Benefits of Redevelopment of Outdated Retail Centers

By

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Bachelor of Arts, Austin College 1999

Submitted to the Department of Urban Studies and Planning
In partial fulfillment of the requirements for the
Degree of Master of Science in Real Estate Development

at the

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ABSTRACT

This paper explores the benefits of redevelopment of outdated retail shopping centers and seeks to identify potential redevelopment opportunities. The focus is specific to sites located in Dallas, Texas, and the overall concept can be applied to centers elsewhere. The assumption is that redevelopment of a particular retail center improves the value of the single-family (SF) residential properties surrounding that center. The redevelopment use can be altered to include strictly retail, but preferably includes a mix of uses – such as retail, residential, and/or office – that combine to satisfy the demands of today's market and hopefully that of the future.

The research and data analysis portion of this study seeks to provide evidence that redevelopment of an underutilized site does indeed enhance the value of the SF residential properties surrounding that particular site. This data and the factual results provided herein can be used to provide stakeholders with evidence of the value of redevelopment. Specifically, adjacent property owners and neighborhood groups may find comfort in a careful study rather than simply a developer's verbal description and visual depiction of the benefits of redevelopment. In addition, the municipal authority that derives tax revenue from the value of the property can also confirm that real estate tax revenue will increase with redevelopment.

Thesis Supervisor: William C. Wheaton
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CHAPTER ONE: INTRODUCTION

Overview

This paper explores the benefits of redevelopment of outdated retail shopping centers and seeks to identify potential redevelopment opportunities. The focus is specific to sites located in Dallas, Texas, and the overall concept can be applied to centers elsewhere. The assumption is that redevelopment of a particular retail center improves the value of the single-family (SF) residential properties surrounding that center. The redevelopment use can be altered to include strictly retail, but preferably includes a mix of uses – such as retail, residential, and/or office – that combine to satisfy the demands of today's market and hopefully that of the future. Furthermore, the redevelopment should include design qualities and tenant selection that creates a destination for its patrons.

The built environment continuously evolves through various economic cycles and building booms. Construction creates new additions and demolition removes old structures. Typically in the Dallas/Fort Worth metropolitan area (DFW), the former occurs on virgin greenfield sites and the latter happens when a site's value depreciates to a level where redevelopment is more economically feasible than greenfield development. Overwhelmingly, the primary mode of transportation in DFW is the automobile. An expansive highway system, extraordinary suburban growth and a host of other reasons – including an enduring preference for lower density development – make greenfield development much preferred to infill redevelopment.

However, rising greenfield land prices, increased regulatory burdens for new development on greenfield sites, and an increasing customer preference for higher-density, urban projects could make urban infill redevelopment more pragmatic, even in auto-centric markets

like DFW. The purpose of this paper is to show the financial benefits of urban infill redevelopment to surrounding property owners. The appreciation in property values spurred by local redevelopment should encourage the redevelopment of outdated retail centers in urban destinations, the result of which would positively impact the following stakeholders: (1) nearby residential property owners, (2) local municipalities, (3) urban retailers, and (4) urban mixed-use developers. The impacts and benefits of urban redevelopment as it affects the aforementioned groups will be addressed in the subsequent chapters.

Purpose and Target Audience

This paper was prepared for the intended use as a resource guide and potential business plan for implementation in the DFW area. Therefore, the target audience is the development community, presumably possessing a fundamental knowledge of the development process and the factors that influence decisions throughout that process. As with virtually all real estate development projects, site specific details will differ. Therefore, the background information contained herein should be considered general in nature, unless otherwise declared.

Thesis

The research and data analysis portion of this study seeks to provide evidence that redevelopment of an underutilized site does indeed enhance the value of the SF residential properties surrounding that particular site. This data and the factual results provided herein can be used to provide stakeholders with evidence of the value of redevelopment. Specifically, adjacent property owners and neighborhood groups may find comfort in a careful study rather than simply a developer's verbal description and visual depiction of the benefits of redevelopment. In addition, the municipal authority that derives tax revenue from the value of the property can also confirm that real estate tax revenue will increase with redevelopment.

CHAPTER TWO: OUTDATED RETAIL SHOPPING CENTERS

Description of Outdated Retail Shopping Centers

Over the decades, consumer habits have evolved, causing retailers to modify their method of delivery. This is the classic supply and demand relationship – demand changes and therefore the supply must adjust accordingly. The evolution of retail shopping centers has been a physical transformation – in size of footprints and style of architecture – as well as a shift in the composition of the tenants.

To begin with the basics, a shopping center is "a group of architecturally unified commercial establishments built on a site which is planned, developed, owned, and managed as an operating unit related in its location, size, and type of shops to the trade area that the unit serves. The unit provides onsite parking in definite relationship to the types and total size of the stores."[1] Due to the criteria used in the study, which is discussed further below, neighborhood retail centers are the primary focus of this paper. Neighborhood centers provide convenience goods and personal services. Supermarkets, comprised of grocery and pharmacy merchandise, normally anchor neighborhood centers. Sites are usually ten (10) acres and the typical gross leasable area (GLA) in a neighborhood center is 50,000 square feet, with a traditional range of 30,000 to 100,000 square feet.[2]

In the 1950s and 60s, retail centers were designed to satisfy the demands of a smaller retailer. Highland Park Village, constructed on a ten (10) acre site in 1916, hosted its original supermarket in 8,050 square feet and two (2) restaurants in approximately 4,000 square feet

[1] J. Ross McKeever and Nathaniel M. Griffin, *Shopping Center Development Handbook* (Washington: ULI, 1977), p. 1.
[2] Michael D. Beyard and W. Paul O'Mara, *Shopping Center Development Handbook: Third Edition* (Washington: ULI, 1999), p. 13.

each.[3] Another Texas reference is Jefferson Village in San Antonio where 10,170 square feet was allocated for its supermarket.[4] In 1977, ULI published a recommendation that supermarkets contain approximately 30,000 square feet.[5] In today's market, supermarkets require even more space. For instance, the Texas-based supermarket chain Tom Thumb Food & Pharmacy, owned by Safeway, Inc., prefers GLA of 41,800 to 58,000 square feet.[6] Whole Foods Market, Inc., a more upscale Texas-based supermarket company, prefers 29,000 – 40,000 square feet of GLA.[7]

In addition to increased store space, parking requirements have grown as well. In 1981, the general guideline was 4.0 parking spaces per 1,000 square feet of GLA.[8] Many years later, in 1999, parking guidelines have increased to five (5) spaces per 1,000 square feet of GLA.[9]

The exteriors of older retail centers were designed to satisfy municipal design guidelines, if any, and to match the current design trend of the time period in which constructed. Quoting a 1977 ULI publication, "In looking at the general run of strip centers, it is easy to see why the public considers many of them unsightly. A hodgepodge of materials, a lack of taste in signing, and an absence of architectural merit often combine to produce the visual pollution of the center."[10] The architect is assigned the challenging task of combining efficiency, appearance, functionality, and marketability in the site layout, building design, and landscaping stages of the planning process. The developer will likely have a continuous struggle in consideration of the ultimate juxtaposition of opposites – immediate affordability and potential profitability.

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[3] Geoffrey Baker and Bruno Funaro, *Shopping Centers: Design and Operation* (USA: Reinhold Publishing Corporation, 1951), p. 93.
[4] Baker, p. 123.
[5] McKeever, p. 78.
[6] TradeDimensions International, Inc. *2005 Retail Tenant Directory* (Wilton: TDI, 2005), p. 740.
[7] *Ibid*., p. 957.
[8] Urban Land Institute. *Parking Requirements for Shopping Centers: Summary Recommendations* (Washington: ULI, 1981), p. 2.
[9] Beyard, p. 13.
[10] McKeever, p. 107.

The primary market for a neighborhood shopping center is the household composition located within approximately two (2) miles of the center. This trade area differs in size and composition based on the target market of the retail tenants. In order to identify the market surrounding a retail center, the owner or developer must seek to identify opportunities, delineate the trade area, quantify the depth of market, analyze current tenant performance, and understand the need(s) of the community. The results of such an analysis should be incorporated into the proposed plan that attempts to maximize the potential of the site – including tenant type and composition – for today's market as well as that of the future. Accurate knowledge of the market and solid projections for the demographic trends are vital elements to a successful plan.[11]

Retail Shopping Center Site Selection

Typically, retail development occurs after residential development. Determining the specific location of a shopping center is neither science nor art. Rather, in an urban setting, a given supply of land is typically "reserved" for retail use. Shopping centers are both a convenience and a necessity. Selecting the appropriate retail tenant for a particular shopping center location is both an art and science.

Retailers typically await a specified number of people and household income within a certain distance from the site before entering the market. For instance, Whole Foods, Inc. requires 200,000 people within a 20 minute drive time, which translates into five (5) miles in urban Texas. In addition, Whole Foods desires a large portion of this population – relative to other populations in a market – to possess college educations.[12] With regards to household income, the grocer requires a median of $50,000. Once a specific site satisfies these initial requirements, a psychographic study is conducted in order to confirm that the core customer is

[11] Külli Millar, "How Market Research Aids the Renovation/Expansion Plan," *The ICSC Guide to Renovating & Expanding Shopping Centers the Smart Way* (1996), p. 17.
[12] Whole Foods Market, www.wholefoodsmarket.com/realestate/index.html

indeed present. Whole Foods seeks customers who live a lifestyle that will yield one (1) visit per week minimums. This psychographic analysis is based on home types, vehicle brands, and style of clothing sold by local retailers.[13]

While the upscale supermarket retailer might be desirable as a shopping convenience, it is typically an undesirable neighbor. Residential properties immediately adjacent to retail centers typically encounter the negative aspects of retail convenience, which is primarily traffic, exposure to unsightly loading docks or large trash receptacles, and truck noise associated with deliveries. These negative externalities, among others, cause properties immediately adjacent to retail centers to be less valuable than properties buffered or isolated further within the community. The properties located along the fringe of the residential zone were likely priced at a discount when initially constructed. As revealed in the data analysis section of this paper, a curved gradient appears to exist at the fringe properties where properties within a certain negative proximity – this distance differs across the various sites – to a retail center are valued at a slight discount. Once beyond that distance, values increase to a point where distance is no longer proximate. In other words, there are three (3) basic levels of proximity to a center: (1) too close, (2) just close enough, and (3) too far away.

[13] Anonymous source at Whole Foods Real Estate Dept.

CHAPTER THREE: REDEVELOPMENT

The specific benefits of redeveloping a site within a preexisting market include the market itself, reuse of physical components, and the subjective "feel" of a community. Each attribute represents an item of importance to the four (4) primary stakeholders as identified above. For instance, the specific market is vital to the retailer's success. The private physical components are important to the developer (and/or owner) while the city has an ongoing interest in properly constructed public infrastructure. Finally, the sense of community is meaningful – both financially and emotionally – to the surrounding property owners who will presumably utilize the new addition to their neighborhood.

Benefits of Redevelopment

As with virtually any real estate project, a key component to success is the geographic location. Urban infill sites inhabited by neighborhood retailers are generally those sites located on corners of major roadway intersections where exposure, traffic, and access are maximized. At the time when the site was developed, the developer and retailers presumably attempted to satisfy the existing market demands. Over time, this market may have evolved, to make the site either viable to the original retailers or more valuable to other retailers. Thus, the demand driver – basic needs and desires of the surrounding demographic – remains the most critical element of potential redevelopment. Understanding a market that has existed and operated for many years would appear to be an easier task than projecting expectations of an anticipated market that exists only on paper. Habits, tendencies, and preferences of consumers are more easily observed in an existing marketplace than a future community. Therefore, accuracy of consumer demand would be greater within an urban setting rather than a vacant greenfield location.

From a more objective standpoint, redevelopment allows for the use of existing infrastructure such as thoroughfares, wet utilities, and dry utilities.[14] While upgrades and modifications to the existing system will likely be required, the bulk of the hard cost expenditures will be significantly reduced, if not eliminated. The cost of infrastructure not only includes the cost of materials and labor, but also hardship to commuters and the environment. Commuters are obviously affected by interruptions to normal traffic patterns. Utilizing existing infrastructure minimizes this hardship. Furthermore, the environment is impacted by machinery emissions and the raw energy consumed during the manufacturing of the PVC utility pipes, RCP sections, and concrete or asphalt roadways. Thus, use of existing systems of infrastructure reduces environmental impacts.

Redevelopment also attempts to enhance the value of a property and subsequently its community. Neighboring homeowner acceptance is generally vital to project success. Surrounding interest groups will demand quality and every individual will likely have a unique opinion of how an underutilized retail center should be redeveloped. If the target center is a 50% vacant, dilapidated, formerly grocery-anchored strip center building with little or no community appeal, community members would presumably welcome a modern center that offers more conveniences and venues in which to gather. Providing the surrounding community with a centrally-located gathering place for activities, such as morning coffee, lunchtime dining, and/or evening entertainment, may help strengthen the existing community. In a case such as this, redevelopment removes a non-amenity, eliminates the negative externalities – such as general unsightliness – emitted by the former deficient site, and provides a new centerpiece for the community. This functional "sense of place" strengthens the existing community and

[14] Lee S. Sobel, *Greyfields into Goldfields: Dead Malls Become Living Neighborhoods* (Pittsburgh: Geyer Printing Company, 2002).

furthermore creates a new tax base for the city and incremental value increases for the surrounding property owners.

As mentioned previously, redevelopment provides an efficient use of infrastructure. Possibly more importantly, redevelopment also provides an efficient use of land by simply selecting a pre-existing developed site instead of undeveloped raw land. The less land consumed for development today, the more land available for use as open space or farmland – at least for the immediate future until suburban sprawl eventually envelopes this land. As the preference for low density persists, the phenomenon of enveloping raw land will inevitably continue.

Depending on the location, this efficient use of land could be extremely valuable. In the DFW area, the average price for the land under Mockingbird Station infill site was $46 per square foot[15] compared to an estimated price of $5 per square foot for zoned and entitled suburban greenfield property in Plano, for instance. Initial factors to consider are the potential zoned density – or floor area ratio (FAR) – for the future use, density of the two (2) mile market area (both population and households), and daily traffic count. Any combination of characteristics could make this particular infill site more valuable as the discounted greenfield site.

From a comprehensive view, the efficient use of real estate provides the same benefits as an efficient use of infrastructure. Again, savings could be realized in the form of hard costs, environmental pollution, and general public welfare. As the concept of urban redevelopment is practiced in expansive, lower-density cities, such as Dallas, its benefits impact the environment to a greater degree. Sustainable development and "smart" growth practices can help minimize the effect of development on the natural environment.

[15] Urban Land Institute. *Development Case Study: Mockingbird Station* (Washington: ULI, 2002).

A final benefit to redevelopment of greyfields is the minimization of commuter traffic on an already congested highway system. Suburban commuters employed inside the city oftentimes cannot live in the city due to expensive housing. This is a result of supply-constrained neighborhoods forcing those with lower incomes to the suburbs. However, if higher overall residential density is developed, the redeveloped site could offer rental apartment, for-sale condominiums, or other housing alternatives to the downtown workers who would have otherwise been compelled to move into the suburbs. With the addition of mass transit, commuting traffic is reduced, thereby resulting in less congestion and less emissions.

