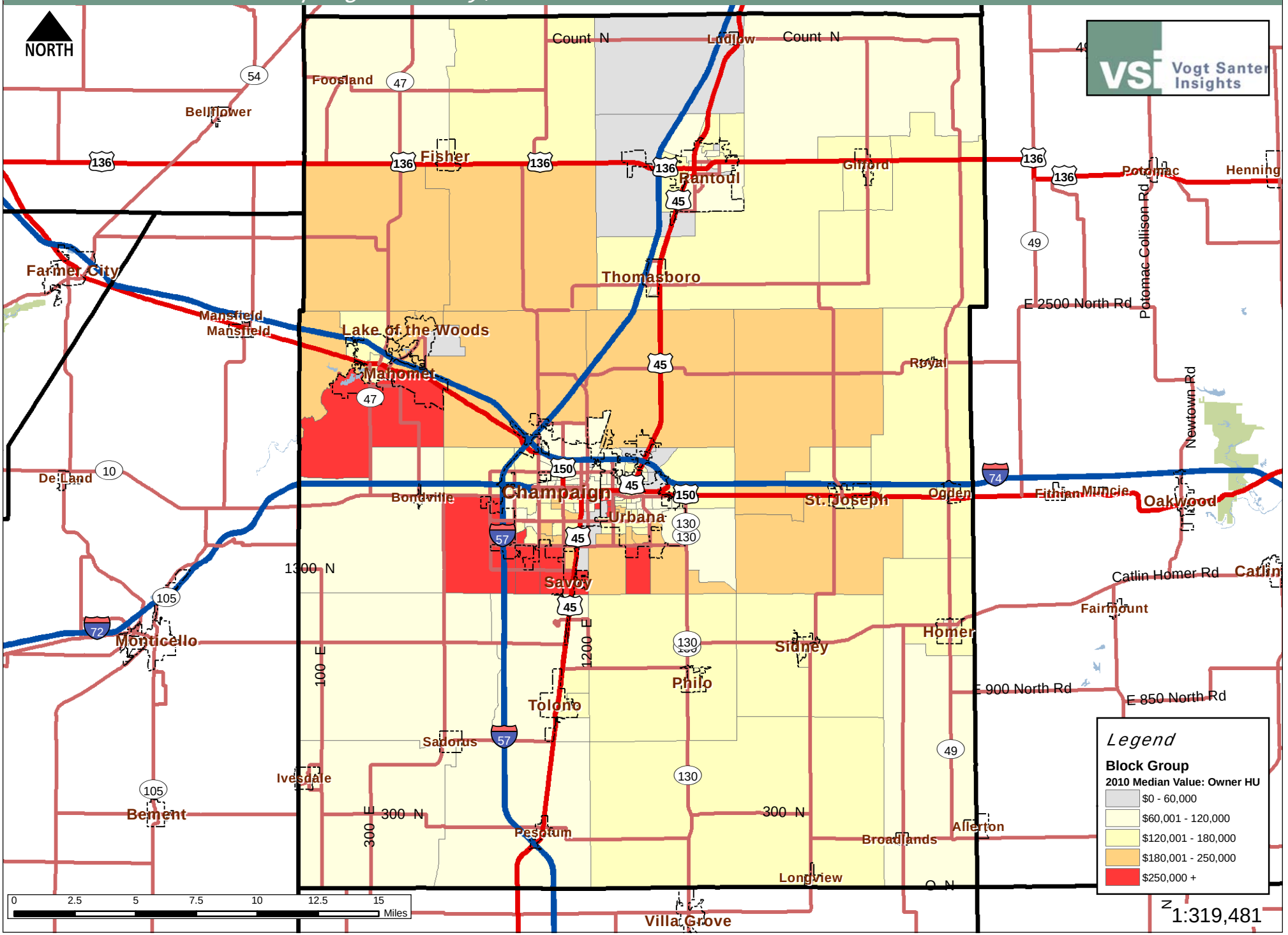
The highest median home values in the county can be found in the southwest corner of the City of Champaign where median home values range from $400,000 to $500,000. Central Champaign, including the area around the University, has median home values in the range of $17,000 to $139,000. The entire City has a current year estimated median home value of $134,025. The maps on pages D-22 and D-23 illustrate the 2010 estimated median home values in the City of Champaign.

The Village of Mahomet has the second highest median home values in the county. Homes on the south side of the Village have median home values in the range of $270,000 to $325,000. The entire Village of Mahomet has a current year median home value of $178,000. The map on page D-20 provides a close-up look at the village.

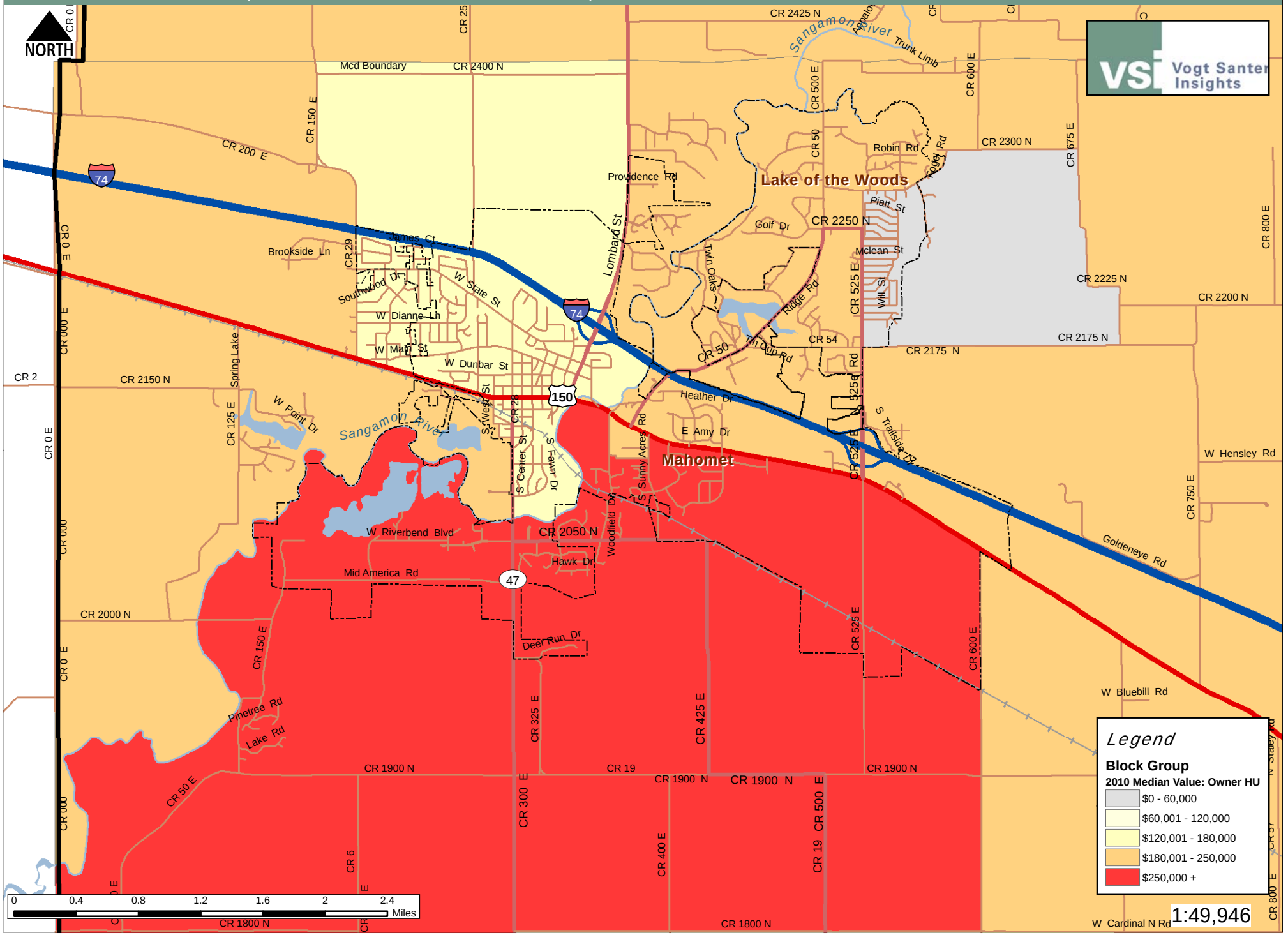
The Village of Rantoul has current year estimated median home values in the range of $17,000 to $150,000. The map on page D-21 shows the distribution of the median home values throughout the Village.

The City of Urbana has current year estimated median home values in the range of $53,000 to $343,000. The highest median home values are in the University district within the City. In this area, the median home values range from $343,000 to $275,000. The median home value for the entire City is $135,698. The map on page D-22 shows the distribution of the median home values throughout the City of Urbana.

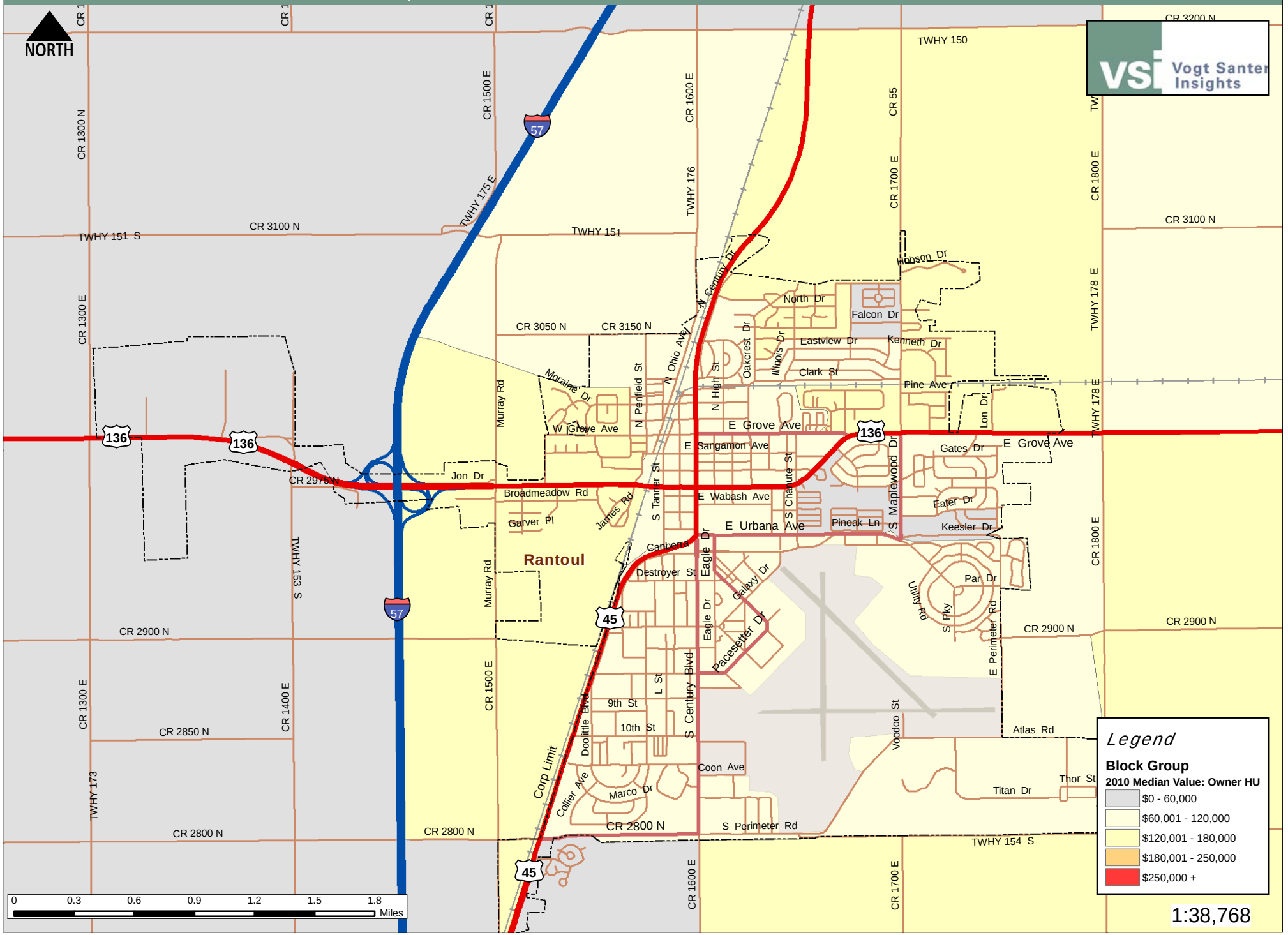
Champaign County, IL: 2010 Estimated Median Home Value



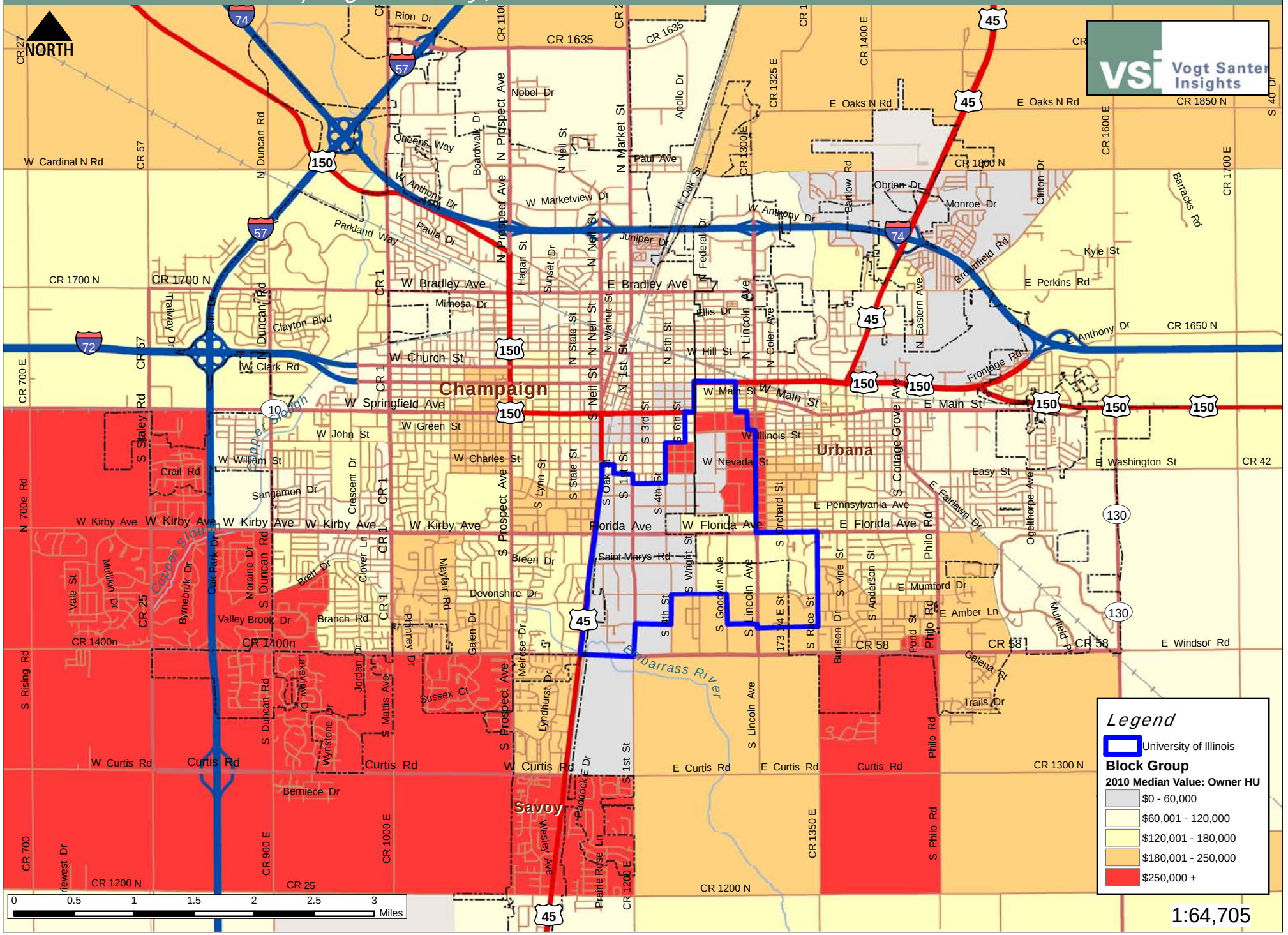
Mahomet, IL & Lake of the Woods, IL: 2010 Estimated Median Home Value



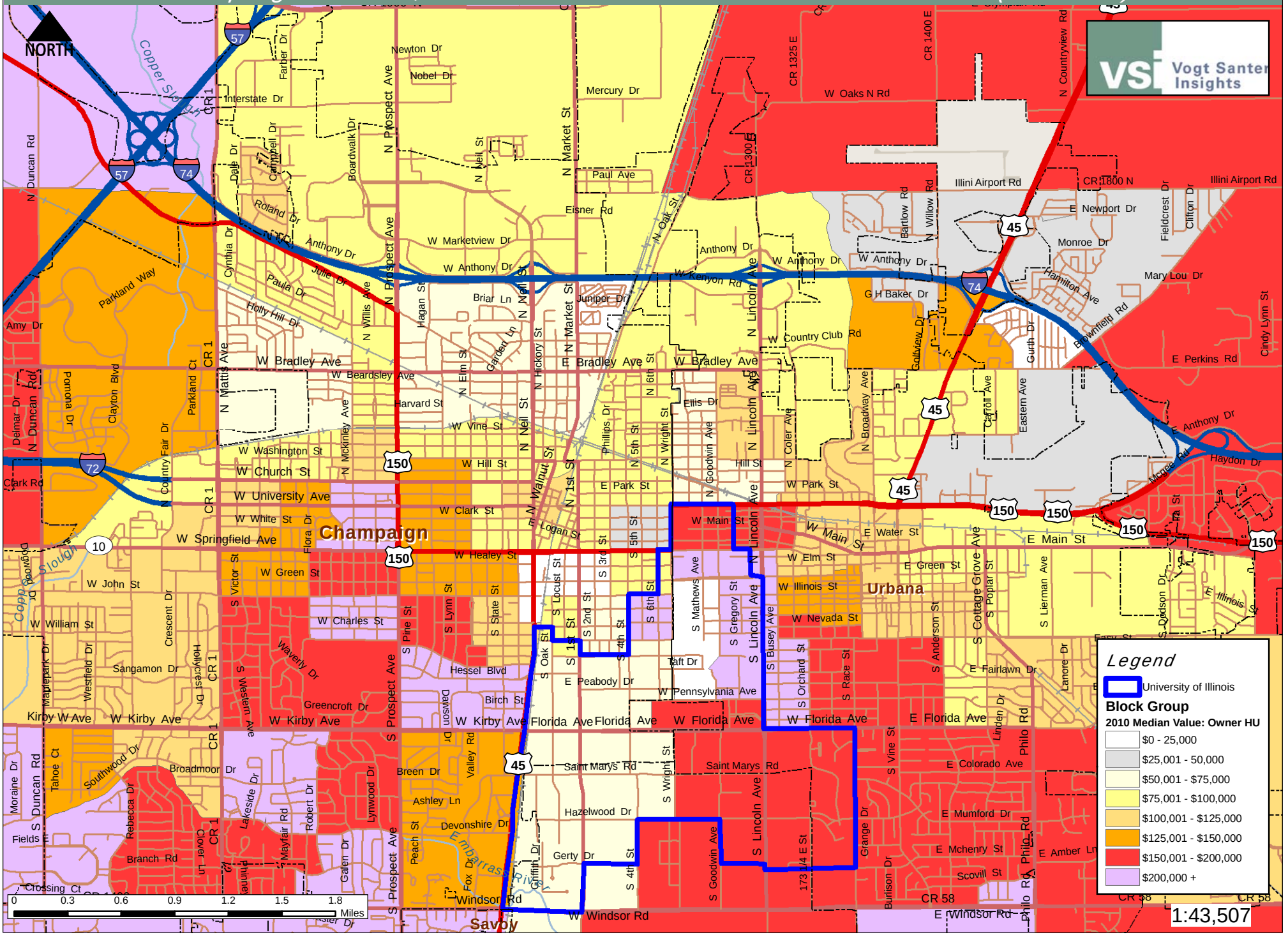
Rantoul, IL: 2010 Estimated Median Home Value



Champaign County, IL: 2010 Estimated Median Home Value



Champaign-Urbana, IL: 2010 Estimated Median Home Value (Detailed)



2010-2015 Projected Annual Household Growth Rate

This variable is measuring the annual rate for the next five years, by which the number of households is projected to increase or decrease. It is a good predictor of the location and intensity of housing demand in the near term. The projected annual growth rate for the state of Illinois is 0.51. This data is provided by ESRI.

For the entire county the projected growth rate is slightly higher with a value of 0.8. Growth rates in Champaign County range from -1.05 to 4.02. Most of the anticipated growth in households is expected to occur around the Village of Mahomet and the Cities of Urbana and Champaign (see map on page D-25).

The Village of Rantoul is expected to lose households within the next five years. The growth rates for the Village range from -0.87 to -0.16. The overall growth rate for the village is -0.31. The map on page D-26 illustrates the consistency of the decline in households in the Village of Rantoul.

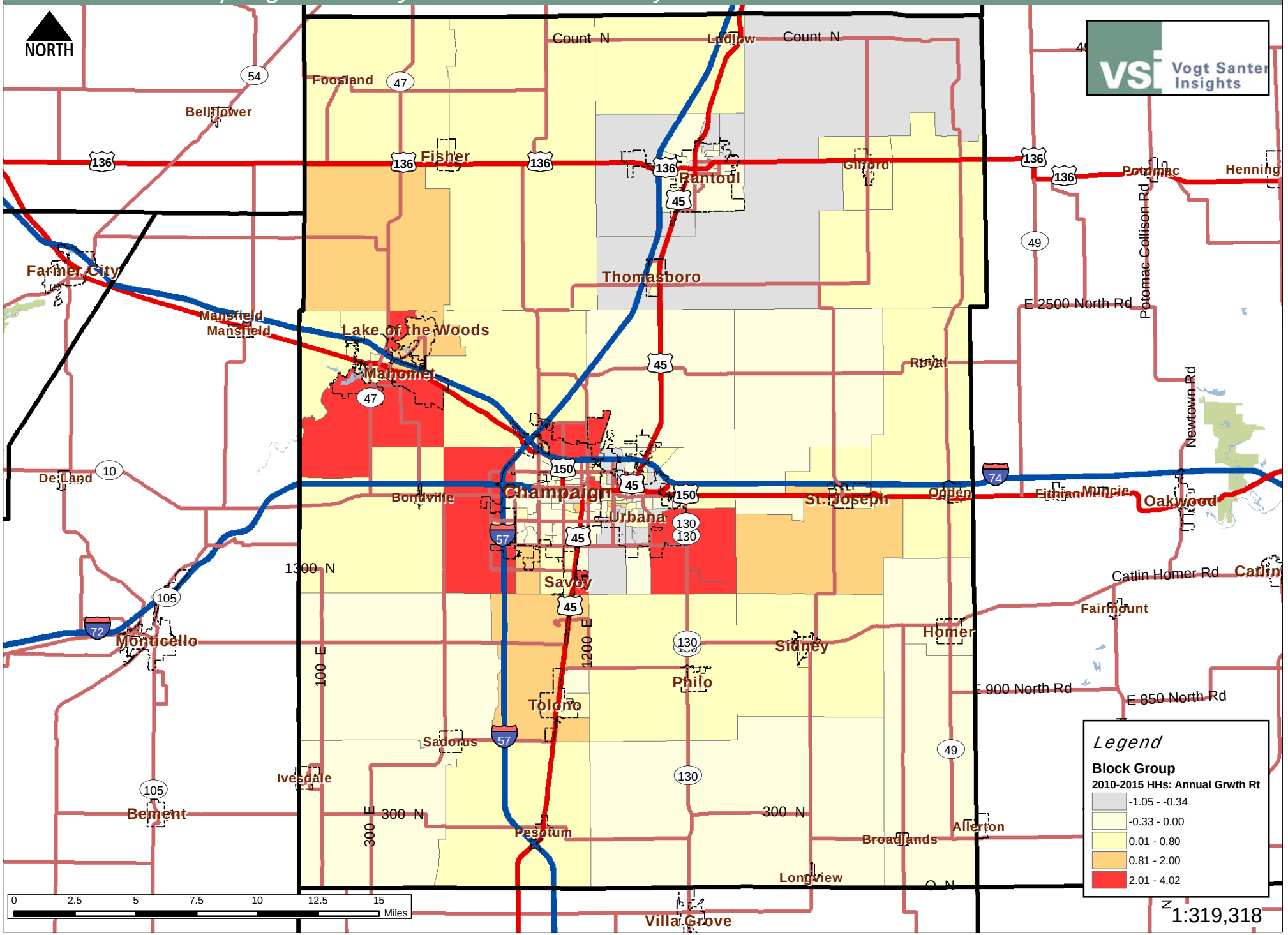
The Village of Mahomet has growth rates in the range of 0.24 to 3.91. The overall growth rate for Mahomet is 1.93. The Village should expect continued growth in the near term. It is likely much of this growth is a result of the migration of households leaving Champaign and Urbana. The map on page D-27 shows the growth rate around these two villages.

The range of growth rates in the City of Champaign is -0.36 to 4.02. The majority of the attrition is expected to occur in the core of the City and the growth is expected to occur on the periphery. The overall growth rate for the city is 0.66. The maps on pages D-29 and D-30 display the growth rates in the city.

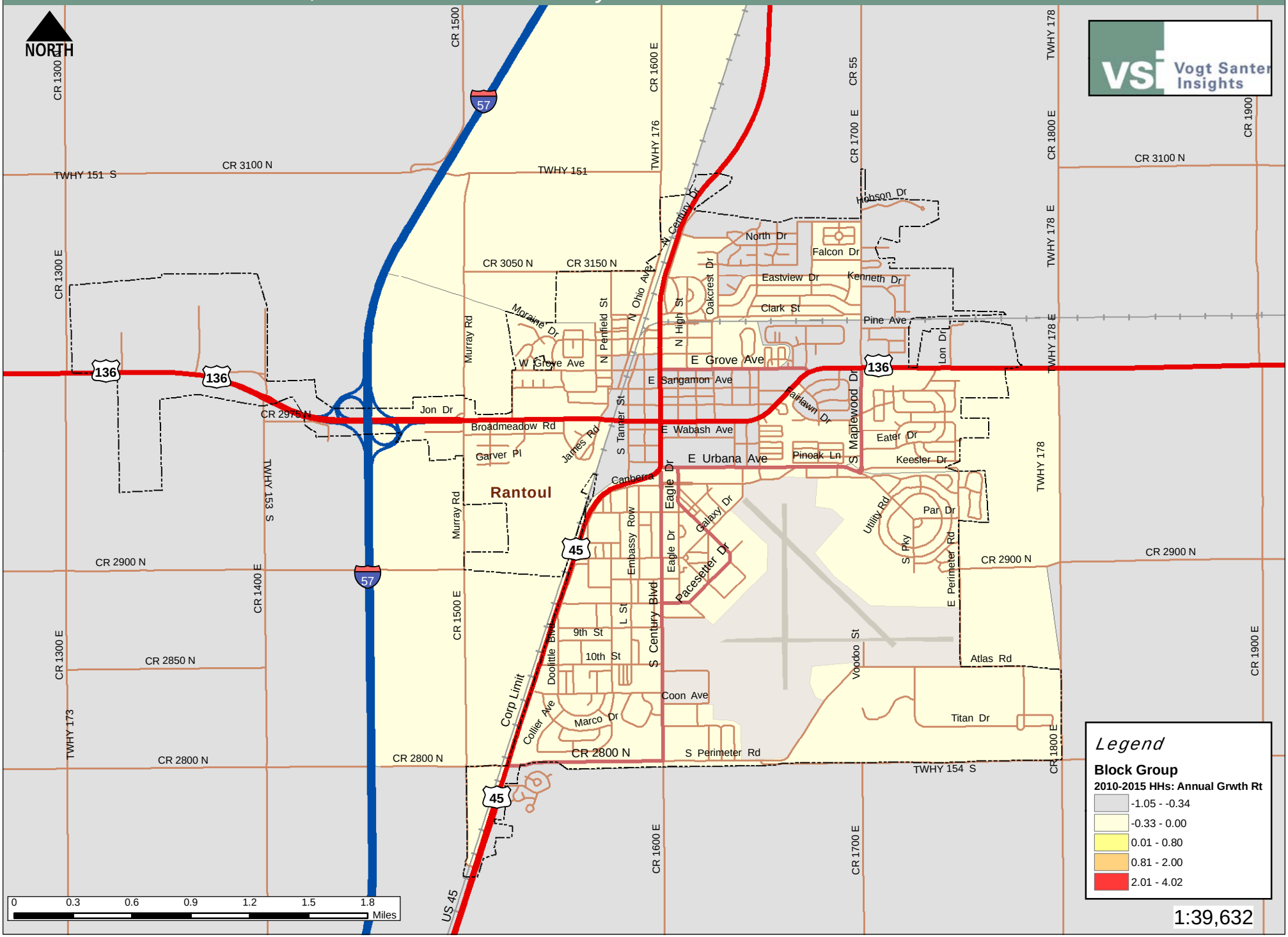
The range of growth rates in the City of Urbana is -1.05 to 3.51. Most of the growth is expected to occur on the west side of the City in the downtown and campus areas, as well as on the periphery of the City. The maps on pages D-31 and D-32 show the growth rates throughout the City.

