COGNITIVE DISSONANCE AND THE FUTURE OF THE WASHINGTON, D.C. RENTAL MARKET:

Why Renter Clients Select Residence Locations and Why It Will Change in the Future

Abstract

Renters make seemingly odd choices when it comes to selecting a residence. In certain instances the choice of a residence should be based on location, affordability, quality of life and other factors, but in many instances renters select residences that are barely affordable, sacrificing potential savings that could be used later for other purposes and instead pay a significant portion of their rent for a higher cost place to live. The purpose of this paper is to examine how and where rental residences have formed over the past 25 years and why this cluster of preferred rental housing choices has moved over time.

Principal Investigator and Author: Jack Kern

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Study Sponsor: The Kettler Scholar Program, 2014/2015

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Synopsis

Renters make seemingly odd choices when it comes to selecting a residence. In certain instances the choice of a residence should be based on location, affordability, quality of life and other factors, but in many instances renters select residences that are barely affordable, sacrificing potential savings that could be used later for other purposes and instead pay a significant portion of their income for a higher cost place to live. The purpose of this paper is to examine how and where rental residences have formed over the past 25 years and why this cluster of preferred rental housing choices has changed over time.

This study came about as a result of many years of examining data, trends and patterns to ascertain how renters make decisions about where to live and why they make the choices they do. It is easy to first consider that everything is based on the simple premise of pricing elasticity and that demand criteria will ultimately demonstrate that renters make keenly rational decisions. It is not out of the question to believe that when confronted with making major decisions about where to live, how much rent to pay and deciding on tenure that these decision processes are logically intended and well executed.

In fact, much of the time they are not. And in an attempt to understand why we first begin with studies conducted by the Behavioral Finance Unit of the U.S. Federal Reserve. Economists at the Federal Reserve were seeking over many years to understand how consumers made financial decisions. It seemed that something as simple as switching banks to get a better interest rate or making an account change to have more favorable terms is not something that consumers do readily, despite overwhelming evidence it is in their best interests to do so. As a consequence, consumers making major financial decisions find themselves allowing other influences to determine what they will next do in order to find balance and a comfort level with their decision. Financial considerations are some of the biggest decisions consumers make and few have as much of an impact as shelter choices. It is in the viewpoint of understanding how shelter decisions and particularly the selection of tenure span of an apartment are made that these factors are examined here.

The cost implication to the renter has created a new decision point, with the necessity to now

recognize the tenure choice between commuting a greater distance to achieve a more efficient rental rate bypassing traditional employment center locations or look for a better discrete housing choice alternative. In the author's viewpoint, changes in the tax code not covered in this monograph are partly responsible for housing trends. Fundamental public policy initiatives and those major legislative acts affecting housing generally are also not part of this analysis. We seek instead to simply examine determinant choice and the decision process of the rental customer.

There is complexity in the choices that both renters and apartment developers make, and each has an efficient element of timing that when viewed based on financial, investment and career choices helps to partially explain location and tenure. What is interesting is the essential shift of primary rental locations and the diversification of choices that were not evident in previous periods. Transportation patterns, municipal policies and zoning as well as the public perception of desirable and less worthy areas all play a part in the growth and continued adaptive shift of major economic variables. These ultimately play a leading role in shifts of employment, shopping and industrial corridors in various parts of the Washington Metropolitan region.

The viewpoint of the renter client choice is, quite expectedly, a combination of factors having to do with their primary employment location, the distinction of being an established compared to a recent arrival in the region, the location of family, friends and other influencers, quality of life support including retail, medical and recreational and last but not least access to transportation patterns suitable for the renter client's routine need. While in many instances the primary driver of renter choice is convenience and proximity to where they work, most surveys seem to indicate that the cost of the rental (varying affordability quotients) has a major impact as well. The balance of the rest of the variables is a determinant, but as we note in our featured analysis, the variation and renter choice in decision points are not always what we expected.

Introduction

Washington, D.C. is an Investment Grade Market

There is the perception among private and institutional capital investors that Washington, D.C. is a perennial investment market and a catalyst for continuous rent growth in the metropolitan Washington and broader Mid-Atlantic region. Fundamental to this belief is the long history of pricing power enjoyed by property owners and management companies covering almost the last 75 years, with occasional breaks due to economic slowdowns and the occasional black swan calamity that even this region cannot escape. As the seat of power for the nation, and the appurtenant contracting activity that has popularized employment growth and relocation, the metropolitan area has always been perceived as recession proof and the ideal environment for portfolio quality accretive ownership of rental properties. This long term sense of safety and security is at least responsible for an almost continuous level of new apartment supply and mixed use development by major sponsors, institutional advisors and pension fund investors, all with the aim of owning and operating long term cash flowing properties.

The almost continuous investment in the region has been a determined catalyst and has, almost by coincidence, created a rental economy in many parts of the city and surrounding suburbs. Over time, corridors of rental properties located within close proximity to major transportation routes, large scale long term employers and high quality of life metrics have transformed the region into one as a mega city surrounded by other modestly dense but reasonably accessible districts. It is that essence of the creation of present and as we will see future levels of renter client density that provide both investment returns and also hold period cautions across the spectrum of housing targets.

The Big Question

As one might expect, given the level of employment growth, shifts in demographics and the intensity of certain kinds of jobs, including government, municipally related and association and legislative positions, employment in the region has sustained levels of rental demand much more consistently than other areas in the country. What may be surprising is how all of this came about and what impact it has on renters. Traditionally the Washington region is an environment where financing and land contracts dictate the adage that “if you build it, they will lease.” In examining the trends, it becomes even more evident that core location characteristics and the decision processes that renter clients use to select a residence are under considerable pressure due to rising rental costs and the severely reduced likelihood of income growth. How then do renters decide where to locate, and what is truly important to them?

Let’s start with the premise of how we got here and ultimately what the future looks like across the region.

In The Beginning

Shelter variability is not an independent set of discrete choices within the time and lifestyle horizon of the renter but in fact a set of inter-related decisions that conspire to make one set of decision support more relevant than another. Far from the simple process of picking an apartment it is important to recognize that a customer’s choice encompasses practical, lifestyle, inertial and relationship issues. There are factors that have historically been pre-determinant based on public policy, local and regional planning and transportation patterns. The cycle is different based on a variety of changing conditions and can even have a trans-mutative effect over time. The research reported in this paper is designed to ferret out those trends that have more impact than the simple explanation and existence of the rental property itself. The thought that if one builds it, the residents will come and lease it isn’t out of the question, but that alone is not the primary reason the rental contract takes place. There is always a secondary explanation as to why the decision is made and at least in this instance, it is not always that obvious.

How We Got Here

The real estate economy runs principally on the availability of investable capital and the subsequent return it provides over time, both calculated at a current return and an inflation and risk adjusted rate. In the Washington region most of the economic activity, with rare exception, occurred with major concentrations of employment in downtown and I-495 based locations since the end of the last World War. A long run history is beneficial here because many of the renter clients grew up in the environment where it was considered acceptable to live in the suburbs and commute to downtown jobs. Even in instances where, for example, the two primary employment corridors, Bethesda and Andrews Air Force Base (now Joint Base Andrews) were considered densely populated employment and regional residential corridors, primarily because of the intense drive in and drive out patterns of commuters, mimicking the District, there was still evidence of little displacement of employment concentration. A majority of employment was located in the District previously because of a desire to be close to the major customers that included federal agencies, defense contractor directorates and prime and subcontractor roles. As a result, significant centers of rental housing were both in very dense areas, bordering Wisconsin and Connecticut Avenues to the north and Arlington and Alexandria to the south.

Transportation Patterns, Decision Logic and the Anatomy of a Lifestyle

Our analysis begins by examining in careful detail transportation patterns as they developed over time. One of the more interesting thesis about the selection of a residence has to do with the commute and commercial cycle that is a normal part of a residential experience. Within the Washington metropolitan region the transportation patterns fundamentally experienced a dramatic shift from a suburban drive to an urban employment center to, over time, an inter-urban and inter-suburban employment corridor. As these transportation patterns ultimately shifted the pattern and efficiency of traffic flows, they pointed out some obvious flaws in public policy and regional planning. Washington simply missed the trend, opting instead for longer highway commutes and much less commuter friendly public transit options. By the time the pattern was detected and the development moniker of “downtown only” gave way to urban locations, vast amounts of construction investment had been made in key suburbs that ultimately recognized the reality of inter-urban business and residential presence. To coin an old phrase, new suburbs overloaded with additional residents and transit friendly options were suddenly born.

Some of Our Data Points Used in the Analysis

The year constructed data and location of properties built by time frame were examined by the number of units and characteristics of each property utilizing a grading scale of A, B and C for building quality over time. We examined cohort based rent paid in specific cluster maps (zip or census tract), percentages of income paid for rent by area utilizing some American Community Survey micro-data and estimates, distance walking vs. commuting time to work, and mapping analytics showing zones and changes in activity over time including the emergence of new employment centers to help determine renter client choice and leasing behaviors in each region. Overall we examined approximately 25 million records.

Methodology Notes

The initial premise of our study is to take data by study year and analyze it to seek out patterns in renter location and behavior. Using data which identifies the year built mnemonic for several thousand properties across the Washington, D.C. region, we are able to determine with reasonable (and hopefully a high level of accuracy) certainty where apartments were built in each of the study years. These data are from a variety of sources which provided details on builders, developers and owners about property transactions going back approximately 30 years. While a majority of the data in their set is from land records and private non-published files, a subsequent analysis has shown that year built is usually pretty close to the actual date of CO (certificate of occupancy at lease up) so the availability of the unit to the rental population serves as a good proxy to understand demand parameters and discrete price substitution choice.

Data necessary to our study that offers some insights including net effective rental rates paid per submarket, subarea, development district and address line property were made available to us by several commercial information vendors. These firms have indicated a willingness to sign off on study disclosures as long as the source data is kept confidential. We used these data to establish what rental rates were paid in each study time period, valuable for comparison to reported median household incomes and commuting times.

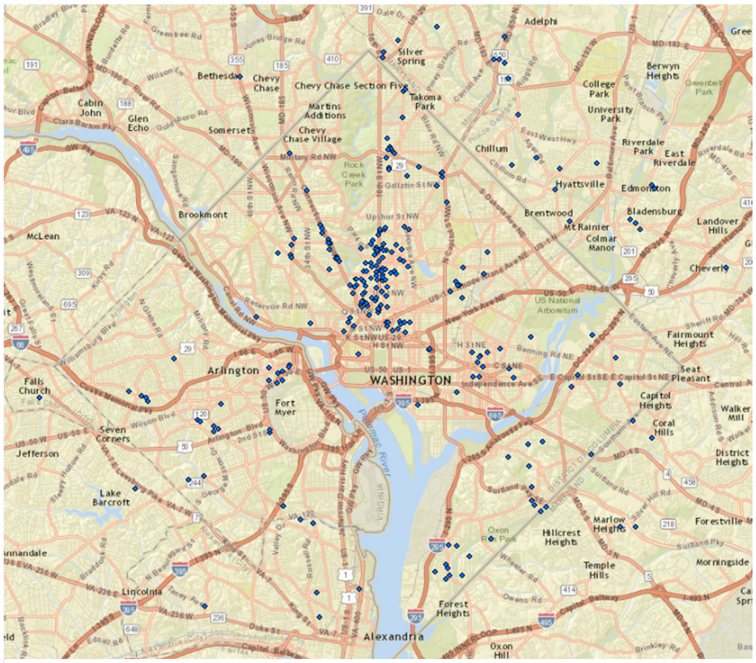
We also utilized population change, migration and commuting time models, all available through the American Community Survey, the 1990, 2000 and 2010 Census and various other legacy reports. Some others including HUD and housing agencies Fannie-Mae, Freddie-Mac and the Federal Home Loan Bank Board, were consulted to help evaluate changes over time.

We utilized extensive mapping analytics based on the utilization of ESRI map files and custom base layer files. This mapping allowed for a very visual presentation of changes in activity by intensity (think of it as heat maps) and also provided some statistical analysis once the data was entered.

To keep the study fair, we used the best data from a number of companies, with colleagues of ours helping out, so that the bias that might be inherent in any one data series by any one firm is negated.

Source Annotation

We utilized what is essentially self- selected data to create our analysis. We recognize there may be differing viewpoints in the other data available to our colleague researchers. Discrete choice in housing matters is a personal decision. Our intent is to let the data we select tell the story as much as possible. We did add some knowledge based forecasting to the model to help suggest what the future will look like based on the overall trends as we understand them.



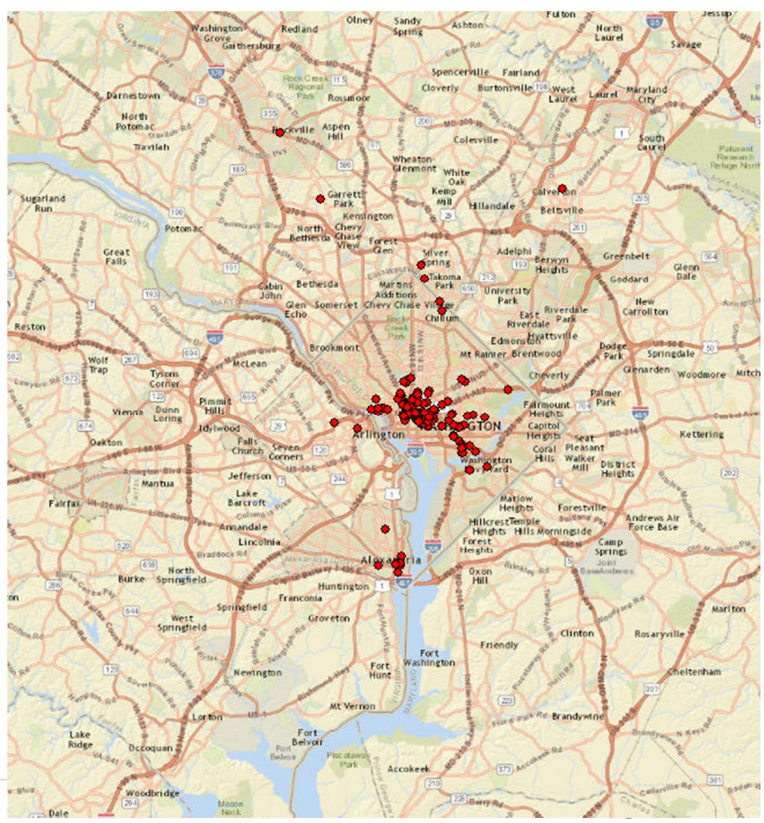
Map 1

Our Starting Point – Prior to 1950

In order to understand how the apartment markets developed over time, and what choices the renters had based on employment needs, transportation considerations to work and quality of life measures, we are starting with the time horizon prior to 1950. As a baseline, the number of apartments and office concentrations changed as the region became increasingly important during the war years. Prior to the advent of the Beltway and Metro, transportation patterns became a defense priority.

The first map (Map 1) is a dot location plot similar to what we are using throughout this entire report. Each dot represents a point in time showing the physical location (other characteristics follow) of each property dating back to circa 1900.

There are a number of important factors that have had and continue to have impact in the region. Going back to the 1950s, Washington really was a downtown commute for most employees. While many locations in the region had a substantial amount of new home construction as the area grew after World War II (we use the time frame 1944/1945 as the effective end of hostilities and the beginning of the economic growth cycle that was triggered by the resettlement of millions of military and support and ancillary personnel), the number of new apartment communities was at a decidedly low rate. In our dataset we use mostly institutional quality properties, suburban, urban and inter-urban that have traded at least once during the lifecycle. We are also using data and property identifiers from all of the major property sectors because each has an impact on where and how rental preference, cost and renter client behavior developed.



Map 2

Map 2 illustrates the physical location of office properties that comprise most of the then pre-1950s downtown dominant employment corridor. Before the construction boom that redefined metropolitan Washington, there were few active office building corridors in the suburbs in those days and so work/life balance and commuting patterns were centered on the active downtown core. Not surprisingly this phenomena was the inception of the commuter tax arguments, one that rages to this date.

One important consideration is the impact this rigorous daily commute had in most families. The Baby Boomers and subsequent generations were aware that the norm was to live either downtown, as Map 1 demonstrates, or in a suburban community with the expectation of driving into Washington every day. Not surprisingly then, the development of additional apartment properties, retail centers and office concentrations would inevitably develop between the central core of the metropolitan area and the fast developing bedroom communities that housed the workforce in the rings that started to appear in the suburbs. Dense inter-urban areas were still years away from becoming unique destinations and residences.

Apartment owners and managers however were consumed with the notion that residents preferred to live in locations convenient and in proximity to where they worked. The traffic considerations and parking problems in the downtown corridor made living close to work a necessity. Apartment firms learned over time that typically the move outs either coincided with job relocation or a change in lifestyle, including coupling, marriage or group quarters considerations. (The premise is sharing housing before marriage.) Many of the parents of the Baby Boomers from the Greatest Generation (Tom Brokaw's definition of the segment of the population now referred to as seniors) were accustomed to living in apartments most of their lives and so leaving densely populated areas to resettle in the Washington region at that time was a very different experience.

Consumer expenditure patterns are ingrained at a very early age. To leave the city and move to suburbs was not always the norm and in fact, as we learned, the reality of an interior migration from the densely populated city neighborhoods was not only a part of the development of suburban Washington, but an absolute inevitability.

Apartments Make an Appearance – The 1950s

In the decade of the 1950s, development and construction of new apartment communities began to expand into the surrounding suburban areas more intensely than before. This additional development became successful because the increase in population, the employment dynamics downtown and the ease of using major highway and secondary roads to employment centers made the residential component of daily life more acceptable.

Map 3 demonstrates that the gain in apartments followed a pattern that continued to recognize the central downtown Washington business district with understandable commuting. Many of the suburban and even in-town Washington developments stayed close to the premise that proximity to an employment corridor was worthwhile. Apartment rental rates reflected the distance between proximity to the central core and commuting times.

The period of the 1950s was one of the first times in the history of Washington, D.C. that the influence of the city was being pushed into the surrounding suburban region. While subtle at first, it did portend how powerful forces in the nation's capital would ultimately take over the entire metropolitan region and transform Washington into what it is today, a series of counties and municipalities all both inter-dependent on one another and yet retaining certain local characteristics. The beginning of the recession proof identity of Washington was born.

Map 3

That Washington was expanding residentially was initially lost on the office community. The expected increase in office building concentration was slow to start, and absorption patterns evolved very slowly in the decade of the 1950s.

Map 4 depicts the location of new office buildings, with more than 50,000 square feet during the decade and the central core of the city is still the primary location. With the construction of the Washington beltway and the surrounding interchanges affecting commuting patterns for almost everyone, an increase in the number of buildings in some of the suburbs became practical, compared to the limited highway patterns that defined Washington traffic and commute times. For environmental reasons, Washington decided not to complete the expansion of Interstate 95 through town, preferring the notion of a series of bypass routes around the city. Not typically understood in urban planning is the fact that the beltway was designed as a defensive measure to isolate the city in case of an attack. For political

Map 4

reasons, the scale of the beltway was enlarged repeatedly to incorporate as many municipalities and residents as possible. Thus was created the inside/outside of the beltway identity. And in the mind of the renter client, the beltway became both a new way to access more of the city at a higher velocity, as well as a defining parameter in how and where they lived.

One component of the thesis of this study, the nagging question about how renters selected their residence, started to take shape with the advent of suburban employment becoming more prevalent. Initially the expansion of some of the federal agencies into the Washington suburbs was controlled by the War Department, now more popularly known as the Pentagon. The National Institutes of Health was built in Bethesda, the Census Bureau was built in Suitland, Maryland, Andrews Air Force Base (Joint Base Andrews) was built in Camp Springs, Maryland, Bolling AFB was built in Southeast D.C., across from the Pentagon, the National Security Agency, near BWI Airport and Martin Field, the Department of Energy was built in Germantown, Maryland, the Central Intelligence Agency, previously known as the Federal Highway Center, (everyone knew it was the C.I.A.) was built across the river in McLean, Virginia while a majority of other non-defense agencies were still in the central business district. Since federal agencies spawned many smaller firms that became the mainstays of political, economic, defense and operational contractors, these all sought to locate close to their agency clients for faster meetings and greater influence. Remembering that all of this occurred prior to the development of the Metro system, location and time were more independent than they would be later once the Metro system opened. Metro is another example of what was to become a defining moment in the apartment industry across Washington, D.C. Fundamental to the decision about distance to work, the beltway and the Metro system ultimately changed the applied definition of commute times. As a result, apartment owners and developers saw an opening starting in the decade of the 1960s.

Apartment Life Takes a Turn – The 1960s

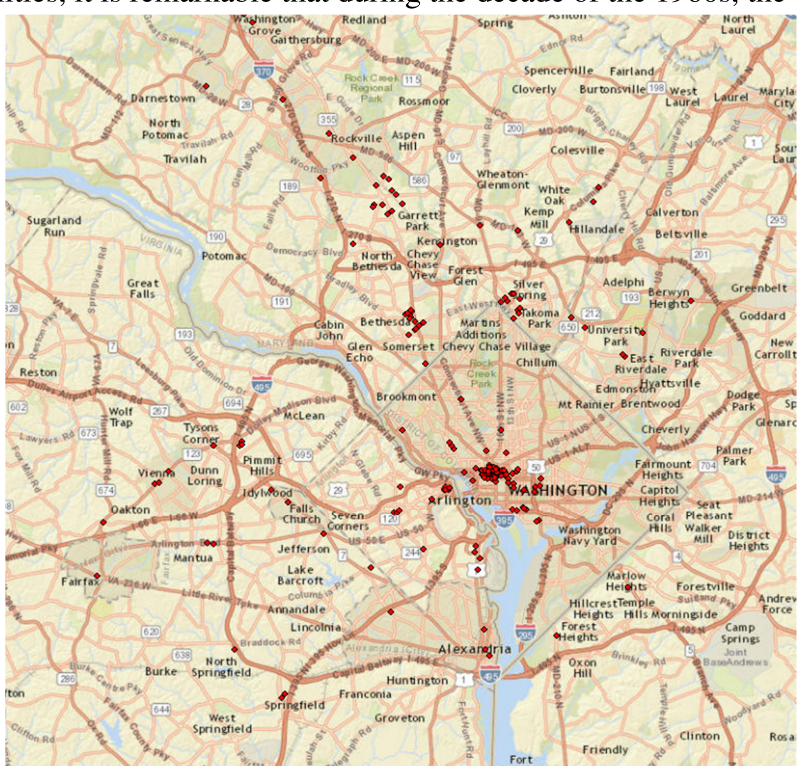
Map 5

The speed of population migration into the region coincided with what started as some basic changes in Congress, which was the expansion of staff and committee assignments on Capitol Hill and the dramatic increase in government jobs. Even those considered patronage became valuable as presidential, midterm and state and local elections brought in and sent out renter clients of all levels and set a dynamic in place that still exists today. While conceptually there isn't really an apartment cycle that coincides with the election cycle, the impact is unassailable and many forecasts take into account the increasing level of influence that politics and defense, the two key industries in government in the city, have on most of the surrounding economy during this decade.

The expansion of new apartment communities is shown on Map 5. It demonstrates a dramatic shift from the mostly downtown core of apartment residences to a large number expanding into the surrounding suburbs. A significant number track the development of the I-495 (beltway) corridors, but others are within range of soon to be developed Metro stations and expanding employment centers. The major influences at the time included federal laboratories, military bases and supporting employment centers. Some of the new development in the 1960s even reached into the far northern and western suburbs, bringing added population migration.

The renter client now seemingly had a new set of decision criteria to examine. Being close to work took on a new meaning, one suggesting that the ultimate control of location preference had started a shift to the renter while pricing power remained, during the 1960s in the balance. The real decision point can be characterized as to what you get (space, amenities and services, just to name a few) for what you are willing to pay for the privilege and term. The issue of apartment lifestyle was still a long way off, as most buildings featured maximum FAR (density of units on site) and little else except a simple outdoor swimming pool and parking (outside or occasionally podium).

There is always an issue of precedence in urban planning and apartments are particularly sensitive to this phenomena. The sense of “not in my backyard” did not manifest itself as an urban force for another ten years as civic activism slowly grew. Most of the communities were built in areas that were not as densely populated as the metropolitan area is today, so a rapid expansion in multifamily units became an acceptable practice. Most of the Baby Boomers were busy raising families and developing careers. Participating in public hearings was not high on the interest list for all but a select few. With the assumption that employment patterns willfully followed the lease up of office buildings and other facilities, it is remarkable that during the decade of the 1960s, the general employment corridor remained close to the congressional corridors of power. The main Washington, D.C. central business district saw increases in development and the beginning of redevelopment of the Pennsylvania Avenue corridor. The Pennsylvania Avenue Development Commission played a major role over a 20 year period. The results of office development are shown on Map 6, where limited development reached outside of the beltway corridor and the predominant increase in square footage was in the central downtown corridor.



Map 6

So the question at this point is why are the apartments built all over the suburbs if most of the office development was still years away from really saturating the suburban locales?

We believe that the trends and development patterns suggest ease of commute to employment centers both downtown and in the suburban areas with federal facilities and nearby contractors and ancillary services. Ultimately the multiplier effect of concentrations of employment began to take hold in the region for the first time, creating additional service and supply businesses that provided important additions to incumbent capabilities.

