

Emerging Threats to Community Stability: A Spatial Hedonic Model

Moving Towards Solutions: Research and Policy on Vacancy and Abandonment
Columbus, OH
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Research completed as
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The findings reported here are the opinion of the author alone, and are not necessarily reflective of the views of the Federal Reserve Bank of Cleveland or the Federal Reserve System.

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Background

- Vacant and Abandoned Properties
 - “Vacancies create a downward spiral for neighborhood housing markets that is difficult to correct, even with large infusions of public dollars (Community Research Partners and Rebuild Ohio, 2008).
- Foreclosures:
 - “Filings grew by double-digit rates in 68 of Ohio's 88 counties in 2006, and statewide, they have nearly quintupled since 1995 (Policy Matters Ohio, 2007).”
- What about costs to the housing market?
 - Community Affairs, Federal Reserve Bank of Cleveland

Housing Market Impacts

- Focus on foreclosed properties or vacant/abandoned properties
 - Predicting abandonment in Philadelphia
 - ❖ Hillier, Culhane, Smith and Tomlin, *Journal of Urban Affairs*, 2003
 - Foreclosure impact in Chicago
 - ❖ Immergluck and Smith, *Housing Policy Debate*, 2006.
 - ❖ Lin, Rosenblatt, and Yao, *Journal of Real Estate Finance and Economics*, 2008
- What if
 - Foreclosure and vacancy impacts are related?
 - Either/both of these occur in a clustered pattern?
- What are those buffers really measuring?
 - Presence of V/F properties?
 - Other unmeasured local housing conditions?
 - Spatial autocorrelation problem?

Research Goals

- Identify the distinct impacts of:
 - Foreclosed properties
 - Vacant properties
 - Neighborhood/spatial effects
- Identify the spatial footprint of each

2006 Data: Columbus, OH

- 9,046 single family housing sales
- 6,083 foreclosure filings
- 4,152 properties identified as vacant and abandoned
- Census and GIS data necessary for hedonic analysis
- Community Research Partners, Columbus OH

Methods



- Aggregate vacant and foreclosed properties (separately) into 250' buffers surrounding every sale
 - Out to 1,250'
- Use OLS to separately estimate the impact of
 - Foreclosed properties
 - Vacant properties
- Use OLS to estimate these impacts jointly
 - Find the effect of one, holding the other constant
- Estimate the appropriate spatial regression model (if necessary)
 - Identify a "neighborhood" effect?

House-Price Impact: Vacant and Foreclosed Properties

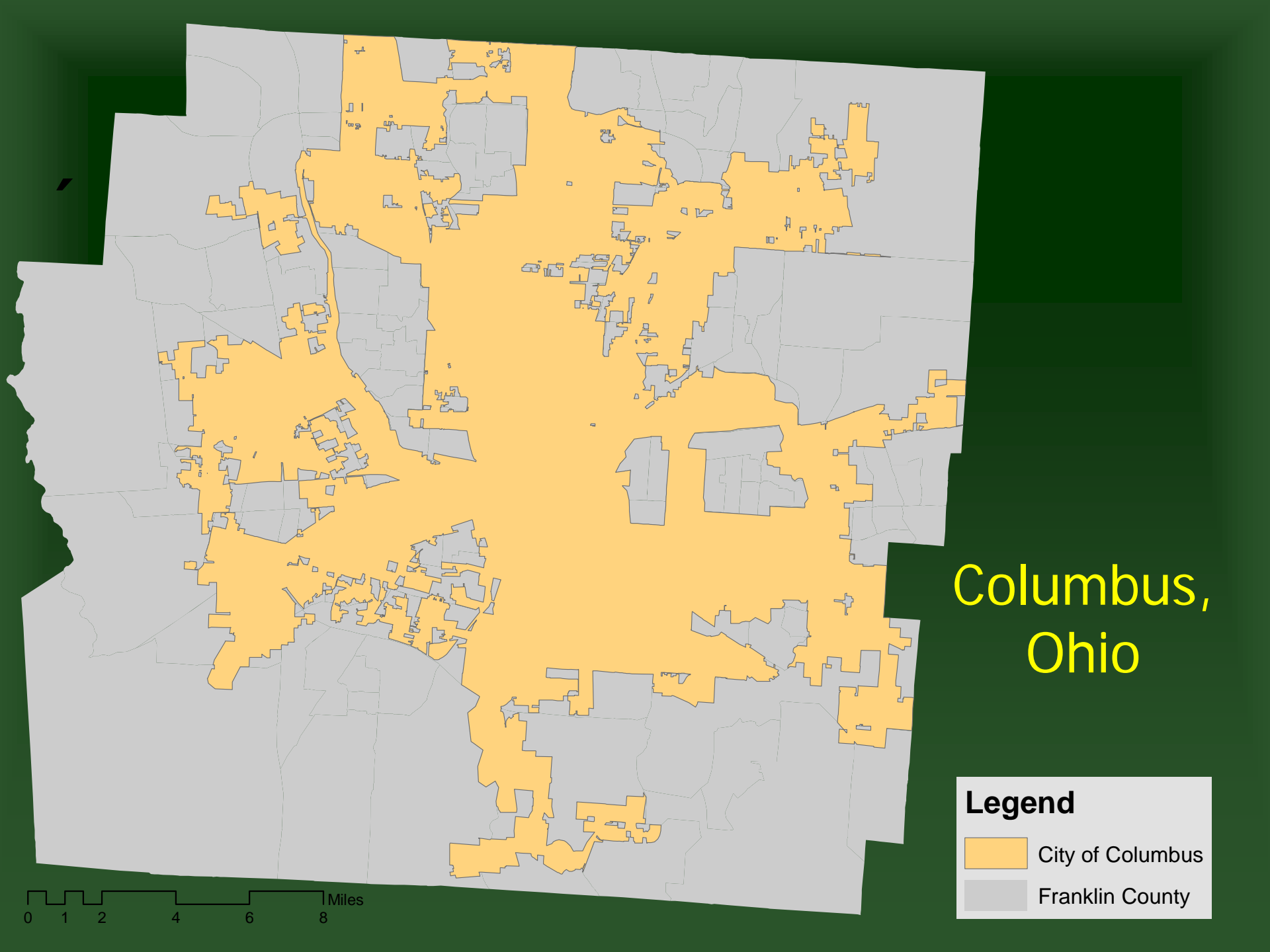
- Standard hedonic formulation (all models):
 - Structure: Lot size, house size, age, air, fireplace, construction quality, house condition
 - Neighborhood: Schools, local demand, stability, renter-transition, accessibility
- Model 1a: Foreclosed properties only
- Model 1b: Vacant properties only
- Model 2: Foreclosed and vacant properties
- Model 3: Spatial specification (Spatial Error)