The majority of the growth in households is expected to occur on the edges of Mahomet, Champaign and Urbana. This is consistent with historical housing growth patterns. It is also an indicator that the homes that these households will occupy will be larger and more expensive than the majority of the housing in the county. Since the overall growth rate for the county is near zero (0.8) and the growth rates on the periphery of Mahomet and Champaign-Urbana ranges from 1.11 to 4.02, it can be assumed that the growth that will occur on the edges of these areas is simply intra-city (or intra-county) migration and not migration from outside the county.

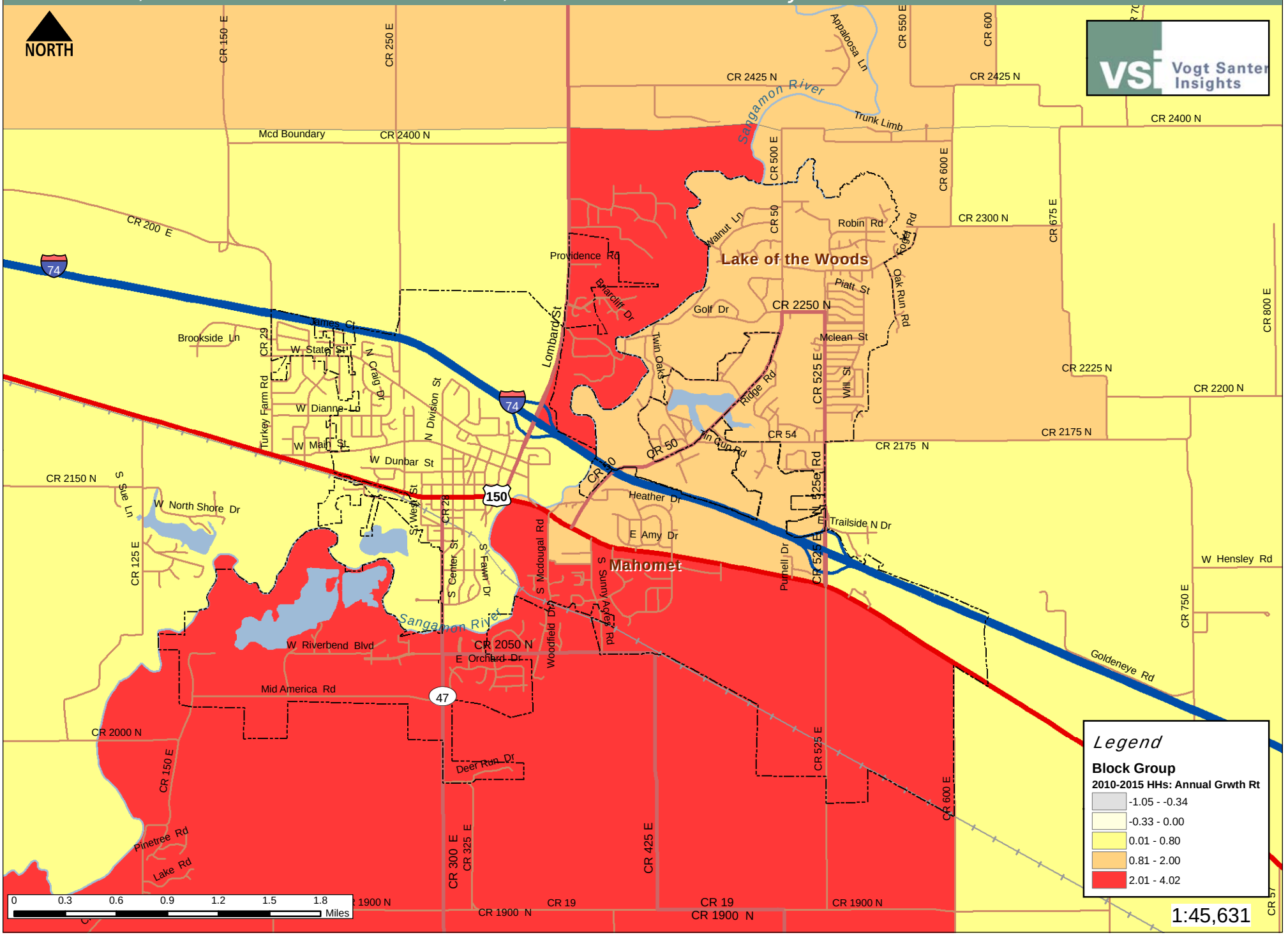
Champaign County: 2010-2015 Projected Annual Household Growth



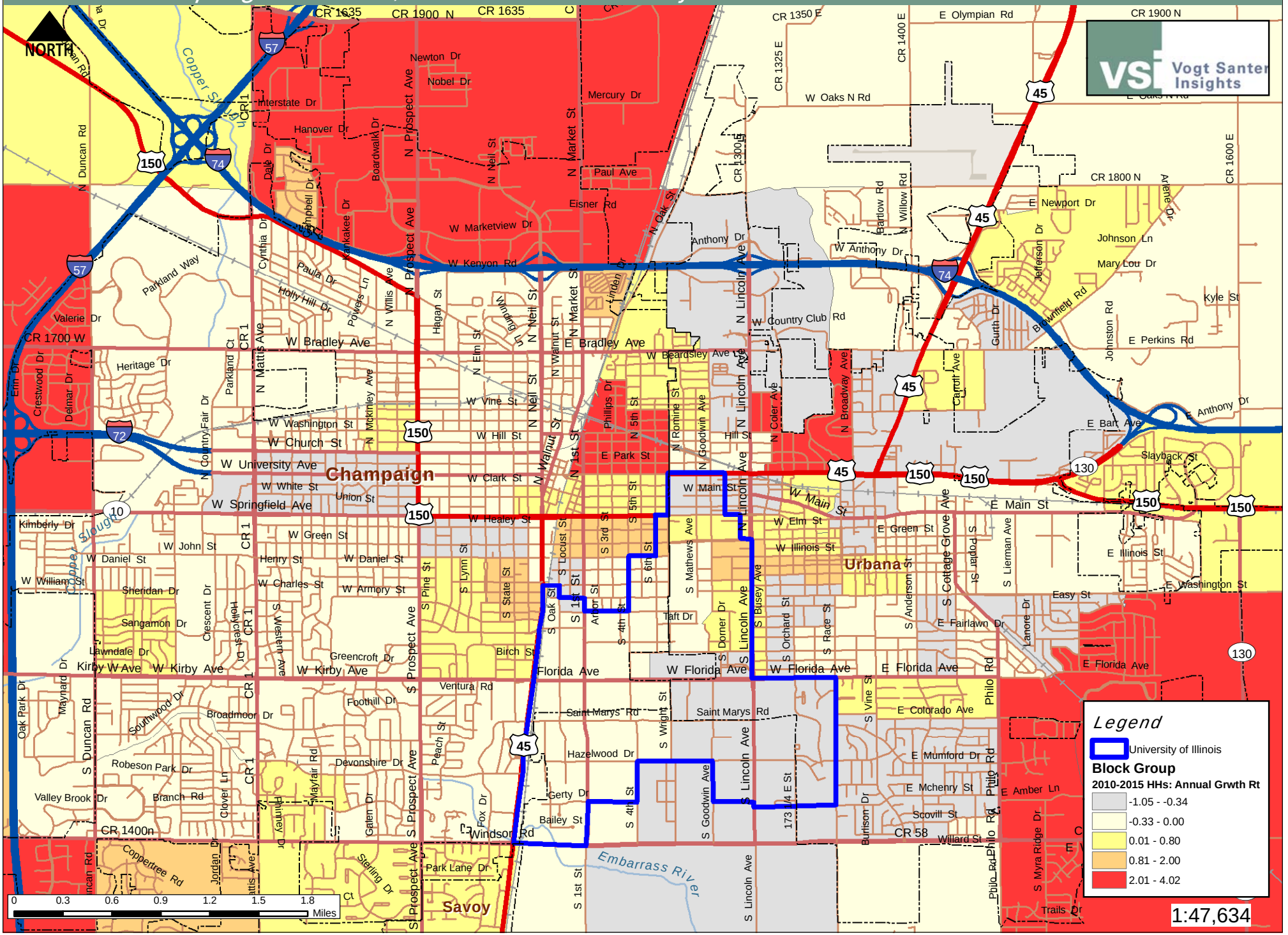
Rantoul, IL: 2010-2015 Projected Annual Household Growth



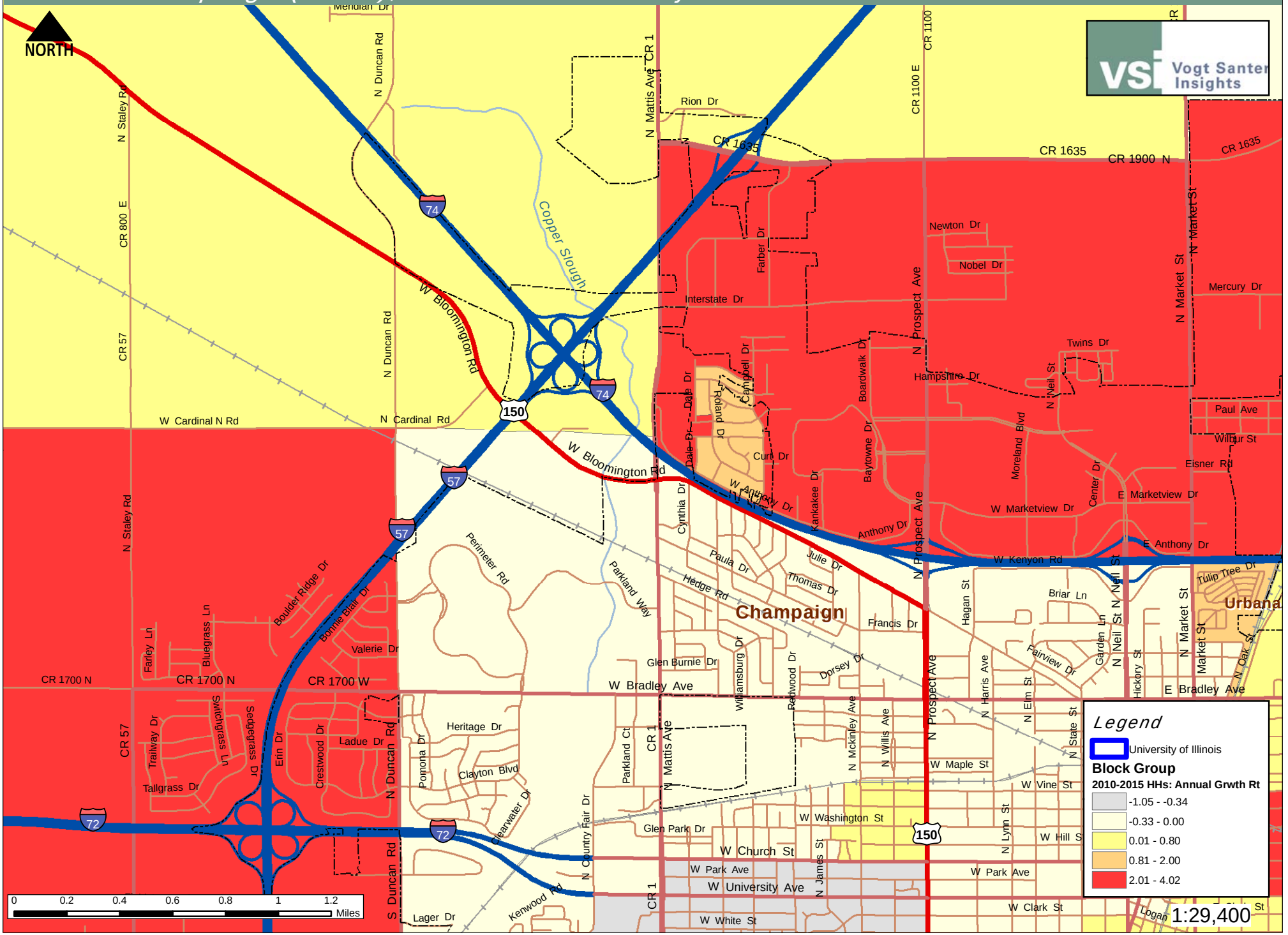
Mahomet, IL & Lake of the Woods, IL: 2010-2015 Projected Annual Household Growth



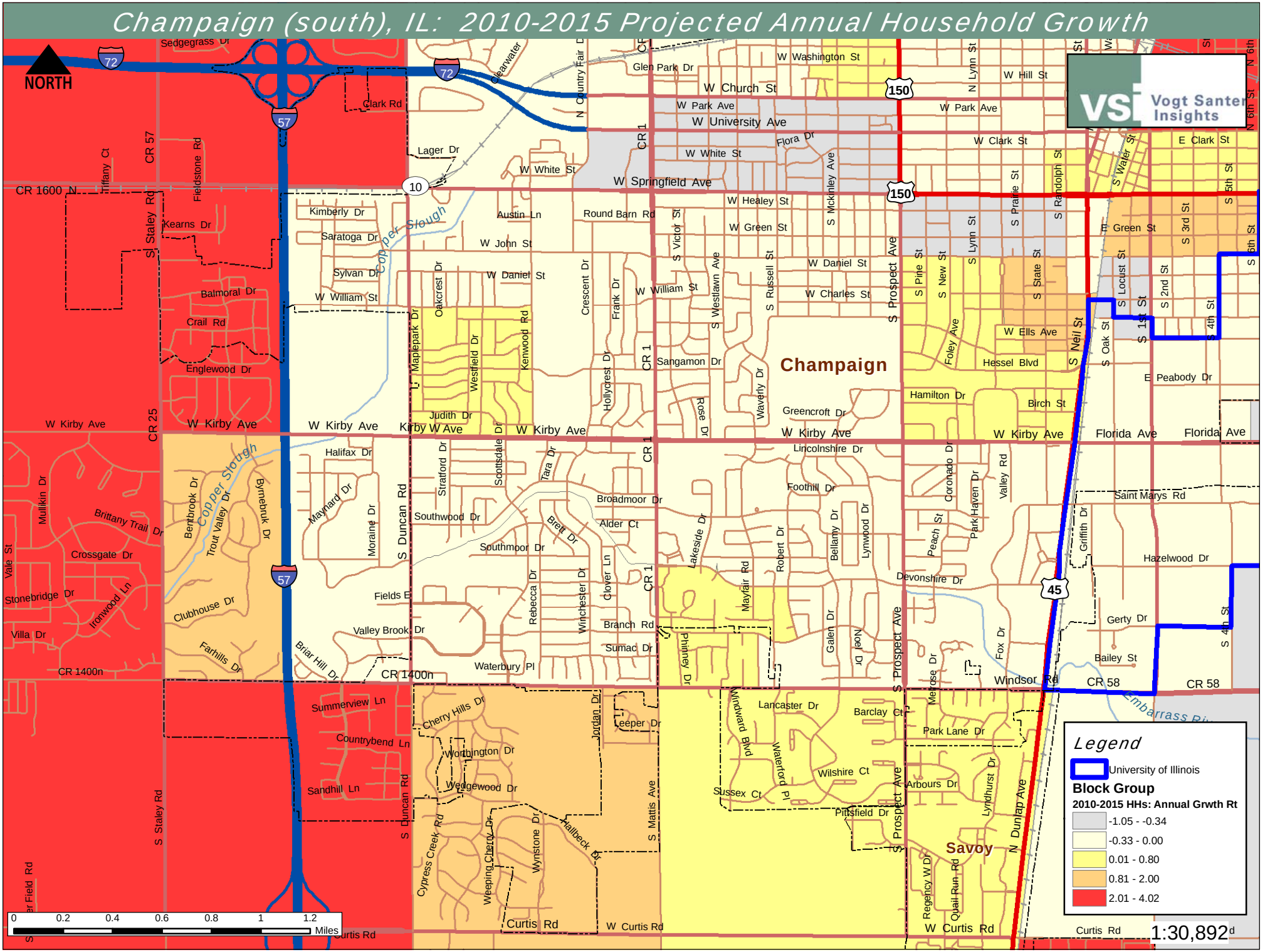
Champaign-Urbana, IL: 2010-2015 Projected Annual Household Growth



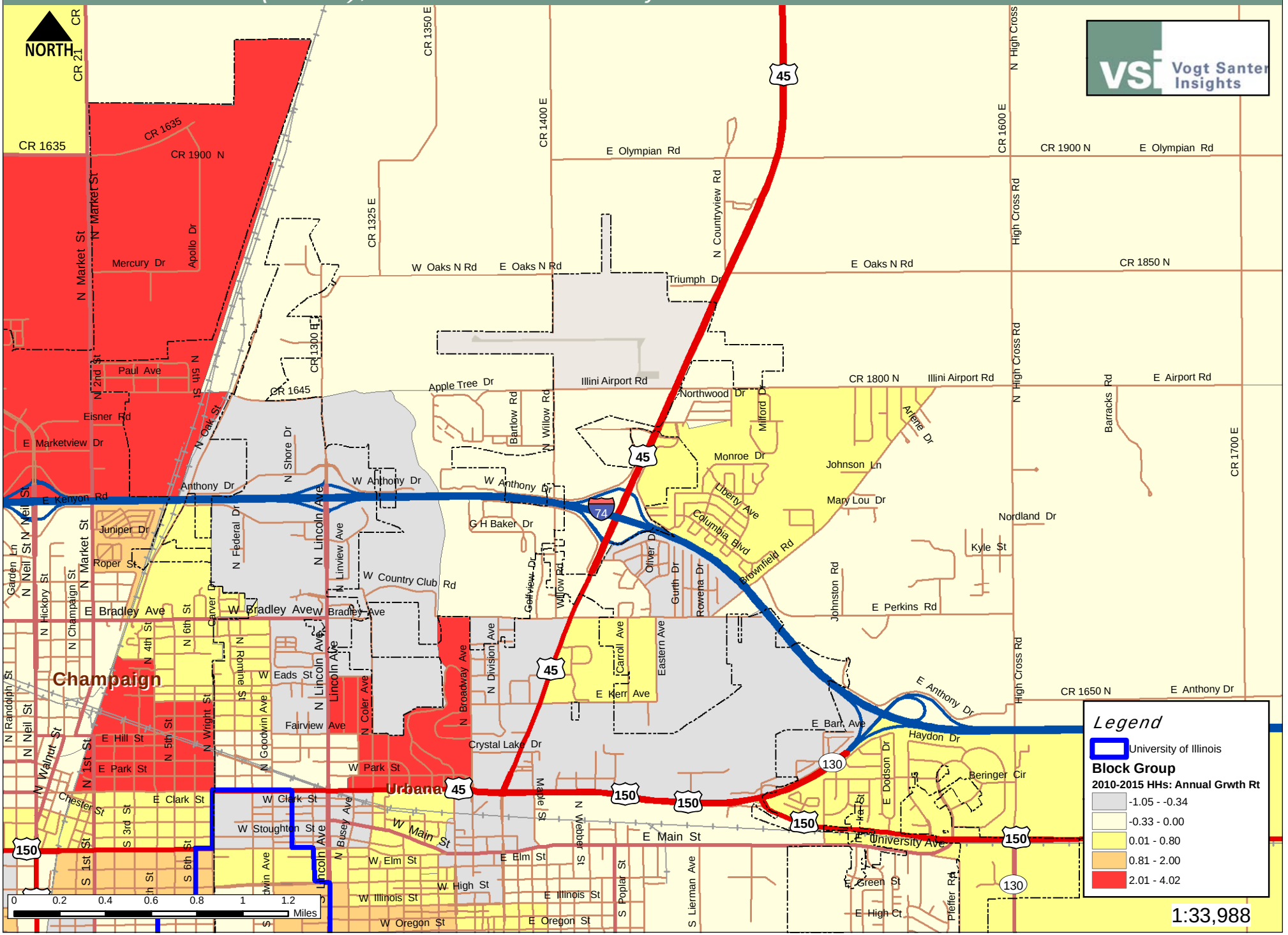
Champaign (north), IL: 2010-2015 Projected Annual Household Growth



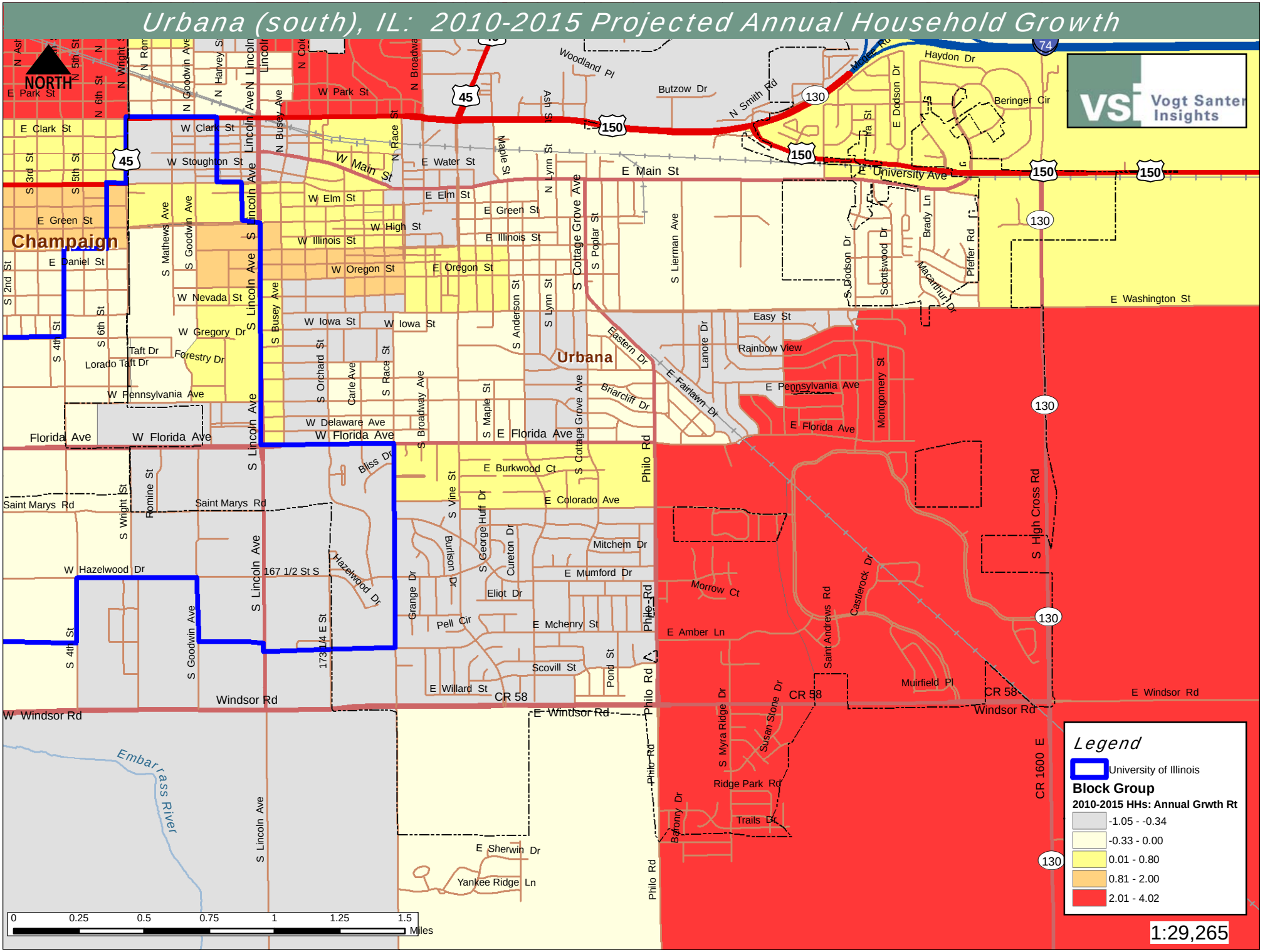
Champaign (south), IL: 2010-2015 Projected Annual Household Growth



