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Revitalizing Deteriorated Urban Neighborhood Real Estate Markets Through Concentrated Homeownership Development: Determining the Spillover Effects of New Homes on the Value of Surrounding Homes

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ESTATE MARKETS THROUGH CONCENTRATED

HOMEOWNERSHIP DEVELOPMENT: DETERMINING THE

SPILLOVER EFFECTS OF NEW HOMES ON THE VALUE OF

SURROUNDING HOMES

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ABSTRACT

REVITALIZING DETERIORATED URBAN NEIGHBORHOOD
REAL ESTATE MARKETS THROUGH CONCENTRATED
HOMEOWNERSHIP DEVELOPMENT:
DETERMINING THE SPILLOVER EFFECTS OF NEW HOMES
ON THE VALUE OF SURROUNDING HOMES

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Old Dominion University, 2007
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The promotion of homeownership opportunities represents an important approach used by localities to support the revitalization of deteriorated urban neighborhoods. Homeownership is associated with a variety of social and economic benefits to the homeowner including increased residential stability and equity accumulation. The introduction of new homeownership opportunities into a deteriorated urban neighborhood as part of local public policy is intended to capitalize upon the anticipated positive social and economic outcomes. Such new homeownership development also presents the opportunity to generate positive spillover effects on the adjacent existing properties in the neighborhood which may ultimately result in higher real estate tax values for the locality.

Although the theory and research considering such spillover effects are limited, the gravity model provides a basis for examining the spatial interaction between the new homes and the surrounding existing homes. The application of this model to the new homeownership intervention accounts for the influence of the new development in terms of density (number of units) and distance in relation to the existing units. In order to further consider the applicability of gravity theory, this study examines the impact of two new homeownership

revitalization developments on surrounding residential property values in Newport News, Virginia.

Geographic information systems (GIS) provided the framework for identifying properties located within specified rings surrounding the two homeownership revitalization areas. Real estate property value assessments were furnished by the City of Newport News for 2000 to 2005 and provided the opportunity to create a hedonic model to identify the primary property amenities which accounted for the variation in property values. The GIS-facilitated ring variables were incorporated into the hedonic model to enable the consideration of spillover effects generated by the new homes on the adjacent existing homes.

The results of the study indicate that the introduction of the new homes appears to influence property values in the surrounding neighborhood where there was a dense core of new development and an existing homogenous neighborhood housing stock. Therefore, concentrated homeownership revitalization efforts offer the potential to positively influence the values of adjacent residential properties thereby enhancing a locality's real estate market.

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TABLE OF CONTENTS

Page

LIST OF TABLES

Table   Page

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Background to the Problem

Many older cities in the United States face tremendous challenges due to aging physical infrastructure, maturing housing stock, the movement of middle class households to surrounding suburban communities, and increased demands for services from the remaining residents and businesses. The Federal Interstate Highway System and the Federal Housing Administration (FHA) in the second half of the 20th century served to accelerate the development of suburban communities at the expense of established urban communities. These Federal initiatives when combined with land use and zoning practices adopted at the local level greatly contributed to the current national landscape consisting of large shopping malls, strip commercial development, and residential subdivisions largely isolated from each other. Meanwhile, older cities experienced decline due to the continued exodus of middle-income families to new suburban housing, the closing of important employment centers due to global economic changes, and a continued decrease in the amount of assistance provided by the Federal government to ameliorate urban decline.

Left on their own to compete against the allure of the suburbs and lacking the necessary financial resources, cities are pursuing an array of strategies to strengthen their commercial and residential environments. Some of these strategies have their foundation in the urban renewal programs funded by the Federal government after World War II which were intended to radically

transform the physical environment of older urban communities. Other strategies are somewhat more modest and emphasize the preservation and revitalization of elements which make cities unique as illustrated by the housing and commercial rehabilitation programs which emerged in the 1970s as a result of the Federal Community Development Block Grant (CDBG) Program. Consequently, many cities now use a combination of redevelopment and revitalization strategies in order to: 1) retain and attract businesses, and 2) retain and attract middle and upper-income residents.

Cities increasingly view homeownership opportunities as an important component of local strategies designed to revitalize and redevelop deteriorated residential neighborhoods. The appeal of homeownership strategies rests on a number of positive attributes associated with owner-occupied housing including better property maintenance by owners when compared to renters, and evidence that the children of homeowners perform better in school when compared to children from a rental situation (Rohe and Stewart 1996; Haurin, Parcel, and Haurin 2001). Furthermore, publicly facilitated homeownership opportunities are viewed as a way to encourage the migration of middle-income residents back to the city; however, such migration may result in "gentrification" when significant differences exist between the incomes of the new residents and established residents. Nevertheless, many cities are also engaging in programs intended to provide attractive, safe, and affordable homeownership opportunities for modest-income working families.

Accordingly, urban homeownership strategies can consist of financial incentives to encourage prospective homebuyers to either purchase existing homes throughout the city or to renovate and occupy deteriorated homes located in older city neighborhoods. Likewise, the homeownership strategy can involve a more concentrated approach whereby the city targets specific neighborhoods for revitalization through special loans and grants to preserve and modernize vacant homes for sale to new owners. However, such efforts may be too late for seriously deteriorated neighborhoods in which large parts of the housing fabric have disappeared only to be replaced by crumbling structures infeasible for rehabilitation and vacant lots.

Consequently, the revitalization of older neighborhoods involving the introduction of new homeownership units may be necessary to address the physical deterioration and general instability of a neighborhood's real estate market. Such instability is evident in neighborhoods where standard housing (i.e. housing which meets local codes standards) surrounds areas of substandard housing (i.e. deteriorated and dilapidated housing). In such neighborhoods, real estate values are either stagnant or declining due to the presence of substandard housing thereby adversely affecting new homeowner interest in the purchase of the standard units. Existing homeowners in such markets find it difficult to market their homes and have little incentive to invest in maintaining and upgrading their homes given the uncertainty in recapturing any of the investment in the subsequent sale of the property.

Cities have a vested financial interest in a well-functioning neighborhood-based residential real estate market since real estate property taxes are assessed based on the valuation of the property. Appreciating property values translate into increased property taxes (assuming maintenance of the existing tax rate). In stagnant or depreciating markets, real estate property tax revenue effectively declines (again assuming maintenance of the existing tax rate). Given the financial challenges facing cities and the importance of real estate property taxes to fund critical services including public safety and schools, strategies designed to restore and strengthen neighborhood residential real estate markets are critical to the well-being of the city and its residents.

Thus, cities are increasingly pursuing neighborhood revitalization strategies involving the introduction of large numbers of new owner-occupied housing units concentrated in the most deteriorated portion of the neighborhood. Likewise, the Federal government through the Department of Housing and Urban Development (HUD) promoted such approaches in large cities during the mid-1990s with the introduction of the Homeownership Zone initiative and through the benefits associated with the Neighborhood Revitalization Strategy Area (NRSA) approach under the CDBG program. In addition to the positive impact on the neighborhood's physical appearance, it is assumed that the new units will have a positive spillover effect on the value of the remaining residential properties surrounding the new development. Such effect is the result of the introduction of the new units valued at a level above the existing residential units thereby providing new "comparables" for the valuation of existing residential properties by

the real estate appraisal industry. This effect is beneficial for those cities which establish property taxes based on comparable values influenced by the local real estate market.

Issue or problem (need for the study)

Although the premise that the development of new homeownership units in blighted neighborhoods generates positive spillover effects is a widely accepted principle of the urban redevelopment profession, there is a very small body of published empirical research which clearly supports the premise. Nevertheless, the housing and community development profession is witnessing the increasing use of concentrated homeownership development as a neighborhood revitalization strategy to improve the neighborhood's physical condition while enhancing market conditions to improve the residential real estate tax base. Such market improvement results from the direct development of units to replace blighted property and the spillover effect on the value of surrounding properties. Accordingly, a need exists to establish a theoretical and empirical basis for this important and increasingly deployed neighborhood revitalization strategy. Such research may also provide the opportunity for practical application by supporting the targeting of a city's increasingly limited Federal housing and community development funding to carefully selected neighborhood areas to maximize impact.

Statement of purpose

The purpose of this study is to examine the intended spillover effects generated by concentrated homeownership development on the valuation of

proximate older neighborhood homes. Accordingly, the study will focus on two concentrated homeownership revitalization efforts in the City of Newport News, Virginia. The basic interest is to determine if the increased housing value generated by the introduction of new homes through revitalization increases the value of older homes in the surrounding neighborhood. Research objectives for this study include:

1) determining those factors which facilitate spillover valuation resulting from neighborhood revitalization, and

2) determining those factors which restrict or impede spillover valuation resulting from neighborhood revitalization.

Significance

The development and testing of a theoretical model to explain the spillover effects of concentrated homeownership development on neighborhood property values in blighted communities will provide the housing and community development profession as well as urban researchers with the foundation to further test the influence of this revitalization approach on urban neighborhood real estate markets throughout the United States. Furthermore, the anticipated practical application involves the strategic development of homeownership communities which could have overlapping spillover effects on the surrounding neighborhoods thereby increasing values and homeowner equity. The increase in such private capital would reduce the need for the local government to pursue a typical urban redevelopment strategy whereby large areas are cleared for new

development. Such a strategy would enable local governments to selectively target their revitalization resources to maximize impact.

Relevance to urban policy development

The neighborhood represents an important component of modern urban society. With 80% of the United States population living in areas defined as urban by the 2000 U.S. Census (Hobbs and Stoops 2002), the neighborhood constitutes the principal residential setting for these urban dwellers. Within the urban context, central cities typically comprise a diverse and densely developed landscape, which functions as the nucleus for the surrounding urban area. Containing approximately 38% of U.S. urban population (Mackun and Wilson, 2000), such central cities are typically composed of a collection of neighborhoods that evolved to serve the interests of different socio-demographic markets. These neighborhood real estate markets determine the value of residential properties thereby influencing the property taxes which represent a critical financial resource for the city.

Research Questions

In determining the influence of concentrated homeownership development on neighborhood property values in blighted neighborhoods, this study will consider the following research questions:

- Does concentrated homeownership development involving new construction in blighted communities have measurable spillover effects on the surrounding neighborhood's residential property values?

- Does the distance between the concentrated homeownership development and the surrounding existing homes influence the spillover effect?

- Do the characteristics of the surrounding existing homes influence the spillover effect of the new homes?

- Does the amount of local government participation in the concentrated homeownership development influence the spillover effect on adjacent properties?

Summary

In the early 21st century, older urban communities face an array of challenges including an aging housing stock and neighborhoods suffering from economic disinvestment and capital flight. Meanwhile, the traditional tools used to address these challenges such as Federal housing and community development funding through the U.S. Department of Housing and Urban Development (HUD) grow smaller thereby requiring greater innovation, careful deployment of resources, and the leveraging of other resources by local governments. The promotion of homeownership is generally recognized by local governments as a positive policy tool which provides potential opportunities for the revitalization of blighted and deteriorated neighborhoods. In order to effectively utilize the homeownership revitalization approach, it is important for local governments to understand the benefits both socially and economically to the community. Accordingly, this research study is intended to expand the knowledge and understanding of the economic benefits in terms of positive

externalities while presenting a conceptual model for future homeownership revitalization targeting at the local level.

CHAPTER II

RELATED LITERATURE

The principal area of interest for this study concerns the benefits of homeownership in terms of the measurable impact on the neighborhood area. While the benefits of homeownership to the owner-occupants have been examined in various studies, there are very few empirical studies which examine the influence on the surrounding property values of the introduction of a large aggregation of new homeownership units comprising a revitalization effort. Meanwhile, practitioners in the field have typically based economic impact studies on the increased property value and the accompanying increase in tax assessment resulting from replacing a single deteriorated home with a new home as part of a neighborhood revitalization effort.

Benefits of Homeownership

Homeownership represents an important housing policy goal in the United States. The evolution of Federal support for homeownership is as old as our nation's republic and includes land incentives for settlers in newly acquired U.S. territories, tax deductions for mortgage interest payments and federally-insured mortgages through the Federal Housing Administration (FHA), Farmers Home Administration (FmHA), and the Veterans Administration (VA). This continued Federal support for homeownership somewhat reflects Thomas Jefferson's vision for the country in which citizens were to be property owning farmers. Consequently, citizenship was associated with real estate property ownership. Although the Jeffersonian vision was primarily agrarian, the concept of individual

residential property ownership increasingly represents a principal housing vision for urban and urbanizing areas of the nation. In presenting the current Bush administration's position on homeownership, the White House (2006) website asserts, "homeownership benefits individual families by helping them build economic security, and it fosters healthy, vibrant communities."

Numerous benefits are associated with homeownership in the United States. Scanlon (1996) in reviewing major homeownership research conducted from 1979 to 1994 suggests that the studies indicate the positive influence of homeowning on "personal well-being, community involvement, neighborhood stability and financial well-being" (p. 22). A policy brief, "Homeownership and Its Benefits" issued by the U.S. Department of Housing and Urban Development (1995) as well as work by Rohe and Stewart (1996) survey the research examining the benefits of homeownership. These two studies make the following conclusions:

- Homeownership is generally a good economic investment and increases wealth for families of all races and incomes,

- Homeowners are less likely to move than renters thereby promoting neighborhood stability,

- Homeowners maintain and improve their properties at a higher rate than do absentee landlords when controlled for structural, household, and neighborhood characteristics, and

- Neighborhoods of single-family detached homes in good repair (traits associated with homeownership) experience less crime in comparison to other neighborhoods.

Rohe and Stegman (1994) conducted a study examining the community participation rates of homeowners and tenants in neighborhood organizations which indicated a significantly higher participation rate for homeowners compared to tenants. Furthermore, Dietz (2003) extends this participation study to include political activity whereby homeowners appear to have higher voting rates than renters when controlling for personal characteristics and socioeconomic status. Likewise, Dietz indicates that homeowners exhibit a higher level of life satisfaction than renters again when controlling for other factors. Such higher life satisfaction may be attributed to what McCarthy, Van Zandt, and Rohe (2001) identify as "housing security" in a survey of research. This security is described as:

> Homeownership gives more control to owners over their physical surroundings and tenure, lowers real monthly payments over time, protects against unanticipated changes in rental costs, and helps build wealth. Homeownership also provides a ready mechanism for families to borrow money and get credit to, for instance, improve their home, make purchases, or invest in education or the financial markets (p. iii).

The concepts of security and stability are themes repeated throughout the research examining the benefits of homeownership.

Research by Green and White (1997) indicates that homeowning has an important effect on the probability of children staying in school. Aaronson (2000) further examines the homeownership effect presented by Green and White and concludes that homeownership increases residential stability which correlates with higher school attainment. Haurin, Parcel, and Haurin (2001) find that reading and math achievement is 7-9% higher for children living in ownership situations compared to children living in a rental environment. Finally, research by Harkness

and Newman (2002) indicates that "homeownership improves children's outcomes in almost any neighborhood" (p. 620). However, the overall neighborhood homeownership rate has no effect on children's outcomes according to the study. Nevertheless, the research further confirms Aaronson's key findings. It is important to note that in a later study Harkness and Newman (2003) indicate "remarkably little is known about the real effects of homeownership on homeowners, their children, or their communities" (p. 87). Thus, researchers are not sure whether homeownership as an intervention results in positive outcomes for families or instead the families themselves have unique characteristics which prompt them to excel and pursue homeownership as an opportunity.

Nevertheless, the positive attributes associated with homeownership have generated considerable interest in developing strategies to promote homeownership as a tool to revitalize older urban neighborhoods. The underlying premise concerns the concentration of homeownership opportunities in blighted neighborhoods whereby the benefits accrued by the homeowners and their families provide an environment which nurtures neighborhood stability and contributes to revitalization.

Homeownership as a tool for urban revitalization

Investment in the development of new housing and the rehabilitation of existing housing represents a key component of neighborhood revitalization strategies adopted by local governments. The foundation of this housing investment approach has been presented as the "neighborhood revitalization hypothesis" by Van Ryzin and Genn (1999). This hypothesis asserts that

"government housing programs, especially working in partnership with community-based non-profit organizations, constitute a critical ingredient in the physical and economic rejuvenation of poor urban neighborhoods" (p. 807). This neighborhood revitalization hypothesis (based on a public and non-profit housing investment approach) has been further refined to include an increased emphasis on homeownership development due to the previously cited neighborhood and family benefits.

