

Proposal for a  
Thesis in the Field of  
Sustainability and Environmental Management  
In Partial Fulfillment of the Requirements  
For a Master of Liberal Arts (ALM) degree in extension studies

**Public Vacant Land Conversion in Detroit, Michigan:  
A Longitudinal Neighborhood Analysis of Stabilization and Communal Access**

Summary

Following decades of deindustrialization, disinvestment, and depopulation, the City of Detroit has become a global symbol of urban decline. Plagued by crumbling infrastructure, abandoned buildings and subsequent razed lots, the incidence of public vacant land is evidence of the economic, and ensuing social and environmental devastation afflicting the City's long-settled communities. Yet, few studies have examined how the City's conversion of public vacant land is now impacting Detroiters who have remained within the city limits. With attractive incentives inviting new investments to repurpose thousands of parcels of vacant land, it is crucial to assess how land conversion policies are operating on the neighborhood level, in order to examine issues of access, affordability, and sustainability in already disproportionately burdened and marginalized communities.

Focusing on the City's current land management practices for publicly owned vacant land conversion, my research will explore, map, and assess the opportunities and barriers of

reclaiming vacant parcels for Detroit's local communities, and the extent to which vacant land is being utilized towards sustainability through urban agriculture in order to benefit current residents. Primary hypotheses to be evaluated are that many current residents in hard hit derelict neighborhoods of Detroit do not have the economic means to invest in purchasing nearby low-priced vacant plots, and that the conversion of vacant plots for urban agricultural uses vary by neighborhood demographics. The main statistical hypotheses of this study are that: 1) purchases of publicly owned vacant land are positively correlated with socioeconomic status (e.g. income, education, occupation); 2) purchases of publicly owned vacant land are closely associated with changes in neighborhood-level demographics; 3) that revitalization of vacant parcels towards urban agricultural use has increased in the city between 2000-2015; and 4) that new urban agricultural plots are providing social, environmental, and economic benefits for the city as whole, but that benefits vary by neighborhood.

To test these hypotheses the study will conduct a longitudinal neighborhood-level analysis of reclaimed vacant land parcels from 2000-2015 to examine the spatial relationship of the vacant plots, newly reclaimed plots, and converted plots for urban agricultural use, and the overall degradation or betterment of the surrounding community via urban farming. Available data on newly reclaimed parcels (i.e. bought or sold or transferred) will provide the baseline criteria for analyzing socioeconomic indicators. Data will be gleaned from the ArcGIS mapping tool, the U.S. Census Bureau, and other databases on vacant land parcels which may include: Data Driven Detroit, LOVELAND Technologies, Detroit Land Bank Authority, and Motor City Mapping.

The mapping of Detroit neighborhoods in correlation with these statistics will help ensure a better understanding of what lies in store for the city's sustainability, with regard to the social,

economic, geographic, and environmental landscapes. Expected results are that vulnerable low-income Detroiters are losing purchasing power and are incrementally being displaced by a more affluent population, or by private interests, and that growing trends in urban agricultural land use are providing social, economic, and environmental benefits to current residents. In order to create socially equitable land conversion policies, the City of Detroit must assure that all stakeholders are an integral part of the decision-making process, and that the land transformation of vacant parcels is benefiting all parties. The mapping of reclaimed vacant parcels by neighborhood will illustrate how democratic and inclusive the city's land conversion policies have been on the neighborhood level, and also help identify which stakeholders have had meaningful buy-in over the last 15 years. The findings from this research will provide new insights about the dynamics of vacant land conversion and urban decline, to better inform policy makers of the broader social impacts of land management and urban redevelopment.

## Introduction

### Research Significance and Objectives

Current literature and media coverage on Detroit paint a deserted landscape and a level of socioeconomic collapse and subsequent environmental degradation unparalleled by any other American post-industrial city. To date, no city in the country has succumbed to such a scale of blight as that which Detroit faces (Detroit Future City, 2012). The upsurge in public vacant land parcels is a testimony of the City's toll of foreclosed homes and abandoned essential infrastructure which have in turn devastated surrounding communities, and yet, few studies have examined how the City's conversion of public vacant land is now impacting Detroiters who could not afford to flee.