Urbana (north), IL: 2010-2015 Projected Annual Household Growth



Urbana (south), IL: 2010-2015 Projected Annual Household Growth

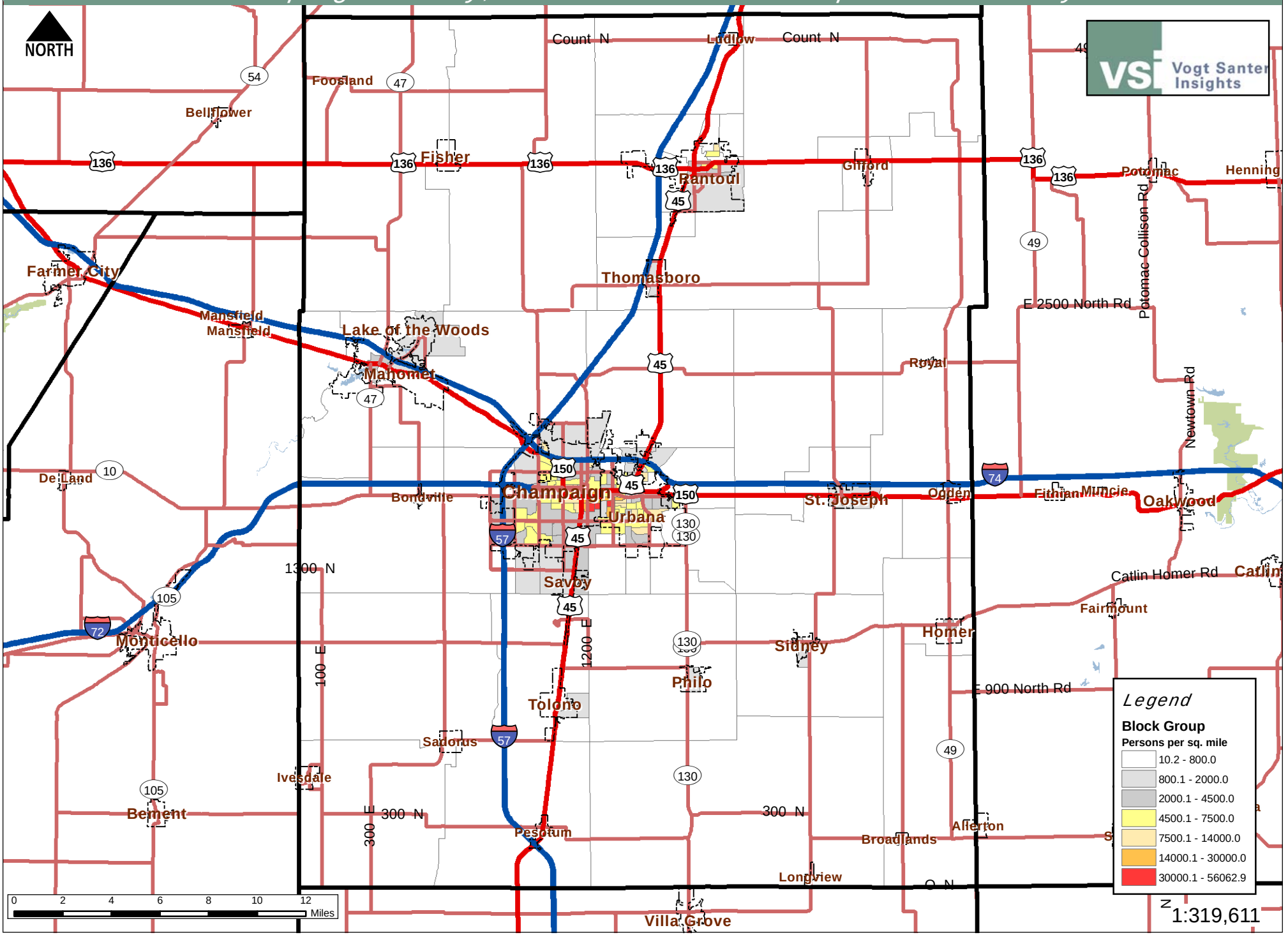


2010 Estimated Population Density

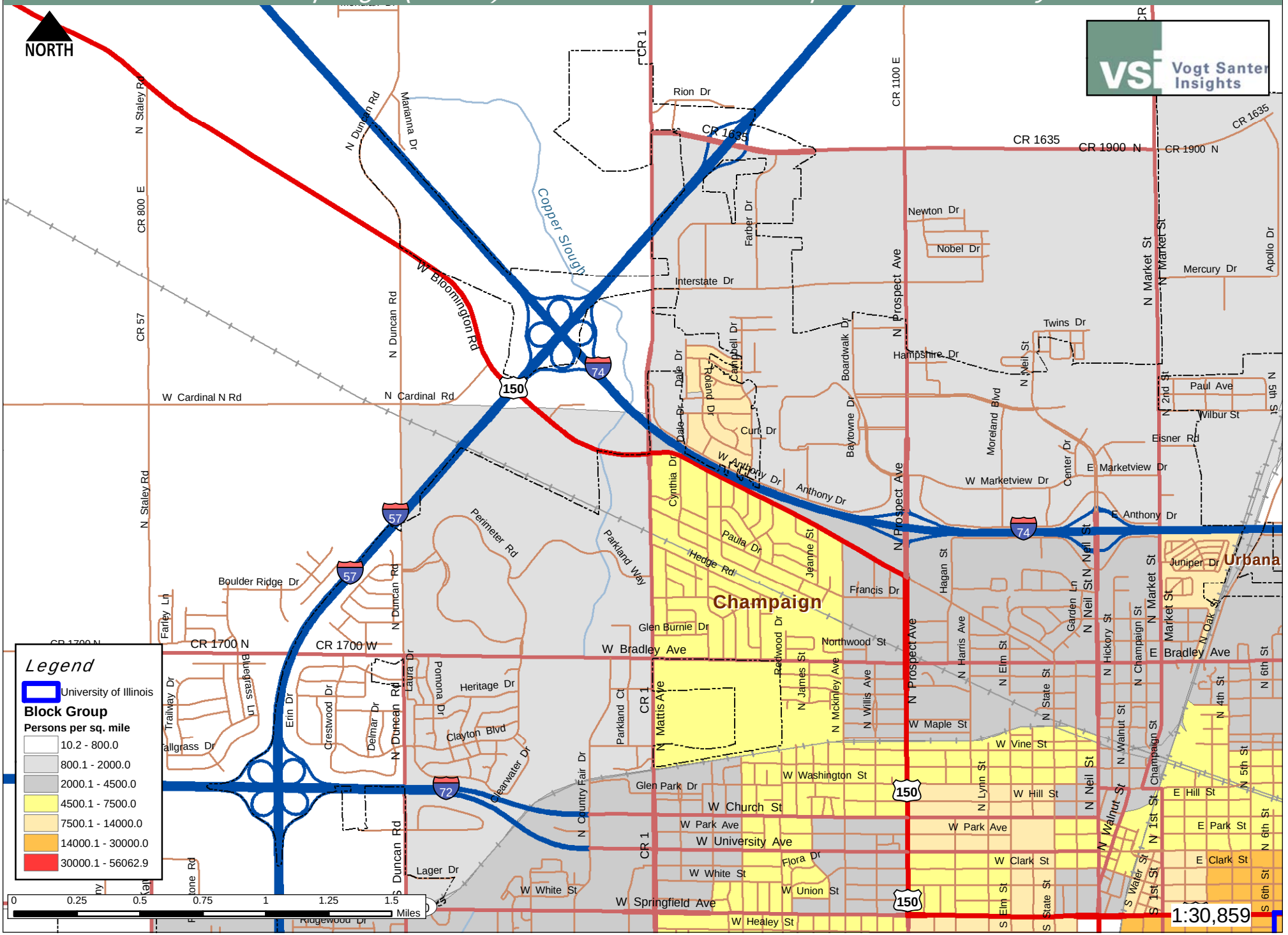
Population density is expressed as a ratio in terms of number of people per square mile. Higher densities can be interpreted as having greater efficiencies or possibly a preponderance of substandard housing. However, population density alone is not enough information to draw those conclusions. This information should be cross-referenced with data such as number of housing units per household or infrastructure data, in order to make a more informed conclusion. Population density on its face is a good indicator of traffic congestion and retail sales potential. The data for this analysis was provided by ESRI.

The overall population density for the county is 195.9. Champaign County is relatively rural. There is very low density outside of Champaign and Urbana. The highest population density in the County is located in and around the northern portion of the university area within both the City of Urbana and the City of Champaign. The maps on pages D-34 through D-39 illustrate the population density throughout the county.

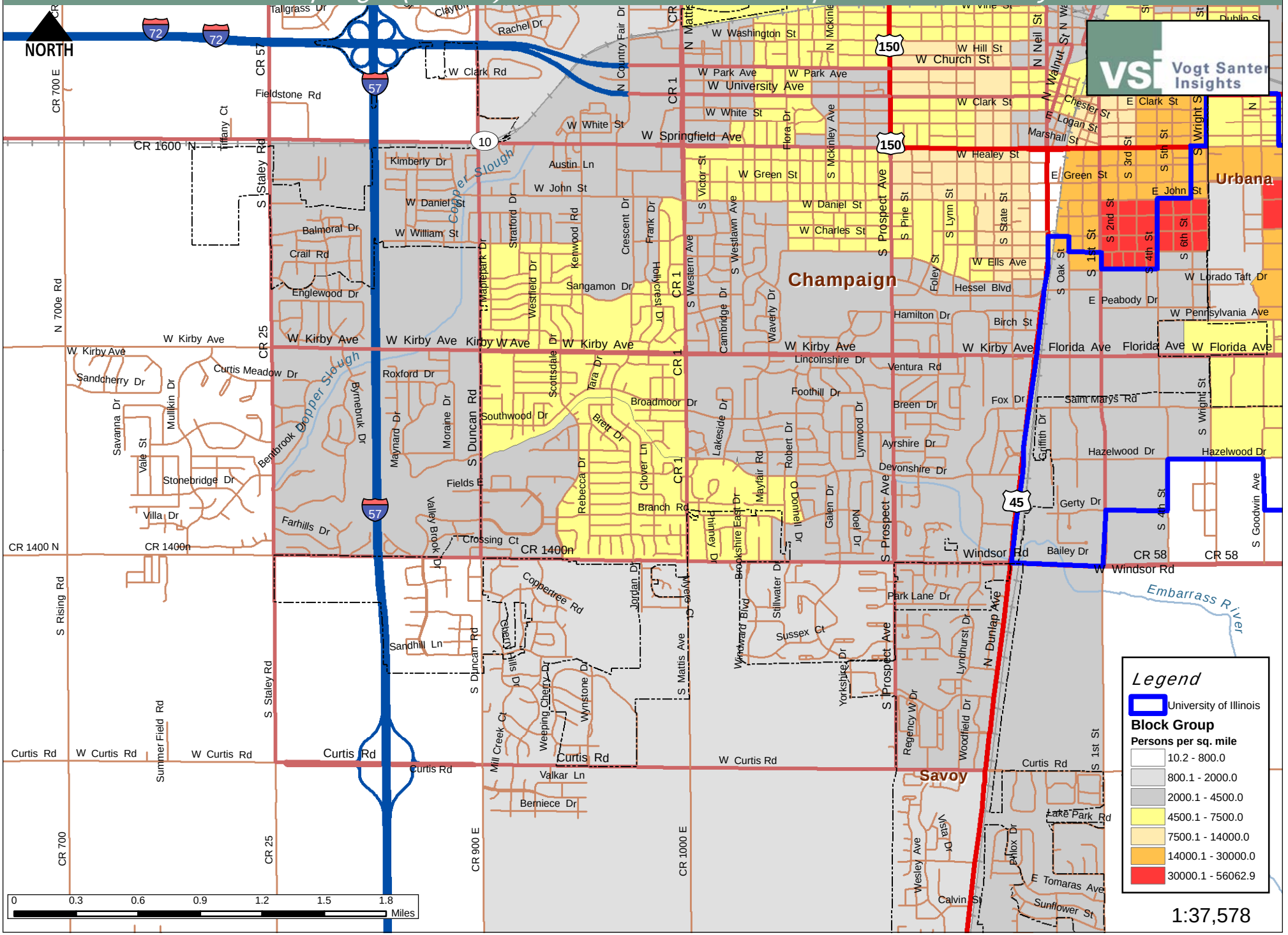
Champaign County, IL: 2010 Estimated Population Density



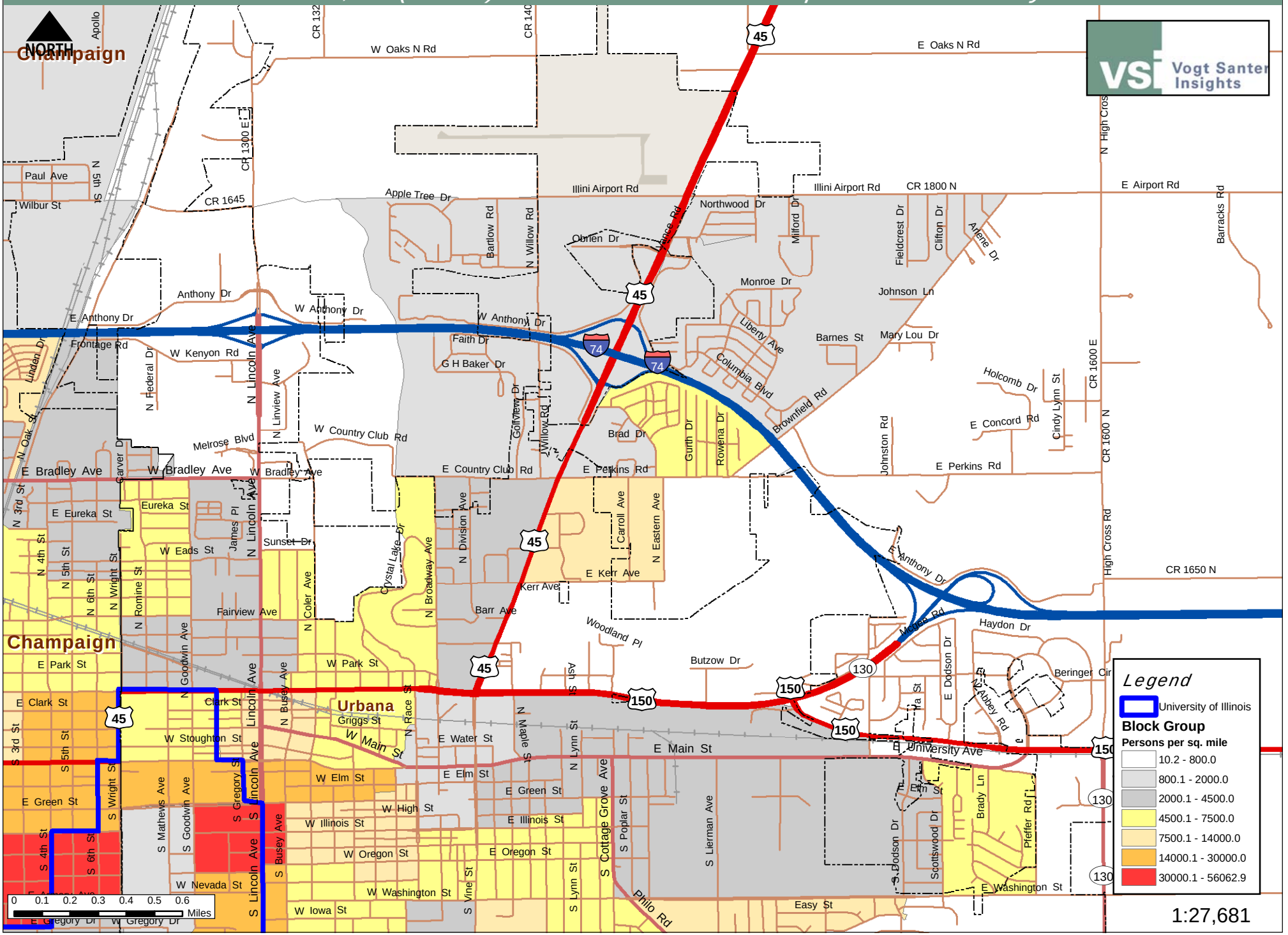
Champaign (north): 2010 Estimated Population Density



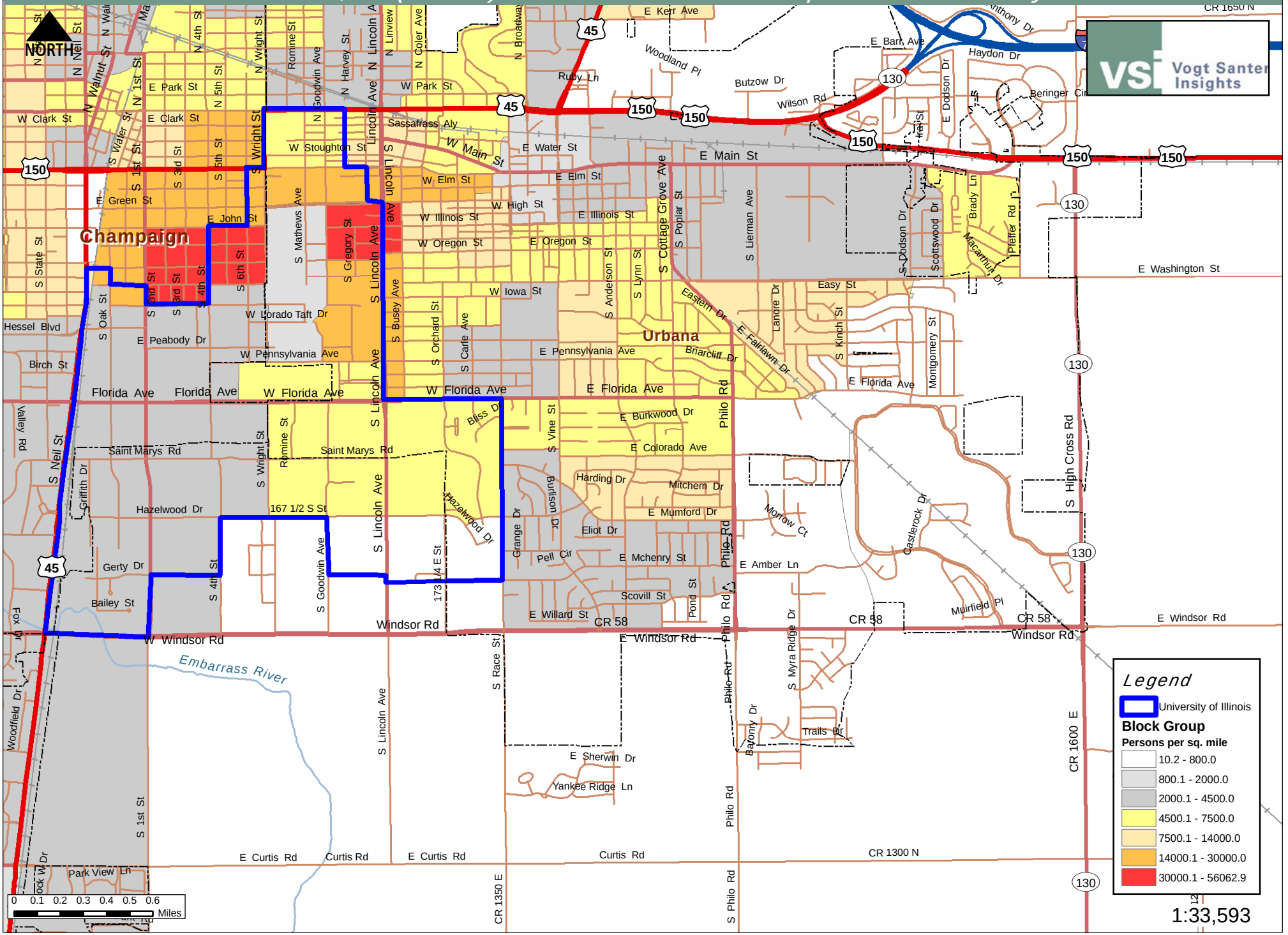
Champaign (south): 2010 Estimated Population Density



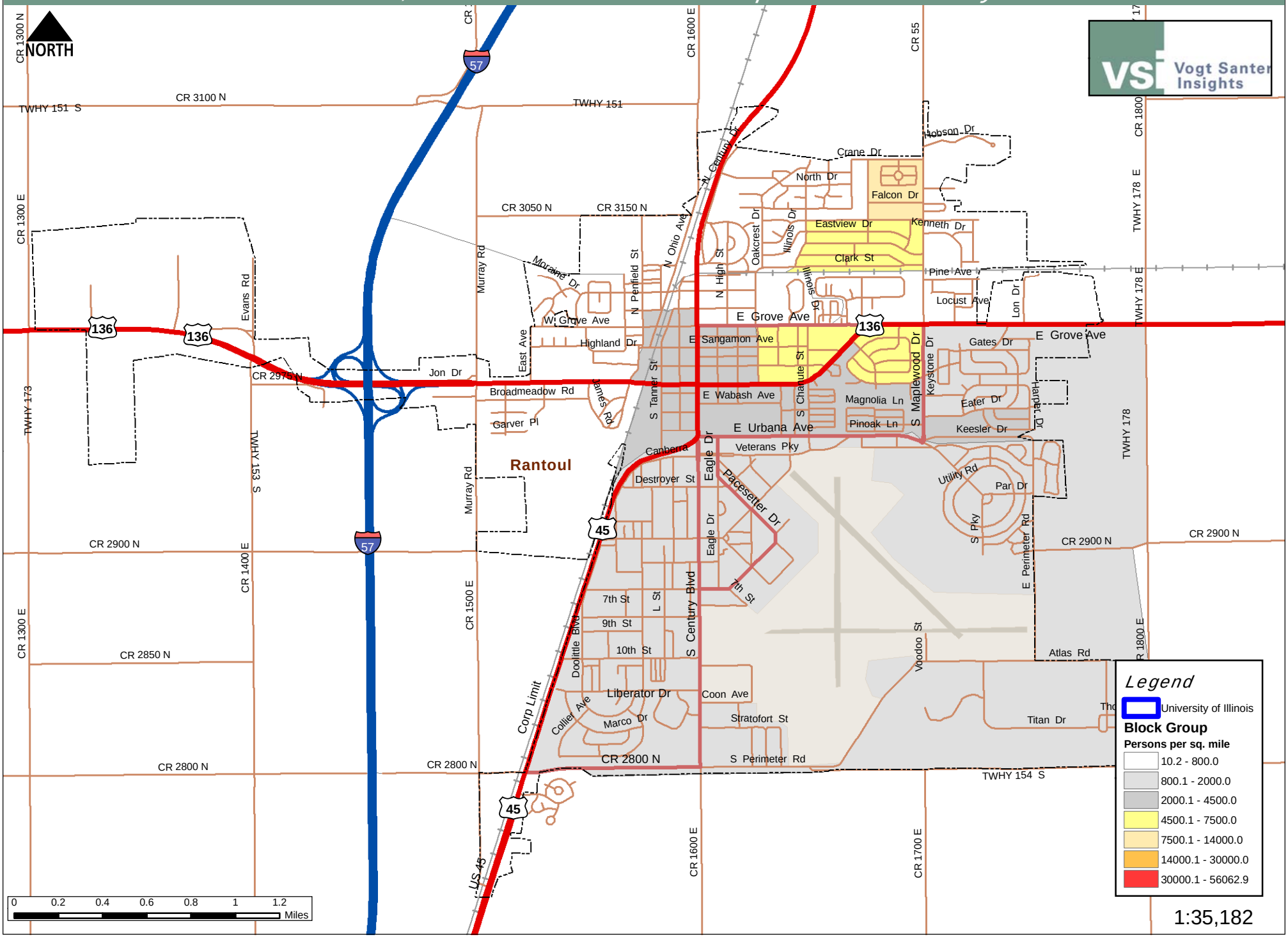
Urbana, IL (north): 2010 Estimated Population Density



Urbana, IL (south): 2010 Estimated Population Density



Rantoul, IL: 2010 Estimated Population Density



2010 Estimated Ratio of Housing Units to Households

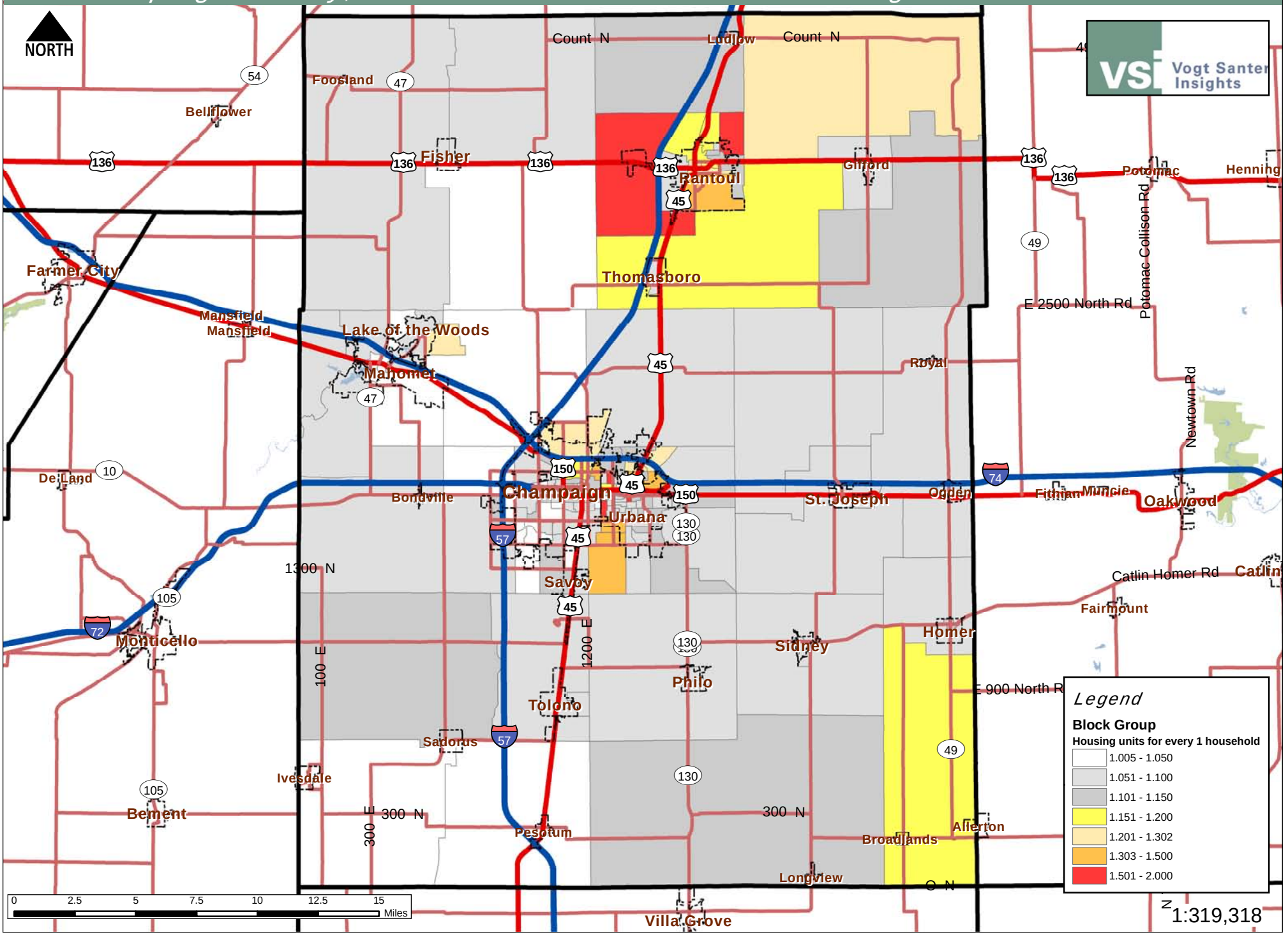
A potential indicator of substandard housing is the ratio of the number of households to housing units. Values greater than one can indicate overcrowded, substandard conditions. When this ratio was applied to the data in Champaign County we found no area within the county where this ratio exceeded a value of one. Therefore, the ratio was not considered useful. Instead, we turned the ratio upside down and compared the number of housing units to households – a potential indicator of vacant housing units and inefficient uses of space. A value of one indicates a perfect balance of housing and households, but the ideal ratio value lies between 1.01 and 1.1 because this allows for some excess housing that could be utilized to fill immediate housing needs while also allowing for intra-county migration without the need to produce a large amount of new housing to fill short term needs.

The map on page D-41 shows the countywide view of the ratio of housing units to households. The value of this ratio for the entire county is 1.1, which is a stable value.