HUD (1996) introduced the concept of homeownership zones as a strategy to revitalize older blighted urban neighborhoods by developing a large concentration of owner-occupied housing using the principles of new urbanism. New urbanism represents a popular approach among the urban planning profession because it encourages the development of pedestrian friendly neighborhoods with sidewalks and parks along with housing in proximity to retail and employment opportunities. Homeownership zones were designed to apply the benefits associated with new urbanism and homeownership to change the physical, economic, and social character of the neighborhood. Furthermore, such development was to be targeted in a concentrated manner to generate the critical mass necessary to positively influence property values in the community thereby encouraging owners to improve properties or sell properties to new owners who will improve the properties. Although HUD awarded substantial funds to twelve U.S. cities in 1996 and 1997 (HUD 2004), there appear to be no studies available which evaluate the results of this homeownership zone initiative (Turnham and Bonjorni 2004).

Despite the emphasis placed on homeownership as a strategy for neighborhood revitalization, research by Ellen, Schill, Susin, and Schwartz (2001) found little empirical evidence concerning the effect of new homeownership development on neighborhoods. A review of the research literature confirms this assertion and reveals essentially eight published studies examining homeownership and the impact on the physical appearance or property values in the neighborhood (see Table 1).

Table 1: Summary of Previous Research

Research Title/ Publication Date	Researcher(s)	Findings
Homeowners and Neighborhood Reinvestment (1987)	Galster	In Wooster, Ohio and Minneapolis, Minnesota, homeowners generally maintain their properties better than do renters in existing neighborhoods.
Housing Rehabilitation Impacts on Neighborhood Stability in a Declining Industrial City (1985)	Margulis	In Cleveland, "selective census tracts receiving publicly funded homeowner rehabilitation assistance did not experience demographic, economic, or property stabilization" (p. 19).

Table 1 - Continued

Research Title/ Publication Date	Researcher(s)	Findings
The Differential Impacts of Federally Assisted Programs on Nearby Property Values: A Philadelphia Case Study (1999)	Lee, Culhane and Watcher	In Philadelphia, "Federally-assisted homeownership programs have a more beneficial impact on surrounding neighborhoods than any type of rental assistance program" (p. 92).
Building Homes, Reviving Neighborhoods: Spillovers from Subsidized Construction of Owner-Occupied Housing in New York City (2001)	Ellen, Schill, Susin, and Schwartz	In New York City, the concentrated development of homeownership units appears to generate a positive effect on the property values in the immediate neighborhoods.
The Impact of Manufactured Housing on Residential Property Values: A GIS Based Approach (2001)	Wubneh and Shen	In five counties in North Carolina, single-family stick-built houses in proximity to manufactured housing (mobile homes) in several cases have lower property values than single-family homes located farther away from manufactured housing.

Table 1 - Continued

Research Title/ Publication Date	Researcher(s)	Findings
Revitalizing Inner-city Neighborhoods: New York City's Ten-Year Plan (2002)	Schill, Ellen, Schwartz, and Voicu	In New York City, housing production programs in blighted communities have decreased the gap between property values in the target area and the surrounding neighborhood but the difference between type of production (rental versus ownership) and the magnitude of influence is insignificant.
Property Values in Inner-City Neighborhoods: The Effects of Homeownership, Housing Investment, and Economic Development (2003)	Ding and Knaap	In Cleveland, investments in new houses have a positive impact on housing values, especially for houses close to the new investment.
The Impacts of Targeted Public and Nonprofit Investment on Neighborhood Development (2005)	Accordino, Galster, and Tatian	In Richmond (Virginia), the neighborhoods targeted for investment under the Neighborhoods in Bloom program saw housing values increase annually at a rate approximately 10% greater than other city neighborhoods.

Of the eight studies presented in Table 1, only the research by Ellen et al (2001) and Ding and Knaap (2003) exclusively examines the relationship between concentrated new homeownership development and neighborhood property values. Both studies show a positive relationship between the introduction of new homeownership units in a neighborhood and the value of surrounding homes.

The Wubneh and Shen (2001) study is unique since it examines the impact on property values of one type of housing which is typically owner-occupied (manufactured housing) on another type of predominately owner-occupied housing (single-family detached homes). In the study, the results indicated that the proximity of manufactured housing to traditional single-family homes appeared to influence the assessed value of the single-family homes.

The other studies examine either the rehabilitation of existing owner-occupied housing units or compare the influence of rental housing initiatives versus ownership opportunities on neighborhood property values. The Accordino, Galster, and Tatian (2005) study looked at investment in the rehabilitation of existing homes and the development of new homes on vacant in-fill lots. The study results indicate that the targeted investment had an impact on home sales prices within 5,000 feet of the target area. Comparative studies looking at ownership and rental initiatives generated mixed results in the cases of Philadelphia and New York City. Although the New York City study found no significant difference between the type of production program (rental versus ownership) and the impact on the property value gap between the target area and surrounding neighborhood, the homeownership programs in Philadelphia were found to have a positive impact on neighborhood

property values as opposed to rental programs which typically had a less desirable impact on neighborhood property values. Although it is generally assumed that assisted rental housing (public housing, Section 8, and Low-Income Housing Tax Credit units) generally has a negative impact on neighborhood property values, the literature review by Lee, Culhane, and Watcher (1999) indicates very mixed results from a modest number of studies between 1963 and 1998 which is confirmed in the updated literature review by Ellen et al (2001). Nevertheless, affordable rental housing regardless of the type is often perceived by local homeowners as highly undesirable and adversely impacting home values. Such development proposals often experience the "Not in My Backyard" or NIMBY phenomenon.

Therefore, the Ellen et al (2001) and Ding and Knaap (2003) studies provide the best insight into the influence of concentrated homeownership development on property values in blighted urban neighborhoods. The researchers in the first study examine the effect of two major homeownership programs in New York City on property values in surrounding areas. The principal hypothesis of the study is that homeownership investment in blighted neighborhoods should "generate spill-over benefits that could be capitalized into the value of surrounding properties" (p. 186). Such spillover benefits result from the actual new physical development and the various positive attributes associated with homeownership. The research utilizes a regression model (in particular a hedonic price function) to determine that properties in identified rings surrounding the new homeownership development have risen relative to the Zip Code area and that part of the rise is attributable to the homeownership program. The approach used in the study by Ding and Knaap

(2003) in examining housing in Cleveland is similar to the Ellen et al (2001) study of New York City housing whereby the researchers examined homeownership units developed with government or non-profit support from 1991 to 1995 and the impact of the units on existing property values.

Methodological concerns

Although the Ellen et al (2001) and Ding and Knaap (2003) studies provide a valuable methodological framework for examining the spillover effects of concentrated homeownership development on neighborhood property values, the expressed theoretical framework of both studies is limited. For example, the researchers in the Ellen et al (2001) study when considering the impact of development size (number of units) on property values write, "The notion that effects depend on project size has broad intuitive appeal. It seems reasonable, for instance, to assume that the effect of 300 units will be greater than the effect of a single unit" (p. 207). This statement implies that the underlying theoretical framework for the research is the gravity model.

According to Krumme (2006), the gravity model is based on "Newton's gravitational law which has been used to account for aggregate human behaviors related to spatial interaction, mainly migration, traffic flows and shopping activities (Newton's law states that the attractive force between two bodies is directly related to the their size and inversely related to the distance between them)." Haynes and Fotheringham (1984) in "Gravity and Spatial Interaction Models" provide the following insight:

> The gravity model, which derives its name from an analogy to the
> gravitational interaction between planetary bodes, appears to

> capture and inter-relate at least two basic elements: (1) scale impacts: for example, cities with large populations tend to generate and attract more activities than cities with small populations; and (2) distance impacts: for example, the father places, people, or activities are apart, the less they interact (p. 11).

When applied in a social physics spatial context, the issue of distance becomes an even more critical consideration. Haynes and Fotheringham (1984) write:

> This "distance decay" or "friction of distance" effect will vary depending on the flows being examined – air transportation as opposed to private automobile transportation, for example. Even though distance will always have a negative influence on interaction, in some cases it may be more negative than in others (p.12).

This "friction of distance" effect is relevant to the study of local property values and the impact of new development when considered in the context of local geographical features. For example, a community divided by a small body of water may generate a significant level of interaction through a bridge; however, automobile or pedestrian travel through the bridge from one part of the neighborhood to another may be considerably longer for housing units facing across the water but located downstream or upstream from the bridge. In another community, the real distance between two housing units may be greater but the lack of a geographic impediment would result in distance having a less negative effect.

A refinement of the social sciences gravity model as applied to geography was first presented by Waldo Tobler in 1970. In his work entitled "A Computer Movie Simulating Urban Growth in the Detroit Region", Tobler (1970) writes, "I invoke the first law of geography: everything is related to everything else, but near things are more related than distant things" (p. 234). Tobler's First Law

provides a useful framework to consider the influence of new homes on surrounding homes and consistent with gravity theory asserts that distance is important.

Theory development

Building upon the gravity model and Tobler's First Law, Figure 1 presents an *Urban Neighborhood Revitalization Real Estate Valuation Model* which graphically depicts the relationship between mass and distance when considering the influence of concentrated homeownership development on residential property values in blighted neighborhoods. In this model, influence on property values is a function of the mass (number of units) of the concentrated homeownership development and the distance of the property from the development. Nevertheless, it is important to emphasize these model considerations and limitations:

1) Line thickness between housing units indicates strength of influence on real estate property valuation.

2) Strength of influence decreases as distance increases from the new homeowner unit.

3) In Figure 1-A, individual units have comparable influences on other individual units which are influenced by geographic proximity (Principle of "comparables" in the real estate appraisal profession).

4) In Figure 1-B, the mass of new units in the existing neighborhood has a stronger influence on individual units surrounding the new units than do those existing units on the new units. Such influence may be positive or negative depending on valuation of new units when compared with existing neighborhood units.

Figure 1: Urban Neighborhood Revitalization Real Estate Valuation Model

Figure A
Single-Unit Homeownership
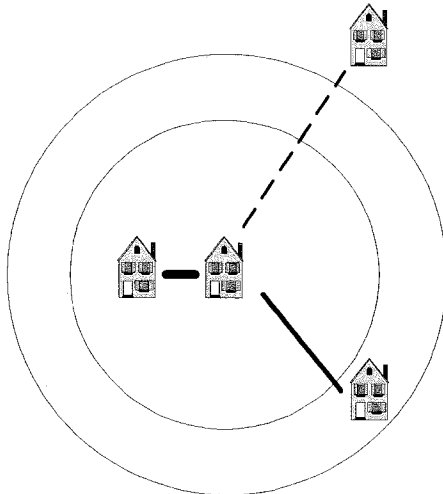
Figure B
Concentrated Homeownership
(Multiple units)
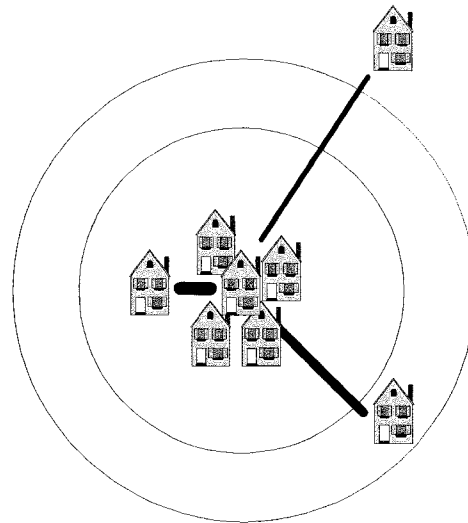
However, the proposed model must be considered within the context of Neighborhood Life-Cycle Theory. According to Metzger (2000), this theory emerged during the 1930s with the advent of Federal mortgage loan guarantees and has evolved into a widely-accepted model within the field of Real Estate Appraisal and Urban Studies. Shea-Joyce (1994) describes the neighborhood life-cycle as consisting of the following four stages with the corresponding characteristics (further illustrated in Figure 2):

Growth: Growth occurs with the beginning of neighborhood life as buildings are constructed on vacant land typically as a result of local economic expansion and the increased need for housing. Prices for both vacant land and

improved properties typically increase as economic growth continues.

Stability: Growth ends and Stability begins when it is no longer profitable for the private sector to build, land is fully developed, or when competition from other neighborhoods reduces the market appeal of the neighborhood. Although property values may increase through appreciation and the continued appeal of the neighborhood amenities, there is an overall absence of marked growth or decline and a general state of equilibrium exists in regard to the number of housing units, local schools, churches, and businesses.

Decline: Decline begins "when the neighborhood can no longer compete with comparable neighborhoods" (p. 125). The age of the housing may result in high maintenance costs or the appeal of the location, style, and utility of the units may have decreased in relation to newer neighborhoods. Prices may decrease in order to stimulate buyer interest while the incomes of the new residents when considered with the increasingly fixed incomes of the older residents may result in a neighborhood population unable to maintain their properties and support local businesses.

Revitalization: At some point, the decline of the neighborhood may be arrested by the intervention of public

and/or private actors located within and/or outside the neighborhood. Property owners often with the assistance of local government work to rehabilitate and preserve properties and enforce building codes. Localities may declare the neighborhood a redevelopment or revitalization area with the intent of assisting the resident population with improved living conditions and/or encouraging the influx of higher-income residents (gentrification). However, it is important to recognize that gentrification can occur with or without government intervention depending on the locational desirability of the neighborhood.

Figure 2: Neighborhood Life-cycle Model
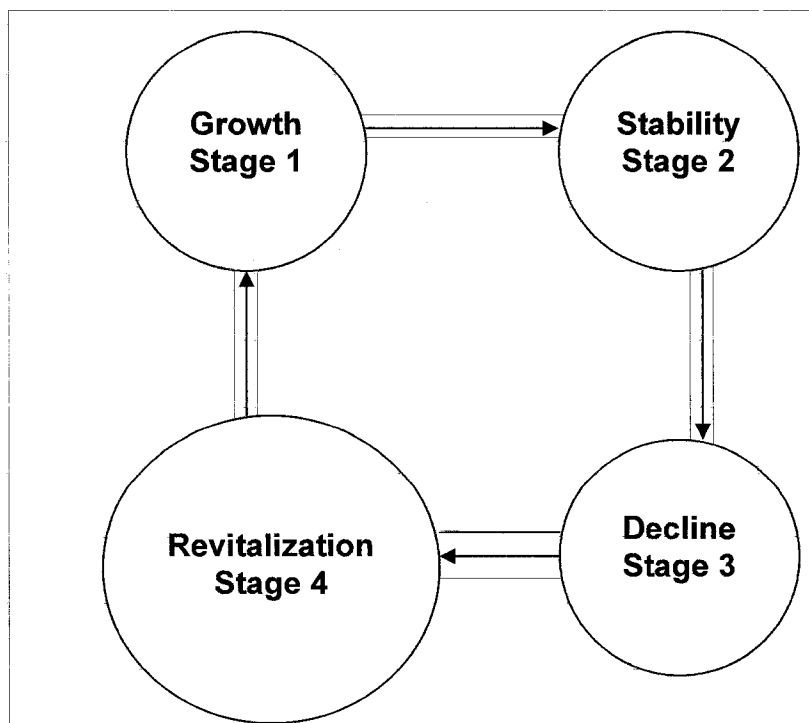
Within the neighborhood life-cycle model, concentrated homeownership development emerges as an intervention strategy to move a neighborhood from the decline stage to the revitalization stage. Thus, the assumptions of the proposed *Urban Neighborhood Revitalization Real Estate Valuation Model* are based on the environment exhibited in the decline phase which when addressed with the new homeownership intervention results in a revitalization environment and, if successful, ultimately a growth environment whereby the cycle starts anew. The anticipated outcome of such intervention is consistent with the previously discussed "neighborhood revitalization hypothesis" presented by Van Ryzin and Genn (1999).

Finally, the *Urban Neighborhood Revitalization Real Estate Valuation Model* is based on the principle that neighborhood house prices are "spatially auto-correlated" because they share a number of attributes. Thibodeau (2003) describes the reasons for such price correlation:

> First, neighborhood properties share numerous location attributes that influence house price. For example, properties in the same neighborhood are approximately the same distance from employment centers, shopping centers and other centers of economic activity. In addition, properties located in the same jurisdiction have access to similar levels of public services. Second most neighborhoods are developed at about the same time. Consequently, neighborhood properties tend to have similar structural characteristics (e.g. square feet of building area/living area and dwelling age). Finally, (positive and negative) proximity externalities have similar influences on the market values of nearby properties (p. 3).