With enticing incentives attracting new investments to refashion the economic downturn that continues to afflict Detroit, it is crucial to assess how these land conversion policies are affecting remaining Detroit residents at the neighborhood level, in order to promote environmental justice, social equity, and community empowerment in already disproportionately burdened and marginalized communities. As the City aggressively turns over abandoned lots to new land uses, there is a need to examine if the access and affordability of the latter are being driven by any significant new demographic trends, and if urban agricultural land use is indeed benefitting surrounding communities.

The objectives of this study are: 1) to understand how land conversion policies for public vacant land plots are impacting long-settled Detroit communities; 2) to examine demographic trends of purchased vacant publicly owned lots and their urban agricultural land uses from 2000-2015; 3) to conduct a longitudinal spatial neighborhood-level analysis of existing vacant public land parcels or newly reclaimed plots with socioeconomic status and key census data indicators (e.g. age, sex, race, residence mobility status), and plots converted for urban agriculture from 2000-2015; and 4) to examine if newly converted urban agriculture parcels are supporting community sustainability and resilience in Detroit's neighborhood.

## Background

Shifting demographic distributions in cities are important indicators of a city's trajectory and future prospects with regard to neighborhood revitalization efforts. As many American cities have followed a similar trajectory of middle class flight following the Second World War, it is important to examine how demographic trends are affecting the nation's distressed post-industrial cities (Mallach, 2014). As vacant land represents a valuable and untapped asset of any

city, a geospatial analysis of public vacant land acquisition in Detroit may provide an important narrative and metric for assessing significant land use trends for other “legacy cities.”

#### Equitable Land Use in U.S. Post-Industrial Cities

Urban disinvestment is not unique to Detroit. Uneven population decline and changes in housing prices, educational attainment, and income have created spatial patterns in urban decline in the Rust Belt cities of Buffalo, Cleveland, and Pittsburgh (Hartley, 2013). Since the 1970s Buffalo, Cleveland, Pittsburgh and Detroit have each lost more than 40 percent of their populations due to suburban sprawl and migrations elsewhere (Hartley, 2013). These shifts in urban decline and distributions in socioeconomic status, however, did not occur in every neighborhood at the same rate. A 2013 study of these four Rust Belt cities suggests that changes in land values are driven by changes in the characteristics of neighborhoods that are associated with the income of residents (Hartley, 2013).

Along with Detroit, these cities exemplify how overdependence in industry, loss of manufacturing, and drops in labor demand can lead to adverse social and economic outcomes for city residents, and for the city on the whole as it struggles to remain economically viable. While pathways of inequality and access are likely to be complex – including downturns in manufacturing activity, an expendable workforce, middle class flight, poor market conditions, and gentrification – policymakers and city planners must examine how these changes in neighborhood dynamics evolve over time, and how they affect current residents.

This research will evaluate changes in vacant land use as a proxy for assessing shifts in human, social, and economic capital, along with improvements in sustainability at the neighborhood level. Land use trends from these findings will provide a lens as to how urban

revitalization efforts (via vacant land conversion) are affecting access, affordability, and community stabilization for all Detroiters, and the results are likely to be of significance for other legacy cities experiencing similar trends in urban decline.

### From Industrial Motor City to Urban Decay

Today the City of Detroit symbolizes the decline of the golden age of the American car industry and manufacturing. What was once was the jewel of the manufacturing might that propelled the U.S. towards becoming the world's richest nation is now an eyesore for the city, its residents, and the country. In a matter of a few decades Detroit went from a highly centralized and booming motor city mecca, to a decentralized metropolis plagued by depopulation (i.e. massive white flight), disinvestment, and later race riots that further polarized segregated neighborhoods. Rising unemployment from declining industries fueled a great exodus of countless city residents, and those communities that stayed back could no longer afford to remain in their homes - paving the way for the dilapidated buildings and later abandoned lots which residents are exposed to today.