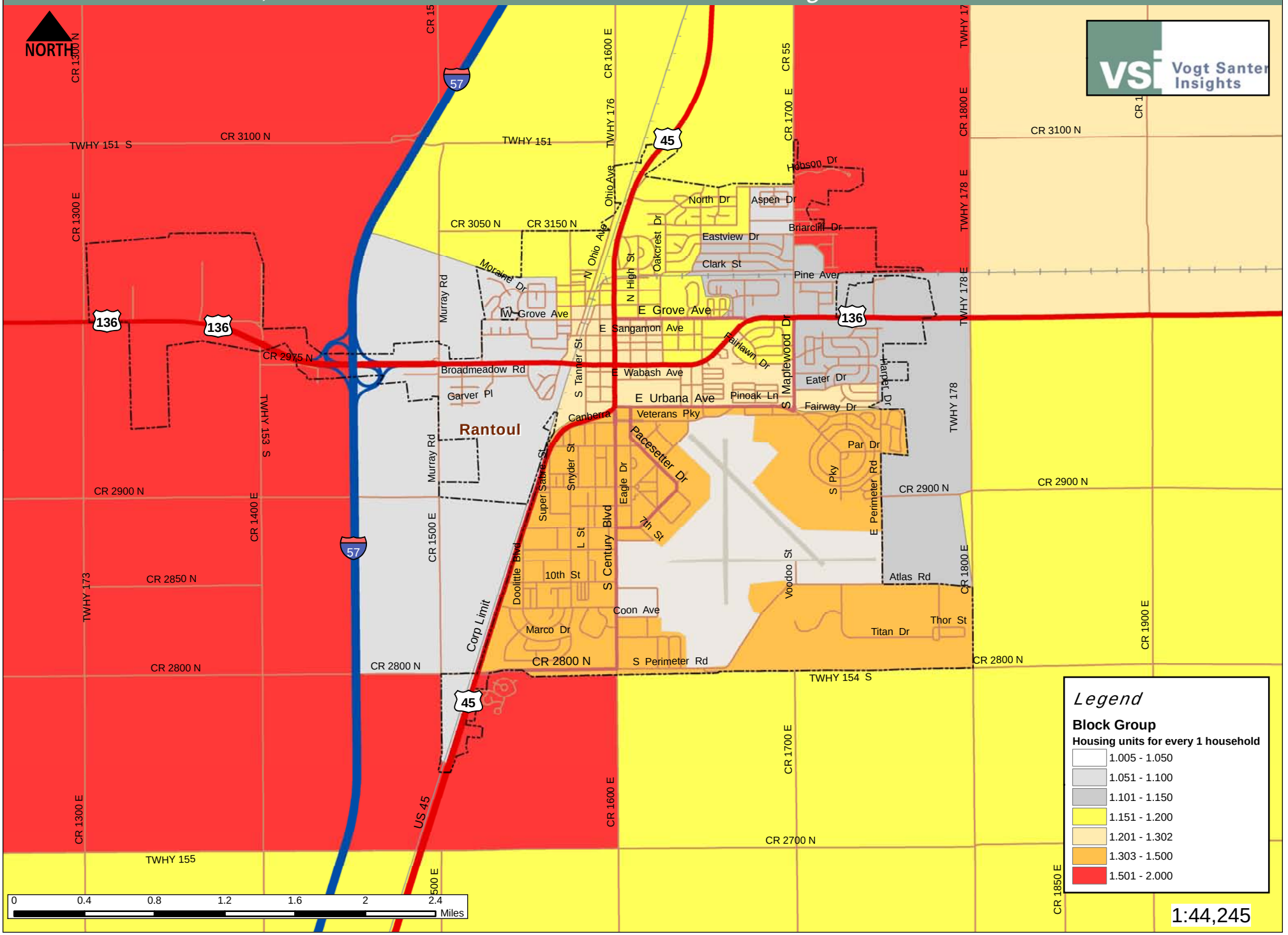
The Village of Rantoul's ratio of housing units to households is in the range of 1.06 to 1.72. Most of Rantoul has an excess of housing units. This is good if the excess units are not substandard and there are households with housing needs that, in theory, could occupy the excess housing. However, if most of those housing units have been vacant for some time, they are likely to be in need of improvements. The map on page D-42 shows the ratio of housing units to households in Rantoul.

The map on page D-43 displays the ratio of housing units to households for the Cities of Champaign and Urbana. There are pockets of excess housing units throughout both cities but Urbana has an overall higher ratio value of 1.11 compared to Champaign at 1.09.

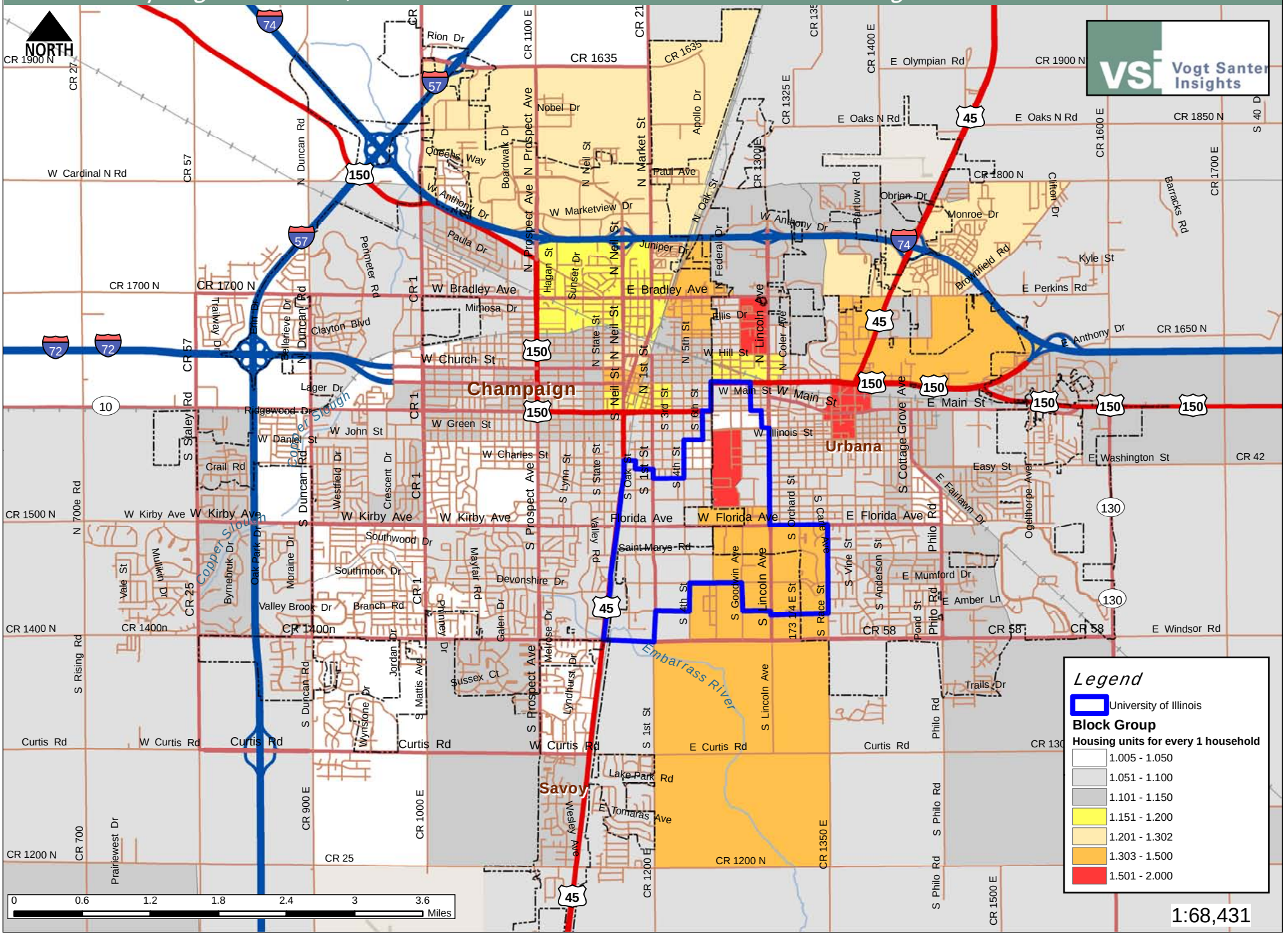
Champaign County, IL: 2010 Estimated Ratio of Housing Units to Households



Rantoul, IL: 2010 Estimated Ratio of Housing Units to Households



Champaign-Urbana, IL: 2010 Estimated Ratio of Housing Units to Households



2010 Estimated Vacant Housing Units

Nationally the number of vacant housing units is rising. In addition to the natural life cycle of housing contributing to the number of vacant units, the nation is still mired in a foreclosure crisis that is adding to the totals at an increasing pace. The most accurate sources for vacant housing units are usually found at the local level. However, getting accurate counts of vacant units is time consuming and expensive. Therefore, most cities and counties tend to provide estimates based on resident feedback and\or anecdotal evidence such as undeliverable mail instead of employing a staff to survey each unit in person. The data for this analysis was provided by ESRI and an explanation of the methodologies used to aggregate the data can be found in Addendum J.

Vacant housing is both an opportunity and a threat to any municipality. It is a potential opportunity in the sense that the housing could be used to fill immediate housing needs especially for those earning lower incomes. However, vacant housing is often vacant for long periods of time and therefore, it quickly falls into disrepair. Vacant housing is also usually difficult to acquire. Landlords are difficult to locate and those properties owned by banks can remain unsold for years at a time, generally prompting the bank to sell vacant homes in blocks of properties.

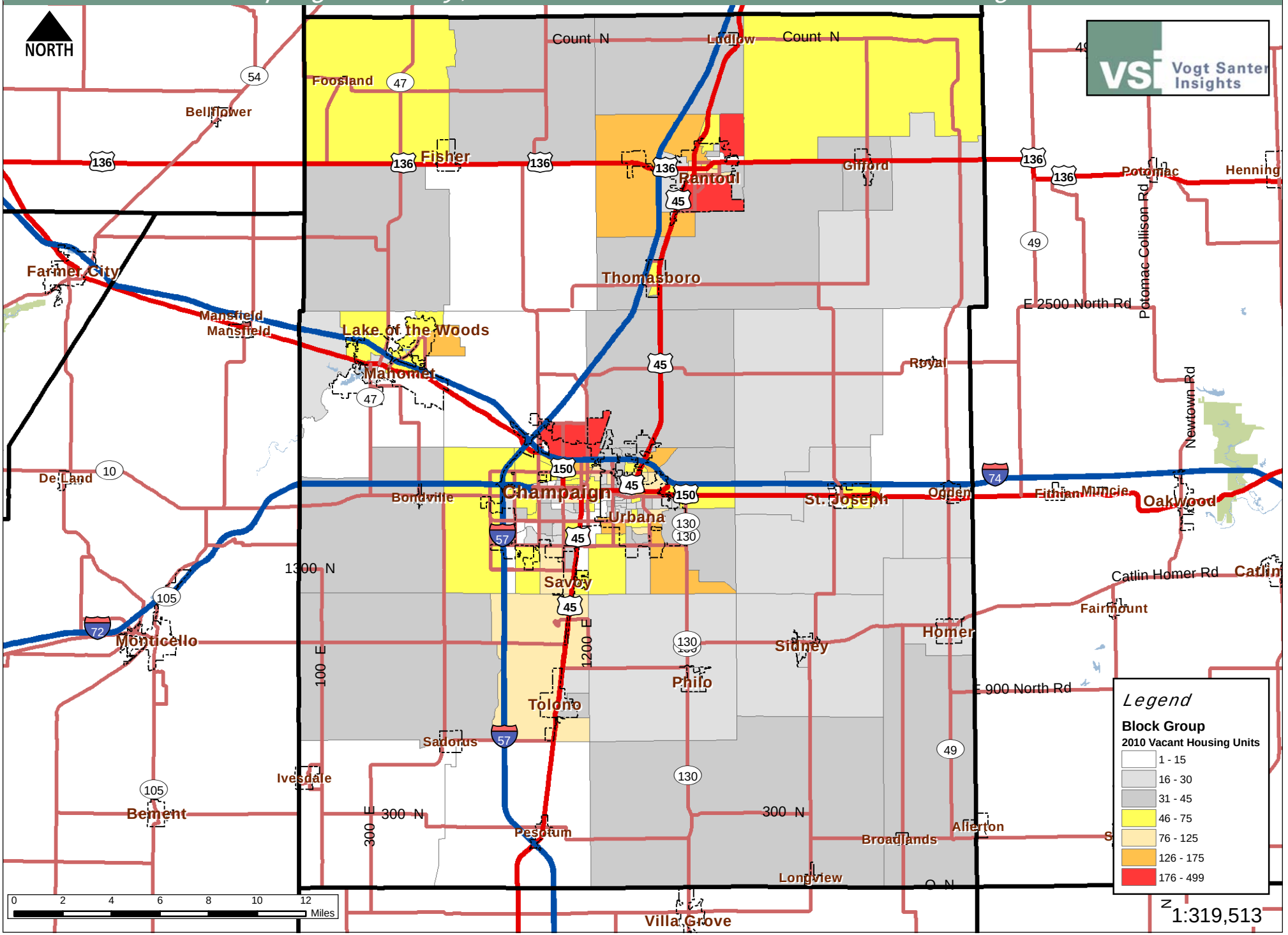
The map on page D-45 displays the distribution of the estimated vacant housing units throughout the county. There are an estimated 8,200 vacant housing units in Champaign County, which equates to 9.7% of all housing units.

In the Village of Rantoul, there are an estimated 1,297 vacant housing units. The majority of the vacant units are located around the old Chanute Air Force Base. The map on page D-46 shows the distribution of vacant units in the Village.

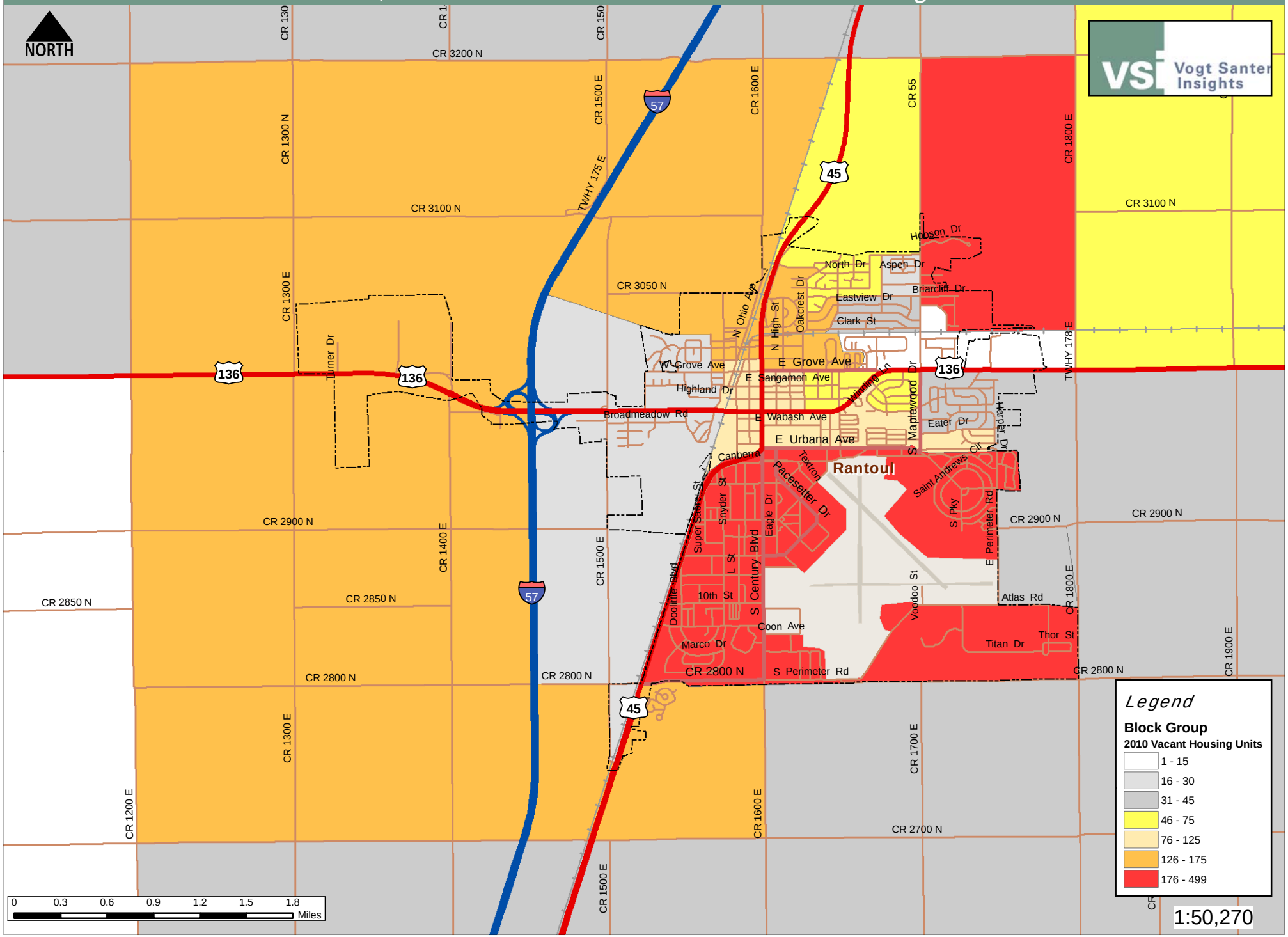
The City of Champaign has an estimated 2,600 vacant housing units. Approximately half of the City's vacant units are located in the oldest section of the City, the area bounded by Prospect Avenue on the west, I-74 on the north, Wright Street on the east and John Street on the south. The maps on pages D-48 and D-49 show the distribution of the vacant housing.

The City of Urbana has an estimated 1,740 vacant housing units. The maps on pages D-50 and D-51 illustrate the state of vacant housing in the City.

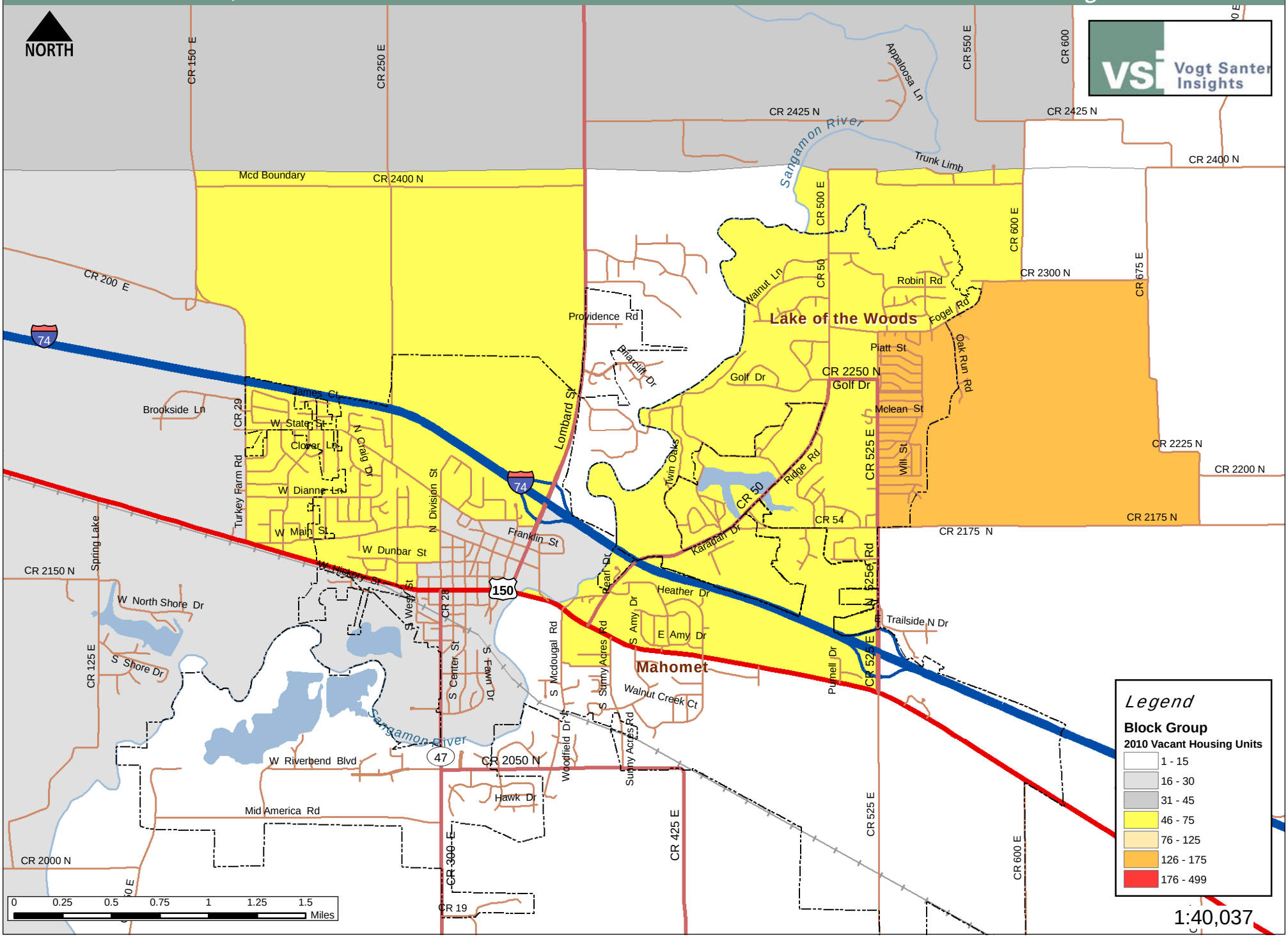
Champaign County, IL: 2010 Estimated Vacant Housing Units



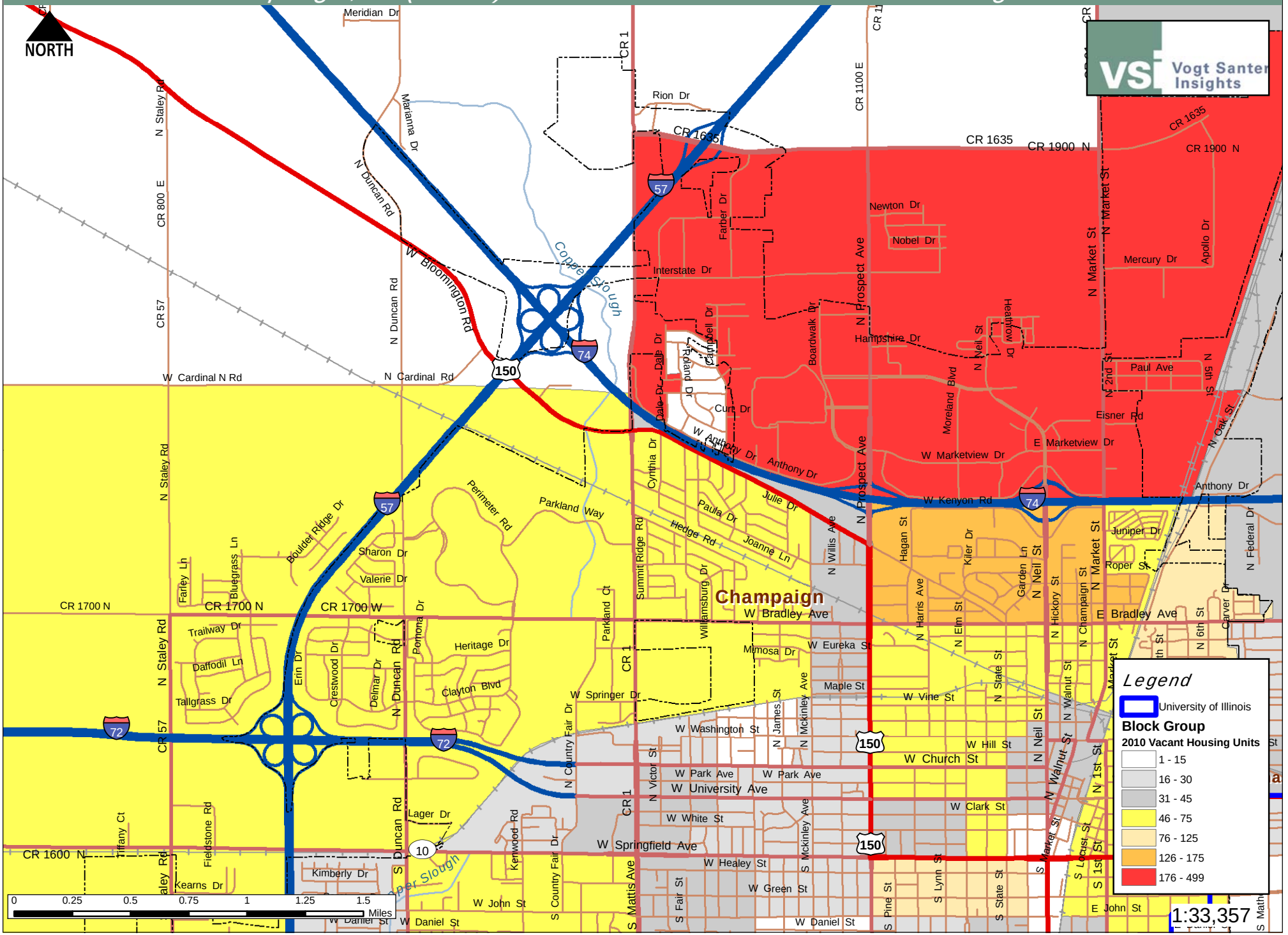
Rantoul, IL: 2010 Estimated Vacant Housing Units



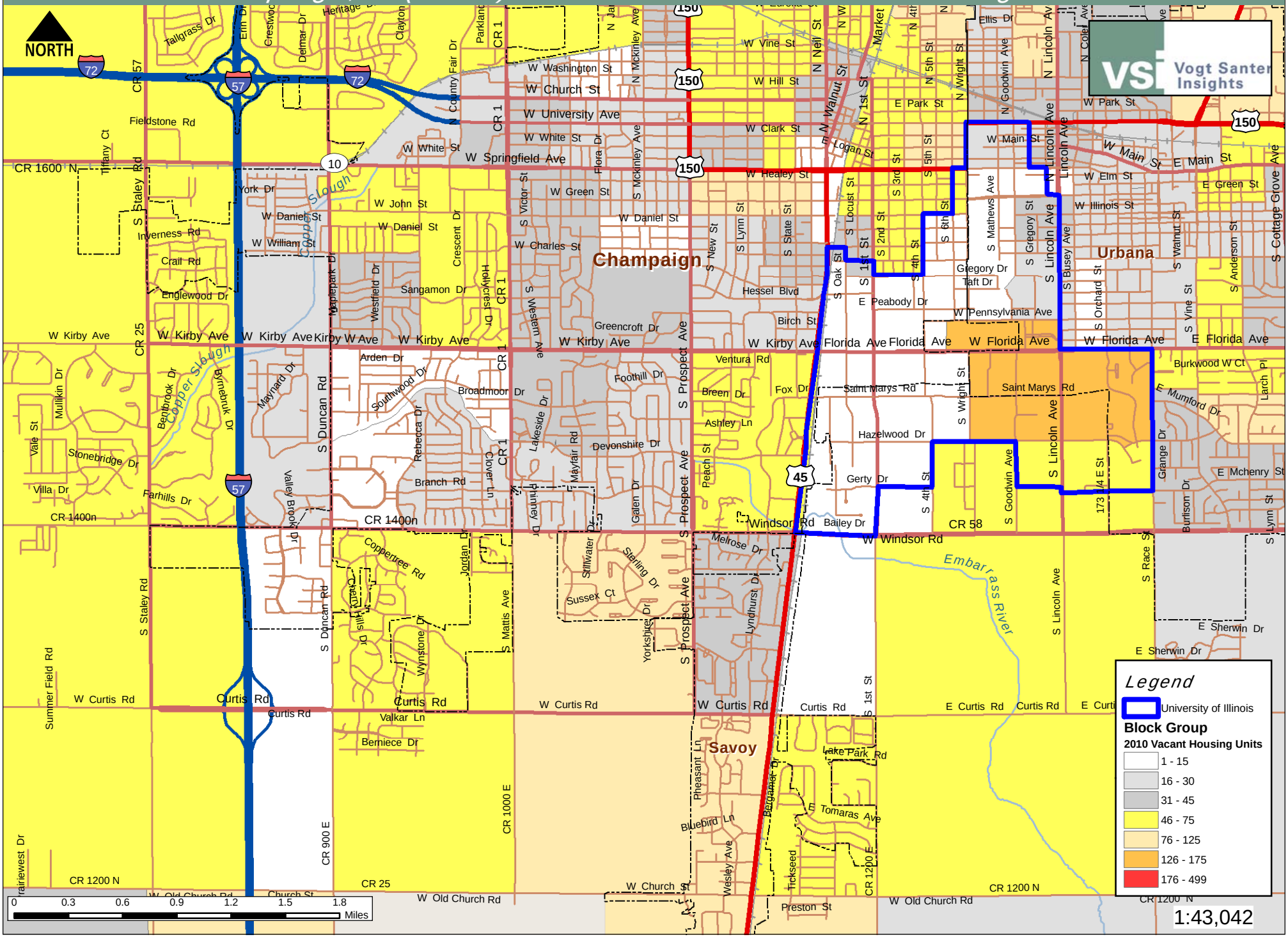
Mahomet, IL & Lake of the Woods: 2010 Estimated Vacant Housing Units