The proposed model does deviate from the spatially auto-correlated principle since the new units certainly differ from the existing units in terms of age and in most cases amenities (size of the new unit may be greater with modern

amenities such as two bathrooms). Nevertheless, the new units and the existing units are influenced by the same proximity externalities including distance to economic centers.

Hypotheses

Based on the research question of interest and the model developed for this study, the following hypotheses are presented concerning the influence of concentrated homeownership development on the property values of blighted neighborhoods:

1) Homeownership units developed with amenities equal to or greater than those of the existing residential housing in blighted neighborhoods will have a measurable positive influence on the value of existing residential properties in the neighborhood.

2) The closer the distance between the newly developed homeownership units and the existing units will correspond to the greater the influence of the new units on the value of the existing units.

3) Homeownership revitalization sites with a denser concentration of new units will have a greater influence on the value of surrounding properties than more diffuse revitalization sites.

4) The greater the level of local government participation in the concentrated homeownership development project will correspond to the greater the influence of the new units on the value of the existing units.

Although hypotheses 1, 2, and 3 are based on the previous literature review and derived theoretical framework, hypothesis 4 represents a new consideration not found in the previous studies.

In considering hypothesis 4 and the use of concentrated homeownership as part of neighborhood revitalization, local government intervention is typically required due to the significant costs associated with acquiring the properties. Costs associated with site assembly may include property purchase, resident relocation, and the demolition of dilapidated structures. Furthermore, properties may have problems with clear ownership title and involve multiple family heirs. Therefore, local government must often use its powers of eminent domain to assemble the site thereby obtaining the properties at fair market value over the objections of holdout owners and to clear title and ownership problems. Local government intervention may extend beyond this property assembly role to include a more direct development role either by facilitating the involvement of a non-profit housing developer or utilizing a local public entity such as a redevelopment and housing authority to direct the development process. Table 2 summarizes these development roles and the extent of local government participation.

Table 2: Local Government Role

Role	Description	Extent of Local Government Participation
Land supplier	Assembly and preparation of site for private developer	Low
Facilitator through Non-Profit Housing Developer including a Community Development Corporation or Community Housing Development Organization	Financial and technical assistance to non-profit housing developer which may also include site assembly and preparation	Moderate
Direct Developer	Developer of project, selection of construction contractors, and secure project financing	High

Local government is generally less concerned about making a profit on the development and may access a variety of subsidies to support such development. Consequently, it is hypothesized that the greater the local government role then the greater the likelihood that the project investment will manifest itself in terms of unit amenities as opposed to developer profit. This amenity manifestation will result in a higher valued property which will more positively influence neighborhood property values. In the event the research does not confirm this hypothesis and the increased level of local government participation is not reflected in increased properties values, it might be

appropriate to consider the most productive role for local government in neighborhood revitalization using the concepts of steering and rowing developed by Osborne and Gaebler (1993) in *Reinventing Government*. Whereas rowing implies that local government will be actively engaged in the development process, steering implies a role which creates an environment for positive action by other developers including for-profit and nonprofit organizations.

CHAPTER III

METHODOLOGY

Given the lack of empirical research regarding the impact of new homeownership development on neighborhood revitalization, the basic model developed in the Ellen et al (2001) study with certain modifications inspired by the Wubneh and Shen (2001) study appears suitable for replication in other jurisdictions. Cities across the nation support homeownership development as a strategy to address the challenges associated with blighted neighborhoods. The extent to which such programs influence the property values of the surrounding neighborhood represents an area of interest to all cities sponsoring homeownership initiatives. An objective of such programs is often to generate a positive impact on property values which translates into increased real estate assessment values and ultimately greater real estate taxes for the jurisdiction.

The replication of the Ellen et al (2001) and Wubneh and Shen (2001) models in various jurisdictions will indicate the extent to which either the premises of the study are: 1) valid to a broader set of cities, or 2) merely reflect the unique characteristics of the initial jurisdiction. Such a study may either: 1) help empirically substantiate the impact of homeownership, or 2) demonstrate the difficulty in associating homeownership development with a positive spillover effect regarding property values in the surrounding neighborhood. Accordingly, the general methodology used in the Ellen et al (2001) and Wubneh and Shen (2001) studies will provide the foundation to examine the experience of the City of Newport News, Virginia in revitalizing two neighborhoods through an

intervention involving the development of new single-family homes to replace blighted structures in the midst of an existing neighborhood.

Type of study

The presented study is essentially an empirical case study applying the research models developed in the Ellen et al (2001) and Wubneh and Shen (2001) studies to two concentrated homeownership developments undertaken as part of neighborhood revitalization in Newport News, Virginia. This case study employs quantitative methods to analyze the impact of the two homeownership development projects on neighborhood property values. The principal data source for the study is the real estate tax assessments generated by the Newport News Real Estate Assessor which is available in a useable data format for only the five most recent years. Consequently, the data available for this study covers assessments for the five years from 2000 to 2005. The use of assessment data for a five-year period is consistent with the type of data used in the Wubneh and Shen study. Whereas the Ellen et al (2001) study used housing sales prices which depend on a certain level of annual ownership turnover in order to generate the necessary value data, the use of local assessments has the advantage of providing annual values for all properties within the examined area. Such assessments use actual sales information as part of the annual local determination of value.

Test or measurements to be used (reliability and validity)

According to information on the website of the City of Newport News Real Estate Assessor's Office (2006), Virginia law requires that localities assess

properties at fair market value which has been defined by Virginia's Courts as "the price which it will bring when it is offered for sale by one who desires but is not obligated to sell it, and is bought by one who is under no necessity of having it." According to assessment experts, the determination of fair market value (also known as full value) is intended to generate more equitable taxes. Furthermore, property owners typically better understand an assessment which has a relationship to the property's current market value (City of Newport News Real Estate Assessor's Office).

In order to determine the fair market value of properties within Newport News, the City employs a full-time staff of experienced professional appraisers in the Real Estate Assessor's Office. The Assessor's Office defines the expertise of the staff appraisers as follows:

> The appraisers possess or have the equivalent of a college degree in the valuation of real property. They must continue their education by completing courses in the use of the most current appraisal practices and techniques sponsored by the Appraisal Institute, International Association of Assessing Officers, Virginia Association of Assessing Officers, and the Virginia Department of Taxation. Many have or are working toward professional designations by the Appraisal Institute and International Association of Assessing Officers. Although not a requirement for employment, many of the appraisers are licensed appraisers by the Commonwealth of Virginia (City of Newport News Real Estate Assessor's Office).

Therefore, the assessor's office utilizes trained staff comparable to real appraisers in the private sector who determine market value for properties for sale.

The determination of a property's market value involves calculating what most individuals will pay to purchase the property given its existing condition.

The city assessor's office must determine this value for every piece of property in the city regardless of size. Each year the office must conduct the same value study since the market value may vary annually. Many factors influence a property's value which at a minimum considers the value of the land (if vacant) and includes the value of structures for those properties termed as "improved." In addition, the designated land use for the property such as residential, commercial, industrial, or agricultural will influence a property's value (City of Newport News Real Estate Assessor's Office).

To determine property value, an appraiser must determine one or more of the following factors depending on the type of property:

1) Sales price of similar properties

2) Property replacement cost

3) Cost to operate and maintain the property

4) Potential rent generated by the property.

Utilizing the above factors, the appraiser may determine the property's value in three different ways:

1) Market Approach - compares a property to others recently sold to establish what are termed "comparables."

2) Cost Approach – considers the amount of money necessary to replace the property given current material and labor costs.

3) Income Approach - evaluates the property's ability to generate income if rented (which typically applies to apartment communities, retail/commercial properties such as shopping centers and office

buildings, or industrial properties) while considering return on investment and costs associated with operating expenses, insurance, and maintenance (City of Newport News Real Estate Assessor's Office).

In establishing the value of single-family homes which represent the properties examined by this study, the market and cost approaches constitute the primary methods for determining value.

According to the Assessor's Manual published in 2005 by the Virginia Association of Assessing Officers (VAAO), the assessor's office can determine the level of assessment accuracy by comparing the assessments to the latest sale prices thereby establishing the assessment/sales ratio. The office can use the following two additional statistical measures to demonstrate the uniformity of assessments:

1) The coefficient of dispersion indicates how close the individual assessment/sales ratios are arrayed around the median ratio. A coefficient of dispersion of less than 10% indicates a good distribution of residential properties, while 15% or less is acceptable for agricultural properties because of the greater diversity in their values (VAAO 2005).

2) The regression index is used to gauge the relationships of assessment ratios in high and low priced values. It compares assessment ratios to the mean ratio. An index of 1.00 indicates a uniform relationship. An index above 1.00 indicates the less expensive properties have a higher assessment/sales ratio than more expensive properties. The converse is true if an index is below 1.00 (VAAO 2005).

The tests and measurements used by the assessor's office are based on a well-developed process used consistently on an annual basis thereby indicating the validity and reliability of the assessment measurement.

Sample characteristics and size

The focus of this study is two homeownership revitalization areas and the immediately surrounding neighborhoods in the City of Newport News. With a population of approximately 180,000 residents, Newport News has facilitated through its Redevelopment and Housing Authority two major homeownership development initiatives in blighted neighborhoods since 1995 (see Table 3).

Table 3: Homeownership Revitalization Initiatives

Name	Location	Developer Type	Number of Units
Villages of Newport	Newmarket Area	Private (for-profit)	73 (completed)
Madison Heights	Southeast Community Redevelopment Area	Public (NNRHA)	71 (ongoing)

Newport News is located in the southeastern portion of Virginia, midway between Williamsburg and Norfolk/Virginia Beach in the Hampton Roads region. Within this regional market comprised of two primary submarkets – the smaller Peninsula submarket and larger South Hampton Roads submarket, Newport News is the largest jurisdiction within the Peninsula submarket. Newport News emerged as a company town in the late 19th century as a result of the work of industrialist Collis Huntington who established Newport News as the port terminus for the Chesapeake and Ohio railroad (now CSX) to bring coal from West Virginia to the Hampton Roads harbor. Huntington also established a

shipyard in Newport News which today builds the largest ships for the U.S. Navy and is one of the major employers in Virginia (Quarstein and Rouse 1996).

Newport News became an independent city in 1896. In 1958, the city merged with Warwick County which resulted in the locality's current boundaries and unique configuration. The city is approximately 69 square miles in area; 23 miles long and 3 miles wide with a shape roughly resembling a string bean. Prior to the merger, Newport News was primarily an urban community based on a grid street pattern initially established by Huntington's Old Dominion Land Company during the late 19th and early 20th centuries. With the merger in 1958, Newport News tripled its size and acquired the string bean outline of its current boundaries with a urbanized area occupying the bottom third of the shape and the then largely rural area occupying the remaining portion (Quarstein and Rouse 1996).

Newport News still has an economy heavily reliant on the foundation created by Huntington in the areas of shipbuilding and port operations. The area of the city formerly occupied by Warwick County has witnessed significant growth since the late 1950s. Whereas dairy farms were once a defining feature of the area, now single-family neighborhoods, retail districts, high-tech job centers, and more recently new urbanist mixed-use developments have replaced the once quiet rural landscape (City of Newport News 2005).

Although the 1958 merger provided Newport New an opportunity to capture growth within its boundaries for the next several decades, the new growth dampened interest in the traditional downtown area. Despite a number of

local efforts (typically in concert with the latest Federal redevelopment initiative) to revitalize the older urban portion of Newport News, the results were somewhat diffused and very modest. By the 1990s, the city leaders recognized that the previously rural and increasingly suburban former Warwick county area would reach "build-out" in the first quarter of the 21st century. This revelation resulted in the city seeking approaches to redevelop deteriorated areas of Newport News to strengthen the city's real estate market thereby enhancing its ability to compete with the emerging and growing residential real estate markets in the surrounding largely suburban jurisdictions (Quarstein and Rouse 1996). Around the time of this realization by the City's leadership, two opportunities were identified to implement the emerging redevelopment vision (City of Newport News 2005).

The first opportunity was in an area of the City historically known as the East End and most recently known as the Madison Heights neighborhood. The neighborhood was located in proximity to the city's traditional (although at that point somewhat dormant) downtown. A portion of the neighborhood contained a large number of dilapidated and deteriorated homes as well as lots cleared of dilapidated homes. The homes were originally built to provide housing opportunities for employees and families associated with the shipyard/port areas or businesses generated by these economic centers. By the mid-1990s, the former single-family homes once owned by working families were increasingly becoming marginal rental properties in a stagnant real estate market (City of Newport News 2005).

The second opportunity emerged at a deteriorated HUD-funded multi-family rental community know as Glenn Gardens which was originally developed in the early 1960s on the periphery of the original Newport News boundaries. By the early 1990s, the once attractive and desirable rental community had become a major liability to the residential real estate market of the surrounding neighborhood (Gardner 1995). A further examination of these two areas will establish the background necessary for this research study.

Description of Sample Area #1: Madison Heights

By the mid-1990s, deterioration in the Southeast Community prompted the City of Newport News to develop and adopt a plan for the area which included elements addressing residential, commercial, and industrial redevelopment opportunities. Using Title 36 of the Virginia Code, Newport News developed a redevelopment plan which permitted the use of eminent domain powers to acquire properties as part of a blight removal effort. Under the resulting redevelopment plan, the City through the Newport News Redevelopment and Housing Authority (NNRHA) began purchasing properties, clearing dilapidated structures, and assembling parcels suitable for the development of new single-family homes to promote neighborhood revitalization and homeownership opportunities (Divincenzo 1998). The first phase involved the construction of sixteen new homes in the block between 25th and 26th Streets and Madison and Marshall Avenues. As part of the efforts to promote a positive image in the redeveloping neighborhood, the residents recommended that the City and NNRHA call the new neighborhood "Madison Heights" (Carroll 2002).

NNRHA continued to expand the residential redevelopment activity to surrounding blocks and by 2005 had completed 71 new homes. The sales prices for the first Madison Heights houses were approximately $73,000 which reflected the somewhat stagnant nature of the residential real estate market in the southern portion of Newport News. Comparable new homes were selling for at least $110,000, in other parts of the city. By 2005, NNRHA was selling homes in Madison Heights for as much as $130,000. Despite the tremendous increase in housing values in Madison Heights, comparable homes were selling for at least 20% more in other parts of Newport News but the sales gap was steadily shrinking (City of Newport News 2005).

NNRHA used four important housing and community development tools to undertake the Madison Heights homeownership redevelopment initiative: 1) Community Development Block Grant, 2) HOME Investment Partnerships Program, 3) Low-Interest Mortgage Financing from the Virginia Housing Development Authority (VHDA), and 4) Redevelopment powers under Title 36 of the Code of Virginia. Because of the unique nature of each of these tools, it is appropriate to further examine each tool's principal features.

- **Community Development Block Grant (CDBG)**

The CDBG funds provided by HUD to Newport News enable the acquisition of vacant parcels and properties with dilapidated structures which are demolished using CDBG funds to generate the necessary buildable lots for the new homes. Furthermore, CDBG supports the relocation of families living in the deteriorated housing by providing up to five years of rental support for a rental unit meeting HUD housing quality standards (HQS). Approximately 30% of the

city's annual CDBG allocation is directed to supporting the homeownership redevelopment efforts at Madison Heights (City of Newport News 2005).

This powerful and flexible program was created in 1974 to combine a number of special category HUD programs addressing urban renewal into a flexible block grant to provide localities with a resource to address a wide range of community development needs. Approximately 1120 general units of local government receive CDBG as entitlement communities to support a wide range of community development activities directed toward revitalizing neighborhoods, economic development, and providing improved community facilities and services. A community's CDBG grant is determined by a formula comprised of several measures of community need "including the extent of poverty, population, housing overcrowding, age of housing, and population growth lag in relationship to other metropolitan areas" (HUD – CDBG 2006).

Each local CDBG-funded activity must meet one of the following national objectives for the program:

1) benefit low- and moderate-income persons,

2) prevent or eliminate slums or blight, or

3) address urgent community development needs in cases such as hurricane and natural disaster recovery where conditions pose an immediate and detrimental threat to the community's health, safety or welfare.