These less privileged communities, which were predominantly African American, were trapped within Detroit's city limits and forced to find means to make due in a city with dwindling public services. As of 2012 it was estimated that the city had as much as 20 square miles of total vacant land, and that number continues to grow climbing to as much as 40 square miles of vacant land. This discarded land area amounts to a third of Detroit's total 139 square miles. (Detroit Future City, 2012). The incidence of vacant land geographically translates to greater distances between residents, homes, and infrastructure, and creates a heavier burden for those communities who are exposed to greater vacancy, and also creates land usage issues for the

city servicing its residents. In order to assess the trends in demographic ownership and incidence of public vacant land, one must first examine any prior changing population dynamics of this post-industrial city.

### Changing Population Dynamics: 1950s-Present

In 1950 Detroit reached its peak population of 1.8 million people (World Population Review, 2015). Almost 65 years later, the population had declined by 63% to approximately 680,000 in 2014 (U.S. Census Bureau, 2015). Having lost almost the equivalent of the population of Dallas, Texas in that time, the declining population demographically changed with suburban sprawl. Between 1950-1970, the predominantly white population migrated to suburban areas, while the African American population grew in Detroit and surrounding areas. The 1950s brought new highways, which led to the creation of suburban neighborhoods that favored white residents. Freeways isolated Detroit's industrial areas and residential neighborhoods, and as automobile makers moved their factories to surrounding suburban areas, white populations could find work outside of Detroit and frequented the city less and less.

Racial segregation and high crime rates in the 1990s drove more affluent African Americans to move to surrounding suburbs, exacerbating the depopulation crisis. Since 1990 Detroit's overall population has declined by almost 34% (U.S. Census Bureau, 2015). As of 2010, approximately 11% of the population was white, with 83% of the population being African American. By 2005 Detroit had experienced one of the most severe levels of racial segregation between blacks and whites of any metropolitan region in the United States (Stoll, 2005). This reverse shift in racial demographics closely mirrors the City's history of urban decline and disinvestment. As blacks and low-income Detroiters within the city became geographically

isolated from jobs and public services due to decentralized industries, job sprawl, and decades of disinvestment, exposure to blight and land vacancy was disproportionately felt in predominantly African American and low-income neighborhoods. In 2014 Detroit had the highest poverty rate of America's major cities, with 39.3% of the population living below a poverty line of \$24,008 for a family of four – less than half of the median U.S. household income of \$53,657 (Bouffard, 2015).

#### Disinvestment and Post-Industrialization: Hardship, Foreclosures, Diminishing Taxes Revenues, and Demolition

While regional sprawl and fragmentation are at the core of Detroit's abandonment, spatial decentralization of the metropolis fostered geographic divisions between affluent and mobile populations, isolating the disadvantaged left behind in the inner city (Thomas et al., 2015). The downward trends in economic and social conditions have resulted in joblessness, housing foreclosures and abandoned structures disproportionately experienced by residents in the central city. When residents were unable to sell or rent their homes, delinquent mortgages were reverted back to financial institutions that then faced difficulties selling unmarketable housing units. When owners and financial institutions failed to pay property taxes owed on buildings, residential buildings were repossessed by the state, county or local city government (Thomas et al., 2015). Since 2005, 1-in-3 Detroit properties have been foreclosed, owing to mortgage defaults or foreclosures for delinquent taxes, and amounting to a total of 139,699 foreclosed homes (Kurth et al., 2014). Massive foreclosures have led to abandonment, squatting, demolition, blight, and devastation for surrounding communities.

The myriad influences of white and middle class flight, inadequate public services, a high tax base, a depreciated housing market, and lower incomes have all created a recipe for substantial economic losses for residents, private businesses, and the city itself. Early foreclosure, joblessness, and land use changes have translated into less tax revenues for the city and local government with regard to property and income taxes. As of 2013 it was estimated that Detroit property foreclosures have resulted in \$744.8 million in lost city property taxes for Wayne County (Detroit Future City, 2012).

On July 18, 2013 the City of Detroit filed for Chapter 9 bankruptcy. The significance of this lost revenue transcends the local and regional economy, creating physical blight and issues of land management, as foreclosure and property abandonment have resulted in condemned properties and more residential structures for which the city cannot feasibly afford to maintain. Properties beyond repair continue to be demolished, and these demolished structures have resulted in thousands of vacant land parcels.