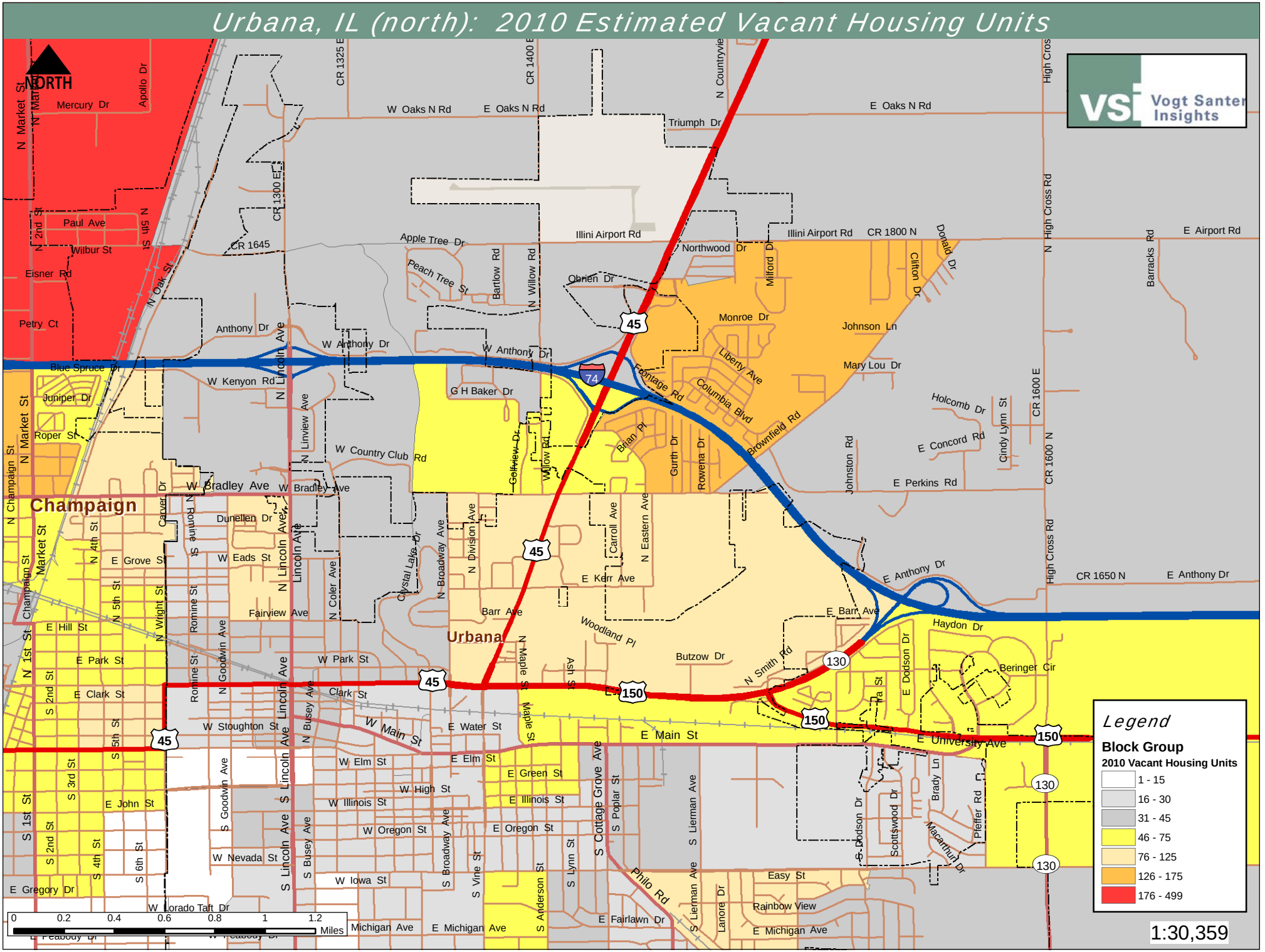
Champaign, IL (north): 2010 Estimated Vacant Housing Units



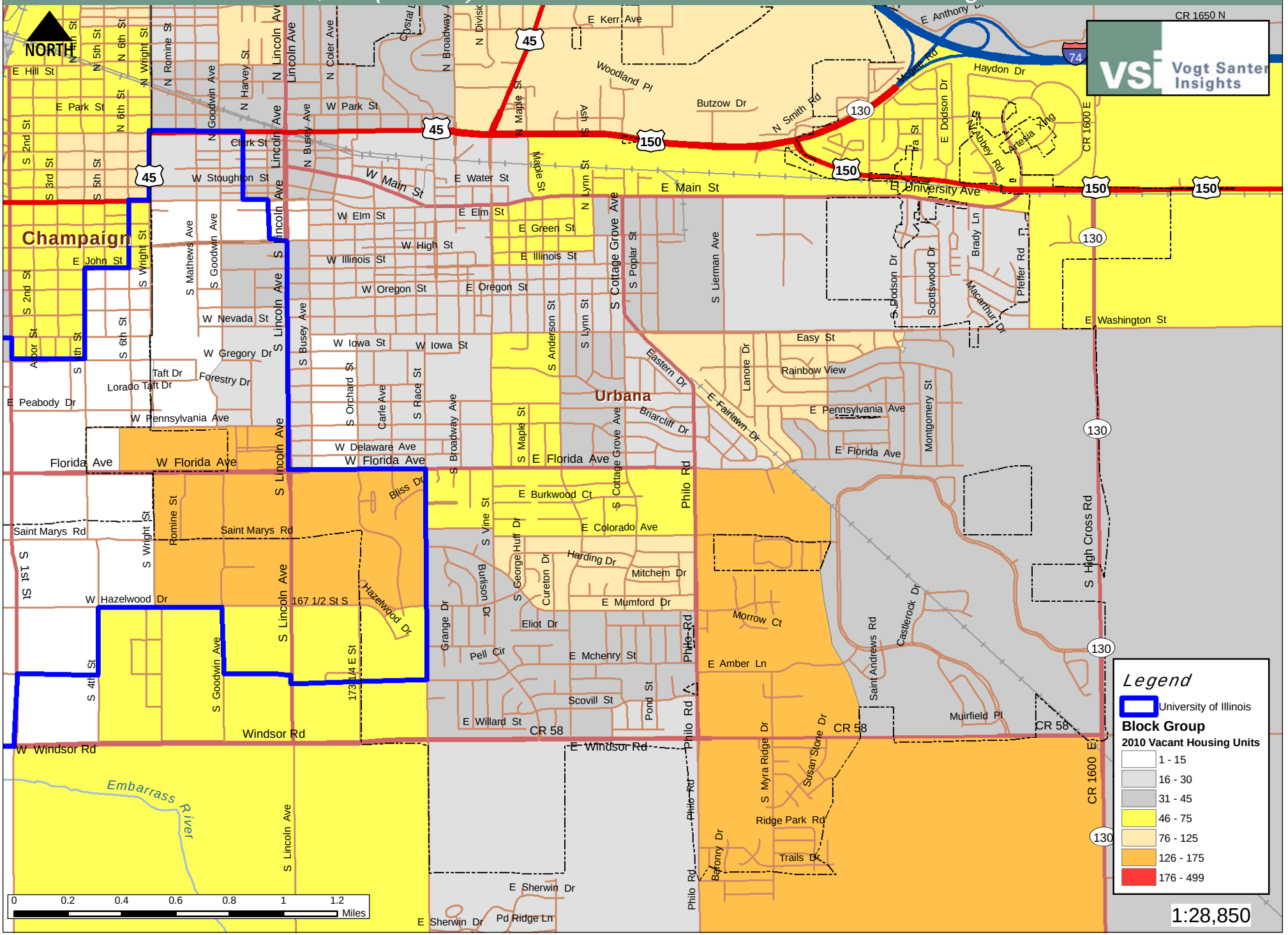
Champaign, IL (south): 2010 Estimated Vacant Housing Units



Urbana, IL (north): 2010 Estimated Vacant Housing Units



Urbana, IL (south): 2010 Estimated Vacant Housing Units



2010 Estimated Renter Share of Housing Market

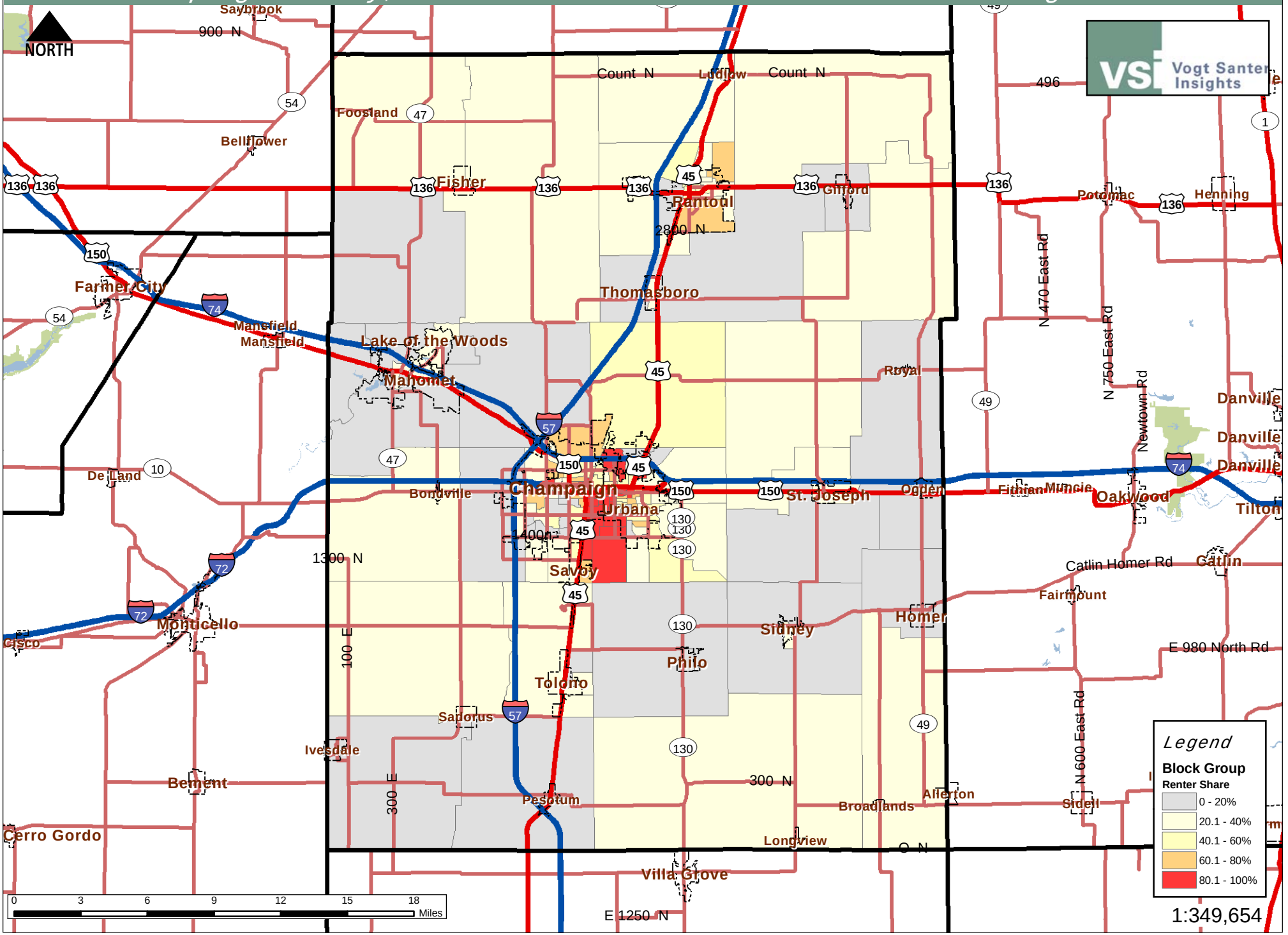
The renter share of a housing market refers to the percentage of occupied housing units that are inhabited by renters. Nationally, it is estimated that the renter share of the market is 34.2% - approximately one-third of the market. In the state of Illinois, it is estimated that 33.1% of the market is made up of renters. This data is based on U.S. Census data and data from the American Housing Survey but was provided through ESRI, a third-party data provider. An explanation of the methodologies employed can be found in Addendum J.

The estimated renter share of the housing market in Champaign County is 45.0%. While this may seem high, it is not unusual for counties with large student populations to have renter shares much higher than the national average. The map on page D-53 illustrates the distribution of renters throughout the county.

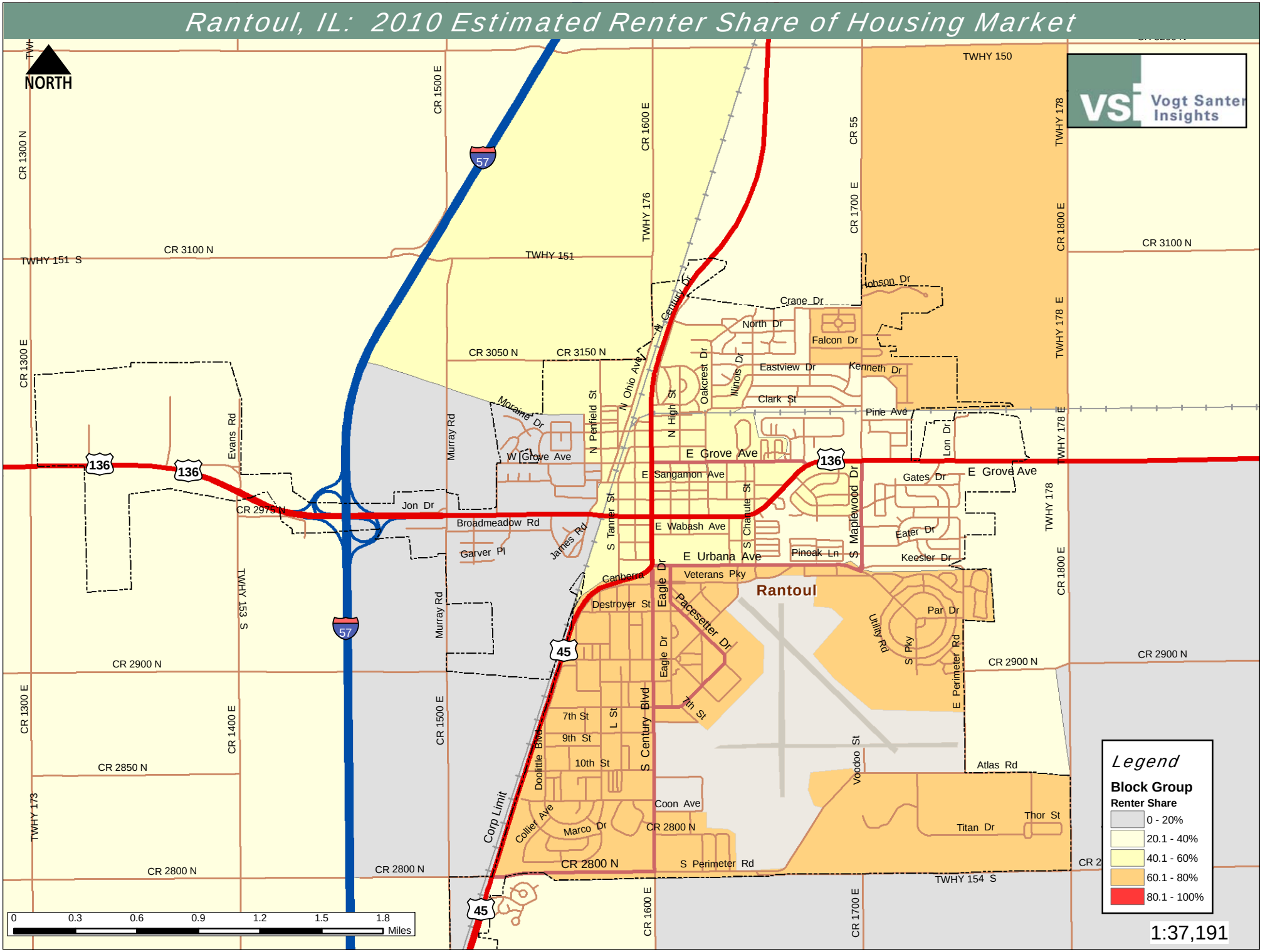
The Village of Rantoul has a relatively high number of renters. It is estimated that the Rantoul renters account for 50.4% of the housing market. The map on page D-54 shows the distribution of the renters.

The City of Champaign has an estimated renter share value of 53.3% while the City of Urbana's renter share is 61.7%. Both of these figures reflect the large numbers of students that make up a significant portion of the pool of renters. The maps on pages D-55 through D-58 show the distribution of renters throughout the Champaign-Urbana area.

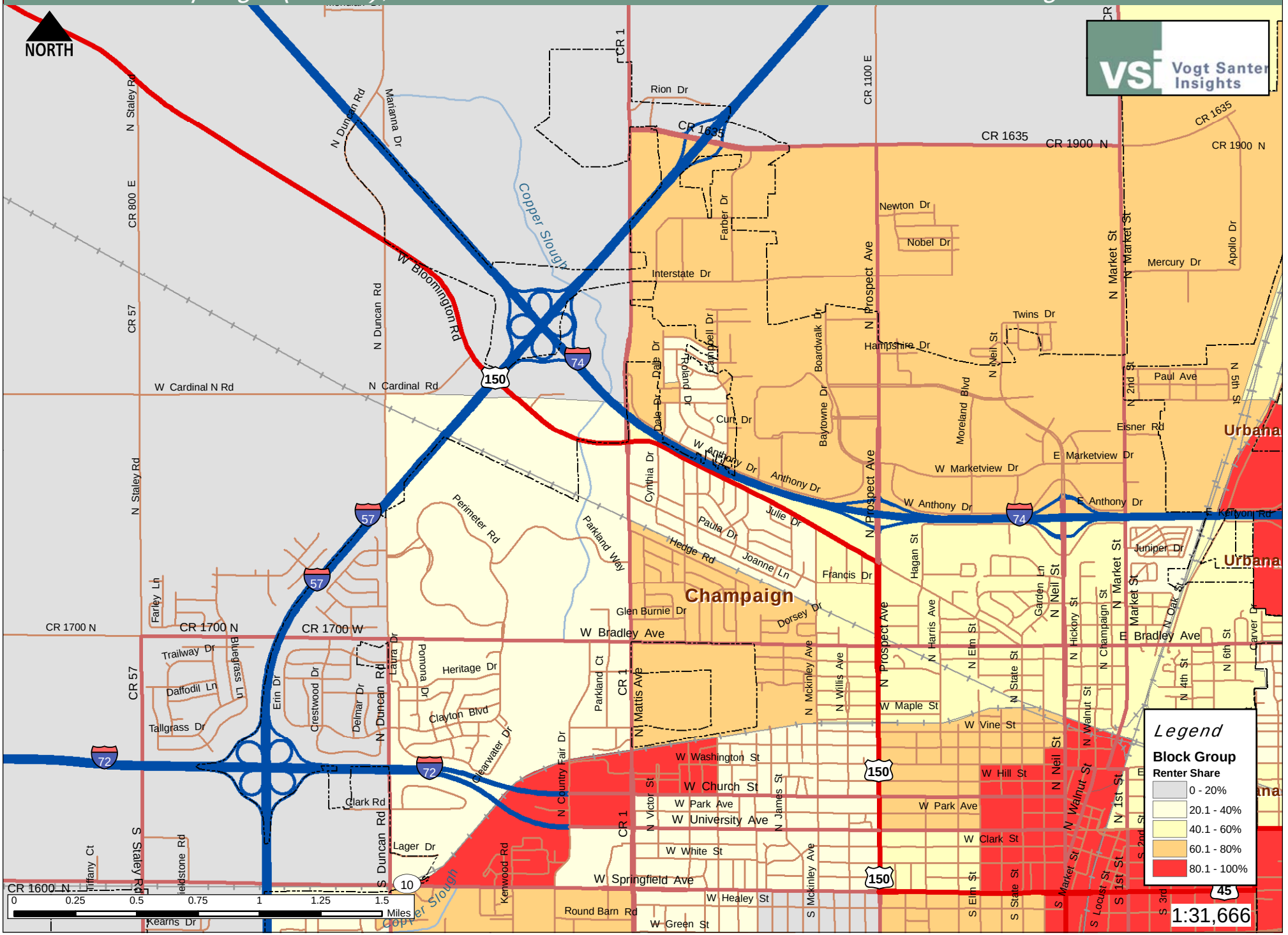
Champaign County, IL: 2010 Estimated Renter Share of Housing Market



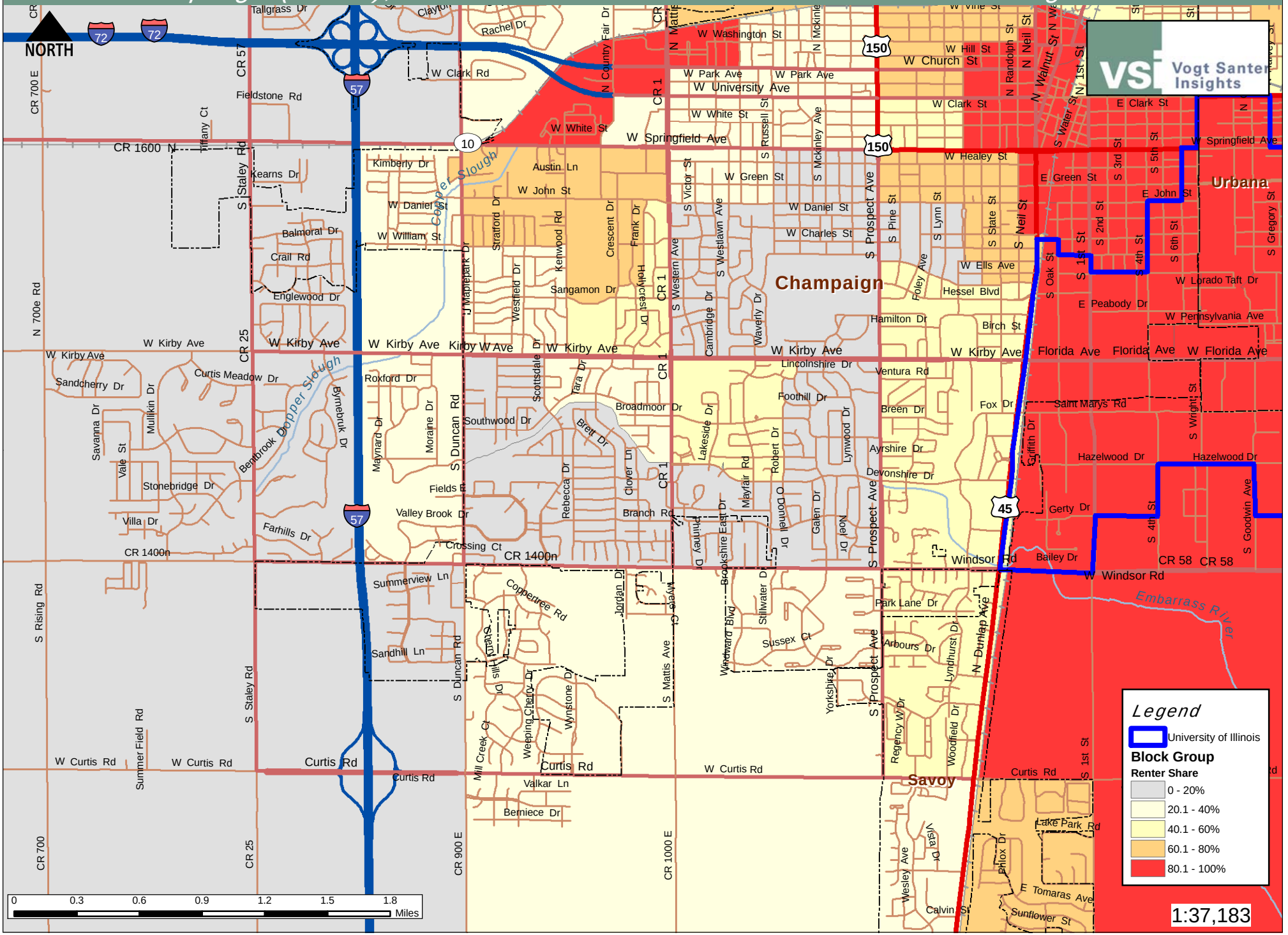
Rantoul, IL: 2010 Estimated Renter Share of Housing Market



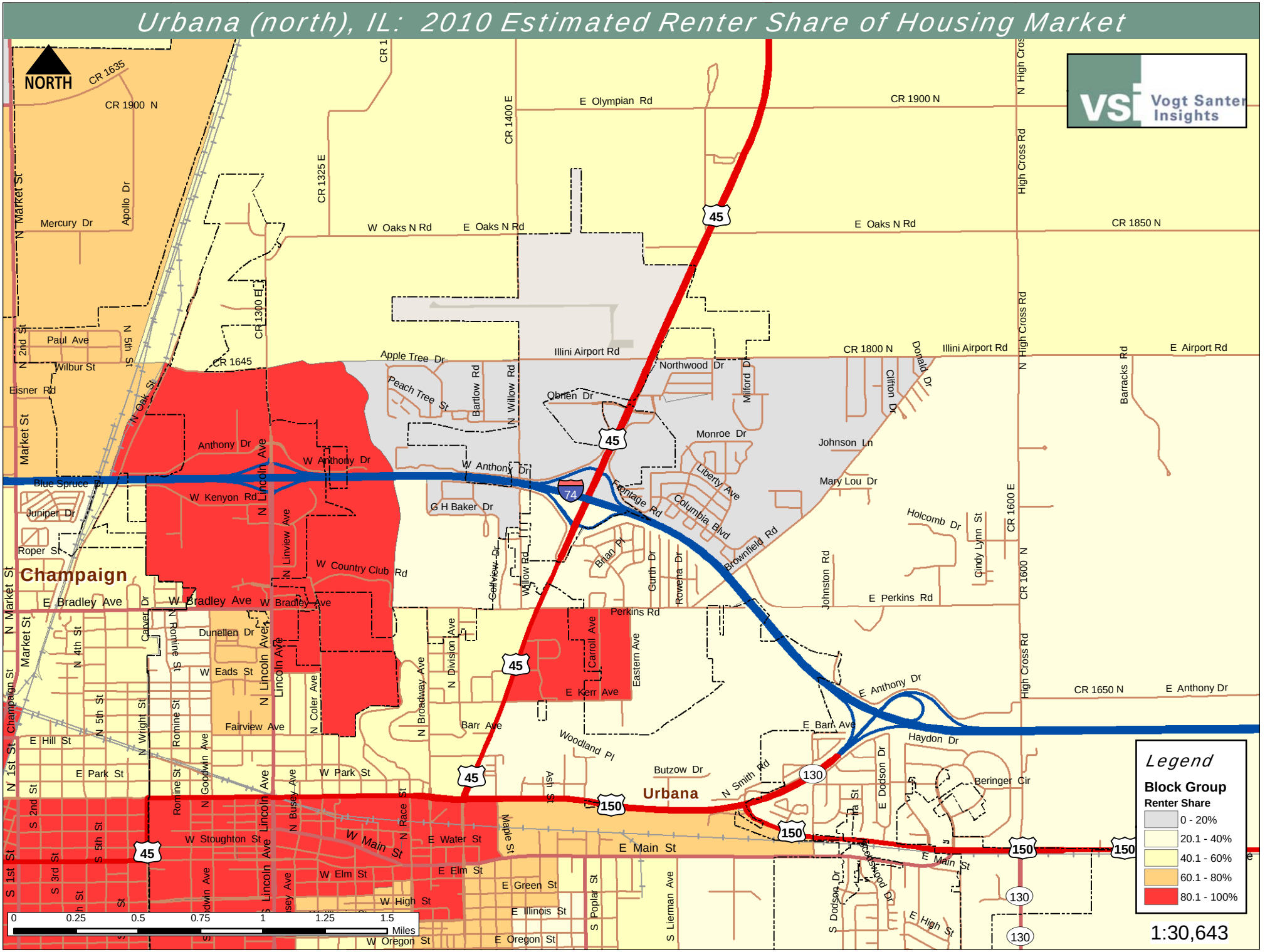
Champaign (north), IL: 2010 Estimated Renter Share of Housing Market



