Case # ZC 08-06A

Testimony of Juliet G. Six, President,

Tenleytown Neighbors Association,

Parking & the ZRR Subtitle C, Zoning Commission Hearing, Nov. 12, 2013:

Thank you for the opportunity to testify tonight on the DC Zoning Rewrite. I am here this evening to speak on behalf of TNA.

Parking in and around the residential neighborhoods of DC was handled in the ZRR in much the same way that OP handled the issue of the Height Act There has been a marked pattern of rushing to put through changes without adequate substantiation of the facts. Attached is an example of the type of study which might have been done. In the case of parking DDOT has as yet to provide the supporting data: see letters from DC Council Members Cheh & Evans.

The ZRR reduces parking everywhere in the city. And, it cuts the reduced numbers in half near transit including Tenley: less than 1 space for 6 units

The residents of Tenleytown are faced with the imminent arrival of the AU Law School (which will lead to an overflow of cars on the residential streets – it does already in the current location and the expected increase in enrollment at the Tenley Campus is greater without adequate parking for faculty & students, not to mention the thousands of people who attend continuing legal education and other outside activities will create overflow parking on residential streets.

We are also awaiting the construction of the Babe's Building which we have been told was a "one off" test to see what this would bring to the neighborhood -- with no parking for residents, visitors or patrons. And, there was no requirement for affordable housing in the final order.

It is not just the Tenley residents but also the Tenley business owners who are already feeling the brunt of more spaces that are now metered: requiring more money for less time and longer hours going later into the evening.

Employees of the retail and restaurant businesses, who travel from afar where mass transit is not available have difficulty in finding and paying for parking. The meters push parking into adjacent residential streets.

The result makes those of us who live and work in Tenleytown to some extent OP's ideological guinea pigs. I ask you to consider the consequences of all of this when making your decisions on the parking proposals in the ZRR. The ZRR is a one size fits all proposal. Your decision can make all the difference in a neighborhood such as Tenleytown.

In the second oldest neighborhood in Washington it is not surprising that many of the homes have neither garage nor driveway. On street parking then becomes essential. People who walk to use mass transit must still have a place to park their car(s). We (young and old) must retain the option to be multi-modal.

DDOT stated as recently as 11/4/13: "A well-balanced and multi-modal transportation system is by nature intended to serve a diverse set of users and needs." The ZRR does not reflect this sentiment.

We have been told that the parking changes are intended to curtail traffic & pollution. However while people circle to find parking it adds to traffic as well as pollution.

You are here to consider the Zoning Rewrite. The proposal in the ZRR is to allow developers to provide only 1 parking space for every six units despite the fact that 79% of households in Ward 3 own one or more cars. The current zoning requirements for parking are already far below the statistics on car ownership in DC. Thus, the current parking requirements should be retained or raised.

Thank you

Juliet G. Six

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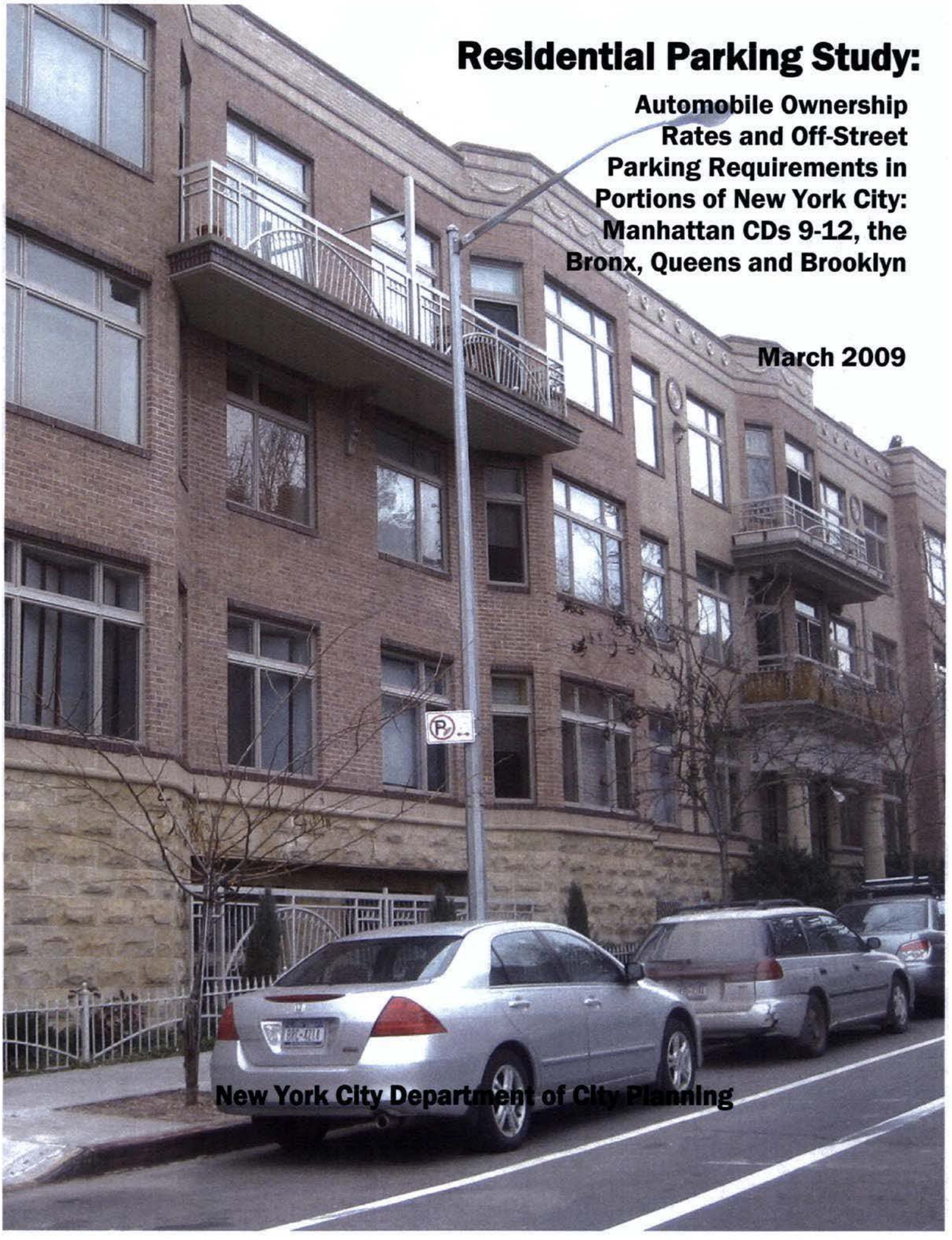