In order to achieve these savings, demand must exist for the product being offered within these new communities. Thus, demand drivers continue to be vital to the success of a redevelopment project.

Hurdles to Redevelopment

While the benefits to redevelopment appear worthwhile, the challenges to a redevelopment effort are considerable. These challenges are primarily legal, economic, and the physical characteristics specific to each site. [16]

Legal obligations can often present a challenging encumbrance to the redevelopment of a site. Leases for space within existing retail centers vary by tenant and traditionally include clauses relating to sales performance, occupancy of center, and status of the anchor tenant. Leases on older, outdated retail space are likely not synchronized as oftentimes the original tenants (under their original leases) have vacated their space. Lease terms generally range from 5 years to 20 years, depending on a number of factors. Furthermore, tenant's right to renew those leases can be for multiple terms. While an owner would prefer uniform lease arrangements, stronger tenants are able to structure leases with more favorable terms. Therefore,

[16] Sobel, p. 14.

for any given retail center, a complex matrix of lease terms may exist, and the existing tenant base presumably has differing sales requirements and projections of future growth or contraction.

In addition to multiple tenants, there may also be segmented property ownership. Retail centers located at major thoroughfare intersections follow municipal zoning guidelines and adhere to the general design principles prescribed by the retail industry and oftentimes local building code. A traditional ten (10) acre site zoned for retail use could have an L-shaped structure with parking located between the building and the intersection. In order to derive additional and/or immediate revenue, the original developer of the center may opt to sell a pad designated for a specific use, such as a fast food restaurant or small service kiosk. Therefore, in addition to multiple leases, the site may also have multiple owners, thereby further complicating the timing and alignment of interests.

Land zoned for retail use is typically priced at a premium due to the abundance of permitted uses allowed on that site, as well as the site's access and exposure. Due to this difference in potential value – via rental income – to the owner, retail property is typically sold at a higher price per square foot than the residential land typically surrounding that site. If a mixed use project with a significant amount of residential space is planned for that site, then the land cost might appear cost prohibitive. However, as an urban infill site, the zoning may allow a greater floor area ratio (FAR) for uses other than retail. Therefore, while the overall per square foot land price may be unfeasible, the price per FAR foot is the critical measurement.

For instance, a broker may advertise a site with an existing 100,000 square foot retail building for sale at $20 per foot. The price of the property is determined by multiplying the size of the building by the unit price. Therefore, this retail building would be priced at $2 million. The developer, with a change of use in mind, would consider the value not in terms of the

existing structure, but in terms of the allowable floor area on that site. For example, the FAR of the aforementioned building is approximately 100,000 sq ft of building / (43,560 ft/acre x 10-acres = 435,600 sq ft of land) = FAR of 0.23. Pending a satisfactory development plan, the developer may be able to achieve an FAR of 2.0 for the new mixed use community. Therefore, the land basis for the proposed redevelopment is nearly one-eighth (1/8) that of the original price of $20 per foot.

In addition to the legal, physical, and financial condition of the property, stakeholder concerns pose even greater challenges to a redevelopment project. The developer must be aware of the concerns, knowledgeable of his/her legal rights, and willing to make concessions in order to gain regulatory approval of the proposed redevelopment project.

To virtually all adjacent residential landowners, developers are viewed as an automatic adversary. While most development attempts to create and/or improve the built environment – a developer-built environment in which that resident now lives – adjacent residents are virtually always apprehensive of new projects, simply because the result is unknown. The data analysis portion of this paper attempts to exhibit the value of adjacent redevelopment and the rent site-specific gradients associated therein.

In addition to surrounding residential property owners, the stakeholder with the ultimate authority to approve (or disapprove) a redevelopment project is the local municipality. City governments derive tax revenue not only from real estate taxes, but also from sales tax on goods sold at that site. In Dallas, the city's portion of the sales tax is 1.0% of gross revenues.[17] To provide an estimate of the sales tax potential, the median sales volume per square foot of GLA in

[17] Dallas Office of Economic Development, http://www.dallas-edd.org/opabus.htm#taxes

southern neighborhood shopping centers is $311.43 for supermarkets and $179.17 for restaurants with liquor.[18] Using these figures, we can estimate city revenues as follows:

Figure 1

	Approx. GLA	Sales/Ft	Total Sales Rev	City Tax	Tax Revenue
Supermarket	40,000	$ 311	$ 12,457,200	1.0%	**$ 124,572**
Restaurant	3,200	$ 179	$ 573,344	1.0%	**$ 5,733**

While this example represents only two potential tenants within an existing retail center, the approximate $130,000 in tax revenue to the city provides a sense of the city's stake in successful retail.

Another issue for municipalities is infrastructure capacity, including water, sanitary sewer, and traffic. The capacity analysis of a system occurs many years before an area is initially developed. In this case, the systems were likely designed in the early- to mid-20th century. Increasing the allowable zoning, and subsequently the amount of people and vehicles on the site, could strain the existing infrastructure. City governments may be reluctant to allow higher density if upgrades to the overall system are too costly. And payments for such improvements are born by the developer either directly or via impact fees. Many municipalities have adopted various methods by which to help developers offset this potential deterrence, such as Tax Increment Financing (TIF) districts and Tax Increment Reinvestment Zones (TIRZ). Again, while redevelopment appears to be a responsible method of development, many potential prohibitions exist.

Redevelopment Alternatives

If a market exists for a different type of retail center, the most conservative alternative would be the renovation or expansion of the existing structure. Renovation, as defined by the

[18] Urban Land Institute. *The Dollars & Cents of Shopping Centers: 2004* (Washington: ULI, 2004) p. 189.

Appraisal Institute's Dictionary of Real Estate Appraisal (Third Edition) is "the process in which older structures or historic buildings are modernized, remodeled, or restored."[19] The distinction can be simplified in terms of value: renovation may *not* add value immediately and expansion *does* have the potential to instantly increase base rents.

Physical modifications may include new exterior design, new materials and signage, and realignment of tenant space. However, despite these physical alterations to the physical structure, the most effective modification would be an upgrade of the tenants in order to strengthen the center's competitive position.[20] So, in alignment with current trends, an outdated community center could be reorganized into a lifestyle center. Per the ICSC, "a lifestyle center must include the following attributes: a location near affluent residential neighborhoods; an upscale orientation; 150,000 square feet to 500,000 square feet of GLA; an open-air format; and at least 50,000 square feet of national specialty chain stores."[21]

Aside from the hard cost as well as the opportunity cost of lost time in operation, multiple leases would pose a difficult legal and financial challenge to a transition into a realigned retail center. The former would likely be possible, but only with resources to cover the latter. Depending on market conditions, a transition from an outdated community retail shopping center into a trendy lifestyle center could be a lucrative opportunity as patrons shop more often and spend more than the average shopper in other types of centers.[22] Therefore, tenant challenges would be less difficult to overcome. Again, this is a site specific issue that should be evaluated with the aid of legal counsel.

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[19] Norman Steinberg and Mark McAuliffe, "Renovation and Expansion: Do They Enhance value?" *The ICSC Guide to Renovating & Expanding Shopping Centers the Smart Way* (1996), p. 21.
[20] *Ibid*., p. 22.
[21] Boswell, Brannon. "Investors Want to Know: What Defines a Lifestyle Center?" *Retail Traffic* (Dec 1, 2002).
[22] *Ibid*.

An alternative method of development would be conservation of the existing structure and simply redeveloping it into alternative uses. For example, outdated big box retail space is sometimes converted into a regional call center. Vacant warehouses are converted into luxury loft residential units. This type of redevelopment scheme would not only require attention to zoning and other use issues, but also to the physical structure existing onsite. Does it have or could the building achieve the typical dimension requirements for the alternative use? Can an atrium be added in the core of the building to provide daylight to residential windows? Is the existing floor-to-floor height sufficient to install new utilities while still allowing an acceptable floor-to-ceiling height? These questions add yet another level of complexity to conservation redevelopment. However, the value of the existing structure may be substantial enough to justify its continued existence and future rehabilitation on the site. Without specific costs, a final recommendation on this redevelopment alternative would be particularly speculative.

A third redevelopment alternative is euthanasia of existing dilapidated, underutilized, and/or unsightly structures and redevelopment of the subject site into a mix of alternative uses. The development of mixed use projects began during the 1970s.[23] The concept of a mixed use community attempts to maximize the use of real estate. Residents live, employees work, and visitors shop and dine, all in the same area. The physical space is presumably designed in a manner that maintains privacy and separation between uses and an overall design theme is incorporated into the architectural scheme. In addition, a mixed use community is intended to be a sustainable environment. While crops are not grown onsite and energy is not generated onsite, residents may work in the next building, shop in the retail stores downstairs, and have dinner in the corner restaurant. This concept attempts to create a “sense of place”, and in the context of

[23] Beyard, p. 32.

redevelopment, establish this new sustainable urban environment in place of an underutilized and/or dilapidated property.

These various redevelopment alternatives create options for the creative reuse of real estate that adds sustainable value to projects. Based on the market demands, the physical restrictions of development, and financial constraints associated therein, any one – or even none – of these alternatives may be most appropriate. As described in the following chapter, the redeveloped sites selected for this study are all located within close proximity to major highways and have the potential to either capitalize on or create their own market. Redevelopment is site and situation specific. This dynamic development environment requires attention to all aspects of the development process and therefore cannot be uniformly specified.

CHAPTER FOUR: DATA ANALYSIS

The data analysis portion of this paper is intended to illustrate the benefits of redevelopment of outdated and/or underutilized retail centers on surrounding single-family residential properties. Two sets of sites were identified: (1) the control sample includes sites considered outdated due to age, size, appearance, and/or tenant composition and (2) the variable sample set includes redeveloped centers.

Selection of Redeveloped Retail Centers

The selection of previously renovated infill retail centers were limited in number due to a lack of available samples. Recommendations were solicited from a local retail brokerage company.[24] Due to limitations of the single-family (SF) housing data, as discussed further below, only sites redeveloped within the past five (5) years could be selected. Therefore, the results yielded three (3) centers: Mockingbird Station in Dallas, West Village in Dallas, and Eastside Village in Plano. Each of these centers is a redevelopment project of an outdated, underutilized site. Furthermore, each location is located within the Highway 75 corridor, a northern artery from downtown Dallas, along which notable development has occurred.

Selection of Outdated Retail Centers

The search for outdated and/or underutilized retail properties was based upon the general qualities of the aforementioned redeveloped centers prior to redevelopment. Site selection was based upon criteria that would produce older, manageable properties for feasible, potential redevelopment. Specifically, the criteria includes: the era in which the older center was originally constructed, the acreage of land contained onsite (developed and/or undeveloped), and the geographic location of the center. The same local real estate brokerage firm participated in this site selection process as well.

[24] Anonymous source.

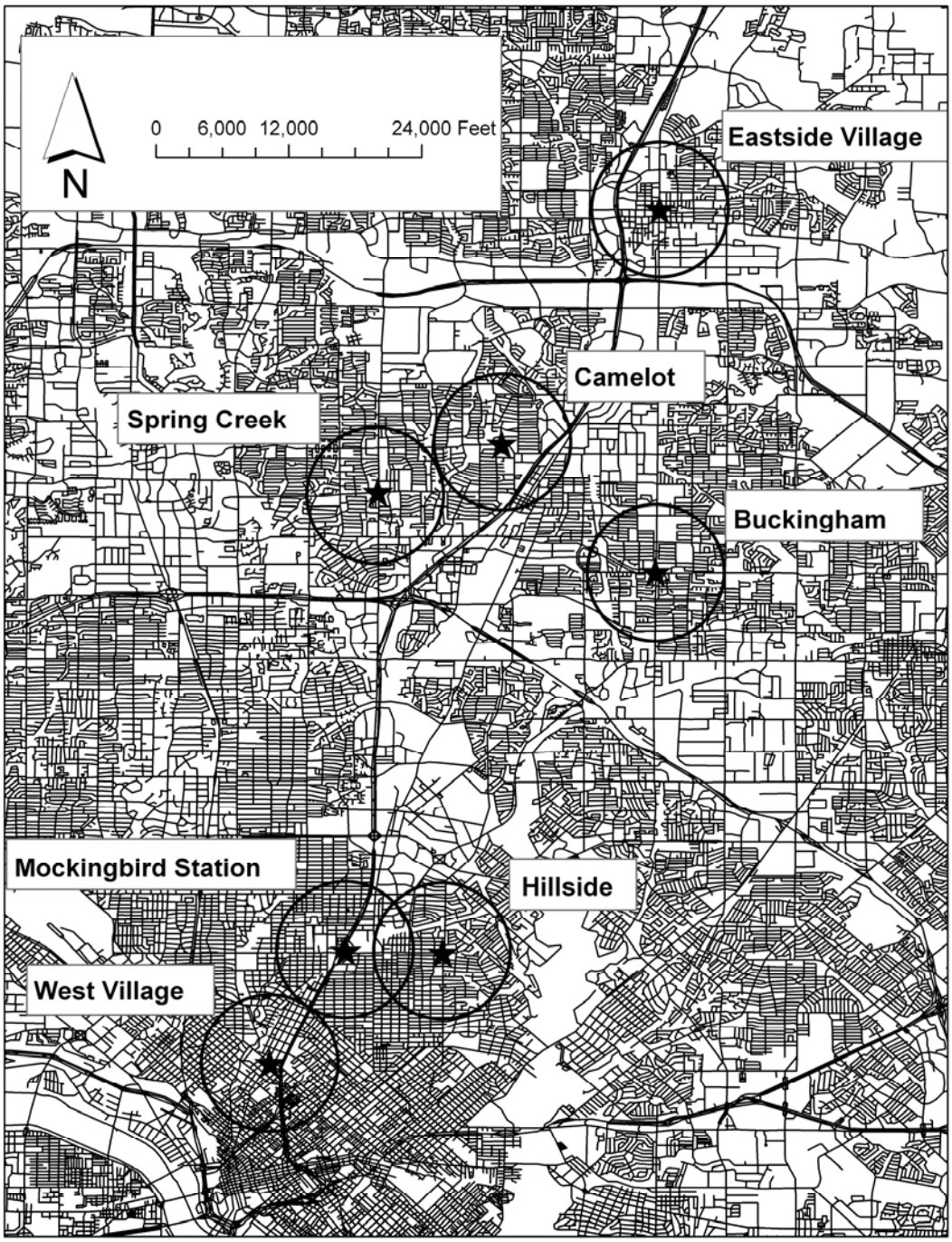
In order for the potential redevelopment to be feasible, the size of the site was limited to those sites with seven (7) to fifteen (15) acres of land. This particular range was comparable to the three (3) previously redeveloped sites, which were generally ten (10) acres. Therefore, neighborhood service centers became the primary target. Data available from the National Research Bureau (NRB) revealed 150 sites that satisfied this requirement.

Because outdated retail centers present the best redevelopment opportunities, sites constructed prior to 1970 were identified due to obsolete floor plate size and/or unfashionable, dysfunctional architecture. NRB data suggested 37 centers in the DFW area were constructed prior to 1970 and met the acreage requirement outlined above.[25] As a point of reference, NRB data reveals that 36 centers within the acreage requirement were constructed in the 1970s, nearly as many as those constructed in the 40 years prior to 1970.

