Capital Projects Effect on Surrounding Neighborhoods

Introduction

This project explores the effect that capital projects in Syracuse, NY have on their surrounding neighborhoods. It looks at density of development in the city by creating a multi-buffer map based off of capital project value. To see the effect these projects have on their surroundings, comparisons in the change of house value and median rent from 2011 to 2016, and building permit project valuation from 2013 to 2017 within the buffers are made. It also maps capital projects trends and building permit density. My main research question was:

- Do capital projects lead to neighborhood change in the places where they are developed (i.e. affect cost of living, increase development)?
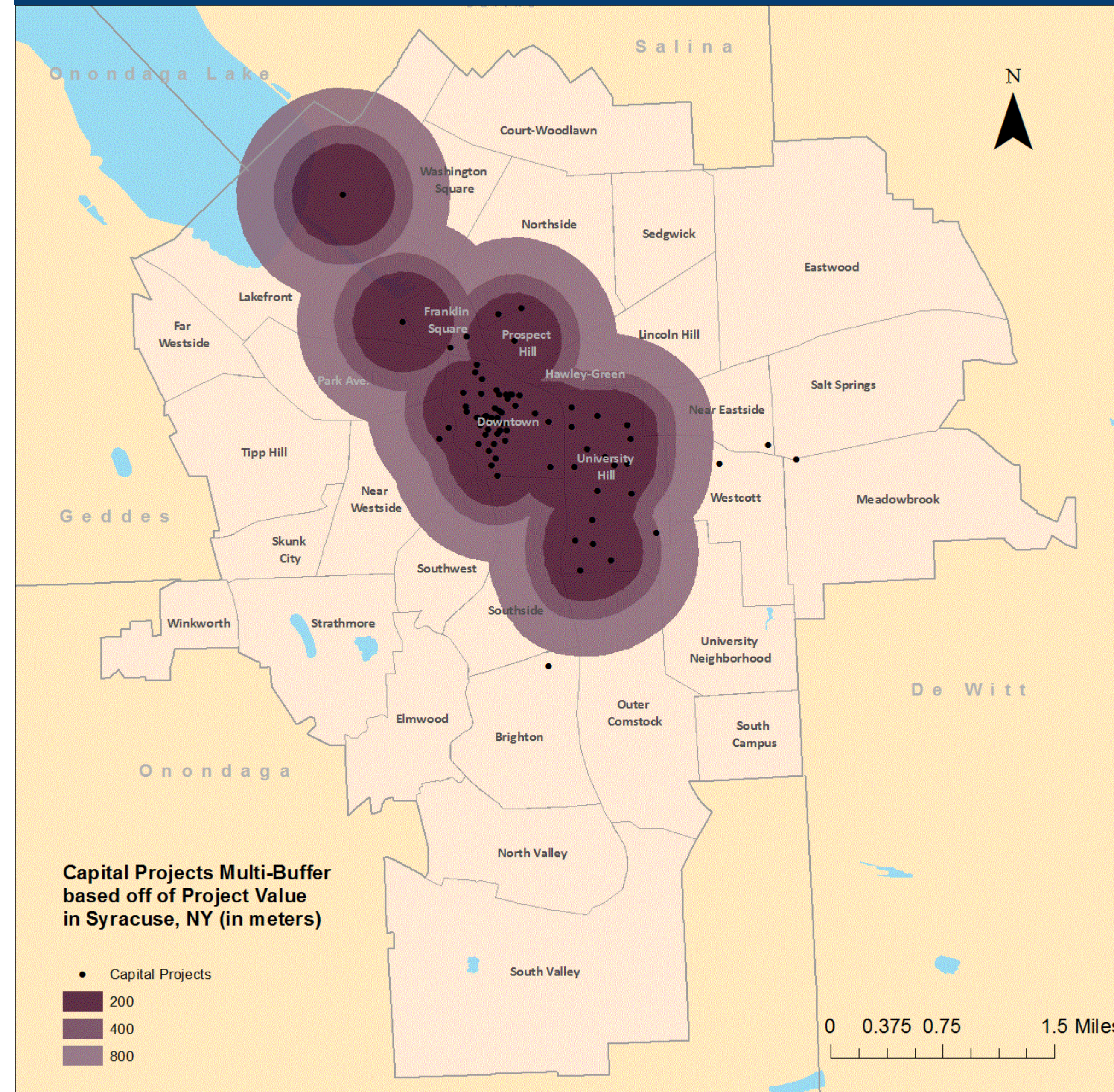
Methods

