

Analysis of Residential Property Sales in Canadian County



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Introduction

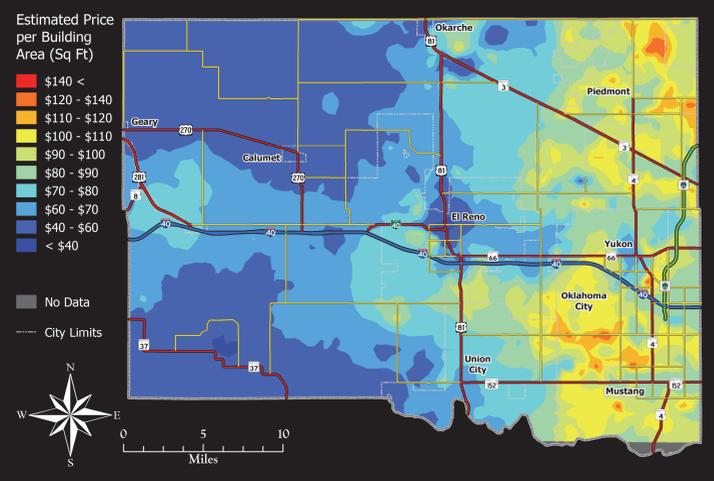
Property taxes, also known as ad valorem taxes, are taxes that are levied at a percentage of the value of the property in question. In order to support this system of taxation, accurate values must be calculated for each property within a jurisdiction. In Oklahoma, the County Assessor is responsible for determining the value of each property within the county. The value to be determined for most property is the "fair cash value" or "fair market value" which is an estimate of the price a willing buyer and seller would agree on to exchange the property. Location is always said to be a large determining factor in the fair market value of real estate. The best way to determine a market value is to compare current sales of property with properties that have not sold. This project explores the use of spatial analysis techniques to gauge the volume of sales in an area and determine the effect of location on property values from those sales.

Data Selection

The easiest way to determine market value is to look at the market by gathering data on current sales of similar properties. The underlying principle of this approach is that properties similar to the property that sold will sell for a similar value. Not all sales give an accurate view of market forces so it is necessary to select only those sales that are likely to reflect market value. For this project, only qualified residential sales were used. These are sales where a willing buyer and seller agree on a price in order to exchange ownership of the property. Unqualified sales do not reflect market value due to some extra circumstance which could include foreclosures, short sales, or sale between relatives. These do not reflect market value and are thus excluded from analysis. Commercial sales would obviously not reflect residential values and are also excluded. Agricultural sales are also excluded because the land sizes are generally larger and do not compare well to small residential lots. For this project, sales must also have improvements (house or other buildings) on the land instead of land only in order to normalize the sale price by the area of the improvement. All maps show analysis based on the

Current Value Estimation of All Residential Properties

Number of Residential Accounts (meeting sales analysis criteria)	40,847
Mean Estimated Value per Sq. Ft.	\$83.19
Median Estimated Value per Sq. Ft.	\$82.27



Residential Sale Analysis Results

Sales from each year are used as input in a kernel density function and in the Empirical Bayesian Kriging interpolation function in order to create an estimated sale density surface and sale price surface. The sale price is normalized by the square footage of the house on the property to provide a common scale for comparison.

The results shown in the series of maps below provide some insight into the dynamics of residential property values in Canadian County mainly within the urban areas where sales are dense enough for the interpolation function to make accurate estimations. Sale densities also remain consistent throughout the years analyzed. Densities are higher in more densely developed areas as would be expected and these are the areas where interpolation methods should produce the most accurate results. As with any interpolation method, areas with high data densities produce more accurate estimation results and areas with sparse data and the edges of the study area have much lower accuracies. These effects can be seen in the large areas of high or low estimations found outside dense data areas where there is not enough data to counter the effects of very high or low sales. Within the areas with dense sales, we see a few trends that are repeated throughout each year. First, there is an overall trend of increasing values when moving from west to east towards the Oklahoma City metro area. We also see that the centers of each municipality have lower values where houses tend to be older and therefore have higher depreciation. There are distinct areas close to the centers of the larger municipalities where new developments have resulted in higher property values overall. This can be seen southeast of downtown Yukon near State Highway 4 and I-40, south and west of downtown El Reno, and north and west of central Mustang. There are also higher values on the outskirts of all the municipalities where residential "estates" with larger land sizes are more common although the pattern is less defined due to lower sales densities. Comparing the analysis of sales below, particularly sales from 2015, to the current value estimates in the map to the left, there is a good amount of consistency in the estimation in high sale density areas where there is enough data to make accurate estimates from sales. This shows that current value estimations used for administering property taxes closely mirror current market conditions and trends.

Comparing Different Properties

In order to compare properties that are subject to the same market forces but have some differences in size or number of rooms, it is necessary to normalize sale prices by some unit so a similar scale can be used to measure all sales analyzed. Price per building area (square foot) is the most common unit used to compare residential properties within the world of appraisal as well as the general public. Estimated values shown in the maps below have been normalized in this way. The examples to the left are sales from 2015 less than a mile from each other and show a large difference in sale price due to the difference in size but similarities in the sale price per square foot which provides insight into the values of properties around the two sales. The examples to the right are not in close geographic proximity and show extreme differences in value per square foot caused by several factors including location.