While these objective criteria were critical to achieve, local market knowledge was required in order to identify feasible redevelopment opportunities. Again, the same local real estate brokerage firm was consulted in order to offer sites that were practical for redevelopment. This included considerations of both "on the ground knowledge" of market demands and potential redevelopment challenges. Therefore, a focus group from within the firm was provided with the basic criteria of size, age, and general geographic location. The sites identified were compiled and further scrutinized to confirm each target center satisfied the prerequisites. The image below from ESRI ArcMap shows the general location of each site and the approximate transaction zones surrounding each center.

[25] One target center, Buckingham Square, was constructed in 1978. This center was added due to its other characteristics, vacancy rate, and potential for redevelopment.

Figure 2



After identifying the final pool of sites for potential redevelopment, an analysis was conducted to confirm that the sites selected were similar in demographic character to one another and to the previously redeveloped sites. This brief analysis included a comparison of the population and mean household income within 0.0 to 0.5 mile, 0.51 to 1.00 mile, and 1.01 to

2.00 miles area rings using Claritas as the data source. The results of the study are shown in the charts below.

Figure 3

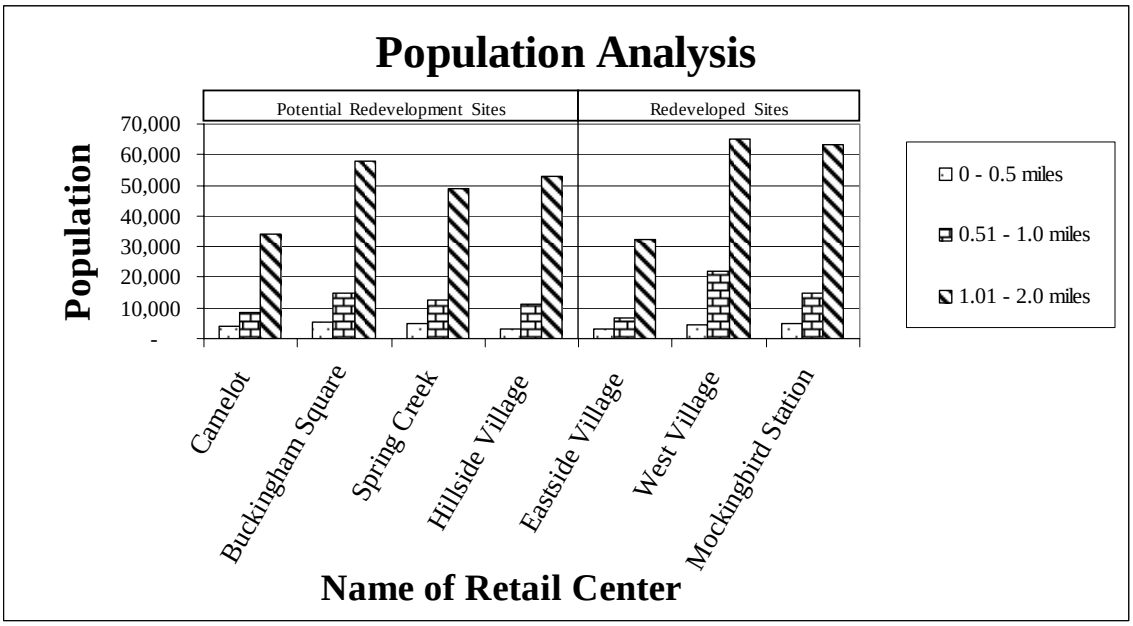
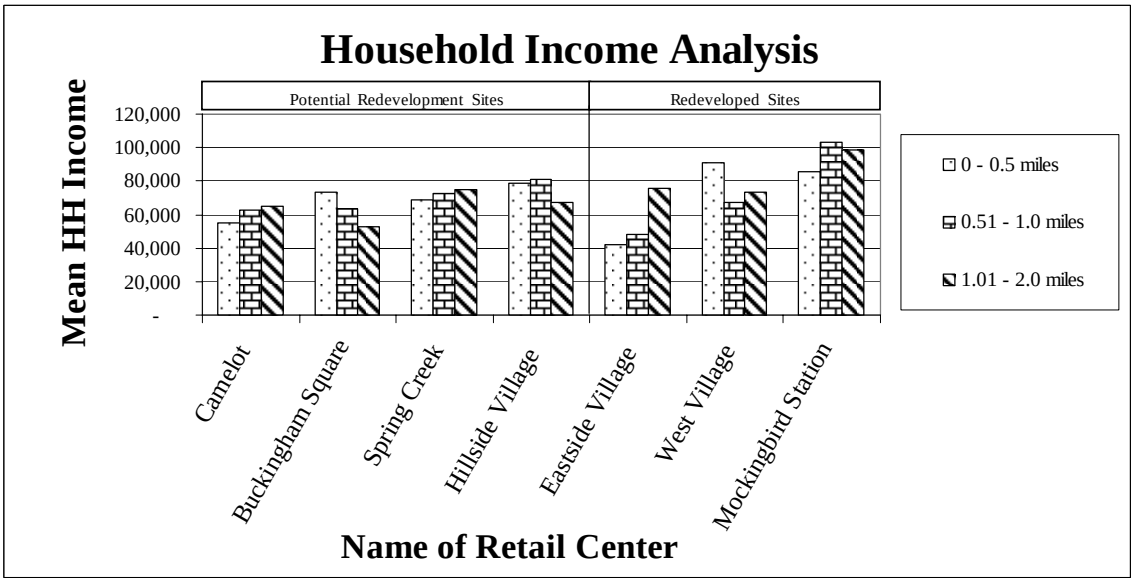


Figure 4



Finally, after careful site analysis and selection, the control group of outdated centers included four (4) sites including Camelot in Richardson, Buckingham Square in Richardson,

Spring Creek in Dallas, and Hillside Village in Dallas. The general characteristics of these centers, as well as those of the redeveloped centers are provided in the table below.[26]

Figure 5

	Acres	Total GLA	Site Zip Code	Year Opened	Recognized Name
Outdated Centers:					
NEC of Arapaho & Hampshire	7	78100	75080	1967	Camelot Shopping Center
NEC of Plano & Buckingham in Richardson	8	64753	75081	1978	Buckingham Square
NWC of Belt Line & Coit	14	135000	75080	1964	Spring Creek Shopping Center
NEC of Mockingbird & Abrams	14	165289	75214	1955	Hillside Village
Redeveloped Centers:					
SWC of K Ave & 16th Street in Plano	7.8	unknown	75074	2003	Eastside Village
McKinney & Blackburn	8	250000	75204	2001	West Village
NEC of Central Expwy & Mockingbird	10	320000	75206	2000	Mockingbird Station

Valuation Study Method

After selecting the two (2) comparable sample groups of redeveloped and potential sites, a study of single-family residential values was undertaken for each site. The study zone is one (1) mile from the primary intersection adjacent to the subject site. Further details and images of each specific site can be found in Section 1 of the Appendix. The data was provided by a sponsoring local Dallas real estate agent using the Multiple Listing Service (MLS).[27] The search criteria were limited to single-family residential home sales priced primarily between $150,000 and $400,000. In both West Village and Eastside Village, the sample sizes were significantly smaller than the other others. Therefore, the minimum value level was set at $50,000.[28]

The MLS data resource yielded hundreds of transactions per subject site. The relevant data fields extracted from the MLS database included: sale price, date of sale, amount of square feet, number of bedrooms, number of bathrooms, year built, and the longitude and latitude of the

[26] Information compiled from National Research Bureau publication and database.
[27] Anonymous sponsor.
[28] In West Village, 34 of 194 transactions (33%) were recorded between $50,000 and $99,999, whereas Eastside Village registered 107 of 241 transactions (44%).

home. These data fields were exported into Microsoft Excel, thoroughly reviewed, and manually cleaned to minimize errors and inconsistencies.

In order to calculate the linear distance from each home to its respective retail shopping center, the longitude and latitude coordinates were imported into ESRI ArcMap, a geographic information system (GIS) software and mapping program. Using coordinates provided by NRB, each retail center was entered into the GIS system as well. Visual inspection and adjustments were made to ensure the foci of each area were accurate. Once all retail centers and home coordinates were input into the system, the distance was calculated and exported to the original Microsoft Excel file as a critical variable to the analysis.

In order to provide a more accurate analysis, the following data fields were modified: (1) sales price was replaced with its natural log, (2) a square feet squared term was added, and (3) a distance squared field was included in the data sets. To further analyze the data, "dummy" variables were established to sub-categorize the year built, sale year, number of bedrooms, and number of bathrooms.[29] The specific criteria for these "dummy" variables were tailored to each data set. Finally, an additional "dummy" variable was added to delineate those houses that were deemed either too close to the retail center or adjacent to a negative use, such as major thoroughfare or vacant structure. This "BAD dummy" variable further characterized the appropriate data sets in greater detail.

Data analysis regressions were run using Microsoft Excel. A multiple regression analysis provides an equation that describes the nature of the relationship between the variables. A typical equation would be as follows:

$$y = a + b_1x_1 + b_2x_2 + \ldots + b_nx_n$$

[29] The purpose of a "dummy" variable is to convert the qualitative value into a binary variable on a nominal scale, which measures that the data is different, but does not measure the degree of the difference. Very simply, a value of 1 = yes, whereas a value of 0 = no.

In this equation, y = the dependent variable, a = intercept estimated by the regression analysis, b = coefficient generated by the regression analysis, and x = independent variable. Thus, the independent variables (x) influence the value of the dependent variable (y) in a positive or negative manner and amount as determined by the coefficients (b) and the constant intercept (a) generated by the model.

The results of the regressions provide insight into the various qualities of a house attributable to its value. In the summary output of the regression, each coefficient indicates (1) whether that specific independent variable (such as square footage or year built) positively or negatively impacts the dependent variable, which in this case is the value of the home, and (2) the degree to which that independent variable effects the dependent variable. The table below shows the output summary of a Mockingbird Station regression analysis.

Figure 6

SUMMARY OUTPUT
Mockingbird Station

Regression Statistics	
Multiple R	75.9%
R Square	**57.6%**
Adjusted R Square	**56.8%**
Standard Error	16.6%
Observations	723

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	14	26.56957899	1.897827071	68.67647573	1.4085E-121
Residual	708	19.565092	0.027634311		
Total	722	46.13467099			

Variables	***Coefficients***	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	10.65390571	0.1706888	62.417	4.7662E-290	10.31878893	10.98902248	10.31878893	10.98902248
Sale Year 2001	0.026424893	0.023253905	1.136	0.256188883	-0.01922997	0.072079756	-0.01922997	0.072079756
Sale Year 2002	0.084606513	0.024038813	3.520	0.000459888	0.037410626	0.1318024	0.037410626	0.1318024
Sale Year 2003	0.119068371	0.023610946	5.043	5.83056E-07	0.072712522	0.165424219	0.072712522	0.165424219
Sale Year 2004	0.138930901	0.023873194	5.820	8.94199E-09	0.092060176	0.185801627	0.092060176	0.185801627
Sale Year 2005	0.137970836	0.025891117	5.329	1.32954E-07	0.087138282	0.18880339	0.087138282	0.18880339
Built 1930 - 1945	-0.029446693	0.014926216	-1.973	0.04890503	-0.058751634	-0.000141751	-0.058751634	-0.000141751
Built 1946 - 2005	-0.093460296	0.021697374	-4.307	1.88485E-05	-0.13605919	-0.050861402	-0.13605919	-0.050861402
More than 2 BRs	-0.032877797	0.014824179	-2.218	0.026881759	-0.061982408	-0.003773185	-0.061982408	-0.003773185
More than 1 Baths	0.075270693	0.016994797	4.429	1.09622E-05	0.041904465	0.108636922	0.041904465	0.108636922
Dist to Retail Center	7.31287E-05	5.45113E-05	1.342	0.180177263	-3.38944E-05	0.000180152	-3.38944E-05	0.000180152
Dist Squared	-1.43579E-08	6.86499E-09	-2.091	0.036841637	-2.78361E-08	-8.79755E-10	-2.78361E-08	-8.79755E-10
Square Feet	0.001485082	0.000136363	10.891	1.21011E-25	0.001217358	0.001752806	0.001217358	0.001752806
Sq Ft Squared	-3.06755E-07	3.67301E-08	-8.352	3.54002E-16	-3.78868E-07	-2.34642E-07	-3.78868E-07	-2.34642E-07
BAD Dummy	-0.041328279	0.021802794	-1.896	0.058426627	-0.084134147	0.001477589	-0.084134147	0.001477589

To explain the results, the coefficients in the table above suggest the following:

- Appreciation increased from 2000 (not shown as 2000 is the base year of regression analysis) thru 2004 nearly 14%.[30]
- The base year built of 1929 or earlier is more valuable than construction in either the 1930-1945 or 1946-2005 time periods.
- More than 2 bedrooms detracts from the value, which is likely correlated to the age of the home.
- Having 2 or more bathrooms provides an approximate 7% premium to the value.
- The square feet squared and distance squared variables should have opposite coefficient signs than their respective counterpart, which the results show. This suggests that the relationship between both distance to the retail center and size of the home are *not* purely linear. Rather, an optimal point exists along the curve that could informally be understood as "just the right amount" of that particular variable.
- Finally, as would be anticipated, the "BAD dummy" reveals that adjacency to an undesirable use – major thoroughfare or retail parking - diminishes the value of the home.

These coefficients produce an equation that can estimate, within the given standard error, the value of a home using virtually any dependent variable values. For instance, the variables could be those of the average house, median home, a specific home composition, or a "virtual home" that exists only on paper. In this study, the most critical dependent variables were distance from the retail center and year the home was sold. Therefore, all other variables were valued according to their weighted values. For example, if 19% of the homes had more than three (3) bedrooms, then only 19% of the coefficients value was assigned to the value of the home. The following section will explain the results.[31]

[30] Since sale year "dummies" were used in conjunction with the natural log of Sales Price, annual price appreciation can easily be estimated with a fair degree of accuracy.
[31] Further details of the various regression analyses for each site can be found via its Summary Output sheet in Section 2 of the Appendix.

Valuation Study Results

From this analysis, three (3) critical methods of evaluation were employed to analyze the results of the regression equations. The first is annual appreciation of home values. Presumably, appreciation would be greater around the redeveloped centers than the outdated centers for reasons described earlier, such as elimination of blight, creation of a "sense of place", and so forth. The results of this evaluation were derived directly from each regression summary output and the respective equation generated by each multiple regression analysis. Figure 7 below shows the value ($) of the virtual home at 3,500 feet from its respective retail center over time from 2000 to 2005. Figure 8 details the home values, overall appreciation, and the simple average of the redeveloped versus outdated retail centers.