Figure 1: For this map, capital investments in Syracuse were first mapped as points, and then re-classed so that the highest density areas were coded as 1 and everything else was coded as 0. This showed the heart of the development area. Next, the Euclidean distance was used to create concentric zones (buffers), to create areas where different variables could be compared over time. Data was provided by the Downtown Committee of Syracuse.

Figures 2-4: For these maps, I selected by attribute to select years 2013 and 2017 and compare the two. I then selected by attribute again to select only residential and commercial remodels, and new 1-2 family homes and new commercial construction. Next, I used the kernel density tool to create density (in acres) to view the value density over time. Building permit data is from Syracuse Open Data.

Figure 5: This map was made using the directional distribution tool to create an ellipsoid to show the trend of capital investments in Syracuse. I used capital projects as the input feature class and used investment amount as the weight field. Data was provided by the Downtown Committee of Syracuse.

Tables: These tables show the results of the sum of house value and median gross rent of 2011 compared to 2016. To calculate these sums I did a spatial join of this data to the multi-buffer previously created. As the buffer zones cut through the census tracts, the sum of house value and median gross rent was calculated for the total of all three buffers. Data is from the American Community Survey 5-year estimates.

Figure 1: Capital Projects Multi-Buffer

Capital Projects Multi-Buffer based off of Project Value in Syracuse, NY (in meters)

- Capital Projects
- 200
- 400
- 800

0 0.375 0.75 1.5 Miles

Results and Conclusions

Each map, especially Figure 5, shows a clear trend of development in Syracuse. Based off of this development trend, it is clear that this development and capital projects have an impact on their surrounding neighborhoods. This can be seen as the sum of the project valuations of building permits increase the closer to the center of the buffers and ellipsoid. Comparing year to year, while the increases are modest, each for each variable, every buffer but one (building permit project valuation in the 400 meter buffer) saw an increase.

2011 Sum of House Value	
200	1099200
400	1478600
800	2173900

2016 Sum of House Value	
200	1146895
400	1595996
800	2313670

2011 Sum of Median Rent	
200	10787
400	13790
800	19343

2016 Sum of Median Rent	
200	11543
400	14539
800	20298

2013 Building Permit Project Valuation	
200	18629595
400	6091269
800	1577318

2017 Building Permit Project Valuation	
200	26972866
400	3037431
800	5819205

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Figure 2: Building Permit Density 2013

2013 Building Permit Density (in Acres)
- 0 - 73.45
- 73.45 - 254.26
- 254.26 - 514.18
- 514.18 - 864.51
- 864.51 - 1,440.85