Residential Parking Study:

Automobile Ownership Rates and Off-Street Parking Requirements in Portions of New York City: Manhattan CDs 9-12, the Bronx, Queens and Brooklyn

March 2009

New York City Department of City Planning

The preparation of this report (PTCP05F00.03) was financed in part through funds from the U.S. Department of Transportation, Federal Highway Administration. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The contents of this report reflect the views of the author, who is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the views or policies of the Federal Highway Administration, nor of the New York Metropolitan Transportation Council. This report does not constitute a standard, specification or regulation.

Key data were provided by the New York State Department of Motor Vehicles and the New York City Department of Buildings.

Residential Parking Study:
Automobile Ownership Rates and Off-Street Parking Requirements in Portions of New York City

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Executive Summary

Since off-street parking requirements for new residences were first instituted in 1950 in New York City's Zoning Resolution, the city's planners have struggled to find the right formula for balancing competing priorities. These include neighborhood concerns about overutilization of on-street parking, developers' concerns about the cost of providing parking, and environmental considerations to reduce congestion and improve air quality by discouraging automobile ownership and use in transit-rich areas of the city. The recent surge in housing development and the cars associated with those new households has intensified the debate about parking requirements in New York City. Some communities – particularly those distant from the Manhattan Core – have argued that new housing with insufficient off-street parking has resulted in an under-supply of parking that negatively affects quality of life as drivers cruise in search of over-taxed on-street parking. Others have argued the opposite – that zoning requirements have encouraged car ownership, even when it might not be needed, resulting in more cars on the street, more congestion and more pollution.

In response to these concerns, the Department undertook this citywide study of both the Zoning Resolution's parking requirements for new housing and the car ownership patterns of the residents of such housing. After reviewing the demographic and land use contexts that affect rates of automobile ownership, the study examines patterns of auto ownership. Using quantitative data from the New York State Department of Motor Vehicles, the Census and the New York City Department of Buildings, the study analyzes the patterns in auto ownership with regard to building type and location in the city in order to determine whether current parking regulations reflect demand for parking. In addition, it examines other factors that should be considered in crafting more appropriate regulations that balance contemporary needs and goals, such as improving neighborhood quality of life, reducing congestion and pollution, encouraging the use of mass transit, and accommodating the needs of families.

Population Growth and Housing Development

New York City's population passed 8 million for the first time in 2000, gained an additional 302,000 persons by July 1, 2007, and is expected to grow even further. This population increase has been facilitated by the highest levels of new housing construction since the early 1970s.

New York City's housing growth outpaced the region's in the years after 2005, reversing the decades-long dominance of the suburban housing market. The reasons for this trend could include a renewed demand for urban living, immigration, and suburban land use policies that restrict the amount of new housing development. Regardless, the trend suggests that New York City is increasingly attracting households that might otherwise choose to live in the suburbs and own many more cars, and drive many more miles. To better accommodate these changes, the city's land use policies since 2002 have directed growth away from the city's auto-dependent fringes towards the transit-accessible areas closer to the city's core.

Study Methodology

This study compares vehicle registration data from the New York State Department of Motor Vehicles with new construction data from Department of Buildings Final Certificate of Occupancy filings for 1995 to 2005. The study also utilizes data from the decennial Censuses and the 2006 American Community Survey conducted by the Census Bureau.