Figure 7

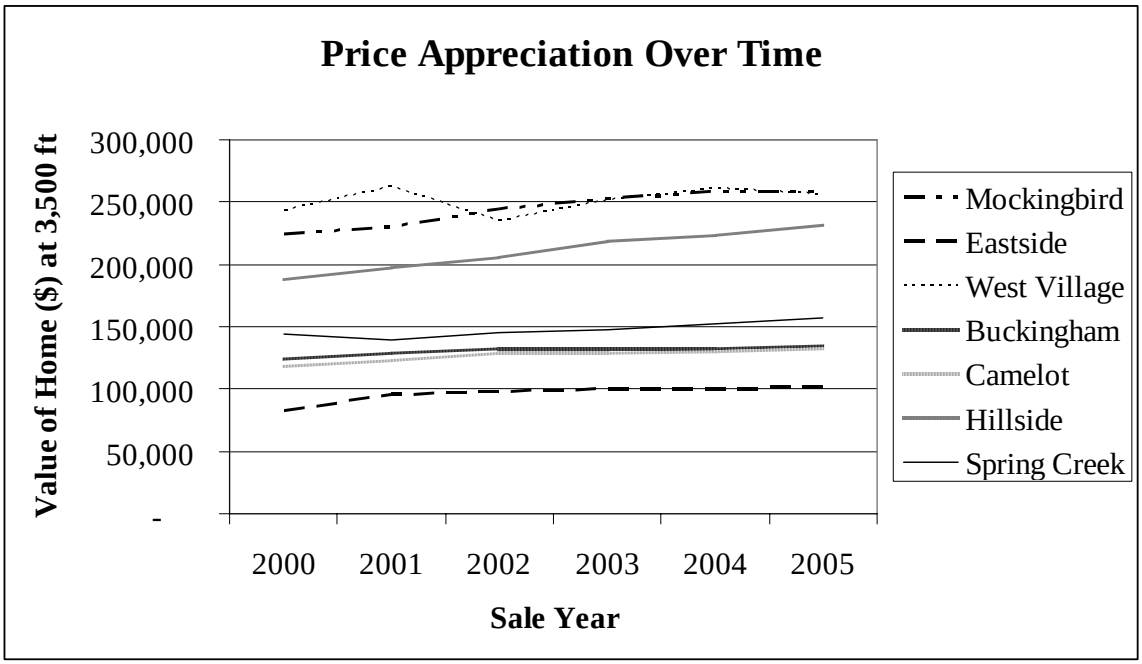


Figure 8

Price of Home @ 3500 ft from Retail Center Over Time

		2000	2001	2002	2003	2004	2005	% Chng
REDEVELOPED CENTERS:	Mockingbird	224,831	230,851	244,681	253,260	258,341	258,093	14.8%
	Eastside	82,563	95,432	97,746	100,860	100,143	102,114	23.7%
	West Village	243,638	262,333	234,947	251,791	261,557	256,084	5.1%
							Simple Ave:	**14.5%**
OUTDATED CENTERS:	Buckingham	124,424	129,143	132,458	132,747	132,553	134,728	8.3%
	Camelot	118,410	123,054	128,599	128,649	129,618	132,400	11.8%
	Hillside	187,882	197,101	205,599	218,016	222,868	232,052	23.5%
	Spring Creek	144,087	139,871	145,184	147,730	152,565	156,754	8.8%
							Simple Ave:	**13.1%**

As is evident, home values within the study zones around redeveloped retail centers appreciated approximately 1.4% more than those homes surrounding outdated retail centers. While this margin is slight, the removal of Hillside – for reasons described further below – would result in an appreciation differential of approximately 5%. Thus, this study confirms the presumption that greater appreciation of SF home values does occur around redeveloped centers versus outdated retail centers.

Figure 9 illustrates the annual appreciation (%) of the virtual home from 2000 to 2005. The annual appreciation figures are derived directly from the independent variable coefficients generated by the multiple regression analysis, which are found in Figure 10.

Figure 9

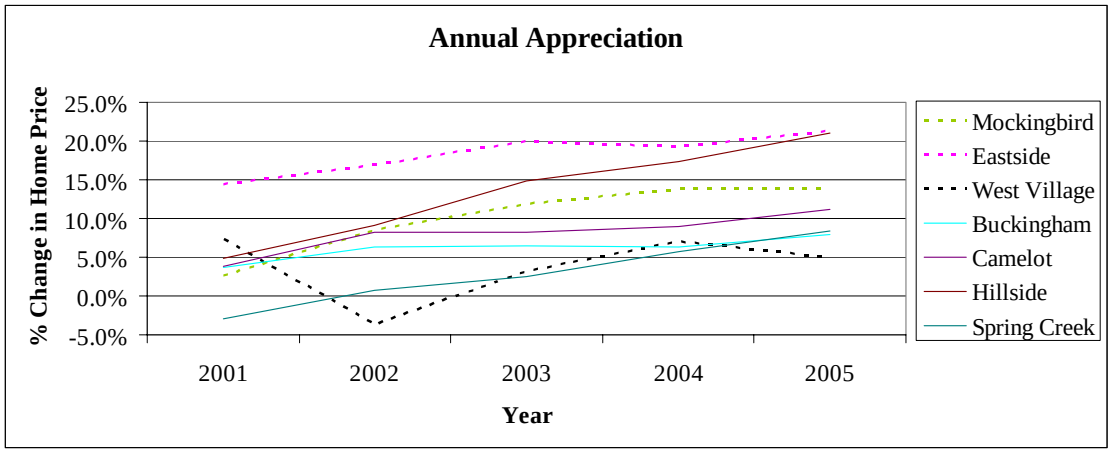


Figure 10

Annual Appreciation per Regression Coefficients:

	REDEVELOPED RETAIL CENTERS			OUTDATED RETAIL CENTERS			
Year	Mockingbird	Eastside	West Village	Buckingham	Camelot	Hillside	Spring Creek
2001	2.6%	14.5%	7.4%	3.7%	3.8%	4.8%	-3.0%
2002	8.5%	16.9%	-3.6%	6.3%	8.3%	9.1%	0.8%
2003	11.9%	20.0%	3.3%	6.5%	8.3%	14.8%	2.5%
2004	13.9%	19.3%	7.1%	6.3%	9.0%	17.4%	5.7%
2005	13.8%	21.3%	5.0%	8.0%	11.2%	21.0%	8.4%
		Simple Average:	**13.3%**			**Simple Average:**	**12.1%**

Generally, per the graph, appreciation does exist. However, all centers appear to follow the same level of appreciation The simple averages in Figure 10 above confirm the previous analysis of appreciation: for the period analyzed, appreciation of home values surrounding redeveloped retail centers is greater than that of the home values surrounding outdated retail centers. More specifically, redeveloped retail centers have an overall average appreciation of 1.2% more than outdated retail centers. Furthermore, this appreciation occurred over a time period when construction was occurring around the redeveloped centers. Thus, appreciation around the updated centers during the upcoming years might prove to further outperform appreciation surrounding outdated retail centers.

The second method of study analyzes the gradient of home values surrounding the retail centers. Presumably, the linear gradient would be steep and downward-sloping around redeveloped centers and less steep, or even upward-sloping, around outdated centers. This would suggest that all else remaining constant, values diminish as the virtual home is located further and further from the redeveloped retail center. Conversely, for the outdated centers, the presumption is that values should *increase* as the virtual home is further removed from the

negative externalities emitted by the outdate retail center. The results of this study method are illustrated in Figure 11 below and the specific home values are provided in Figure 12.[32]

Figure 11

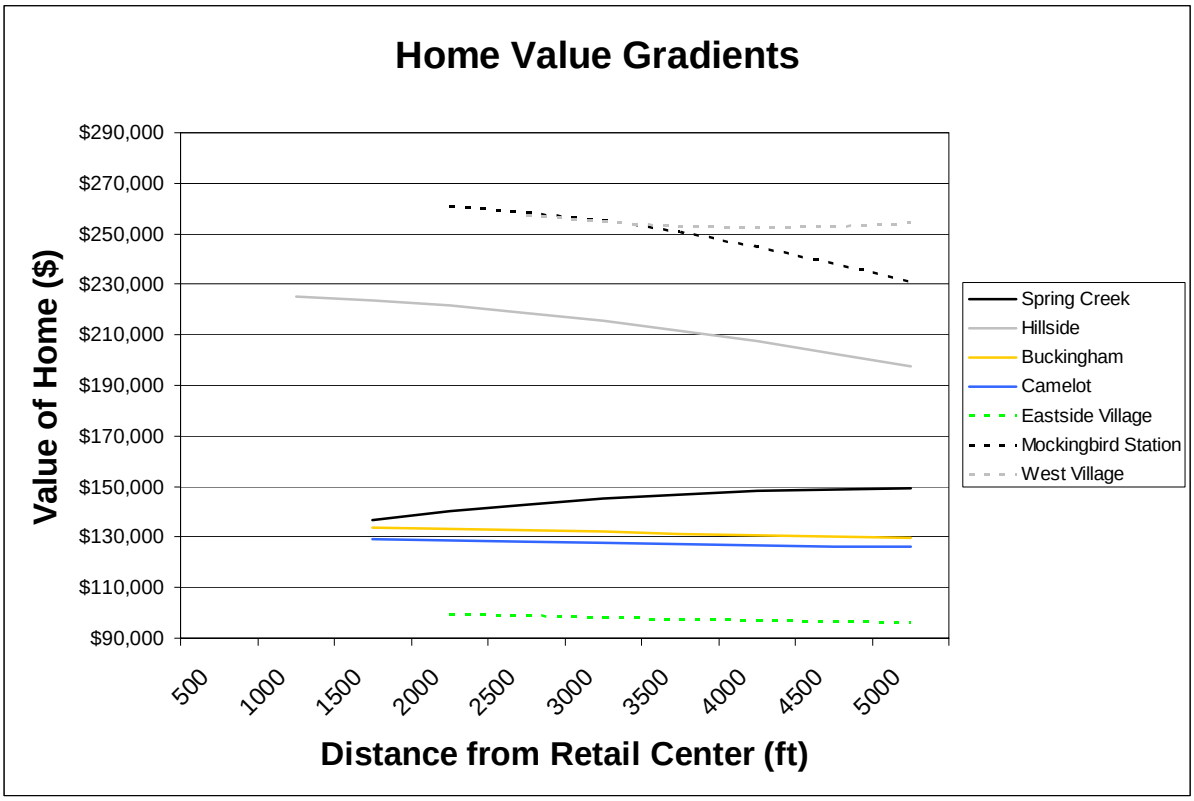


Figure 12

Typical Home Price at Specific Distance Intervals

OUTDATED CENTERS:

	1500	2000	2500	3000	3500	4000	4500	**5000**	**% Change from 1500 to 5000 feet**
Spring Creek	136,883	140,081	142,834	145,112	146,892	148,153	148,882	149,072	8.9%
Hillside	223,658	221,565	218,876	215,614	211,804	207,477	202,669	197,417	-11.7%
Buckingham	133,660	133,084	132,518	131,962	131,417	130,882	130,357	129,841	-2.9%
Camelot	129,230	128,726	128,235	127,757	127,291	126,838	126,398	125,969	-2.5%
								Average:	**-2.05%**

REDEVELOPED CENTERS:

	1500	2000	**2500**	3000	3500	4000	4500	**5000**	**% Change from 2500 to 5000 feet**
Eastside Village	N/A	99,762	98,948	98,202	97,521	96,904	96,350	95,859	-3.12%
West Village	N/A	N/A	257,459	254,586	252,834	252,179	252,615	254,145	-1.29%
Mockingbird Station	N/A	260,767	258,506	255,094	250,578	245,018	238,487	231,071	-10.61%
								Average:	**-5.01%**

[32] The lines depicting the value of the virtual home begin only when a significant number of homes (approximately 10 or more) are located within the given distance.

The redeveloped centers exhibit qualities of diminishing value along the gradient as expected. However, only Mockingbird Station appears to act correctly with home values diminishing as the distance to the retail center increases. Values fall approximately 11% from 2,000-ft to 5,000-ft. Eastside Village shows only a slight decrease in value of approximately 4% from 2,000-feet to 5,000 feet.

Conversely, the West Village results, an inverted curve, appear to be distorted by an amenity nearby the outer edge of the study zone. Highland Park, an affluent and desirable community in the DFW area is just northwest of the study zone. It is quite possible this is affecting the value of homes in the 3,000-ft to 5,000-ft range. Another alternative explanation could be the proximity to downtown Dallas towards the southwest of the study area. The desirability of living closer to the downtown skyline and the "social benefits" of lower McKinney Avenue could also have a similar affect on home values in that outer range.

Generally, for the outdated centers, the slope is nearly flat or inverted as expected. However, in the case of Hillside, it appears to replicate the results expected from a redeveloped center. Geographically, Hillside sits in the northeast corner of the Mockingbird Lane and Abrams Road intersection. One reason for its different results is, while a relatively outdated center itself, Hillside sits adjacent to a grocery-anchored center built in 1988 called Mockingbird Commons. Furthermore, the amenities and tenant composition in Mockingbird Commons demands approximately twice as much in per square foot lease rates than Hillside Village.[33] Therefore, the distance of the Hillside data sets may actually reflect the distance from the newer Mockingbird Commons rather than the outdated Hillside shopping center.

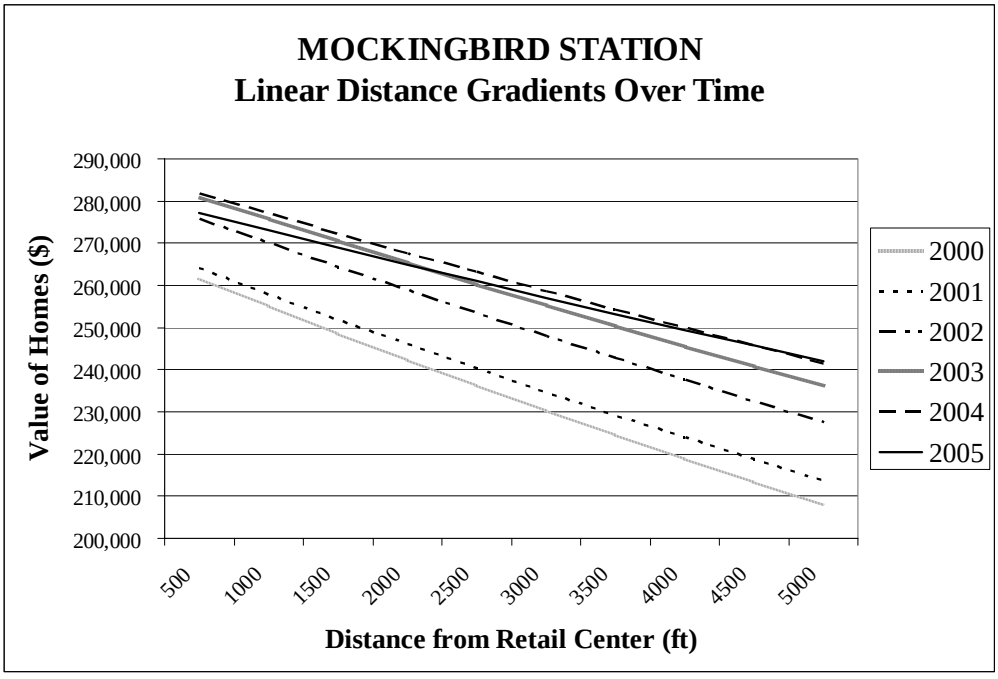
An alternative possibility is that the neighborhood in which Hillside is located is supply-constrained and generally appealing to buyers. Furthermore, the area is difficult to access except

[33] NRB Shopping Center Directory – 2003 – p. 6-1222.

for the Mockingbird Lane thoroughfare, which is where the Hillside retail center is located. Therefore, the distance measurement might be referring to commute time. The greater the distance, the longer the commute to Highway 75 via Mockingbird Lane.