0 0.375 0.75 1.5 Miles
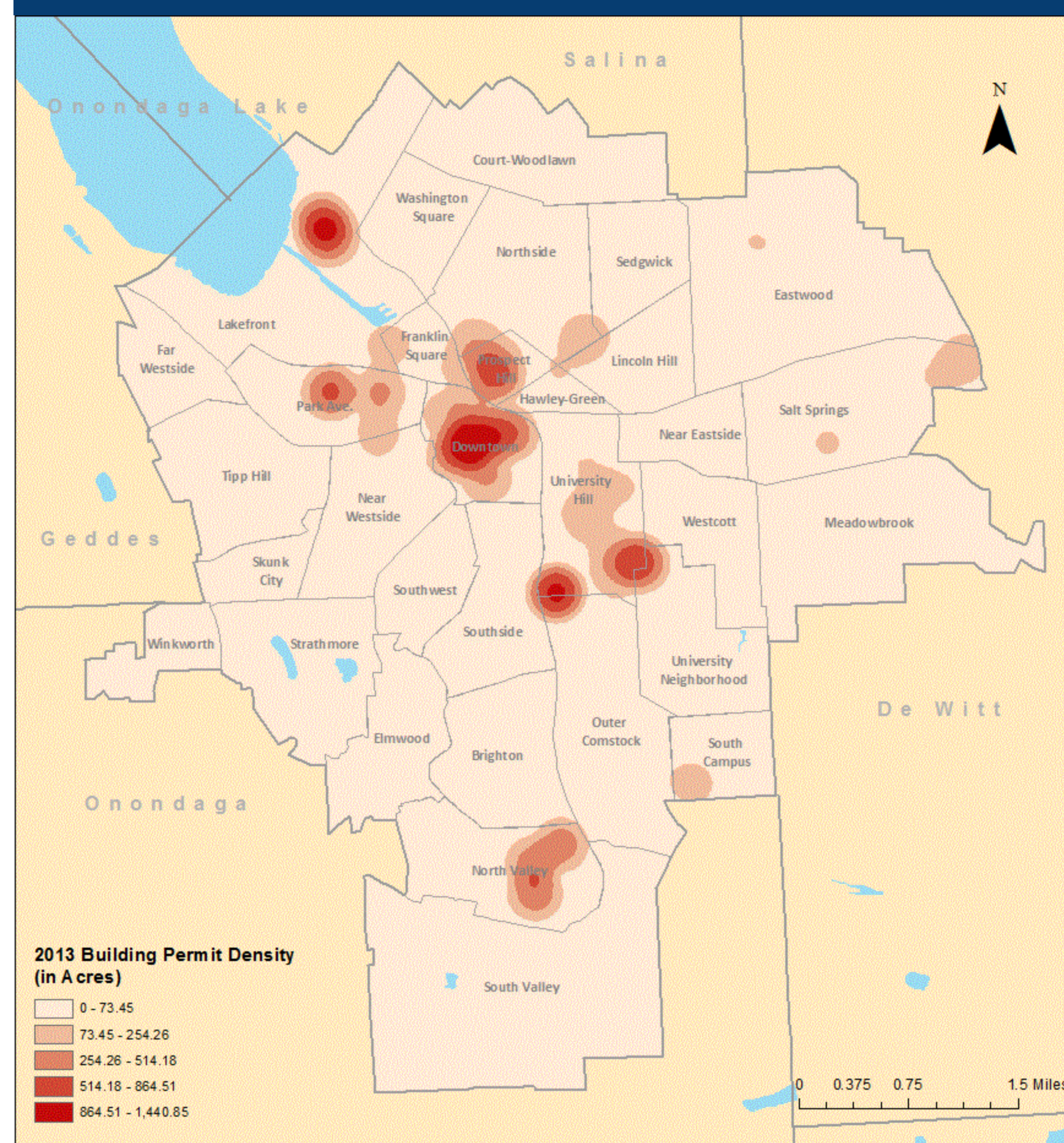
Figure 3: Building Permit Density 2017

2017 Building Permit Density (in Acres)
- 0 - 46.84
- 46.84 - 185.60
- 185.60 - 410.28
- 410.28 - 713.12
- 713.12 - 1,245.52