Columbus, Ohio

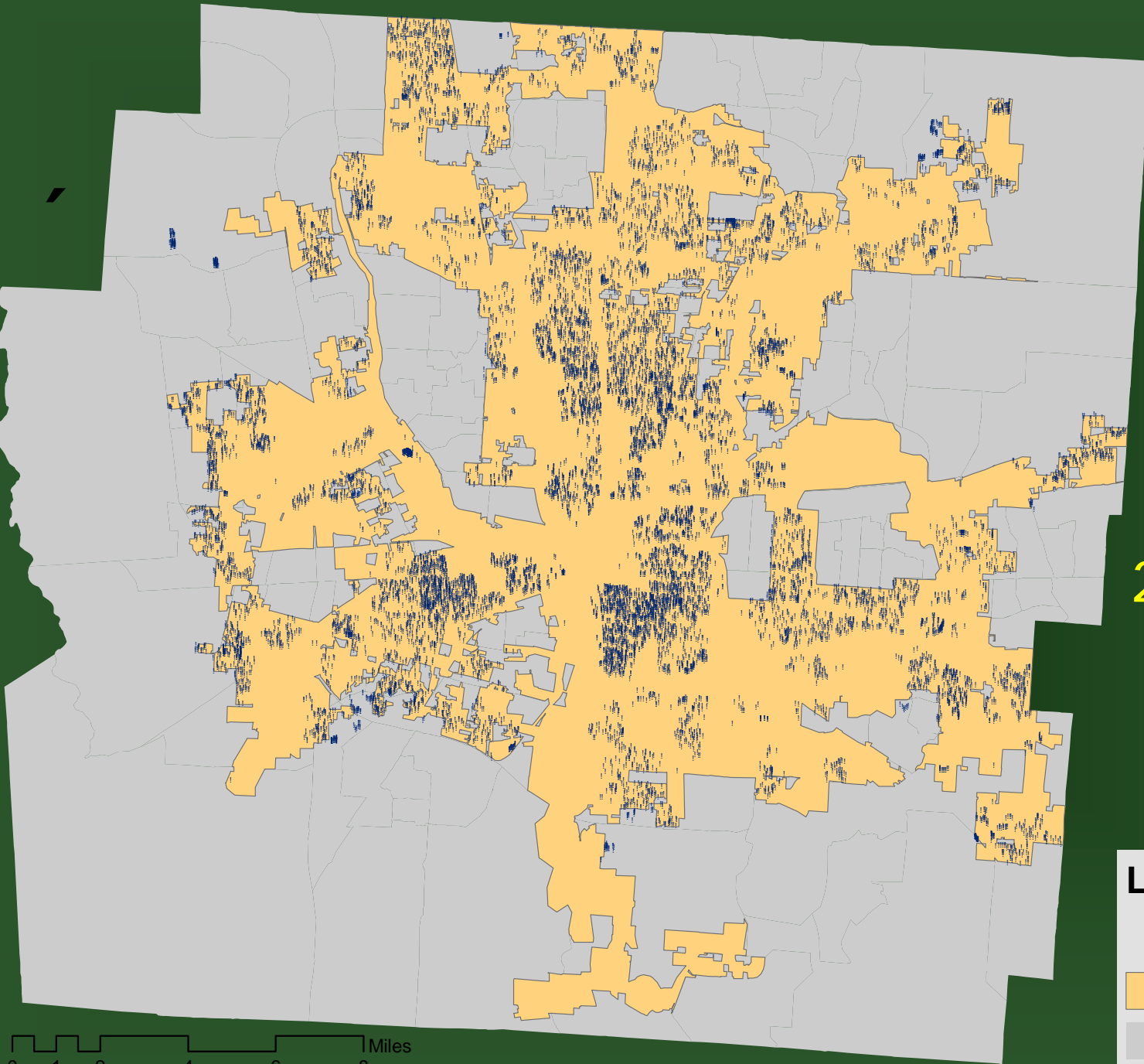
Legend

-  City of Columbus
-  Franklin County

0 1 2 4 6 8 Miles






n=9,046



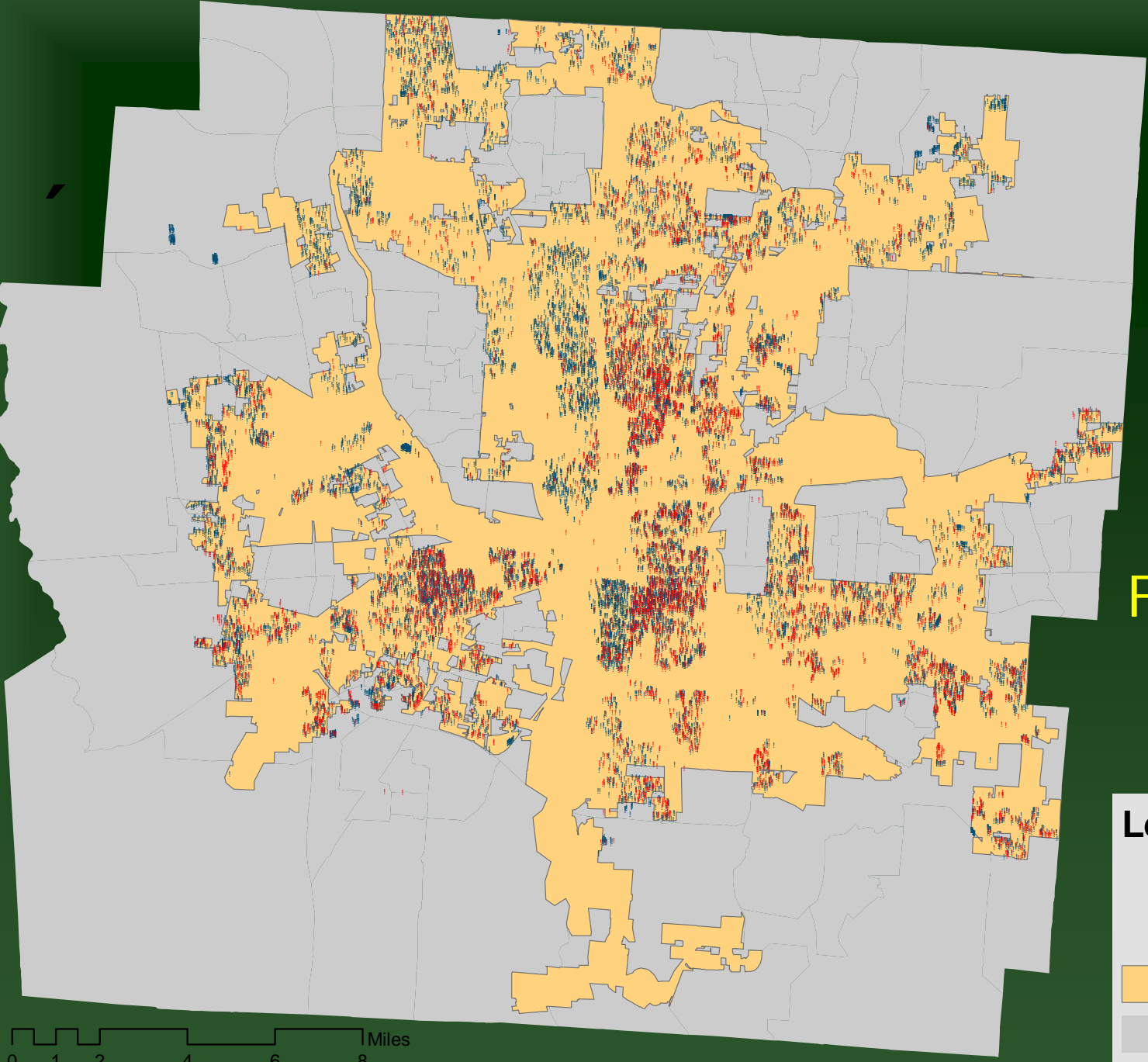
2006 House Sales: Columbus, Ohio

Legend

-  Sales
-  City of Columbus
-  Franklin County

0 1 2 4 6 8 Miles