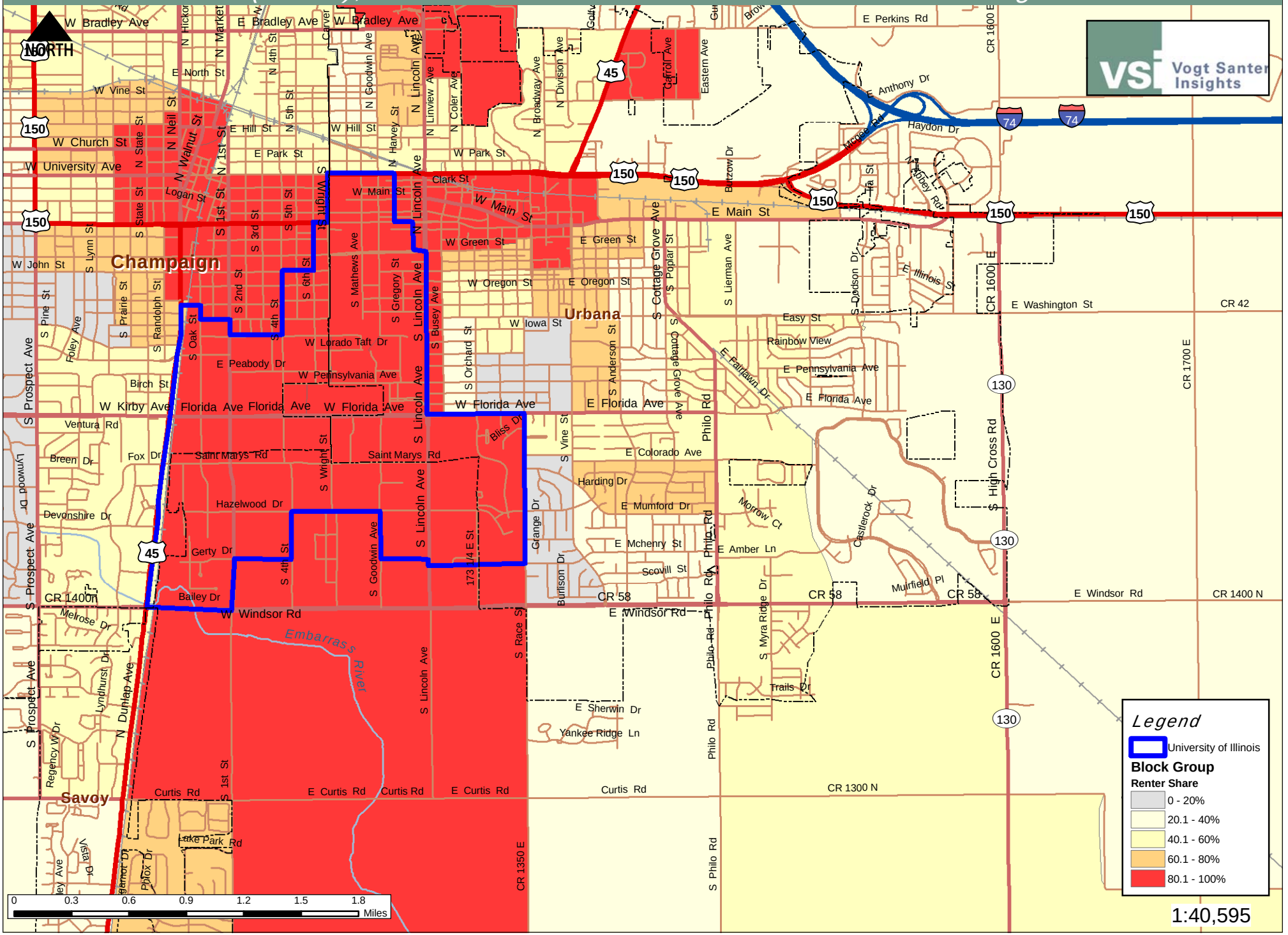
Champaign (south), IL: 2010 Estimated Renter Share of Housing Market



Urbana (north), IL: 2010 Estimated Renter Share of Housing Market



Urbana (south), IL: 2010 Estimated Renter Share of Housing Market

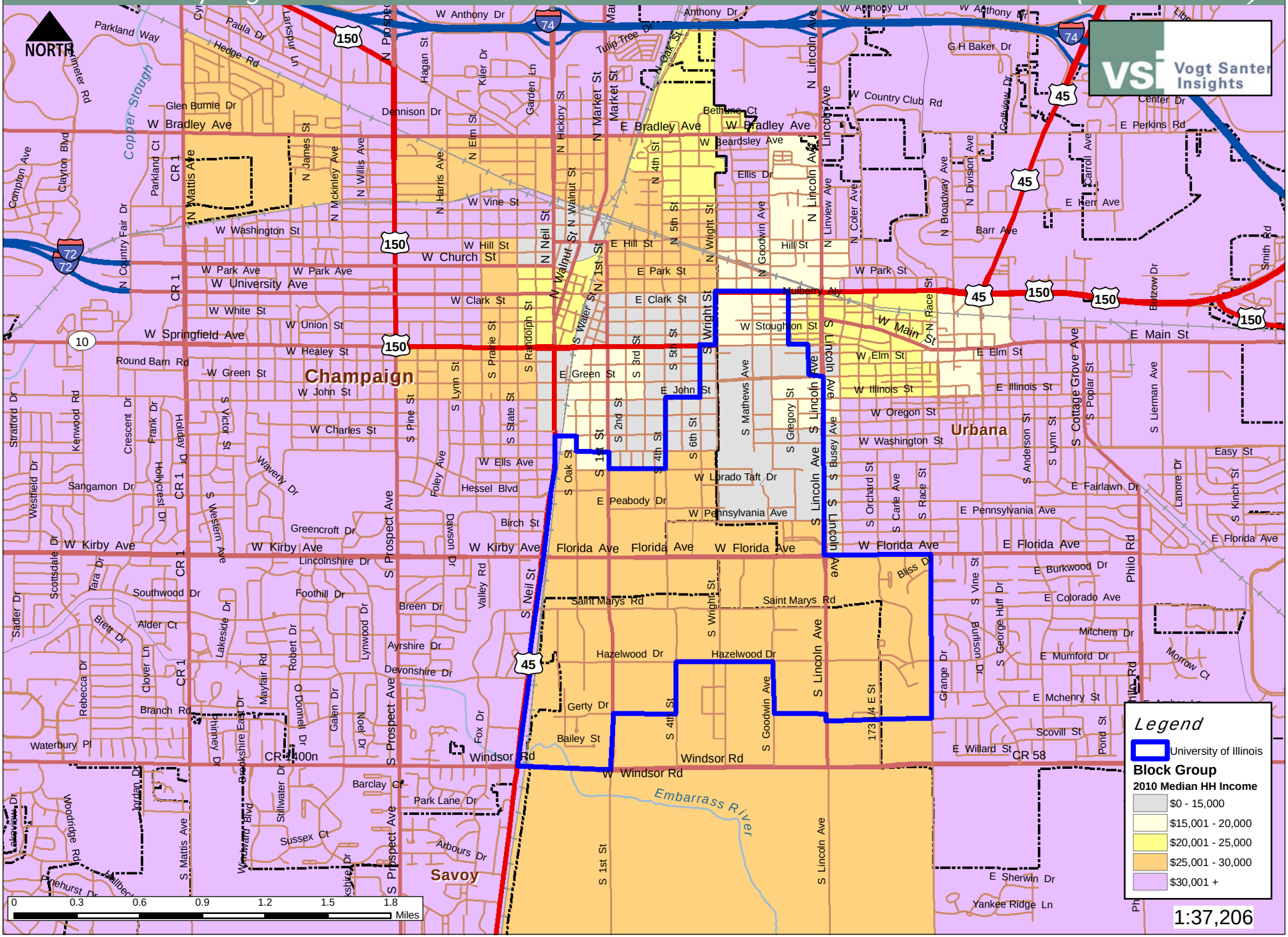


Low-Income and Housing Choice Vouchers Maps

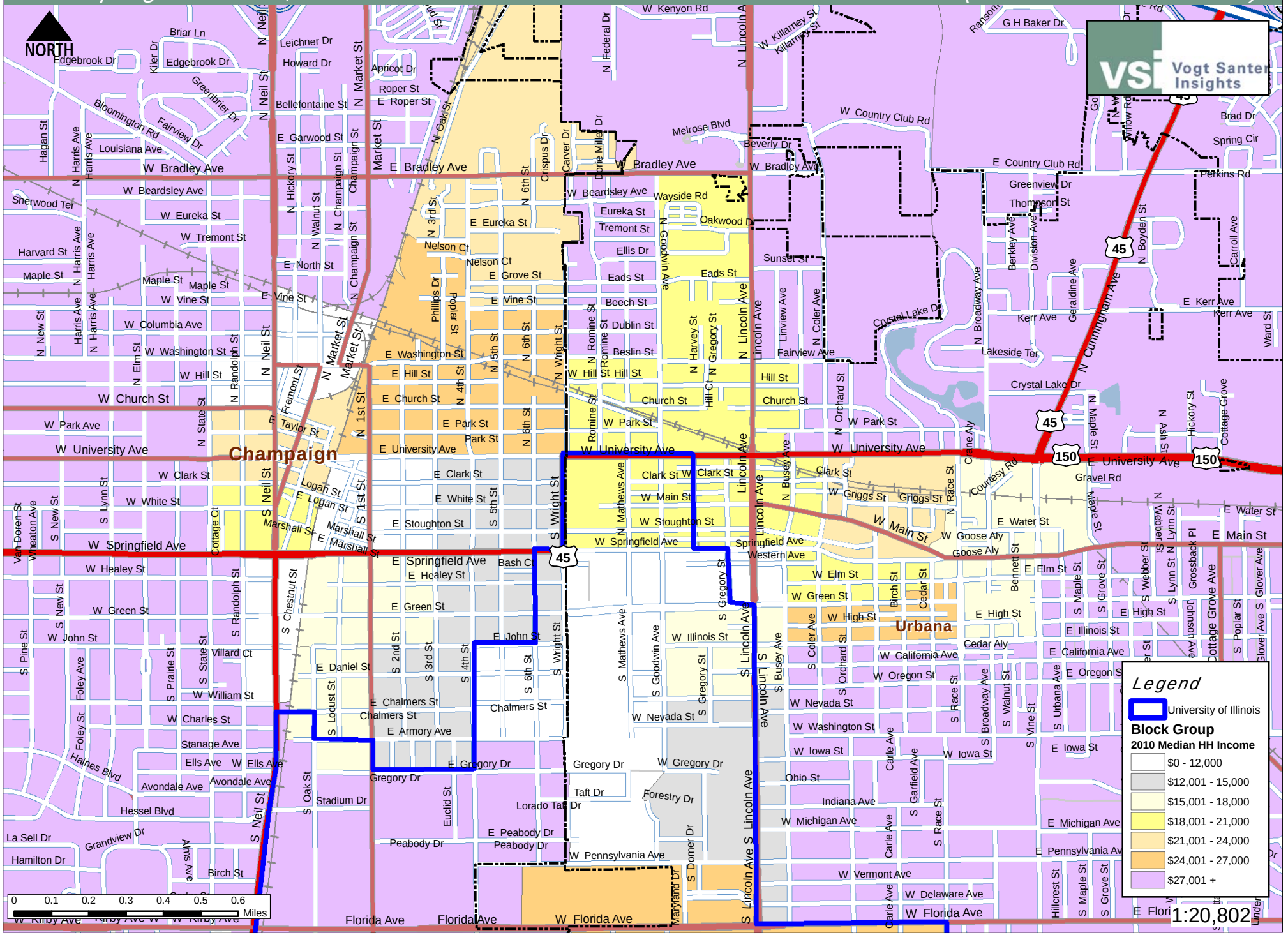
The maps in this section are focused on low-income households. The first series of maps is a detailed examination of the 2010 estimated median household income at the Census Block Group level. Only the Cities of Urbana and Champaign have entire Block Groups that have median incomes that fall below $30,000. The village of Rantoul only has a single Block Group with a median income that is below $30,000. The source of this data is ESRI. These maps are on pages D-60 through D-62.

The next series looks at the locations of Housing Choice Voucher holders. To maintain privacy of the Voucher holders, the locations of the Voucher holders were aggregated into one-quarter mile grid blocks and then displayed thematically on the maps. The source of this data is the Housing Authority of Champaign County. The maps on the pages D-63 through D-66 show the concentration of Voucher holders in the county, the Cities of Champaign and Urbana, and the Village of Rantoul.

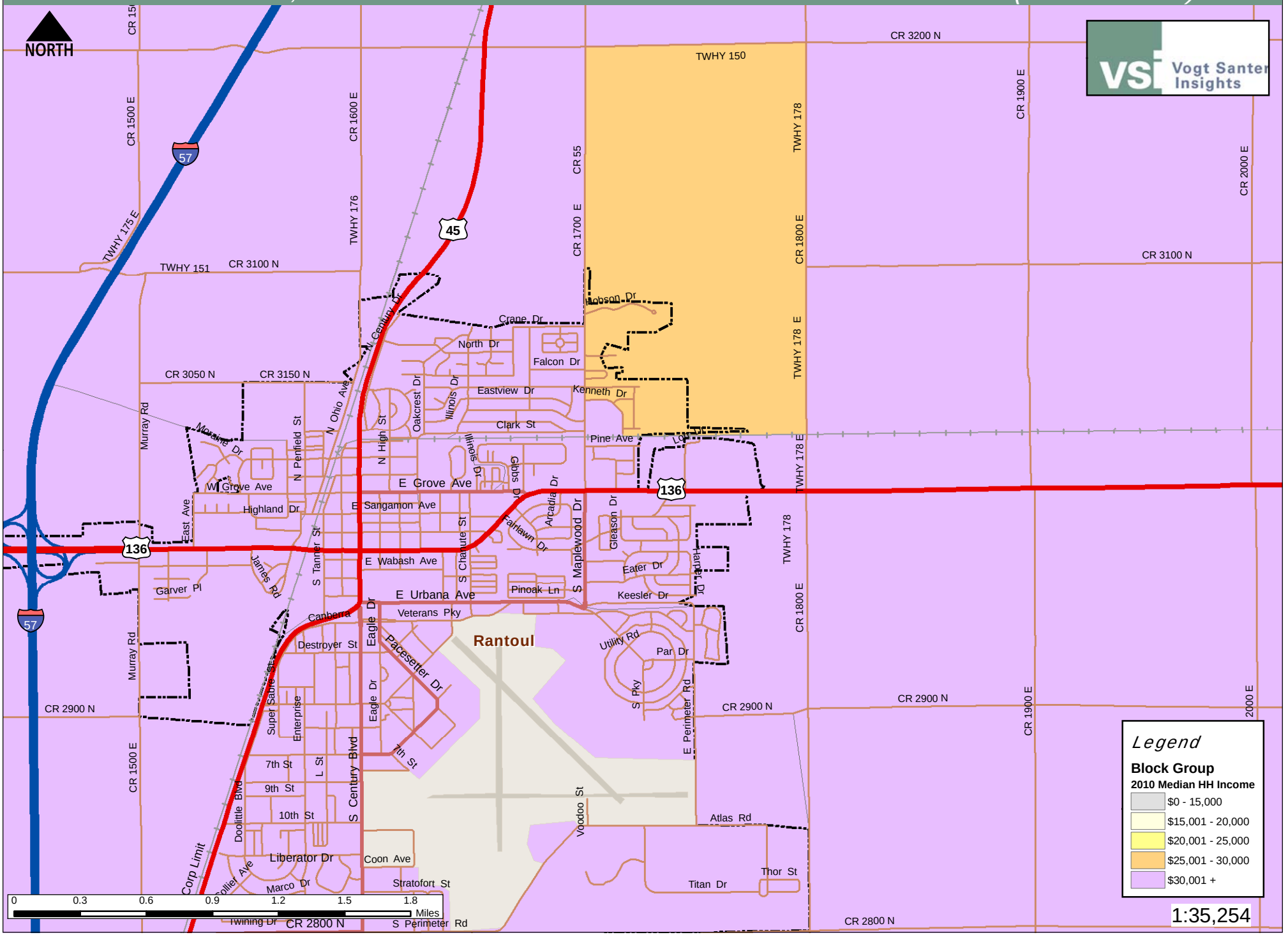
Champaign-Urbana: Concentrations of Low Income Households (2010 MHHI)



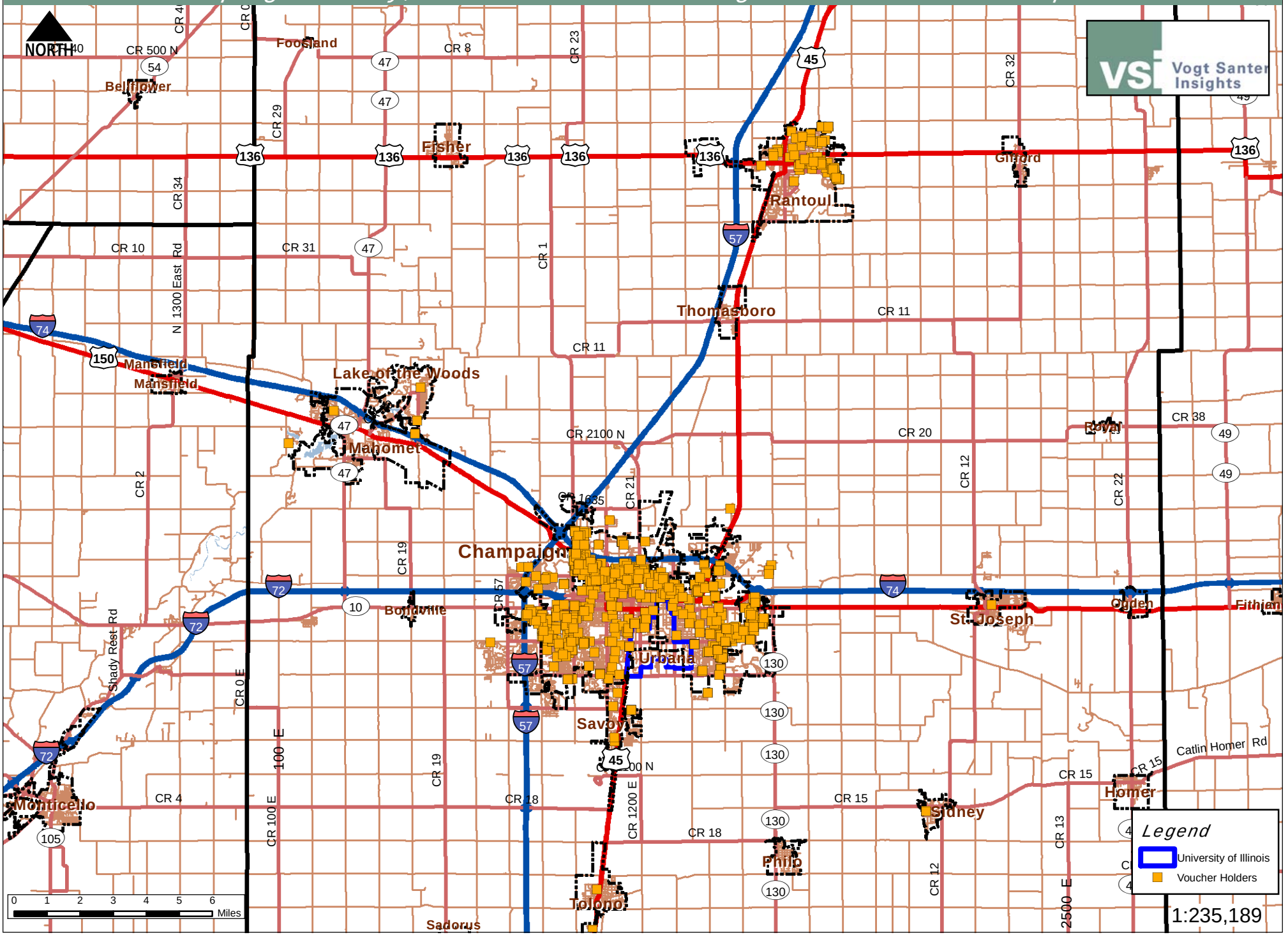
Champaign-Urbana, IL: Concentrations of Low Income Households (Detailed 2010 MHHI)



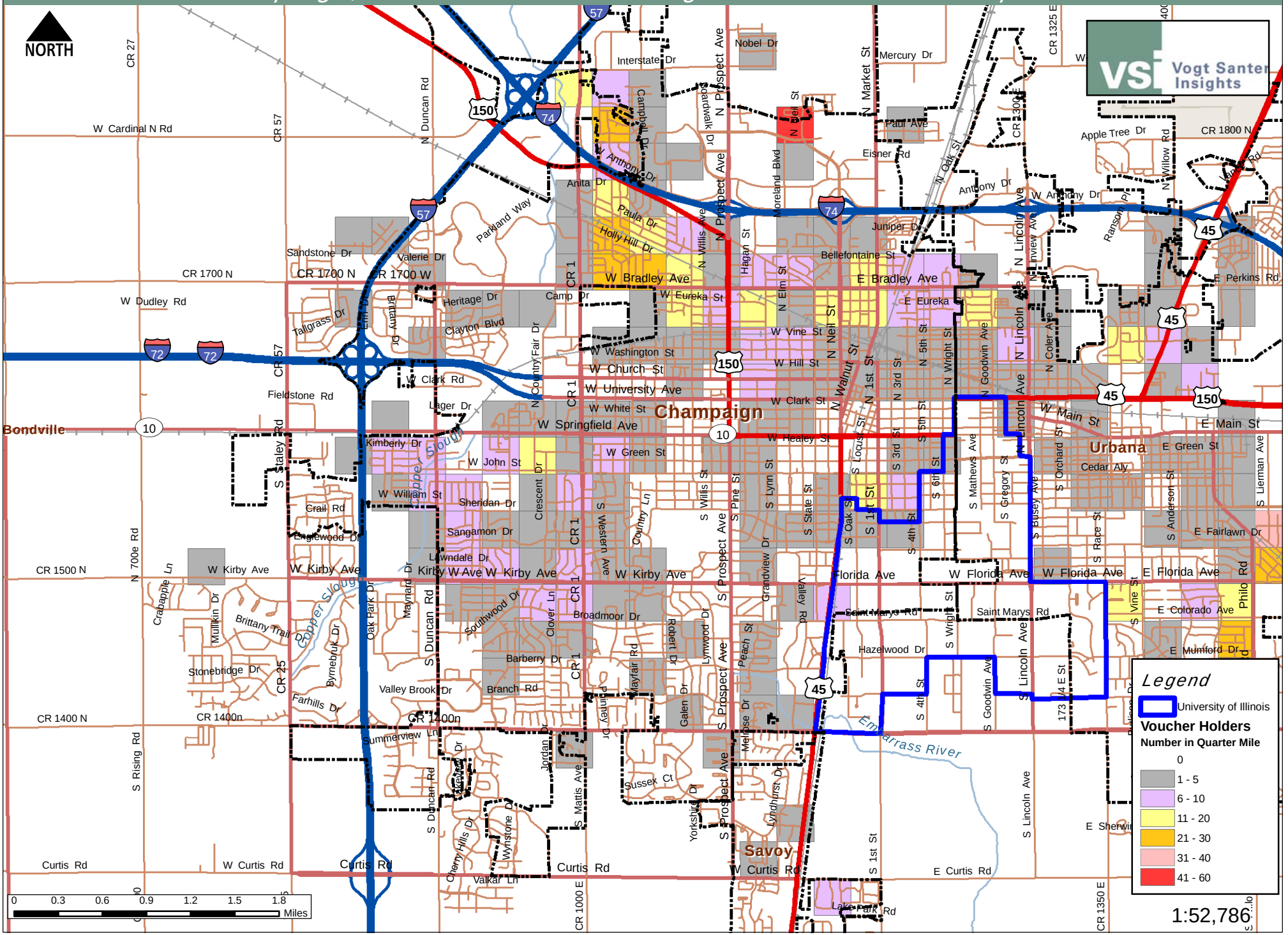
Rantoul, IL: Concentrations of Low Income Households (2010 MHHI)



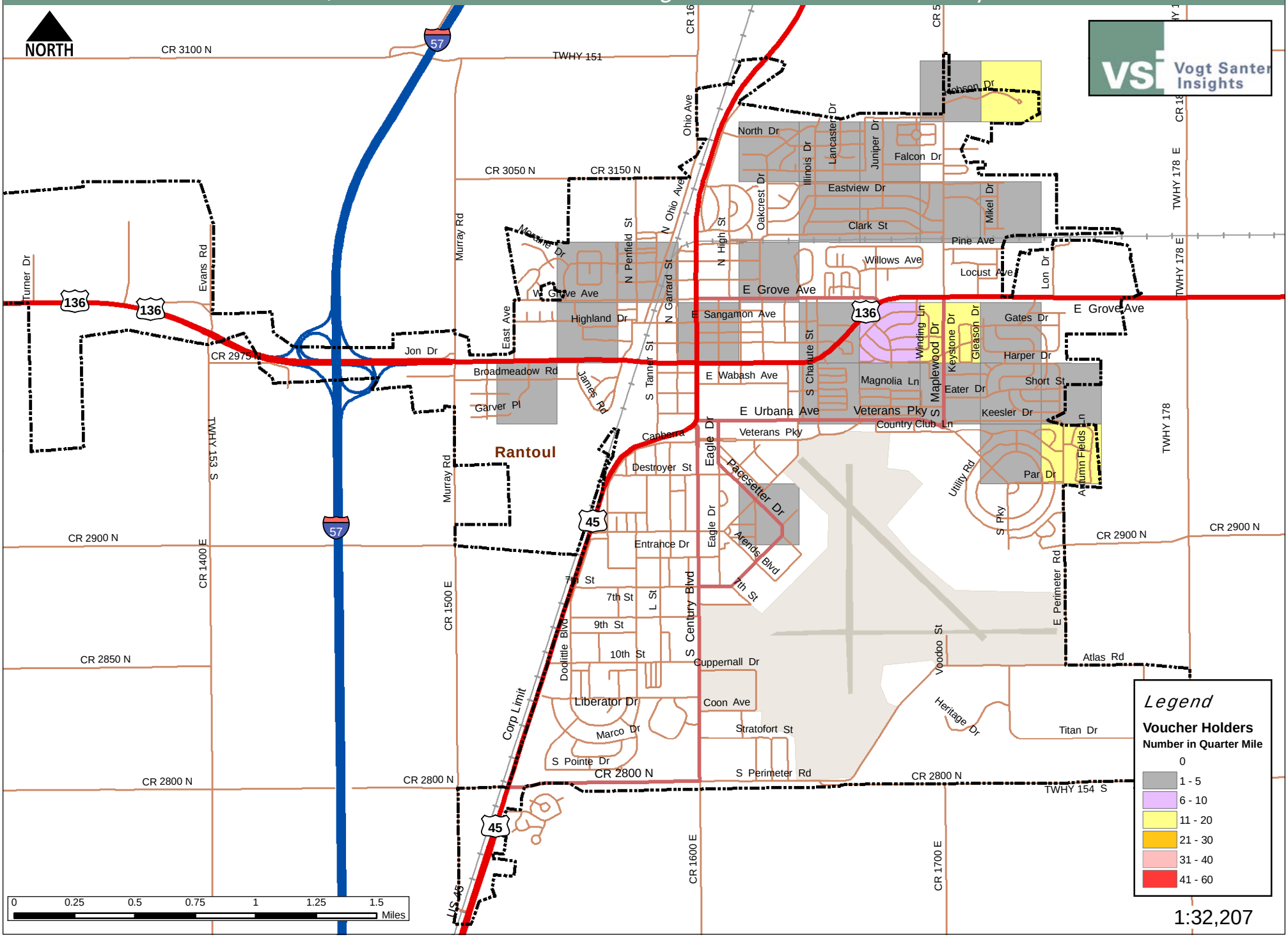
Champaign County, IL: Location of Housing Choice Voucher Recipients