0 0.375 0.75 1.5 Miles
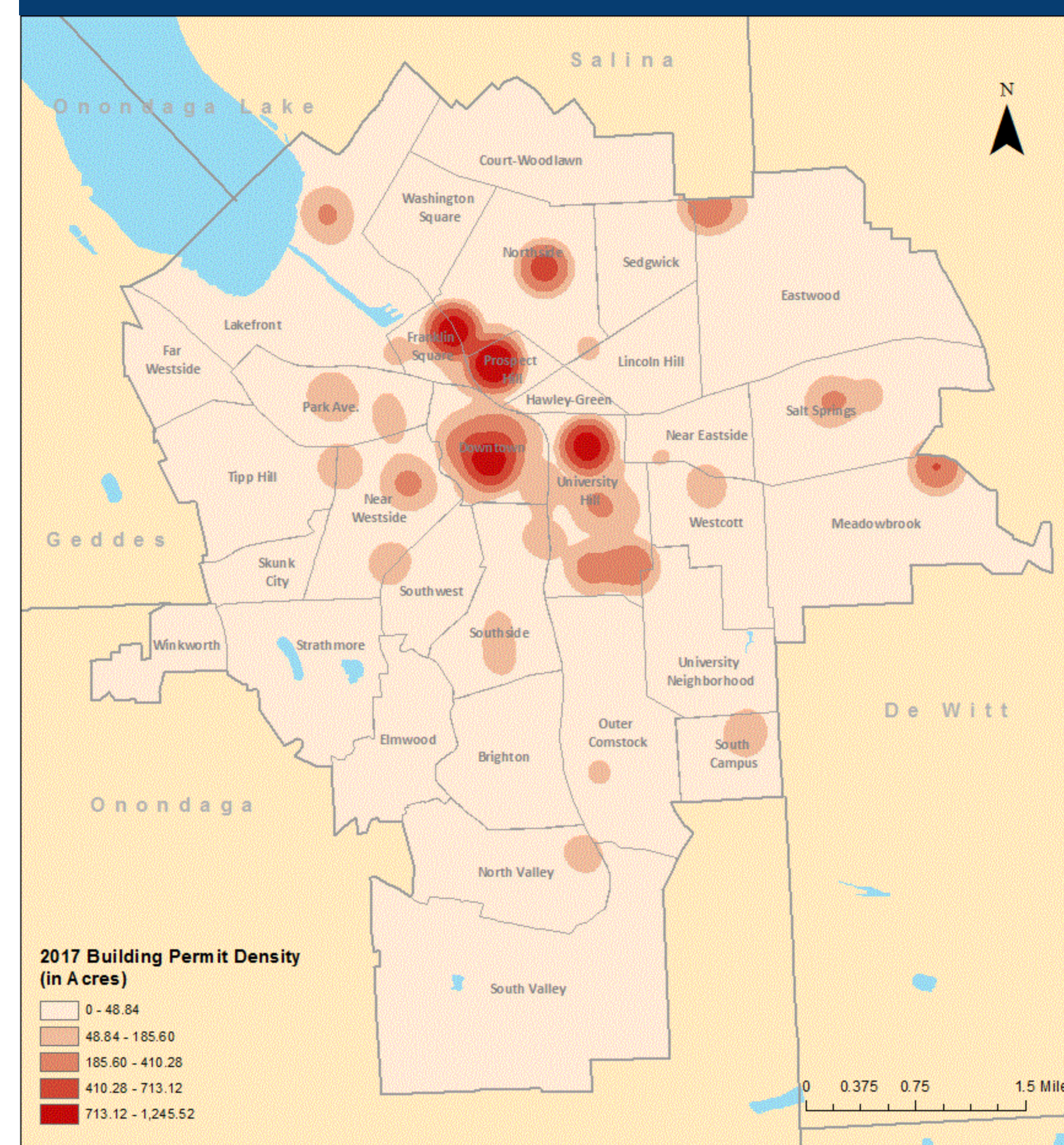
Figure 4: Building Permit Density 2013-17

2013-17 Building Permit Density (in Acres)
- 0 - 605.13
- 605.13 - 2,145.47
- 2,145.47 - 4,290.94
- 4,290.94 - 7,811.72
- 7,811.72 - 14,028.09