n=6,083



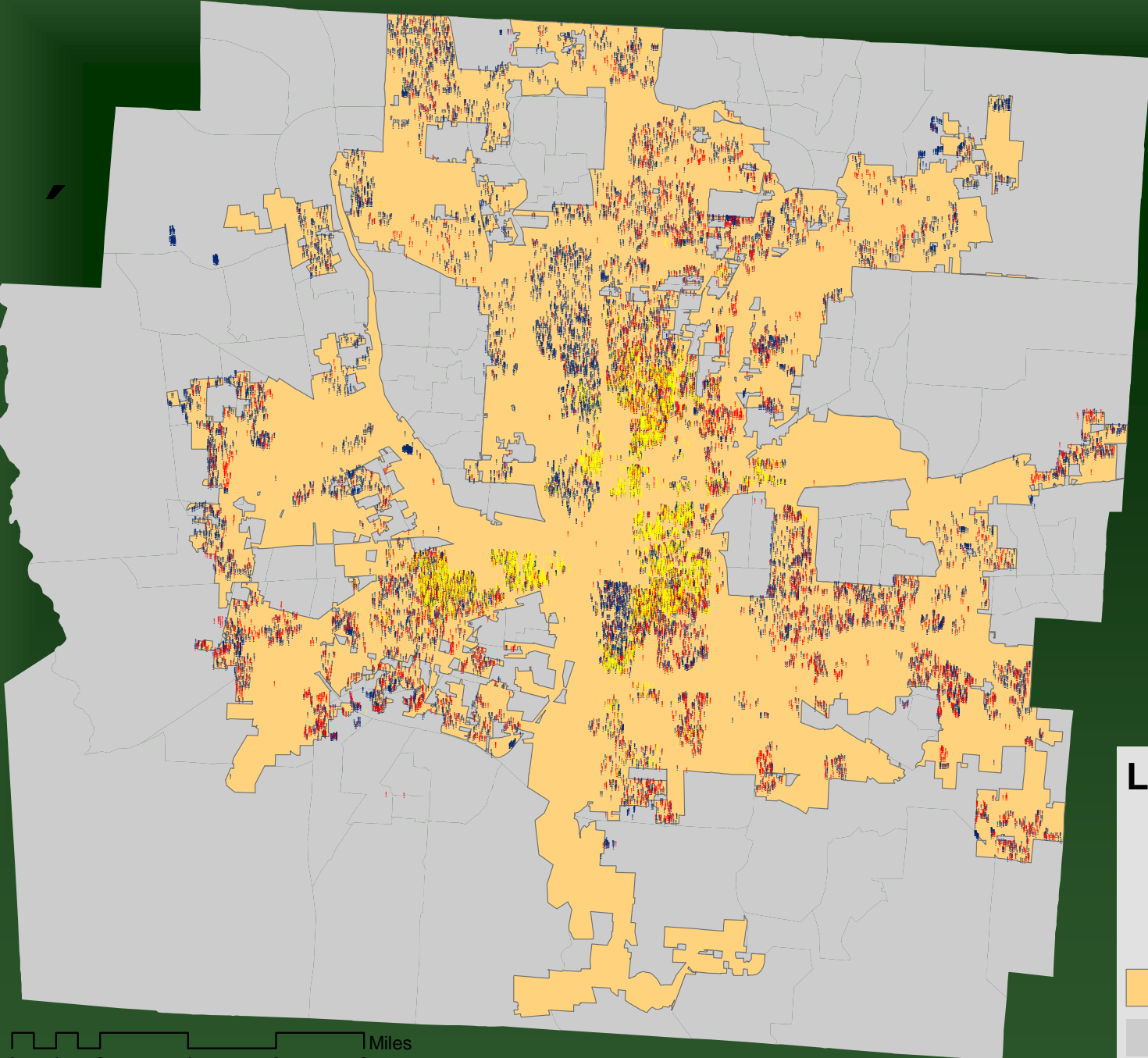
2006 Foreclosures: Columbus, Ohio

Legend

- Foreclosed
- Sales
- City of Columbus
- Franklin County

0 1 2 4 6 8 Miles

n=4,152

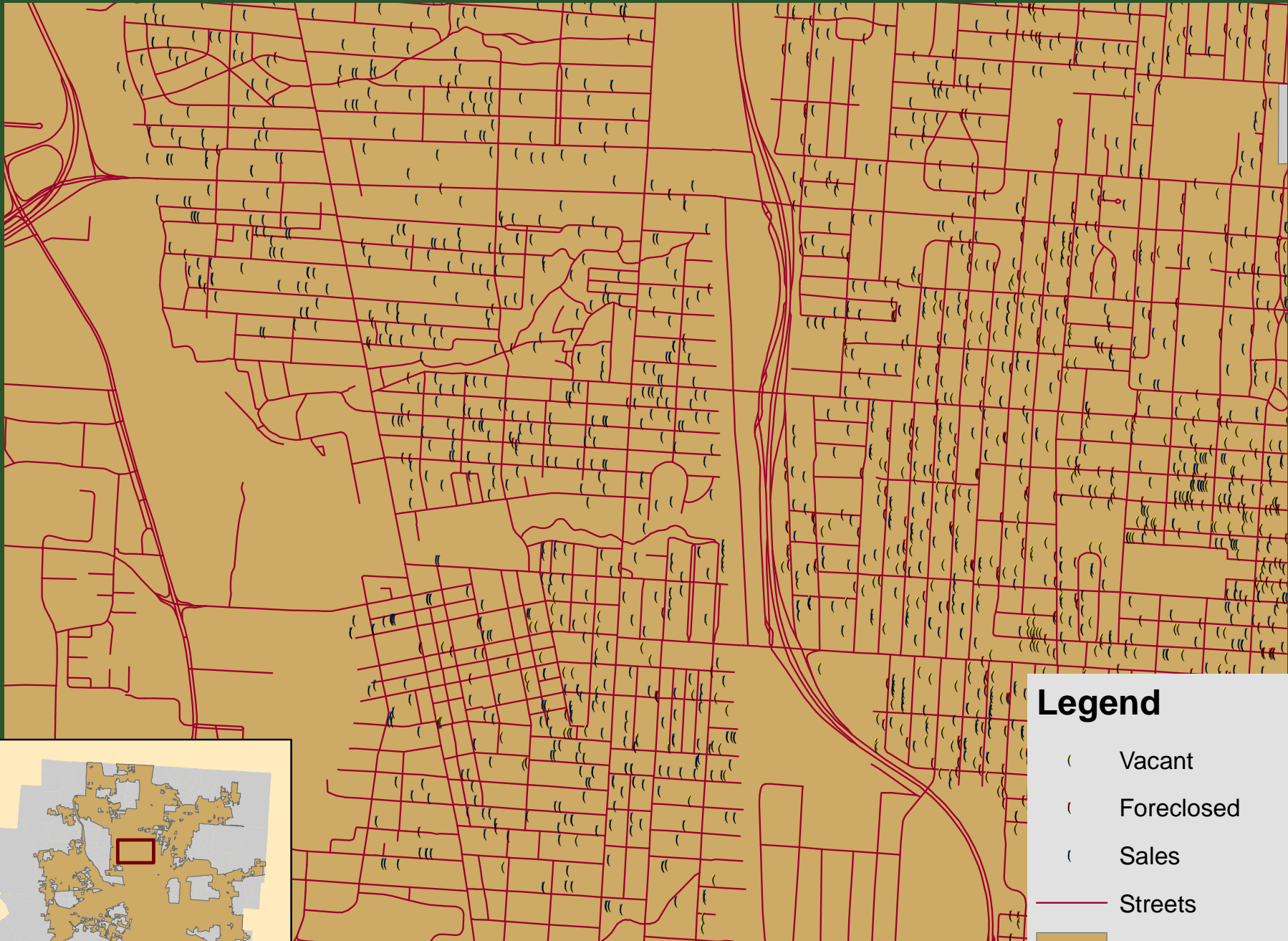


2006 Vacant & Abandoned Properties: Columbus, Ohio

Legend