In accomplishing these objectives, CDBG funds may be used for activities which include:

1) property acquisition;

2) relocation of residents and businesses and demolition of structures;

3) structure rehabilitation of residential and non-residential properties;

4) public facility improvements and the construction of new facilities including water systems, wastewater treatment plants, roads, and community centers; and

5) provision of financial loans to businesses in support of economic development activities including job creation and retention activities.

Although the locality may use CDBG funds for an array of programs and activities, the community may not use the funds for political purposes or to support general government operations (HUD – CDBG 2006).

In order to receive the CDBG funds from HUD, a jurisdiction must develop a planning document, the Consolidated Plan for Housing and Community Development, which promotes citizen participation, particularly among those residents of predominantly low- and moderate-income neighborhoods, slum or blighted areas, and areas in which the grantee proposes to use CDBG funds. The jurisdiction must establish goals for the various CDBG funded programs including the housing and economic development initiatives. These local goals serve as the criteria against which HUD evaluates the jurisdiction's initial plan and subsequent performance (HUD – CDBG 2006).

- **HOME Investment Partnerships Program**

The City of Newport News uses approximately 40% of its annual HOME allocation from HUD to support redevelopment efforts in Madison Heights.

These funds support the acquisition of properties and the construction of new housing while providing downpayment and closing cost assistance to the new buyers (City of Newport News 2005).

This flexible housing program was created in 1990 as part of the Cranston-Gonzalez National Affordable Housing Act. HUD provides HOME as a formula grant to states and localities to support a wide array of activities that develop, purchase and/or rehabilitate affordable housing for homeownership or rent. As the largest Federal affordable housing block grant to state and local governments, HOME is designed to create housing opportunities for low-income households. HUD annually allocates approximately $2 billion in HOME funds among the participating jurisdictions nationwide (HUD - HOME 2006).

Designed to support the goals of community development, HOME's block grant structure provides the flexibility that enables communities to design and implement strategies targeting locally identified needs and priorities. The HOME Program's emphasis on consolidated planning (consistent with the planning requirements under the CDBG Program) helps to expand and strengthen local partnerships involving a variety of public and private sector entities to support the development of affordable housing. Furthermore, local support is reinforced by the Federal requirement that jurisdictions provide a 25% match for every dollar in HOME program funds (HUD - HOME 2006).

Although States are automatically eligible for HOME funds, local jurisdictions qualify for the program only if they meet HOME formula requirements concerning population, local poverty level and age of housing

stock. Communities that do not qualify for an individual formula allocation under the formula can create a legally binding consortium with one or more neighboring localities to meet the formula funding threshold (HUD - HOME 2006).

The eligibility of households for HOME assistance varies with the nature of the funded activity. In the case of homeownership, the incomes of households receiving HUD assistance must not exceed 80 percent of the area median. For rental housing assisted with HOME, families typically cannot have incomes that are more than 60 percent of the HUD-adjusted median family income for the area. The locality must ensure that HOME-assisted housing units remain affordable for as long as 20 years depending on the amount of assistance to the unit. Furthermore, the locality has two years to commit the funds to projects and five years to spend the funds (HUD - HOME 2006).

- **Financing from the Virginia Housing Development Authority**

The Virginia Housing Development Authority (VHDA) was created by the Virginia General Assembly in 1972 to serve as the State Housing Finance Agency to provide financing for affordable housing opportunities to residents of the Commonwealth. Since its inception, VHDA has financed more than 130,000 homes primarily for first-time buyers and approximately 100,000 units of affordable rental housing. The agency provides a very powerful tool called SPARC (Sponsoring Partnerships and Revitalizing Communities) to support homeownership redevelopment efforts in the form of below-market interest rate permanent mortgage financing. Such financing is typically more than 200 basis points less than mortgage financing on the private market. At the time of this

study in 2006, the interest rate for fixed-rate mortgages in the market was about 6.5% while the SPARC interest rate was around 4.5%. This tool promotes affordable monthly mortgage payments for the new homebuyers and is leveraged by localities using CDBG and HOME funds to support homeownership opportunities (VHDA 2006). Essentially, all of the new homes developed in Madison Heights have used the SPARC funds or its smaller predecessor program.

- **Redevelopment Powers under State Law**

Localities have a very important tool under Virginia state law to support the redevelopment of blighted areas which allows condemnation of properties and forced acquisition at fair market value. Under Title 36 of the Virginia Code, jurisdictions can conduct studies of areas and declare redevelopment areas if more than 50% of the properties area meet the code's definition of blight. Although the adoption of the plan requires a public meeting which in some instances can become quite heated given the potential impact on private property rights, the powers resulting from the plan enable the locality through its redevelopment and housing authority to acquire property through eminent domain to remove blight. Incidental to the blight removal objective, cities can use the resulting property to support a variety of community and economic development objectives. In the case of Madison Heights, the Newport News Redevelopment and Housing Authority is able to use the power of eminent domain to acquire properties which lack clear title, have multiple heirs, or have owners unwilling to sell their property or seeking payment significantly greater

than fair market value. Such power is critical to addressing blight and assembling a viable site to support affordable homeownership opportunities in the community (Redevelopment and Blight Removal Report 2004).

- **Future Prospects for Redevelopment Tools**

Although the four tools previously examined are vital for the continued redevelopment of Madison Heights, the future prospects are mixed at best. The CDBG and HOME Programs have experienced dramatic declines since 2001 as illustrated by City's CDBG allocation which declined 25% from $2,212,000 in 2001 to $1,665,757 in 2006. This decline has negatively impacted the pace of redevelopment at Madison Heights while reducing funding to other community programs supported with CDBG. Likewise, the HOME funds provided to Newport News have declined from $1,286,000 in 2001 to $1,108,564 in 2006 (City of Newport News 2005).

The redevelopment powers under Title 36 are under considerable pressure from opponents due to the U.S. Supreme Court decision in Kelo v. New London in 2005. Although the court found in favor of the City of New London regarding the use of eminent domain powers to promote economic development activities, the decision combined with the dissenting opinion provided by now retired Justice Sandra Day O'Connor inflamed proponents of property rights. In her dissent opinion, Justice O'Connor wrote, the "specter of condemnation hangs over all property. Nothing is to prevent the State from replacing any Motel 6 with a Ritz-Carlton, any home with a shopping mall, or any farm with a factory" (Lane 2005). Although the redevelopment powers granted under Title 36 of the Virginia

State Law are targeted at blight elimination and not at promoting any particular type of redevelopment, the political environment created by the Kelo decision resulted in a number of bills introduced in the Virginia state legislature seeking to severely limit or eliminate redevelopment condemnation and eminent domain powers.

In contrast to the somewhat negative environment surrounding HUD funding and redevelopment powers, VHDA has significantly increased its support of the SPARC Program. Whereas SPARC loan funding for 2005 was approximately $55 million dollars, VHDA increased the funding level to approximately $225 million as part of the agency's highly innovative REACH (Resources Enabling Affordable Community Housing) initiative (VHDA 2006). This increase comes at a critical time given the reduction in Federal funding. Unfortunately, the VHDA loan financing cannot replace the pure grant financing provided by CDBG and HOME which provides the much needed subsidy resources for redevelopment.

Description of Sample Area #2: Glen Gardens (Villages of Newport)

Glen Gardens was originally developed in 1965 using a Federally insured mortgage program designed to promote middle-class rental housing. Located adjacent to single-family homes developed in the decades after World War II, the rental community consisted of 417 attractive housing units with the latest amenities for the 1960s. Within twenty years, due to changes in Federal housing policy which promoted concentration of low-income families in HUD-assisted properties combined with mismanagement by the apartment community's owner,

Glen Gardens was facing serious problems in terms of high vacancy rates resulting in a severe cash-flow problem for the property's owner which was further compounded by the owner's failure to provide routine maintenance and repairs (Gardner 1995).

By the late 1980s, HUD was referring to Glen Gardens as "a real mess" but considered the community a good candidate for rehabilitation and preservation. Residents regularly complained of faulty heating and cooling systems, sagging floors and ceilings, leaky plumbing and clogged sewer lines. The property's owner voluntarily placed the complex into foreclosure and HUD as the mortgagor assumed ownership of the property. It was clear by 1992 that HUD's plan to sell the complex to a new owner (who would agree to perform major renovations) was not feasible (Gardner 1995).

The situation at Glenn Gardens continued to deteriorate to the point where less than 10% of the units were occupied by 1994. In order to address a situation that was no longer salvageable, HUD paid for the relocation of the remaining residents and demolished the structures. The cleared 20-acre property was sold to the City of Newport News for $1 who then conveyed the site to the City's Redevelopment and Housing Authority. The Authority issued a request for proposals to seek private developers for the property who would agree to develop an attractive residential community (Gardner 1996).

The selected private developer proceeded to create a community of 73 single-family homes marketed to middle-income families. The three- or four-bedroom homes were constructed on 6,600-square-foot lots and were available

in four different styles. Ranging in size from 1,150 square feet to 1,808 square feet, the initial projected sales prices for the new homes ranged from $80,000 to $105,000. Shortly after the completion of the first phase of homes, the prices of the homes were ranging from $105,000 to more than $120,000 (Gary 1999).

Research Design

A principal hypothesis for this study is that the concentrated development of new homeownership units in blighted neighborhoods will have a measurable impact on the value of properties in a defined area surrounding the development. Blighted neighborhoods are defined as those census tracts containing more than one city block (160,000 square feet or 3.67 acres) in which 50% or more of the structures exhibit exterior building code violations. Accordingly, the independent variables include the housing unit and neighborhood characteristics and the dependent variable is the value of the units as reflected in the home's assessed value.

The research design is based on three components: 1) Property location determination using Geographic Information Systems (GIS), 2) Appreciation rate analysis of comparable properties during the available data period, and 3) Hedonic Price Analysis (multiple regression analysis) examining the relationship of property amenities and location to property value.

- **Geographic Information Systems**

The spatial procedure for selecting existing single-family houses adjacent to the new single-family housing and the analytical procedure include the following: 1) for each revitalization site, identify the new homes by using the production information maintained by the Newport News Redevelopment and

Housing Authority (NNRHA); 2) draw a series of circles (beginning with 500 ft and in increasing radius of 500 ft concluding with 2,000 ft) around the centroid of the identified revitalization site and count the existing houses contained in each of these rings formed by the successive circles; 3) use the number of existing houses in the rings as samples (with applicable adjustments) and compare the current and the previous assessed property values corresponding to year 1 (2000-2001) and year 5 (2004-2005); 4) conduct appreciation rates analyses of the selected samples; 5) run regression analyses to test the distance effect for year 5 and to see whether the presence of the revitalization homeownership sites in close proximity has a positive impact on the value of the existing residential properties; and 6) run regression analysis for year 1 for the sites where distance was determined to be significant in year 5 in order to examine any changes in the strength and significance of the distance variables.

Figure 3 illustrates the concept of creating concentric circles around the revitalization area centroid. For this study, the spatial selection areas were drawn by using GIS based on a MapInfo select concentric circle function. This function allows a researcher to draw concentric circles based on distance from the homeownership revitalization site centroid. Distance measurement was expressed as a linear distance from the site centroid. Table 4 provides a summary of the distance intervals and the number of units in each group adjusted for the new units. The choice of the intervals is based on the assumption that property values will decrease with movement away from the revitalization site centroid. Also, the 500 ft interval provides a level of focus consistent with the Ellen et al (2001) study.

Figure 3: Conceptual Model of Proximity of Revitalization Centroid to Existing Homes
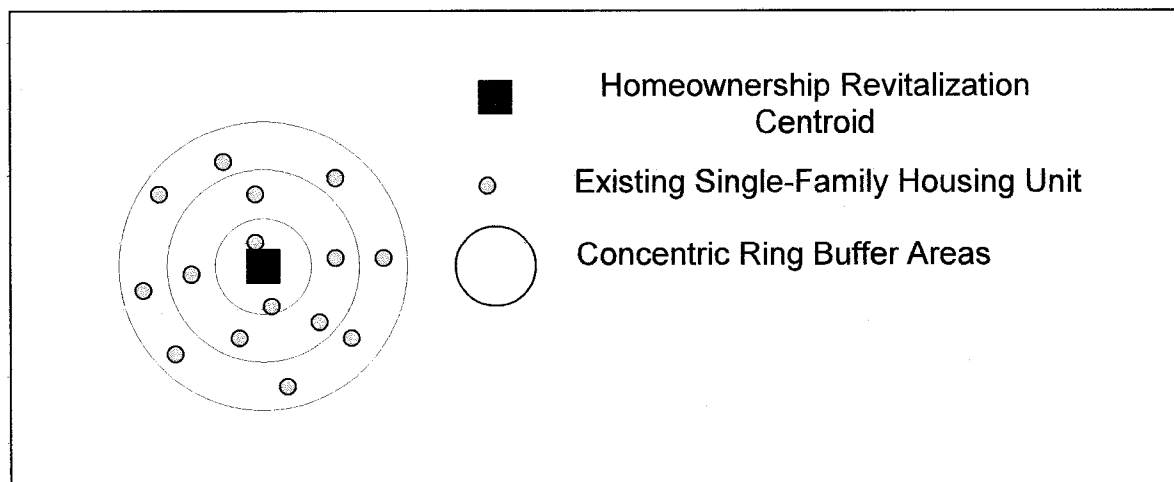
Table 4: Distance Intervals and Number of Samples for Examined Homeownership Revitalization Sites

Distance Rings around Centroid (k)	Homeownership Revitalization Site					
	Madison Heights			Villages of Newport		
	Total	New	Existing	Total	New	Existing
500 ft or less	110	29	81	62	62	0
501 - 1000 ft	254	27	227	51	11	40
1001 –1500 ft	401	15	386	39	0	39
1501 – 2000 ft	309	0	309	223	0	223
Total	1074	71	1003	375	73	302

- **Estimating Appreciation Rates**

This model is based on the approach used by Wubneh and Shen (2001) to examine the influence of manufactured (mobile) homes on adjacent single-family homes. In this case, the model provides the framework for computing the

average annual appreciation rates of existing single-family homes in each ring

designated *k* which surrounds the homeownership revitalization centroid:

$$\sum_i [(\sum_j (Va,j,k,i - Vb,j,k,i)/ Vb,j,k,i)] / \sum_j SFH j \quad (1)$$

Where,

Va,j,k,i = the current year's (*a*) assessed value of property *j* in ring *k* around homeownership revitalization site *i*

Vb,j,k,i = the previous year's (*b*) assessed value of property *j* in ring *k*

around homeownership revitalization site *i*

SFH j = the numerical count of existing homes

i = index of revitalization homeownership housing

j = index of existing housing

k = index of rings

a, b = the current and previous tax assessment years.

The above equation is designed for computing the aggregated average appreciation rate, which can be broken down into the average appreciation rate (AAR) for all j's in ring k around i,

$$\sum_j (Va,j,k,i - Vb,j,k,i)/ Vb,j,k,i)] \sum_j SBHijk \quad (2)$$

and the aggregated average annual appreciation rate (AAAAR) of all j's around all i's in ring k,

$$\sum_i [(\sum_j (Va,j,k,i - Vb,j,k,i)/ Vb,j,k,i)] \sum_j SBH j]/(a\text{-}b). \quad (3)$$

- **Hedonic Price Analysis**

In the Ellen et al (2001) study as well as several of the previously citied studies, the hedonic price value (HPV) model (essentially a multiple regression model) represents an important approach to determining the value of amenities and ultimately property values. HPV may be depicted in its most basic from as:

Value = Function (housing characteristics, neighborhood amenities)

Hedonic price value models are widely used in researching influences on real estate values in the fields of real estate and urban economics. Such models are also a practical professional tool used by the appraisal industry to help determine real estate values. The general model is designed to capture the major elements (also known as attributes) considered to influence real estate property values including property age, size, amenities (known as structure attributes) and property geographic location and neighborhood condition (known as locational attributes) (Sirmans and Macpherson 2003a).

In adapting the HPV model, the Ellen et al study indicates that "observed prices are the product of the quantity of housing services attached to the property and the price of these housing services, summed over all structural and locational characteristics of the property" (p. 190). The challenge of trying to identify the independent effect of proximity to the new homeownership development "is to control for a sufficient number of neighborhood attributes so that the impact estimates do not suffer from omitted variable bias" (p. 190). However this challenge is mitigated by the previously mentioned principle of spatial auto-correlation since the general location (in proximity to major economic centers) and public service amenities are comparable among all units within a

neighborhood. Furthermore, a house does not typically move after construction on the site.