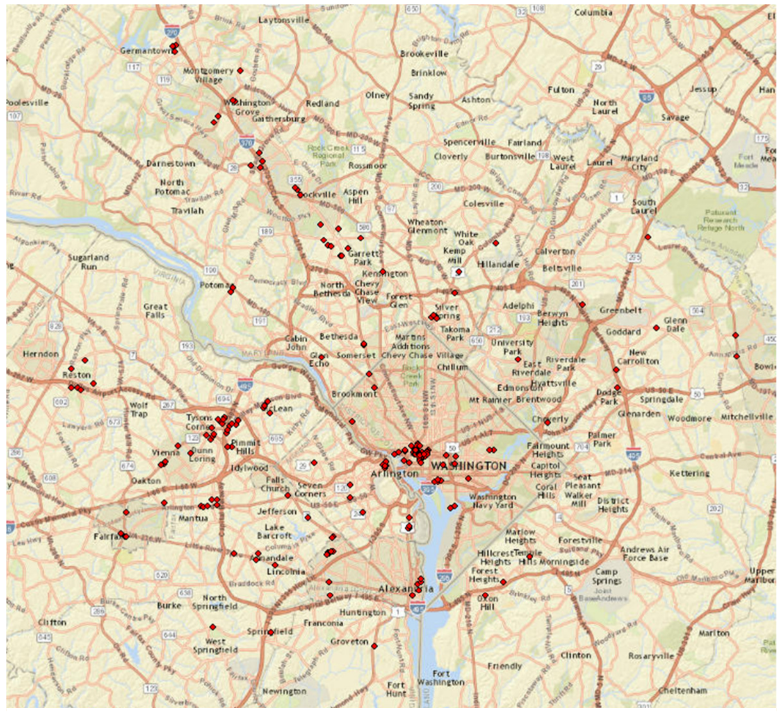
The renter client of the 1960s continued to enjoy the choice to decide where to live based on miles per unit of rental cost. For every 20 minutes of additional commuting time, the renter client might save $100 per month in rent, which at 1960 prices was very meaningful based on wage rates.

Map 7 - 1970s M.F.

Office and Residential – A Turning Point

In evaluating urban and suburban planning patterns and development results, we are not able to track all of the general changes in planning and zoning by municipality given the absolutely massive number of revisions, amendments, special hearings, zoning exceptions and legislative acts at almost every level of government. Our preference in evaluating the information and understanding the renter client then is to instead categorically determine how the results of the municipal decisions played out, and in some sense ultimately affected the location of apartment properties across the region.

Typically, office, retail, apartments and industrial all play a role together. We'll be commenting on this more later in this report, but for now the point is that correlations between actual economic development, i.e. leasing of office space and occupancy in apartment properties, is generally accepted to mean housing tenure and rental client choices track within the vicinity of the employment concentration. It takes a tremendous amount of density to begin to create property owner pricing power. In evaluating the Washington metropolitan region, the beginning of meaningful density in employment and the selective way in which retail and industrial has a role is mostly evident in the decade of the 1970s. As the opposite of the corollary "drive until you qualify for a mortgage", renter clients have options and choices during the time frame in which density of corridor has not overtaken available rental property options. And all of that held true until the 1970s, when the region came into its own at the beginning of a balanced and thriving super-region. It was then that renter clients started to make unprecedented compromises.



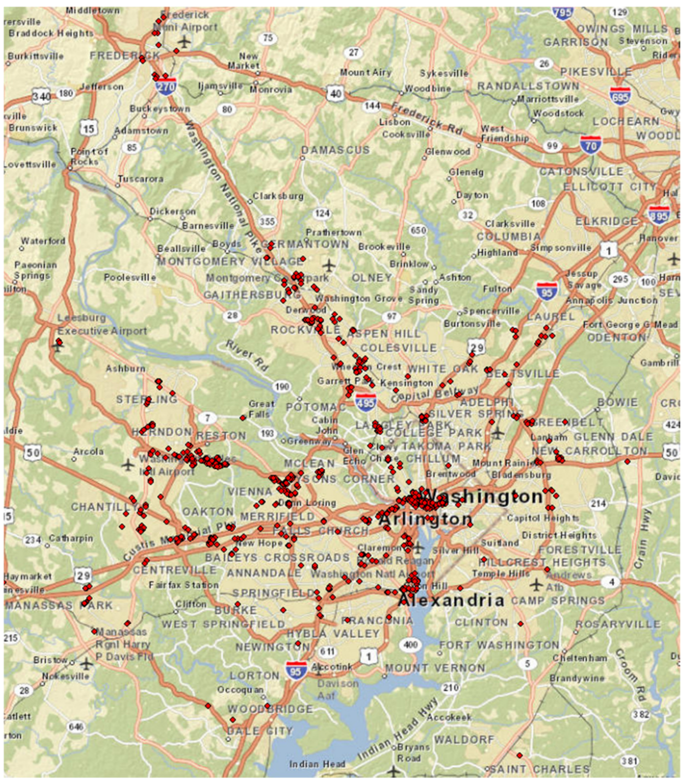
Map 8 - 1970s Office

Map 9 - 1980s Apartment Development Patterns

Parallel Tracks and Renter Choice – The 1970s

During the decade of the 1970s residential development at both the single family and apartment development phase continued unabated. With the exception of the energy crisis and some shallow recessionary pressures, the 1970s demonstrated that suburban construction along with some urban infill could add apartment properties that offered convenient locations to employment centers in the direct vicinity of additional office construction; something that had not been the practice previously. The additional office construction supported government and public and private contractors and for the first time, office substantially reached into the suburban counties as well as the central downtown Washington region.

An illustration of this phenomena is shown on Map 7, highlighting additional multifamily construction in the region almost uniformly adding units in greater concentration across the suburban counties when compared to the city itself. Apartment corridors are now more evident in the northern and western suburbs, as well as towards the northeast, where additional office development is starting to take place. The office concentrations are shown on Map 8, with renewed investments in office from the downtown central business district across major transportation highways of Route 270 (formerly I-70S) and Route 66 (the Arlington-Fairfax corridor).



Map 10 – 1980s Office Development Pattern

When evaluated in total, the renter client now has choices about where to locate and many associated considerations with employment type and location. Since the metropolitan Washington area does not have any meaningful level of manufacturing and relies primarily on professional and business services, the location of these entities is vastly more flexible and affords the renter client the option to choose rent levels and quality of life. The downtown Washington region at this point in time is still daytime employment and few live or venture into the city core after hours. As far as the decisions that renters make, it now tracks normally and changes in unit density have not hit the mainstream market just yet.

Office and the Rental Revolution – The 1980s

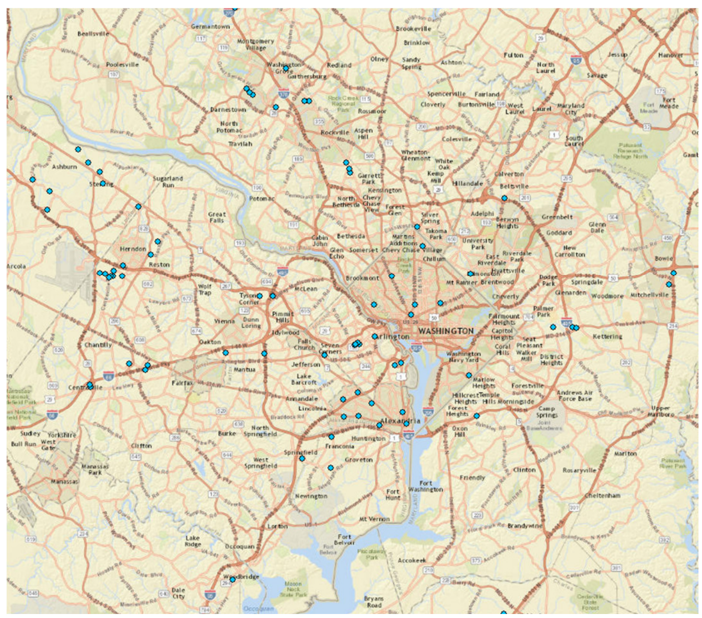
Fortunes and options for renters began to change in the period of the 1980s. With work on the Metro system substantially complete and many additional projects tied to Metro owned properties under construction, a significant amount of apartment construction began to take shape. For the first time in the Washington metropolitan region, the amount of new apartment construction in the suburbs rapidly outpaced new construction in the city. This was coincident with the expansion of additional office development that reached outside of the city limits and into the surrounding suburbs.

The 1980s marked a meaningful turning point not only in terms of the number and location of additional apartment and office properties in the region but in the creation of new residential corridors and office density that rivaled downtown Washington, D.C. in many respects. While during this era there was a lot of discussion about commuter taxes and issues of unpaid parking tickets from suburban residents, the more important consideration was the expense level, traffic congestion and lack of support from the District of Columbia government about helping businesses grow in the city.

To the renter client, the 1980s signaled increased freedom of choice and offered the renter client something they had fundamentally never had in the region in the same way, mobility freedom. As employment grew out of the city, renters found they could not only switch residences, but also change jobs and find themselves within the realm of a different neighborhood while staying in the metropolitan area. This outward migration of economic opportunity continued to remain unabated throughout the 1980s. Key transportation patterns continued to have an impact and the employment centers contributed to an increase in opportunities for employees but also some maddening level of competition. Many of the technology firms and professional services firms were located so close to one another that is became commonplace to have lunch time job fairs and a recruiting war for new talent.

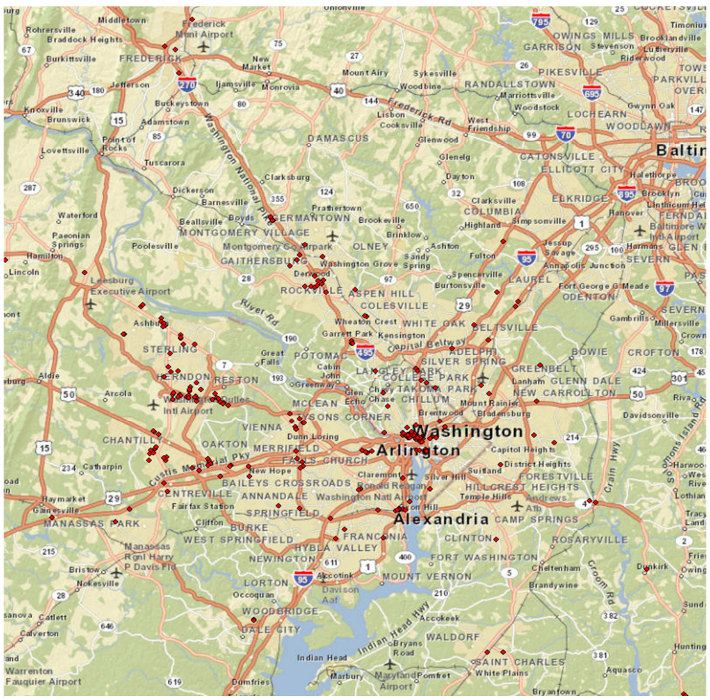
Density Makes a Comeback – The 1990s

The period of the 1990s had a fairly curious impact on renter clients. In many respects, throughout the time periods covered so far, the Metropolitan region followed a fairly typical pattern, made mostly famous by the Greatest Generation. In those days, many more families lived either in larger apartments or in houses and commuted into the cities for employment. The density patterns in the 1990s showed that while the level of office using employment was supported by increased growth in the downtown central business district, much of the new office development was concentrated in suburban areas. Following transportation corridors along the major highway routes, the additional office construction represented the growth in not only individual sites but also in campus like environments where multiple office buildings would eventually be located. This increase in office activity also had a fundamental change for rental clients. Normally when rooftops appear in commuter suburban locations and planned unit developments, it takes some period of time before the supporting retail is built and leased up.



Map 11 - Development of Apartment Units within Metropolitan Transportation Corridors

Increasing density in many suburban areas created the beginnings of non-traditional daytime employment corridors that eventually attracted retail, entertainment, medical, restaurant and other supporting services, all of which created secondary employment within the same area. For the rental client and as part of our thesis in decision support, the very fact that many of the services that might be desirable are located in areas that are convenient while the employee is at work help in the decision process of where to live and what the tenure will likely be. In previous time periods, often working downtown meant that some part of the weekend in the suburbs was spent heading to the bank, the dry cleaner and the grocery store. With the increased amount of office construction and employment growth in suburban areas, lunch hours became more productive and opened up weekends for more leisurely pursuits. From a cost benefit standard, the suburban rents were often sufficiently less expense than urban and inter-urban areas so renter clients were more compelled to pay lower rents recognizing the different quality of life experience they might have in the more popular parts of downtown Washington, D.C. Walking to work took a secondary position then to driving downtown as the traffic had not yet developed into the legendary density that it is today.



Map 12 - Office Buildings Extend into the Suburbs

The introductory thesis of this paper deals with the issue of why renters select their residences in specific areas and why they sometimes make what appear to be irrational decisions. From what we have evaluated thus far, the renter client is acting throughout this time frame (the 1990s) in a mostly logical, if not pre-eternal fashion. The balance in the housing stock relative to employment security provided a bit of a governor on the velocity of expansion across the industrial base of the city and consequently rapid increases in rental costs were infrequent. In fact, as a base period, the rental client faced annual increases close to the rate of inflation for most of the periods. With options and choices in terms of quality of life, costs, tenure and commuting patterns, the balance in decision making and location selection inured to the benefit of the renter client for most of the years.

From a demographic perspective there are a number of competing factors that helped to shape the kinds of rental clients and preferences. While we do not get into this in any detailed way, and to avoid this paper running into hundreds of pages, we share with you our observations that renter households were traditionally younger in the previous decades and because rental costs, relative to starting salaries and income prospects remained somewhat stable, renter clients made pretty normal choices, opting for an affordable rent in an acceptable location, generally very close to where they worked. As the level of development increases, and you will see this on the next series of maps and exhibits, choice and selection criteria begin to shift in a way that puts more pressure on renter clients.

The Greatest Decade Begins – The 2000s as Washington's Growth Accelerates

Frequently there are times when substantial generational shifts occur, which are often accompanied by other trends that can define a period. The 2000s are an interesting example of how certain changes in commercial real estate practices, employment growth and shifts in some housing patterns can and did change a region. Following are some reasons why it seems the character and lifestyle of the Washington metropolitan region underwent some unusual and atypical trends in the decade:

- The level of employment in the District of Columbia, which previously had been growing very slowly finally, started to accelerate, as both private sector and government hiring took off in 2000.

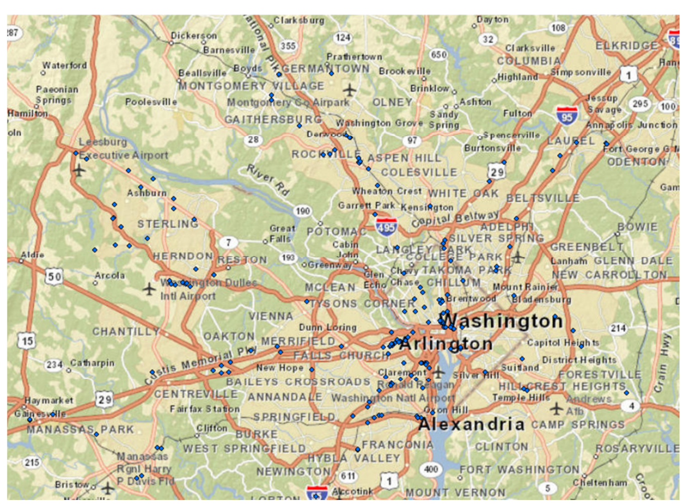
- The Washington, D.C. metropolitan region, continued its growth, and since 2000 began, the area starting at 2.7 million employed has reached almost 3.1 million employed in the latest estimates for early 2015. The level of demand for apartments began its inexorable climb and continued apace with little delay ever since.

- Starting in early 2002, a huge number of older properties, previously an important part of the rental stock, were sold and converted to condominiums. These conversions, while creating some wealth and value in their communities, ultimately lowered available rental stock sufficiently to create a series of apartment housing shortages in many areas.

- The growth of the private sector in the 1980s was driven by federal contracting. It ramped up from $4.2 billion to $12.7 billion during the 1980s and reached $29.2 billion by 2000. There were no incentives or programs stimulating the growth of technology firms. It was all about the rapid growth of federal procurement spending that attracted firms to the Washington area. Since 1980 to date, $1.2 trillion in federal contracting dollars have been spent in the Washington area with firms located in Northern Virginia capturing almost 50% of these federal contract dollars. This spending shaped the regional economy and employment patterns and housing followed these jobs and this spending.

With the substantial rise of economic power and growth in the region and the level of commercial activity reaching into the previously ignored suburbs, renter clients now find they have a multitude of choices for work and residence.

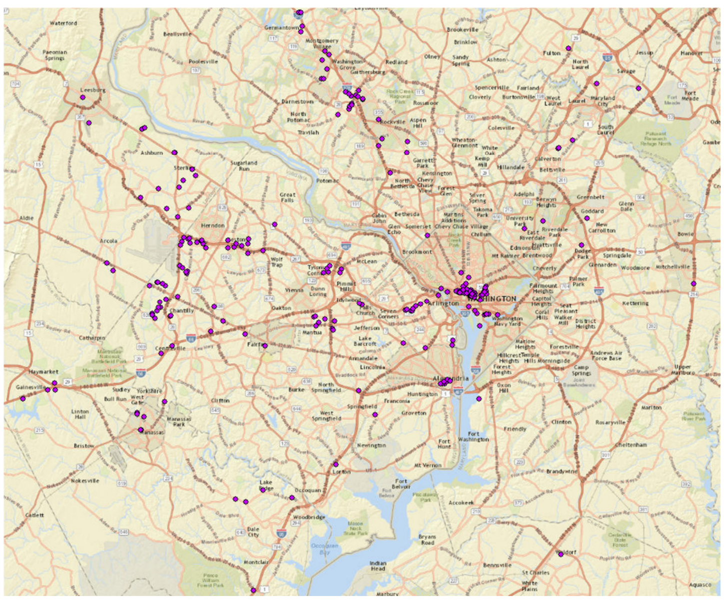
The decade of the 2000s brought a great deal of construction in both new office and multifamily. There was a revival of development in the downtown Washington areas to balance the additional employment in both civilian and military sectors. There were also increases in



Map 13 - Apartment Development Heads Back to D.C.

apartment development throughout most of the main transportation corridors throughout the region. This fundamental shift back to the downtown Washington and close in Virginia suburbs signified an increase in employment density and the beginning of pricing power shifting more towards property owners than residents. The same premise of our work still applies here, with the renter client having more choice in location than previously, but both the urban and the newly emerging inter-urban areas became a more expensive residential destination. Previously, apartments were almost always located as an auxiliary housing facility, with access to shopping, medical, restaurants and retail projects nearby. In the decade of the 1980s, some best practices evolved where apartments were built into project plans that included retail, restaurants and other lifestyle features, typically in much larger projects. Often these were within walking distance to transportation hubs, which at the time included WMATA (Metro) stations and bus lines.

The economic increases that helped the region grow were no doubt correlated to the competition between the District, Maryland and Virginia. Public policy varies somewhat between the regions and prior to 1980 the various municipalities had less interest in apartment construction, which was principally controlled by planning and zoning policies. During the decade, the local authorities started to recognize the value of mixed use and very large scale redevelopment of otherwise under-utilized properties. In many respects this ultimately played to the benefit of the renter client because now lifestyle became a design consideration for the project. It then meant that the renter client could selectively choose how close and how intensively they wanted to live near commercial activity and their work site.

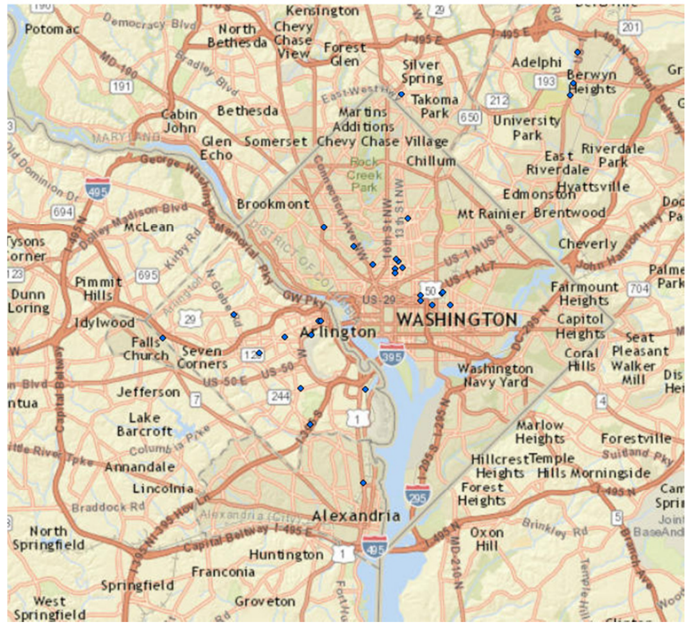


Map 14 - Office Development Continues Across the Region, in the City and Transportation Corridors

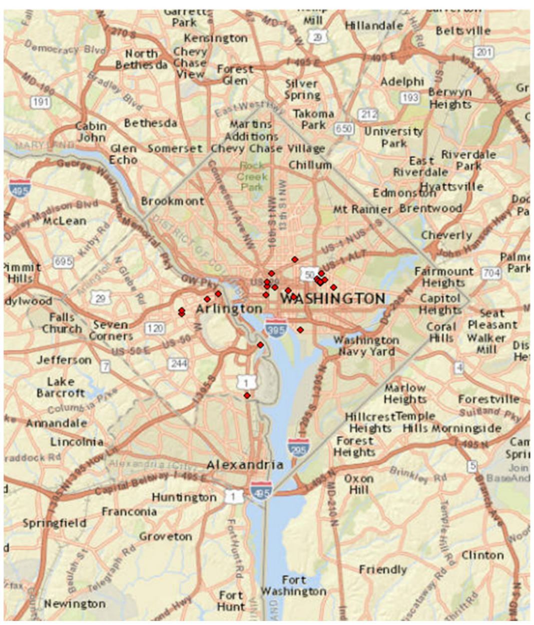
Office construction which developed in the downtown corridors and central business district as well as suburban commuter corridors supported government contracting and support services throughout the region. As the Washington metropolitan region and new security threats were identified, the level of office construction at the municipal level increased as well. Not surprisingly, increased employment actually created a higher than average percentage of renters in the region which, in turn, filled up the units.

The New Reality of Apartment Density – The 2010 Decade Arrives

With the recognition that this paper is being provided for your consideration mid-way through the decade, we believe the trends and levels of activity will continue for the foreseeable future. While we will get into our forecast parameters later on, for now our continued assessment of conditions as they affect both the renter client and property developer are focused on growth patterns and tenure choices. Since our premise is one where renter clients make rational and irrational choices, we have more recent thoughts on what is typically happening than in some of the prior periods except anecdotally. Apartment research does not typically conduct in depth interviews with renter clients on their financial choices. We can however use approximations of renter client income and multifamily rent data by area. In so doing, we believe we present a cogent set of observations.



Map 15 - Multifamily Development Grows Downtown



Map 16 - Additional Office Development Brings Balance

The past five years have shown that residential multifamily development has come full circle. New development in the metropolitan Washington, D.C. area has been very selective, but in locations with some limited need for additional multifamily housing. This increased number of units has permitted the renter client to have additional choice of residence but at a considerably higher cost than other less urban locations. In a moment, we will share some reasons and practices that renter clients are considering as they seek a more reasonable tenure choice.

New office construction is often an indicator of future employment growth and it has been responsible for the revitalization of certain downtown and suburban core areas. For most of the decade so far the additional construction we have tracked has been in dense, central business district areas in the downtown Washington, D.C. and close in Virginia suburbs. These office developments are often leased to firms consolidating operations onto contiguous floors and so other sublease spaces open up at indifferent intervals in a multitude of locations. The sublease suites are then occupied by smaller businesses that contribute more often to hiring than the larger firms. As we have seen so far, this increase in office using employment has benefitted the renter client.

Renter Client Choice – Shifting Patterns over the Decades

The patterns of choice for renter clients have been of interest to us for many years. As the development location and building characteristics have changed over time, so too has the utilization of rental properties for lifestyle purposes. While at the outset the properties are all used for some period of rental tenure, the general observations concerning discrete choice arise when market conditions hit a certain level of density.

Our original thesis is that renter clients make rational and irrational choices.

<u>Rational</u>

Why not rent at a location that is a more logical balance of commuting to work, enjoying a quality of life and managing expenses in a valuable way? Based on surveys, it would seem that most residents wish to ultimately buy a home and live within a community with good school districts and neighborhood support services. As adults, the vast majority of us have historically started out this way, opting for a lower cost rental while determining career, personal and financial options for our future.

<u>Irrational</u>

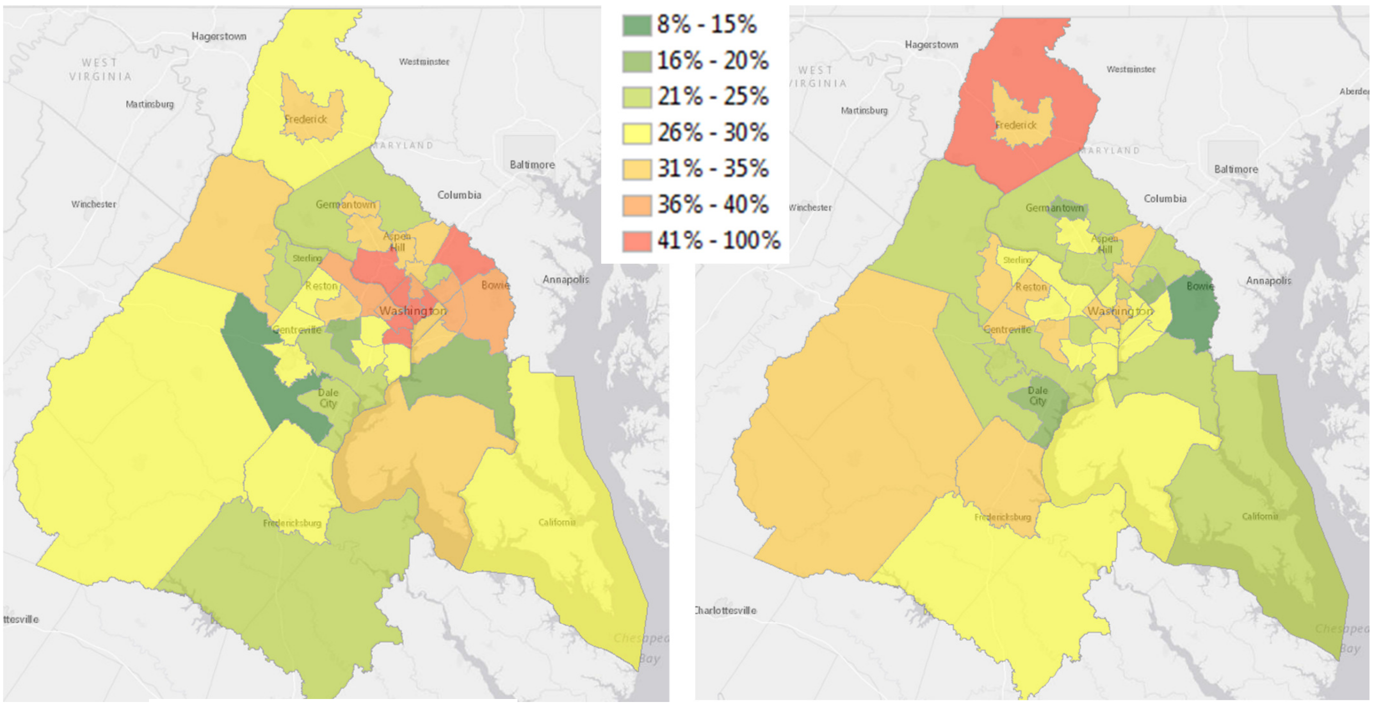
Properties have evolved in the Washington region from being fairly standard apartments with a swimming pool, tot lot and maybe a tennis court to opulent facilities with beautifully appointed lobby areas, a very wide variety of services including health clubs, business centers, zero edge pools with Jacuzzi style gathering areas and quite a bit more. The increase in expense to live in these facilities typically takes a significant amount of after tax income often above the average qualifying rate. It would then seem irrational to pay higher rents to be able to enjoy a quality of life now when it suffuses doubt about a future investment in another housing choice.