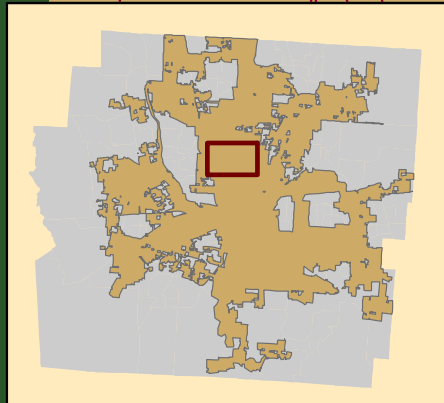
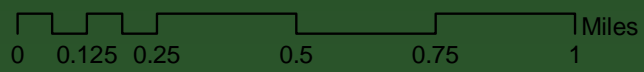
- Vacant
- Foreclosed
- Sales
- City of Columbus
- Franklin County

0 1 2 4 6 8 Miles



Legend

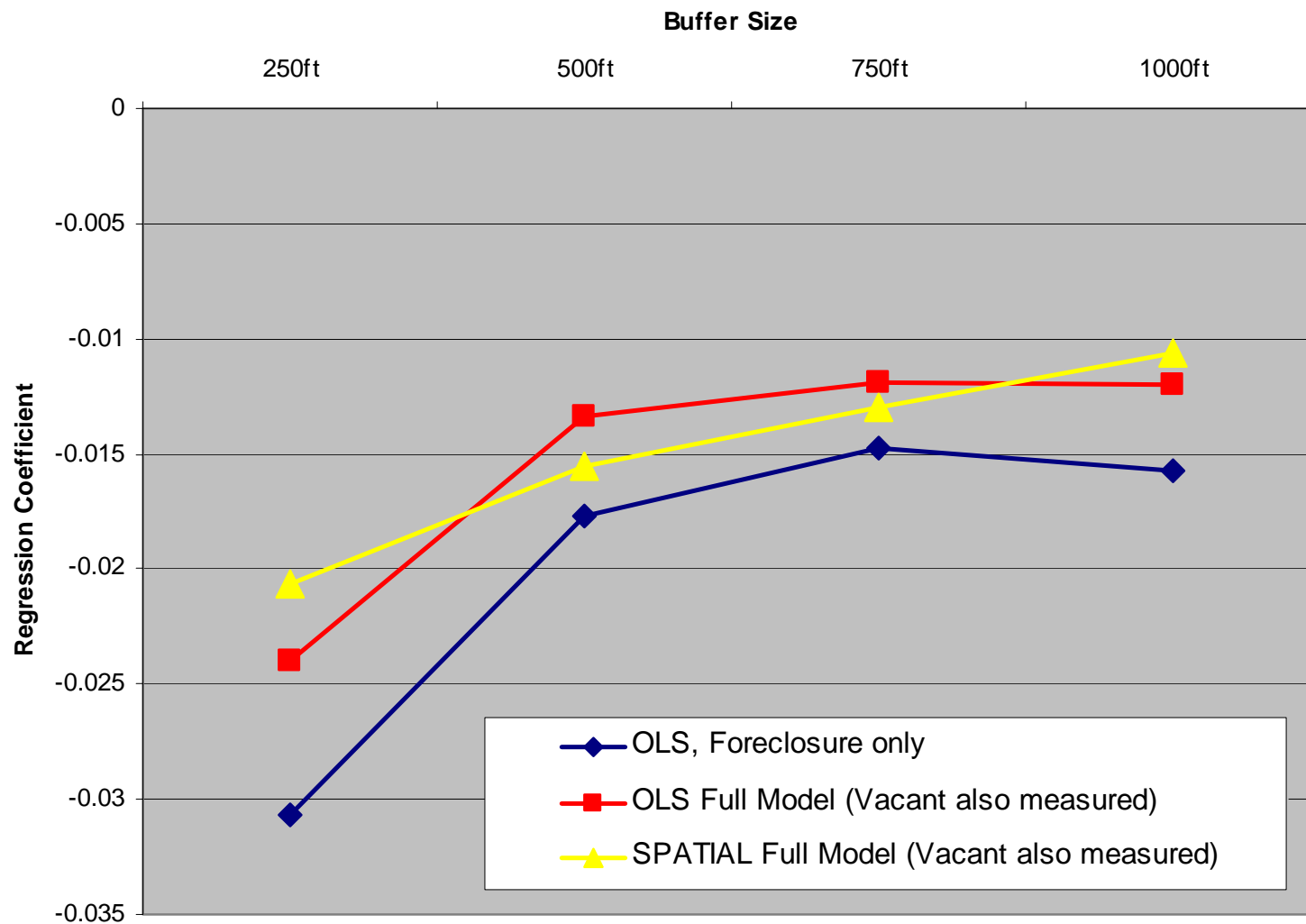
- (Vacant
- (Foreclosed
- (Sales
- Streets
- City of Columbus
- Franklin County