In the third study method the two most critical variables, distance from the retail center and time of sale, are adjusted to provide a time-distance interval relationship. To test this hypothesis, an additional variable was added to the data tables to relate distance from the retail center to time since redevelopment occurred.[34] Presumably, the gradient should become steeper as the retail center is developed and becomes established in a community. Therefore, the mathematical product of these two variables was added to the data sets of the redeveloped centers. The results are illustrated on the graphs below.

Figure 13



[34] Redevelopment occurred in 2000 at Mockingbird Station, 2001 at West Village, and 2003 at Eastside Village.

Figure 14

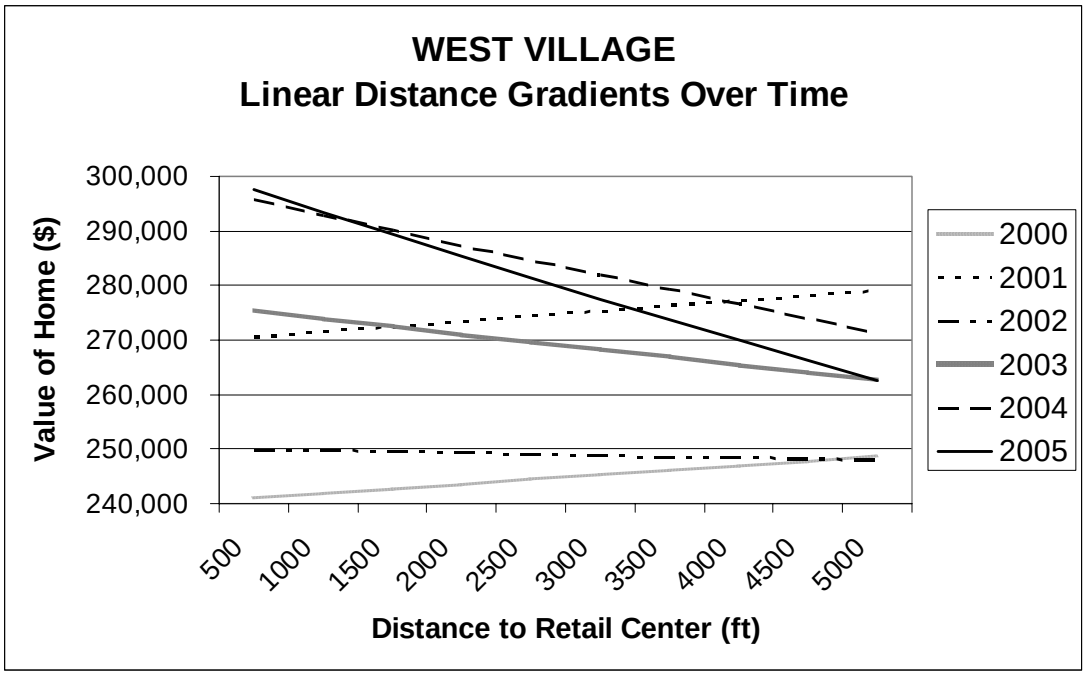
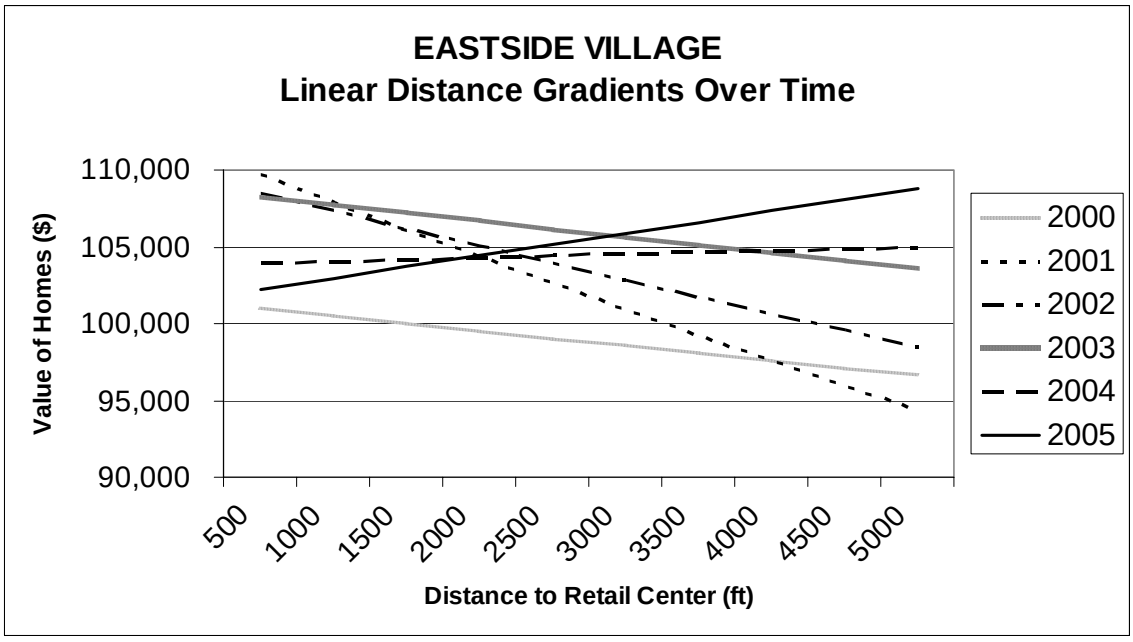


Figure 15



As detailed in Figure 5, the redeveloped centers represented in the above figures opened in 2000, 2001, and 2003 respectively. For Mockingbird Station, the results of this analysis show that as a retail center becomes more established, its value is absorbed further into the surrounding

community. Another explanation – while unfortunate for this particular study – is that the novelty of a new redeveloped center might slowly diminish as time passes, thereby weakening home values further from the retail center. The same negative externalities – such as traffic, noise, and lights – represented in this paper could transcend the freshness of a redevelopment project. However, without greater knowledge of pre-redevelopment home values and appreciation, conclusions such as this are difficult to accept.

With regards to West Village, which was opened in 2001, the actual results appear consistent with the projected results. The years prior to complete redevelopment, presumably years engaged with construction activities, exhibit increase values as the distance increases. However, following the opening of the redeveloped center, values appear to increase in the area surrounding the center and decrease as the distance variable increases. Thus, it appears that West Village acts in accordance with the presumption of steeper gradients following construction of the redeveloped retail center.

The East Village results are difficult to interpret. However, since the center was only recently opened in 2003, more time for further observation may be required to more accurately analyze the issue.

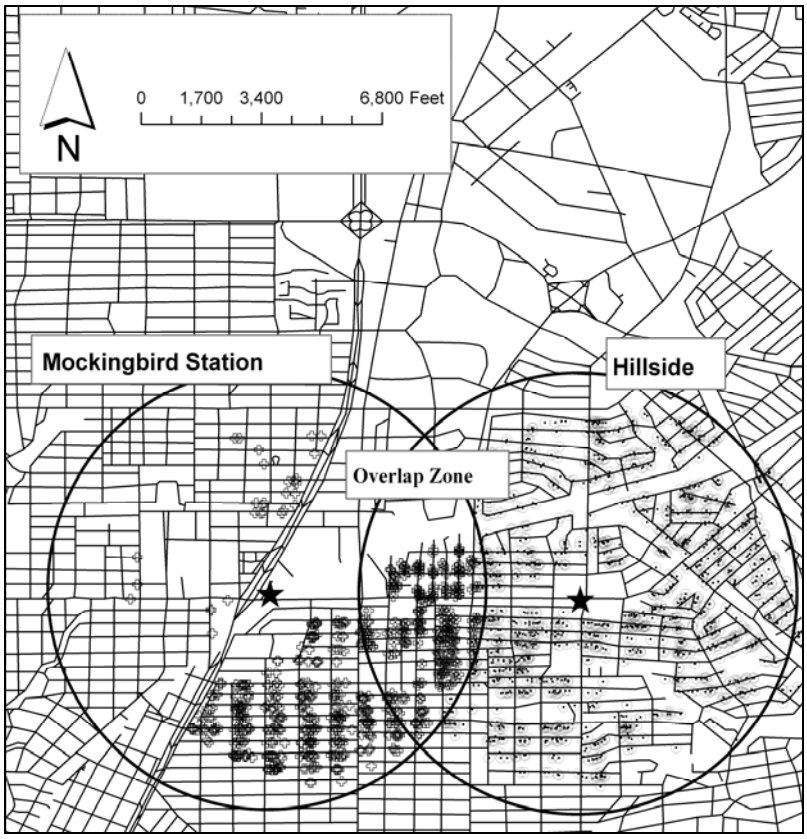
Limitations of Analysis

While the most accurate and comprehensive source of resale pricing data, the MLS system has two primary limitations. First, data exists for only the previous five (5) years. Accurate data for the years leading up to the redevelopment of Mockingbird Station in 2000 and West Village in 2001 would have been incredibly useful to further substantiate this study. While the analysis focuses on SF property values during the time *after* the redevelopment, a comparison with trends and activity *before* redevelopment would have been invaluable.

Secondly, the data is only as accurate as the individuals who input the data. While the majority of datasets were complete, a small fraction of each was noticeably inconsistent with the rest. As mentioned previously, these were either manually corrected, in the case of mistyped street names or abbreviated street suffix, or completely eliminated for reasons such as an undisclosed sales price or omitted information. However, as a whole, the MLS database is a useful tool for this type of application.

In retrospect, the target centers selected for this analysis may have caused inconsistency in the results. More specifically, a more thorough inspection of Hillside Village on Mockingbird Lane may have lead to its elimination as a control site. Not only is Hillside adjacent to a recently updated neighborhood retail center, its 1-mile radius study zone overlaps that of Mockingbird Station as shown below in Figure 16.

Figure 16



Thus, as depicted by the image, the value of a home located within the overlap zone may have been more influenced by its proximity to Mockingbird Station than its measured distance to Hillside.[35] A subsequent study using these two centers may seek to isolate the home and its distance from both centers – redeveloped and outdated. The coefficient generated by the regression analysis will immediately suggest the impact of those two (2) independent variables to the value of that particular home.

In addition, Hillside is the furthest retail center from the Highway 75 transit corridor. Again, more direct access to this major transportation route may be more valuable than an isolated home within walking distance to this outdated center.[36]

Conclusion

The three (3) test methods of home values with respect to (1) appreciation, (2) distance gradients, and (3) distance by time redeveloped generated favorable results of the effects of redevelopment of outdated retail centers. The mere increase in appreciation of 1.2% or 1.4% over a five (5) year period, as described above, generates a significant amount of cumulative benefit to a community. For instance, among all three (3) redeveloped sites, there exists 25,559 households, whereas 26,531 households are present among the four (4) outdated sites. However, averaging within the two groups yields 6,634 homes within an outdated retail center study zone and 8,520 homes on average within a study zone surrounding a redeveloped retail center.[37] Thus, the impact of the increase in appreciation is supplemented by the greater density

[35] A "Mock Dummy" variable was utilized to attempt to eliminate this effect. The summary output and subsequent equation suggests that only 1.2% of the value was attributed to the homes proximity to Mockingbird Station.
[36] A method to test this reasoning could be a "dummy" variable for those homes either closer to or with more direct access to Highway 75.
[37] Information provided via Claritas.

surrounding the redeveloped sites. Therefore, the 28% greater density increases the impact of the appreciation from 1.4% to nearly 1.8%.[38]

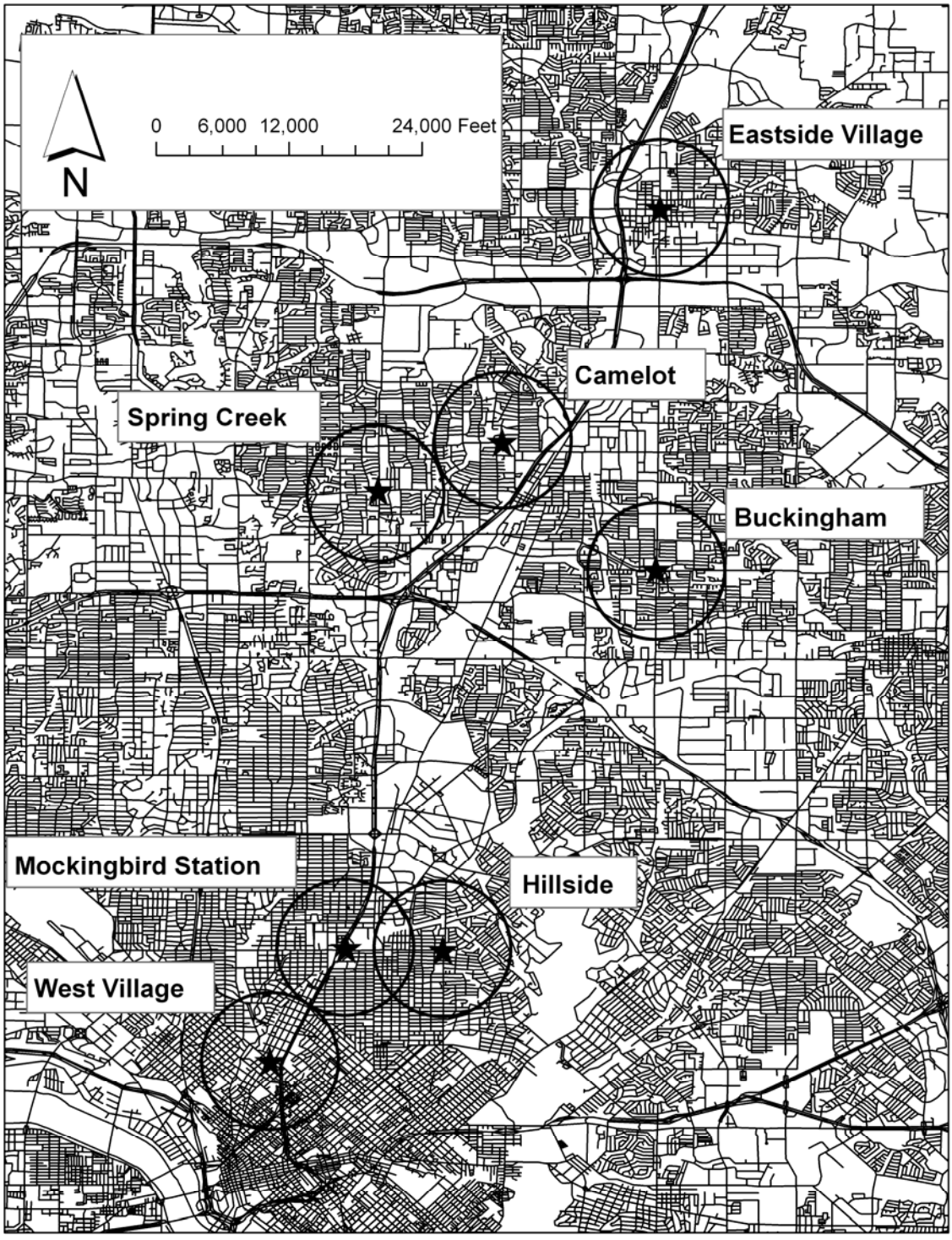
The distance gradient analysis resulted in an approximate 3.0% difference in value – in favor of redeveloped sites – across the appropriate distance zones. This examination of the various sites illustrates the positive impact of proximity to redeveloped centers versus the less-prominent impact of immediacy to outdated retail centers.

