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## Abstract

The purpose of this article is to examine municipal property acquisition patterns in shrinking cities. We use data from the City of Buffalo's municipal property auction records to analyze the spatial distribution of properties offered for sale in its annual tax foreclosure auction. In addition to these data, we examine demolition and building permit records. Our analysis suggests that cities like Buffalo follow strategies based on an urban growth paradigm when responding to abandonment. This paradigm operates under the assumption that growth is a constant and urban development is only limited by fiscal constraints, underdeveloped systems of urban governance, environmental degradation, and resistance by anti-growth coalitions. We recommend that planners in shrinking cities de-emphasize growth based planning and focus on rightsizing strategies. These strategies are based on the assumption that growth is not a constant. Consequently, urban revitalization is concentrated in a smaller urban footprint.

## Keywords

economic development, housing, neighborhoods, poverty, income inequality, buffalo

## Comments

### Required Publisher Statement

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**GEOGRAPHY, PLANNING & DEVELOPMENT | RESEARCH ARTICLE**

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## GEOGRAPHY, PLANNING & DEVELOPMENT | RESEARCH ARTICLE

# Municipal property acquisition patterns in a shrinking city: Evidence for the persistence of an urban growth paradigm in Buffalo, NY

Robert Mark Silverman<sup>1\*</sup>, Li Yin<sup>1</sup> and Kelly L. Patterson<sup>2</sup>

**Abstract:** The purpose of this article is to examine municipal property acquisition patterns in shrinking cities. We use data from the City of Buffalo's municipal property auction records to analyze the spatial distribution of properties offered for sale in its annual tax foreclosure auction. In addition to these data, we examine demolition and building permit records. Our analysis suggests that cities like Buffalo follow strategies based on an urban growth paradigm when responding to abandonment. This paradigm operates under the assumption that growth is a constant and urban development is only limited by fiscal constraints, underdeveloped systems of urban governance, environmental degradation, and resistance by anti-growth coalitions. We recommend that planners in shrinking cities de-emphasize growth-based planning and focus on rightsizing strategies. These strategies are based on the assumption that growth is not a constant. Consequently, urban revitalization is concentrated in a smaller urban footprint.

**Subjects:** City and Urban Planning; Urban Studies; Urban Policy

**Keywords:** abandoned property; shrinking cities; demolition; urban growth paradigms

### ABOUT THE AUTHORS

Robert Mark Silverman, Li Yin, and Kelly L. Patterson have been studying urban planning and revitalization in shrinking cities for over a decade. They have collaborated on several publications including their 2013 article, "Dawn of the dead city: An exploratory analysis of vacant addresses in Buffalo, NY 2008–2010," which appeared in the *Journal of Urban Affairs*. They are currently co-investigators on a multi-year Sustainable Communities Research Grant (SCRG) funded by the US Department of Housing and Urban Development (HUD). That project is titled, "Sustainable affordable housing in shrinking US cities: Developing an analytic tool for siting subsidized housing and evaluating HUD program outcomes."

### PUBLIC INTEREST STATEMENT

Shrinking cities are paradoxical. On one hand, they have absorbed the shocks of decades of population decline, disinvestment, property abandonment, job losses, and weakened local tax bases. On the other hand, neighborhood decline remains relatively contained in peripheral areas of shrinking cities, while investment and economic development continues to occur within the boundaries of a smaller urban footprint. In these cities, shrinking is often treated as a temporary condition and growth strategies continue to be pursued in the face of structural decline. In the US, shrinking cities typically do not adopt rightsizing strategies such as limiting the boundaries for urban development or rezoning depopulated neighborhoods for less intensive land uses. Our analysis focuses on this dilemma and makes a case for the adoption of more comprehensive rightsizing strategies in the US. We encourage expanded dialog about shrinking cities and an application of lessons learned in Europe to American cities.

### 1. Awakening to the dilemma of shrinking cities in the rustbelt

Shrinking cities are one of the most daunting challenges public officials and city planners confront in the US. This is because for most of the country's history urban policy has been driven by a growth paradigm (Dreier, Mollenkopf, & Swanstrom, 2013; Gottdiener, 1994; Wilson & Jonas, 1999). In his seminal article, Molotch (1976) described how urban development was guided by urban growth machines. Greer (1962) and others have also articulated a regional vision for urbanization predicated on the growth paradigm. This stream of thought predicted relatively unfettered urban development. Under the logic of the growth paradigm urban development was only limited by fiscal constraints, underdeveloped systems of urban governance, environmental degradation, and resistance by anti-growth coalitions. Although the growth paradigm has been discussed in municipal and regional contexts, it also feeds a general ideology that drives the decision-making of local officials. When this ideology is in place, the pursuit of growth forms the backdrop for policy formulation and subsequent decision-making about local economic development and urban revitalization.

In many parts of the contemporary US, the growth paradigm is no longer an applicable framework for making decisions about urban development patterns and planning. There is an increasingly visible group of cities and regions where growth has given way to shrinkage. Many of these cities are located in what has become known as the industrial rustbelt, and they share common characteristics of population decline, contraction in the employment base, decaying tax bases, obsolete infrastructure, and chronic property abandonment. Scholars have begun to pay closer attention to the dilemma of shrinking cities in the US, and they have drawn from the experiences of European cities that have encountered a similar fate (Bernt, 2009; Bernt et al., 2014; Bontje, 2004; Pallagst, 2008; Wiechmann, 2008).

In this article, we examine patterns of property abandonment and demolition in Buffalo, NY in order to gain a better understanding of how shrinkage relates to municipal property acquisition and site assembly strategies. Our analysis is exploratory in nature, focusing on the degree to which policies driven by growth paradigms are reflected in patterns of demolition, abandonment, and property acquisition in shrinking cities. In particular, we examine how municipal property acquisition and the development of the City's portfolio of property relate to emerging urban revitalization patterns in the City of Buffalo. The findings from this case study offer extensions to the literature on rightsizing. In particular, we discuss the persistence of growth paradigms and their implications for shrinking cities in the US. We conclude that greater emphasis should be placed on rightsizing strategies in shrinking cities like Buffalo.

There is a pressing need to understand the influence of growth paradigms in shrinking cities, since local policy-makers often downplay evidence of the continued downward trajectory in many US cities when formulating urban revitalization strategies. This stumbling block in the planning process was identified over three decades ago when Heilbrun (1979) argued for the consolidation of neighborhoods in cities experiencing depopulation. Despite the possible benefits of planned shrinkage, he argued that it was "politically impractical" given the parochial nature of local governance systems in the US (Heilbrun, 1979). More recently, Pallagst (2010) observed that the dialog about shrinking cities in the US has lagged behind related discourse among scholars and practitioners in Europe. She attributed this lag to the deeply embedded commitment to the urban growth paradigm in US planning culture. After decades of physical decay driven by employment decline and structural population shifts, public officials and residents who remain in America's shrinking cities continue to reference growth paradigms when considering urban development strategies (Shetty & Reid, 2013; Zingale & Riemann, 2013). In part, this predisposition is an outgrowth of the misguided view that over a half-century of decline is merely a temporary deviation from the period of urban growth experienced during the industrial revolution. Subscribers to this view cling to the belief that conditions for growth are ripe in shrinking cities and it is only a matter of time before the tide turns. They ignore demographic and economic projections that forecast fewer people, fewer jobs, and more empty spaces (Hollander, Pallagst, Schwarz, & Popper, 2009).

In several respects, collective denial of the downward trajectory of many US cities and the pursuit of remedies based on growth is the byproduct of a vacuum of scholarship focused on developing proactive strategies to rightsize cities and manage urban decline. Recently, researchers have begun to fill this gap in the literature (Bernt et al., 2014; Dewar & Thomas, 2012, 2013; Hunter & Dewar, 2012; Schilling & Mallach, 2012). In this article, we add to this emerging body of research focusing on strategies being adopted by shrinking cities to deal with property abandonment and other physical manifestations of urban decline. We then examine these issues in the context of Buffalo, NY, a quintessential rustbelt city in the US. In particular, we focus on patterns of demolition and property abandonment in the city and how these patterns relate to emerging municipal property acquisition and site assembly strategies.