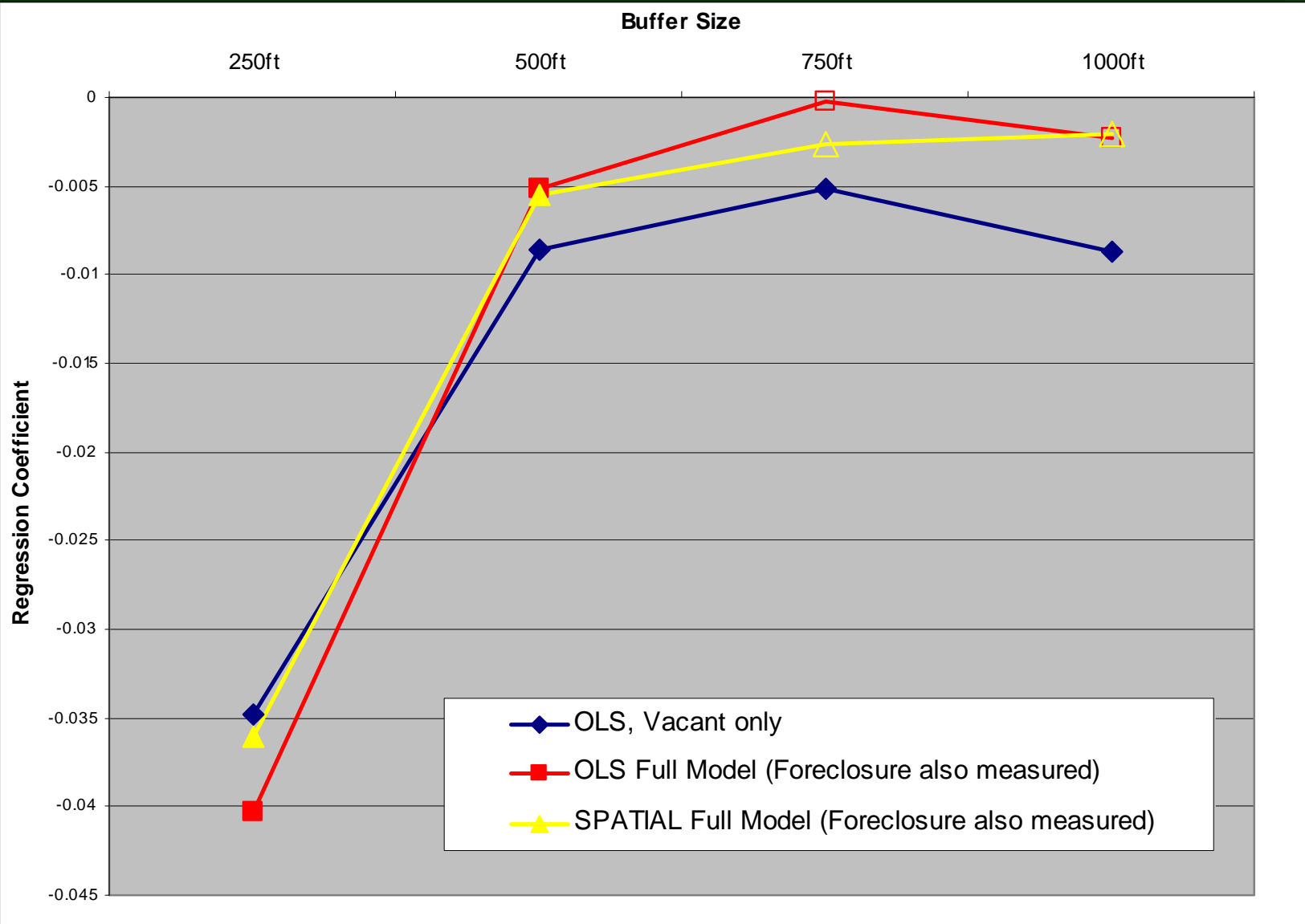
Regression Results

- From each complete hedonic specification, focus on the foreclosed and vacant property impact results
- From three models, compare
 - Regression coefficients
 - ❖ An additional vacant/foreclosed property in proximity to the sold house is associated with a ___% decrease in housing price
 - Aggregate impact across the City of Columbus
 - Average impact on affected homes