Whereas the Ellen et al study examines home sales data during a specified timeframe to analyze the influence of the new housing units on the sale price of surrounding units, the Newport News study like the Wubneh and Shen (2001) study will utilize valuation information generated by the City's Real Estate Assessor's Office. Since one of the local goals associated with homeownership development to revitalize neighborhoods involves creation of a stronger residential real estate tax base, it is appropriate to use the values determined by the assessor's office for real estate tax assessment purposes.

A hedonic price model can be used to estimate the relationship between property value and distance. This approach assumes that the newly constructed homes will affect the value of the adjacent existing housing thereby generating regression coefficients which will indicate a relationship as well as the magnitude of impact. Thus, if the value impact of the newly constructed housing is positive, the existing home closer to a newly constructed home will have a higher value than an existing home located at a distance away from a newly constructed home.

As previously discussed, considerable research has been conducted analyzing the influence of an array of amenities on housing values. The amenities and attributes which appear to be most influential based on previous research include: 1) house age, 2) lot size (acreage), 3) square footage of the living area of the home, 4) number of bedrooms, and 5) number of full bathrooms

(Sirmans and Macpherson 2003b). Accordingly, these independent variables will be included as part of the proposed hedonic equation.

The effect of structural and locational attributes of an existing home in consideration of the distance from the newly constructed housing can be captured by using the hedonic analysis model in conjunction with dummy variables to incorporate the GIS generated distance rings. The following hedonic model is adapted from the approach used by Wubneh and Shen (2001) to examine the influence of manufactured (mobile) homes on adjacent single-family homes. In this case, the model provides the framework for considering the previously discussed independent variables including the distance variables and takes the following general form:

$$PVi = \alpha 0 + \beta 1 \text{SQFT} + \beta 2 \text{ACRE} + \beta 3 \text{BDRM} +$$
$$\beta 4 \text{BATHRM} + \beta 5 \text{AGE} + \beta 6 \text{DIST} ..... + \varepsilon \qquad (4)$$

Where,

PVi = Total property value of parcel i (house)

SQFT = Square footage

ACRE = Total acreage

BDRM = Number of bedrooms

BATHRM = Number of bathrooms

AGE = Age of the unit based on year built

DIST = Distance from homeownership revitalization centroid utilizing dummy variables. The distance variables range from 500 ft to 2000 ft.

ε = Error term.

The dependent variable, PV (property value) represents the total value of existing single-family homes in the vicinity of the examined homeownership revitalization

site. Property value includes the value of the land and improvements (typically the home and utility structures such as detached garages where applicable).

The independent variables in the equation represent the structural and locational variables. These structural variables include square footage (SQFT), total acreage (ACRE), number of bedrooms (BDRM), number of bathrooms (BATHRM) and age (AGE) of each home. As previously discussed, extensive previous research regarding housing values indicates a positive relationship typically exists between property value and the dependent variables SQFT, ACRE, BDRM, and BATHRM. Accordingly, the larger home (with a larger lot size, more bedrooms and more bathrooms) will be reflected in a higher property value.

The AGE variable represents a slightly more complex situation. Typically, the age of housing stock is viewed as an indication of obsolescence thereby resulting in lower property values. However, there are older homes in other neighborhoods whose values have remained competitive with newer homes. These homes typically have unique architectural features such as large front porches and brick exteriors and are typically located in designated historic neighborhoods with architectural oversight boards. Since neither the Madison Heights nor the Villages of Newport (former Glen Gardens) homeownership revitalization areas have established historic districts, the hedonic analysis is expected to indicate a negative relationship between property value and unit age.

The distance variables (DIST) reflect the distance from the homeownership revitalization site centroid and include successive rings measuring 500 ft, 1000 ft, 1500 ft, and 2000 ft. The objective is to determine if proximity to the homeownership revitalization site affects the value of

surrounding properties. The assumption is that the impact of the newly constructed housing on surrounding housing would occur in relatively close proximity. The DIST variables are incorporated into the hedonic model as dummy variables with values of 0 or 1. Accordingly, distance will have a value 1 if the property is located within 500 ft of the homeownership revitalization centroid and 0 otherwise. This dummy variable assignment process is repeated for the remaining distance variables.

Discussion of threats

The Ellen et al (2001) model is designed to estimate the difference between the prices of properties in defined rings surrounding the homeownership development site and the prices of properties outside the rings but still within the same neighborhood. In this respect, the model employs what may be construed as a pre-experimental design involving a group within a group or multi-static group comparison. According to Campbell and Stanley (1963), the use of the comparison group minimizes a number of threats to internal validity as reflected in Table 5.

Table 5: Threats to Internal Validity

Threat	Description	Resolution
History	Specific events occurring between the first and second measurement in addition to the experimental variable.	While the design inherently addresses this threat, history is likely to affect all properties within the study in a similar manner.
Maturation	Act of participants growing older, more tired, etc.	Given the use of properties as subjects in this study, maturation is likely to affect all properties in a similar manner.
Testing	Effects of taking a test upon the scores of a second testing.	While the design inherently addresses this threat, the study involves the examination of property values which has no influence on the property's response to subsequent testing.
Instrumentation	Changes in the calibration of a measuring instrument or changes in observers may produce changes in results.	In addition to the design inherently addressing this threat, the assessment information generated for the properties is obtained by highly trained property appraisal professionals.
Statistical Regression	Low performance of the group gravitating toward the mean because of the treatment.	While the design inherently addresses this threat, the treatment areas contained some of the worst properties in the city. Any positive treatment would positively influence the properties.
Differential Selection of Subjects	Differential recruitment of participants.	All properties within defined areas around the intervention areas are examined.
Mortality	Differentiated drop-out of participants.	Properties cannot simply drop out at any appreciable level.

The research is conducted to determine whether the magnitude of the difference in value between the properties in the various specified locations has changed over time and if such change is associated with the homeownership development activity. The use of assessment data as in the Wubneh and Shen (2001) study as compared to the use of sales data in the Ellen et al (2001) approach will further minimize bias since the assessment data provides a gauge of property values on an annual basis rather than just when the property is sold. The design also assumes that other neighborhood influences which affected property values near the homeownership development also similarly influenced property values in the surrounding neighborhood. This assumption is consistent with the previously discussed concept of spatial auto-correlation.

Given the research design for this study as an empirical case study, the results are not intended to be generalized to all homeownership revitalization situations. Nevertheless, the results should provide a model or approach which can be applied to the study of other homeownership revitalization areas as well as insight into some issues which the housing revitalization researcher and practitioner may encounter when examining spillover effects.

Summary of Data Analysis Plan

This study uses the following data sources to generate the variables necessary to use the two previously presented models:

- A database from the Newport News Real Estate Assessor's Office providing assessed value information and building characteristic details

- Data on all housing built as part of the two examined homeownership revitalization initiatives (Madison Heights and Villages of Newport) obtained from the Newport News Redevelopment and Housing Authority (NNRHA) and the Assessors Office.

Geographic Information Systems (GIS) techniques are used to geocode the locations of all properties within the examined areas and create the defined rings around each homeownership revitalization area. An appreciation rate analysis of comparable properties was conducted for the available data period. A Hedonic Price Analysis (a multiple regression analysis) was utilized to examine the relationship of property amenities and location to property value. Given the time limitations of the data provided by the Assessor's office (five years of assessment data for 2000-2005), housing data for the two most recent decennial U.S. Census periods (1990 and 2000) pertaining to Newport News was analyzed to provide some insight into the local market prior to the period covered by the assessment data.

CHAPTER IV

DATA ANALYSIS

Overview of the Market from 1990 to 2000 – Census Data Analysis

Although the real estate assessment information provided by the City of Newport News contained a wealth of data about the assessed value and the physical features of the properties, the City was only able to furnish the five most recent years of assessment information which at the time covered 2000-2005. In order to obtain a better understanding of longer term real estate trends prior to the timeframe covered by the available assessment data, an analysis was conducted of the decennial Census for 1990 and 2000 to examine housing values in the city's four planning districts. The planning district level represents an appropriate unit of study since the districts reflect the basis for developing the City's comprehensive plan and are composed of geographically related neighborhoods comprising coherent submarkets within the city. Furthermore, these boundaries (unlike some of the census tracts) did not change between 1990 and 2000. Finally, the City reports much of its property value and planning information within the context of locally defined neighborhood statistical areas (NSAs) which do not always correspond to census tracts (particularly those which changed from the 1990 to 2000 census). As a further refinement to the planning district level analysis, Planning Districts 3 and 4 were combined to better reflect the northern Newport News real estate submarket. The principal features of each of these three submarkets is summarized in Table 6 while the map in Figure 4 illustrates each submarket's location within the city.

Figure 4: Map of City of Newport News Neighborhood Statistical Areas and Planning Districts

Planning District 3&4

Planning District 2

Planning District 1
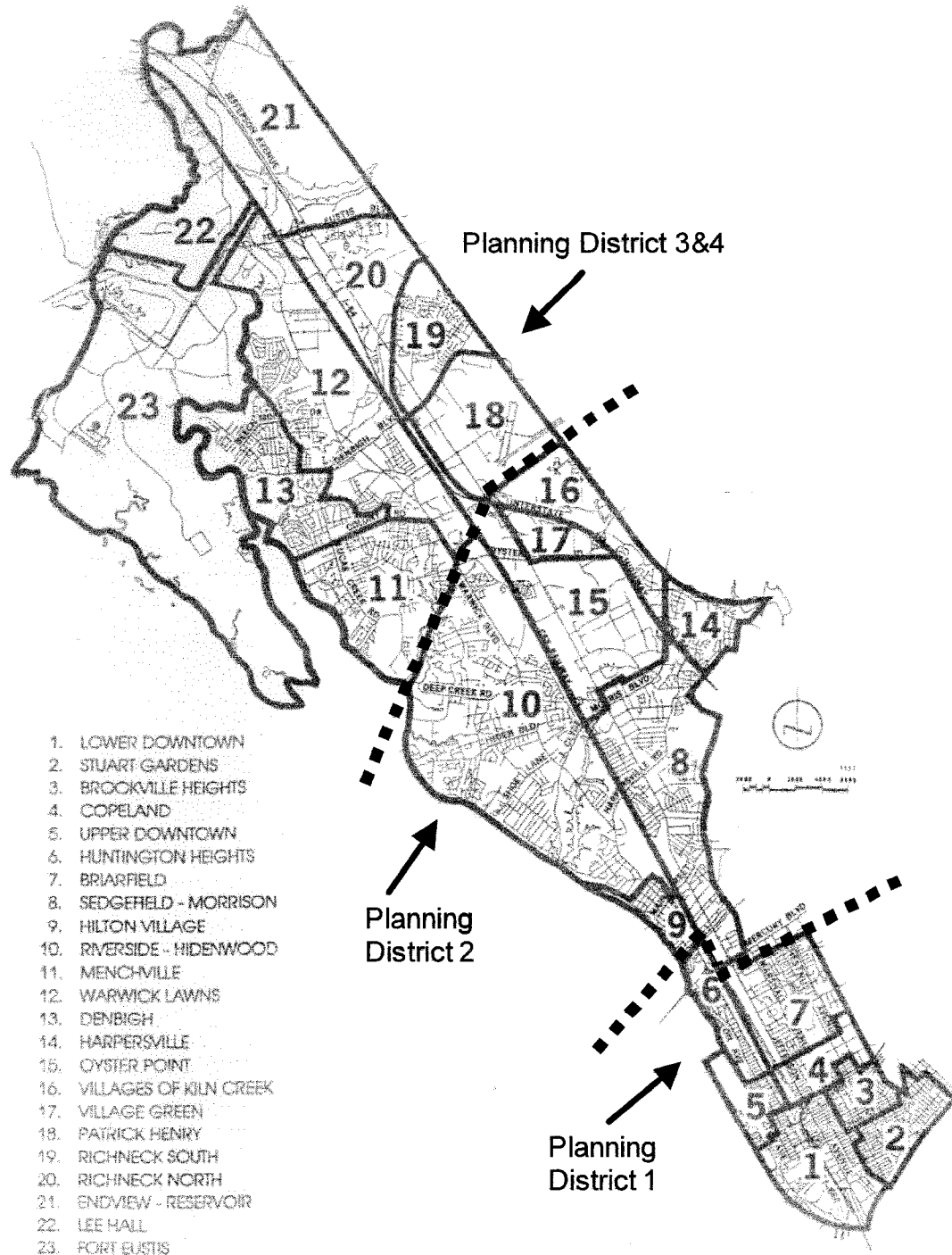
1. LOWER DOWNTOWN
2. STUART GARDENS
3. BROOKVILLE HEIGHTS
4. COPELAND
5. UPPER DOWNTOWN
6. HUNTINGTON HEIGHTS
7. BRIARFIELD
8. SEDGEFIELD - MORRISON
9. HILTON VILLAGE
10. RIVERSIDE - HIDENWOOD
11. MENCHVILLE
12. WARWICK LAWNS
13. DENBIGH
14. HARPERSVILLE
15. OYSTER POINT
16. VILLAGES OF KILN CREEK
17. VILLAGE GREEN
18. PATRICK HENRY
19. RICHNECK SOUTH
20. RICHNECK NORTH
21. ENDVIEW - RESERVOIR
22. LEE HALL
23. FORT EUSTIS

Table 6: Newport News Planning Districts/Submarkets

Submarket Area	Location	Description
Planning District 1	South	The lower area of the string bean shaped city and contains the city's traditional urban core and urban neighborhoods along with the overall oldest housing stock. (This district encompasses the Madison Heights and Villages of Newport homeownership revitalization areas which are the subjects of this study.)
Planning District 2	Center	Primarily inner-ring suburban development depicted by lower densities and strip shopping centers.
Planning District 3/4	North	Much of this area was farmland, woodland, and wetlands until the 1960s with the introduction of large scale residential development in suburban subdivisions.

As indicated in Table 7, the greatest unit increase in single-family owner-occupied housing units between 1990 and 2000 occurred in the northern submarket which corresponds with the large amount of available undeveloped land in that area. Median values increased the greatest in the southern submarket; however, the resulting values were still significantly below housing values in the center and northern submarkets.

Table 7: Change in Median Value and Units by Planning District 1990-2000

	Median Value			Number of Units		
Planning District	1990	2000	% Change	1990	2000	% Change
Planning District 1	$54,220	$65,108	20%	5,363	5,646	5%
Planning District 2	$94,675	$107,627	14%	11,566	14,907	29%
Planning District 3/4	$90,023	$97,058	8%	11,373	15,975	40%
Total	$84,400	$94,200	12%	28,302	36,528	29%

Between 1990 and 2000, the value distribution of units moved towards increased value levels as indicated in Table 8 which is to be expected given increased costs associated with land and materials for new houses and appreciation. Nevertheless, the majority of the city's housing stock remained valued at less than $100,000. In the southern submarket, there was a dramatic decrease in the percentage of units valued at less than $50,000 while the percentage of units in the next two higher categories increased significantly. It should be noted that the city began concentrated revitalization efforts between 1990 and 2000 in the southern submarket which may be reflected in the changing value distribution.

Table 8: Unit Value Distribution by Planning District 1990-2000

Value	Plan Dist 1		Plan Dist 2		Plan Dist 3/4		Total	
	1990 Units (% tu)	2000 Units (% tu)	1990 units (% tu)	2000 Units (% tu)	1990 Units (% tu)	2000 Units (% tu)	1990 Units (% tu)	2000 Units (% tu)
<$50,000	2,187 (41%)	1,265 (22%)	297 (3%)	651 (4%)	190 (2%)	981 (6%)	2,674 (9%)	2,897 (8%)
$50,000 - $99,999	2994 (56%)	3733 (66%)	7,257 (63%)	6,513 (44%)	7,893 (69%)	8,065 (50%)	18,144 (64%)	18,311 (50%)
$100,000 - $149,999	107 (2%)	488 (9%)	2,800 (24%)	5,021 (34%)	2,769 (24%)	5,387 (34%)	5,676 (21%)	10,896 (30%)
$150,000 - $199,999	61 (1%)	107 (2%)	612 (5%)	1,662 (11%)	385 (3%)	1128 (7%)	1,058 (4%)	2,897 (8%)
$200,000 - $249,999	9 (<1%)	13 (<1%)	255 (2%)	473 (3%)	59 (1%)	225 (1%)	323 (1%)	711 (2%)
$250,000 - $299,999	0 (0%)	23 (<1%)	141 (1%)	224 (2%)	42 (<1%)	50 (<1%)	183 (<1%)	297 (<1%)
$300,000+	5 (<1%)	17 (<1%)	204 (2%)	363 (2%)	35 (<1%)	139 (<1%)	244 (<1%)	519 (1%)
Total Units (tu)	5,363 (100%)	5,646 (100%)	11,566 (100%)	14,907 (100%)	11,373 (100%)	15,975 (100%)	28,302 (100%)	36,528 (100%)

Real Estate Assessment Data Analysis

The City of Newport News furnished a compact disc (CD) which contained real estate assessment files for all properties in ASCII fixed-width text format. The CD contained data for the five annual assessment periods from 2000 to 2005. Due to the format of the data, it was necessary to translate the data using the fixed-file format under the text import wizard in SPSS. Furthermore, it was

necessary to check all data fields against the guidebook provided by the city to ensure proper data translation.