<u>The Surprising Reality of Choice</u>

Cognitive dissonance is best understood in apartment leasing as the desire to have one set of responsible discrete housing choices while at the same time making a selection or discrete choice that you know is essentially the more complex, expensive and potentially unaffordable choice. Sometimes however it isn't that simple and given the nature of actual choices available historically across the Washington metropolitan region, some selection issues become evident.

We examined some variables over the time horizon of pre-1950 to this decade to determine first what rental choices the renter client might face. What we learned in our assessment of thousands of land records and data points is that the supply of available apartments, the density of location of employment corridors and office using employment (a general proxy for apartment demand) and public policy all play a role.

In attempting to validate our thesis that some irrational decision making takes place in apartment selection, we first mapped all of the location choice data, as we have shown in the preceding pages, and then made use of the PUMS data available through Census tabulations. We also wanted to look at certain basic choices that renters make (single or roommate) and so we contained our interest to single or dual resident renter households.

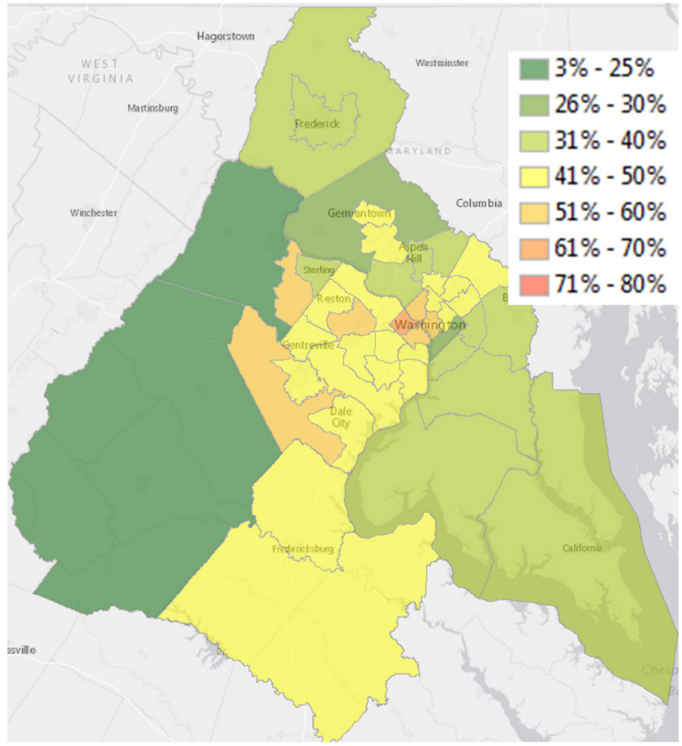


Map 17 - One Resident HH

Map 18 - Two Resident HH

These are sample data from the PUMS tables but do follow the premise of where renter households prefer to settle. Additional detail about the data demonstrates that there is a wide variation in single and dual households by age range and income. It then made sense to evaluate the PUMS tables by searching for householders under the age of 40. We don't believe that 40 is necessarily a cut-off for the typical age of an older renter, but rather demonstrates the core of the metropolitan area where they might show up in the data.

At varying levels of lease-up, single households represent the majority of renter clients in the property along with dual households. Age ranges vary but 25 to 39 is considered a prime renter age based on historical averages and the propensity to rent for a longer period of time. Based on market conditions at the time of publication, additional factors including interest rates, the issues surrounding qualifying for the mortgage, down payment cash needed and other issues have slowed the steady trail of renters leaving to buy homes. The continuing debacle of massive amounts of student debt and very limited upward movement in careers also diminished the prospects for a robust housing market. The expectation moving forward is typically more positive for multifamily ownership and operations, which will bring pricing pressure to the renter client in the near future.



Map 19 - Renter HH under Age 40

Map 19 shows areas in the region that are concentrations of renter households under the age of 40. The color key on the map itself shows the percentage of households in each PUMS area that meets the criteria. The Washington, D.C. CBD is located in the center right of the map and is depicted partically in yellow and light orange. (Full scale maps are in the appendix so you can more easily see the differences).

Our conclusion about renter clients is that they do indeed fit the locations noted in the map shading. As for how they ultimately make decisions and where they have chosen to live now and in the future, that is another matter entirely.

Chart Figure 1 below shows the number of renter client households with rent burdens of varying degrees. While there is some continuity, a number of differences are meaningful.

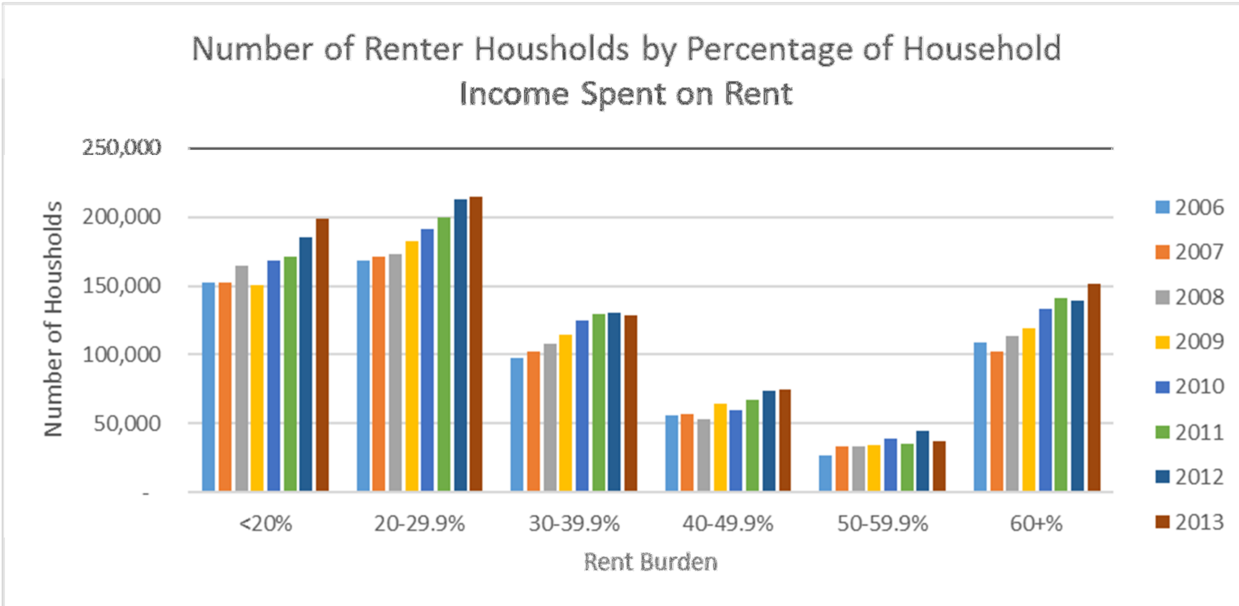


Figure 1 - Renter HH by % Income to Rent – Census PUMS Tables

This slide, based on PUMS data for the time horizon 2006 to 2013 shows what we believe to be a continuation of the trend over time. The percentage of income for almost every cohort does in fact show the rent burden increasing. Given that personal income and household income has been stagnant, even relative to very moderate inflation, it is not unexpected. What is remarkable, however, is given the amount of construction and the limited employment situation, the velocity of the increase in the percentage of income over time seems to be accelerating. Further there is a jump in household income dollars committed to rent showing up between higher ranges. While some of this is attributable to sampling issues, the rest seems to be based on some statistics from low income and subsidized housing, particularly at the higher range of more than 60% of household income.

Conclusions, Forecasts and Recommendations

It is tempting to ask the obvious question, "What does all of this really mean?"

Allow me then the opportunity to elucidate some observations from looking at these data over the past six months and also to suggest that a great deal of additional information is included in the appendices as the second volume of this research thesis.

Our Conclusions – *Or What Did We Learn in this Process?*

We have examined a vast amount of data over the past six months and in so doing a number of important considerations became clear.

Renter Client Choice

Forecasting rental demand involves a number of components. Some models make very sophisticated use of levels of demand based on so many apartment units per job while others are perennially changed to include metrics like location quotients (BEA) and benchmarked employment series (BLS). Every year the criteria for successfully forecasting (or to a lesser extent understanding multifamily demand), changes. It turns out to be a good idea. The variation in levels of demand for apartments are directly correlated with a variety of factors, like income growth, rental rates and employment sectoral concentration. It makes forecasting a lot more complex, especially in certain markets, and Washington, D.C. which is arguably dozens of different markets, is about as complicated as it gets.

Our examination of apartment and other commercial property development records involved the processing of millions of records so we could identify the right apartment data for these analyses. A significant indicator of renter client choice demonstrated in certain respects that it took a great deal of time for the region to develop in reaction to policies and the initiatives of the federal government. The Washington region is a company town, dependent in most respects on the government employment cycle and contracting practices.

Our central thesis about renter client choice, which started the research, was to determine why and how renters decide where to live and what to pay. Logical or otherwise, much of what has been researched has demonstrated renters have many options when it comes to tenure choices but basically their preference is to live in professionally managed apartments at certain stages in their lives. Because of the location of office development, retail and restaurant, medical and employment centers, the physical location of existing and newly built apartments was a draw for local and recent migration into the city due to the growing employment base. As we saw, when there was a balance between levels of activity in employment centers in any number of corridors, and the amount of rental housing nearby, there was a corresponding difference in effective rental rates (what the renter client actually paid, discounted for concessioning and pricing system interference). The maps from the pre-1950s to the present day illustrated the relationship and concentration of new development each decade. Each succeeding period added additional units and employment density, first in the city and then in the nearby and then full county suburban areas.

With respect to renter client choice, they could choose any number of places to rent and work almost anywhere within the metropolitan area given their tolerance for commuting. In our view, and this is perhaps one of the answers to the great questions about logical choice or not, diversity of options meant the income to rental cost was within what we expected to see. Once the density started to increase and the level of employment and traffic patterns grew above the historic trend, rent as a function of income took on a new meaning.

Our viewpoint is that it is the increase in inter-urban and suburban employment centers that helped to diversify the purpose and location of different job categories. When everyone worked downtown and commuted back to the suburbs at the end of their day, rents were notably lower in the home suburb than in the properties adjacent to work centers in the city. Once the occupational needs of the metropolitan area changed to accept suburban office parks as a positive step towards live/work and play, then the addition of employment in a series of highly concentrated areas created more rental demand than the number of units in the vicinity. The net result being higher costs to the renters. Within the realm of our thesis that sometimes renters make good decisions and other times they choose a more expensive alternative than necessary, we have determined that in fact the option to drive far enough out of the metropolitan area to gain a vastly more attractive rental rate simply ceased to exist over time.

The end result being renter pricing anomalies and separate but discrete choices became a reaction to available rental housing stock at uniformly higher costs across the region over a period of over 25 years. Real estate considerations effectively took away from renters the choices they had enjoyed prior to 1980. Now that the Washington metropolitan area is an investment grade market, it is unlikely to yield the pricing advantages renters had previously enjoyed. The remaining question then is how each individual corridor will perform and what our forecast suggests. Some of that in the next section and others perhaps in future research.

Market Predominence

In our viewpoint, there are many development constrained areas in the metropolitan region, due to federal and state restricted areas, existing growth and transportation patterns and sometimes even community activism so strong that it effectively blocks new construction for all but the most unique purposes. Examination of land use patterns yielded some surprising points. Whether or not it was intended as some sort of planning tool, the availability of multifamily sites and the development horizon showed a slow leap outside of the bounds of the District of Columbia. The commuting patterns from the suburbs into the city lasted for well over 100 years, and only because of the rapid growth of defense and related civilian contracting services in the 1980s did inter-county commuting and subsequent to that, inter-urban commuting start to take place. Virginia captured the majority of the federal contractors and these were technology based firms as that is what the federal government was buying, especially the Department of Defense. Virginia responded with additional highway construction. The added infrastructure easily created a culture of high technology that allowed the state to excel well past Maryland and attract more major employers.

Development Influence and Renter Client Choice

Transportation patterns are the single most powerful element of how a metropolitan area develops. Between the concept of infrastructure and the available services resources, metropolitan areas do not grow beyond certain boundaries very quickly. Because Washington, D.C. is comprised of a sophisticated land mass, incorporating two neighboring states and resources owned by the federal government, it has had some powerful growth corridors that might otherwise have been limited. The competition between the states provided the growth of suburban and inter-urban employment centers with a greater density than would have been encouraged in most other states.

For the rental client, this added growth has provided the ability to change residences and job site locations and to offer the development community new alternatives in location.

A key consideration in our work is the essence of how apartment properties came to be located in a wide variety of corridors and what the effective relationship is between the property and work address. Thinking of Washington as a series of rings, (popularized by the concept of the inside-outside beltway), growth had been evident some reasonable distance from the city center or at least from the beltway itself. For a time, growth continued unabated and then, in our view something amazing happened. Washington hit a wall, meaning it no longer made sense to endlessly develop in further suburban areas because the renter client lost proximity and relevance to the greater metropolitan area. Other than development restictions, infrastructure concerns and entitlement issues, all of which are severe in the region, building multifamily further away just doesn't make economic sense and in the future probably will not. The primary reason for this is the vast availability of sublease space in offices, firms downsizing to have more efficient less costly occupancy costs, less desirable quality of life in far flung places and lack of residential recognition or place making away from corridors that evolved into the "it" place, where location has meaning.

So what does this mean?

Welcome to the age of the bounce-back. Not a scientifically accepted planning term perhaps but it does reflect what is happening. It is so unlikely that a far off suburban location can create the kind of value that a developer's capital stack needs that building in more secondary urban (not CBD) and inter-urban parts of the region, along with adaptive re-use start to make sense. Close conceptually to urban revitalization spot planning, this bounce-back effect really means that infill projects of every kind will define the future landscape of the corridors in a pronounced way, over the next 25 years.

Often ignored corridors and lower income areas, previously undesirable for future investment will see additional requirements but permit the development and when appropriate conversion to residential use. And in many places, eminent domain will be used to erase urban blight and replace it with thousands of additional housing units.

Future Renter Client Residential Corridors

Based on the continuing expansion of the Metropolitan Washington, D.C. economic corridor, the future expansion of demand for additional rental units will continue unabated in selected areas in the region, but more increases in rental units are likely in these areas:

- Northeast and Southeast – District of Columbia: The redevelopment of the Anacostia waterfront and the continued redevelopment in the Mass Avenue North neighborhood are the most likely locations with positive, increasing demand for rental housing.
- Fairfax/Loudoun – The western suburbs are showing dramatic increases in households and consequently the construction of apartments, some well in advance of the eventual office corridors that are taking shape. These will show strong pricing power and gains as employment and population continues to shift toward these areas.
- Clarksburg/Damascus – The upper county area north of Germantown is experiencing dramatic growth and many warehouse/office parks are starting to develop along the entire I-270 corridor all the way to Frederick County. This area will require several thousand units eventually as the upcounty is the last center for future development.

- Route 50 and 95 (Prince George's County) – Corridors representing selective development to support industrial and office park growth are the only logical places for industrial growth. As the region isn't a port (and should be) rail and truck routes can only grow effectively on the eastern side of Route 95, opening vast opportunies for intermodal terminals and freight handling facilities, relevant to the expansion of the Panama Canal.
- Inter-urban and Urban Infill – The development and leasing patterns exhibit a bounce-back pattern, where it is no longer likely that the renter client can save money by commuting further out. The decision then includes a shift in emphasis from distance away from the central employment location to a quality of life location at whatever cost the renter client can sustain. This brings value and and new redevelopment or adaptive re-use back to emerging submarkets where renter clients will find value in the new property adaptations and create what next becomes the more desirable area.

Unclear Messages and Future Thoughtful Analysis

As part of this study and analysis, we have examined millions of records and evaluated a vast amount of proprietary data that was made available to us on cap rates, transaction records, current and past rents and a wide variety of other factors (vacancy rates, concessions, construction cost information). The information was utilized under license to permit the in-depth analysis we achieved but we are not permitted to republish the information as part of this thesis. Like any other form of study, every avenue opened up an interesting set of new questions that will shed much more detailed results with additional work. While we were able to determine the cause of how renter clients made choices and why they pay increasing amounts of their income on rents, we have yet to evaluate:

- Specific submarket histories and the relationship of the velocity of rent growth to property values over time.
- Individual barriers and opportunities for additional multifamily development in each municipality.
- Expanding areas of greatest interest which will become the next series of high performance micro-markets and submarkets.
- The impact of continous transactions on the Washington investment market and how this range of activities across the region may be slowing down.
- The range of effective rent increases by municipality and the level of likely multi-unit demand (condo and apartments) that will become evident in the next ten years.
- Muncipal barriers to development that actually direct or even steer new apartment growth to non-traditional locations.
- The outlook for the Washington region for the next 25 years based on increasing density.
- Where is the most likely impact and opportunity for future adaptive re-use (time horizon).

Further study is warranted on each of these complex questions and could ultimately yield valuable insights for future development and investment. The Washington metropolitan region is a fast evolving and ever changing international investment target. As it is now viewed as having perhaps dozens of separate but worthwhile micro-markets, the future will hold a different result in each one.

Acknowledgement

The authors express our sincere appreciation and thanks to Robert Kettler, Chief Executive Officer of the Kettler Companies and the entire Kettler organization for the kindness, assistance and support in the preparation of this study. The Kettler Companies are very research and customer focused and their support of the Center for Regional Analysis at George Mason University is a fine tribute to that commitment.

The Kettler Scholar Program is underwritten and supported by the Kettler Companies in cooperation with the Center for Regional Analysis at George Mason University. Additional studies and materials are available on the website of the Center for Regional Analysis. Questions about this and any other program should be directed to the Center's office on campus.

Author's Note

My personal thanks to Dr. Stephen Fuller, Dr. Terry Clower and Ms. Jeannette Chapman at the Center for Regional Analysis at George Mason University for their kindness, coaching and endless patience listening to a million thoughts and questions during the writing and editing of this report. It is a privilege and an honor to have been selected as the 2014/2015 Kettler Scholar.

Appendices

Please see the additional supporting appendices document, available on the Center's website.