Although Buffalo has experienced population losses and property abandonment for decades, there are signs of urban revitalization along Main Street, the city's central artery and commercial corridor. Despite private reinvestment in this area of the city, municipal property acquisition strategies have been concentrated elsewhere. Rather than focusing its property acquisition efforts on areas where urban revitalization is occurring, the City continues to acquire property in areas experiencing acute decline. This appears to be part of an effort to stimulate new growth in areas of the city where markets are weak, rather than adopting an alternative strategy for property acquisition that takes the city's shrinking status into account. In light of these patterns of municipal property acquisition, we conclude with a discussion of alternative approaches to dealing with property abandonment in shrinking cities which depart from traditional growth paradigms and introduce alternative frameworks for pursuing urban development. In essence, we argue that shrinking cities should target new development within narrower geographic boundaries.

In 2006, a rightsizing approach focused on concentrating higher density development in the urban core was recommended for Buffalo by the National Vacant Properties Campaign (NVPC, 2006).<sup>1</sup> Similar strategies for rightsizing have been suggested by the Detroit Works Project, the Cleveland Strategic Investment Initiative, and the Youngstown 2010 Plan (Anderson, 2011; Dewar, Kelly, & Morrison, 2013; Schatz, 2013; Thomas, 2013). The guiding principle behind rightsizing is that there is an oversupply of land and supportive infrastructure in shrinking cities. As populations decline and municipal tax bases contract, cities lose the capacity to provide public services and maintain infrastructure in a larger geographic area. Shrinking the footprint of a city becomes a tool to ration scarce resources and deliver vital services to a smaller population.

## 2. Emerging perspective on shrinking cities in the US

There is an emerging body of scholarship which applies the concept of shrinking cities to the US context (Dewar et al., 2013; Dewar & Thomas, 2013; Hollander, 2011; Hollander et al., 2009; Hummel, 2014; Rhodes & Russo, 2013; Shetty, 2009; Silverman, Yin, & Patterson, 2013; Zingale & Riemann, 2013). Increasingly, this framework has penetrated mainstream discussions of urban policy. For instance, Gallagher (2010) articulated a framework for thinking about shrinking cities in the contemporary US in his book *Reimagining Detroit*. Echoing empirical studies, he highlighted some of the critical issues that shrinking cities face in the US, and some of the distinctions between basing urban development on the logic of growth paradigms versus pursuing it in response to urban decline. Gallagher covered a number of topics in his book such as: the need to rightsize cities and their infrastructure, the need to use land banking and other tools to address property abandonment, and the need to restore the natural landscape as part of a broader strategy to cope with urban decline.

### 2.1. Property abandonment, municipal acquisition, and rightsizing cities in the US

A growing body of scholarship has focused on measuring factors associated with shrinking cities in the US and developing policy tools to mediate for their effects (Accordino & Johnson, 2000; Großmann, Beauregard, Dewar, & Haase, 2012; Hollander, 2011; Mallach, 2010). A great deal of emphasis has been placed on the physical manifestation of urban decline in the built environment. Concerted efforts have been made to inventory abandoned property and obsolete infrastructure. Several examples of these efforts have focused on the plight of cities in the industrial rustbelt of the

US. For instance, Shetty (2009) examined shrinking cities in northwest Ohio. This study measured a number of characteristics associated with urban decline in the region and recommended planning strategies for shrinking cities. The tools suggested for planned shrinkage included greening abandoned sites, contracting municipal boundaries, demolishing abandoned properties, and varying degrees of municipal property acquisition and land banking. Hummel (2014) proposed a similar taxonomy for rightsizing strategies.

Hillier, Culhane, Smith, and Tomlin (2003) examined the use of integrated data systems to identify vacant and abandoned property in shrinking cities. Their study focused on the use of the Philadelphia Neighborhood Information System as a land use management and planning tool. This information system integrated property files, administrative data, and allowed for spatial analysis of abandoned property in Philadelphia. Hillier and her co-authors argued that the ability to use integrated data systems and predictive models enhanced the planning process. We (Silverman et al., 2013) came to similar conclusions in our analysis of vacant property in Buffalo. Our research focused on the integration of multiple data sources to measure the nuances of abandoned property. Our analysis identified patterns of property abandonment in Buffalo, and recommendations for the use of evidence-based analysis in planned shrinkage were made.

Hackworth's (2014) analysis of municipal land abandonment policies added another dimension to the discussion of planning strategies designed to rightsize declining cities. In this analysis, he identified three distinct municipal land management regimes in rustbelt cities. The first focused on municipalities that had expanded the use of tools like code enforcement, demolition, property tax foreclosure, and property seizures to address problems associated with abandoned property. This strategy often involved large-scale site assembly initiated by local government. In contrast to these municipally driven abandonment management policies, Hackworth identified more decentralized planning tools used by municipalities that adopted a market-first approach to shrinkage. Under this approach, municipalities managed urban decline by facilitating the transfer of properties to private parties for reuse. Typically, this would entail municipal acquisition of vacant parcels in residential neighborhoods, and then transferring ownership of those parcels to neighboring homeowners for a nominal fee. These market-first strategies transfer land in a relatively piece-meal manner without extensive government intervention in the reorganization of land-use patterns. Finally, Hackworth identified pure market-based strategies to address land abandonment. These strategies entailed no role for local government. Instead, abandoned property was allowed to sit idle until private parties disposed of it on their own.

Hackworth concluded that the effectiveness of municipal policies to address abandoned property decreased as they moved from large-scale government intervention to purely market-based approaches. Mallach (2012) reached a similar conclusion in his analysis of abandoned property in rustbelt cities. Based on his analysis, he concluded that large-scale demolition was necessary in rustbelt cities in order to create a stable environment for redevelopment to occur. Public sector activism would be a prerequisite for the implementation of a strategic demolition campaign at the scale and scope that Mallach recommended. In essence, the magnitude of property abandonment in rustbelt cities represented a fundamental shift in the scale and scope of local land uses which requires policy reform and government intervention if it is to be fully addressed. This conclusion is consistent with other studies of shrinking cities in the US, which indicate that policies based on the logic of growth paradigms do not fit the conditions found in declining cities (Mallach & Brachman, 2013; Schatz, 2013; Schilling & Mallach, 2012). In order to address the planning challenges in these cities, a new strategy is needed where government assumes a greater role in restructuring local land-use patterns.

## **2.2. Land banking in the US**

One innovation in local land-use planning is land banking. During the past decade, land banking has become an increasingly popular tool that allows local governments to transfer abandoned property to a public authority or nonprofit entity in order to promote its redevelopment (Alexander, 2008;

Hummel, 2014; Schwarz, 2009; Tappendorf & Denzin, 2011). Alexander (2011) identified 22 states with land bank enabling legislation in place in 2011. Michigan led the country in the establishment of land banks with 36 entities in place in 2011. The proliferation of land banks has been most pronounced in the industrial rustbelt, although land bank enabling legislation has been adopted in every region of the US. Two of the most recent states to adopt land bank laws were New York and Pennsylvania, with each passing enabling legislation in 2011 and 2012 respectively.

Land banks are established under state enabling legislation and take the form of public authorities or nonprofit organizations. One of the most cited examples of best practices in land banking is the Genesee County Land Bank in Michigan (Gallagher, 2010; Schilling & Logan, 2008). Land banks acquire large numbers of vacant properties from local governments, usually on a regional scale. Typically, properties are dedicated to land banks by local governments at no cost. Once acquired, sites are remediated, assembled, and sold to nonprofit and private developers. Revenue from those transactions is reinvested into other properties owned by a land bank with the goal of stabilizing declining neighborhoods and promoting future redevelopment.

As a precondition to transferring properties to a land bank, local governments must take legal ownership of them. In many cases, these properties are vacant, abandoned, and tax delinquent when a municipality takes control of them. Historically, cities have used the tax foreclosure process to acquire properties, assemble sites, and leverage economic development. However, real estate markets are weaker in shrinking cities and local governments lack the capacity to manage large inventories of city-owned property. The lack of development and the volume of foreclosed properties require a regional strategy. Regional land banks represent one approach to addressing this issue. By combining the portfolio of properties owned by a city with other foreclosed properties in more economically vibrant parts of a region, a broader pool of properties is created. Revenue generated from the sale of properties in more economically stable parts of a region can be redirected to less vibrant areas to pay for remediation and stabilization.

Although much of the existing literature on land banks comes from urban planning practice, there is an emerging body of scholarly research that focuses on the impact of land banking on urban revitalization efforts. One of the most cited studies is Dewar's (2006) analysis of the sale of tax foreclosed properties, comparing the experiences in Cleveland to Detroit. She found that efforts to redevelop and reuse abandoned properties in Cleveland were facilitated by the presence of a land bank that worked in an integrated manner with local municipalities and nonprofits engaged in affordable housing development. In contrast, Detroit was less successful in promoting redevelopment and reuse of tax foreclosed properties due to the absence of a land bank and a lack of coordinated revitalization policies across agencies and nonprofits.