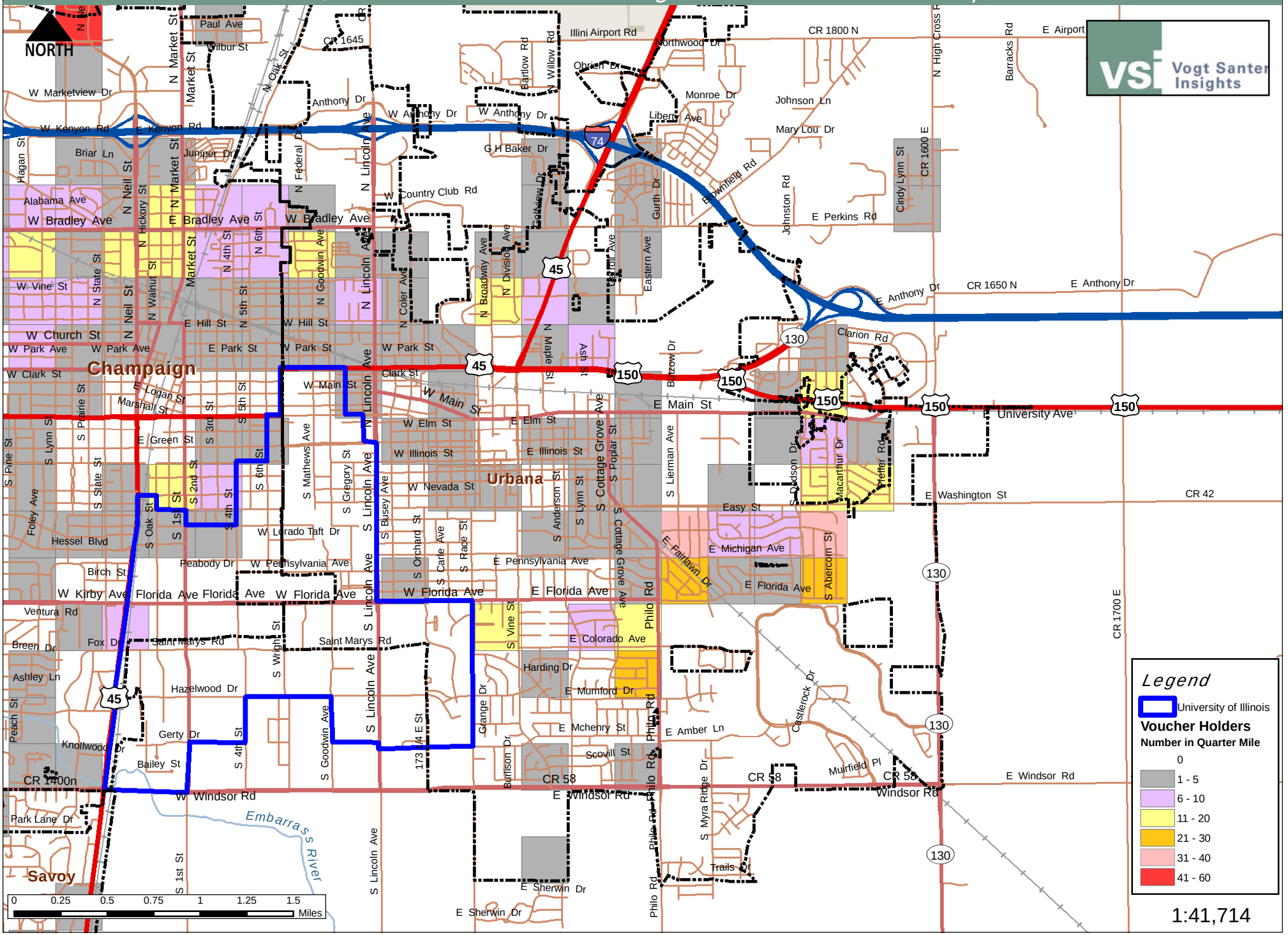
Champaign, IL: Location of Housing Choice Voucher Recipients



Rantoul, IL: Location of Housing Choice Voucher Recipients



Urbana, IL: Location of Housing Choice Voucher Recipients



Racial Composition Maps and Diversity Indices

The following sets of maps are provided to illustrate the racial composition of the county. For both sets, the data is provided by ESRI.

The first series of maps show the distribution of the non-white population throughout the county. There are really only three areas in the county with any significant diversity. The map on page D-68 illustrates this point.

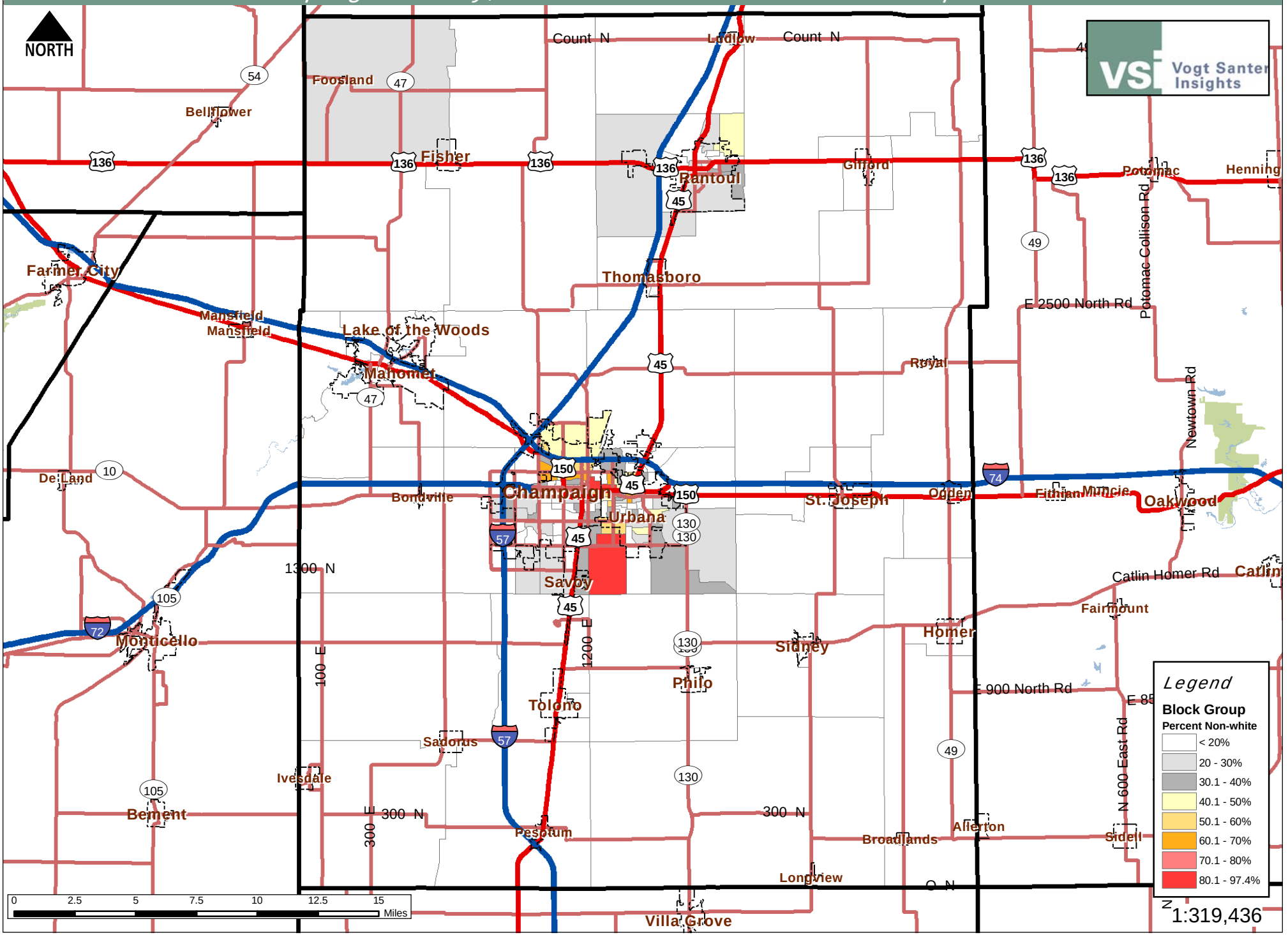
These maps are population-based and are aggregated at the Block Group level. Another way of quantifying the diversity of an area is to employ a statistic called the diversity index. The diversity index can range from zero to 100. It represents the likelihood that two people chosen at random would belong to different races. A low number indicates that there is very little diversity and a higher number indicates that there are people of many different races living in the area. A value of 50 indicates that there is an equal probability that any two people chosen at random would belong to different races. In the U.S., the diversity index in 2000 was 54.6. In 2010, the diversity index for the U.S. is estimated to be 61.0 and in 2015 it is projected to be 63.4. The state of Illinois in 2000 had a diversity index of 55.8. In 2010, the diversity index for Illinois is estimated to be 61.3 and in 2015 it is projected to be 63.3. Based on these values it appears the state of Illinois is a good indicator of diversity in the nation as a whole. The diversity index for Champaign County in 2000 was 39.9. In 2010, the diversity index is estimated to be 46.3 and in 2015 it is projected to be 48.2. Though these levels are much lower than the State's, the county is becoming more diverse.

The Cities of Champaign and Urbana are by far the most diverse areas in the county (see maps on pages D-69 and D-70). The City of Champaign had a diversity index in 2000 of 47.9. In 2010, the diversity index for the City is estimated to be 47.9 and in 2015 it is projected to be 56.9. The City of Urbana had a diversity index in 2000 of 53.8. In 2010, the diversity index for the City is estimated to be 59.5 and in 2015 it is projected to be 61.2. Both Cities are becoming more diverse at approximately the same rate.

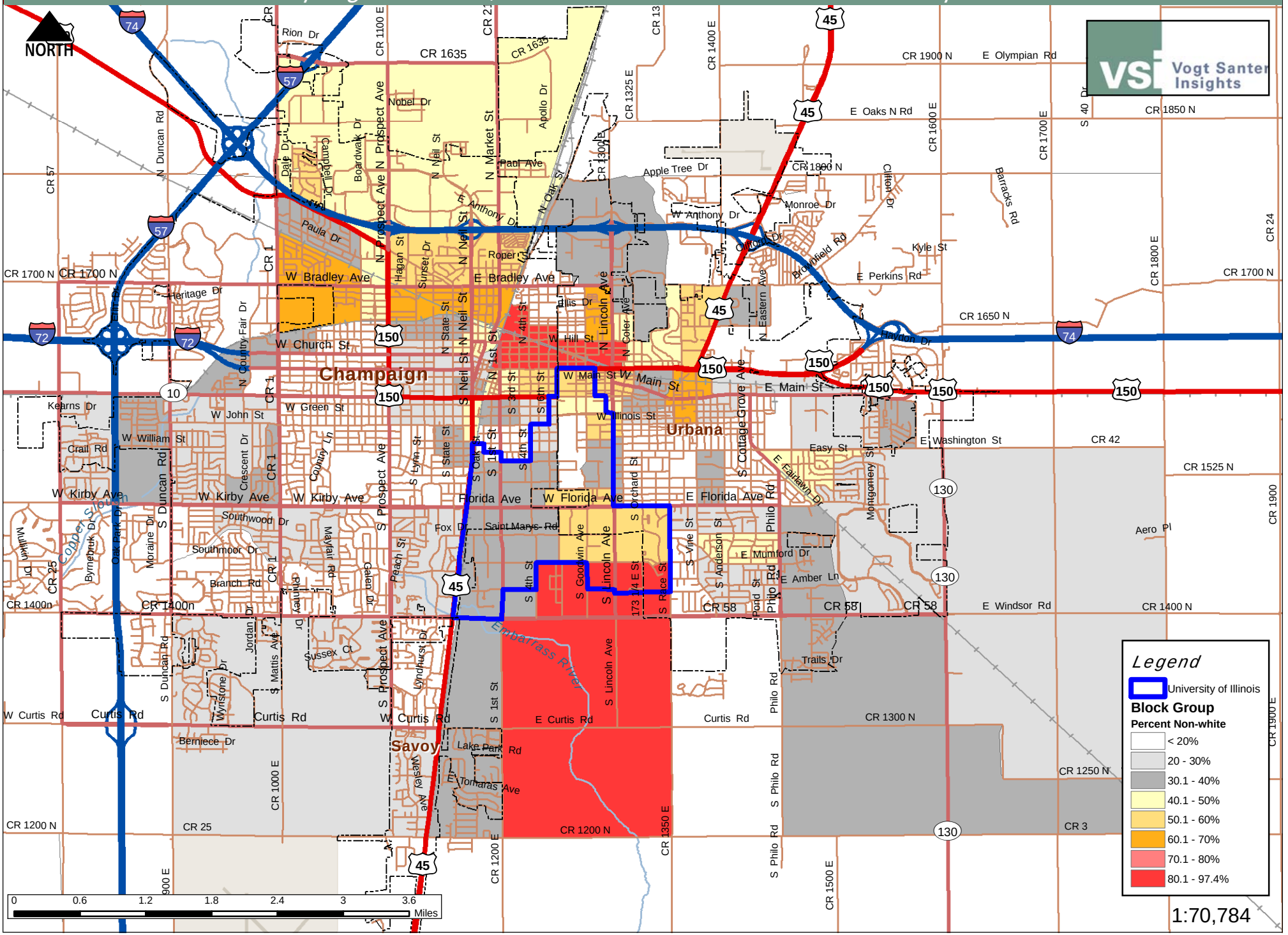
The Village of Rantoul had a diversity index of 41.5. In 2010, it is estimated to be 46.8 and in 2015 it is projected to be 48.2. The map on page D-71 shows the diversity of the population in and around Rantoul.

The second series of maps is provided to illustrate the presence of the Hispanic ethnic population throughout the county. Hispanic ethnicity can belong to any race so the Census provides a second category to count this segment of the population. In other words, Hispanics are accounted for in the racial composition maps and are separated out in the Hispanic population maps. These maps can be found on pages D-72 through D-75.

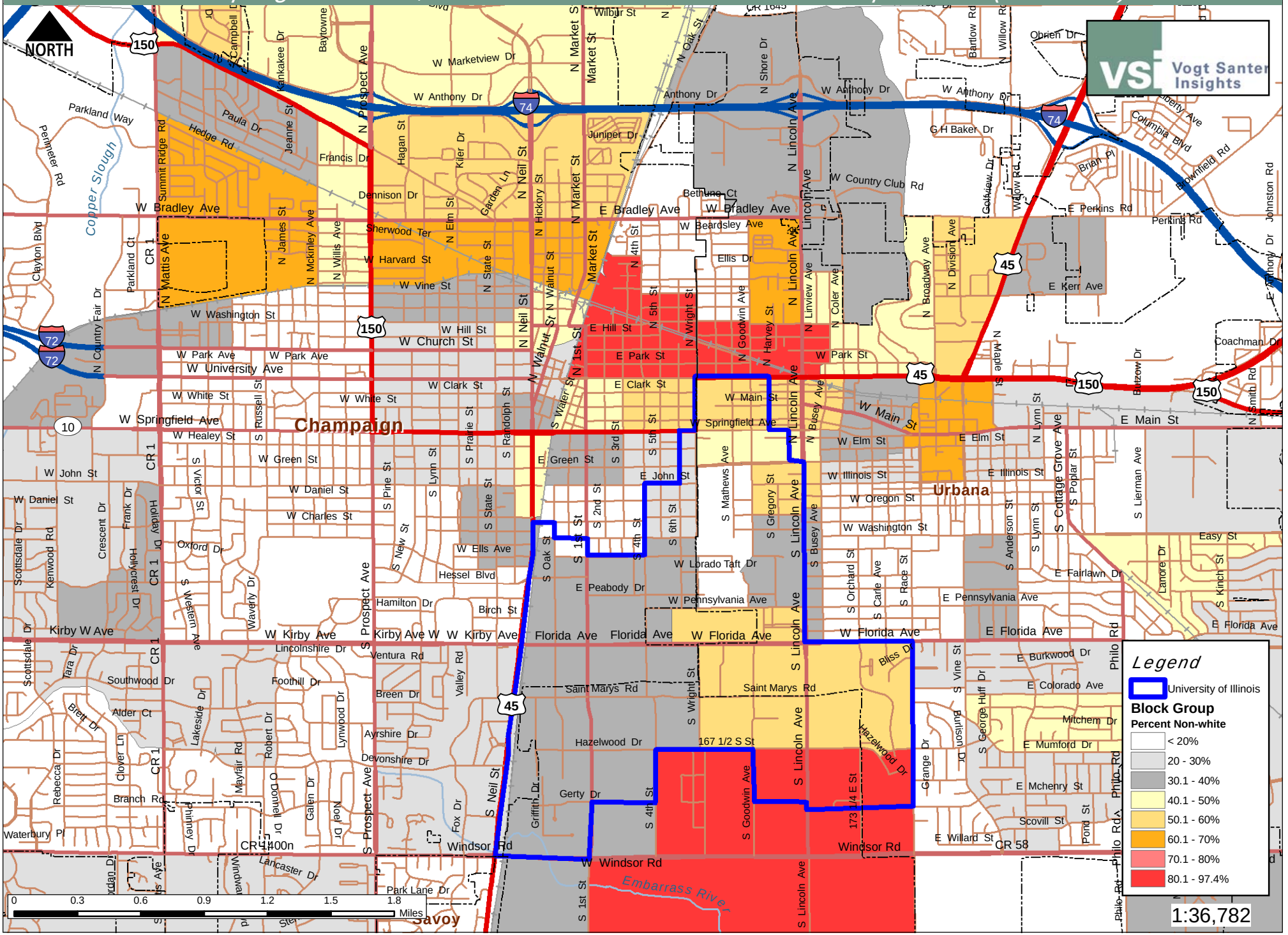
Champaign County, IL: 2010 Estimated Racial Composition



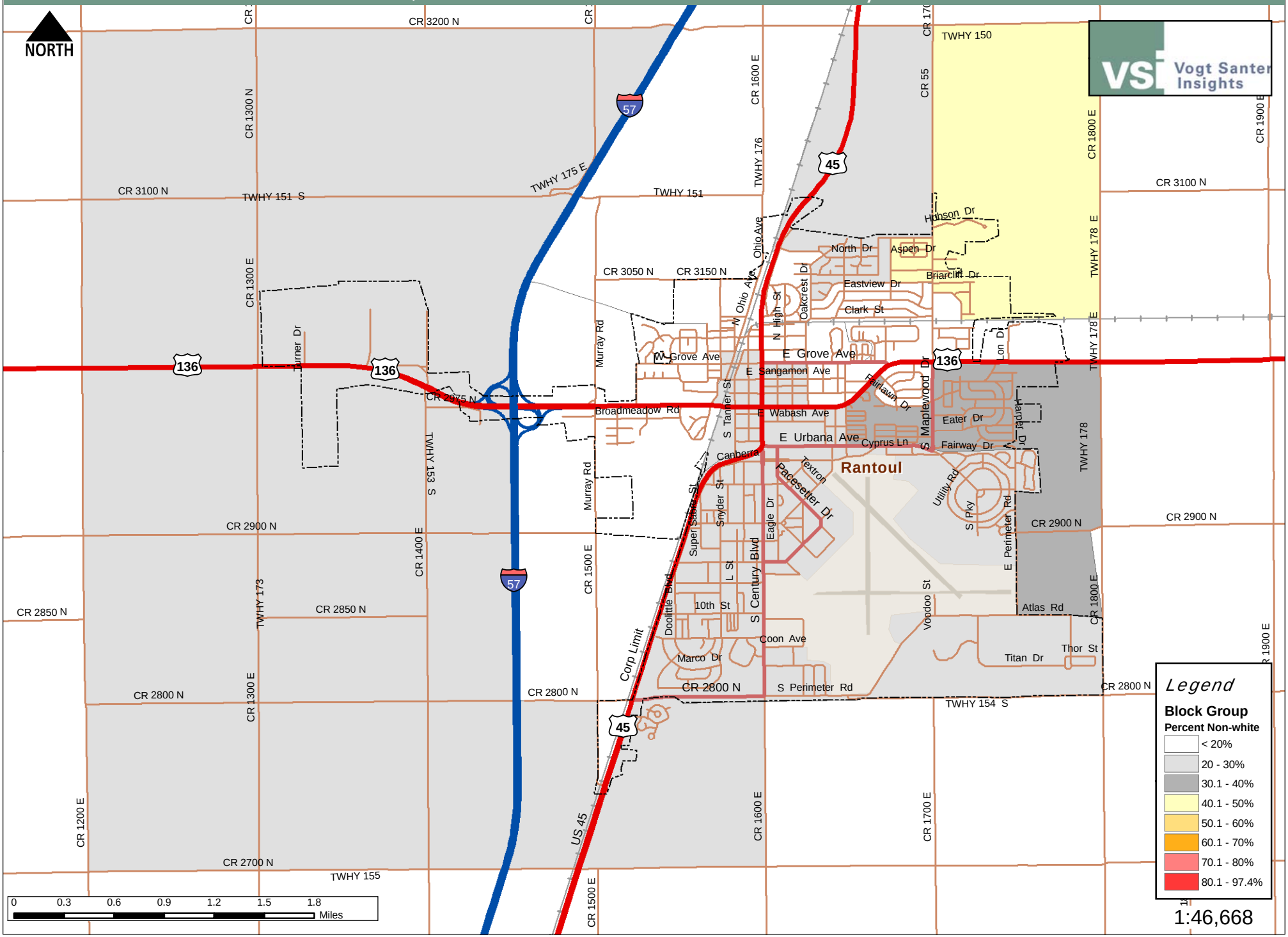
Champaign-Urbana, IL: 2010 Estimated Racial Composition



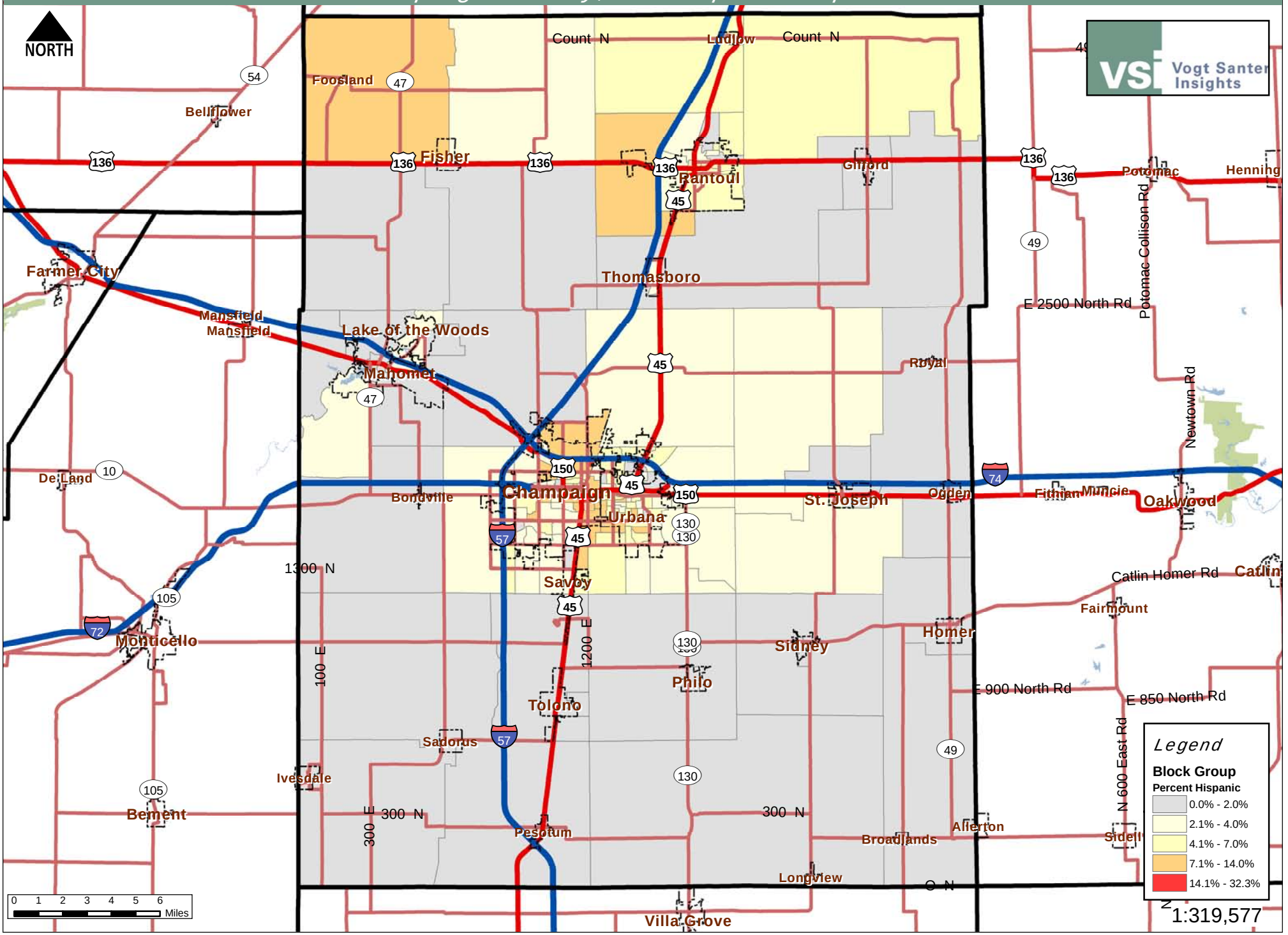
Champaign-Urbana, IL: 2010 Estimated Racial Composition (Detailed)