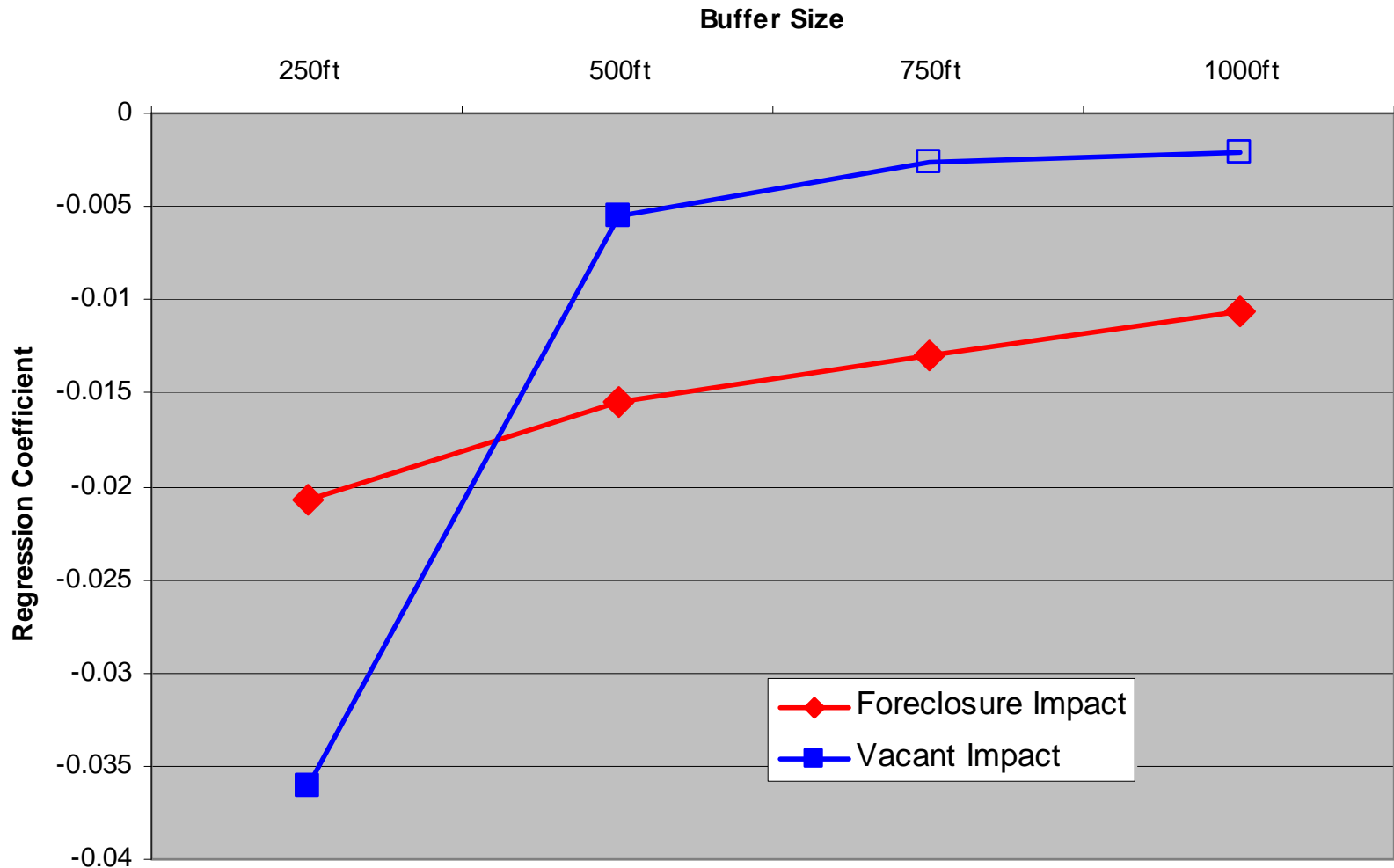
Foreclosure Impact Regression Coefficients