Study Findings

Finding One: Ownership patterns vary by age of housing, location, and building type

a. Age: A comparison of the city's total housing stock to the new housing stock analyzed in this study (permitted 1995 to 2005) shows a significantly higher number of cars per household in new housing.

b. Location: Location has a major impact on auto ownership rates. An analysis that involved the mapping of vehicle registrations showed that the number of registered cars per household increased as distance from the Manhattan Central Business District (CBD) increased. This direct relationship between location and vehicle registrations is likely influenced by access to transit and density, as both housing density and transit access tend to decrease as one moves away from the core of Manhattan.

c. Building Type: In addition to location, this study identifies building type as a primary factor in predicting auto ownership. The study divided auto ownership data into three building type categories: one- and two-family, three- and four-family, and multi family buildings (five or more units). These housing types generally align with three distinct markets for housing which are typical in New York City – single-family homes and townhouses; lower density walk-up apartment houses and infill development; and mid- to high-density apartment buildings. When separated by building type, effectively isolating for the effect of location, one can recognize the impact of housing density (units per building), as determined by these specified building types, on auto ownership. In general, as density increases, car ownership decreases.

d. Combined Effects of Location and Building Type: Having identified the strong impacts of both location and building type on auto ownership, ownership data were further parsed in order to demonstrate the combined impacts of these two factors. Auto ownership per household can be observed to increase with distance to the CBD and decrease in buildings with a larger number of dwelling units.

Finding Two: Current requirements frequently do not reflect ownership patterns, suggesting that parking requirements may fall short of demand in some parts of the city and exceed demand in others

Finding One presents two major determinants for auto ownership – housing type and distance from Manhattan's CBD. Residential off-street parking in New York City is now regulated by zoning district, with an increase in requirements for lower density districts. Since permitted residential densities typically decrease as one gets further from the Manhattan core, the type of building and its location are implicit in the parking requirements. The lowest density districts – which have the highest parking requirements -- are generally mapped the furthest from the Manhattan Core.

However, these patterns aren't consistent throughout the city.. For instance, many mid-density districts are mapped along transit corridors in lower-density parts of the city, resulting in a mismatch between requirements and demand for parking in the area. Furthermore, in medium and high-density zoning districts throughout the city, waivers of parking exist for small lots. Subdivision of existing lots is common and permits development that does not provide any off-street parking, irrespective of the car ownership patterns.. Conversely, the underlying parking requirements in locations close to the Manhattan core may be too high.

Finding Three: Demographic variables influence car ownership

Families – families with children in particular – tend to select lower density housing and have higher levels of car ownership in all types of housing and in all locations when compared to non-family households. Middle and higher income households with incomes in excess of $60,000 are also more likely to own cars.

Finding Four: Proximity to transit has a modest influence on car ownership, depending on building type.

The average number of cars per unit in new housing declines among units near a subway station, compared to units farther away. Among single- and two-unit buildings, however, the influence is minimal, and among three- and four-unit buildings proximity to transit has only modestly greater influence. Among buildings with more than five units, the difference in cars per household is most pronounced in the Bronx and Queens (and to a lesser extent in Brooklyn) where new multi-family housing proximate to a subway station tends to have fewer cars per unit than new housing farther away. In Manhattan, there are not locational differences in car ownership with respect to proximity to subway stations since nearly all of Manhattan is well-served by mass transit. .

One reason for the modest influence of transit proximity on car ownership could be that New York City resident workers' commutation patterns, in many cases, direct them away from the primary destination of transit in the city's core, toward areas in the boroughs outside Manhattan or in the suburbs which are more conveniently accessed by car. An additional reason is that households own cars for other travel purposes, for which even accessible transit may not be considered an acceptable substitute.

Finding Five: Parking requirements are not a primary determinate of car ownership patterns

A review of the citywide auto ownership rates and changes in New York City parking requirements dating back to the 1920s suggest,a weak relationship between car ownership and parking requirements. Social and economic trends independent of parking requirements seem to affect rates of auto ownership in more profound ways. In contrast, significant increases or declines in auto ownership have not occurred following major changes to parking requirements in New York City. For instance, there was not a spike in vehicle registrations after the city first required parking in 1950. Rather, the straight-line increase of the previous 20 years continued, before leveling off during the oil crisis and population declines of the 1970s. Likewise, vehicle registrations did not decline in Manhattan after the elimination of required parking requirements in the central business district, and the establishment of a maximum for allowable parking .

The results of this study show that even when zoning requirements are identical, rates of car ownership vary widely depending on the type and location of housing. This suggests that that it is not requirements, themselves that influence car ownership. Rather, it is a range of factors, including housing density and distance from the core of Manhattan, income, commutation patterns, and the desire for mobility among certain groups (like families with children) play significant roles in influencing car ownership.

Conclusions and Policy Considerations

The current zoning district-based framework for regulating required residential off-street parking is an imperfect surrogate for all the factors that go into car ownership. In considering how to better regulate parking in the City, and potentially influence car ownership and the use of cars, a number of factors and measures must be considered.