Together, land banking strategies and efforts to rightsize shrinking cities comprise an approach to urban revitalization that departs from the traditional growth paradigm. These strategies acknowledge that shrinking cities require governmental action to restructure development and land-use patterns. They also highlight the need for declining cities to redefine the physical boundaries where development occurs.

### **3. The context of Buffalo, a quintessential rustbelt city**

#### **3.1. Demographics and rustbelt decline**

During the late twentieth century, Buffalo became a quintessential rustbelt city, since its decline was defined by an extended period of acute depopulation and deindustrialization. In the wake of this decline, the urban landscape was littered with vacant and abandoned residential and commercial structures, as well as obsolete and idle industrial property. The 1970 US Census reported that 52,851 of Buffalo's residents held manufacturing jobs. The number was estimated to have dropped to 9,614 in 2010 and 9,550 in 2012 ([www.census.gov/acs](http://www.census.gov/acs)). Between 1970 and 2012 residents in the city lost



**Table 1. 2012 Population and housing characteristics of Buffalo compared to other rust belt cities**

	Buffalo		Cincinnati		Cleveland		Dayton		Detroit		Pittsburgh		Toledo		Youngstown	
	City	MSA	City	MSA	City	MSA	City	MSA	City	MSA	City	MSA	City	MSA	City	MSA
<b>Population</b>	<b>261,955</b>	<b>1,135,411</b>	<b>304,783</b>	<b>2,129,745</b>	<b>398,157</b>	<b>2,074,824</b>	<b>167,424</b>	<b>842,459</b>	<b>721,459</b>	<b>4,304,617</b>	<b>306,430</b>	<b>2,357,981</b>	<b>298,032</b>	<b>651,532</b>	<b>67,093</b>	<b>564,768</b>
Population change 2000–2010 (%) (Frey, 2012)	-10.7	-3.0	-10.4	6.0	-17.2	-3.3	-14.8	-8	-22.2	-3.5	-8.6	-3.1	-8.4	-1.2	-18.3	-6.2
Black (%)	39.4	14.7	43.6	15.6	57.4	27.6	45.6	18.3	83.4	27.8	30.3	11.5	32.5	19.0	47.4	15.2
Median household income (\$)	31,313	48,903	36,014	54,715	26,757	49,136	30,614	48,571	27,610	54,032	40,601	50,613	33,969	44,596	25,690	40,859
Below poverty (%)	30.9	16.2	31.5	16.7	35.8	18.4	33.9	17.2	39.3	18.4	24.0	14.3	29.6	21.6	36.2	19.7
GINI index	.47	.42	.49	.44	.46	.42	.45	.41	.47	.42	.48	.42	.44	.42	.44	.41
<b>Housing units</b>	<b>134,391</b>	<b>519,208</b>	<b>167,632</b>	<b>917,435</b>	<b>214,584</b>	<b>954,748</b>	<b>84,829</b>	<b>384,869</b>	<b>363,010</b>	<b>1,887,148</b>	<b>157,228</b>	<b>1,102,385</b>	<b>143,394</b>	<b>301,246</b>	<b>33,640</b>	<b>259,741</b>
Owner occupied (%)	42.1	64.8	39.2	64.9	44.1	63.9	50.3	64.7	51.9	70.1	49.8	67.9	54.7	63.8	60.0	70.3
Median value (\$)	85,152	113,194	143,606	155,003	80,005	137,621	81,483	123,607	62,621	132,868	112,519	122,698	85,726	117,239	41,658	91,300
Vacant (%)	17.6	10.9	22.0	12.1	22.6	12.7	20.8	11.2	29.4	12.0	15.4	11.0	15.4	13.8	20.5	12.3
Vacant "other" (%)	61.1	46.9	45.1	41.5	59.0	47.1	57.4	47.8	58.8	42.6	54.3	55.9	45.4	39.5	52.0	44.5

Source: US Census, American Community Survey 2012 5 year estimates.

an estimated 43,301 manufacturing jobs, 82% of its manufacturing base.<sup>2</sup> The city's population peaked in 1950 when it reached 580,132. By 2012, it was estimated that the city's population had plummeted to 261,955.<sup>3</sup> In approximately 60 years Buffalo's population shrank by an estimated 55%. Population loss was not isolated to the City of Buffalo. During this period it was a regional phenomenon. The Buffalo–Niagara Falls metropolitan statistical area (MSA) population peaked in 1970 when it reached 1,349,211. By 2012, the region's population was estimated at 1,135,411.<sup>4</sup> In approximately 40 years, the region's population declined by an estimated 15.8%.

When the City of Buffalo's population is subtracted from the MSA, the suburban population in the area peaked in 1970 at 886,443. In approximately 40 years, the suburbs population declined by 1.5%. It is noteworthy that the Buffalo–Niagara Falls MSA experienced population losses in its older core city and suburbs. This can be contrasted with other metropolitan areas in the US which have experienced what has been referred to as a “hollowing out” or “doughnut effect” where declining population in older core cities has been driven by robust growth in suburban communities (Pallagst, 2008).

From a regional perspective, Buffalo's trajectory mirrored trends found in other rustbelt cities experiencing decline. Table 1 compares population and housing characteristics in Buffalo to other rustbelt cities that experienced high rates of population decline between 2000 and 2010.<sup>5</sup> Compared to the MSAs where they were located, rust belt cities had higher concentrations of minority populations, poverty and income inequality, and lower median household incomes. They also had lower rates of owner occupancy and property values, and higher rates of housing vacancy. With the exception of Cincinnati, the core cities and their MSAs identified in Table 1 experienced population decline during the last decade. The pattern of decline in these cities was a reflection of shrinking on a regional scale, and not that of core cities “hollowing out.”

### **3.2. Policy constraints in a rustbelt city**

Decline in Buffalo has become a regional phenomenon driven by an aging population, accelerated out-migration, and deindustrialization. Long-term population and industrial losses are symptomatic of shrinkage in Buffalo. The physical manifestation of this shift is an oversupply of residential units and endemic property abandonment.<sup>6</sup> Despite efforts by the City to promote revitalization in its downtown and waterfront, markets for development are weak in other sections of the city. With targeted investments, the urban core has the potential to stabilize, but much of the remaining land mass in the city cannot build its way out of decline. Depopulated areas of the city with concentrations of abandoned property are unlikely to turn around, even if public subsidies and finance tools are applied. The oversupply of blighted and abandoned property threatens to slow revitalization in more vibrant areas nearby. The City should take active steps to reuse its surplus land for purposes other than development. Because we view the shrinking cities phenomenon as a reflection of long-term change in Buffalo, we argue that there is a need for a change in planning practices away from paradigms focusing on growth. Among other elements, this change entails planners advocating for the rightsizing of the built environment, and municipal intervention to encourage targeted revitalization and the restoration of the natural landscape in areas where develop will no longer occur (Dettmar, 2005; Haase, 2008; Schilling & Logan, 2008).

#### **3.2.1. An emphasis on demolition**

To some extent, the City has taken incremental steps to move in this direction. The most notable example of this involves targeted demolition. In 2007, the City announced the initiation of an ambitious property demolition plan, coined the “5-in-5” plan. The goal of this plan was to demolish 5,000 structures in 5 years (City of Buffalo, 2007). When the City's “5-in-5” demolition plan was announced, the official position of the City was that vacant property was at an epidemic scale. The publication announcing the demolition plan framed the issue in this manner:

[O]ne of the most important issues facing our community [is] vacant structures. These blighted properties perpetuate a negative perception of Buffalo. The blight thwarts economic investment; it strains City finances; and, of prime importance, it compromises the safety of our residents who live adjacent to these structures and the courageous men and women of the Buffalo Fire and Police Departments who respond to the high rate of fires and crime in these structures.

Between 2007 and 2012, the City demolished 3,027 structures. This fell short of the targeted goal for demolitions by almost 2,000 properties. The difference was largely due to fiscal constraints. According to the City demolition records, the cost of demolition averaged \$15,172 per structure during the period under analysis, and the average cost of asbestos removal was \$4,335 per structure. While demolition costs were incrementally rising, the City fell short of its \$100 million funding requested from state, federal, and philanthropic sources. The City's ability to pursue targeted demolition was also thwarted by the need to use funds initially intended for the 5-in-5 plan to pay for emergency demolitions. The need for emergency demolitions was noticeable. For instance, between 2007 and 2012, the Fire Commissioner made 449 emergency declarations for demolitions in the city. These emergency demolitions comprised 14.8% of all demolitions during that time period.