0 0.375 0.75 1.5 Miles
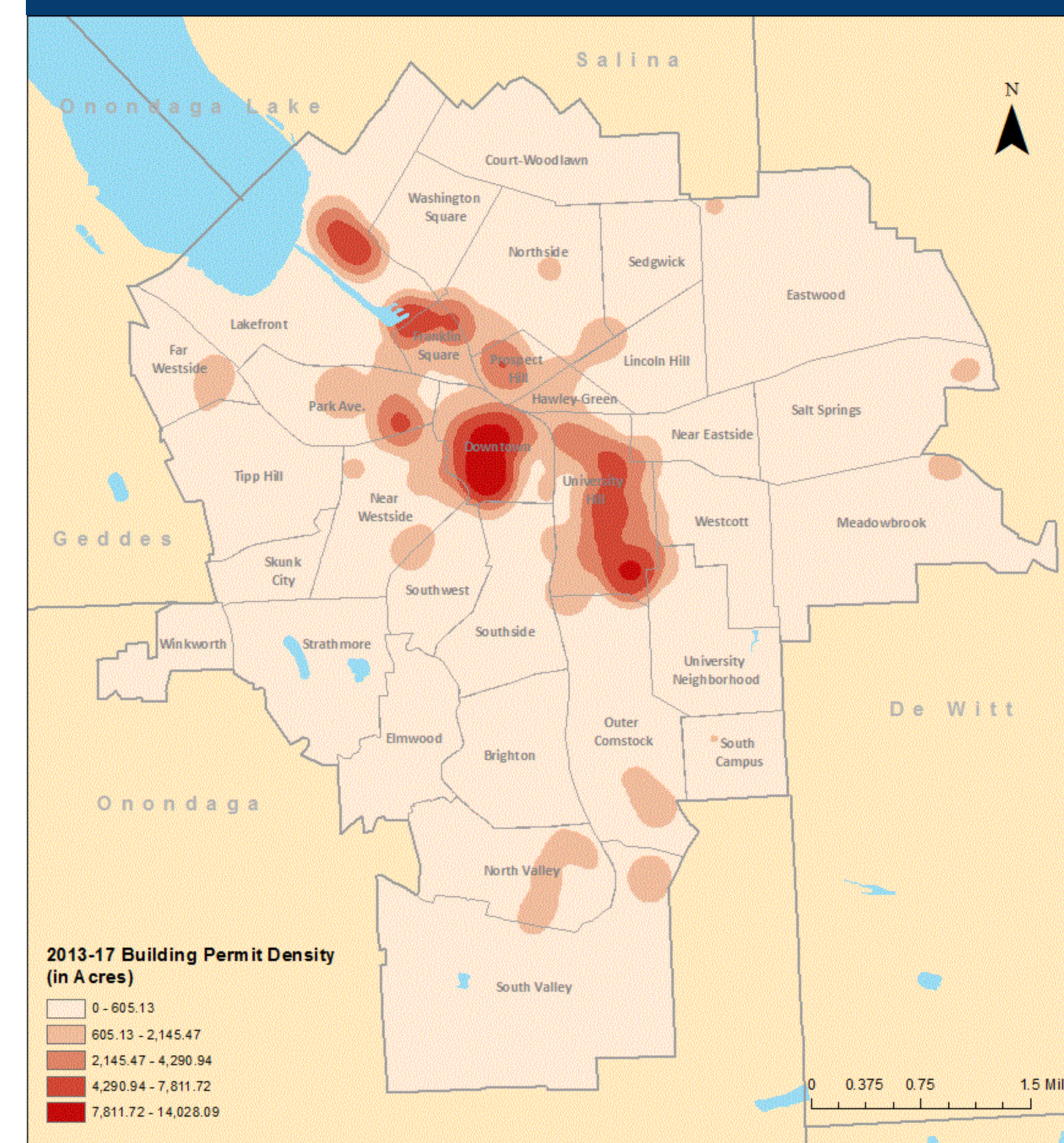
Figure 5: Capital Projects Trend

Trend of Capital Project Siting in Syracuse, NY (by project value)
- Capital Projects
- Capital Project Trend

0 0.375 0.75 1.5 Miles