Detail Slides – Multifamily

Detail Slides – Office

Detail Slides – Retail

Detail Slides – Industrial

Detail Slides – Miscellaneous Information

Let's Start with Multifamily New Construction

Multifamily prior to 1950

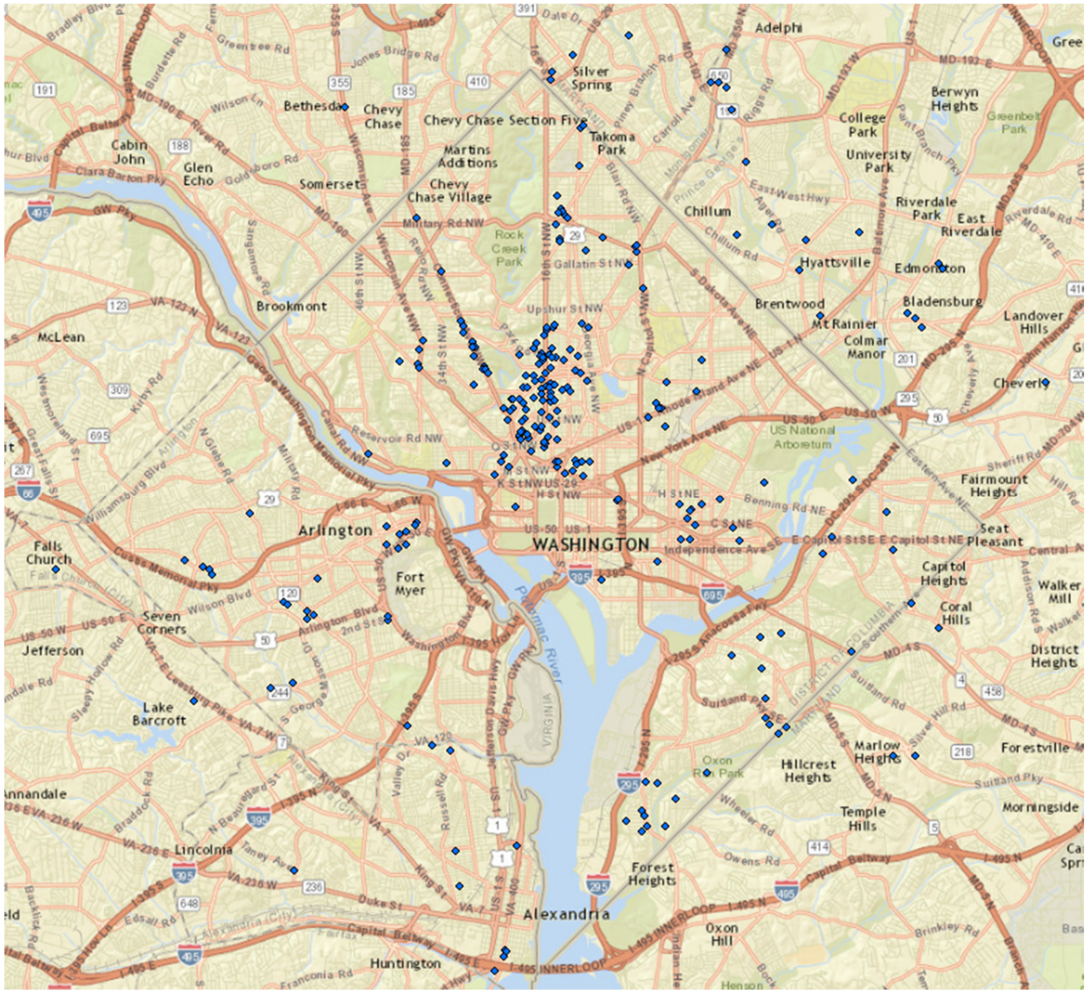


Figure A-1

1950s Multifamily

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Figure A-2

1960s Multifamily

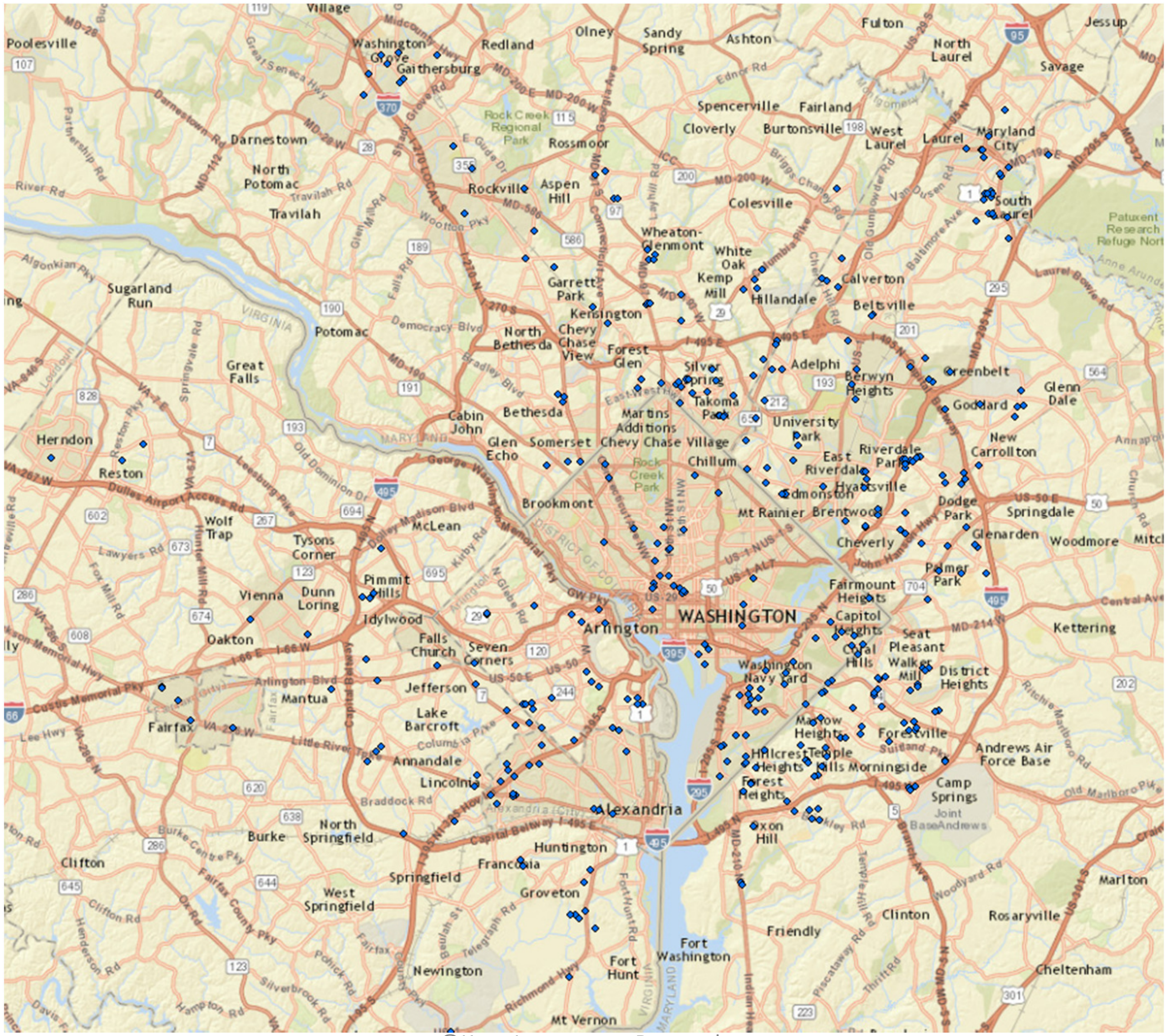


Figure A-3

1970s Multifamily

Figure A-4

1980s Multifamily

Figure A-5

1990s Multifamily

Figure A-6

2000s Multifamily

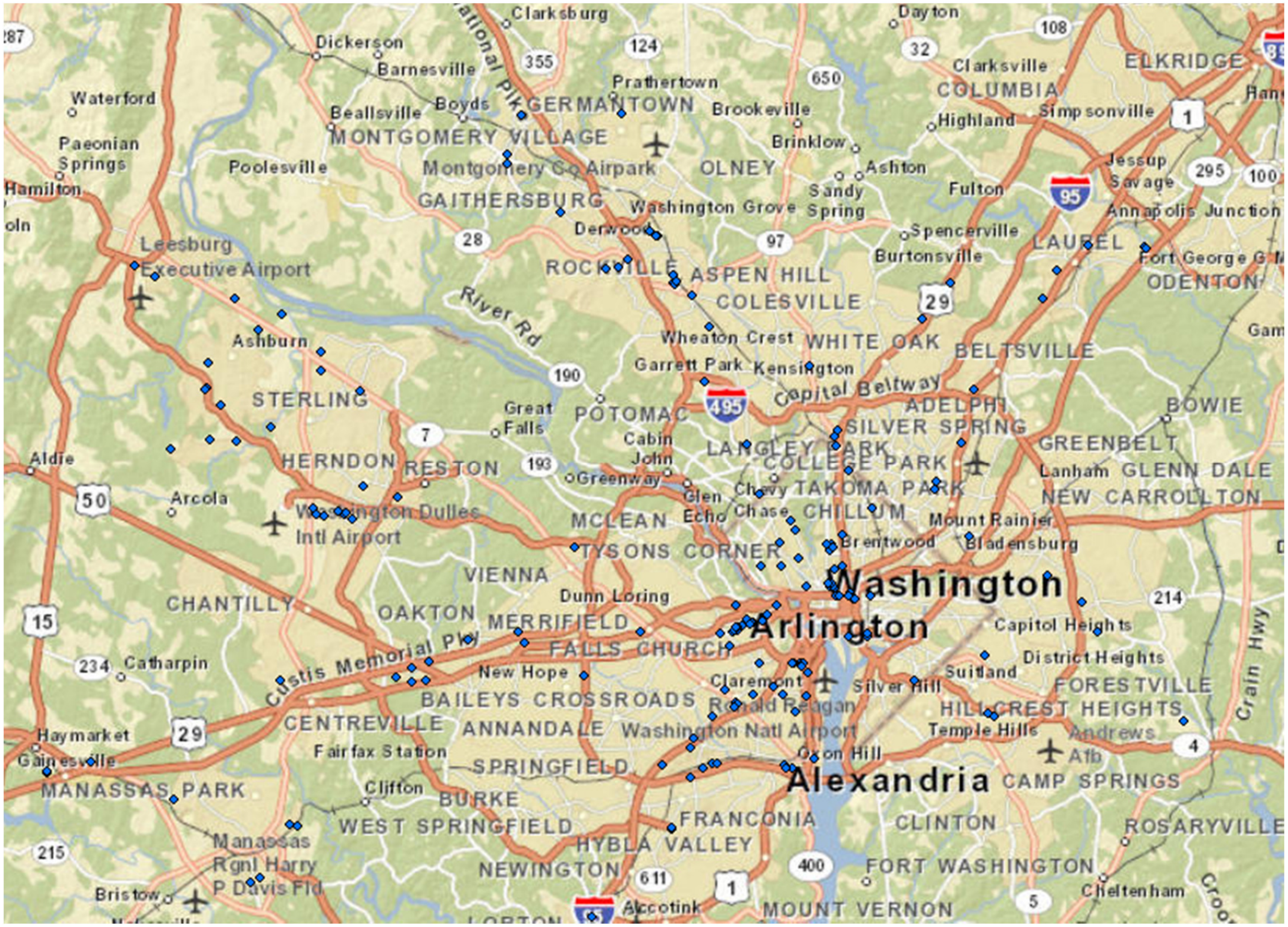


Figure A-7

2010s Multifamily

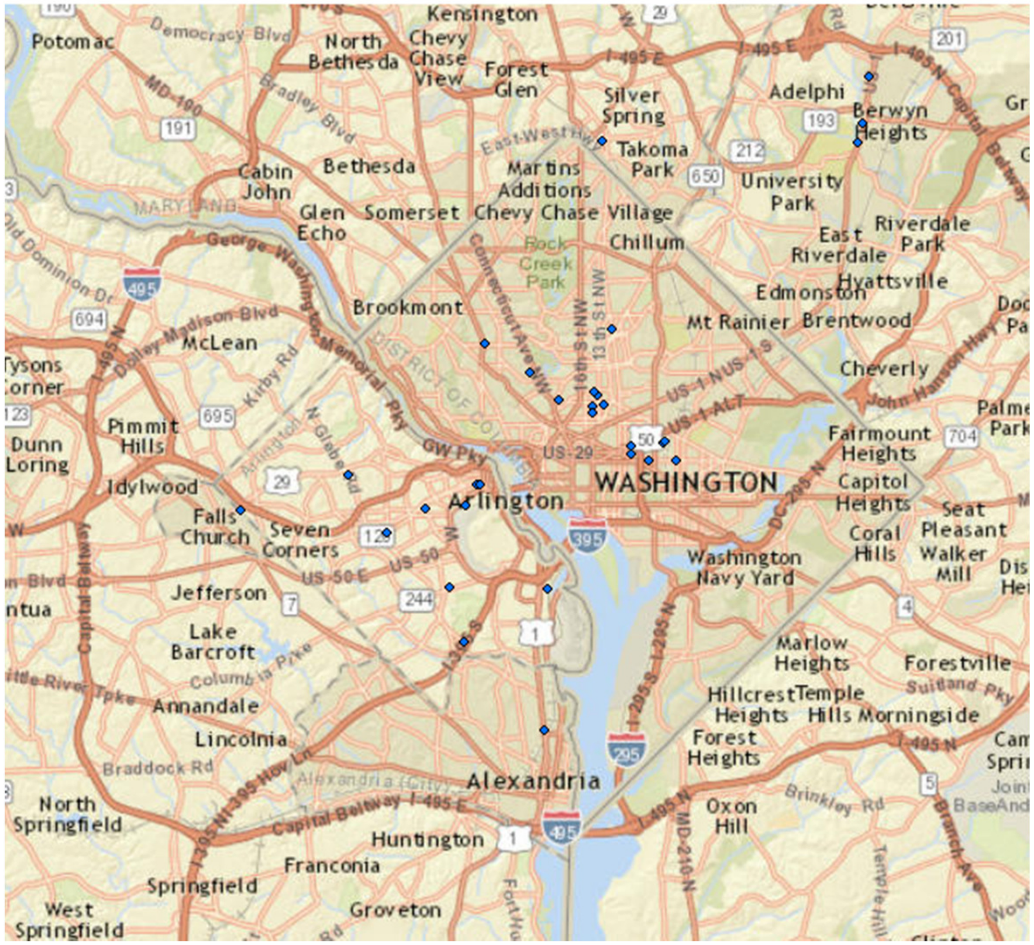


Figure A-8

New Office Construction Correlates with Multifamily Demand in Varying Degrees

Office prior to 1950

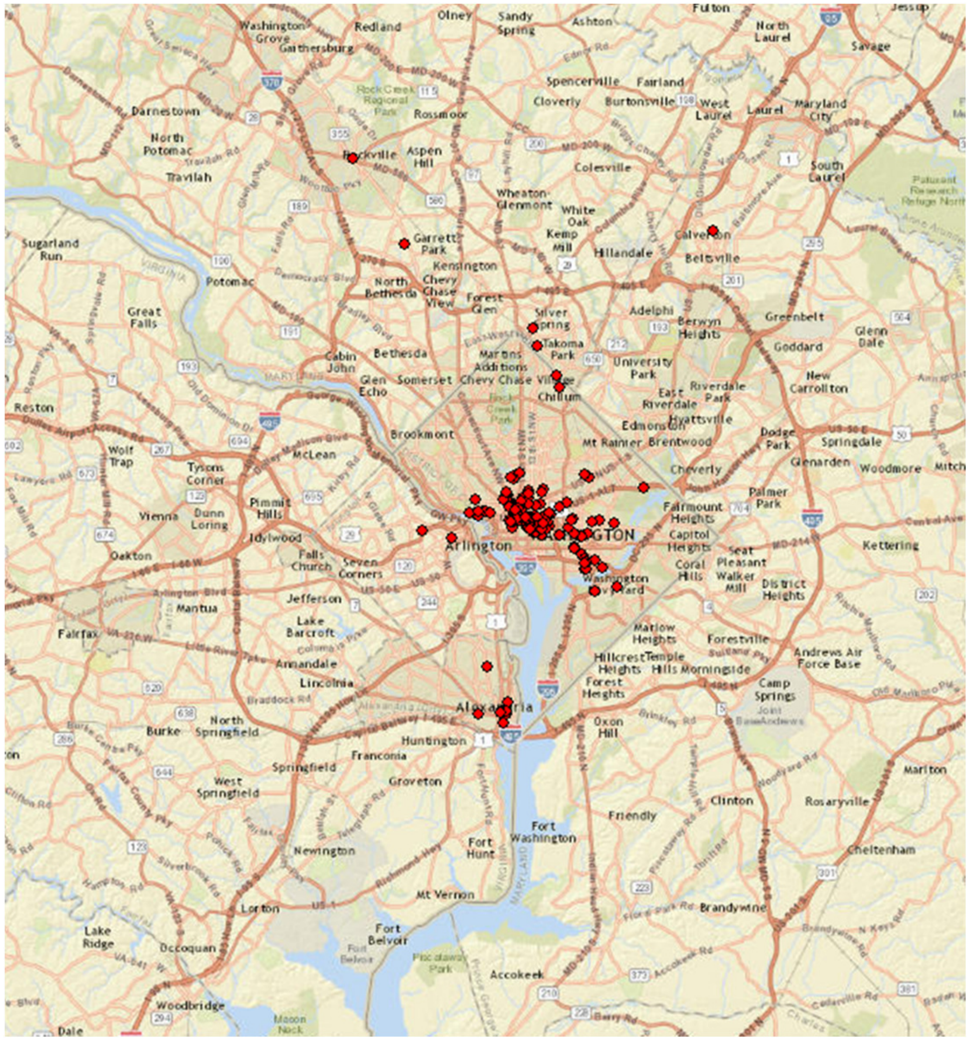


Figure B-1

1950s Office

Figure B-2

1960s Office

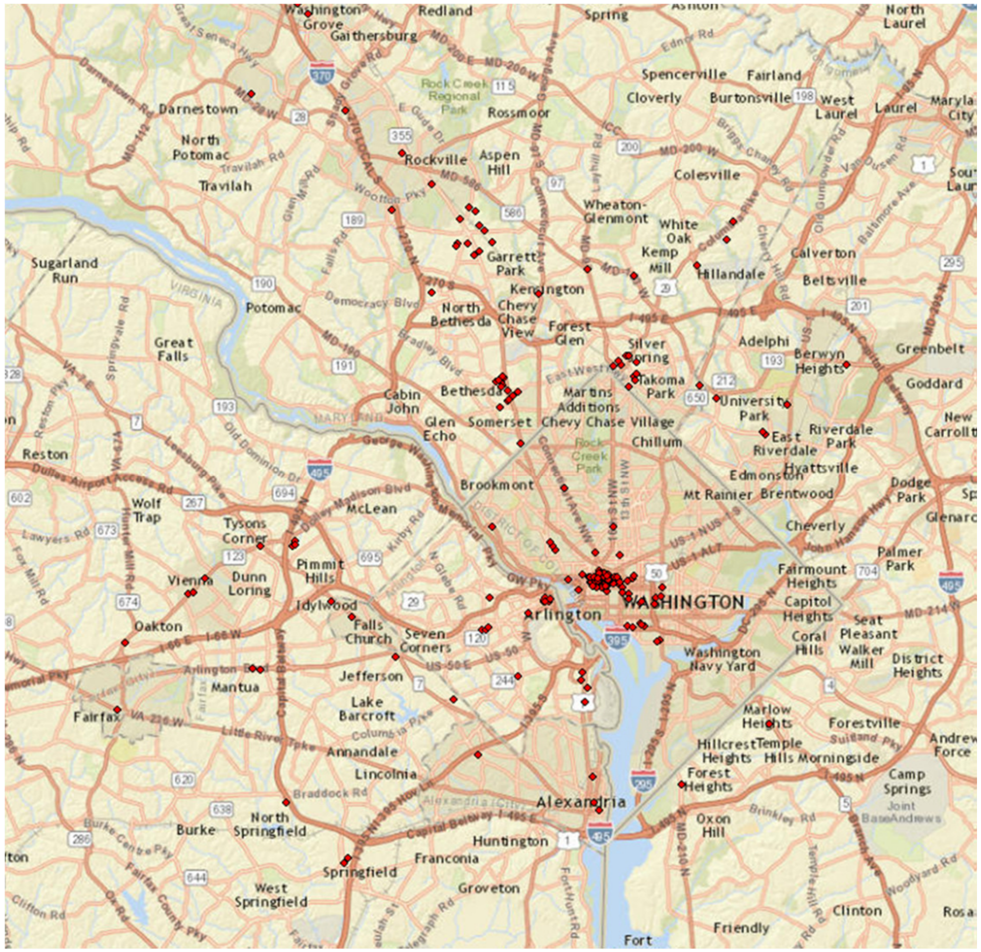


Figure B-3

1970s Office

Figure B-4

1980s Office

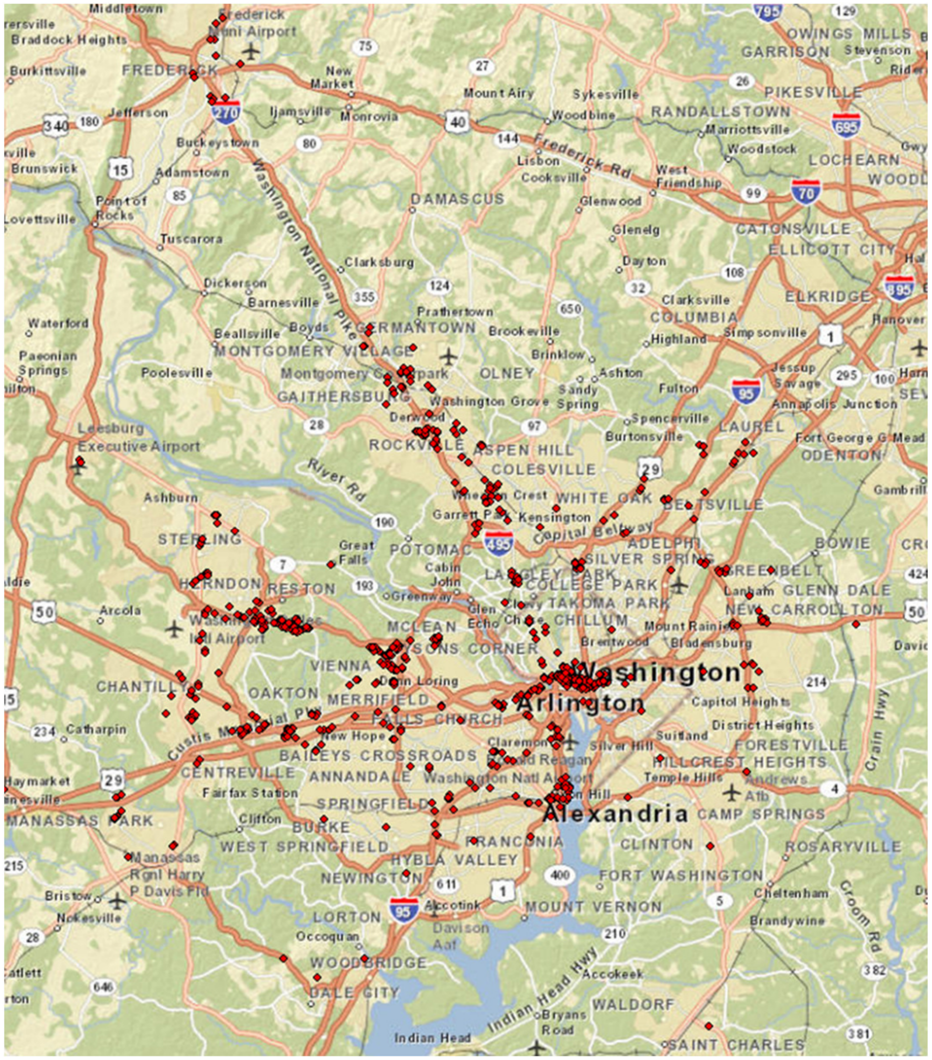


Figure B-5

1990s Office

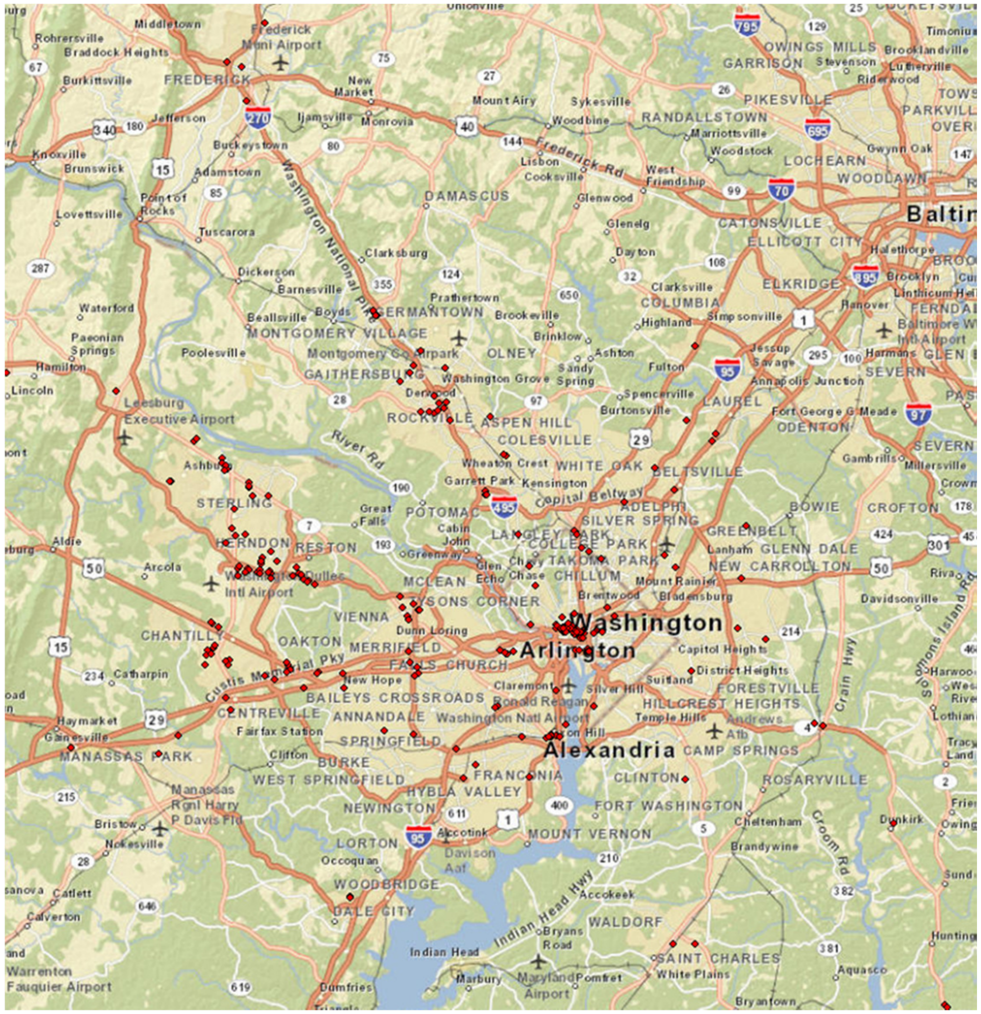


Figure B-6

2000s Office

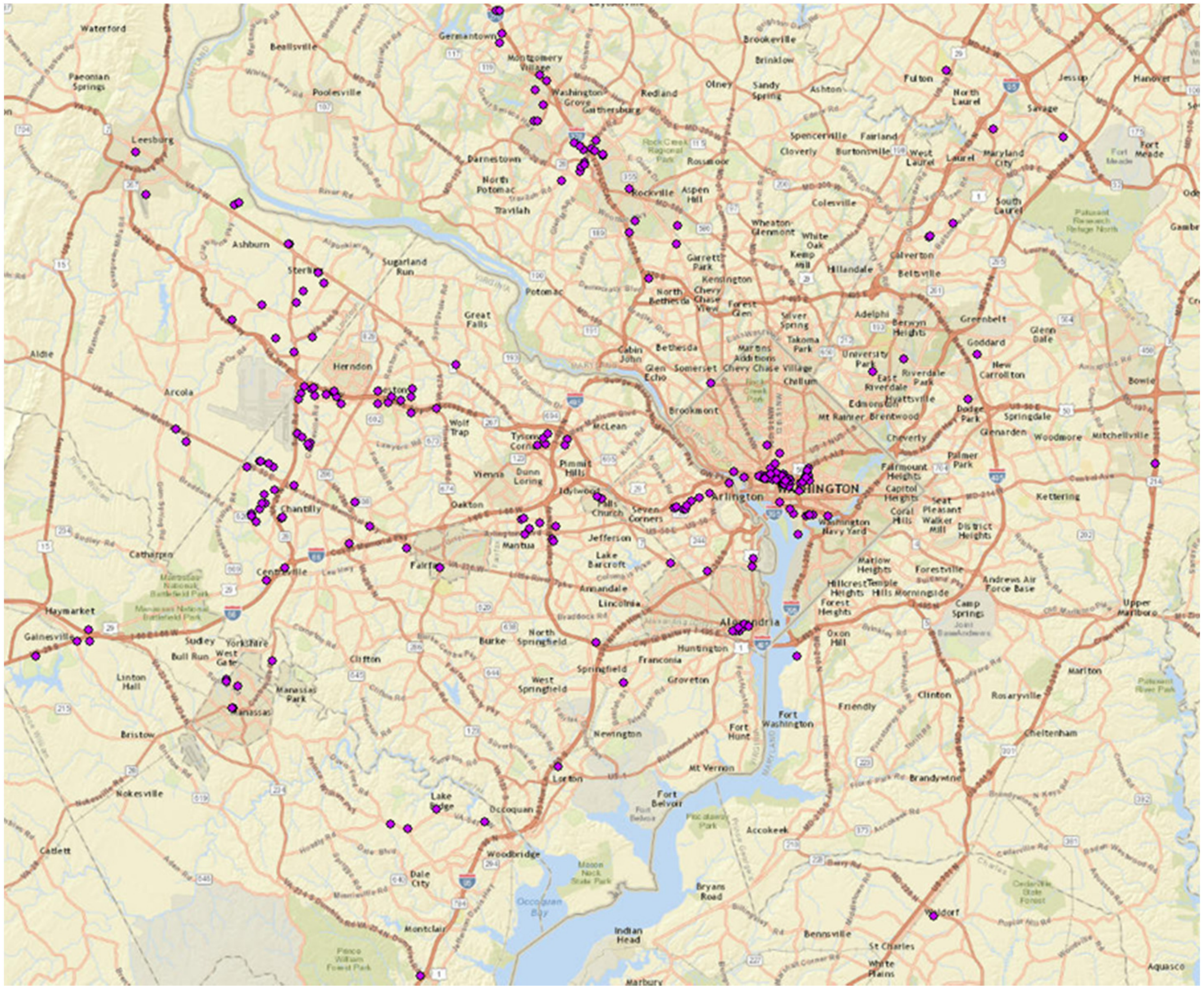


Figure B-7

2010 Office