In addition to inadequate fiscal resources to address vacancy and abandonment, ambiguity existed about the goals of the City's demolition, acquisition, and revitalization policies. This had a tendency to reinforce the growth paradigm. Blighted properties were characterized as "thwart[ing] economic investment" while the underlying demographic and economic trends that caused the vacancy and abandonment were not part of the dialog surrounding the City's agenda. The lack of public dialog about Buffalo's status as a shrinking city essentially removed any serious consideration of using demolition and property acquisition as a tool for rightsizing. Instead, the City's demolition policy was more reflective of a *Field of Dreams* strategy which argued that if you demolish blighted buildings, economic development will come. This growth oriented strategy flew in the face of decades of population and job losses driven by suburbanization, deindustrialization, and other regional urban development patterns.

### 3.2.2. *The creation of a land bank*

In addition to a greater emphasis on demolition, land banking emerged as a new tool for pursuing urban revitalization. In 2011, the State of New York passed land bank enabling legislation. The law allowed for local jurisdictions to apply for permission from the State to establish nonprofit land banks. In 2012, a countywide collaboration which included the City of Buffalo was granted permission to form one of the first land banks in New York. The new nonprofit was named the Buffalo Erie Niagara Land Improvement Corporation (BENLIC). The establishment of a land bank created a possible new stream of resources for the City and its partners to access in their efforts to manage decline.<sup>7</sup> The creation of BENLIC meant that the land bank had the potential to strategically identify properties that could be revitalized and the proceeds from the sale of those properties could be used to stabilize other blighted areas. The land bank represented a new tool that could be used by the City to pursue revitalization.

With a land bank in place, the City had the ability to better coordinate demolition and site assembly activities. In anticipation of the formation of the new land bank, there was a spike in the number of tax foreclosed properties that the City of Buffalo acquired. Since these property acquisitions occurred *before* they were offered to private parties at auction, the City had the ability to coordinate demolition and assemble larger sites. However, the long-term goal of these site assembly efforts remains to be seen. The question we ask with our analysis is whether the City's acquisitions reflected patterns of site assembly focused on rightsizing versus policies driven by traditional growth paradigms. In part, identifying where clusters of properties acquired by the City are located will lend support for one set of policies over another.

For example, we expect that a rightsizing strategy would encourage municipal property acquisition near locations where development and urban revitalization is relatively stable. The presence of such nodes of development have been associated with urban revitalization efforts pursued by anchor institutions in shrinking cities (Birch, 2009, 2010; Patterson & Silverman, 2014; Silverman et al., 2013; Silverman, Lewis, & Patterson, 2014). In contrast, we expect that a strategy driven by a growth oriented paradigm would encourage municipal property acquisition in blighted areas. From this perspective, local government would identify blight as the main impediment to continued growth and economic development. Consequently, site assembly would be seen as a strategy to attract new development to declining areas.

#### 4. Analysis of property acquisition strategies

Our subsequent analysis focuses on the degree to which policies driven by growth paradigms are reflected in patterns of demolition, abandonment, and property acquisition in Buffalo. We argue that there are two possible property acquisition strategies shrinking cities are likely to pursue:

- *Growth Strategies*: municipal property acquisitions will occur where property abandonment is concentrated in order to stimulate new growth and development.
- *Rightsizing Strategies*: municipal property acquisitions will occur in nodes where development is relatively stable in a manner that reflects rightsizing strategies.

The adoption of a growth strategy suggests that municipal property acquisitions will occur in declining areas suffering from private and institutional disinvestment. This type of activity would focus on assembling vacant and abandoned sites in order to create conditions for revived growth and development. This approach to municipal policy action assumes that conditions for growth will ripen once government intervention makes land shovel ready.

In contrast, the adoption of a rightsizing strategy suggests that municipal property acquisitions will occur in relatively stable development areas. This pattern of property acquisition is expected to occur in response to private and institutional investment in vibrant areas of a shrinking city. This pattern of property acquisition would suggest that rightsizing strategies were being applied.

The degree to which evidence exists to support a growth strategy versus a rightsizing strategy will add to our understanding of the relative influence of growth paradigms on patterns of municipal land acquisition. If a growth strategy is dominant, we will observe large parcels of vacant land being assembled for anticipated growth and expansion. If a rightsizing strategy is dominant, municipal property acquisitions will cluster in areas where private and institutional development is concentrated. In contrast, if there is no discernible pattern of clustering of municipal property acquisitions, we would conclude that a mixed approach is present.

#### 5. Data and methods

Our analysis focuses on a case study of property demolition and acquisition in Buffalo, NY. Through this case study, we gain a better understanding of how patterns of demolition and property abandonment relate to emerging municipal property acquisition and site assembly strategies.<sup>8</sup> This analysis uses data from the City of Buffalo's Office of Strategic Planning (OSP). It included final tabulations from the City's 2012 *in rem* property auction, property demolition records for 1998–2012, and building permit records for 2010–2012. These data are mapped using geographic information system (GIS) software. The GIS maps identify the density of properties by demolitions, *in rem* status, and building permits issued. These parcel level data are aggregated at the census block level. In total, densities for 3,428 census blocks in the City of Buffalo were examined. Although the number of parcels varied between the census blocks in the city, on average there were approximately 27.7 parcels per census block. Density measures reported in this study are measured on a continuous scale ranging from 0 to 1, which reflect the proportion of properties in a census block exhibiting the respective characteristic being measured. For example, a density of property demolitions of .02 would indicate that 2% of the properties in a census block had been demolished during the

observation period. After mapping the density measures, they were modeled using multiple linear regression to predict city property acquisition patterns. We supplemented our analysis with data from informal interviews with City staff and archival documents. The informal interviews were part of an ongoing dialog with staff who assisted with data collection and responded to inquiries throughout the research process.

### 5.1. Tax foreclosure data

Our analysis focuses on patterns of demolition, abandonment, and municipal property acquisition. One of the main data sources examined is records from tax foreclosure auctions in the City of Buffalo. We selected this source of data for two reasons. First, these data allowed us to examine transactions related to vacant and abandoned property at the parcel level. In our past research, we conducted similar analysis using HUD aggregate USPS administrative data on address vacancies, as well as data from the ACS (Silverman et al., 2013). However, both of those data-sets placed limitations on our analysis due to data being aggregated at the census tract level. The use of tax foreclosure data allowed us to conduct a micro-level analysis of property vacancy and abandonment at the parcel and census block levels. Second, past research has identified tax foreclosure data as an accepted proxy for abandonment, as well as an indicator of neighborhood instability and decline (Leavitt & Saegert, 1988; Morckel, 2014; Scafidi, Schill, Wachter, & Culhane, 1998). Data from Buffalo's *in rem* property auctions allowed us to do detailed analysis on the disposition of tax foreclosed properties before and after tax foreclosure auctions were held. This included the calculation of density measures of various types of foreclosed properties at the census block level.

*In rem* properties include all residential and commercial tax foreclosed properties offered for auction by the City of Buffalo in 2012. Of the *in rem* properties examined, 91.2% were residential properties. In order for a property to obtain *in rem* status it must have delinquent taxes, user fees, and sewer and/or water charges. If the City is unable to resolve outstanding debts after several attempts are made to notify the legal owner of a property, title is transferred to the City, and attempts are made to sell the property at an annual public auction. The process for a property to become *in rem* typically culminates after several years of abandonment and neglect by owners.

There are three possible outcomes when a property is offered for sale at an *in rem* auction. One is that a property is acquired by a bidder and removed from the City's *in rem* list. Another is that a property is permanently transferred to the City before an auction takes place and it is removed from the *in rem* list. This outcome is referred to as being *struck to the City*. These properties become part of the City's portfolio and are used for site assembly purposes, dedicated to developers in order to leverage new development, or for other purposes deemed appropriate by the City. If a property is not acquired by a bidder or struck to the City, it is classified as adjourned and remains on the *in rem* list. Adjourned properties revert back to their original owner of record and they are offered for sale at the City's next annual auction unless the property owner of record resolves outstanding debt.