The concept of parking demand management has been promoted in the planning literature but the number of policy levers available to the government may be limited. One measure that has received widespread attention is car-sharing, in which a private company rents out cars for short periods, allowing households with limited need to use a car to save money, relative to the cost of ownership. Car sharing reduces the total number of cars that need to be parked in the city and may reduce the total number of trips, because renters will be inclined to combine several errands in a single rental to save money. While car sharing companies are operating in New York City, they are also affected by the high cost of off-street parking and the limited availability of on-street parking. Government should explore ways of making this type of business more feasible to operate successfully. Greater reliance on bicycles can substitute for some auto trips and the City is undertaking a range of initiatives to promote bicycle use. Improvements in bus service, such as bus priority and select bus service, can improve travel times and make bus travel a more attractive alternative.

Other types of demand management are harder to foresee. The city has promoted commercial development in its Central Business Districts where the transit share for commutation is extremely high. However, the trends that are dispersing employment to the peripheral areas of the city and to the suburbs are also very strong. These include the growth of industries such as

health care, colleges and universities, and retailing which are dispersed throughout the region, as well as labor shortages in the suburbs due to the aging of the population and the lack of affordable housing. Provision of more mass transit to dispersed locations is in many cases difficult and costly. Other auto use patterns, such as those for shopping and recreation, may reflect strong consumer preferences.

The study highlights the competing concerns that are relevant to the development of parking policy including the lifestyle preferences of the public, improving mobility, ameliorating congestion, and environmental concerns. The data indicate that the inner ring areas closer to the Manhattan core in particular may offer the best opportunities to modify the parking regulations to achieve a better balance among these concerns. In other areas of the city, mismatches between the zoning requirements and neighborhood needs might be better addressed on a case-by-case basis through exceptions to the underlying rules and special zoning districts.

Recommendations for Further Study

In order to better address these competing concerns and recommend specific modifications to the residential parking regulations, the report identifies a number of areas of further study:

- Analyze building plans to examine the effect of off-street parking on urban design, parking lot layout, streetscape, and building typology;

- Update DMV auto registration data to determine trends in post-2005 buildings resulting from several major rezoning actions;

- Work with the New York City Department of Housing Preservation and Development to gain better information about the auto ownership characteristics of affordable housing residents;

- Evaluate impacts of parking requirements on the cost of housing;

- Evaluate impacts of proximity to transit on parking demand in greater depth to understand whether specific neighborhoods – such as areas served by more than one subway line or areas located near stations with express stops – offer important housing opportunities for car-less households;

- Explore demand management opportunities, such as car-sharing, bus service improvements, and bike lanes, bike parking, and bike sharing;

- Evaluate the supply of parking spaces in new housing relative to demand and existing requirements;

- Gain better understanding of patterns of vehicle utilization.

The Department is proceeding with much of this follow-up work as part of an "Inner Ring Study" which will examine in greater detail car ownership patterns in new buildings (affordable

and market-rate) in transit rich neighborhoods proximate to the Manhattan Core. The study will survey households in these areas to better understand how, why, and when cars are used, or alternatively, mass transit. Coupled with an evaluation of off-street parking regulations within these neighborhoods, the study will make recommendations for changes.

I. Introduction

Since off-street parking requirements were first instituted in 1950 in New York City's Zoning Resolution for new residences, the city's planners have struggled to find the right formula for balancing neighborhood concerns about overutilization of on-street parking, developers' concerns about the cost of providing parking, and environmental considerations to reduce congestion and improve air quality by discouraging automobile ownership and use in transit-rich areas of the city even as others seek to limit the amount of off-street parking. In recent years, frustration due to a perceived under-supply of parking at the neighborhood level has been expressed by many communities throughout the city. This can be seen most notably in community districts in Staten Island, Brooklyn, Queens, and the Bronx that are outside traditional business districts in historically low and mid-density residential neighborhoods. Such areas have experienced an increase in population and housing growth in recent years – two dynamics that can be expected to continue in the coming decades according to Department of City Planning projections. New York's chronically tight housing market – in which new housing is often marketable regardless of whether off-street parking is provided – creates an incentive for developers to minimize the amount of on-site parking and to take advantage of zoning rules allowing them to waive out of requirements altogether. Expressing concerns about inadequate residential off-street parking, communities have argued for higher residential parking requirements for new developments.

The Department has responded to local concerns on a community-by-community basis, where studies determined that increases in required parking were appropriate.

- In the areas with the highest auto ownership in the city – the low density zoning districts within Staten Island Community Districts 1-3 and Bronx Community District 10 (Throgs Neck) – "growth management" regulations increased required parking from one per unit to two spaces for a single-family home, and three spaces for a two-family home;

- Required parking was increased for medium-density zoning districts in Queens Community District 14 (the Rockaways) and is for St. George in Staten Island;

- The number of required parking spaces that can be waived for new housing was reduced in Downtown Jamaica in Queens, and similar changes are proposed in Dutch Kills and Forest Hills, also in Queens.