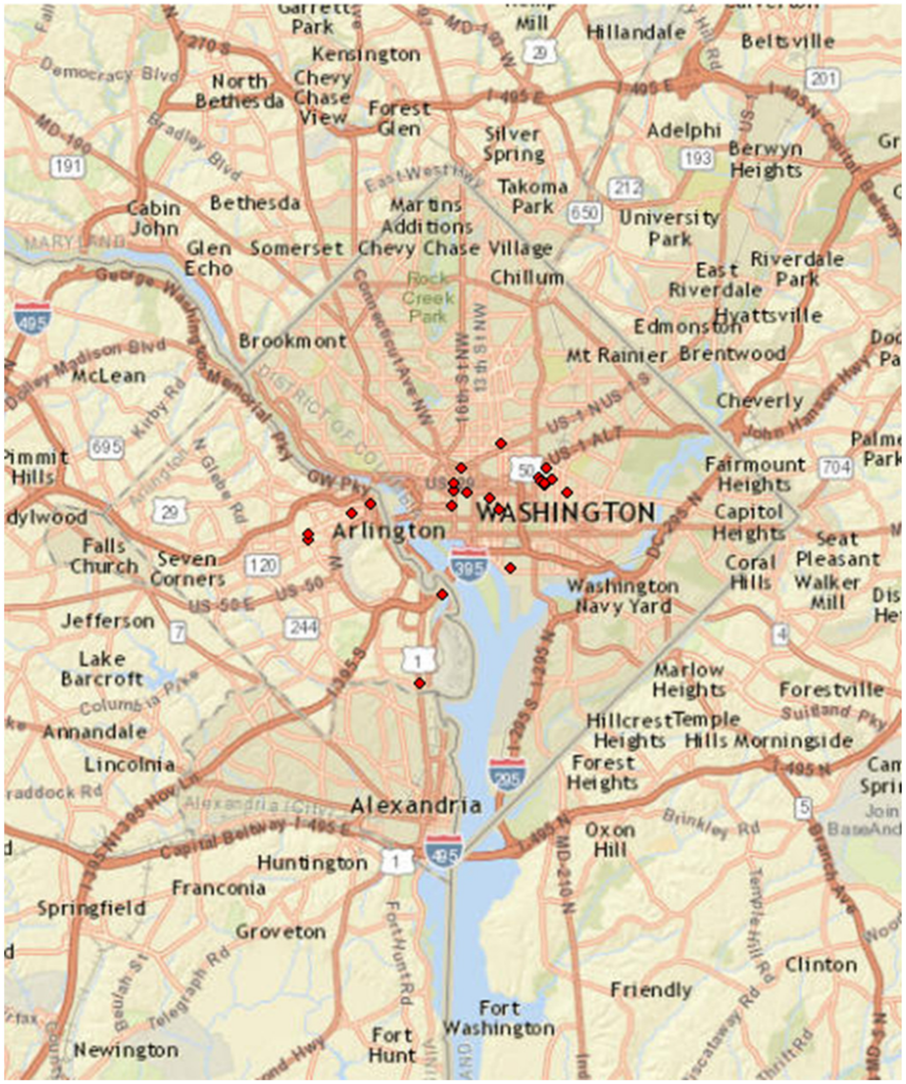


Figure B-8

New Industrial Construction Across the Region – Often Needed but Not Supported

Industrial prior to 1950

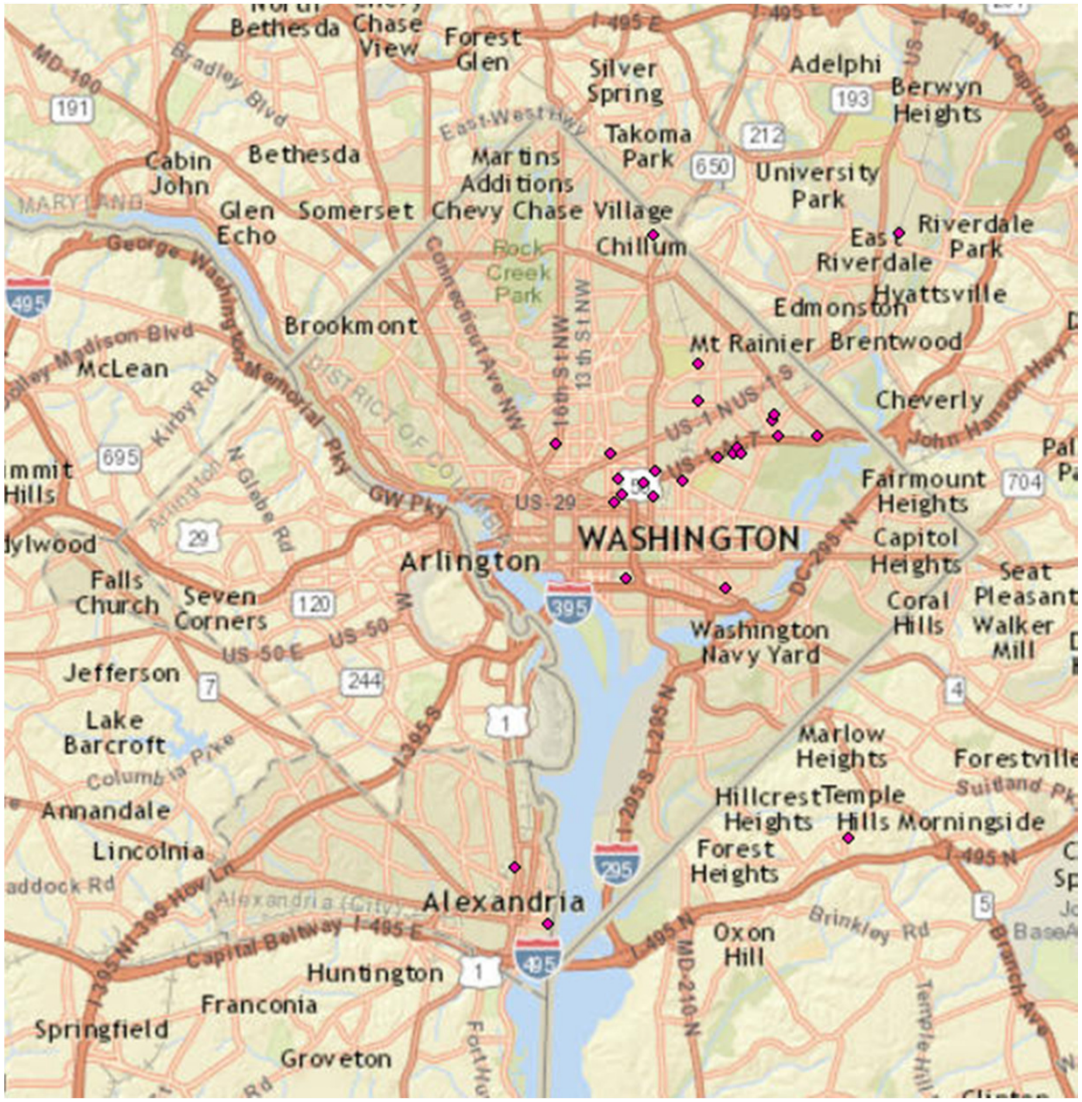


Figure C-1

1950s Industrial

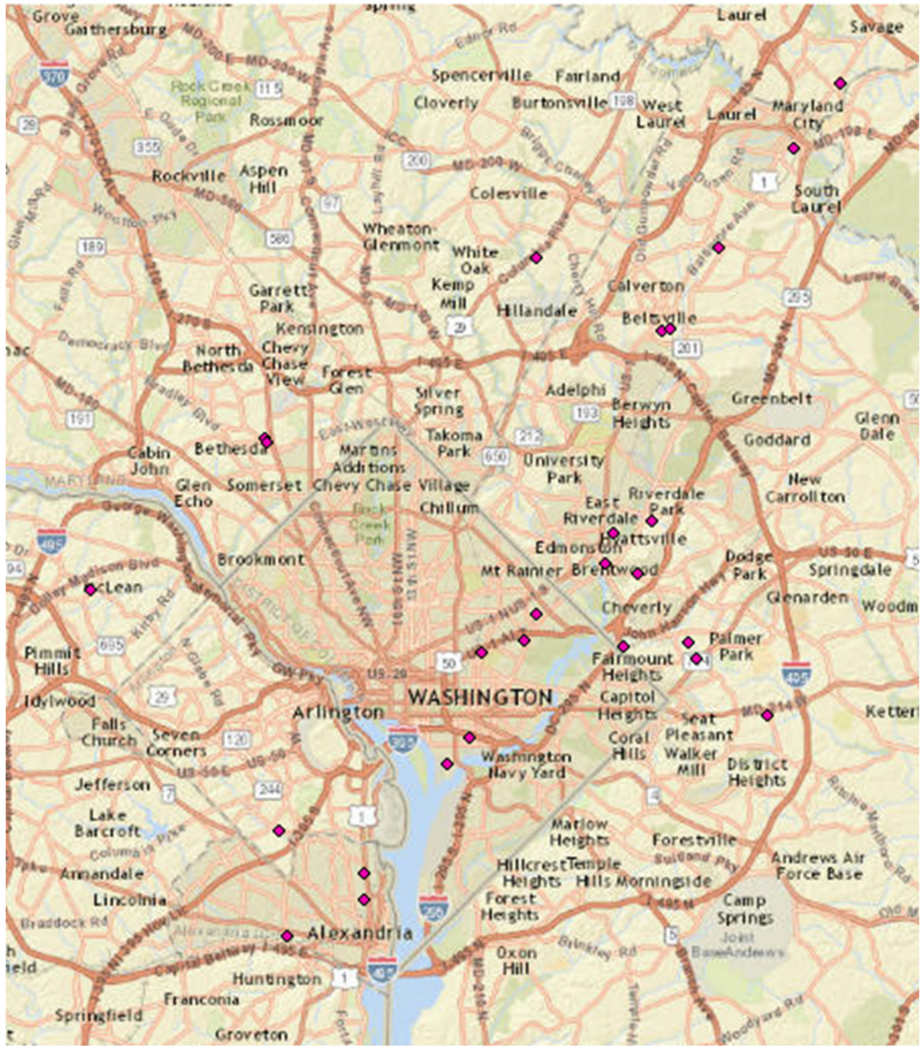


Figure C-2

1960s Industrial

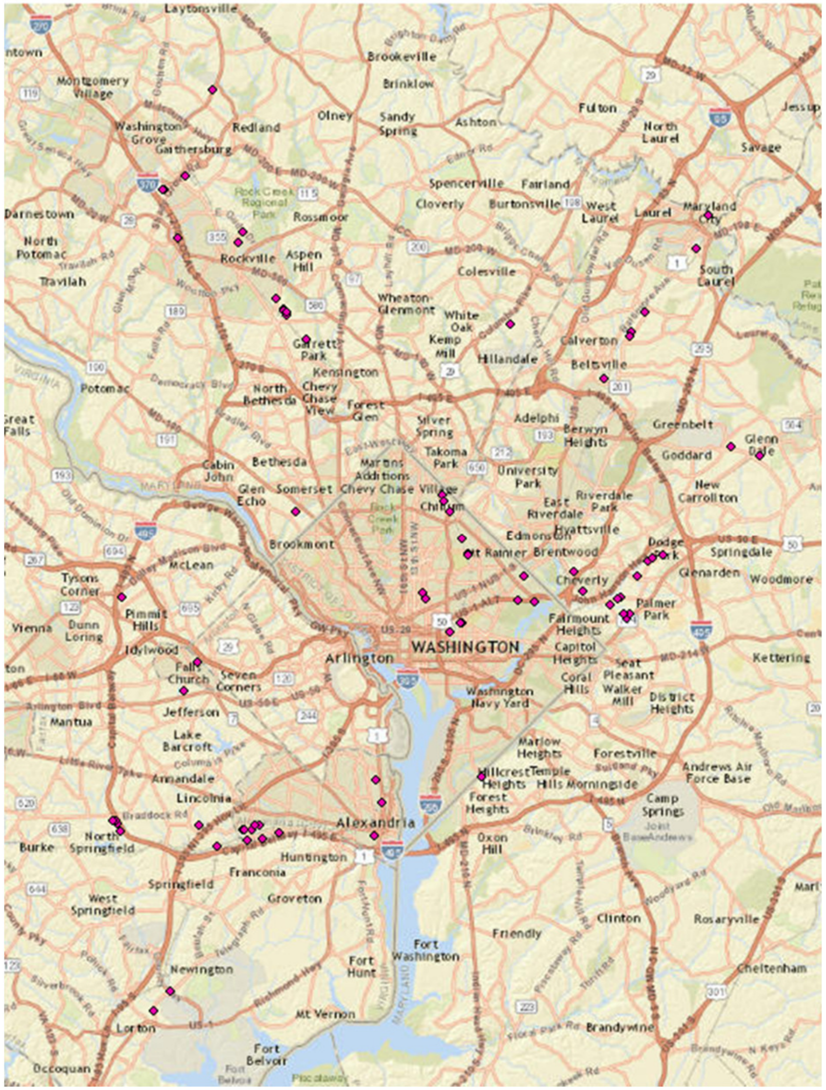


Figure C-3

1970s Industrial

Figure C-4

1980s Industrial

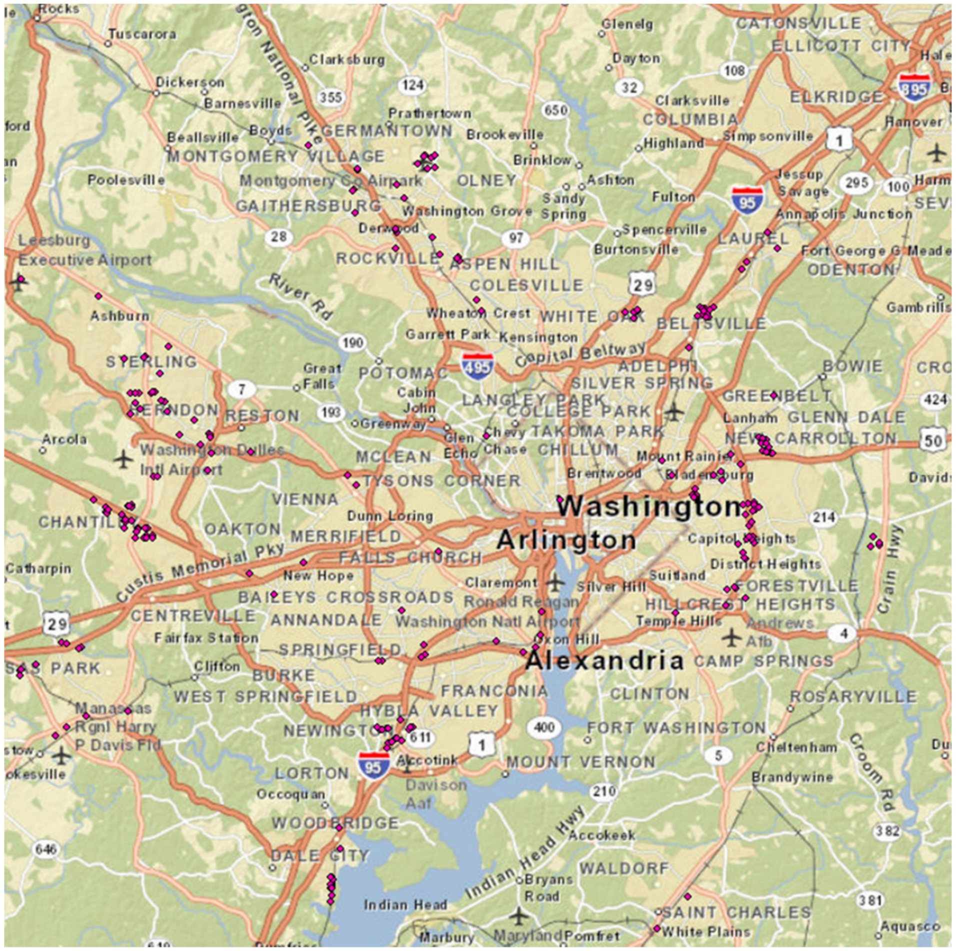


Figure C-5

1990s Industrial

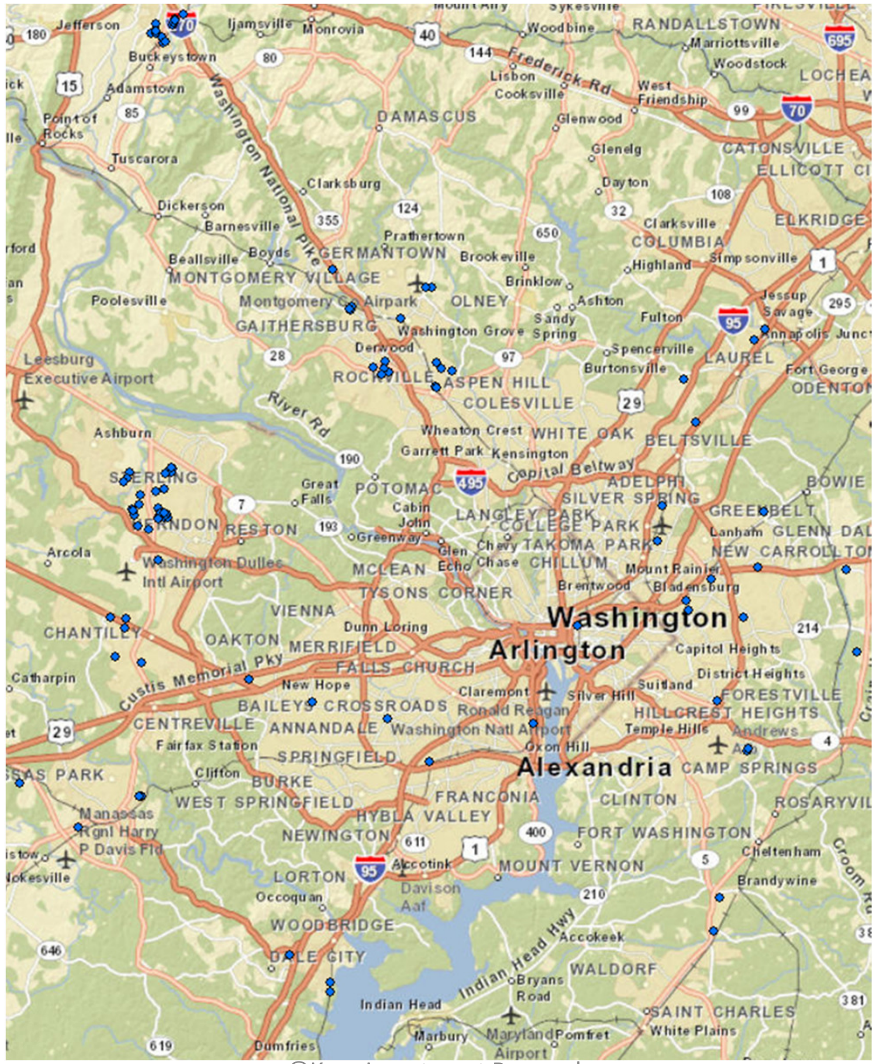


Figure C-6

2000s Industrial

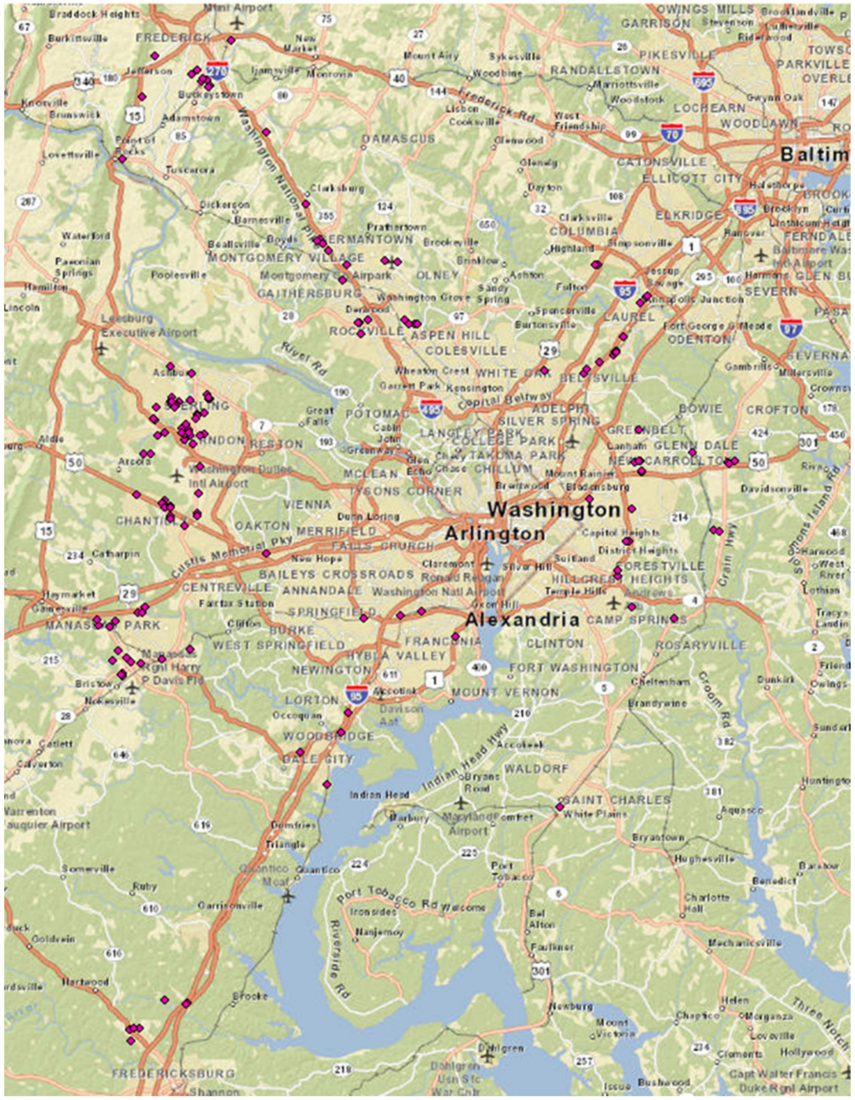


Figure C-7

2010s Industrial

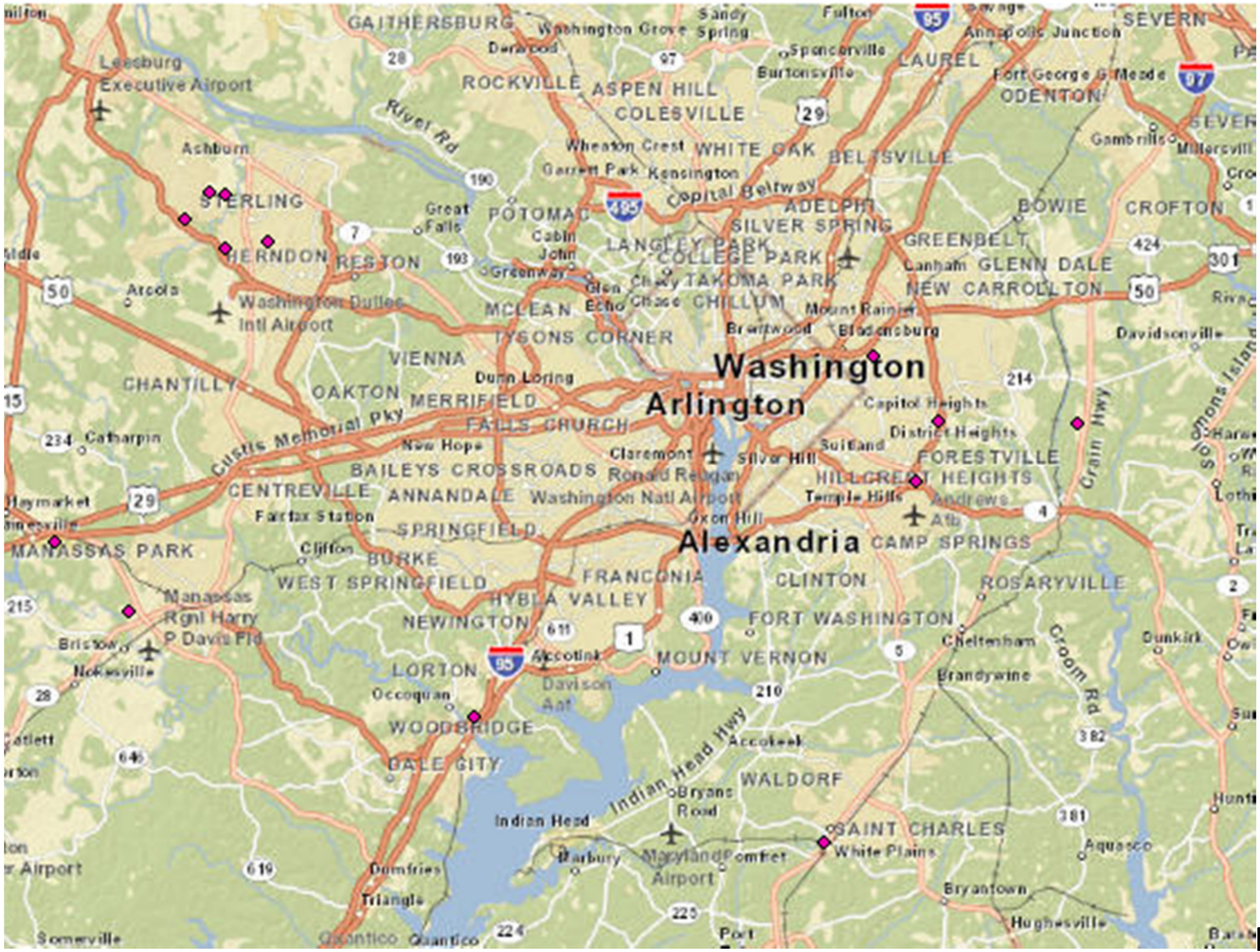


Figure C-8

Everyone Loves Retail and It is Important to Multifamily Development

Retail prior to 1950

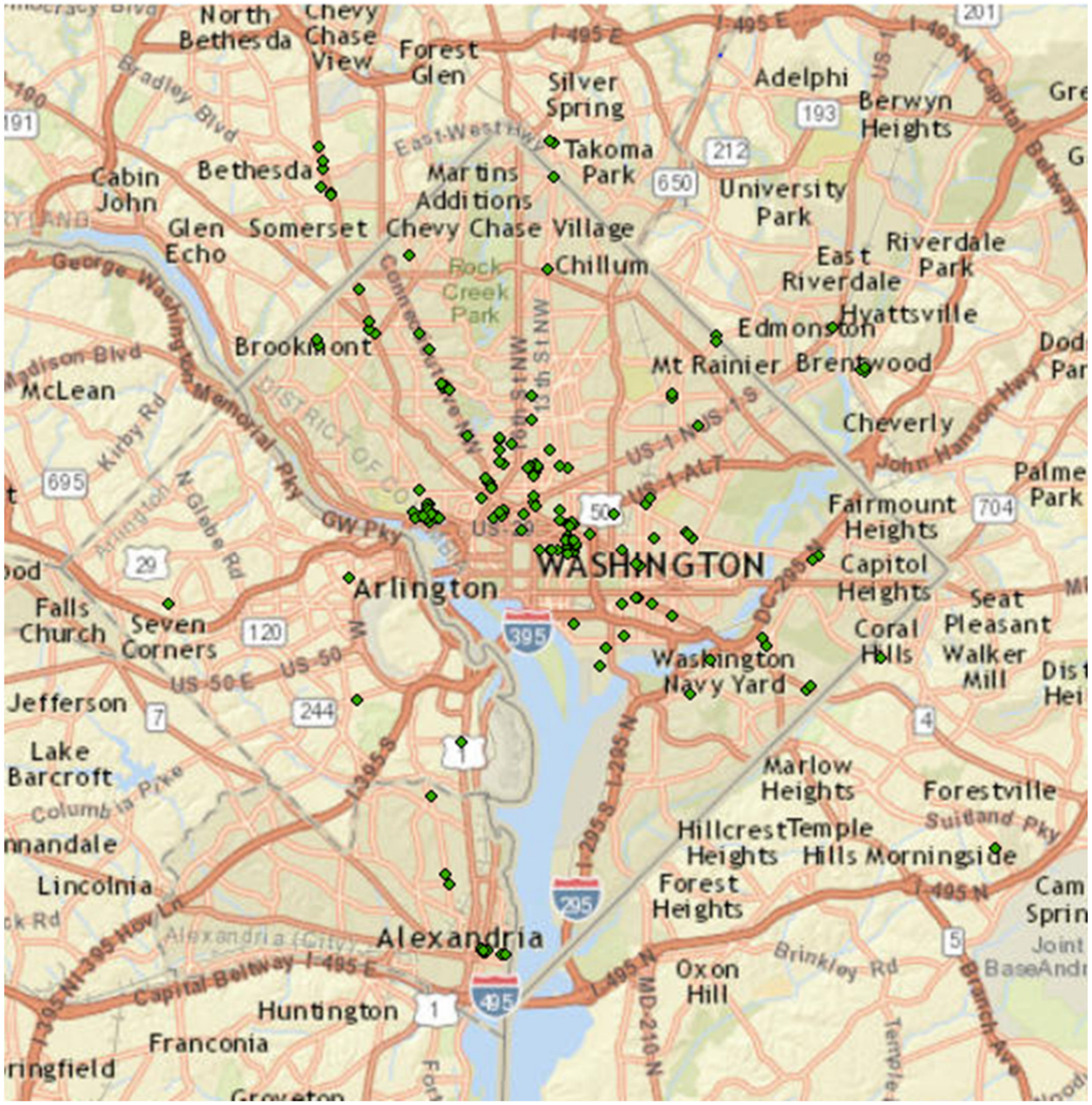


Figure D-1

1950s Retail

Figure D-2

1960s Retail

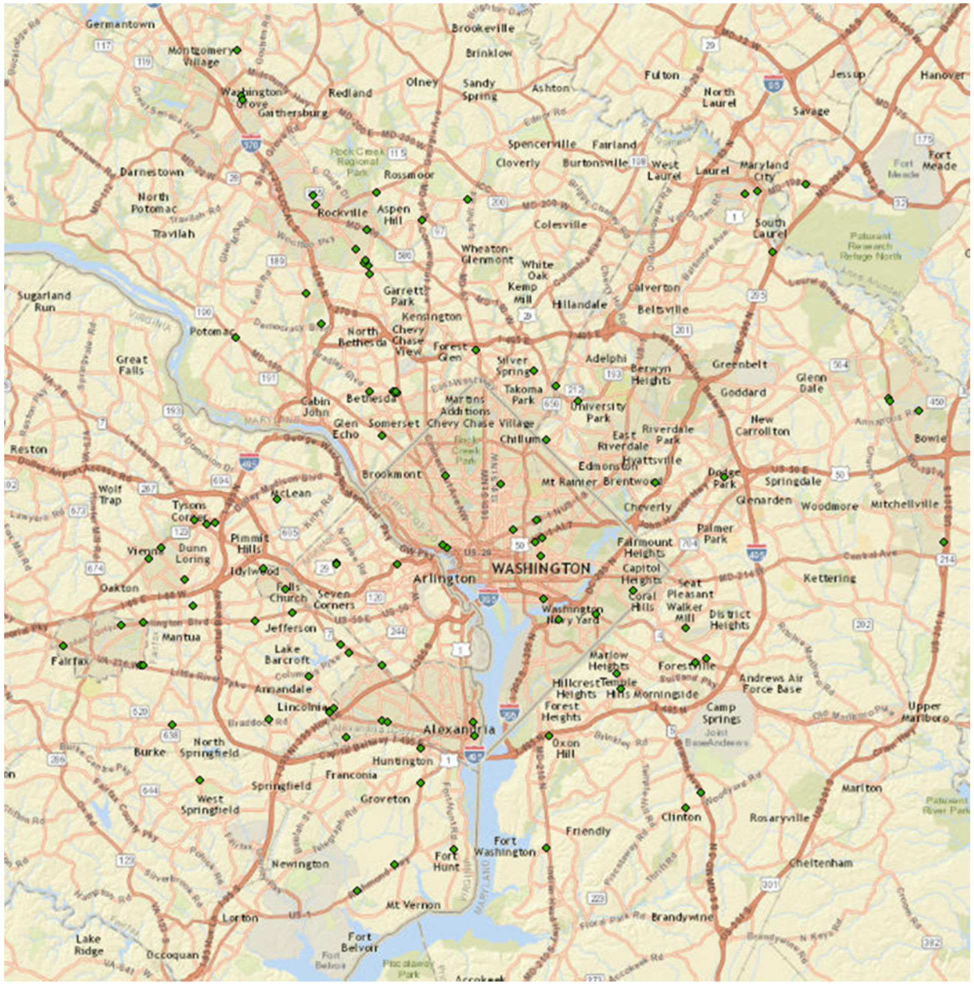


Figure D-3

1970s Retail

Figure D-4

1980s Retail

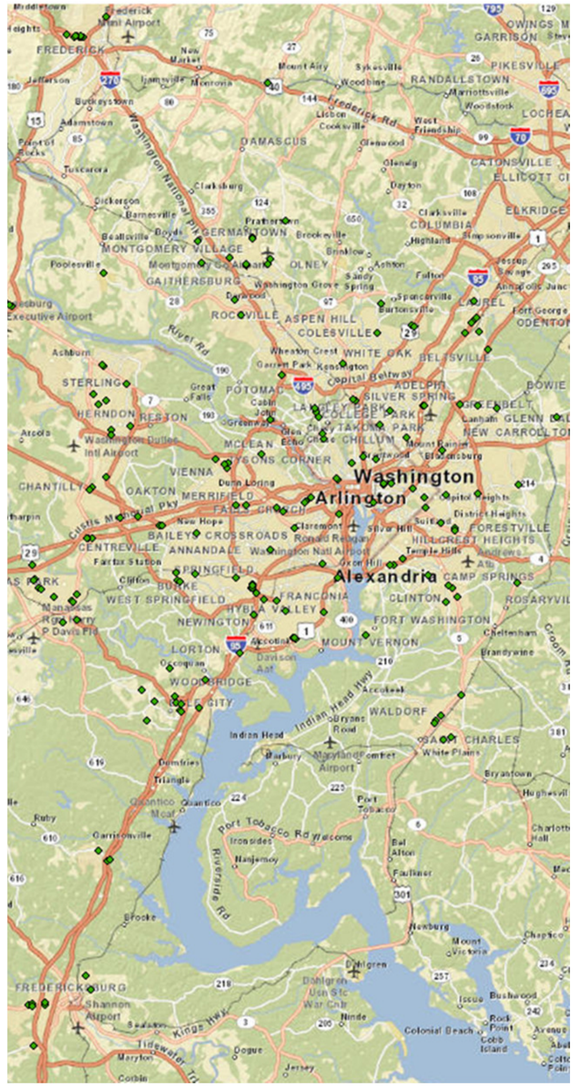


Figure D-5

1990s Retail

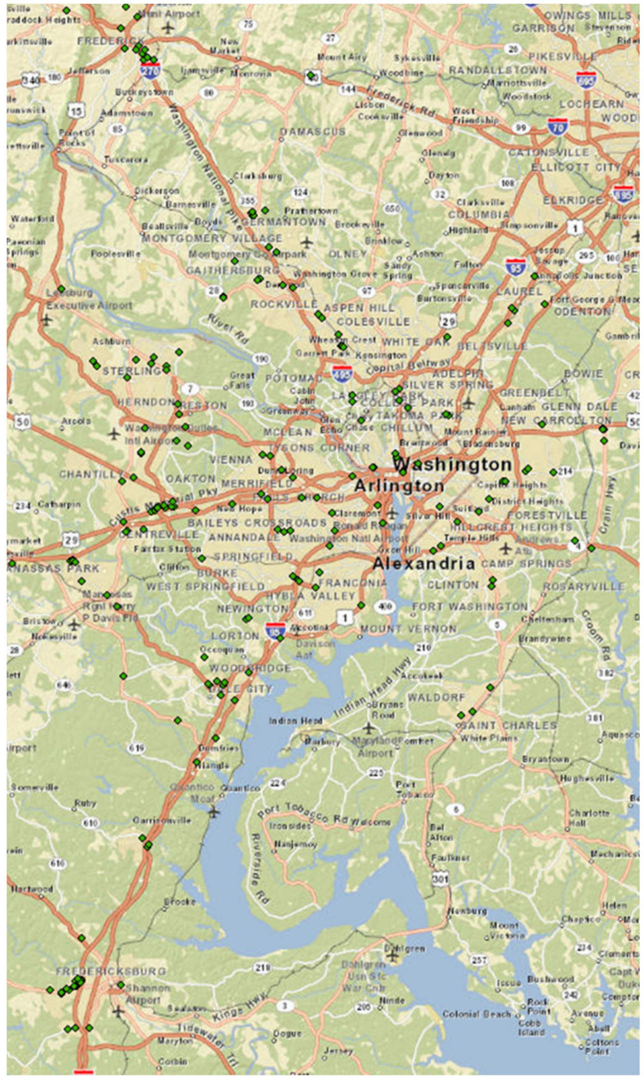


Figure D-6

2000s Retail

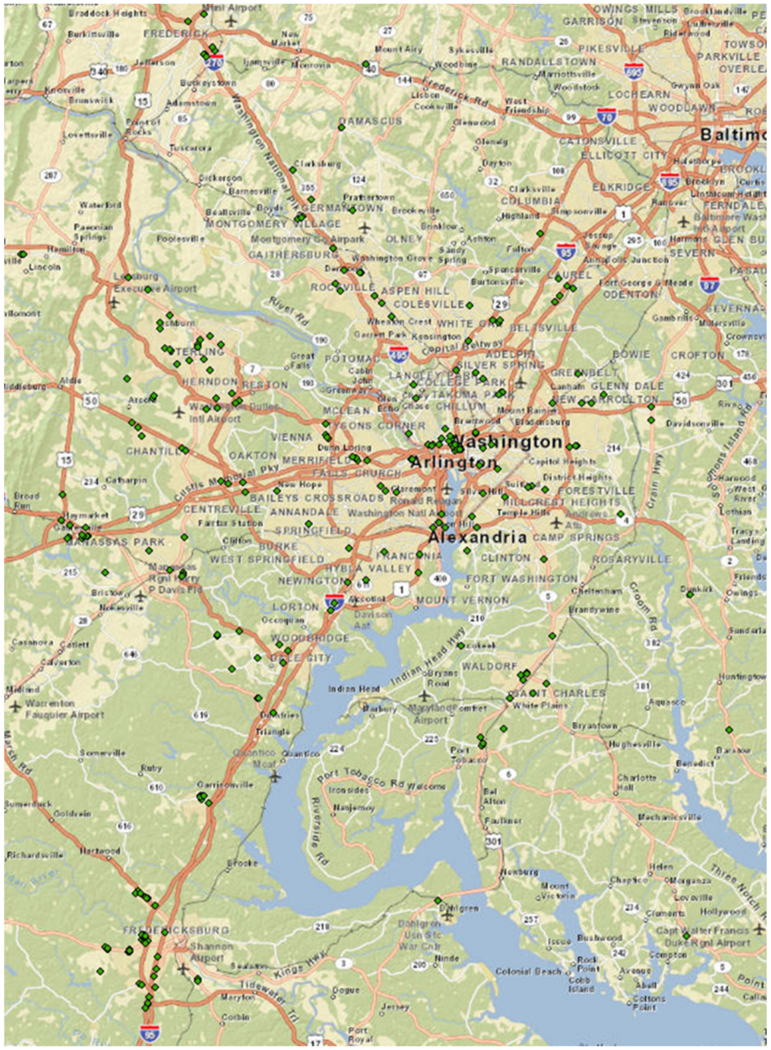


Figure D-7

2010s Retail

Figure D-8