Vacant Impact Regression Coefficients

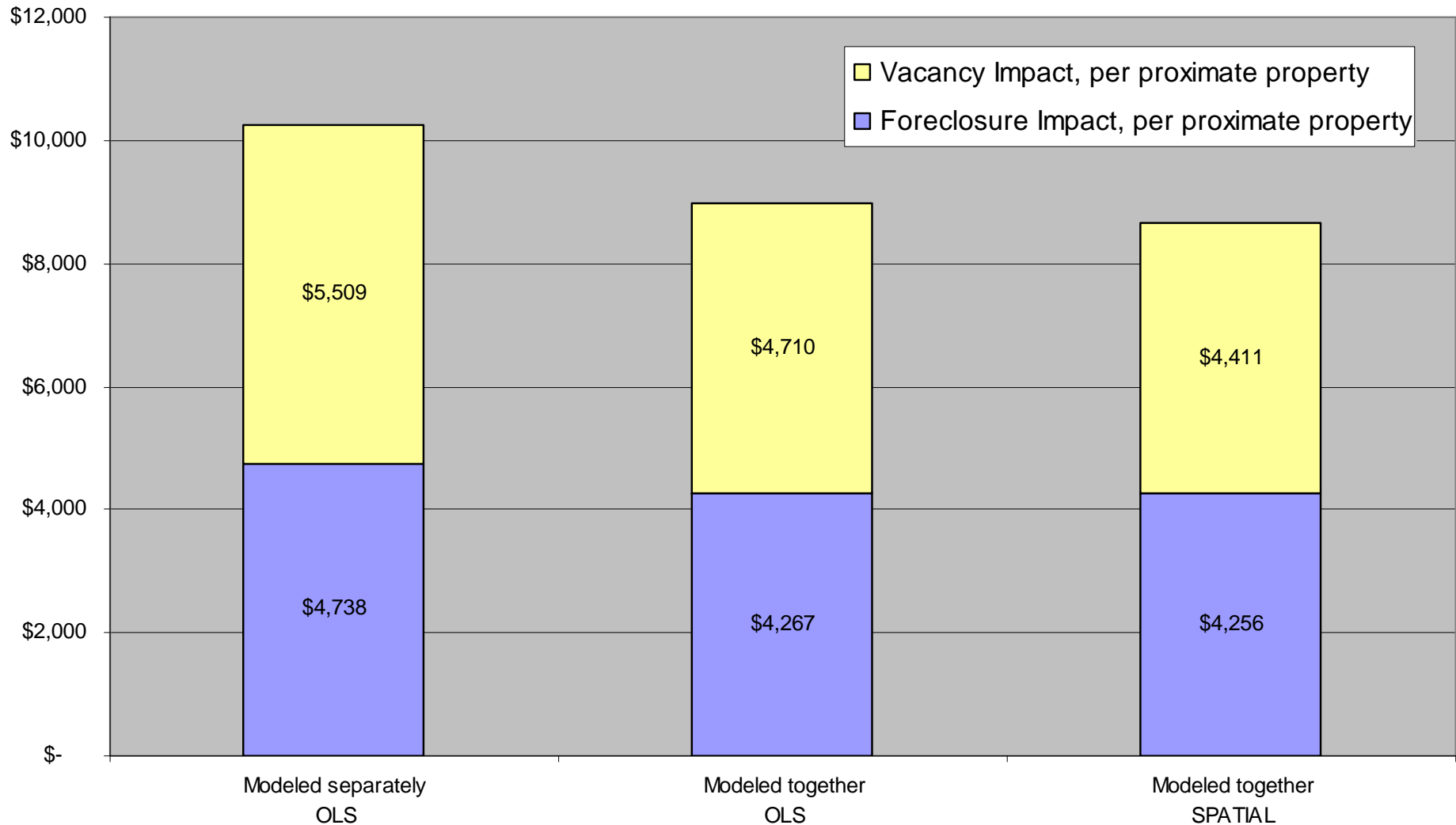


Impact of Vacancy and Foreclosure Spatial Model

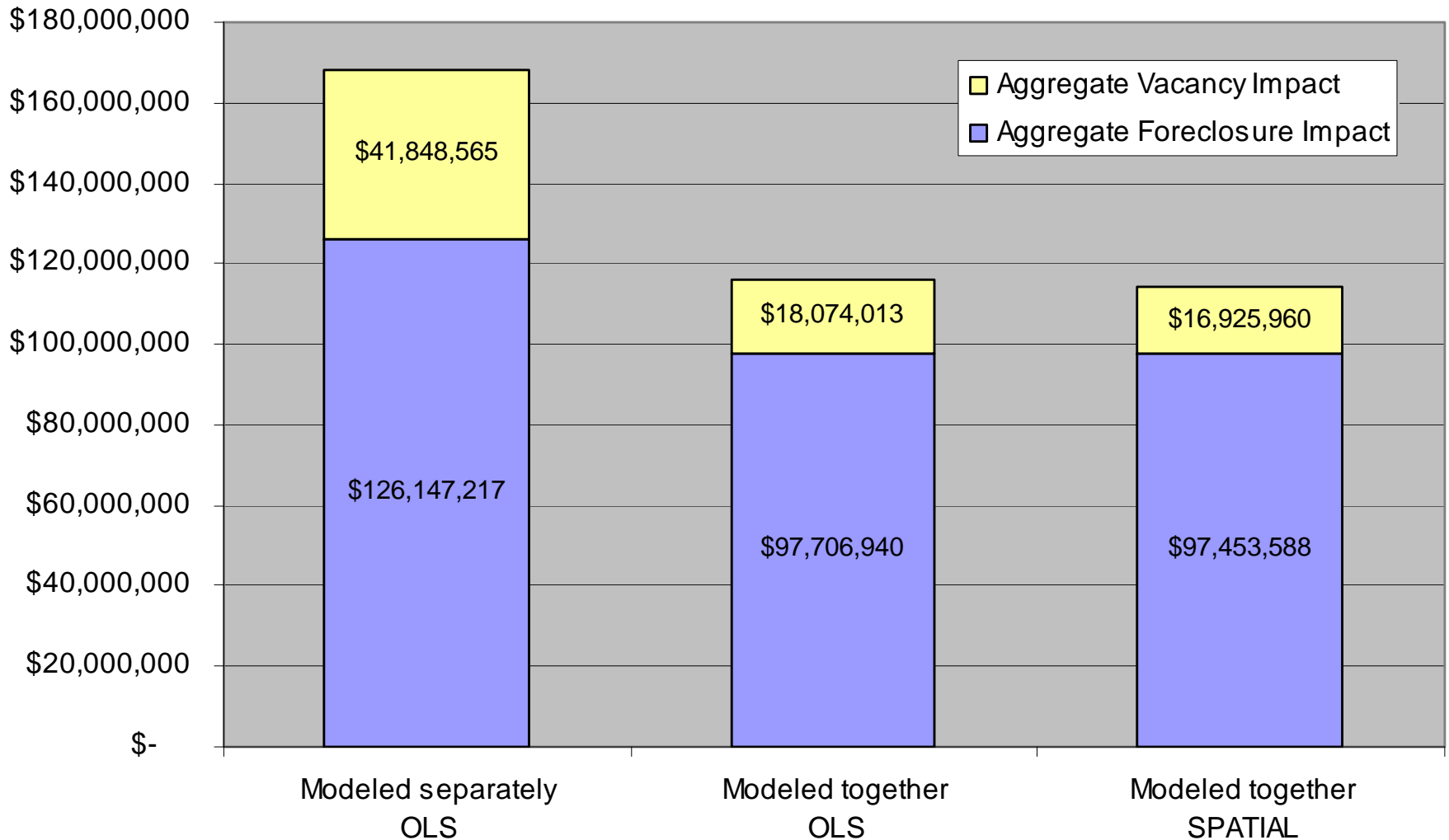


Average Impact: Proximate Properties

33% of sales were near a vacant property (within 500')
72% of sales were near a foreclosed property (within 1000')