The assessment CD contained the five data files summarized in Table 9. Of these five files, three were directly relevant to the proposed research: 1) Parcel Master Overview, 2) Residential Property Description, and 3) Levy History. When combined, these three files contained residential property information including land dimensions and housing unit features along with the corresponding assessment value information. The two remaining files addressing owner history and commercial property information were not necessary for this study.

Table 9: Assessment Data Files

File Name	Description
Parcel Master Overview (56,187 records)	Master file for the City's Real Estate Information System containing one entry for every property (including commercial, industrial, and residential) in the City of Newport News including information such as the legal description of the property, the most recent sale, assessments and data about the current owner.
Residential Property Description (47,768 records)	Contains a description of every residential structure (one structure per record) in the city located on parcels coded as single-family, multi-family or condominium. The parcel account number links individual records back to their corresponding record in the parcel master. The information describes the improvements made to the parcel, building size and number/types of rooms.

Table 9- Continued

| File Name	Description
Levy History	History of taxes levied against a parcel for the requested tax year(s) and contains one or more records per parcel. The parcel account number links individual levy records back to their corresponding record in the parcel master. The file identifies the official levy book that contains the levy, as well as associated assessments, tax amounts and tax payment data.
Owner History	History of property owners for all parcels, including the current owner and contains one or more records per parcel. The parcel account number links individual owner history records back to their corresponding record in the parcel master. The file includes each owner's name as well as the date the sale was recorded and the purchase price.
Commercial Property Description	Contains a description of every commercial structure (one per record) in the city located on parcels coded as industrial, commercial (retail and office), agriculture, apartments and trailer courts. The parcel account number links individual records to their corresponding record in the parcel master. The information includes building size, number of floors, type of construction, and intended use.

The Residential Property Description file containing 47,768 records exclusively addressed parcels with residential structures throughout the city.

Accordingly, the file provided the foundation for the database for this research which required several steps outlined in Table 10 to create the final database. Because an important model for this study is based on regression which requires a normally distributed population curve, it was appropriate to adjust the records to remove the extreme value records represented by properties exceeding $300,000 in value. As indicated in Figure 5 and Table 11, this resulted in a generally normal distribution for the year 2005 property assessments.

Table 10: Steps to Create Database

Number of Records	Necessary action
47,768	The starting number of residential property records (combined with relevant data elements in the parcel master overview, and levy history). Required use of SPSS data transformation feature to generate assessment value history.
67 (subtract)	Records representing duplicate entries (secondary building sequence numbers)
47,701	Balance after subtracting duplicate entries. 2,297 files had annual assessment records in which one or more year was split into multiple entries typically with separately coded land and improvement assessments. These file entries were combined to generate one annual assessment entry per file consistent with the 45,404 remaining records.
2,167 (subtract)	Records reflecting only vacant lots (no structures)
1,264 (subtract)	Outlier records (assessments in excess of $300,000)
2	incomplete records
44,268	**Cleaned records for study**

Figure 5: Analysis for Normal Distribution of Real Estate Assessment Values for 2005

Total Assessment

Std. Dev = 53208.41
Mean = 129076.8
N = 44268.00

Total Assessment
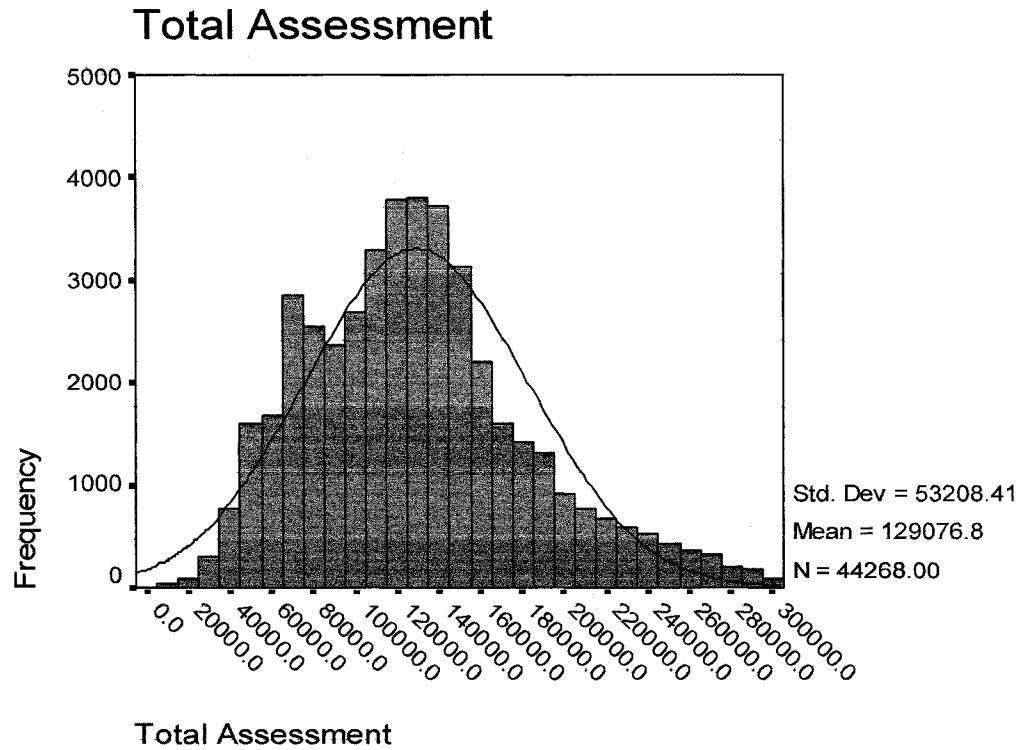
Table 11: Assessment Distribution Analysis

Number of Records	44268
Mean	129076.82
Std. Error of Mean	252.892
Median	125300.00
Mode	70900
Std. Deviation	53208.414
Skewness	.611
Std. Error of Skewness	.012
Kurtosis	.241
Std. Error of Kurtosis	.023
Range	298200
Minimum	1800
Maximum	300000

With the creation of the necessary database and the statistics analysis completed for all residential property files in Newport News, it is possible to further evaluate median housing value trends by comparing the trends presented by the 1990 and 2000 Census reports with the median housing values generated in the City's real estate assessment data for 2000-2005 as presented in Table 12. Although the sources are different and the results appear inconsistent, it is important to note that the Census information examines only owner-occupied homes in the respective periods whereas the assessment information considers the median value of all residential properties including vacant units and single-family housing units for rent. Nevertheless, both sources confirm the ranking of property values among the three planning district groupings with Planning District 1 having the lowest median housing value whereas Planning District 2 has the highest median housing value. With this information, data analysis may continue with the application of the three previously outlined research design components: 1) GIS ring analysis, 2) appreciation rate analysis, and 3) hedonic price analysis.

Table 12: Change in Median Value by Planning District 1990-2000 and 2000-2005

|	Median Value – Census Based 1990-2000			Median Value – Assessment Based 2000-2005		
Planning District	1990	2000	% Change	2000-2001	2004-2005	% Change
1	$54,220	$65,108	20%	$53,600	$65,700	23%
2	$94,675	$107,627	14%	$97,400	$139,800	30%
3/4	$90,023	$97,058	8%	$92,300	$129,100	40%

- **Geographic Information Systems**

The real estate assessment data revealed 9466 residential property records in Planning District 1 which represents the area of interest since it contains both the Madison Heights and Villages of Newport homeownership revitalization sites. In order to use the GIS program MapInfo, it was necessary to copy the SPSS data into an Excel file which could then be geocoded in MapInfo so that each property would have a distinct mapped location. Because of the scale of the resulting map depicting Planning District 1 (see Figure 6), residential concentrations appear as dense clusters. The distribution of these clusters is consistent with the residential development patterns in Planning District 1.

Centroids were determined for the two homeownership revitalizations sites based on the boundaries of the areas. The MapInfo concentric ring function enabled the creation of rings in 500 feet increments surrounding the revitalization site centroid as illustrated in Figure 6. Table 13 presents the distribution of properties within the designated rings. The properties contained in each ring were identified using a reveal function which depicted all the information in a table which could be exported into Excel for each ring and enabled the analysis of appreciation rates within the rings. From Excel, these ring files were exported into SPSS for regression analysis.

Figure 6: Map of Planning District 1 with location of Homeownership Revitalization Areas
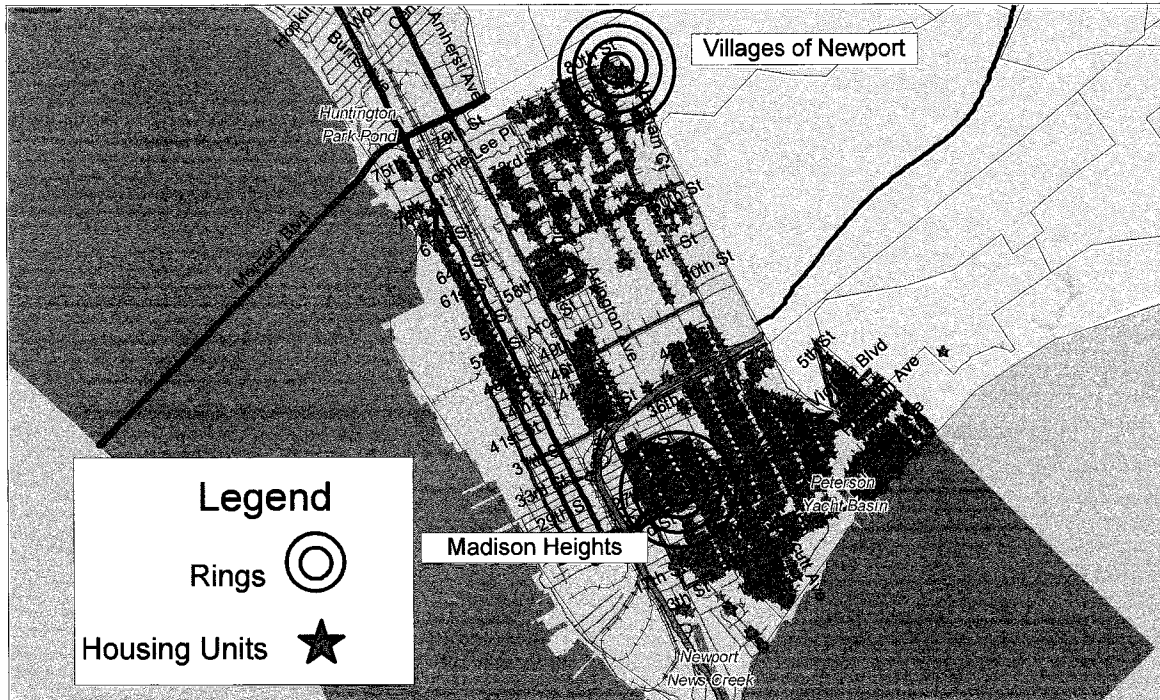
Table 13: Property and Ring Distribution

Distance Rings around Centroid	Homeownership Revitalization Site	
	Madison Heights Number of Properties	Villages of Newport Number of Properties
500 ft or less (RING500)	110	62
501 - 1000 ft (RING1000)	254	51
1001 –1500 ft (RING1500)	401	39
1501 – 2000 ft (RING2000)	309	223
Total	1074	375

- **Comparative Analysis of Annual Appreciation Rates**

    Appreciation Analysis by Planning District (2000-2005)

    Using the previously presented formula, the appreciation analysis in Table 14 shows that the annual average appreciation rate is the lowest in Planning District 1 and the greatest in Planning District 2. The rate for Planning District 1 is also considerably less that the rate for the combined Planning District 3-4.

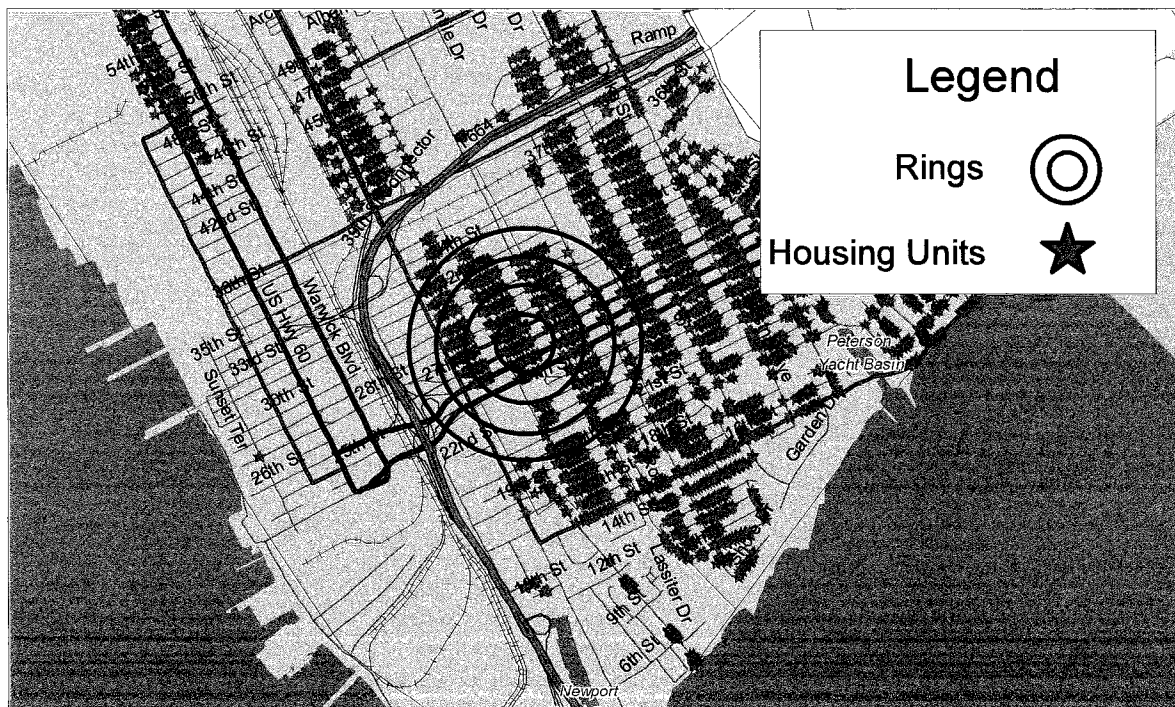*Table 14: Appreciation Rates of Residential Parcels by Planning District 2000-2005*

Planning District	Annual Appreciation Rate (%) for Unadjusted Parcels
1	4.5%
2	8.7%
3-4	7.9%

Madison Heights

In analyzing the appreciation rates for the rings encompassing the centroid for the Madison Heights revitalization area (see map in Figure 7), the initial unadjusted analysis yielded the impressive results in Table 15 in which the appreciation rate declined with an increase in ring distance. This result is expected given the inclusion of the new units contained primarily in RING500 and RING1000. Accordingly, it was necessary to adjust the number of properties in order to more accurately reflect the influence of the new units without skewing the results. After careful consideration, the following adjustments were made to the data set:

1) New units developed by the Newport News Redevelopment and Housing Authority were removed.

2) Other new units developed by private and non-profit developers were removed.

3) Vacant lots were removed.

4) Properties containing less than 3 or greater than 4 bedrooms were removed along with all properties with assessed values in 2005 of less than $50,000.