As these community issues were addressed, the need became clear for a citywide study of the relationship between the Zoning Resolution's parking requirements for new housing and the demand generated by the residents of such housing. After reviewing the demographic and land use context in which the Zoning Resolution establishes parking requirements, the study examines how these requirements relate to actual patterns of auto ownership. Using quantitative data from the New York State Department of Motor Vehicles, the Census and the New York City Department of Buildings, this study aims to understand patterns in auto ownership with regard to building type and location in the city in order to determine whether current parking regulations

reflect demand for parking. In addition, it examines what other factors might come into play in crafting more appropriate regulations meeting contemporary needs and goals.

II. Study Methodology

Study Scope: Excluded Areas

Seperate off-street residential parking rules currently govern the "Manhattan Core," located below 110th St. west of Fifth Avenue and below 96th Street east of Fifth Avenue. The rules, created in 1982, do not require any parking for new developments and limit permitted as-of-right parking. New housing construction in this area of Manhattan tends to consist of high density development on relatively small infill lots that are well-served by mass transit and where providing parking is often challenging. The parking issues in the Manhattan core are different from those in upper Manhattan, the Bronx, Brooklyn, and Queens and are not included in this study.

Staten Island was also excluded from the parking study, but for very different reasons. Although Staten Island's public transportation system includes the Staten Island Railway and an extensive public bus system, the island is largely developed with low-density, suburban-style single family homes and townhouses, and Staten Islanders tend to rely much more heavily on their cars than most other New Yorkers for day-to-day activities such as commuting to work, shopping, and visiting friends and family. Over the last 10 years, Staten Island experienced rapid housing development, earning Richmond County the distinction as one of the fastest growing counties in New York State. In the midst of this development it became clear to elected officials, residents, and planners that the existing parking requirements, previously the same as for similar zoning districts in other parts of the city, were inadequate to meet the car ownership demand of new residents. In response to these concerns – widely expressed by Staten Island residents, civic organizations and political representatives – the parking requirements were increased for most of the borough as part of the *Lower Density Growth Management* rezoning in 2005.

Since the Manhattan Core and Staten Island already have off-street parking regulations tailored to their unique conditions, these areas were not included in the scope of this study.

Study Focus/Parameters

Brooklyn, Queens, Northern Manhattan, and the Bronx exhibit greater diversity than Staten Island and the Manhattan Core with regard to development trends, density, and access to transit – factors that can strongly influence car ownership patterns. Thus, the geographic focus of the study covers these areas in order to determine auto ownership patterns that can inform a contemporary, comprehensive policy for accessory off-street residential parking in New York City. Data on cars registered to new housing units completed between 1995 and 2005 were the primary focus of the analysis. Although the scope of the study was limited to ownership patterns in new housing, data for cars registered to all housing were also analyzed to understand the broader context of car ownership in New York City.

Data Collection/Generation

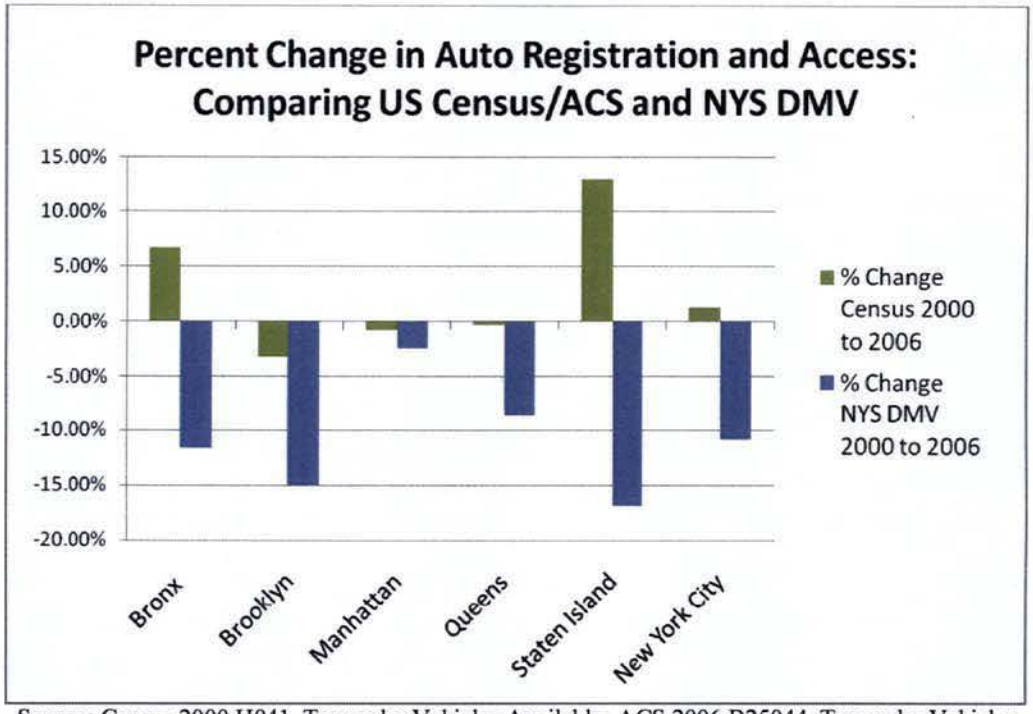
Data used for this study came from a variety of sources. The primary data source used was the New York State Department of Motor Vehicles (NYSDMV) database of all vehicles registered to New York City addresses in 2005. In order to gain a better understanding of the number of vehicles generated by residents of new housing, the study analyzed only personal motor vehicles registered to new housing (built since 1995) in Manhattan's Community Districts 9 through 12, and all of Queens, Brooklyn, and the Bronx. This subset represents approximately 1.46% of the total New York City (five borough) registrations in 2005. The study compared NYSDMV data with Census 1990 and 2000 SF1 and SF3 data, along with data from the 2006 American Community Survey, for time-series studies. Additional data included the New York City Department of Buildings (DOB) Final Certificate of Occupancy Filings to identify housing constructed since 1995.