### Addressing Blight

In September 2013 the Obama Administration earmarked \$300 million dollars in federal aid to address Detroit's urban revitalization issues - which included areas of importance related to public works, public safety, and blight removal (Detroit Future City, 2012). The creation of the Detroit Blight Removal Task Force (Task Force) was announced that same year, with the mission of addressing "every blighted residential, commercial, and public structure in the entire city as quickly as possible, as well as to clear every neglected vacant lot" (Detroit Future City, 2012). In 2014 the Task Force recommended that the City spend \$850 million to demolish 40,000 dilapidated structures, renovate tens of thousands more, and clean thousands of vacant

lots with dumping. Further, their 2014 blight report found that 30% of buildings (78,506) were soon to be derelict, and that 114,000 parcels or 30% of the city's total were vacant (Davey et al., 2014). What the report did not discuss were recommendations for what to do with these vacant lots, and those to come stemming from future demolitions.

### Importance of Mapping Public Vacant Land Conversion at the Neighborhood Level

By 2014 demolition and abandonment had led to nearly 70,000 vacant publicly owned parcels (Detroit Future City, 2012). Through the Detroit Land Bank Authority residents can now purchase adjacent side lots for as little as \$100, while other publicly vacant lots are sold at auction (Detroit Land Bank Authority, 2014). As this major city sees its residents being engulfed by greener pastures and becoming more self-determined through urban agriculture, Detroit may have found the right recipe for urban renewal by playing the environmentally friendly and self-reliant sustainable card by providing cheap incentives to help recreate a functioning socio-economic fabric in the city itself. However, little is known about how land conversion measures are directly impacting the residents that have been there all along. As some studies have correlated the prevalence of vacant lots with adjacent low-income neighborhoods, access to the ownership of these lots and their potential subsequent agricultural issue must be examined at the neighborhood level in order to examine broader socioeconomic dynamics within the city (Foo, et al., 2014).

### Proposed Research

Many studies on Detroit's population decline, economic downturn, and subsequent foreclosures, land abandonment, and mass demolition of dilapidated homes and structures have

focused their efforts on correlations between urban decline and economic decline (Hackworth, 2014). Other studies have focused largely on the growing urban agricultural trends of converting vacant lots to small urban farms and community gardens, and the social, economic and environmental implications of these actions. Few studies, however, have looked at how these vacant land conversion dynamics are operating on the neighborhood scale. That is, if some neighborhoods are faring better than others on reclaiming idle lands to create economic opportunities and empower communities.

The proposed study will delve deeper into the ramifications of public vacant land conversion on surrounding neighborhoods, to analyze what is at stake for current residents (and low-income residents who account for over 80% of the city's total population) with the new land use strategies being implemented by the City. Will the availability of vacant parcels profit long settled communities or will it help implant wealthier new populations and attract big private market interests? Are new urban planning schemes sowing the seeds to revitalize Detroit's remaining and fragmented neighborhoods, or do the City's measures forecast a promised urban oasis to only sustain a more affluent demographic? Are we witnessing the birth of a new socioeconomic paradigm taking root in the people themselves, or are we looking at the birth of a new avatar of the liberal society sprouting from the so-called green economy?

#### Research Questions, Hypotheses and Specific Aims

Focusing on the City's current land management practices for vacant land conversion, my research will explore, map, and assess whether or not newly converted plots for urban farming uses are positively or negatively impacting local communities.

Specific research questions will examine: 1) How are present urban renewal policies of vacant land conversion impacting and benefiting Detroit's declining population? 2) Are and will such measures be profitable and improve the quality of life for the remaining inhabitants? 3) Are side lot sales and newly reclaimed lots creating meaningful opportunities for current residents to acquire more property and increase overall social and economic capital? 4) Or are such measures systematically displacing long-settled communities to pave the way for a new and opportunistic affluent demographic?