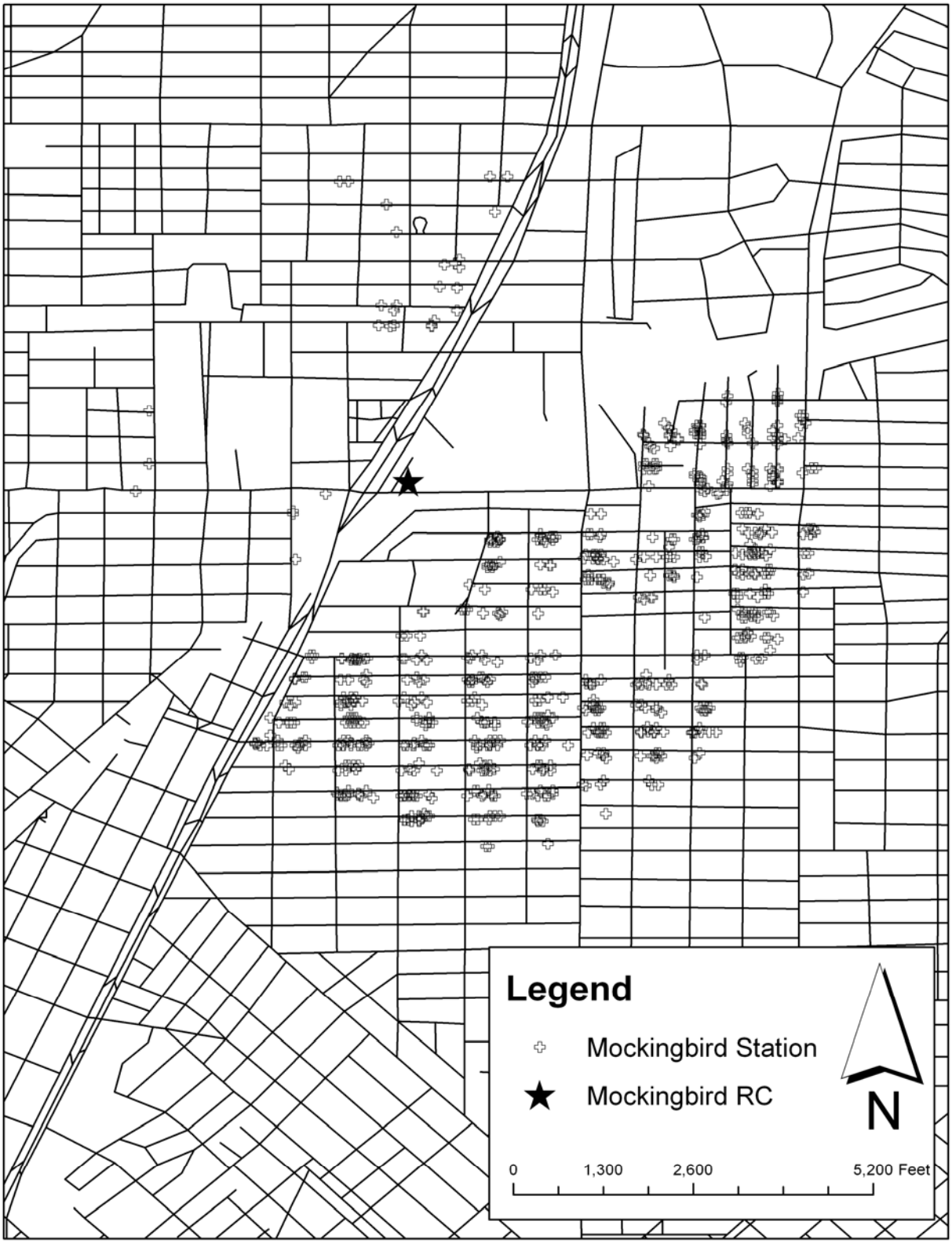
The subjective impact of redevelopment was described in Chapters 2 and 3. This discussion was substantiated by the objective analysis, in Chapter 4, of the impact of redevelopment on the value of surrounding properties. While greater and more specific analysis is indeed possible, this paper exhibited the positive benefits of redevelopment of outdated retail centers. The impact of such redevelopment is beneficial to the surrounding community, municipal authority, the natural environment, and – if conducted in a proper manner – to the developer. Redevelopment will prove to be a significant challenge to those who undertake it, but the benefits of redevelopment – especially when subjectively compared to the alternative of greenfield development – are significant to the built environment of today and that of the future.

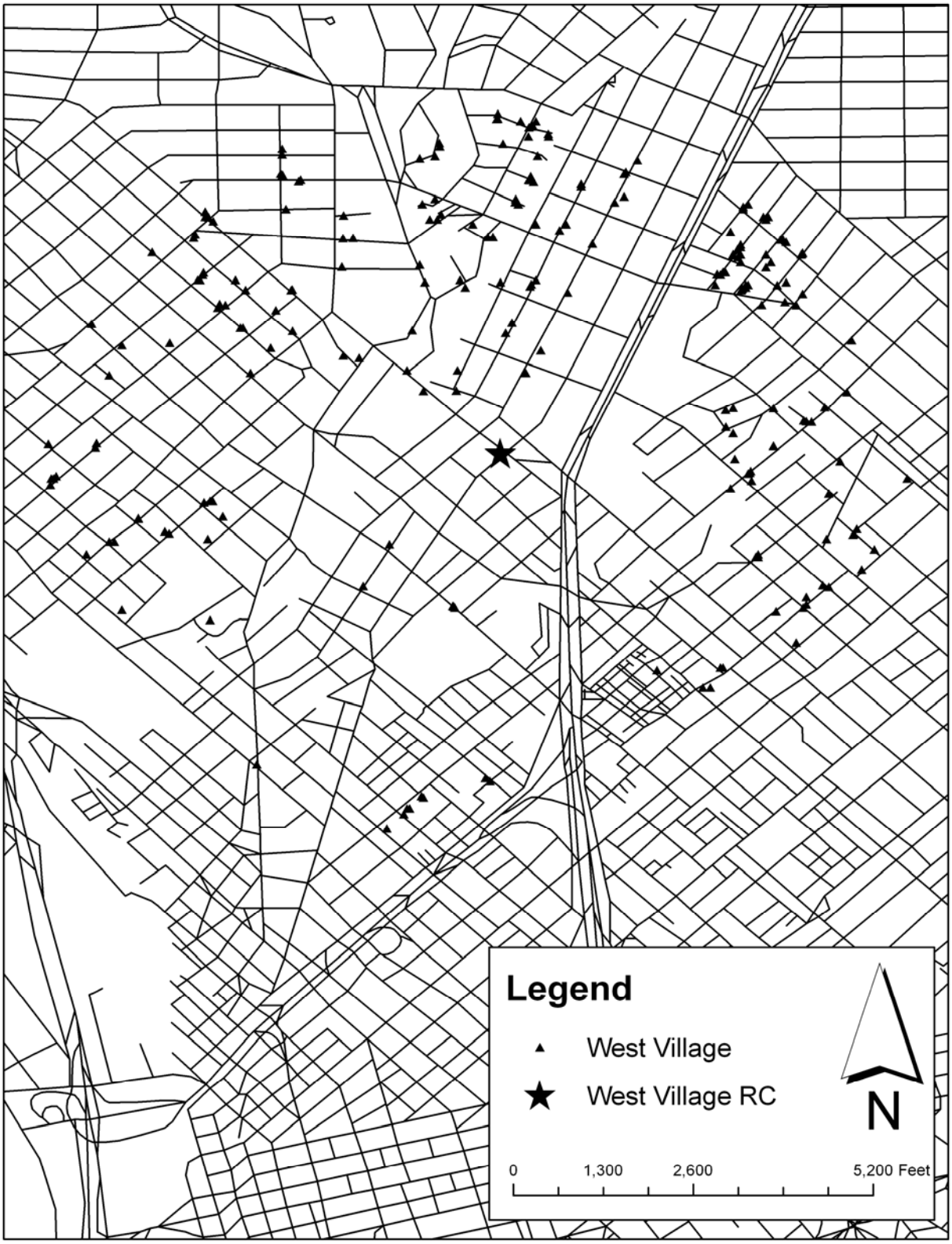
[38] Mathematically, 1.28 x 1.4 % = 1.792% effective appreciation due to greater density.