Auto ownership data that is presented as an average for a Community District has limitations. The number of new residential buildings with ownership data varies widely between Community Districts throughout the city. For Community Districts with very few records, the statistic of median auto ownership should be interpreted cautiously. Such districts include Manhattan CDs 9 and 12, with 8 and 1 building records respectively; and Bronx CD 7, with 1 building record.

Data Analysis

There was a clear mismatch between census figures on automobile access and DMV data on car registrations, with census data indicating higher ownership than DMV data. The Census 2000 figures are based on the long form questionnaire asking, *"How many automobiles, vans, and trucks of one-ton capacity or less are kept at home for use by members of your household?"* As described and shown in Figure 1 below, NYS DMV vehicle registrations (the bars in blue) declined in all five boroughs between 2000 and 2006 despite an increase in housing development and population during the same period. Even if the rate of ownership – the number of cars per household – decreased, one would expect the aggregate numbers of car registrations to increase given recent population and housing growth. An analysis of the census data on access to automobiles, however, suggests different trends. Unlike the DMV data, the census shows an overall increase in auto ownership citywide, with large increases in the Bronx and Staten Island and small decreases in Brooklyn, Manhattan, and Queens. Despite the data mismatch, this study assumes that the access-to-automobiles data is analogous with the ownership data gained from the New York State DMV. Therefore, it is likely that a secondary factor is responsible for the discrepancy in auto data.

Figure 1: Comparison of DMV Auto Registrations and Census Vehicle Availability Data



Source: Census 2000 H041. Tenure by Vehicles Available; ACS 2006 B25044. Tenure by Vehicles Available; NYS DMV 2000 and 2006 Standard Series (Personal Auto) vehicle registrations

It is suspected that vehicle registrations are decreasing most significantly in boroughs where auto insurance rates are relatively high. Insurance rates are prohibitively high for many car owners who live within the city boundaries. Anecdotal evidence, backed by census data, hints towards a trend in city-residing car owners registering their cars at alternate addresses outside of the city, even though the cars remain parked and used primarily within the five boroughs. An inquiry in July 2008 into automobile insurance rates reveals lower insurance rates for cars in Dutchess and Nassau counties than rates for the same owner living in a neighboring borough. Table 1 highlights the findings.

Table 1: Comparison of Auto Insurance Premiums by select zip codes (Major insurer 6-month liability, collision and theft for a 2002 Honda Civic registered to a 30-year-old man with a good driving record and good credit)