Table 2 summarizes the outcomes from the 2012 City of Buffalo tax foreclosure auction. In 2012, there were 3,205 properties offered for sale in the *in rem* auction. These properties represented approximately 3.4% of all properties in the city.<sup>9</sup> Just over half of the *in rem* properties were

**Table 2. Characteristics of *in rem* properties listed in the 2012 City of Buffalo tax foreclosure auction**

	Total	Percent	Average years on the city's <i>in rem</i> list
All properties 2012	3,205	100	2.6
Adjourned 2012	1,608	50.2	3.2
Sold at auction 2012	1,085	33.8	1.6
Struck to the City 2010–2012 <sup>a</sup>	512	16.0	2.8

<sup>a</sup>Transactions for 493 (96.3%) of the properties identified as "Struck to the City" took place in 2012.

Source: City of Buffalo *in rem* 46 properties list.

**Table 3. Characteristics of demolitions and building permits**

	Total	Average per month	Average per year
Demolitions October 1998–August 2012	6,244	35.9	430.6
Demolitions January 2010–August 2012	1,215	37.9	455.6
Building permits January 2010–May 2012	3,255	108.5	1,302.0
Building permits January (w/o asbestos and demolitions) 2010–May 2012	2,362	76.2	914.3

Sources: City of Buffalo *in rem* 46 properties list; City of Buffalo demolitions list 1998–2012; City of Buffalo building permits list January 2010–May 2012.

adjourned to the next auction, 33.8% of the properties were acquired by private bidders and the remaining 16% were struck to the City. There was a noticeable increase in the number of properties struck to the City in 2012. In informal interviews, planners from the OSP indicated that this spike was in response to the formation of the BENLIC, and they anticipated transferring most of these properties to the land bank at some point in the future.<sup>10</sup> It is also notable that adjourned properties tended to remain on the City's *in rem* list longer than other properties. On average, adjourned properties were on the list for 3.2 years.<sup>11</sup> Adjourned properties are considered to be among the most distressed properties in the City. These properties often suffer from acute deterioration and neglect, since it can take several years of accumulated debt for a property to be placed on the *in rem* list and then the blighting of these properties accelerates during their extended *in rem* status.

Data from the City's *in rem* property files were paired with property demolition records and building permit records. These two measures were available at the parcel level and then aggregated at the census block level for analysis. Table 3 summarizes the demolition and permit data. Demolition data are summarized for 1998–2012 and 2010–2012. These data represent completed demolitions. In both cases, average rates of demolitions are relatively comparable. Permit data are summarized for 2010–2012. First, data are summarized for all building permits, and then they are reported after removing permits to remediate asbestos and demolished properties. The latter data on permits reflect new construction and other improvements to property that were initiated during the period observed.

## 6. Results

### 6.1. Demolition and abandonment

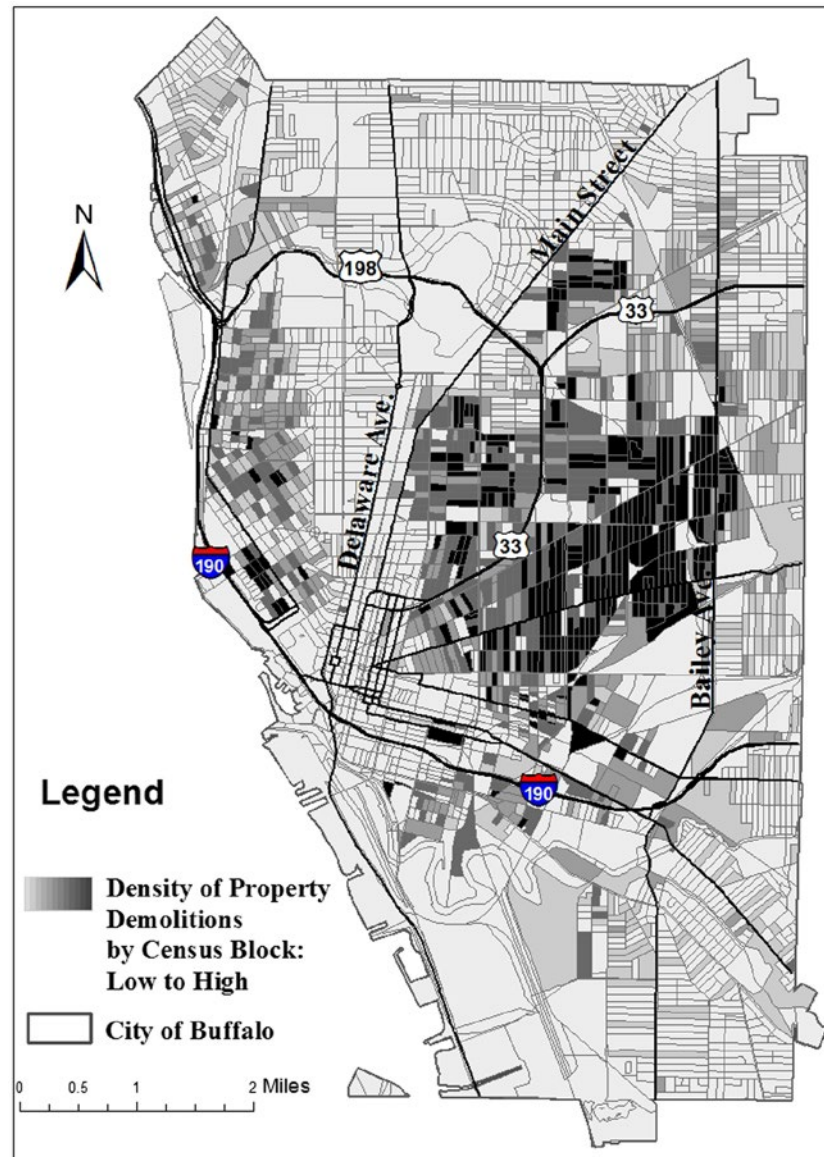
Abandoned property is not evenly distributed across Buffalo. Its effects are most visible on the east side of the city, where poverty and African-American residents are concentrated (Silverman et al., 2013). The same neighborhoods that are impacted by poverty and historic patterns of racial segregation are also disproportionately impacted by property demolitions. This is illustrated in Figure 1, which displays the density of demolished property by census block.<sup>12</sup> The average density of demolished properties in a census block was .05 which indicated that 5% of parcels in the typical census block had experienced a demolition during the 12-year period under examination.

Figure 1 illustrates the degree to which demolition is omnipresent on city blocks in a large section of the city, while other city blocks are untouched by abandonment. This illustrates how the city is recentering its built environment in response to shrinking. Neighborhoods near the city's central business district and main corridor, Main Street, remain relatively stable. Simultaneously, the east side of the city is being transformed into a patchwork of neighborhoods with acute levels of abandonment.

Large scale, concentrated demolitions are the most visible characteristic in shrinking cities like Buffalo. The clustering of demolitions results from a process of property neglect and abandonment that unfolds over a period of years. A less visible indicator of neighborhood decline is the presence of

**Figure 1. Density of property demolitions by census block in Buffalo, NY 1998–2012.**

Source: City of Buffalo, OSP.