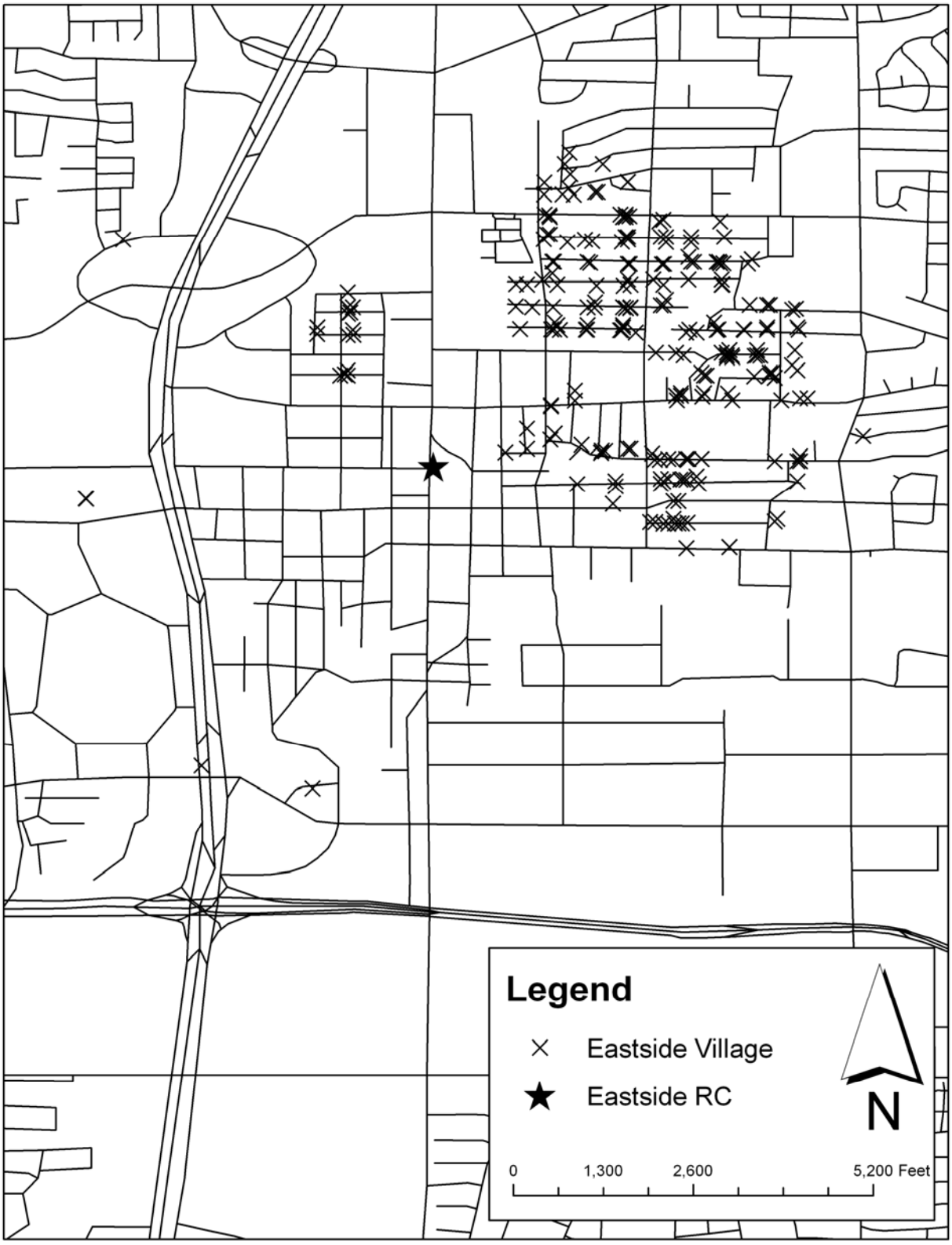
APPENDIX

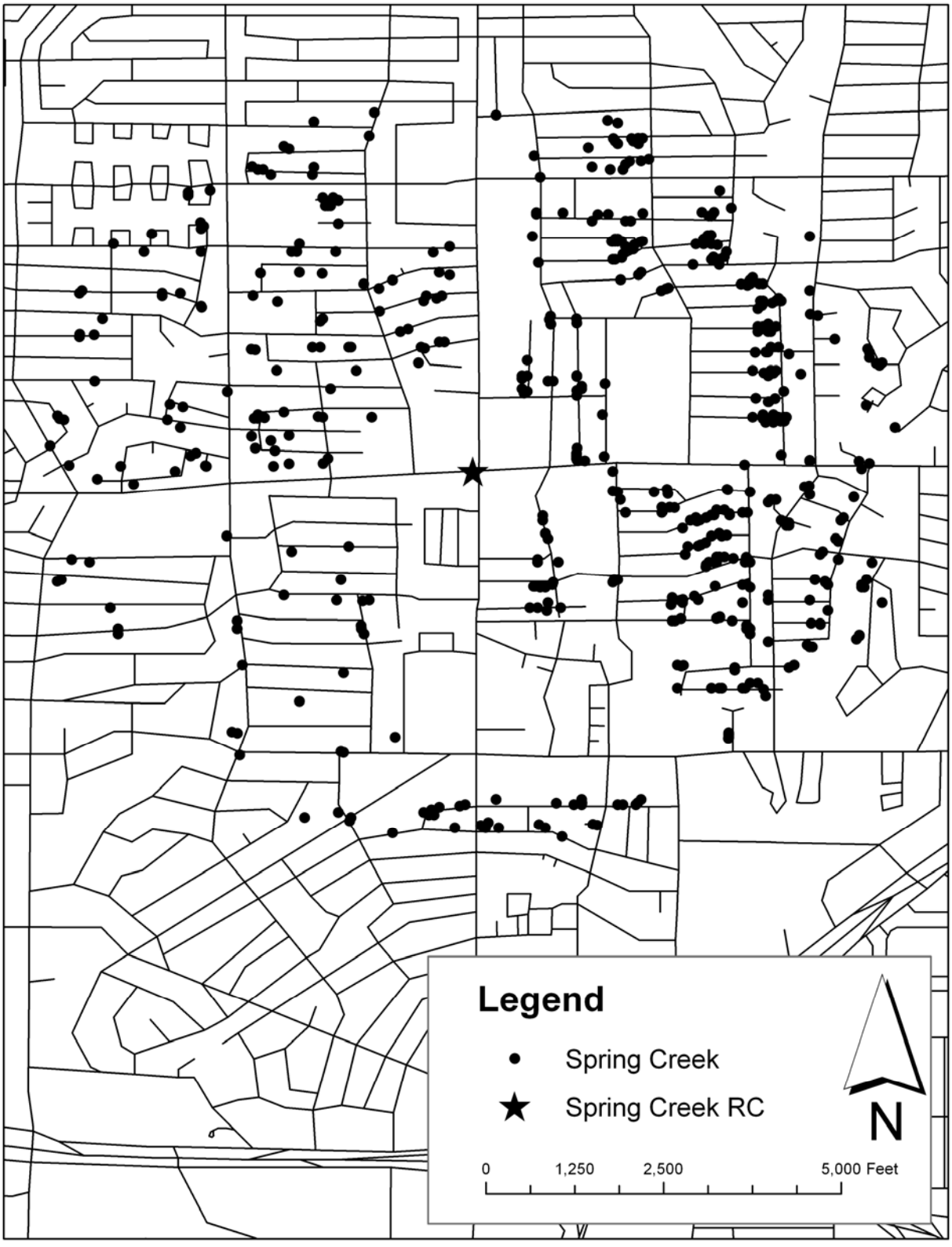
Section 1: Study Zone Maps

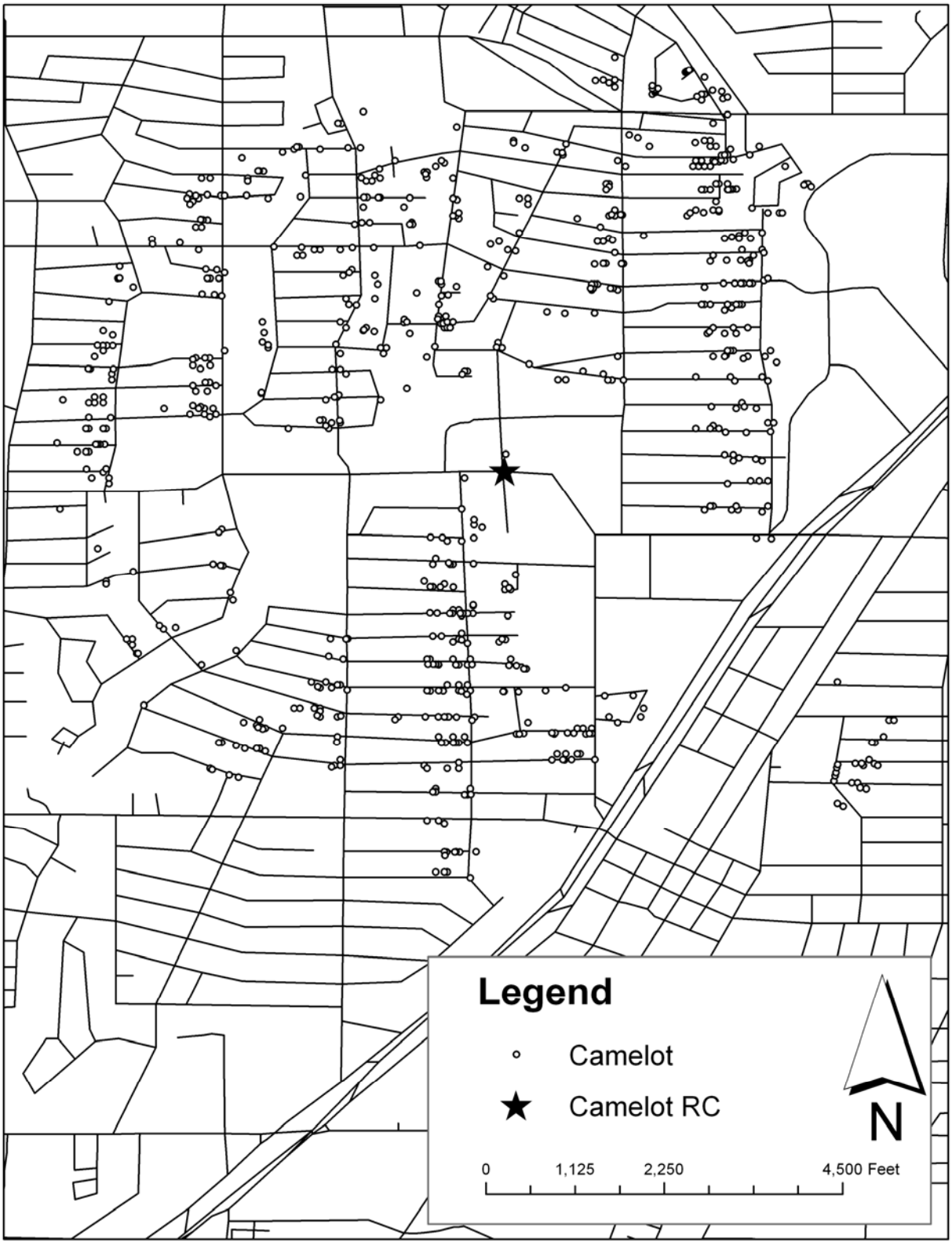


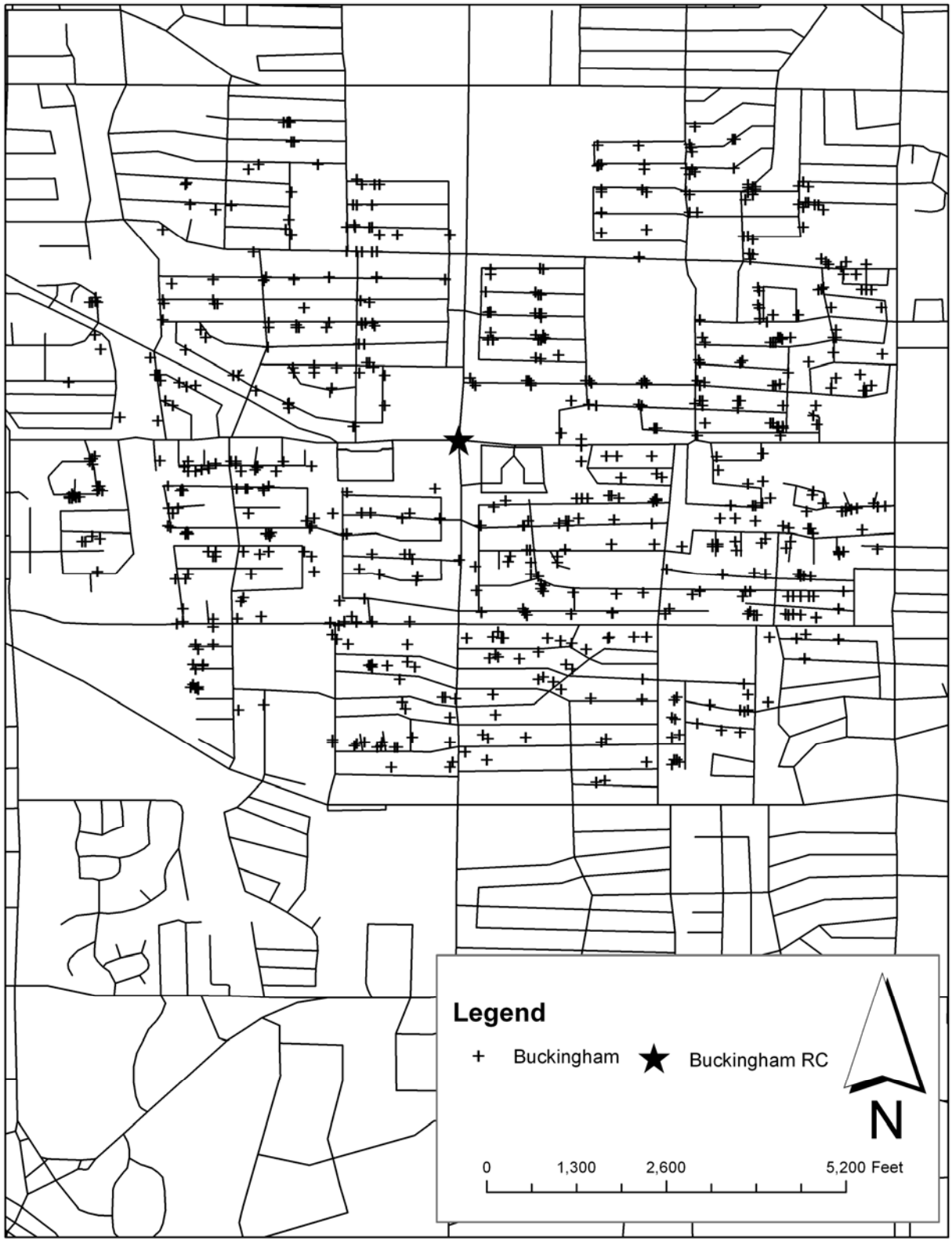

Legend
Mockingbird Station
Mockingbird RC
N
0
1,300
2,600
5,200 Feet

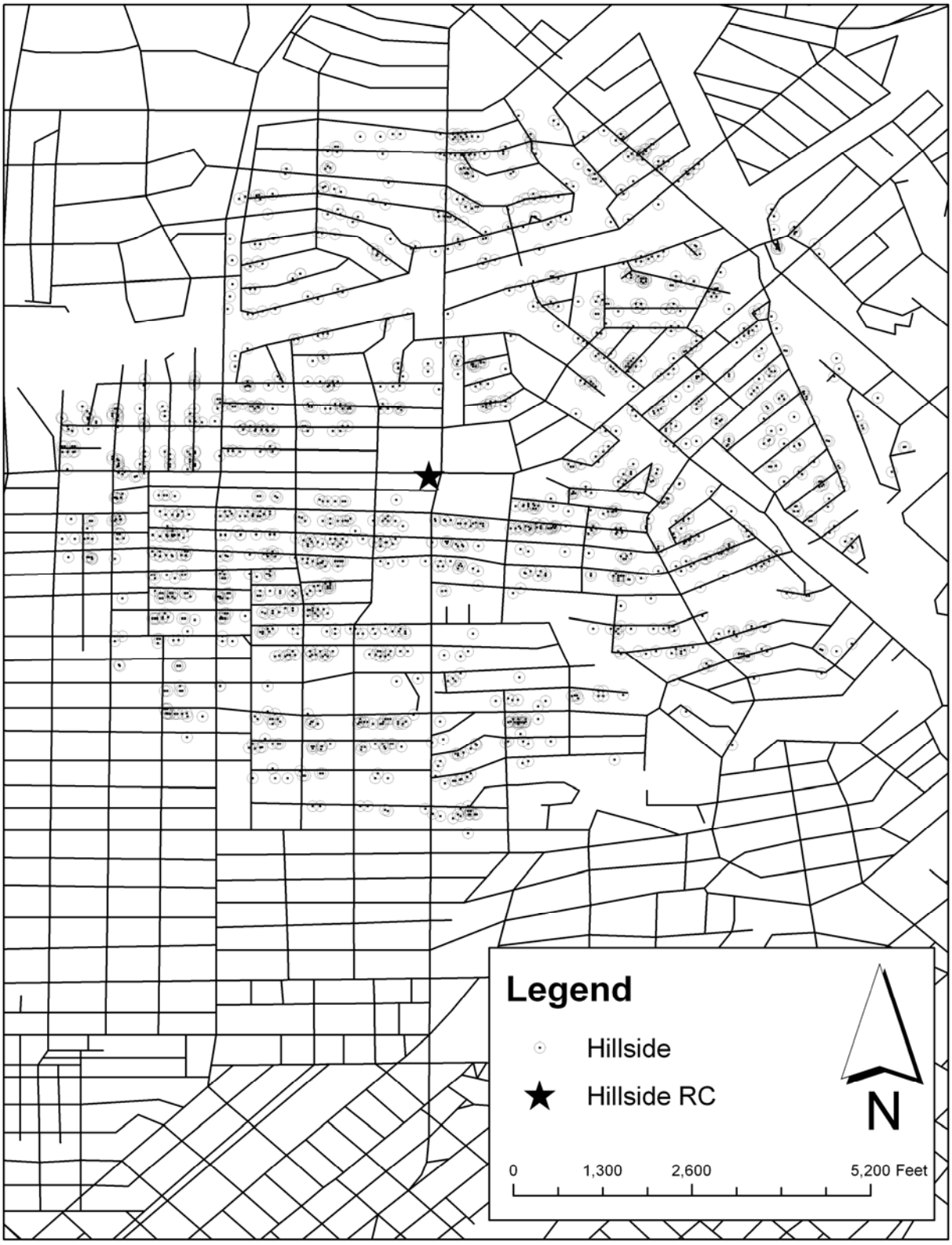

Legend
West Village
West Village RC
N
0
1,300
2,600
5,200 Feet


Legend
Eastside Village
Eastside RC
N
0
1,300
2,600
5,200 Feet


Legend
Spring Creek
Spring Creek RC
N
0
1,250
2,500
5,000 Feet


Legend
Camelot
Camelot RC
N
0
1,125
2,250
4,500 Feet


Legend
Buckingham
Buckingham RC
N
0
1,300
2,600
5,200 Feet


Legend
Hillside
Hillside RC
N
0
1,300
2,600
5,200 Feet

Section 2: Regression Summary Reports

Section 2.1: Redeveloped Centers

SUMMARY OUTPUT
Mockingbird Station

Regression Statistics	
Multiple R	75.9%
R Square	**57.6%**
Adjusted R Square	**56.8%**
Standard Error	16.6%
Observations	723

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	14	26.56957899	1.897827071	68.67647573	1.4085E-121
Residual	708	19.565092	0.027634311		
Total	722	46.13467099			

Variables	***Coefficients***	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	10.65390571	0.1706888	62.417	4.7662E-290	10.31878893	10.98902248	10.31878893	10.98902248
Sale Year 2001	0.026424893	0.023253905	1.136	0.256188883	-0.01922997	0.072079756	-0.01922997	0.072079756
Sale Year 2002	0.084606513	0.024038813	3.520	0.000459888	0.037410626	0.1318024	0.037410626	0.1318024
Sale Year 2003	0.119068371	0.023610946	5.043	5.83056E-07	0.072712522	0.165424219	0.072712522	0.165424219
Sale Year 2004	0.138930901	0.023873194	5.820	8.94199E-09	0.092060176	0.185801627	0.092060176	0.185801627
Sale Year 2005	0.137970836	0.025891117	5.329	1.32954E-07	0.087138282	0.18880339	0.087138282	0.18880339
Built 1930 - 1945	-0.029446693	0.014926216	-1.973	0.04890503	-0.058751634	-0.000141751	-0.058751634	-0.000141751
Built 1946 - 2005	-0.093460296	0.021697374	-4.307	1.88485E-05	-0.13605919	-0.050861402	-0.13605919	-0.050861402
More than 2 BRs	-0.032877797	0.014824179	-2.218	0.026881759	-0.061982408	-0.003773185	-0.061982408	-0.003773185
More than 1 Baths	0.075270693	0.016994797	4.429	1.09622E-05	0.041904465	0.108636922	0.041904465	0.108636922
Dist to Retail Center	7.31287E-05	5.45113E-05	1.342	0.180177263	-3.38944E-05	0.000180152	-3.38944E-05	0.000180152
Dist Squared	-1.43579E-08	6.86499E-09	-2.091	0.036841637	-2.78361E-08	-8.79755E-10	-2.78361E-08	-8.79755E-10
Square Feet	0.001485082	0.000136363	10.891	1.21011E-25	0.001217358	0.001752806	0.001217358	0.001752806
Sq Ft Squared	-3.06755E-07	3.67301E-08	-8.352	3.54002E-16	-3.78868E-07	-2.34642E-07	-3.78868E-07	-2.34642E-07
BAD Dummy	-0.041328279	0.021802794	-1.896	0.058426627	-0.084134147	0.001477589	-0.084134147	0.001477589