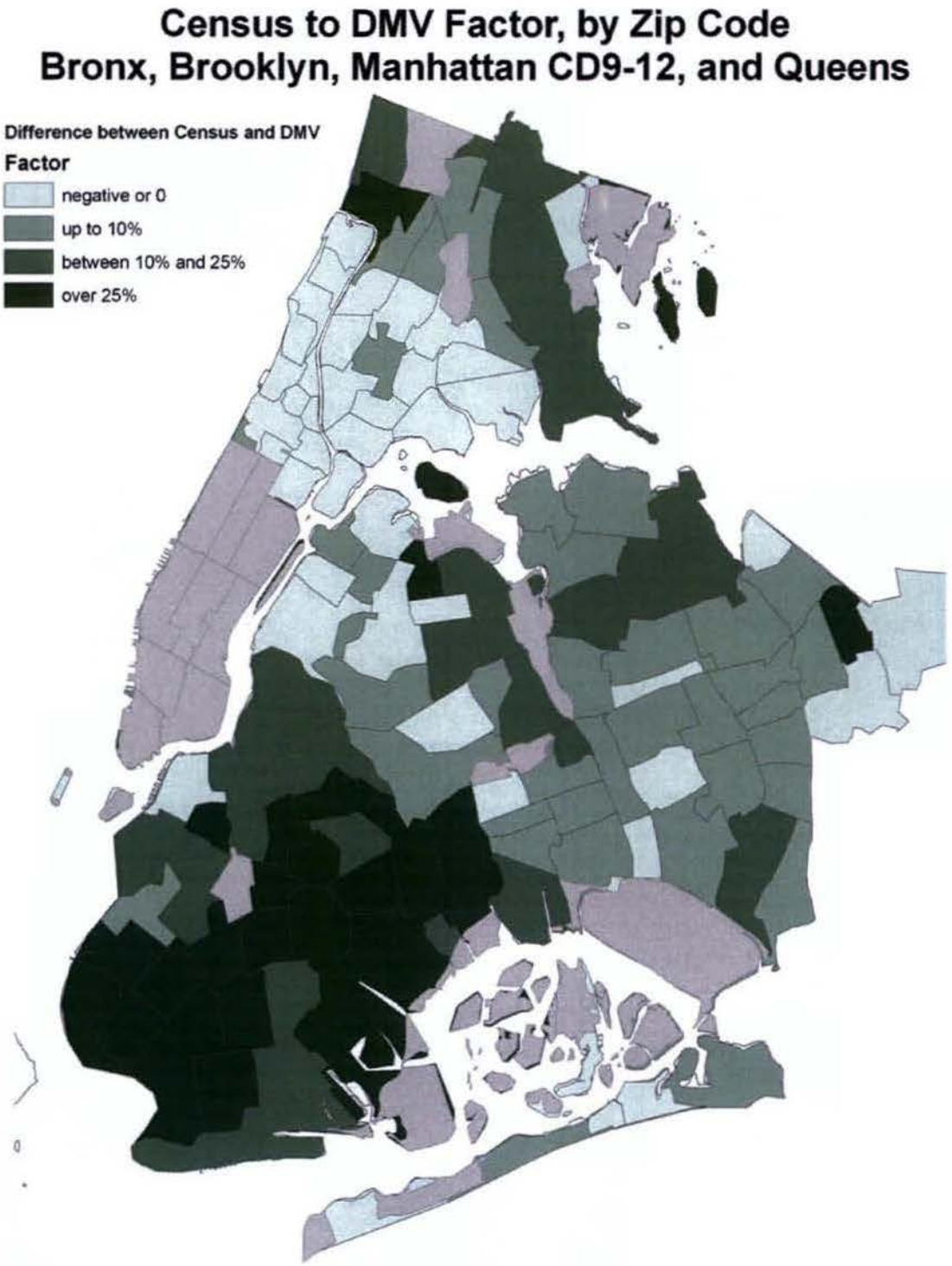
Zip Code	Premium
11234 (Mill Basin, BK)	$1,780
11317 (Flushing, QNS)	$1,120
10461 (Pelham, BX)	$1,110
10002 (East Village/LES, MN)	$920
11735 (Farmingdale, Nassau)	$880
11932 (Bridgehampton, Suffolk)	$660
12569 (Dutchess County)	$620
07961 (Morristown, NJ)	$530
28206 (Charlotte, NC)	$510
46256 (Indianapolis, IN)	$470

Source: Allstate Insurance

In areas with high auto insurance rates, car owners may employ strategies to register their cars at locations out of the city to reduce insurance costs. In order to account for this difference, the data were adjusted for consistency. Department of motor vehicle registrations were compared for all buildings by zip code to zip code-level census data on automobile access. Each record in the DMV database was inflated by the factor according to the census zip code record and, if the census rate of automobile access was higher, the record was inflated by the difference. No rate adjustment was applied for zip codes where the census reported fewer automobiles than the DMV. The maps in Figure 2 below show the adjustment factor range for each zip code.

Next, to understand patterns of car ownership across the city, trends were analyzed according to building type, location, proximity to public transportation, demographic characteristics, and zoning. In order to determine car ownership patterns of residents of new buildings, the DMV database was cross-referenced with DOB new construction completion files for housing built between 1995 and 2005. New building records with addresses that matched car registrations were selected. Once the final database was compiled, the car ownership data for each address were analyzed in a number of ways (by zoning district, required parking, building type, and location).

Figure 2: Difference between Census Access to a Vehicle and DMV Vehicle Registrations



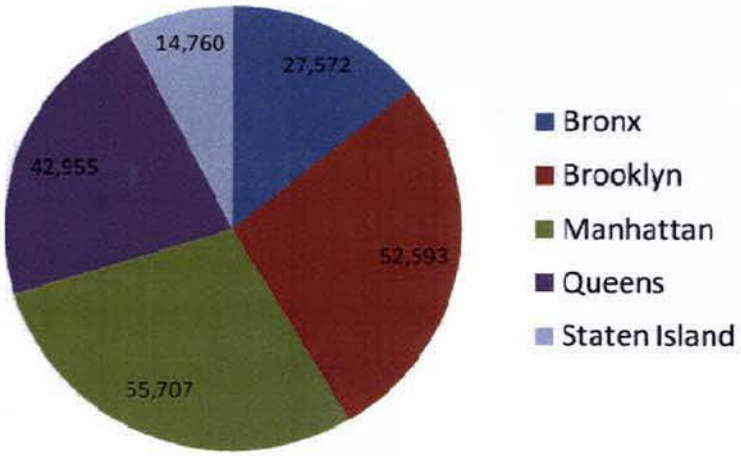
Source: U.S. Census 2000, NYS DMV, Dept. of City Planning