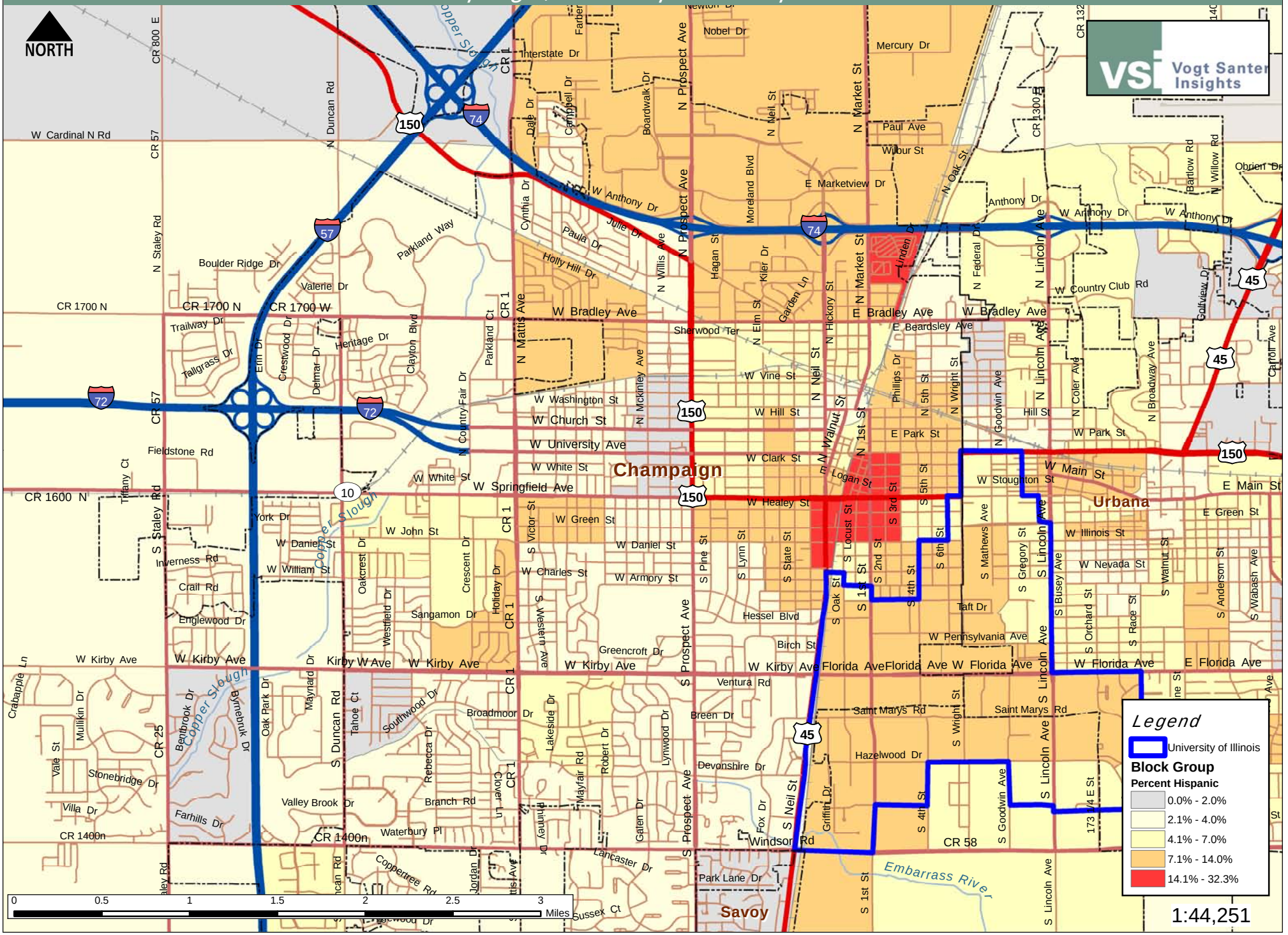
Rantoul, IL: 2010 Estimated Racial Composition



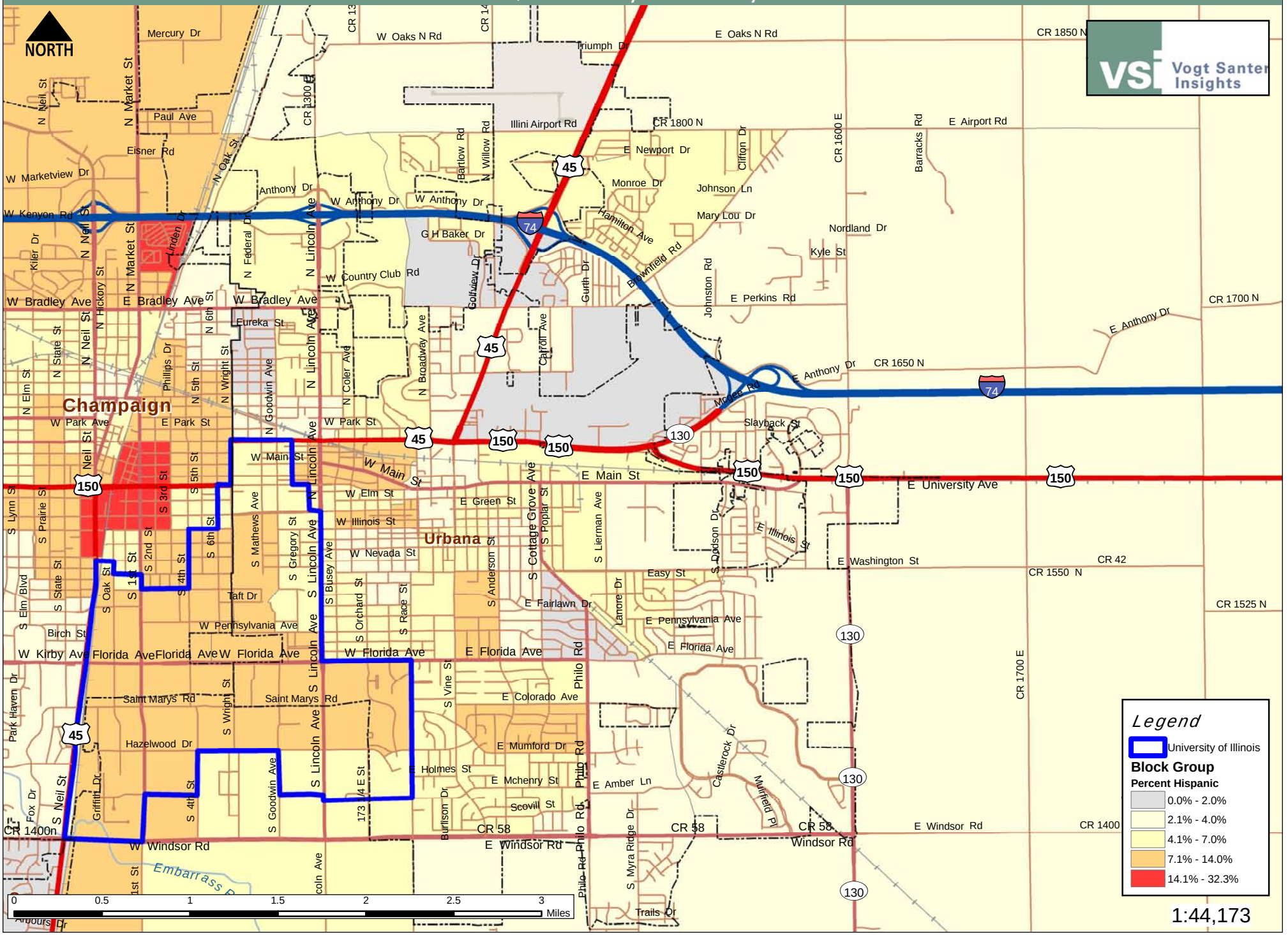
Champaign County, IL: Hispanic Population



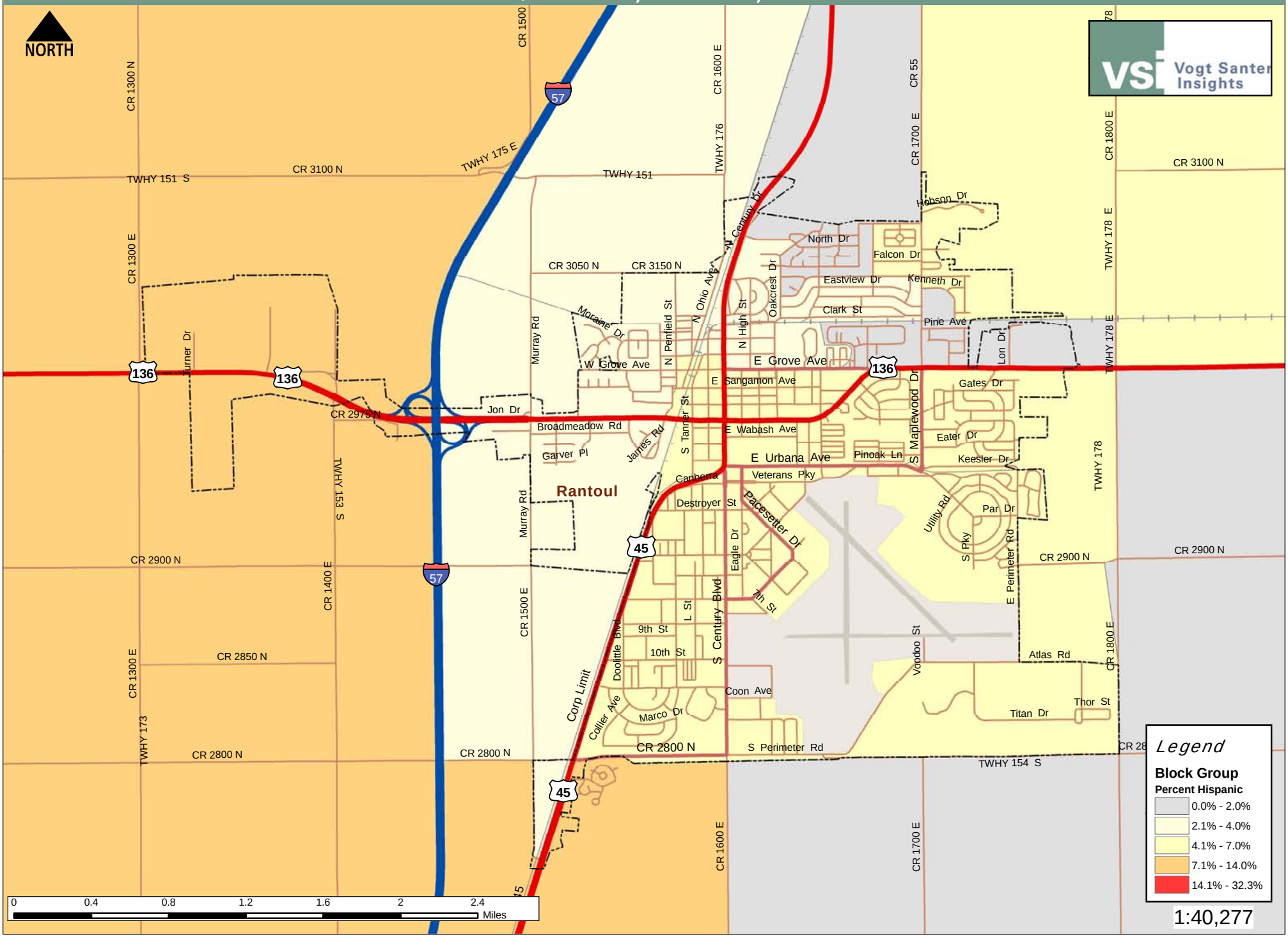
Champaign, IL: Hispanic Population



Urbana, IL: Hispanic Population



Rantoul, IL: Hispanic Population



Employment Maps

The presence and location of jobs is a key indicator of the health of any housing market. Housing is dependent upon an adequate supply of jobs at all pay levels. Housing is considered a lagging indicator of employment, which means changes in the employment market typically take a while to affect the housing market. Basically, as employment goes, so goes housing. The employment information contained in this section uses data provided by InfoGroup (formally InfoUSA).

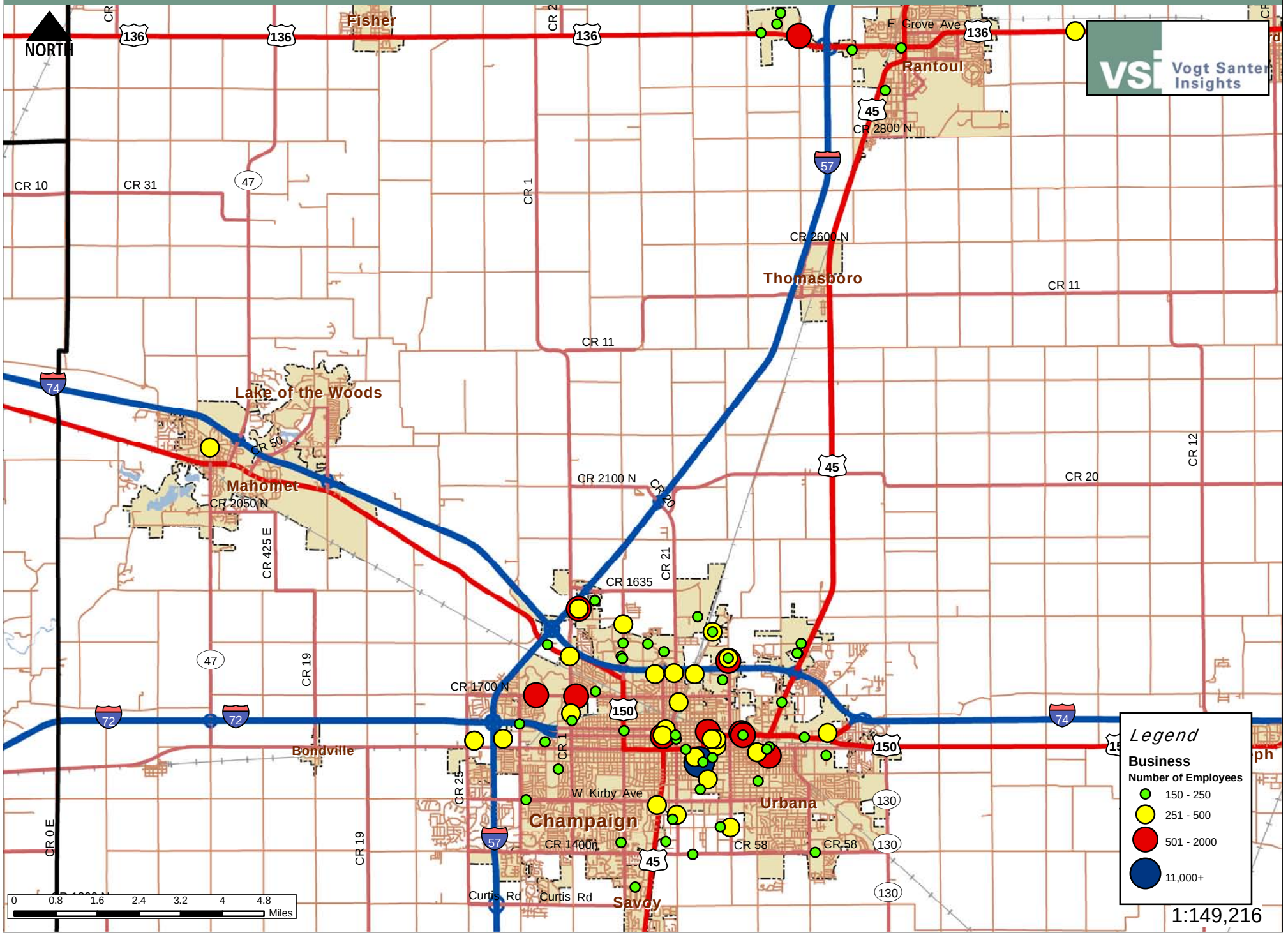
The following maps addresses employment in several different ways. The first series of maps shows the exact location of *major* employers by using proportional symbols to represent the number of employees at each location. In other words, the symbols get larger as the number of employees increases. These maps can be found on pages D-77 through D-79.

The second series of maps aggregates *all* employers at the Block Group level. It simply illustrates the total number of employers (public and private) that are located within a certain area. These maps can be found on pages D-81 through D-84.

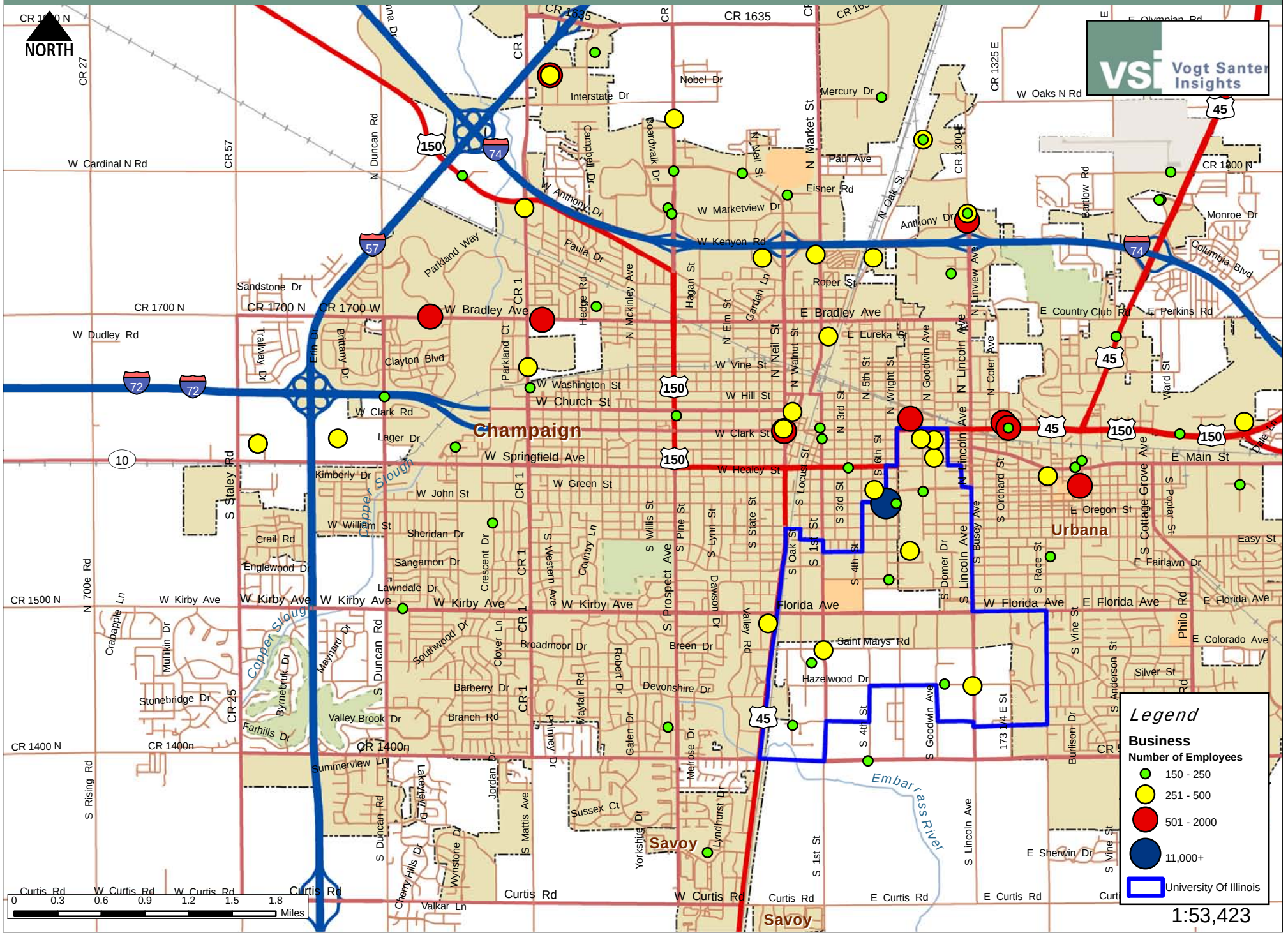
The third and final series of maps in this section is focused on the total number of employees being utilized. This too is aggregated at the Block Group level. These maps are located on pages D-85 through D-88.

When viewed together, these employment maps paint a pretty good picture of the locations of the jobs and the locations of the employees.

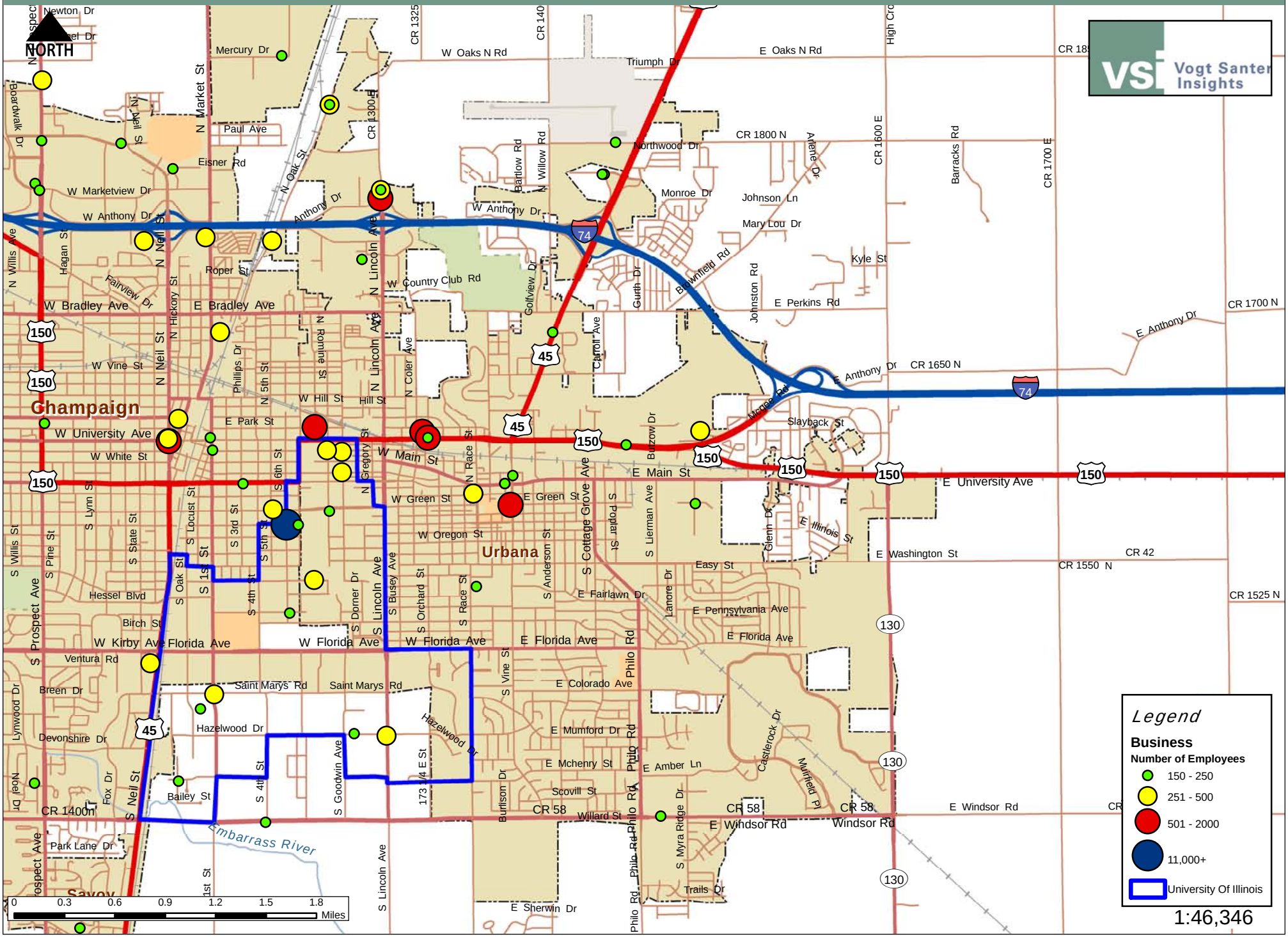
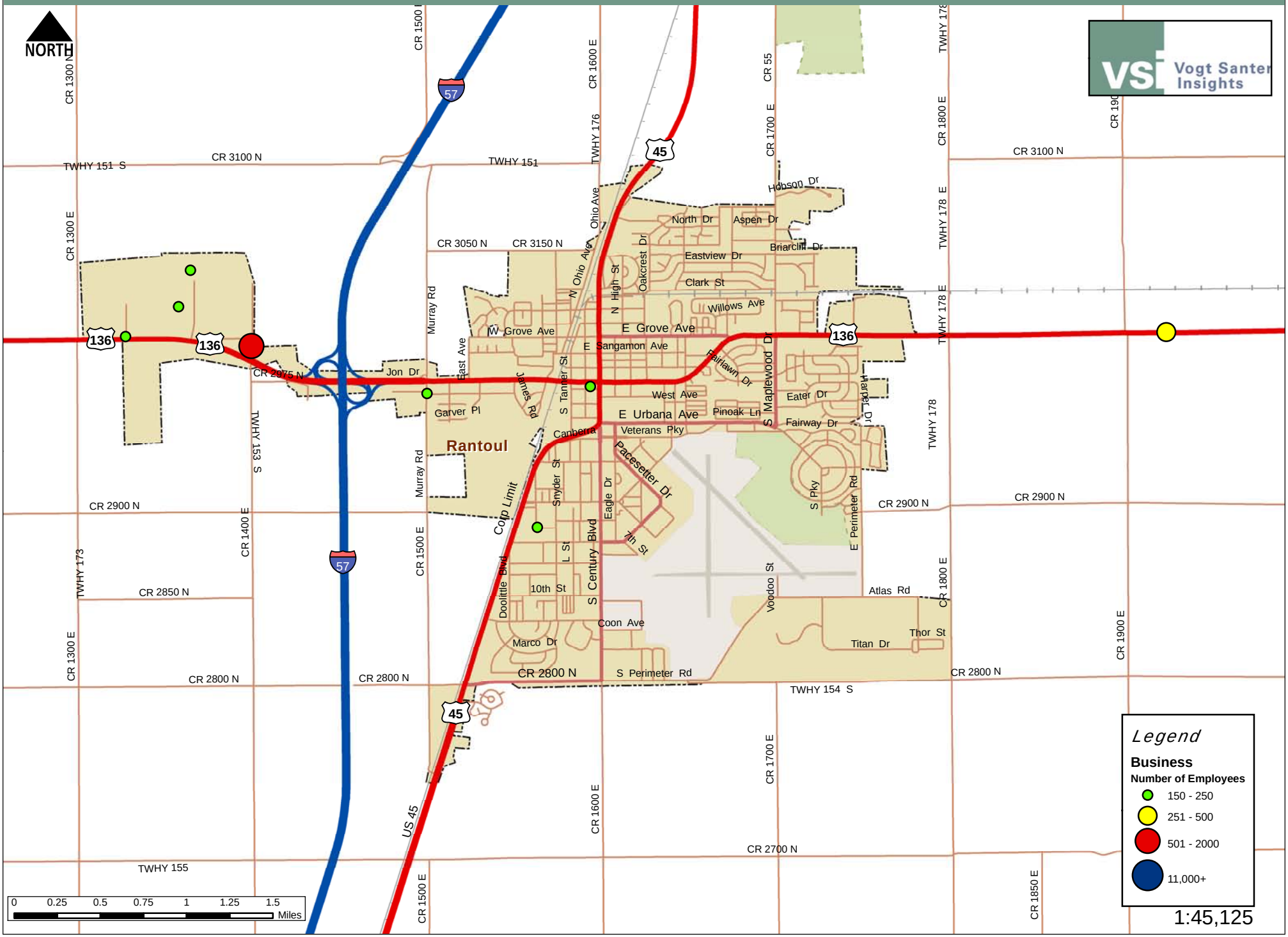
Champaign County, IL: Location of Major Employers



Champaign, IL: Location of Major Employers



Urbana, IL: Location of Major Employers



Rantoul, IL: Location of Major Employers