SUMMARY OUTPUT
Eastside Village

Regression Statistics	
Multiple R	82.8%
R Square	**68.6%**
Adjusted R Square	**66.6%**
Standard Error	14.0%
Observations	241

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	14	9.598816927	0.685629781	35.1997323	6.09643E-49
Residual	226	4.402088319	0.019478267		
Total	240	14.00090525			

Variables	***Coefficients***	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	10.59897852	0.132257084	80.1392	6.0235E-168	10.33836379	10.85959324	10.33836379	10.85959324
Sale Year 2001	0.144850052	0.037581155	3.8543	0.00015127	0.070795777	0.218904327	0.070795777	0.218904327
Sale Year 2002	0.168814844	0.037803682	4.4656	1.26134E-05	0.094322076	0.243307612	0.094322076	0.243307612
Sale Year 2003	0.200177275	0.036162133	5.5355	8.57039E-08	0.128919207	0.271435343	0.128919207	0.271435343
Sale Year 2004	0.193039919	0.035625763	5.4185	1.53585E-07	0.122838776	0.263241062	0.122838776	0.263241062
Sale Year 2005	0.212530567	0.043858389	4.8458	2.34223E-06	0.126106901	0.298954232	0.126106901	0.298954232
Built 1956 - 1970	0.16058799	0.034739484	4.6226	6.37149E-06	0.092133274	0.229042707	0.092133274	0.229042707
Built 1971 - 2005	0.193813512	0.044910501	4.3155	2.38139E-05	0.105316642	0.282310382	0.105316642	0.282310382
More than 2 BRs	-0.025194649	0.042294112	-0.5957	0.551971019	-0.108535882	0.058146584	-0.108535882	0.058146584
More than 1 Baths	0.082590564	0.027112898	3.0462	0.002593114	0.029164159	0.136016969	0.029164159	0.136016969
Dist to Retail Center	-2.18979E-05	6.83832E-05	-0.3202	0.749094316	-0.000156648	0.000112852	-0.000156648	0.000112852
Dist Squared	1.22773E-09	1.01131E-08	0.1214	0.903482279	-1.87003E-08	2.11557E-08	-1.87003E-08	2.11557E-08
Square Feet	0.000472572	7.29452E-05	6.4785	5.72406E-10	0.000328832	0.000616312	0.000328832	0.000616312
Sq Ft Squared	-2.73583E-08	1.35016E-08	-2.0263	0.043909661	-5.39635E-08	-7.53074E-10	-5.39635E-08	-7.53074E-10
BAD Dummy	-0.034743402	0.024429158	-1.4222	0.156343846	-0.082881453	0.013394649	-0.082881453	0.013394649

SUMMARY OUTPUT
West Village

Regression Statistics	
Multiple R	90.5%
R Square	**81.8%**
Adjusted R Square	**80.5%**
Standard Error	32.6%
Observations	194

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	13	86.19471404	6.63036	62.31945512	1.82578E-59
Residual	180	19.1507655	0.10639		
Total	193	105.3454795			

Variables	***Coefficients***	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	10.00310414	0.3139256	31.86	6.43665E-76	9.383656479	10.62255179	9.383656479	10.62255179
Sale Year 2001	0.073929666	0.111993244	0.66	0.510016722	-0.14705885	0.294918182	-0.14705885	0.294918182
Sale Year 2002	-0.036324125	0.113032568	-0.32	0.74831058	-0.259363468	0.186715218	-0.259363468	0.186715218
Sale Year 2003	0.032912596	0.111032516	0.30	0.767248768	-0.186180182	0.252005374	-0.186180182	0.252005374
Sale Year 2004	0.070968749	0.108686214	0.65	0.514609268	-0.143494235	0.285431733	-0.143494235	0.285431733
Sale Year 2005	0.049820294	0.125365725	0.40	0.691543625	-0.197555213	0.297195802	-0.197555213	0.297195802
Built 1931 - 1945	0.319184762	0.081006081	3.94	0.000116334	0.159341069	0.479028456	0.159341069	0.479028456
Built 1946 - 2005	0.401813429	0.075837117	5.30	3.38583E-07	0.252169297	0.551457562	0.252169297	0.551457562
More than 2 BRs	-0.191856779	0.059982491	-3.20	0.001632217	-0.310216076	-0.073497482	-0.310216076	-0.073497482
More than 1 Baths	-0.002696126	0.073950268	-0.04	0.970957062	-0.148617072	0.14322482	-0.148617072	0.14322482
Dist to Retail Center	-6.99173E-05	0.000156815	-0.45	0.656236286	-0.00037935	0.000239516	-0.00037935	0.000239516
Dist Squared	8.63127E-09	2.13501E-08	0.40	0.68649155	-3.34974E-08	5.07599E-08	-3.34974E-08	5.07599E-08
Square Feet	0.001490969	0.000134638	11.07	4.55644E-22	0.001225298	0.00175664	0.001225298	0.00175664
Sq Ft Squared	-1.55208E-07	2.48551E-08	-6.24	2.97597E-09	-2.04253E-07	-1.06163E-07	-2.04253E-07	-1.06163E-07

Section 2.2: Outdated Retail Centers

SUMMARY OUTPUT
Buckingham Square

Regression Statistics	
Multiple R	86.0%
R Square	**74.0%**
Adjusted R Square	**73.6%**
Standard Error	8.8%
Observations	708

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	15.41258161	1.28438	165.1739303	2.9562E-194
Residual	695	5.404275058	0.00778		
Total	707	20.81685667			

Variables	***Coefficients***	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	11.1278505	0.035931634	309.70	0	11.05730293	11.19839806	11.05730293	11.19839806
Sale Year 2001	0.037226557	0.013837247	2.69	0.007309907	0.010058739	0.064394375	0.010058739	0.064394375
Sale Year 2002	0.062571215	0.014031087	4.46	9.57897E-06	0.035022816	0.090119614	0.035022816	0.090119614
Sale Year 2003	0.064749263	0.01414257	4.58	5.55315E-06	0.036981979	0.092516547	0.036981979	0.092516547
Sale Year 2004	0.063289404	0.01364307	4.64	4.18513E-06	0.03650283	0.090075979	0.03650283	0.090075979
Sale Year 2005	0.079568496	0.015775018	5.04	5.82603E-07	0.048596093	0.110540899	0.048596093	0.110540899
Built 1966 - 1975	0.063371224	0.010675647	5.94	4.60884E-09	0.042410839	0.08433161	0.042410839	0.08433161
Built 1976 - 2005	0.138559001	0.01261188	10.99	5.30809E-26	0.113797048	0.163320953	0.113797048	0.163320953
More than 3 BRs	-0.00053998	0.00802112	-0.07	0.946346518	-0.016288512	0.015208553	-0.016288512	0.015208553
More than 2 Baths	0.004101815	0.012148182	0.34	0.735730068	-0.019749721	0.027953351	-0.019749721	0.027953351
Dist to Retail Center	-9.05937E-06	1.73104E-05	-0.52	0.600899452	-4.30464E-05	2.49277E-05	-4.30464E-05	2.49277E-05
Dist Squared	1.19521E-10	2.52731E-09	0.05	0.962294302	-4.84256E-09	5.0816E-09	-4.84256E-09	5.0816E-09
Square Feet	0.000288564	1.24912E-05	23.10	4.69181E-88	0.000264039	0.000313089	0.000264039	0.000313089

SUMMARY OUTPUT
Camelot Shopping Center

Regression Statistics	
Multiple R	78.9%
R Square	**62.2%**
Adjusted R Square	**61.6%**
Standard Error	11.3%
Observations	766

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	15.95062959	1.329219133	103.2044544	5.8165E-150
Residual	753	9.698244255	0.012879474		
Total	765	25.64887385			

Variables	***Coefficients***	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	11.07614356	0.049080671	225.67	0	10.97979235	11.17249478	10.97979235	11.17249478
Sale Year 2001	0.038469097	0.017148762	2.24	0.025170189	0.004804031	0.072134163	0.004804031	0.072134163
Sale Year 2002	0.082549408	0.017081379	4.83	1.63269E-06	0.049016623	0.116082194	0.049016623	0.116082194
Sale Year 2003	0.082934894	0.017410067	4.76	2.28156E-06	0.048756856	0.117112933	0.048756856	0.117112933
Sale Year 2004	0.090440159	0.016878264	5.36	1.11705E-07	0.057306113	0.123574206	0.057306113	0.123574206
Sale Year 2005	0.111677781	0.018961284	5.89	5.82652E-09	0.074454517	0.148901046	0.074454517	0.148901046
Built 1956 - 1965	-0.054759822	0.012574957	-4.35	1.5171E-05	-0.079445964	-0.03007368	-0.079445964	-0.03007368
Built 1966 - 2005	-0.050510836	0.017493049	-2.89	0.003994697	-0.084851778	-0.016169893	-0.084851778	-0.016169893
More than 3 BRs	-0.067747089	0.011733274	-5.77	1.13229E-08	-0.090780906	-0.044713271	-0.090780906	-0.044713271
More than 1 Baths	0.044630926	0.015285248	2.92	0.003606326	0.01462416	0.074637692	0.01462416	0.074637692
Dist to Retail Center	-8.40843E-06	2.24994E-05	-0.37	0.708719014	-5.25774E-05	3.57605E-05	-5.25774E-05	3.57605E-05
Dist Squared	1.70403E-10	3.33403E-09	0.05	0.959251085	-6.37469E-09	6.71549E-09	-6.37469E-09	6.71549E-09
Square Feet	0.000420656	1.4375E-05	29.26	2.5819E-126	0.000392437	0.000448876	0.000392437	0.000448876

SUMMARY OUTPUT
Hillside Village

Regression Statistics	
Multiple R	72.0%
R Square	**51.8%**
Adjusted R Square	**51.3%**
Standard Error	16.0%
Observations	1531

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	15	41.52174228	2.768116152	108.6070185	2.5925E-227
Residual	1515	38.61348953	0.025487452		
Total	1530	80.13523181			

Variables	***Coefficients***	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	11.19969477	0.07614191	147.090	0	11.05034005	11.34904949	11.05034005	11.34904949
Sale Year 2001	0.048162769	0.015567376	3.094	0.002012052	0.017626878	0.07869866	0.017626878	0.07869866
Sale Year 2002	0.091430988	0.015504826	5.897	4.55818E-09	0.061017791	0.121844185	0.061017791	0.121844185
Sale Year 2003	0.148278187	0.015566724	9.525	6.25466E-21	0.117743576	0.178812799	0.117743576	0.178812799
Sale Year 2004	0.173706051	0.015707123	11.059	2.14472E-27	0.142896041	0.20451606	0.142896041	0.20451606
Sale Year 2005	0.209677719	0.018175075	11.537	1.42556E-29	0.174026745	0.245328692	0.174026745	0.245328692
Built 1942 - 1955	-0.060183011	0.012394395	-4.856	1.3239E-06	-0.084495001	-0.035871021	-0.084495001	-0.035871021
Built 1956 - 2005	-0.148524089	0.016409982	-9.051	4.24158E-19	-0.180712777	-0.1163354	-0.180712777	-0.1163354
More than 2 BRs	-0.026001289	0.009663823	-2.691	0.007211185	-0.044957178	-0.007045401	-0.044957178	-0.007045401
More than 1 Baths	0.069766243	0.011551674	6.039	1.94161E-09	0.047107276	0.09242521	0.047107276	0.09242521
Dist to Retail Center	8.67664E-07	1.91699E-05	0.045	0.963904699	-3.67348E-05	3.84701E-05	-3.67348E-05	3.84701E-05
Dist Squared	-5.6192E-09	2.8942E-09	-1.942	0.052378063	-1.12963E-08	5.78594E-11	-1.12963E-08	5.78594E-11
Square Feet	0.000903822	7.8196E-05	11.558	1.12846E-29	0.000750438	0.001057206	0.000750438	0.001057206
Sq Ft Squared	-1.4667E-07	1.99697E-08	-7.345	3.35634E-13	-1.85841E-07	-1.07499E-07	-1.85841E-07	-1.07499E-07
BAD Dummy	-0.158542826	0.015502689	-10.227	8.73635E-24	-0.188951833	-0.12813382	-0.188951833	-0.12813382
Mock Station Dummy	-0.011913932	0.014512252	-0.821	0.411800061	-0.040380165	0.016552302	-0.040380165	0.016552302

SUMMARY OUTPUT
Spring Creek

Regression Statistics	
Multiple R	91.3%
R Square	**83.4%**
Adjusted R Square	**83.0%**
Standard Error	12.6%
Observations	554

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	13	42.9027449	3.300211146	209.4038662	4.0549E-201
Residual	540	8.510416028	0.01576003		
Total	553	51.41316093			

Variables	***Coefficients***	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	10.78055803	0.082358198	130.90	0	10.61877633	10.94233973	10.61877633	10.94233973
Sale Year 2001	-0.029694223	0.021628827	-1.37	0.170353192	-0.072181171	0.012792725	-0.072181171	0.012792725
Sale Year 2002	0.007588977	0.021432908	0.35	0.723416699	-0.034513114	0.049691068	-0.034513114	0.049691068
Sale Year 2003	0.024970412	0.022528715	1.11	0.268190481	-0.019284245	0.069225069	-0.019284245	0.069225069
Sale Year 2004	0.057174128	0.021908117	2.61	0.009312934	0.014138553	0.100209703	0.014138553	0.100209703
Sale Year 2005	0.084261056	0.025087135	3.36	0.000838249	0.034980723	0.133541389	0.034980723	0.133541389
Built 1961 - 1965	0.005112655	0.01630716	0.31	0.754005122	-0.026920588	0.037145897	-0.026920588	0.037145897
Built 1966 - 2005	-0.045159258	0.018118229	-2.49	0.012984183	-0.080750103	-0.009568413	-0.080750103	-0.009568413
More than 3 BRs	-0.054513463	0.016636451	-3.28	0.001117559	-0.087193553	-0.021833372	-0.087193553	-0.021833372
More than 2 Baths	0.101503611	0.019254738	5.27	1.95862E-07	0.063680245	0.139326976	0.063680245	0.139326976
Dist to Retail Center	7.16581E-05	3.30173E-05	2.17	0.030417791	6.79999E-06	0.000136516	6.79999E-06	0.000136516
Dist Squared	-7.27454E-09	4.84449E-09	-1.50	0.133782379	-1.67909E-08	2.24182E-09	-1.67909E-08	2.24182E-09
Square Feet	0.000589225	6.3195E-05	9.32	2.85667E-19	0.000465087	0.000713363	0.000465087	0.000713363
Sq Ft Squared	-3.46811E-08	1.31943E-08	-2.63	0.008820741	-6.05996E-08	-8.7626E-09	-6.05996E-08	-8.7626E-09

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