2011 Residential Sales

Sale Count	884
Mean Sale Price per Building Sq. Ft.	\$81.86
Median Sale Price per Building Sq. Ft.	\$82.23

2012 Residential Sales

Sale Count	1,142
Mean Sale Price per Building Sq. Ft.	\$81.73
Median Sale Price per Building Sq. Ft.	\$83.31

2013 Residential Sales

Sale Count	935
Mean Sale Price per Building Sq. Ft.	\$86.94
Median Sale Price per Building Sq. Ft.	\$88.00

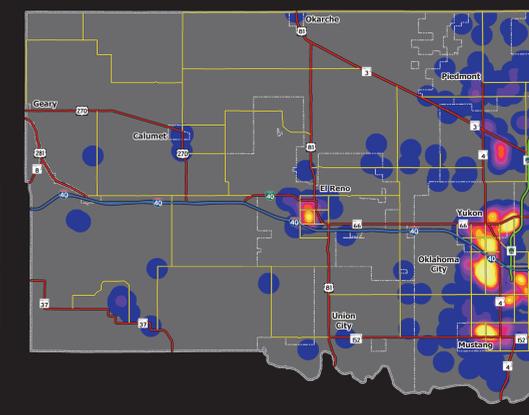
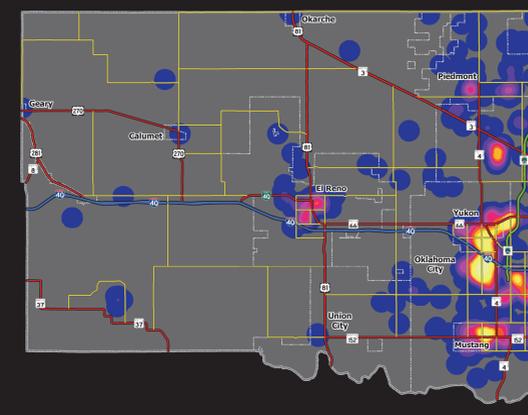
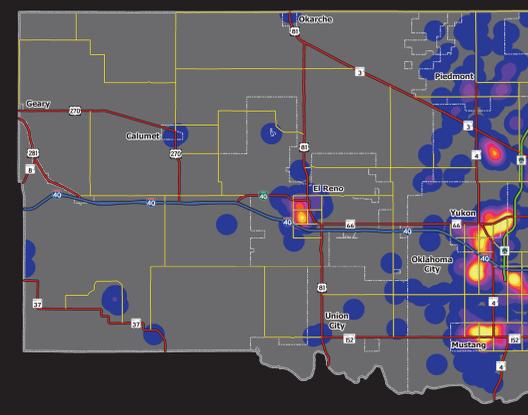
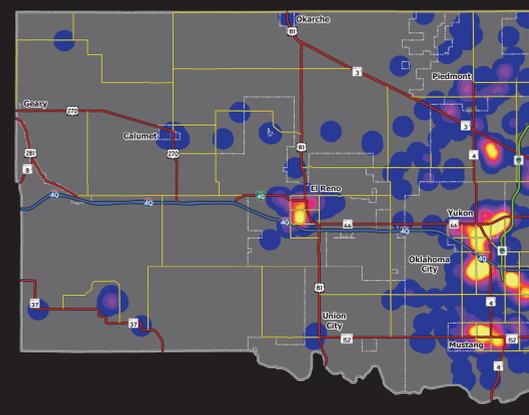
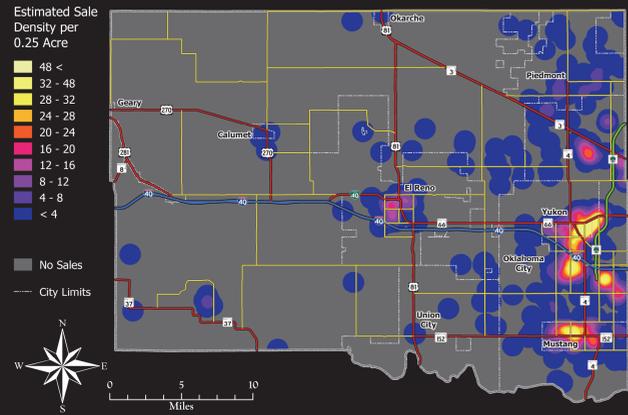
2014 Residential Sales

Sale Count	1,049
Mean Sale Price per Building Sq. Ft.	\$90.37
Median Sale Price per Building Sq. Ft.	\$90.63

2015 Residential Sales

Sale Count	1,042
Mean Sale Price per Building Sq. Ft.	\$94.53
Median Sale Price per Building Sq. Ft.	\$94.99

Estimated Residential Sale Density (per 1/4 Acre)



Estimated Residential Sale Price (per Building Sq Ft)