Primary hypotheses to be evaluated are that many current residents in hard hit derelict neighborhoods of Detroit do not have the economic means to invest in purchasing nearby low-priced vacant plots, and that the conversion of vacant plots for urban agricultural uses vary by neighborhood demographics. A neighborhood analysis of land tenure from 2000-2015 of newly vacant plots will examine if a land grab is underway that is gentrifying areas and increasingly isolating and displacing already marginalized lower-income residents.

The main statistical hypotheses of this study are that:

- Hypothesis 1: purchases of publicly vacant owned land are positively correlated with socioeconomic status (e.g. income, education, occupation) of the purchaser
- Hypothesis 2: that purchases of publicly vacant land are closely associated with changes in neighborhood-level demographics
- Hypothesis 3: that revitalization of vacant parcels towards urban agricultural use has increased in the city between 2000-2015
- Hypothesis 4: that new urban agricultural plots are providing social, environmental, and economic benefits for the city as whole, but that benefits vary by neighborhood

The specific aims of this study are:

1. To evaluate the spatial and temporal relationship between vacant plots and newly reclaimed plots (2000-2015) by neighborhood to closely examine any changing demographics
2. To determine if the rate of reclaimed vacant land varies by neighborhood, and if so, which mechanisms could be driving this variation
3. To assess whether there is a positive correlation between the newly reclaimed public lots and socioeconomic status
4. To evaluate if urban agriculture uses for reclaimed public plots are benefitting residents at the neighborhood level

## Methods

### Research Design

This study will examine the spatial relationship of the vacant plots, newly reclaimed plots, and their agricultural purposes, and the overall degradation and wellbeing of the surrounding community via urban farming. The study will conduct a longitudinal analysis to assess the acquisition or transfer of vacant public land based on socioeconomic status between 2000-2015 by neighborhood, and the rate at which vacancy is becoming a community asset through urban agricultural use.

### Metrics & Data Collection

To address the abovementioned research questions and to test the hypotheses, data will be gleaned from the ArcGIS mapping tool, U.S. Census Bureau, and other databases on vacant land

parcels which may include: Data Driven Detroit, LOVELAND Technologies, Detroit Land Bank Authority, and Motor City Mapping. Metrics will include census data variables and other indicators like socioeconomic status to couple the relationship of vacant land parcels with community vulnerability and purchasing power for vacant parcels.

The available parcel data will provide the baseline for analyzing indicators. Parcel data for the following variables will be gathered by year (2000-2015) and stratified by neighborhood to investigate the magnitude of the relationship between vacant plots (including reclaimed plots) and neighborhood purchasing trends by socioeconomic status. The secondary analysis of newly converted lots for agricultural use will be then mapped at the neighborhood level. In total, data on parcels from a sample size of 105 Detroit neighborhoods will be gathered – as illustrated in Figure 1. of the Detroit Neighborhood Map.



## Data Manipulation

To address Aim 1. (the spatial and temporal relationship between vacant plots and newly reclaimed plots and neighborhood dynamics), I will examine each neighborhood's vacant plots by census block, analyzing the number of vacant and reclaimed (purchased) vacant lots within the last 15 years (2000-2015), in addition to the census data for the newly acquired vacant plots.

By identifying vacant and reclaimed parcels via SES census data and conducting a statistical analysis (a linear regression) to model the relationship between the land parcels and SES status at the neighborhood level, the study will further examine whether there is any positive or negative correlations with the newly reclaimed public lots and SES status. These findings will directly address Aim 3. (assess if there is a positive correlation between the newly reclaimed public lots and socioeconomic status).

To address Aim 2. (if rate of reclaimed vacant land varies by neighborhood) I will stratify the data by neighborhood to examine whether reclaimed purchased lots around the city differ at the neighborhood level. Finally, I will stratify the data by land usage type to address Aim 4. – evaluate if urban agriculture uses for reclaimed public plots are benefiting residents at the neighborhood level.

The mapping of Detroit neighborhoods in correlation with this data will ensure a better interpretation of the city's sustainability forecast both socially and economically. The U.S. Census Bureau data, in addition to data collected from sites like Motor City Mapping and Loveland Technologies, will provide the basic foundation to analyze variables and potential determinants. Lastly, testimonies from journal articles, newscasts, and documentaries on Detroit will be used qualitatively to support findings about whether Detroit's policies are contributing or

not to environmental justice and sustainability efforts of re-envisioning the City's deserted landscapes.