Figure 7: Map of Location of Madison Heights Homeownership Revitalization Area

Table 15: Madison Heights Homeownership Area Unadjusted Appreciation Rates of Residential Parcels 2000-2005

Distance Ring around Centroid	Number of Parcels	Annual Rate (%)
500 ft or less (RING500)	110	17%
501 - 1000 ft (RING1000)	254	16.5%
1001 –1500 ft (RING1500)	401	10.8%
1501 – 2000 ft (RING2000)	309	7.5%

The adjustment to account for the NNRHA new housing units is understandable since the goal of the study is to determine the influence of these units as part of the revitalization effort on existing units. Furthermore, new units were being introduced during the study period thereby significantly distorting the appreciation values when a site contained deteriorated units or vacant parcels in one year and a new home in a subsequent year. In the rings there were a scattering of new units constructed by non-profit organizations such as Habitat for Humanity (typically on vacant lots donated by NNRHA) and a very small number of homes built on in-fill lots by private developers which were also removed from consideration. Vacant lots were removed from consideration since they contained no residential structures and any appreciation would be limited exclusively to land value. Finally, units significantly different from the new NNRHA units were removed from consideration since these units violated the principle of real estate comparables. This category included units with fewer than 3 or greater than 4 bedrooms and units with assessed values in 2004-2005 of less than $50,000. Units valued less than $50,000 typically exhibit high levels of obsolescence thereby requiring considerable investment in the rehabilitation of

the unit. The resulting units comprised of 3-4 bedrooms at least 10 years old comprised the sample for determination of the annual appreciation rate. Of the 1074 properties originally contained in the study rings, 383 remained after the necessary adjustments. Unlike the considerable differences in the annual appreciation rates when considering all units, the annual appreciation rates for the adjusted units is similar between rings.

Table 16: Madison Heights Homeownership Revitalization Area Adjusted Appreciation Rates of Residential Parcels 2000-2005

Ring	Total N	NNRHA New	• Other New • Vacant Lots • Not 3-4 br • <$50,000	Adjusted N	Adjusted Annual Appreciation
1	110	29	51	30	5.2%
2	254	27	126	101	5.2%
3	401	15	226	160	5.1%
4	309	0	217	92	5.2%

<u>Villages of Newport</u>

In analyzing the appreciation rates for the rings encompassing the centroid for the Villages of Newport homeownership revitalization area (see map in Figure 8), the initial unadjusted analysis yielded less impressive results in Table 17 than the Madison Heights unadjusted analysis; however, the appreciation rate did decline overall with an increase in ring distance. Again, this result is expected given the inclusion of the new units contained in RING500 and RING1000. As with Madison Heights, it was necessary to adjust the number of

properties in order to more accurately reflect the influence of the new units without skewing the results. Consistent with the Madison Heights experience, the following adjustments were made to the data set:

1) New units developed by the for-profit developer under the Request for Proposal agreement with Newport News Redevelopment and Housing Authority were removed.

2) Other new units developed by private and non-profit developers were removed (not applicable in this case).

3) Vacant lots were removed.

4) Properties containing less than 3 or greater than 4 bedrooms were removed along with all properties with assessed values in 2005 of less than $50,000.

Figure 8: Map of Location of Villages of Newport Homeownership Revitalization Area

model, the adjusted model yielded mixed trend results; however, there was an overall increase in the appreciation rate when compared to the unadjusted results. Furthermore, the RING500 variable became irrelevant since all 62 units in the ring were new units built by the developer.

Table 18: Villages of Newport Homeownership Revitalization Area Adjusted Appreciation Rates of Residential Parcels 2000-2005

Ring	Total N	Developer New	• Other New • Vacant Lots • Not 3-4 br • <$50,000	Adjusted N	Adjusted Annual Appreciation
1	62	62	0	0	Not Applicable
2	51	11	0	40	5.9%
3	39	0	8	31	6.1%
4	223	0	2	221	5.7%

<u>Comparative Analysis</u>

Table 19 presents a comparative analysis of annual property value appreciation rates for the Madison Heights and the Villages of Newport Homeownership Revitalization Sites. Although the adjusted rate for the Villages of Newport area is greater and the rate for Madison Heights is stable, no other trends are evident.

Table 19: Comparative Analysis of Adjusted Appreciation Rates for Madison Heights and Villages of Newport

	Homeownership Revitalization Site	
Distance (k)	Madison Heights	Villages of Newport
500 ft or less (RING500)	5.2%	Not Applicable
501 – 1000 ft (RING1000)	5.2%	5.9%
1001–1500 ft (RING1500)	5.1%	6.1%
1501–2000 ft (RING2000)	5.2%	5.7%

- **Hedonic Analysis**

The results of the hedonic price analysis are presented in the context of two models: 1) a model with the property attributes (unit age, acreage, living area square footage, number of full bathrooms, and number of bedrooms, and 2) a model with the locational attributes represented by the dummy variables which address the distance rings. The use of this two model approach in SPSS allows the use of the incremental F test with R^2 change in order to assess the significance of the set of dummy variables.

Madison Heights

The hedonic regression information for Madison Heights indicates that the model excluding the dummy variables has an R^2 value which explains almost 49% of the variation in total property values. The addition of the dummy distance variables does little to change the coefficient of multiple determination and such change is not significant.

Three property variables have the highest standardized coefficients and are significant: AGE, ACRE, and SQ_FT_LA (square footage of living area). Whereas the lot size and the unit square footage have positive influences on the property value, the age variable negatively influences value.

Table 20: Model Summary and Significance Test for Distance Dummy Variables - Madison Heights

	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
Model					R^2 Change	F Change	df1	df2	Sig. F Change
1	.698	.488	.481	8386.080	.488	71.816	5	377	.000
2	.700	.490	.479	8399.664	.002	.594	3	374	.619

a Predictors: (Constant), BEDROOM#, ACRE, BATH#, AGE, SQ_FT_LA
b Predictors: (Constant), BEDROOM#, ACRE, BATH#, AGE, SQ_FT_LA, RING500, RING2000, RING1000

Table 21: Model Coefficients – Madison Heights

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	48366.036	3589.458		13.474	.000
	AGE	-319.537	19.201	-.704	-16.642	.000
	ACRE	120167.997	13143.085	.348	9.143	.000
	SQ_FT_LA	15.010	1.589	.437	9.447	.000
	BATH#	322.140	947.619	.013	.340	.734
	BEDROOM#	302.823	1079.954	.012	.280	.779

Table 21– Continued

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
2	(Constant)	49021.062	3644.715		13.450	.000
	AGE	-318.253	19.271	-.701	-16.515	.000
	ACRE	117635.114	13356.770	.340	8.807	.000
	SQ_FT_LA	14.915	1.601	.434	9.315	.000
	BATH#	522.938	967.671	.021	.540	.589
	BEDROOM#	311.728	1084.174	.012	.288	.774
	RING500	-1533.123	1689.600	-.035	-.907	.365
	RING1000	-697.170	1098.894	-.026	-.634	.526
	RING2000	-1323.033	1125.517	-.049	-1.175	.241

a Dependent Variable: TOTALASS

Villages of Newport

The hedonic regression information for Villages of Newport indicates that the model excluding the dummy variables has an R^2 value which explains approximately 93% of the variation in total property values. The addition of the dummy distance variables does slightly increase the coefficient of multiple determination and such change is significant. Therefore, the hedonic model incorporating the dummy ring variables is better at explaining the variation in property values.

Two property variables have the highest standardized coefficients and are significant: AGE and SQ_FT_LA (square footage of living area). Whereas the unit square footage has a positive influence on property value, the age variable

negatively influences property values. ACRE and BATH# have very modest standardized coefficients but are still significant.

The RING dummy variables were analyzed in a manner which considered the unique feature of the RING500 dummy which contained no unadjusted units (all the units in the ring were new revitalization units) and the need to exclude one dummy class to prevent perfect multicollinearity in the model. Consequently, the RING500 was not applicable and the RING1500 dummy was excluded. Both remaining distance dummy variables (RING1000 and RING2000) in the model exhibit the expected sign and the standardized coefficients get stronger with distance. The standardized coefficients of the two distance variables indicate that the effect of increased distance from the revitalization centroid on property value is negative. Furthermore, the strength of this negative effect increases with distance. Nevertheless, the results are somewhat tempered by the significant level of the two distance variables. Although the RING2000 is significant at <.05, the RING1000 is only significant at the <.15 level.

Table 22: Model Summary and Significance Test for Distance Dummy Variables - Villages of Newport 2004-2005

	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
Model					R^2 Change	F Change	df1	df2	Sig. F Change
1	.966	.932	.931	3907.381	.932	787.084	5	286	.000
2	.966	.934	.932	3877.531	.001	3.210	2	284	.042

Model 1. Predictors: (Constant), BEDROOM#, ACRE, AGE, SQ_FT_LA, BATH#
Model 2. Predictors: (Constant), BEDROOM#, ACRE, AGE, SQ_FT_LA, BATH#, RING2000, RING1000 (RING1500 excluded)

Table 23: Model Coefficients for Villages of Newport 2004-2005

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	70364.502	3313.224		21.237	.000
	AGE	-489.677	24.149	-.404	-20.277	.000
	ACRE	21698.619	8173.553	.043	2.655	.008
	SQ_FT_LA	36.843	1.508	.645	24.437	.000
	BATH#	2274.678	961.705	.063	2.365	.019
	BEDROOM#	-670.526	993.644	-.011	-.675	.500
2	(Constant)	72683.356	3413.110		21.295	.000
	AGE	-497.548	24.173	-.411	-20.583	.000
	ACRE	19993.380	8650.465	.040	2.311	.022
	SQ_FT_LA	36.824	1.497	.645	24.590	.000
	BATH#	2239.129	954.461	.062	2.346	.020
	BEDROOM#	-655.581	989.055	-.011	-.663	.508
	RING1000	-1383.376	957.116	-.032	-1.445	.149
	RING2000	-1895.091	753.583	-.055	-2.515	.012

a Dependent Variable: TOTALASS
(RING1500 excluded)

Since this hedonic analysis was conducted using the assessment values for 2004-2005 which was almost five years after the completion of the project, a second hedonic analysis was conducted using the 2000-2001 assessment data which is the earliest available assessment data. Coincidentally, the new units at the Villages of Newport were completed and sold to new homeowners within the year prior to the 2000-2001 real estate assessment.

The results of this analysis as presented in Tables 24 and 25 are considerably different from the hedonic analysis involving the 2004-2005 real

estate assessment data. While the model excluding the dummy variables has an R^2 value which explains approximately 91% of the variation in total property values, the addition of the dummy distance variables does not change R^2. Therefore, the hedonic model incorporating the dummy ring variables does not explain the variation in property values better than the base model.

Table 24: Model Summary and Significance Test for Distance Dummy Variables - Villages of Newport 2000-2001

	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
Model					R^2 Change	F Change	df1	df2	Sig. F Change
1	.952	.906	.905	3384.250	.906	533.004	5	286	.000
2	.952	.907	.904	3388.290	.000	.659	2	284	.518

Model 1. Predictors: (Constant), BEDROOM#, ACRE, AGE, SQ_FT_LA, BATH#
Model 2. Predictors: (Constant), BEDROOM#, ACRE, AGE, SQ_FT_LA, BATH#, RING2000, RING1000 (RING1500 excluded)

As in the 2004-2005 hedonic analysis, AGE and SQ_FT_LA (square footage of living area) have the highest standardized coefficients and are significant. Likewise, the unit living area square footage has a positive influence on property value whereas the age variable negatively influences property values. As in the 2004-2005 model, ACRE has a very modest standardized coefficient but is still significant. However, the strength of the BATH# standardized coefficient is almost three time greater in the 2000-2001 model (.174 in 2000-2001 compared to .062 in 2004-2005).

Table 25: Model Coefficients for Villages of Newport 2000-2001

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	69505.895	2869.641		24.221	.000
	AGE	-483.087	20.916	-.542	-23.097	.000
	ACRE	12871.451	7079.256	.035	1.818	.070
	SQ_FT_LA	16.600	1.306	.395	12.712	.000
	BATH#	4663.219	832.949	.174	5.598	.000
	BEDROOM#	-293.124	860.612	-.007	-.341	.734
2	(Constant)	70231.647	2982.466		23.548	.000
	AGE	-485.985	21.123	-.545	-23.007	.000
	ACRE	14028.256	7559.006	.038	1.856	.065
	SQ_FT_LA	16.557	1.309	.394	12.653	.000
	BATH#	4651.793	834.034	.174	5.577	.000
	BEDROOM#	-333.019	864.263	-.008	-.385	.700
	RING1000	-903.887	836.353	-.028	-1.081	.281
	RING2000	-664.760	658.501	-.026	-1.010	.314

a Dependent Variable: TOTALASS
(RING1500 excluded)

The RING dummy variables were analyzed in a manner consistent with the 2004-2005 analysis. While the distance dummy variables (RING1000 and RING2000) in the model exhibit the expected sign, the standardized coefficients do not get stronger with distance. Furthermore, neither distance variable is significant at the .05 level.

In the Villages of Newport 2004-2005 analysis, the distance variables (DIST) have the correct sign as hypothesized in the model. The basic assumption of the model is that if the new housing influences property values

positively, the coefficients would have negative values (see Equation 2), which means that property values decrease with distance away from the new housing. The regression results in Table 23 reveal that the hypothesized relationship is correct. The distance coefficients have the correct sign although only the RING2000 variable is statistically significant.

The distance variables also have more practical implications. The coefficients in hedonic regression model indicate a change in Y value due to a one unit change in X. Thus, in the Villages of Newport, at a distance of 1000 ft, a one unit change in distance, would decrease property value by $1,383; at a distance of 2000 ft, the value decrease would increase to $1,895. Thus, the difference in property value between a single family house located within 1000 ft of the revitalization centroid versus 2000 ft would be $512 ($1,895-1,383) with all other variables held constant. The distance variables indicate that the closer the property is located to the revitalization centroid then the higher the property value assuming all other variables are equal.

Comparative Discussion regarding the Hedonic Analysis for Target Areas

The application of the hedonic model which incorporates key property attributes and distance variables resulted in dramatically different results when applied to the Madison Heights and the Villages of Newport homeownership revitalization areas. In the case of Madison Heights, the introduction of the distance variables into the hedonic analysis had no influence on explaining property value variation whereas the introduction of distance variables in the

Villages of Newport analysis did increase the coefficient of multiple determination and was significant.

Although both Madison Heights and the Villages of Newport revitalization areas are in the same Planning District or submarket in Newport News, the two development sites differ in the following aspects: 1) density, 2) project time horizon, and 3) diversity of the housing stock in the surrounding neighborhood. Examination of these three attributes is important in understanding the potential factors influencing the results generated by the hedonic model in each revitalization area.

The Villages of Newport site has a dense core around the centroid whereby all the units (62 units) within a 500 ft ring of the centroid are newly developed units as part of the revitalization effort. In contrast, the Madison Heights site has a less dense core within the 500 ft ring around the centroid. At the time of the 2004-2005 assessment, new homes comprised only 26% of the 110 properties within the core. Although at some point the new development density within the revitalization core will approach 80-90% of the total parcels, the new development is more diffused at Madison Heights than at Villages of Newport. This feature is further confirmed when examining the 1000 ft ring area surrounding the centroids in each development. Whereas the new development is distributed among the 500, 1000, and 1500 ft rings in Madison Heights, new development only extends into the 1000 ft ring area at the Villages of Newport.

It should be noted that the Villages of Newport site benefited from the previous use of the single large property as a rental community in which there

was only one owner. The City and NNRHA were able to obtain ownership of the site as a result of considerable HUD assistance in terms of foreclosing the property, relocating the relatively few remaining residents, and demolishing the blighted rental community. In contrast, the Madison Heights revitalization site contains small individual properties based on 2500 square foot lots. Some of these lots are vacant whereas others contain existing structures which are blighted. Therefore, NNRHA has faced two challenges: 1) a large number of individual property owners which requires the negotiation for a large volume of property purchases, and 2) limited resources to acquire properties, relocate residents where necessary, and demolish blighted structures to create lots suitable for new development. As previously discussed, NNRHA has employed a variety of financing tools and powers including HUD resources such as CDBG and HOME, State resources such as permanent mortgage financing from VHDA, and redevelopment powers enabling the condemnation of properties under the State's redevelopment code. Although HUD-funded CDBG and HOME programs represent critical resources to create the new housing sites to utilize the VHDA permanent mortgage financing, Federal funding for these two HUD program has decreased significantly during the last several years.