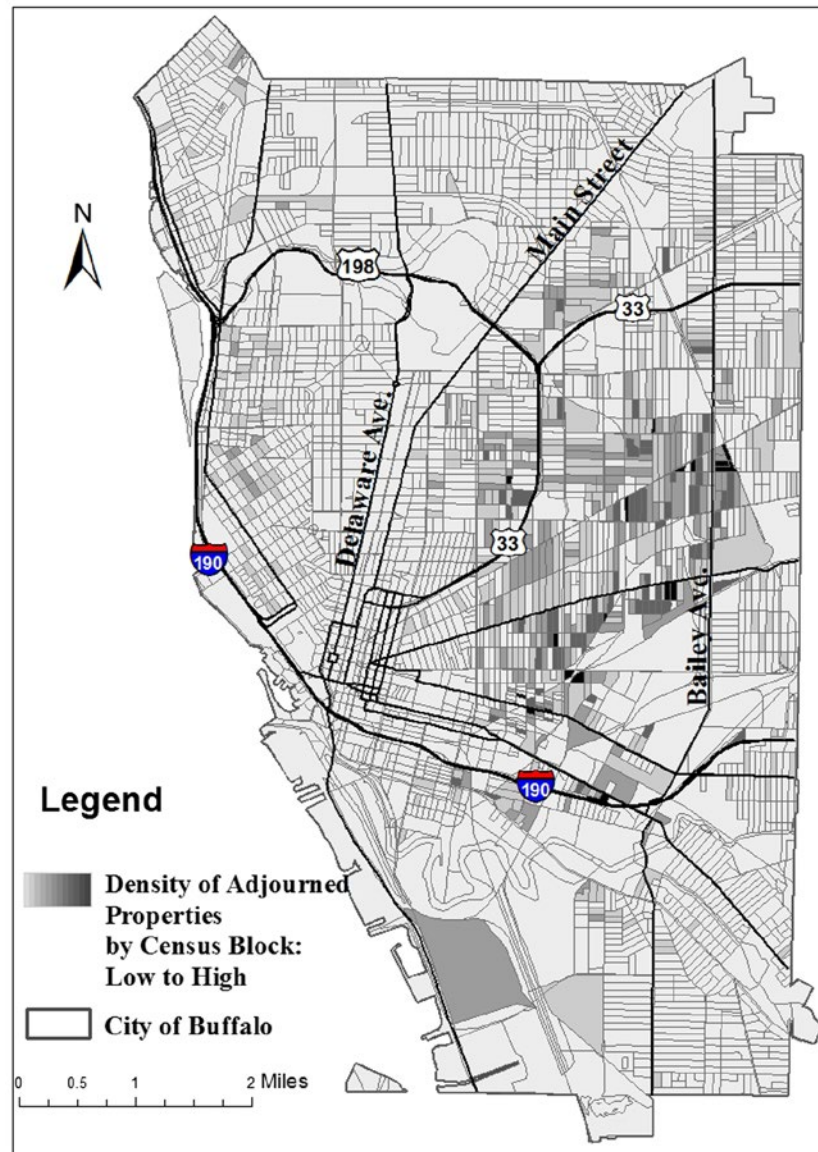


tax delinquent properties. *In rem* properties represent the most problematic properties in a city, due to the accumulated debt associated with them and the inability of their owners to resolve it. In essence, *in rem* property represents the manifestation of economic decline in the built environment.

Among *in rem* properties, adjourned properties are the most problematic. In part, this is because adjourned properties tend to remain on a city's auction list for several years due to the inability or unwillingness of property owners to retire debt associated with them. Repeated attempts to auction adjourned properties also suggest that they are not economically viable. When these properties cluster together the issue of economic viability is magnified, since concentrations of adjourned properties suggest the lack of a functioning real estate market in an area. Figure 2 displays the density of adjourned properties by census block in Buffalo.<sup>13</sup> The average density of adjourned properties in a census block was .01 which indicated that 1% of parcels in the typical census block was on the *in rem* list but was not sold during the 2012 tax foreclosure auction.

**Figure 2. Density of adjourned properties by census block in Buffalo, NY 2012.**

Source: City of Buffalo, OSP.

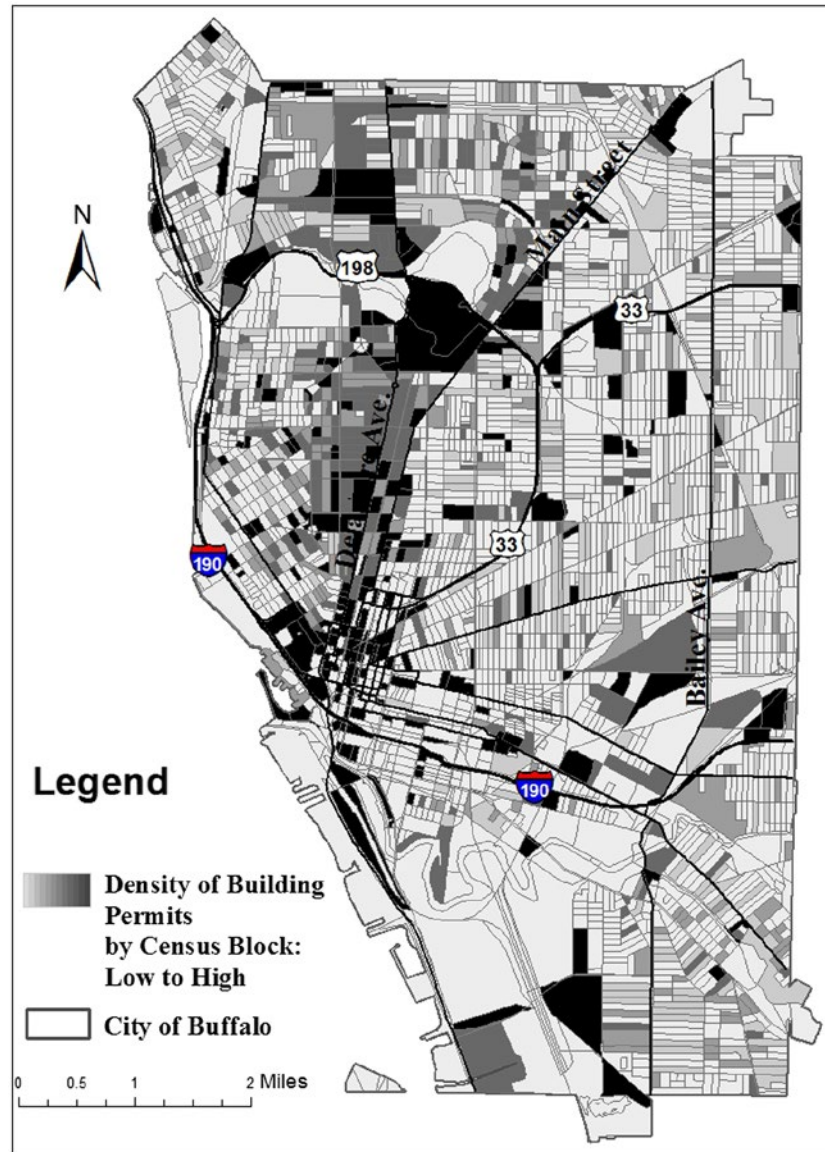


The spatial concentration of adjourned properties appears to parallel the pattern identified with demolitions. Shrinking is an ongoing process on the east side of Buffalo, with properties in various stages of abandonment. This can be contrasted with the spatial orientation of development in the city's central corridor. One way to capture patterns of development in a city is to visualize where building permits are being issued. Figure 3 displays the density of building permits in the City of Buffalo.<sup>14</sup> The average density of building permits in a census block was .04 which indicated that 4% of parcels in the typical census block were issued at least one building permit between 2010 and 2012. Two contrasts stand out when comparing Figure 3 to the other figures. First, nodes of development are clustered near the central business district and along the city's main corridor. This is another illustration of active recentering occurring in the city. Second, there is a dearth of development occurring in other parts of the city. This suggests that shrinking entails both recentering around clusters of new development and accelerated decline where abandoned property is concentrated.



**Figure 3. Density of building permits by census block in Buffalo, NY 2010–2012.**

Source: City of Buffalo, OSP.



The clustering of building permits in Buffalo’s central business district and along the main corridor of the city is a reflection of private investment patterns driven by development pressures from large anchor institutions like hospitals and universities. Permits cluster near downtown Buffalo and its waterfront, the adjacent Elmwood Village neighborhood, the Buffalo Niagara Medical Campus, and hospitals and universities in the city. Areas with higher densities of building permits correspond with the clustering of hospitals and universities in Buffalo that we identified (Silverman et al., 2013). Despite high rates of property vacancy and abandonment on the east side of Buffalo, reinvestment is occurring in the urban core. One driver for this reinvestment is the focus on an *eds and meds* strategy for redevelopment (Adams, 2003; Bartik & Erickcek, 2008; Birch, 2010; Hobor, 2013; Mallach & Brachman, 2013).