Renter Client Population Characteristics

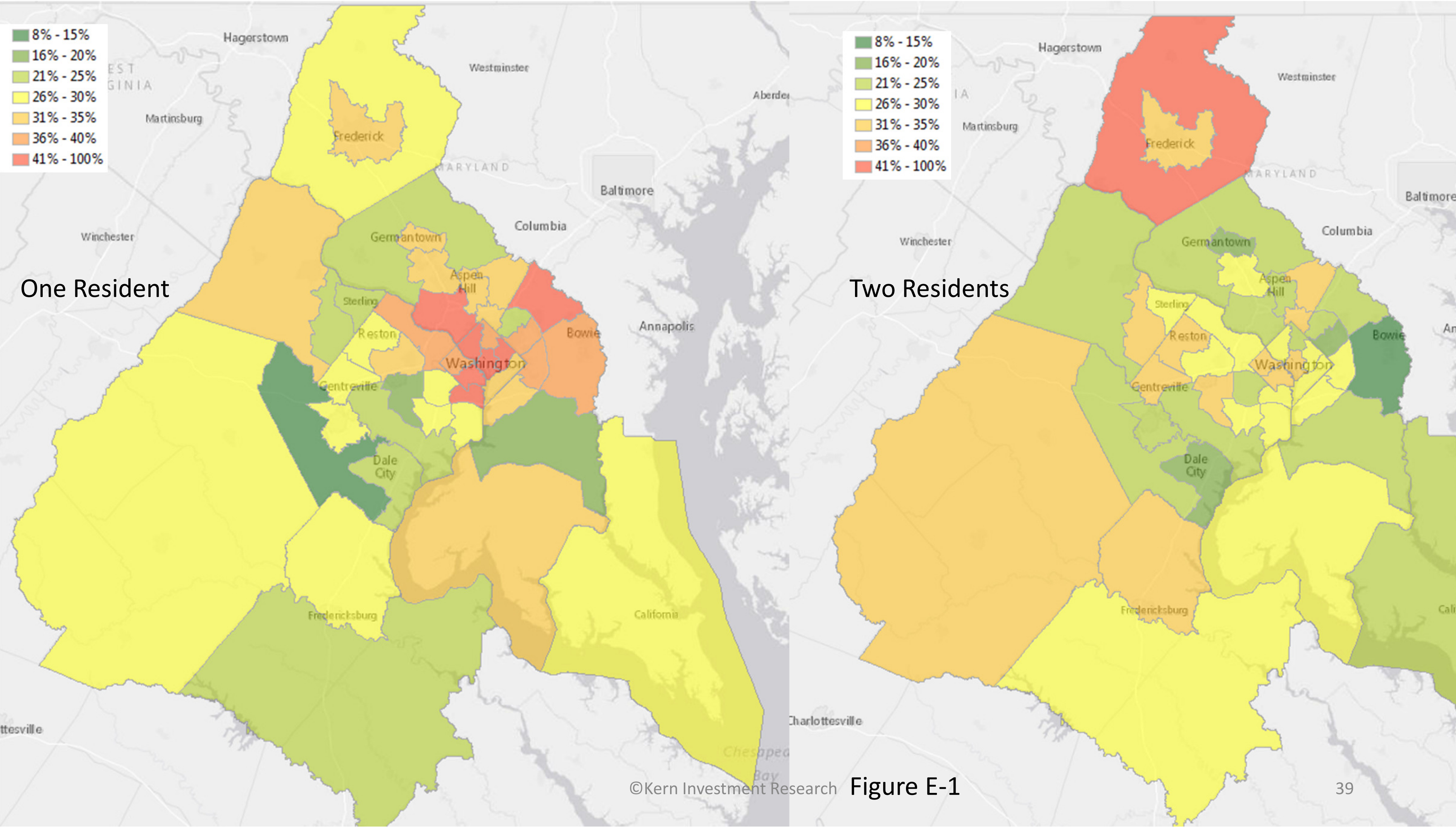

One Resident
8% - 15%
16% - 20%
21% - 25%
26% - 30%
31% - 35%
36% - 40%
41% - 100%
Hagerstown
Westminster
Martinsburg
Frederick
MARYLAND
Baltimore
Winchester
Germantown
Columbia
Aspen Hill
Sterling
Reston
Bowie
Annapolis
Washington
Centreville
Dale City
Fredericksburg
California
Two Residents
8% - 15%
16% - 20%
21% - 25%
26% - 30%
31% - 35%
36% - 40%
41% - 100%
Hagerstown
Westminster
Martinsburg
Frederick
MARYLAND
Baltimore
Winchester
Germantown
Columbia
Aspen Hill
Sterling
Reston
Bowie
Washington
Centreville
Dale City
Fredericksburg
Charlottesville

Figure E-1

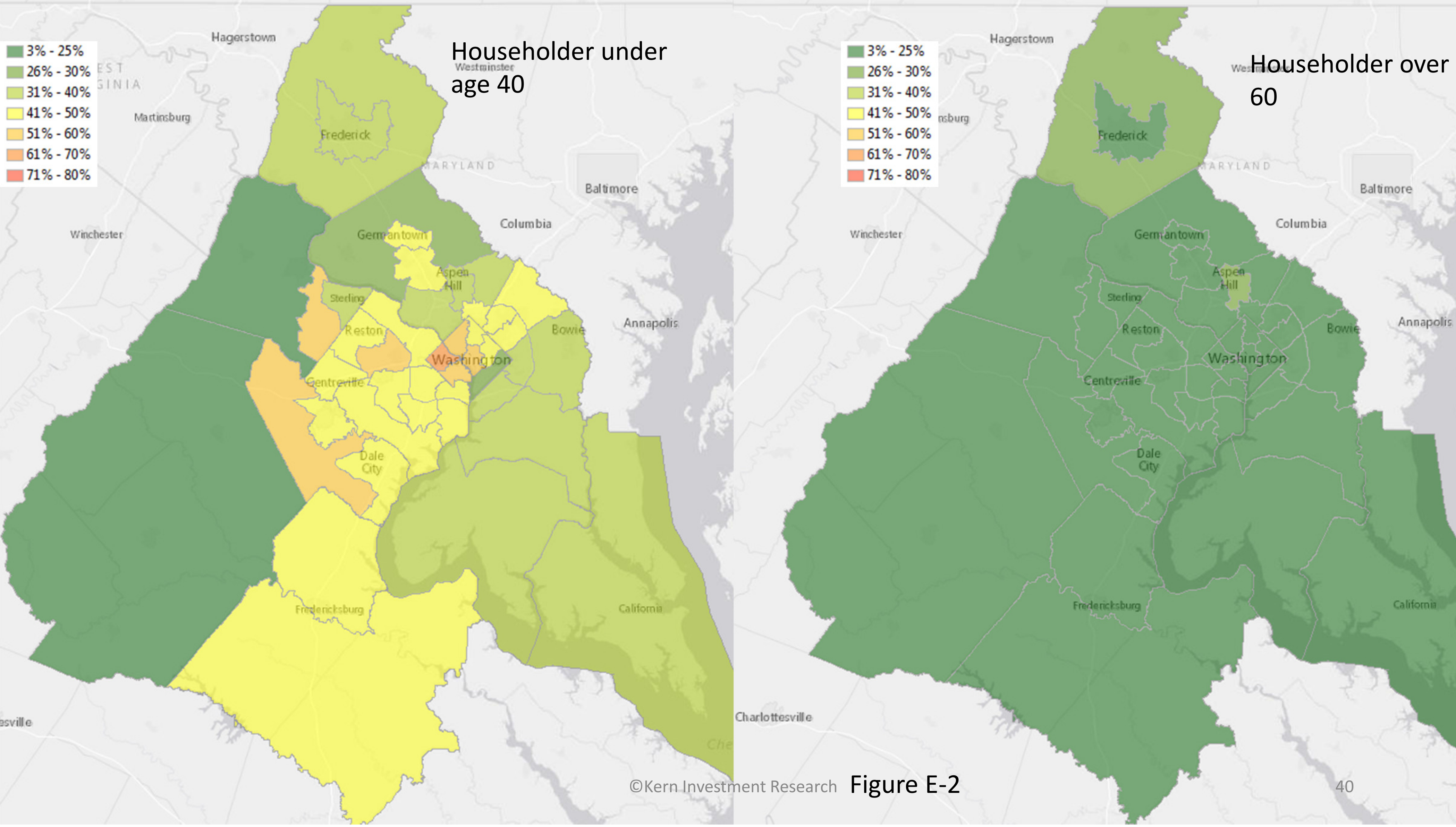

Householder under age 40
3% - 25%
26% - 30%
31% - 40%
41% - 50%
51% - 60%
61% - 70%
71% - 80%
Hagerstown
Westminster
Martinsburg
Frederick
MARYLAND
Baltimore
Winchester
Germantown
Columbia
Aspen Hill
Sterling
Reston
Bowie
Annapolis
Washington
Centreville
Dale City
Fredericksburg
California
Householder over a
60
3% - 25%
26% - 30%
31% - 40%
41% - 50%
51% - 60%
61% - 70%
71% - 80%
Charlottesville

Figure E-2

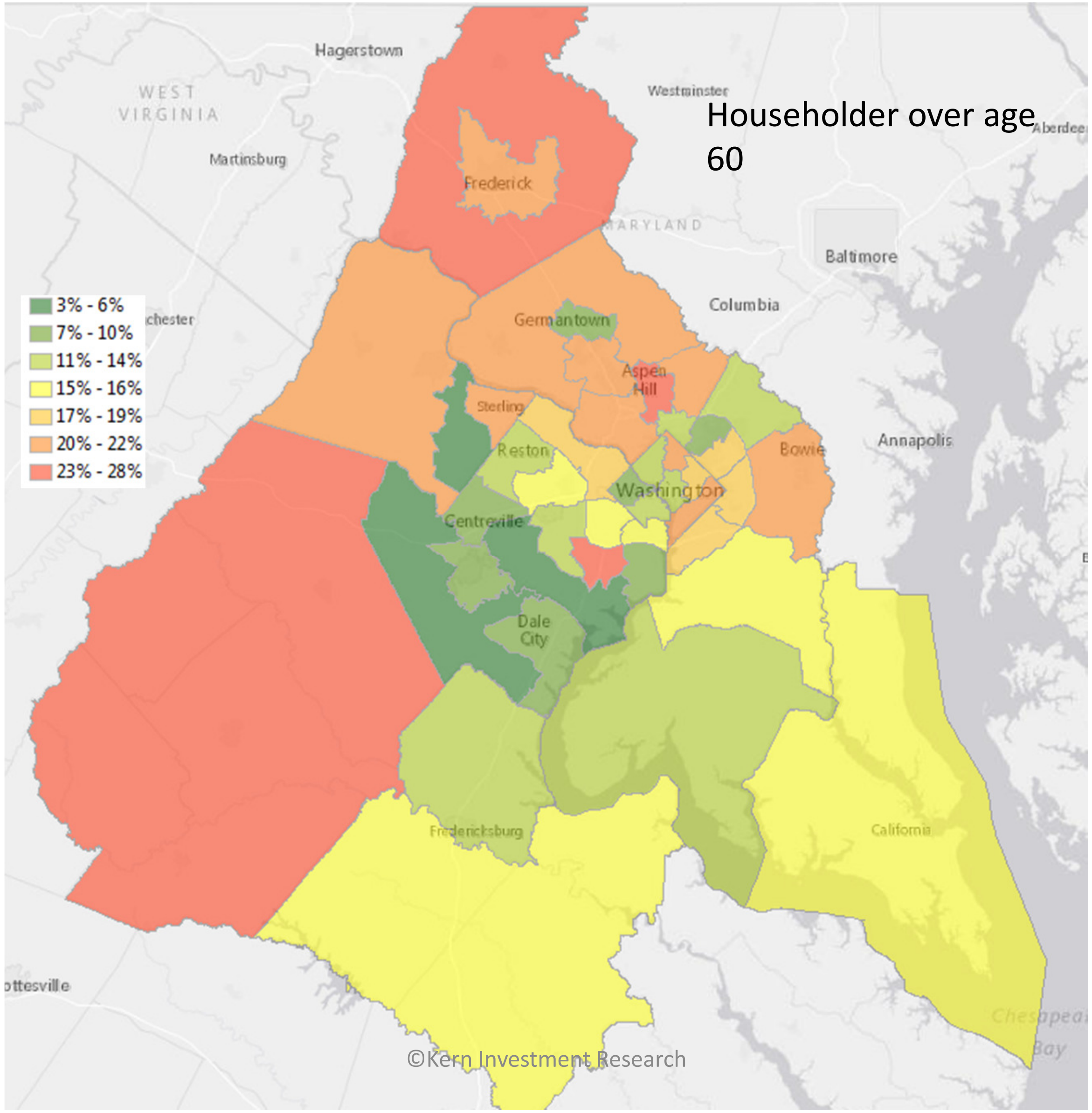
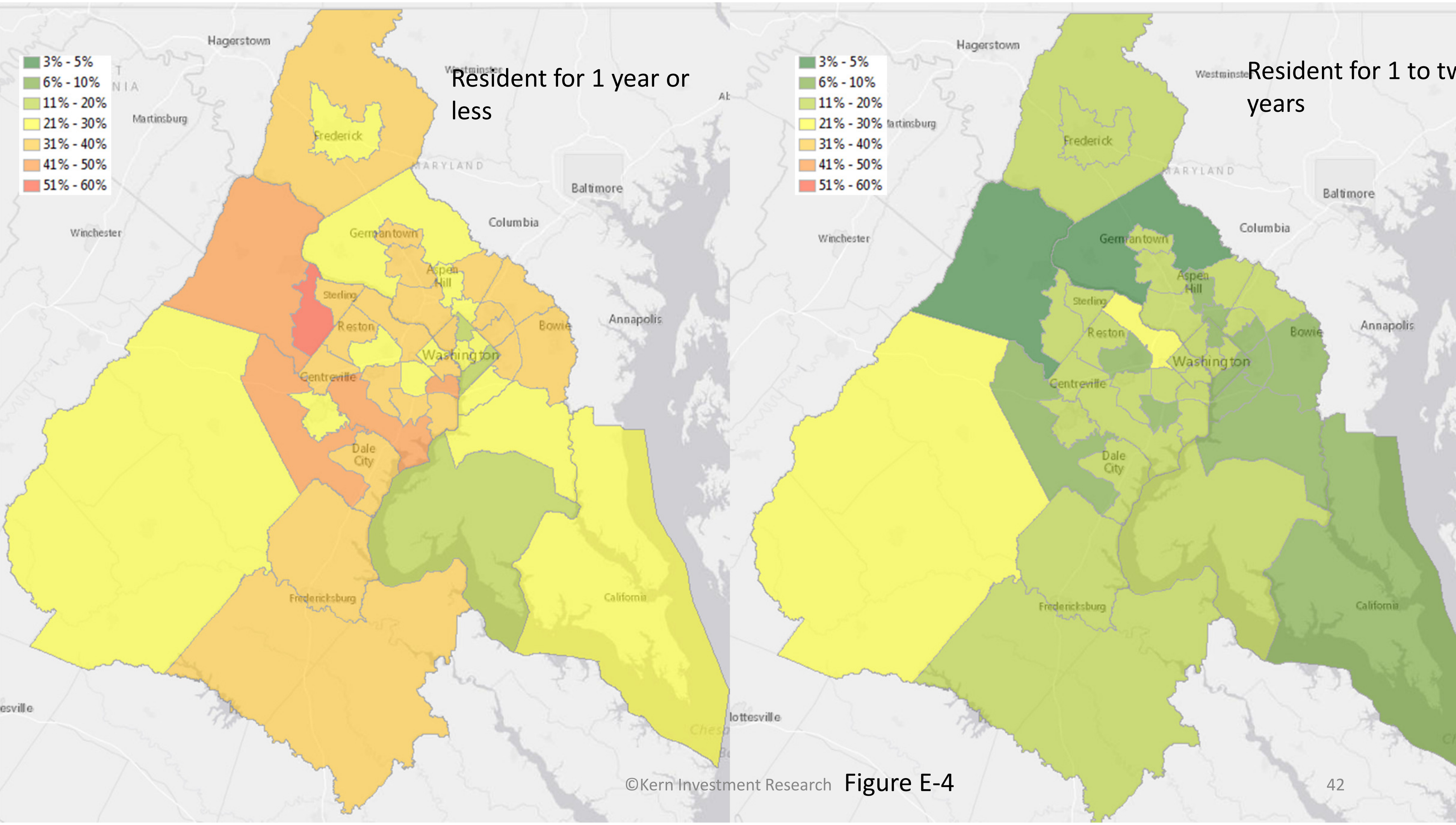