## Research Limitations and Expected Results

### Research Limitations

The primary limitations for my research stem largely from available data on publicly owned vacant parcels. The first potential limitation is that the available census information on ownership (and SES indicators) by parcel may drastically differ by neighborhood and within neighborhoods across time. This differential could lead to an over or under estimate of the correlation between reclaimed vacant land and SES indicators by neighborhood, which would skew the longitudinal analysis.

A second temporal limitation is that parcel ownership may change more than once in any given year, and that this change may not be captured in the U.S. census data which is presumably collected at a specific point in time each year. This limitation would also bias the results of my research and the potential magnitude of the relationship between reclaimed vacant parcels and rates of socioeconomic changes at the neighborhood level.

The third potential limitation of my research is that data on land use types (or purposes) of newly acquired parcels may be unknown (e.g. uses such as agriculture, forestry, redevelopment), or limited for some individual owners and private entities. This limitation would limit the domain of inference of the results with regard to the stabilization and communal access of land purchases for long-term residents. A fourth limitation is also along the individual versus private interest lines as it relates to census data for reclaimed parcels. I expect that SES census data (e.g. education attainment, income, occupation) will be more readily available for parcels

acquired by individuals as opposed to private entities, companies, organizations, and institutions. This data gap would really inform the overall inference of my research and would redirect the focus of my research and limit the sample size to a neighborhood analysis of parcel ownership by individuals.

Finally, a fifth limitation of this study is that the collection of parcel data layers through ArcGIS and other mapping tools may take quite some time. As I have never used ArcGIS and am currently taking an introductory course to learn the software, I expect to encounter a few hurdles here and there. For the sake of time, this may require me to reevaluate the feasibility of mapping layers for some 105 neighborhoods and upwards of 57,000 publicly owned vacant lots – as of February 8, 2016 (Motor City Mapping, 2016).

### Expected Results

If my hypotheses are correct, I expect to see the following results: that in the last 15 years the purchases of publicly owned vacant land are positively correlated with rising trends of a more affluent population which is more or less gentrifying Detroit neighborhoods over time. For the secondary analysis of the conversion of former vacant land to urban agricultural parcels, I expect to see results that indicate that this same new affluent population is driving the process of urban renewal through urban agriculture. And lastly, that these sustainable urban farming efforts – whose primary objectives may be to revitalize existing communities – are in fact reshaping their core demographics through gentrification. I expect the results of my research to visually map the rates at which specific neighborhoods are being gentrified via reclaimed vacant parcels.

On the flip side, the spatial analysis will visually locate pockets or areas within the city where residents are not purchasing vacant parcels and thus taking advantage of cheap land

conversion incentives such as the \$100 side lot program. These disproportionate rates of purchase, which I expect to be driven by socioeconomic indicators, will inform city policy makers and urban planners about potential (and latent) widening disparities in already vulnerable populations, in order to assist decision makers about potential areas of intervention.

I expect the findings from this research to be of value to urban planners, economists, local government, and environmental and social organizations as it will further inform policies on how vacant lots are used and converted to new uses to benefit and sustain local communities over time.

#### Timeline

Submission of Final Proposal	March 28, 2016
Contact Thesis Director	April 1, 2016
Target Date for Appointment of Thesis Director	April 10, 2016
Target Date for Starting Research	April 15, 2016
Register for Thesis Course	April 20, 2016
Submission of First Draft to Thesis Director	December 2, 2016
Submission of Final Draft to Thesis Director and Research Advisor	January 2, 2017
Online Submission of Final PDF	February 15, 2017

#### Glossary

**Legacy Cities:** the former industrial powerhouses and urban economic hubs rich with history and culture scattered throughout the Northeast to the Great Lakes regions that experienced dramatic decline through the 1980s (International City County Management Association, 2013).

**Rust Belt:** the Northeastern and Midwestern states of the United States in which heavy industry has declined – called also *rust bowl*. (Merriam-Webster, 2015).

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