### 6.2. A steadfast commitment to pursuing growth

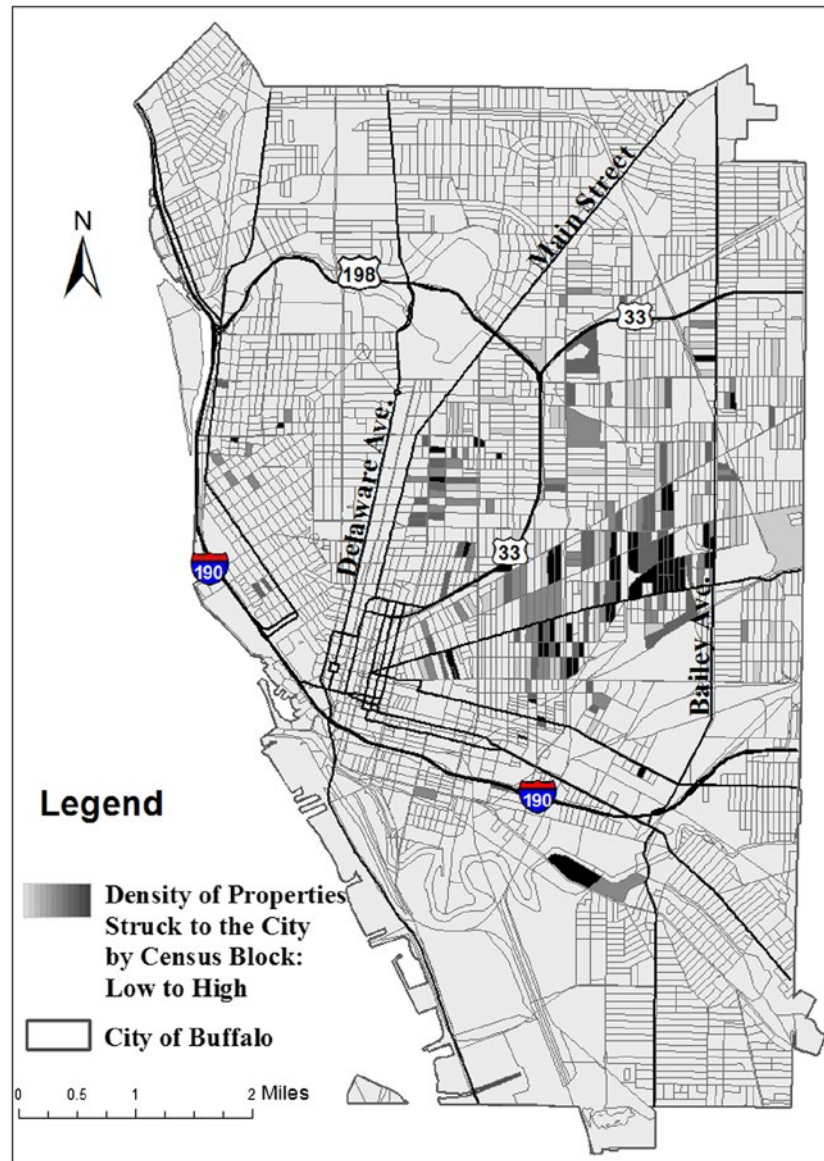
In order to gain insight into the degree to which policies driven by growth paradigms are reflected in patterns of demolition, abandonment, and property acquisition in Buffalo, we examined factors associated with the location of city acquired *in rem* properties. If a rightsizing strategy was being

pursued, we would expect to find significantly more *in rem* properties struck to the City in and near census blocks with higher densities of building permits. In contrast, if a growth strategy was being pursued, we would expect to find significantly more *in rem* properties struck to the City in census blocks with higher densities of demolitions and adjourned properties.

Figure 4 displays the density of properties struck to the City of Buffalo.<sup>15</sup> The average density of a properties struck to the City in a census block was .003 which indicated that .3% of parcels in the typical census block was transferred to the City between 2010 and 2012 *before* the respective tax foreclosure auction occurred. A visual inspection of this figure suggests that municipal property acquisitions are focused on parts of the city where the most acute abandonment is occurring. The area where the most visible cluster of properties struck to the City is located is the area known as the Broadway-Fillmore area. This area has experienced acute decline for decades and the City has an interest in stabilizing its commercial corridor, in part, due to the City's ownership and vested interest for over a century in the main commercial anchor in the area, the Broadway Market. For decades, the City has attempted to reverse decline in this area and attract new commercial development.

**Figure 4. Density of properties struck to the city by census block in Buffalo, NY 2010–2012.**

Source: City of Buffalo, OSP.



**Table 4. Linear regression model for the effects of independent variables on the density of properties in a census block that were struck to the city between 2010 and 2012 (N = 3,428)**

Variable name	Coefficient	SE	$\beta$
Density of demolitions 1998–2012	.094***	.003	.546
Density of adjourned properties 2012	-.065***	.008	-.137
Density of building permits 2010–2012	.0002	.002	.002
Constant	-.001*	.0003	
Adjusted-R <sup>2</sup>	.234***		
Standard error of estimate	.0152		

\* $p < .05$ .

\*\* $p < .01$ .

\*\*\* $p < .001$ .

Sources: City of Buffalo *in rem* 46 properties list; City of Buffalo demolitions list 1998–2012; City of Buffalo building permits list January 2010–May 2012.

Despite these efforts, outmigration, job losses and property abandonment have persisted for decades. The clustering of recent municipal property acquisitions in the Broadway-Fillmore area seems to support a growth strategy, suggesting that municipal property acquisitions are focused on reviving growth and development in structurally declining neighborhoods rather than rightsizing the city and focusing on leveraging development where investment is stable or expanding.

In order to gain a better understanding of the relationship between patterns of decline and development, a linear regression model was developed that measures the relationship between demolitions, adjourned properties, building permits, and where properties were struck to the City.<sup>16</sup> The results of the regression model are summarized in Table 4. The adjusted-R<sup>2</sup> indicated that 23.4% of the variance in the density of properties struck to the City was attributed to the variables used in the model. These results add to our understanding of the factors related to municipal property acquisition patterns. First, the model indicated that there was no significant relationship between the density of building permits in a census block and the density of properties struck to the City. Thus, there was no evidence for the use of municipal property acquisition as part of a broader rightsizing strategy. The City of Buffalo’s acquisition of *in rem* properties did not appear to reflect a proactive urban revitalization strategy designed to re-center the city and adjust to shrinking.

Second, the model indicated that there was a significant relationship between two independent variables (density of demolitions and density of adjourned properties) and the density of properties that were struck to the City. In line with a growth strategy, the density of demolitions was positively correlated ( $p < .001$ ) with the density of properties struck to the City. In essence, the City tended to acquire more properties in census blocks with concentrated demolitions. However, the density of adjourned properties was negatively correlated ( $p < .001$ ) with the density of properties struck to the City. This suggests that municipal property acquisitions were less pronounced in residential neighborhoods where the physical manifestations of abandonment were more acute (i.e. in census blocks with concentrations of relatively long-term, difficult to auction, adjourned properties). Consequently, this finding suggests that a growth strategy was not uniformly applied to all distressed areas of the city. This outcome may be partially explained by the finite amount of fiscal resources available to address vacancy and abandonment, and the need to ration those resources. In the case of Buffalo, it appears that those resources have been focused on commercial areas where the City has substantial property interests. The City’s historic ties to the economic fate of the Broadway-Fillmore area, and its ownership of the Broadway Market in particular, appear to have influenced where municipal property acquisitions were clustered.

The mixed results from the regression analysis suggest that the City of Buffalo is acquiring property in a pattern reflective of an urban growth strategy. In the case of Buffalo, neighborhoods with higher densities of demolitions appear to be targeted for municipal property acquisition. However, fiscal constraints have limited the scope of such targeting to distressed communities where the City has existing commercial interests. In contrast, municipal property acquisition is unlikely to be targeted in areas where private development is already occurring. Under this growth approach, the City appears to be assembling sites for future development near city-owned commercial property. Implicit in this strategy is the assumption that by removing blight and concentrating vacant, shovel ready lots in declining areas, new growth will come. This pattern is distinct from others, since it suggests that the City's property acquisition strategy has an emphasis on demolition and site assembly.

Some might speculate that the formation of a regional land bank would alter these patterns. However, this does not appear to be the case in Buffalo. Although still in formation, the emerging BENLIC appears to have adopted a complementary growth strategy. This approach was highlighted in its 2013 "Town and Village Land Bank Orientation" (BENLIC, 2013, slides 6 and 8). In that orientation two of the main roles of the land bank were identified as facilitating "land assembly" and acting as a "developer." The orientation also identified "demolition" and "land assembly" as two of the main outcomes being pursued in what the land bank identified as its "triage strategy."<sup>17</sup> The BENLIC's emphasis on leveraging property to stimulate new growth is also articulated in the organization's mission statement, by-laws and other documents. For instance, the BENLIC's mission statement emphasizes the organization's primary role in "strategically acquiring, improving, assembling, and selling distressed, vacant, abandoned, and/or tax-delinquent properties" (<http://www.benlic.org/#!about/cjn9>).