Householder over age 60
3% - 6%
7% - 10%
11% - 14%
15% - 16%
17% - 19%
20% - 22%
23% - 28%
Hagerstown
WEST VIRGINIA
Martinsburg
Westminster
Frederick
MARYLAND
Baltimore
Columbia
Germantown
Aspen Hill
Sterling
Reston
Annapolis
Bowie
Washington
Centreville
Dale City
Fredericksburg
California
©Kern Investment Research

Figure E-3



3% - 5%
6% - 10%
11% - 20%
21% - 30%
31% - 40%
41% - 50%
51% - 60%
Resident for 1 year or less
Hagerstown
Martinsburg
Winchester
Frederick
Germantown
Aspen Hill
Sterling
Reston
Washington
Centreville
Dale City
Bowie
Columbia
Baltimore
Annapolis
MARYLAND
Fredericksburg
California
Resident for 1 to tw
years

 Figure E-4

Price per Unit or Square Foot by Property Type

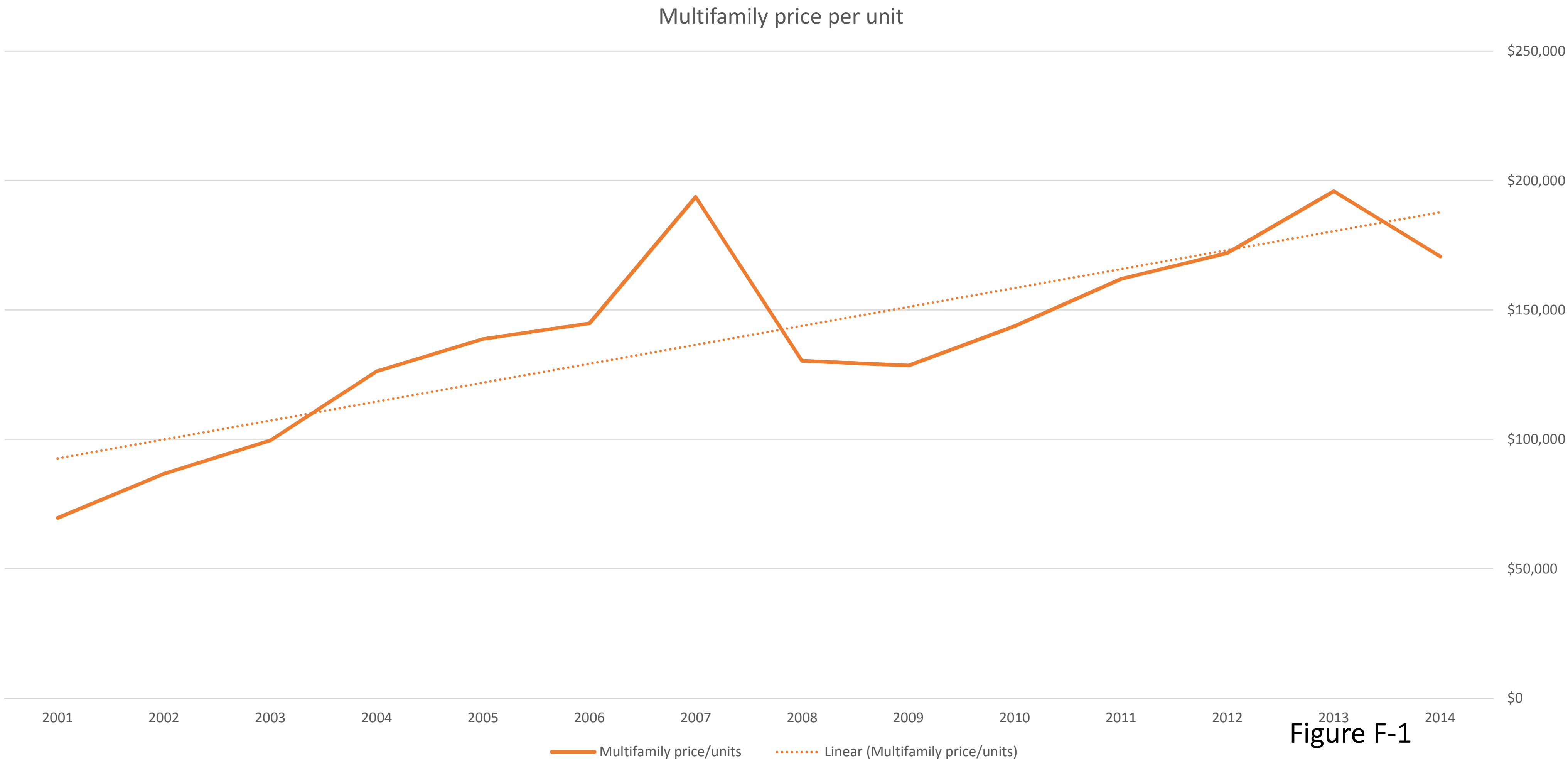
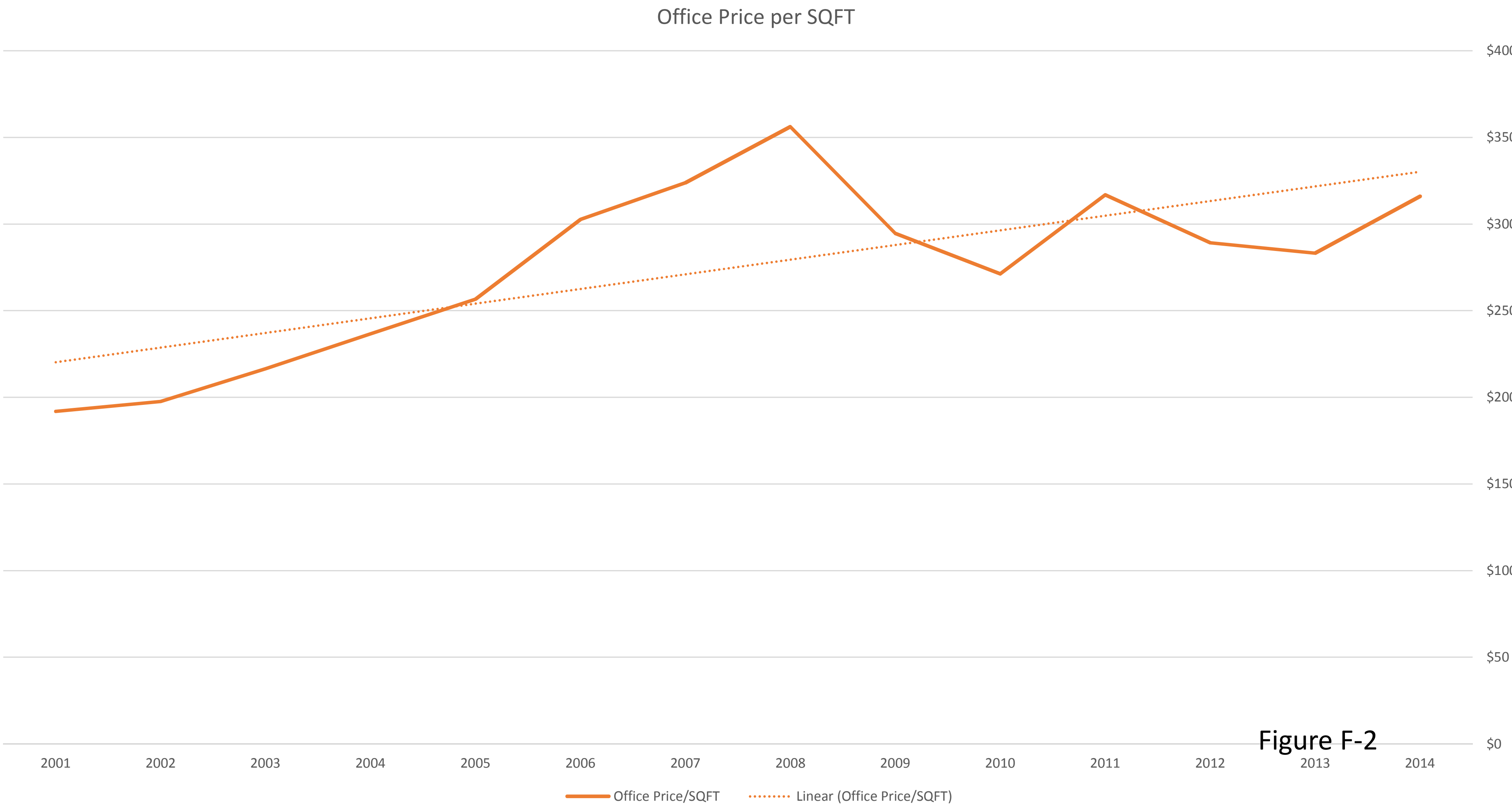

Multifamily price per unit
$250,000
$200,000
$150,000
$100,000
$50,000
$0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Multifamily price/units
Linear (Multifamily price/units)

Figure F-1


Office Price per SQFT
$400
$350
$300
$250
$200
$150
$100
$50
$0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Office Price/SQFT
Linear (Office Price/SQFT)
Figure F-2

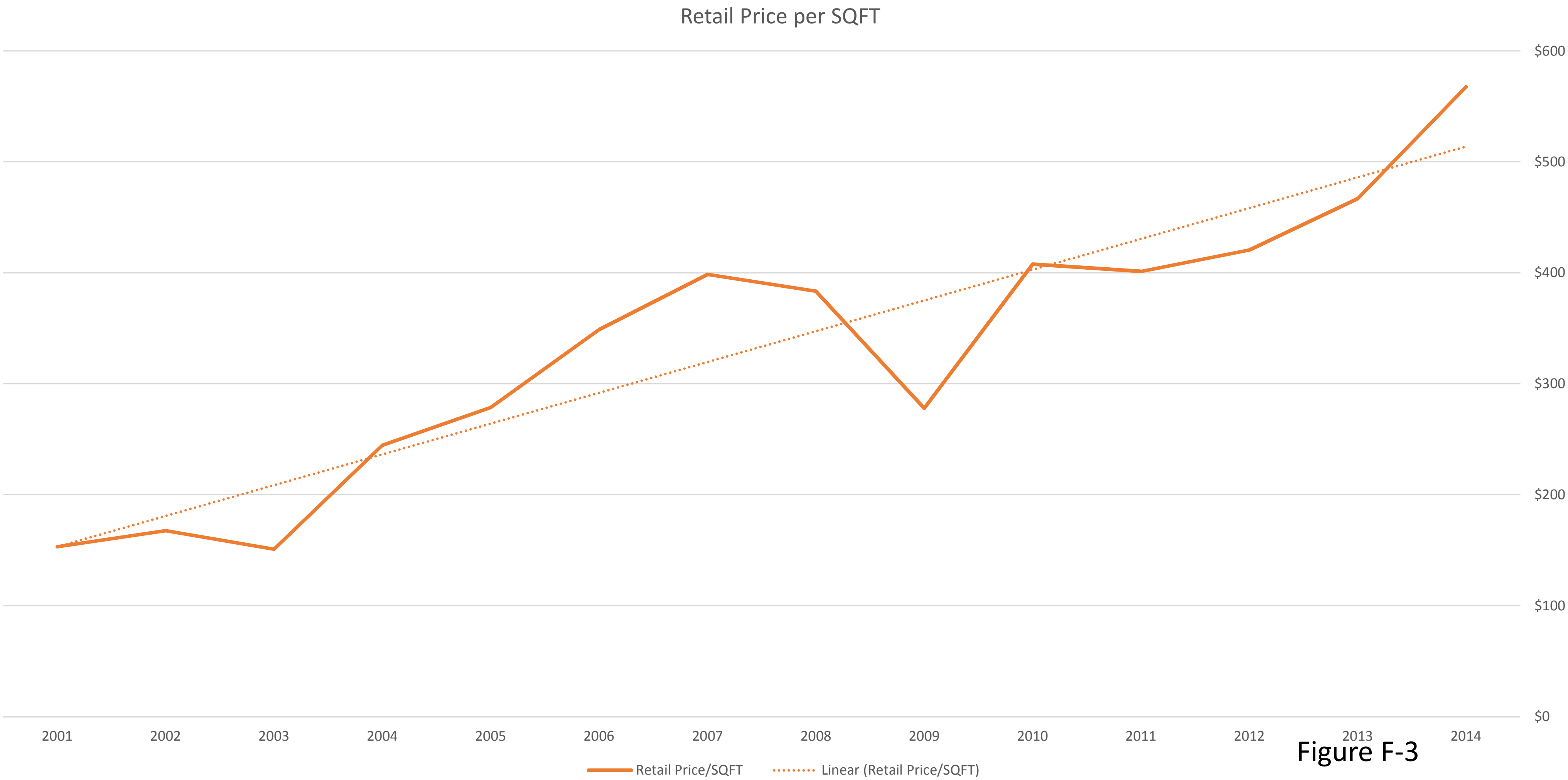

Retail Price per SQFT
$600
$500
$400
$300
$200
$100
$0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Retail Price/SQFT
Linear (Retail Price/SQFT)

Figure F-3

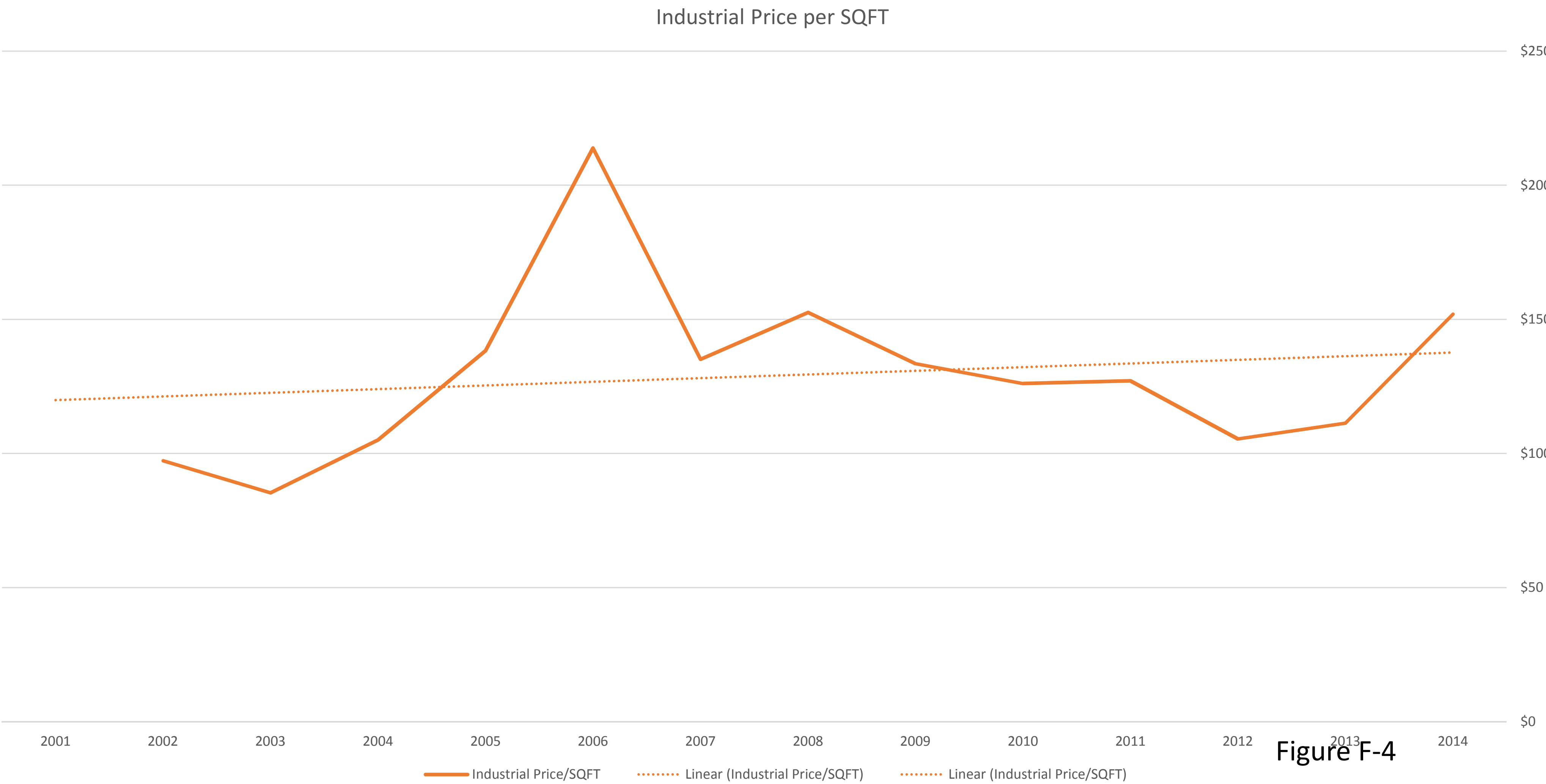

Industrial Price per SQFT
$250
$200
$150
$100
$50
$0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Industrial Price/SQFT
Linear (Industrial Price/SQFT)
Linear (Industrial Price/SQFT)

Figure F-4

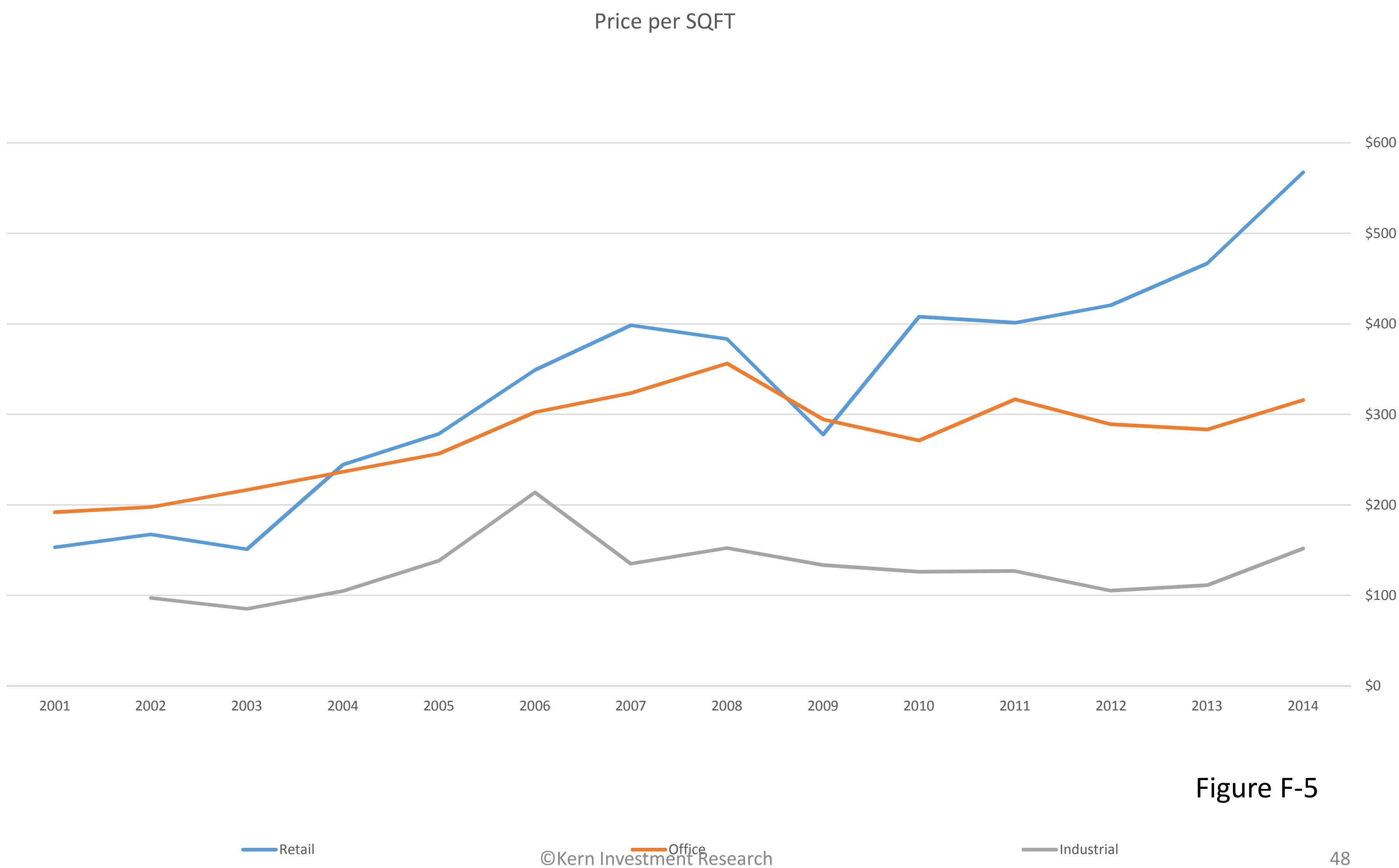

Price per SQFT
$600
$500
$400
$300
$200
$100
$0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Retail
Office
Industrial

Figure F-5

Year	Multifamily price per unit	Industrial Price per SQFT	Retail Price per SQFT	Office Price per SQFT
2014	$170,710	$152	$568	$316
2013	$195,949	$111	$467	$283
2012	$172,092	$105	$421	$289
2011	$162,022	$127	$401	$317
2010	$143,810	$126	$408	$271
2009	$128,528	$134	$278	$295
2008	$130,368	$153	$383	$356
2007	$193,713	$135	$399	$324
2006	$144,823	$214	$349	$303
2005	$138,822	$138	$279	$257
2004	$126,386	$105	$245	$237
2003	$99,656	$85	$151	$217
2002	$86,805	$97	$168	$198
2001	$69,688		$153	$192

Figure F-6

Sector Transaction Values

Multifamily Transaction Values.