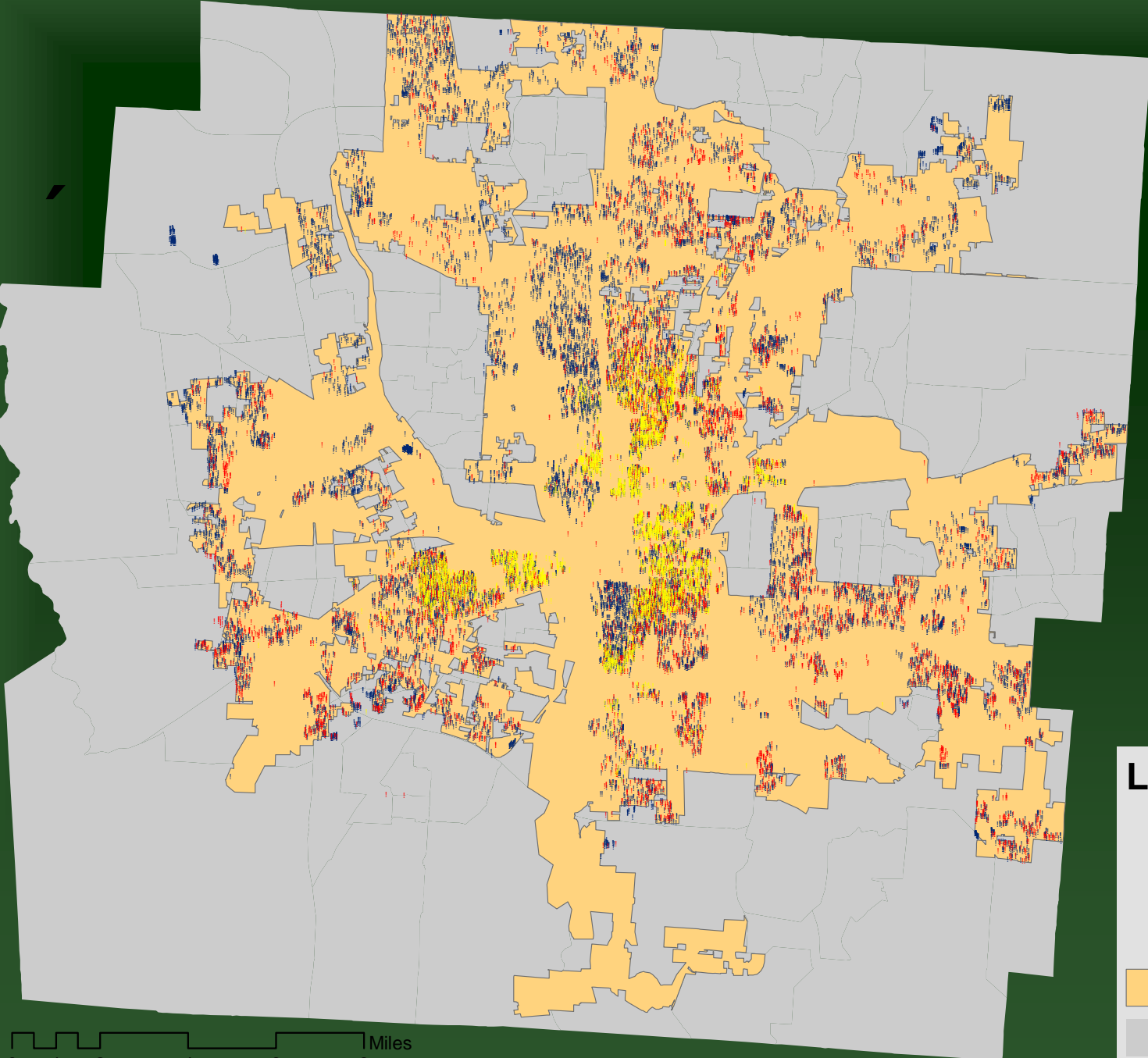


Aggregate Citywide Impact, 2006



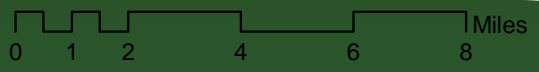
n=4,152

2006 Vacant & Abandoned Properties: Columbus, Ohio



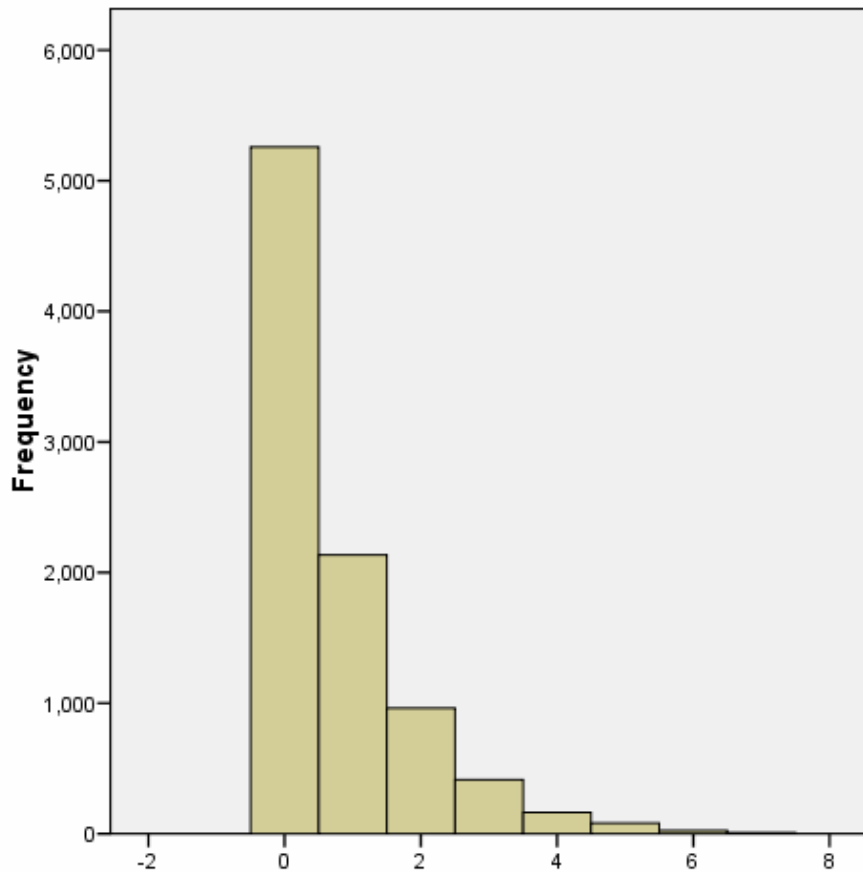
Legend

- Vacant
- Foreclosed
- Sales
- City of Columbus
- Franklin County

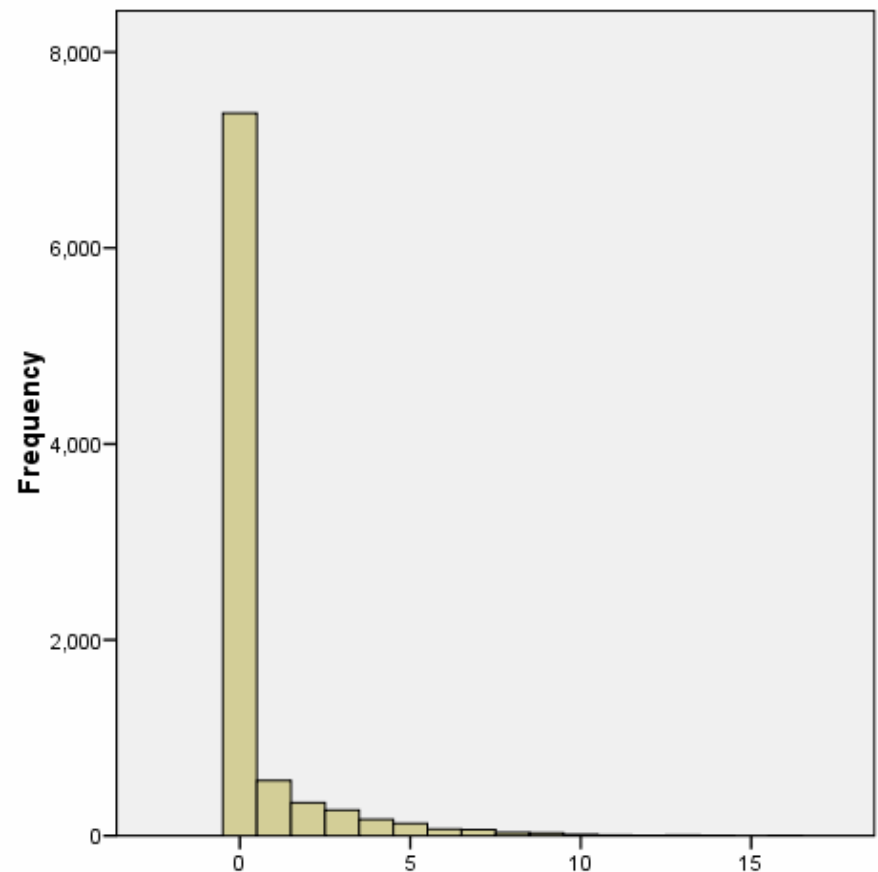


Proximity and Geography

Foreclosure within 250'



V/A Property within 250'



Conclusions

- Potentially, if modeled separately
 - Impact of foreclosed properties overstated
 - Impact of vacant properties understated
- Modeled jointly
 - Impact of foreclosure more moderate than that of vacancy, but it is wider spread.
- Aggregate impact of nearly \$115m.
 - Highly dependent on the spatial distribution
- Next steps
 - Tax impacts
 - Timing issues