The differences in resource availability to address the revitalization needs at the Madison Heights and Villages of Newport revitalization areas influenced each project's time horizon. Whereas the 73 new homes comprising the Villages of Newport project was completed in approximately three years from 1997 to 2000, the Madison Heights redevelopment efforts began in 1996 and resulted in

the completion of 71 new homes by the 2004-2005 assessment period. Therefore, the application of the hedonic model to consider 2004-2005 assessment values in the two areas encountered two different situations: 1) a project which had been complete for approximately five years, and 2) an ongoing project with a projected completion date of 2010.

The final noteworthy difference between the Madison Heights and the Villages of Newport revitalization areas concerns the nature of the surrounding neighborhoods. The residential community surrounding the Villages of Newport site consists of similar one-story three bedroom homes constructed in the 1950s which are generally well-maintained. Therefore, the neighborhood's physical attributes are largely homogeneous. In contrast, the neighborhood surrounding the Madison Heights revitalization area is much more diverse and contains housing units up to 90 years old. The architecture includes two-story designs with three or more bedrooms and one-story designs with two bedrooms. Interspersed among the older units are one-story units constructed in the 1970s and 1980s on vacant narrow lots which previously contained older housing units. These older housing units had deteriorated and were demolished either by the City's building codes action or by builders seeking land to develop modest housing units. Consequently, the housing stock is much more heterogeneous in the neighborhood surrounding Madison Heights than the neighborhood surrounding the Villages of Newport.

Analysis in Relation to Research Questions

In view of the previous discussion, it is appropriate to consider the extent to which the originally proposed research questions are addressed by this study. Although this study was not able to fully resolve all of the questions, the research has yielded important insights.

The first research question represents the most important consideration in this study since the identification of measurable spillover effects is critical to the investigation of the other questions.

- Does concentrated homeownership development involving new construction in blighted communities have measurable spillover effects on the surrounding neighborhood's residential property values?

While the use of the assessment appreciation model did not indicate a significant difference in value appreciation based on distance surrounding the homeownership revitalization areas, the use of the hedonic price value model generated interesting results. In the case of the Villages of Newport, the distance of an existing home from the revitalization centroid appears to have some relationship to the value of the property. When compared with a hedonic analysis of the 2000-2001 assessment data, it appears that such influence may have developed over time indicating that there is conceivably a lag time from the completion of the new revitalization project and its influence on surrounding property values.

Determining the spillover effects in the case of Madison Heights is more problematic given the status of the revitalization effort in terms of funding and schedule as well as the nature of the surrounding neighborhood. Based on the

hedonic price analysis using the 2004-2005 assessment data, the Madison Heights revitalization effort appears to have generated no measurable significant spillover effect on surrounding properties. The different results between the Villages of Newport and Madison Heights projects may illustrate the importance of "critical mass" in revitalization efforts. Critical mass represents an important consideration in the residential revitalization profession since it represents the level at which publicly facilitated efforts generate the results necessary to influence private market activity in the surrounding area. The concentration of 63 new units in a 500 ft ring area round the Villages of Newport revitalization centroid may have generated the critical mass threshold to influence the surrounding market whereas the smaller concentration in the 500 ft ring surrounding the Madison Heights revitalization centroid has not yet reached the necessary threshold.

The second research question builds upon the results of the first question and consequently only applies to the results obtained from the hedonic analysis of the Villages of Newport revitalization area.

- Does the distance between the concentrated homeownership development and the surrounding existing homes influence the spillover effect?

Distance appears to matter in the case of spillover effects on surrounding existing homes. As illustrated by the hedonic analysis, houses located within 1000 feet of the revitalization centroid appear to receive a greater price benefit than those houses located 2000 feet from the centroid when all other factors

remain constant. The importance of this result will be further examined in the Results and Conclusions section of this study.

The third research question centers on the previous discussion of neighborhood physical homogeneity/heterogeneity.

- Do the characteristics of the surrounding existing homes influence the spillover effect of the new homes?

Based on this study, there is insufficient information to consider this question. While intuitively one might consider the consistent positive physical neighborhood environment surrounding the Villages of Newport site to be conducive to the overall impact of the project, the results of this study do not adequately address this consideration.

The fourth and final research question considered by this study represents the most ambitious and challenging inquiry.

- Does the amount of local government participation in the concentrated homeownership development influence the spillover effect on adjacent properties?

Although both the Villages of Newport and Madison Heights revitalization projects employ different amounts of local government participation in the efforts, such participation was critical in both cases and illustrates the need for public participation in most revitalization efforts, particularly those involving affordable housing opportunities for modest-income households. Nevertheless, the data analysis of this research does not indicate whether the public sector participation approach employed at Villages of Newport yielded a greater influence on surrounding values than the approach used at Madison Heights. At Villages of Newport, the City of Newport News (with considerable support from HUD)

provided a cleared site to a private for-profit developer with general instructions about the amenities of the units and the stated goal to promote affordable housing opportunities for middle-income homebuyers. The developer secured the necessary construction and permanent mortgage financing for the project and was able to complete the project in a relatively short timeframe.

In the case of Madison Heights, the neighborhood environment was more complex in terms of property ownership requiring the City to adopt a formal redevelopment plan. Likewise, the array of funding sources necessary to assemble the building sites were diverse and finite while depending on modest annual funding cycles. Furthermore, the Madison Heights revitalization effort was created to address some of the worst housing conditions located in what was overall one of the most fragile neighborhoods in Newport News. Because of the nature of the problems facing the neighborhood, the level of government participation through the Redevelopment and Housing Authority was greater and longer.

CHAPTER V

RESULTS AND CONCLUSIONS

The promotion of homeownership opportunities and the revitalization of older deteriorated communities represent important goals for many urban areas. Although considerable research has examined the impact of homeownership on the homeowning households in terms of family performance and wealth accumulation, there exists an extremely limited body of research examining the actual economic impact of new homeownership opportunities when used as a neighborhood revitalization tool. Since the introduction of homeownership opportunities into a revitalization effort is intended to generate positive spillover effects to influence the neighborhood real estate market, there is a considerable need for research into this matter.

Accordingly, the purpose of this study was to present empirical evidence concerning the impact of new single-family homes on the value of adjacent properties in an area targeted for revitalization. The use of multiple regression analysis based on the hedonic price value model enables the consideration of both housing amenity variables and distance variables in relation to the targeted revitalization area. This study builds upon the limited body of empirical research in this field by examining the experience of one locality in using two different public participation approaches to promote homeownership and neighborhood revitalization. Most importantly, the research has generated a new conceptual model for targeting neighborhood revitalization investment presented later in this section.

The results of the regression analysis indicate that two of the hypothesized relationships appear to be supported in one of the two examined homeownership revitalization areas. In case of Villages of Newport, the following hypotheses appear to be valid:

- Homeownership units developed with amenities equal to or greater than those of the existing predominate residential housing in blighted neighborhoods appear to have a measurable positive influence on the value of existing residential properties in the neighborhood.

- The closer the distance between the newly developed homeownership units and the existing units appears to more greatly influence the value of the existing units.

The overall result in the Villages of Newport analysis suggests the existence of locational effects on older single-family units located near new single-family units. More specifically, single-family houses located close to new single-family homes appear to be more greatly influenced in terms of property value than those located farther away from new single family homes. The hedonic price model that includes the structure and locational variables is a much better approach than the value appreciation model in explaining the relationship between property value and distance from new single-family housing. Within the hedonic model, the structure variables are the most important attributes that explain the variation in property value. The standardized coefficients show that the structure variables such as square footage and age accounted for most of the

variation in property values in the study area. In the case of the Villages of Newport analysis, distance variables play a minor but significant role on par with lot size.

Unfortunately, these two hypotheses could not be considered in the context of the Madison Heights revitalization site due to the results of the hedonic study which indicated that the inclusion of distance variables in the hedonic model was not significant.

The following hypothesized relationship was not supported by the research due to the inability to identify relationships within the context of the two previous hypotheses in both of the homeownership revitalization areas.

- Homeownership revitalization sites with a denser concentration of new units will have a greater influence on the value of surrounding properties than more diffuse revitalization sites.

Although the Villages of Newport site does have a much denser core and it appears based on the research that the new homes in the revitalization area may have influenced property values within certain distances around the core, the hedonic analysis of Madison Heights does not indicate a relationship between the value of the new homes and the value of surrounding existing homes. Therefore, the results considered in the context of the hypothesis may indicate a relationship to the extent that the more diffused nature of the Madison Heights efforts yielded no apparent relationship between the introduction of the new homes and the value of the surrounding homes. Nevertheless, the density of the revitalized core relates to the concept of "critical mass" which is an important consideration in regards to the revitalization of neighborhoods. Opportunities

exist for further research to determine the critical mass threshold for a revitalized core necessary for a desired spillover effect on the surrounding neighborhood.

The results of the hedonic analysis for the two revitalization areas and inability to identify relationships within the context of the first three hypotheses for both areas adversely impacted the consideration of the final hypothesis.

- The greater the level of local government participation in the concentrated homeownership development project the greater the influence of the new units on the value of the existing units.

Although the level of local government participation in the Madison Heights revitalization efforts is greater and more sustained, the differences between the two efforts in terms of the timing of resource commitments and the overall timeframe of the project is considerably different thereby rendering consideration of this hypothesis infeasible at this time. The different level of commitment in each project does illustrate the need for flexibility in the public response to revitalization opportunities. This broader research question related to this hypothesis merits further study.

Although this study was limited to two homeownership revitalization areas in one city in Virginia, the methodology presented in this research can be used in other studies to examine the relationship between property value in established neighborhoods and adjacency to new single-family revitalization areas. Through a much broader study that covers many geographic areas in the country using models that incorporate location and structure attributes, housing professionals and researchers may gain a better understanding of the impact of new homeownership

revitalization efforts on adjacent properties. The results of such studies can have a profound effect in influencing the decision of local governments on the investment of limited revitalization funds in our nation's impacted urbanized communities. Furthermore, such studies can address increasing requirements from funding sources such HUD (in the case of CDBG and HOME funds) to demonstrate program outcomes which could benefit from an analysis of spillover effects.

Finally, this research presents the opportunity for a practical application in terms of targeting resources in multiple portions of a neighborhood identified for revitalization. Rather than utilizing the traditional urban renewal bulldozer approach where all structures within a large designated area are demolished to make way for new development, it may be feasible to selectively target blocks in a neighborhood to generate overlapping spillover effects as illustrated in Figure 9. The depicted Overlapping Influence Model illustrates the targeting of three areas and the introduction of new homeownership units in a manner where the spillover rings intersect. The intersection of these rings will conceivably strengthen the spillover effect whereby the intersection of two 1500 ft rings could produce an effect comparable to property location within a 1000 ft ring. Although the model is theoretical at this point, it provides a framework for further application and research.

Figure 9: Overlapping Ring Influence Model

Figure 9: Overlapping Ring Influence Model
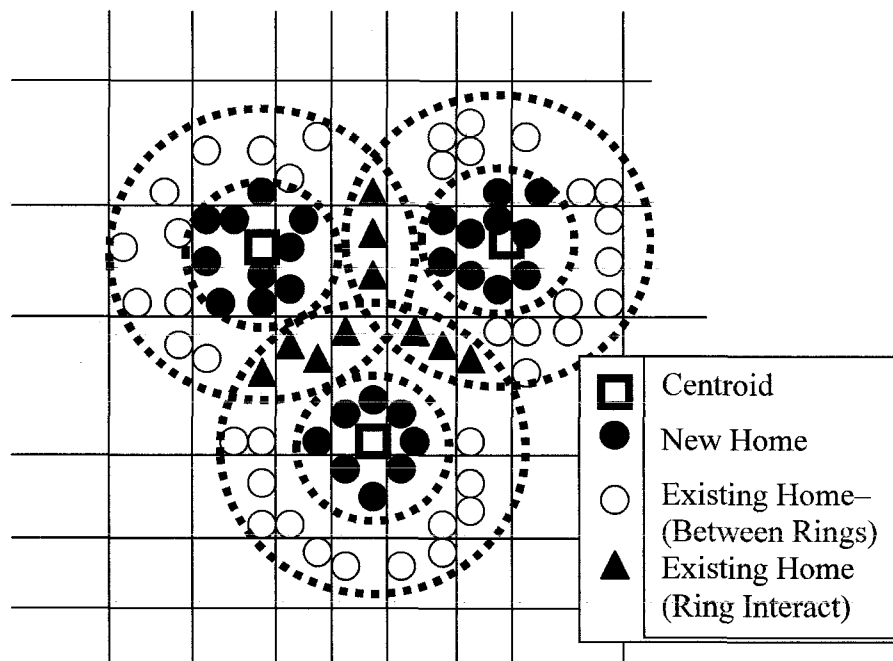
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APPENDIX A

SITE PHOTOGRAPHS OF MADISON HEIGHTS

Figure 1

Left: Homes in Madison Heights prior to Redevelopment

Source: NNRHA

Figure 2

Left: New Home in Madison Heights
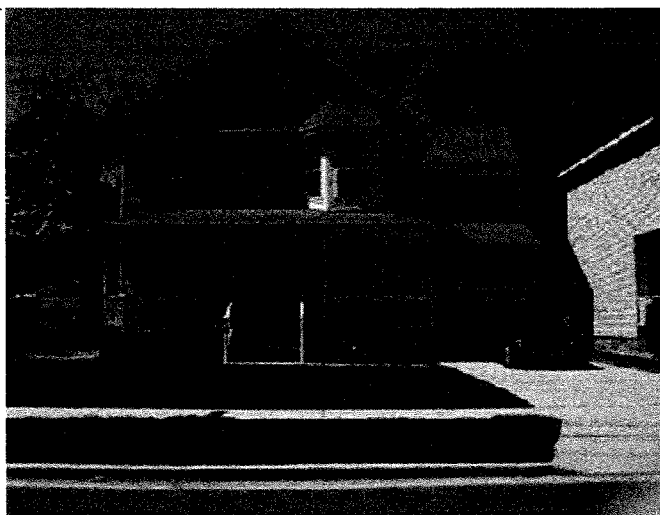
Source: NNRHA

Figure 3

Right: New Home in Madison Heights

Source: NNRHA

APPENDIX B

SITE PHOTOGRAPHS OF GLEN GARDENS AND VILLAGES OF NEWPORT

Figure 1

Left: New Homes at Villages of Newport

Source: NNRHA
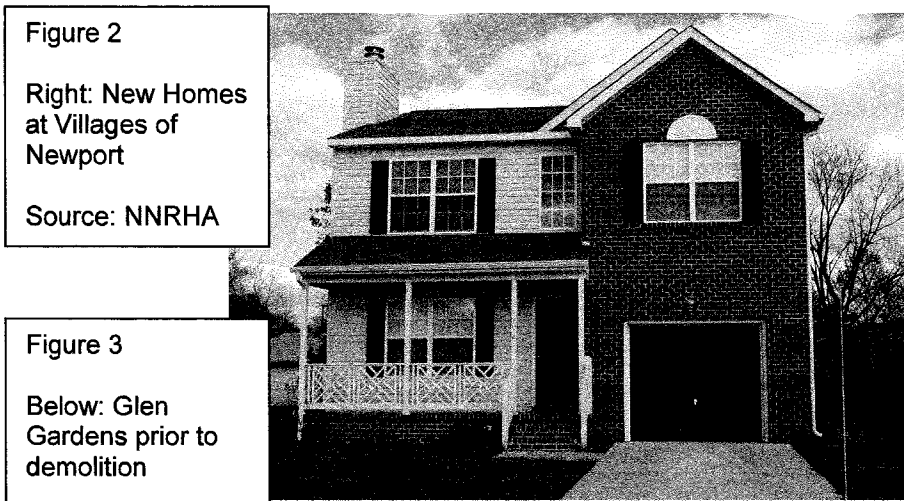

Figure 2

Right: New Homes at Villages of Newport

Source: NNRHA

Figure 3

Below: Glen Gardens prior to demolition

Source: NNRHA

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Education

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2005 – Present	Director of Community Housing, Virginia Housing Development Authority, Richmond Virginia
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Honors and Awards

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Publications

Hawkins, J. Michael, "Adopt-A-Block Building Blocks." Journal of Housing and Community Development, Vol. 53, No. 2, March/April 1996, 28-30.