- 364,000 - 21,100,000
- 21,100,001 - 49,700,000
- 49,700,001 - 89,500,000
- 89,500,001 - 162,300,000
- 162,300,001 - 417,306,695

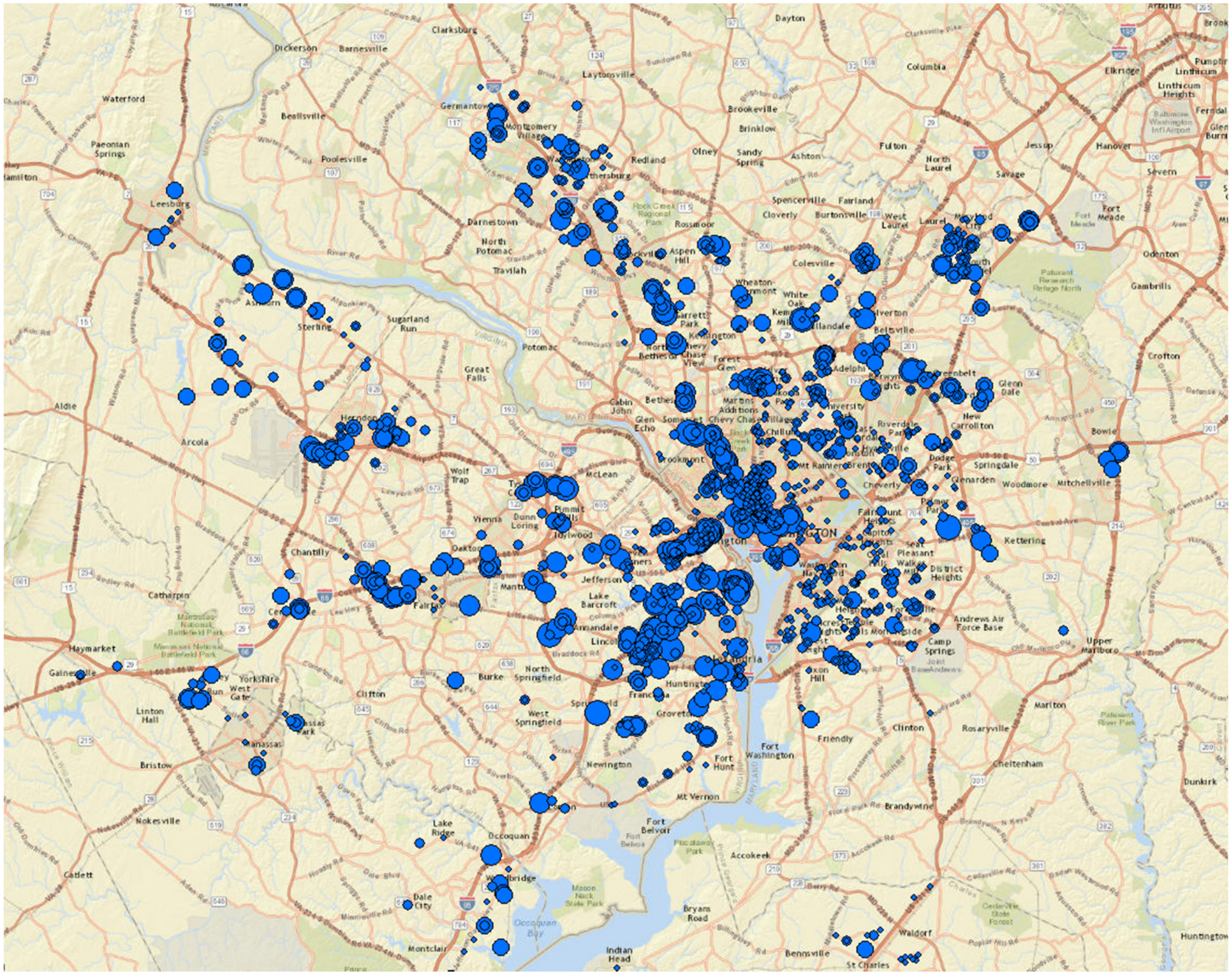


Figure G-1

Industrial Transaction Values.

410,207 - 9,500,000
9,500,001 - 23,225,000
23,225,001 - 53,684,299
53,684,300 - 121,000,000
121,000,001 - 296,797,257

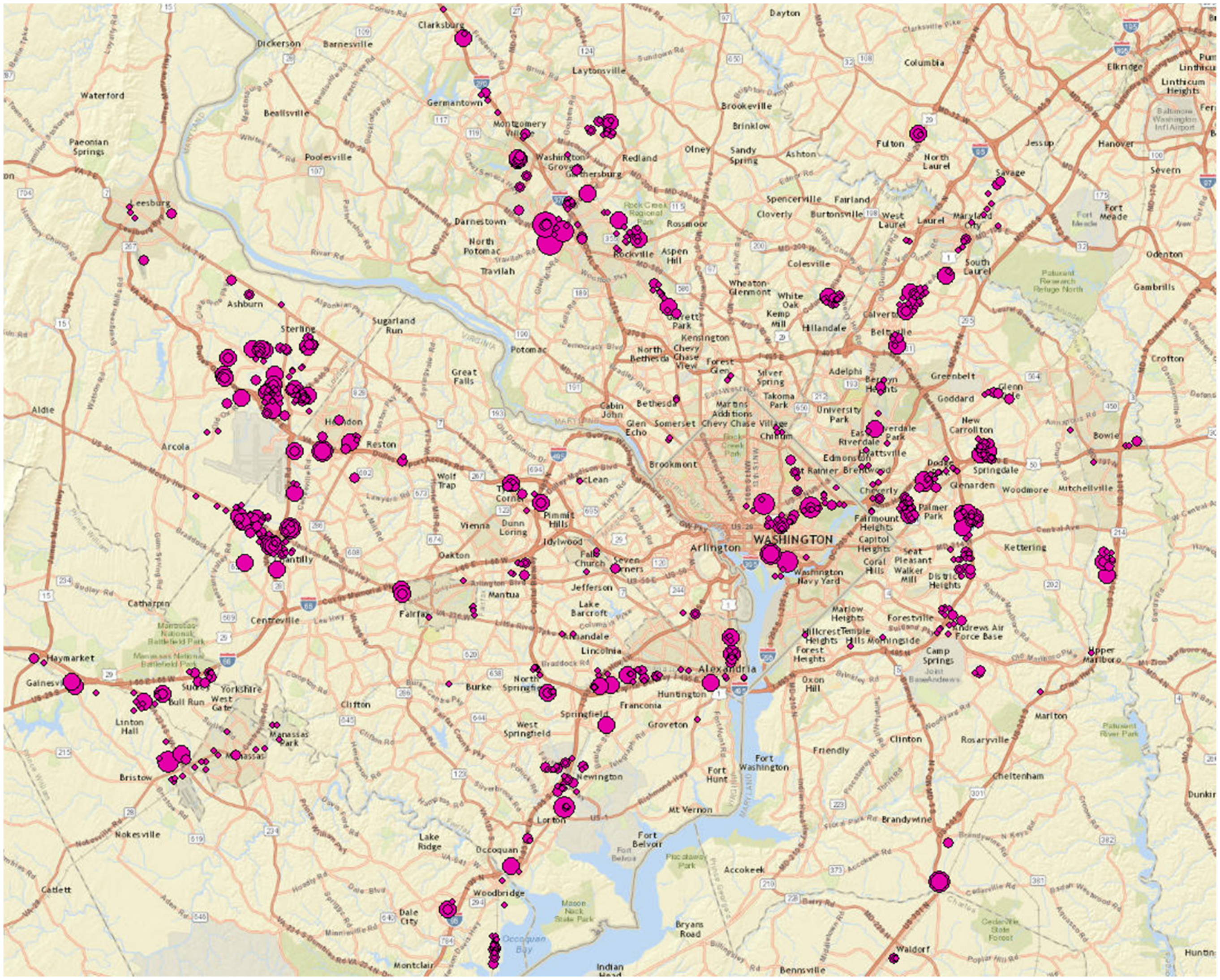


Figure G-2

Retail Transaction Values.

- 252,000 - 19,150,000
- 19,150,001 - 59,615,298
- 59,615,299 - 180,179,321
- 180,179,322 - 364,999,863
- 364,999,864 - 822,002,904

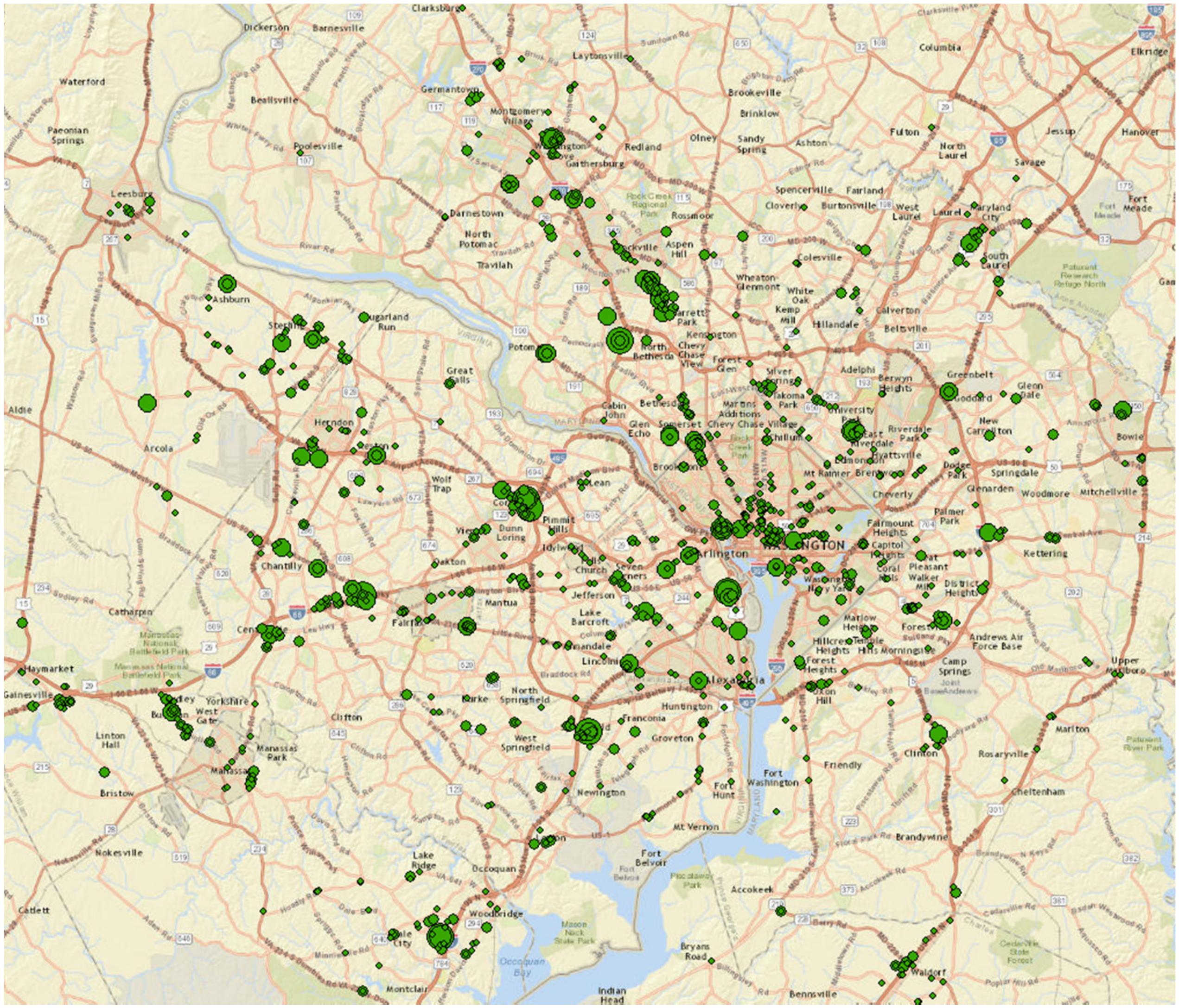


Figure G-3

Office Transaction Values.

- 285,250 - 29,800,000
- 29,800,001 - 73,934,108
- 73,934,109 - 141,821,986
- 141,821,987 - 280,500,000
- 280,500,001 - 734,000,000

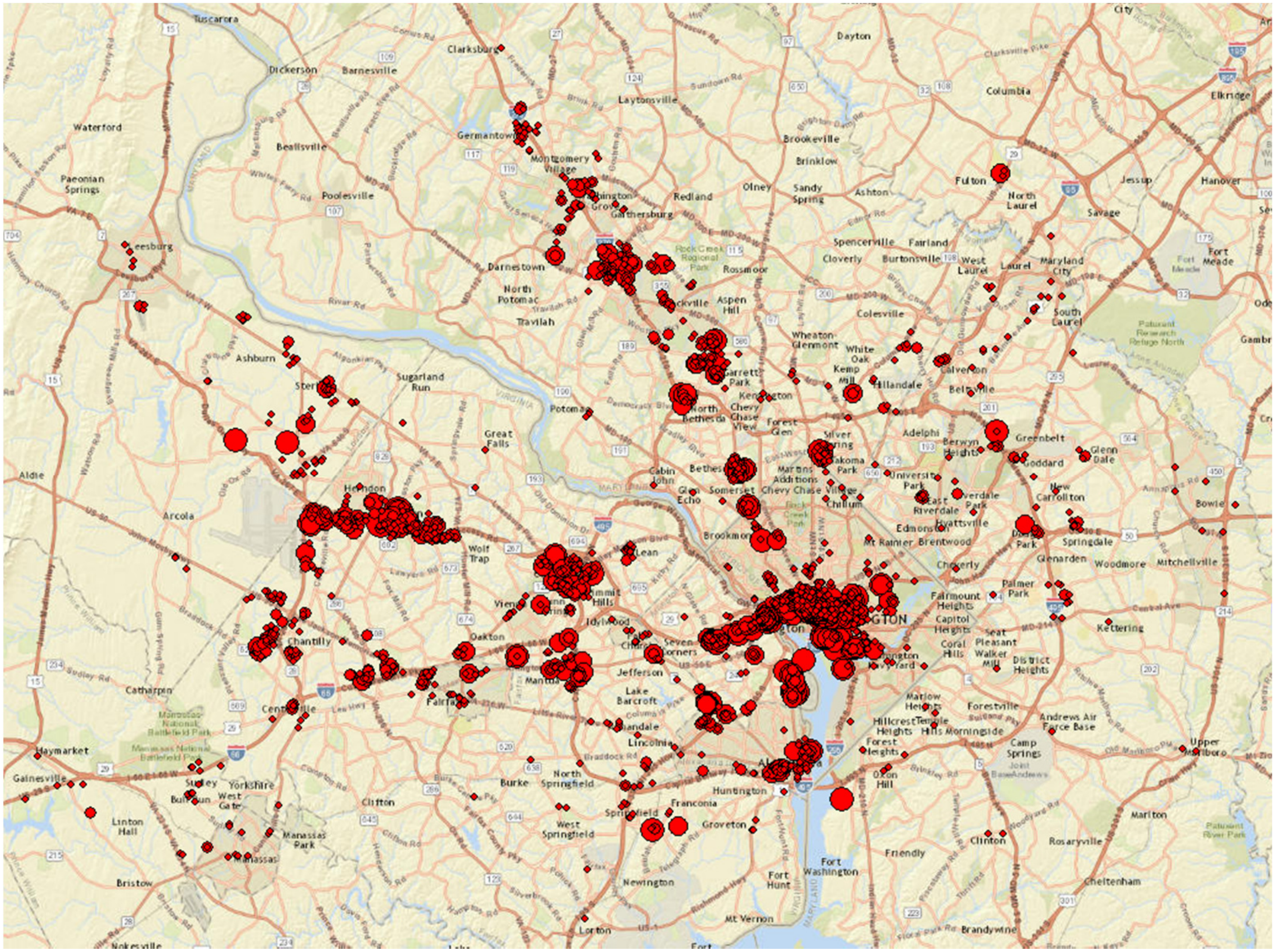


Figure G-4

Rent Per Square Foot

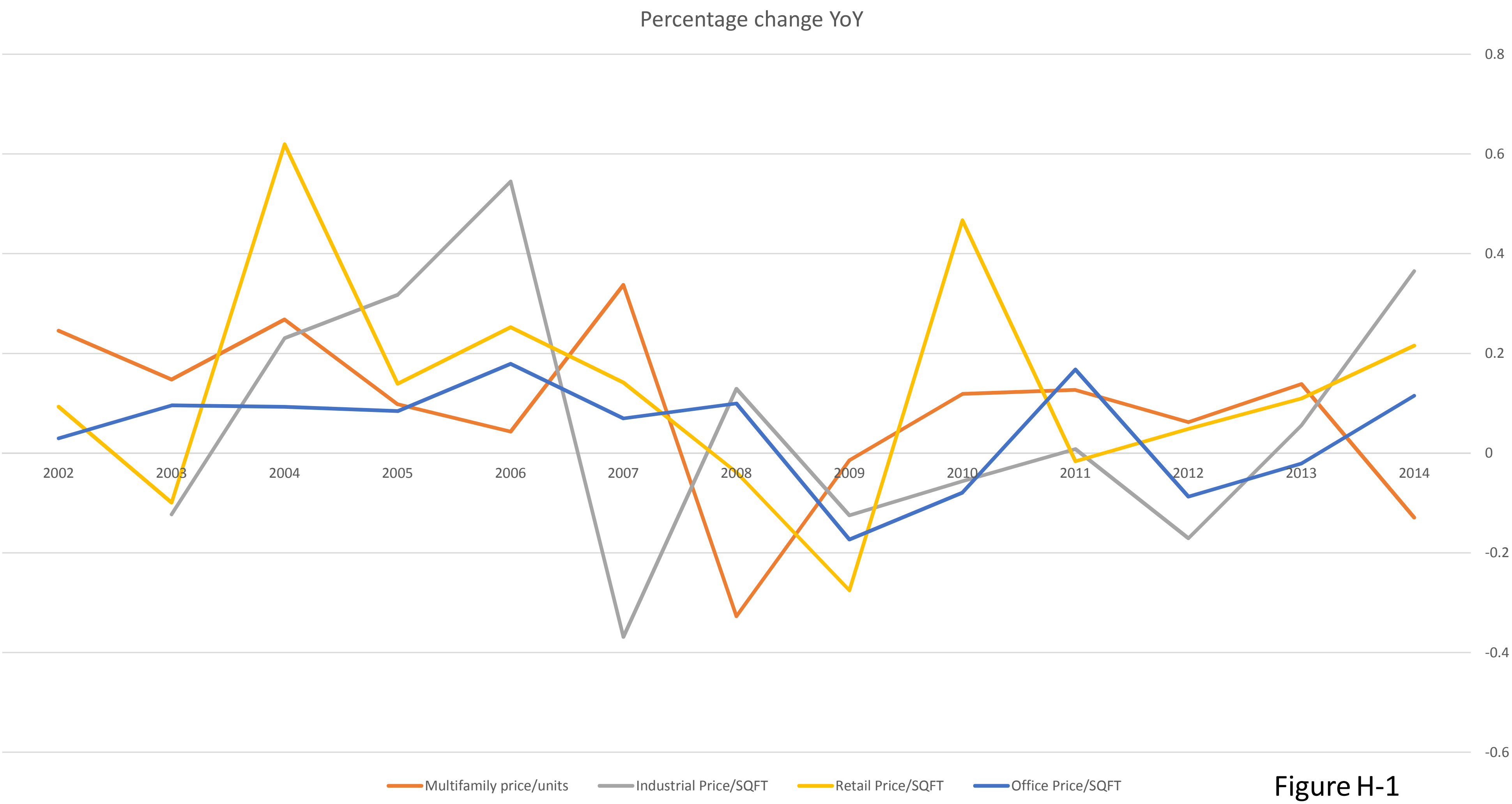
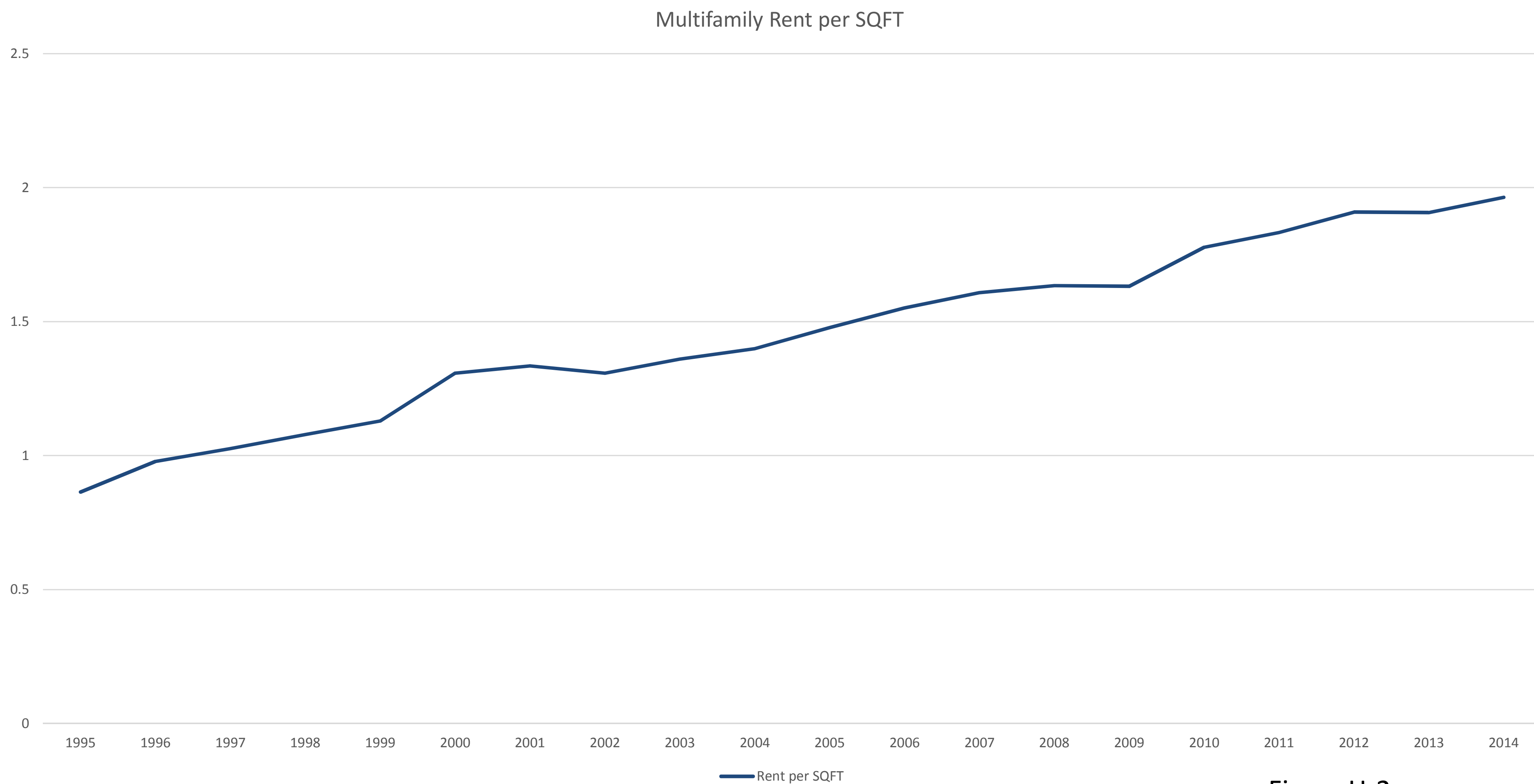

Percentage change YoY
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Multifamily price/units
Industrial Price/SQFT
Retail Price/SQFT
Office Price/SQFT

Figure H-1



Multifamily Rent per SQFT
2.5
2
1.5
1
0.5
0
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Rent per SQFT

Figure H-2

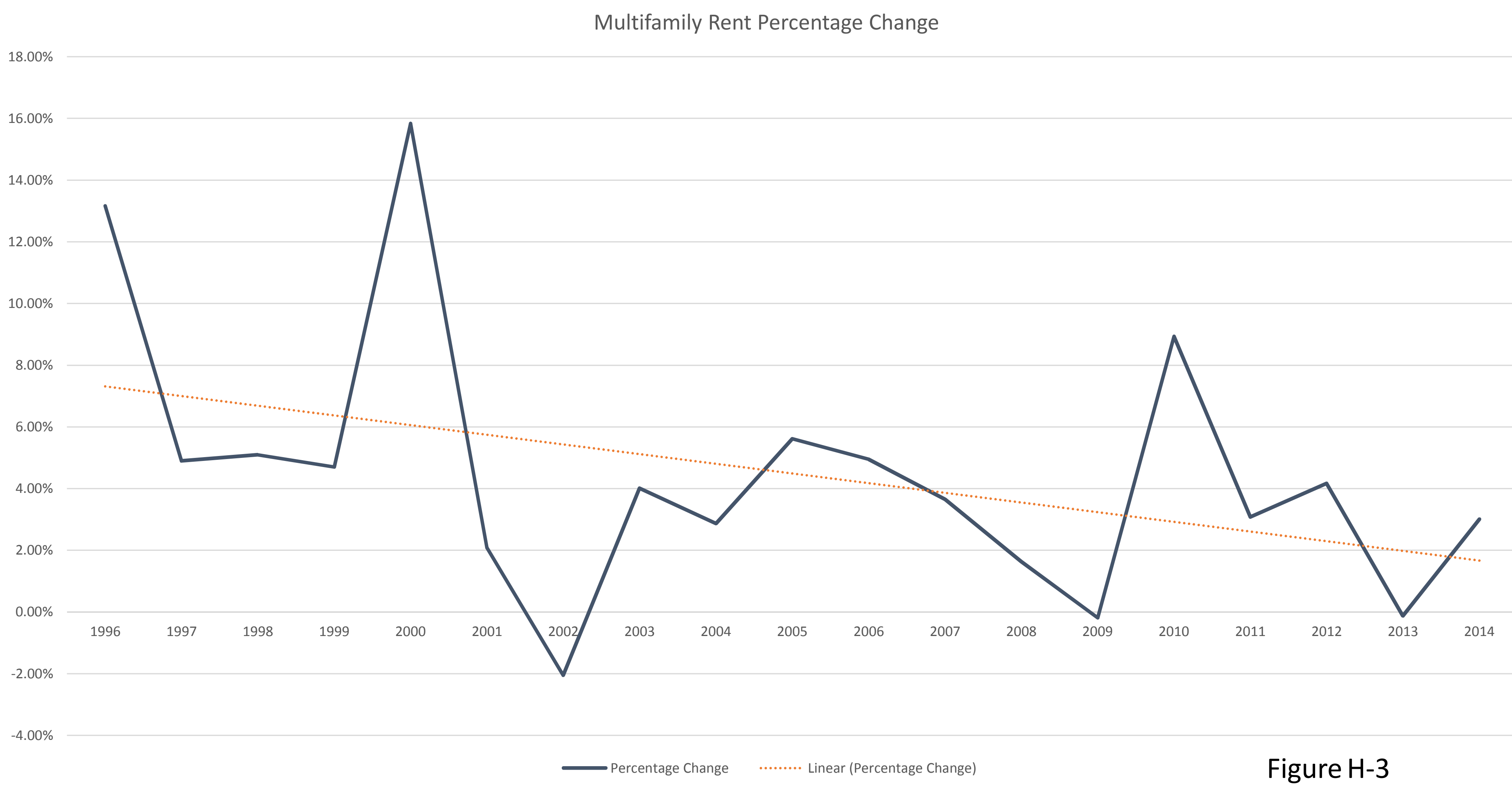

Multifamily Rent Percentage Change
18.00%
16.00%
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
-2.00%
-4.00%
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Percentage Change
Linear (Percentage Change)

Figure H-3