Despite its growth orientation, progress toward implementation of the BENLIC has been slowed by fiscal constraints at the state and local levels. Oberst (2014) reported that two years after the BENLIC was established, it received its first installment of funding from state and local government. That allocation included \$2 million in state funds to underwrite the cost of fifty property demolitions in the City of Buffalo and five demolitions in Lackawanna, an adjoining rustbelt city. An additional \$100,000 in County funds was provided to the BENLIC for a pilot program to renovate seven properties in the suburbs. The initial strategy adopted by the BENLIC was to subsidize the demolition city-owned property in Buffalo and its neighboring shrinking city Lackawanna, while pursuing rehabilitation on a much smaller scale in suburbs where real estate markets were stronger. The emphasis on using the emerging land bank as a site assembly tool to promote urban growth is in stark contrast to the plan developed by the NVPC in 2006 which places a heavier emphasis on using land banking as a tool for rightsizing and urban greening in Buffalo (NVPC, 2006).

### **7. Implications of wholesale abandonment**

Shrinking cities are paradoxical. On the one hand, they have absorbed the shocks of decades of population decline, disinvestment, job losses, and weakened local tax bases. This physical decay consumes entire neighborhoods. They are littered with vacant and abandoned property. Fiscally strapped municipalities are unable to maintain neighborhood infrastructure and distressed properties continue to deteriorate. On the other hand, neighborhood decline remains relatively contained in peripheral areas of shrinking cities. Neighborhoods closer to the revitalizing core achieve a degree of stability. Shrinking entails a recentering process, where investment and economic development continue to occur within the boundaries of a smaller urban footprint. The central functions of shrinking cities do not disappear; they simply take place on a smaller scale.

The quagmire that public officials and boosters in shrinking cities face is that they treat decline as a temporary condition. Consequently, they remain committed to the pursuit of growth strategies. In part, these strategies are focused on assembling sites in order to rebuild neighborhoods that have experienced wholesale abandonment. At the same time, places where investment is occurring are surrendered to the private sector and market forces. This creates a geography of inequality characterized by nodes of prosperity fueled by the investments of large anchor institutions juxtaposed

against marginalized peripheral areas targeted by local government for demolition and site assembly in an effort to stimulate new growth. In this context, rightsizing has been observed to occur in an unfocused, piecemeal manner (Bernt et al., 2014).

In contrast to a growth strategy, a rightsizing strategy would be guided by the acknowledgment that shrinking is a long-term condition. Thus, it would involve rightsizing the boundaries for urban development. As neighborhoods become depopulated, land in peripheral areas should be rezoned for less intensive uses or even set aside as passive green space where the natural landscape would be restored, rather than targeted for development following a growth strategy. In concert with these efforts, new higher density development would be encouraged in the urban core.

Our analysis supports prior research suggesting that a key obstacle to the adoption of comprehensive rightsizing strategies is the persistence of growth paradigms in settings where they do not apply (Bernt et al., 2014; Pallagst, 2010; Shetty & Reid, 2013). Discussions about rightsizing are often stymied by public officials and municipal boosters who refuse to acknowledge that shrinking is a long-term, structural condition. Perhaps the biggest challenge for future researchers is to persuade local policymakers that growth models do not apply to shrinking cities.

In order to achieve this, researchers should consider a number of avenues that extend the exploratory analysis we have undertaken. For instance, there is a need to develop more precise measures of abandonment and property acquisition. Recently, scholars like Morckel (2014) have added to this area of inquiry, and we have discussed the issues surrounding the use of data from multiple sources in such analysis (Silverman et al. 2013). There is also a need for modeling to be done using both multi-city and longitudinal analysis in order to facilitate the use of additional control variables and to examine the effects of spatial autocorrelation across longer timeframes. In addition to more sophisticated quantitative analysis, this area of study will benefit from expanded qualitative research. While our analysis drew from informal interviews with planners and public officials, more systematic analysis based on semi-structured interviewing would allow for the analysis of the manifestation of growth strategies in decision-making processes surrounding urban revitalization. The findings from our exploratory analysis provide a framework for future inquiry and raise questions about the applicability of traditional growth strategies to revitalization efforts in shrinking cities.

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#### Cover image

Center for Urban Studies, University at Buffalo.

Source: Robert Silverman.

#### Notes

1. Rightsizing entails planning and development efforts to strategically shrink the footprint where development

and public services are provided in a city. It might entail changes to existing zoning and land use regulations, the removal of infrastructure, land banking, placing moratoriums on development in declining areas, and other proactive measures to address population decline and neighborhood abandonment.

2. Estimates for manufacturing employment for residents of Buffalo coincided with data from the 2007 Economic Census which reported that there were 360 manufacturing establishments in the city that employed an average of 9,082 production workers per year. The discrepancy between the number of residents employed in manufacturing and the number of manufacturing jobs identified in the city is partly explained by the margin of error in the American Community Survey (ACS) estimates ( $\pm 1,627$  in 2010 and  $\pm 759$  in 2012) and by the presence of nonresidents holding jobs inside of the municipal boundaries.
3. The 2012 ACS population estimate is reported in the text in order to be consistent with the most up-to-date employment estimates reported in this section. Both the population and employment estimates are based on the ACS for the same survey year. The 2010 decennial census reported that Buffalo's population was 261,310. The ACS population estimate for 2010 was 261,210 with a margin of error of  $\pm 40$ . The ACS population estimate for 2012 was 261,955 with a margin of error of  $\pm 50$ .
4. The 2010 decennial census reported an MSA population of 1,135,509 and there was no discernible margin of error reported with the 2012 estimate.

5. The cities identified in Table 1 are among the 10 cities with the fastest shrinking populations in the United States. Two of the fastest shrinking cities during that period (Birmingham, AL and New Orleans, LA) were not included in the table because they are not located in the Northeast or Midwest regions associated with the US rustbelt. All 10 cities are examined more systematically in the analysis for our 2013 HUD Sustainable Cities Research Grant.
6. Although related to this topic, a broader discussion of theories of land supply and demand is beyond the scope of this article (see Evans, 2004, for an overview).
7. At the time that this article was written, the BENLIC was still in formation. It received its first state and county funding in 2014.
8. In our analysis, we use *in rem* property status as a proxy for abandonment since this status is ascribed to properties that have been tax delinquent for a period of years and subsequently put up for public auction by the City after the property owner of record has failed to reconcile his or her outstanding debts. We consider adjourned properties to be the most acute type of *in rem* property, since the City has attempted to sell these properties at multiple public auctions while they have remained vacant and have continued to deteriorate due to owner neglect.
9. In 2010, the City of Buffalo identified 94,856 parcels in its property files. This was the most current tally of parcels in the City at the time of our analysis. The total number of parcels in the City changes from year-to-year due to ongoing site assembly activities. For example, the total number of parcels identified by the City declined by 621 between 2009 and 2010.
10. In the time since those informal interviews were conducted and the writing of this article, no properties struck to the City were transferred to the BENLIC. According to Oberst (2014), the transfer of properties had been delayed due to delayed state start-up funding for land banks and limited BENLIC capacity.
11. The City of Buffalo's 2012 *in rem* data file included a variable indicating the number of years each property was offered for sale in the foreclosure auction.
12. The shading of individual census blocks in Figure 1 reflects the proportion of properties (.0–1.0) where demolitions occurred between 1998 and 2012.
13. The shading of individual census blocks in Figure 2 reflects the proportion of properties (.0–1.0) that were adjourned after the 2012 *in rem* auction.
14. The shading of individual census blocks in Figure 2 reflects the proportion of properties (.0–1.0) that were issued at least one building permit between 2010 and 2012. Permits for asbestos removal and demolition were not included in these calculations.
15. Figure 4 displays the density of properties struck to the City between 2010 and 2012 ( $n = 512$ ). During that three year period, 96.3% of these properties were acquired by the City in 2012. In informal interviews, City officials in the OSP attributed the increased number of properties struck to the City in 2012 to the creation of the BENLIC. The shading of individual census blocks in Figure 4 reflects the proportion of properties (.0–1.0) that were struck to the City before the 2012 *in rem* auction.
16. Regression diagnostics were performed for this model and no issues of multicollinearity were identified. Since data for this analysis were aggregated at the census block level and continuous density measure were calculated, tests for spatial autocorrelation were not used in this analysis. This represents a limitation of the research design. Data aggregation was used in the analysis to highlight inter-neighborhood effects,

with census blocks used as a proxy for neighborhoods. Tests for autocorrelation would be more applicable to parcel-level analysis focusing in intra-neighborhood effects using data based on binary scores. The analysis of autocorrelation would also be more relevant in a longitudinal study examining several years of tax foreclosure auction outcomes.

17. See Strickland and Judd (1982) and Kleniewski (1986) for discussions of the role of triage strategies in urban revitalization.

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