II. Population Growth & Housing Development

In the seven years from 2000 to 2007, New York City's population increased by an estimated 301,934 persons, over and above the record population of 8,008,278 recorded in the 2000 Census[1]. This population increase has been facilitated by the highest levels of new housing construction since the early 1970s. From the beginning of 2000 through the end of 2007, 27,835 new residential units were issued permits in the Bronx, 51,975 in Brooklyn, 55,707 in Manhattan, 42,293 in Queens, and 15,801 in Staten Island – a total of 193,611 (Figure 3).

The availability of new housing and the underlying demographic trends behind the city's population growth – natural increase and immigration offsetting the outflow of population domestically – are expected to cause continued growth in the city's population in the next two decades. The Department of City Planning's projections indicate that the city's population will grow to 9.1 million by 2030 – an increase greater than 12% over the 8 million residents in 2000[2].

Figure 3: New Residential Unit Permits Issued by the Department of Buildings 2000-2007



Source: NYC Department of Buildings, new residential building permits, compiled by Department of City Planning

New York City's housing growth outpaced the region's in the years after 2005, reversing the decades-long dominance of the suburban housing market. Figure 4, below, shows that while New York City represents 38 percent of the region's total population, it accounted for only 12 percent of the region's new housing units in 1994[3]. By 2007, however, the number of housing units permitted for the year in New York City not only experienced a seven-fold increase over the 1994 level, but exceeded housing growth in the suburbs and represented over 56% of the

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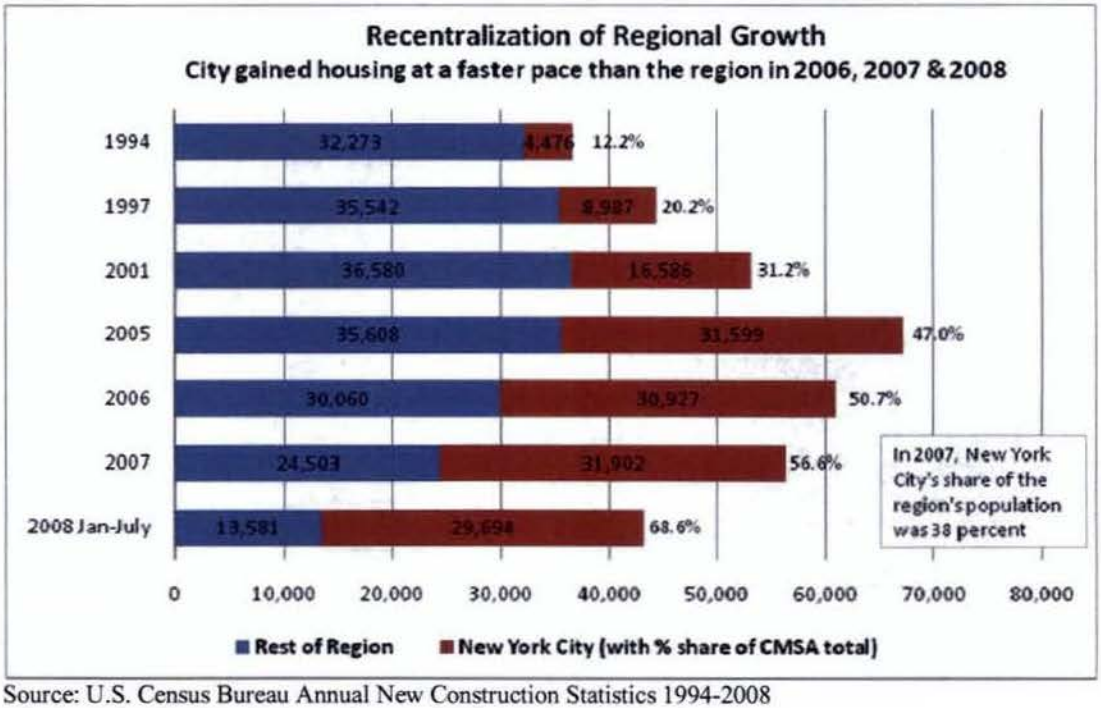
1 Department of City Planning, Population Division, Challenge to U.S. Census Bureau Estimate of July 1, 2007 Population, September 2008.

2 New York City Population Projections by Age/Sex and Borough, 2000-2030. http://nyc.gov/html/dcp/html/census/2000_2030_popproj.shtml

3 The region is defined as the Consolidated Metropolitan Statistical Area, which includes the 5 counties of New York City and 25 suburban counties in New York, New Jersey, Pennsylvania and Connecticut.

region's new housing growth. Also, unlike the suburbs, New York City continued to show increases in the number of housing units permitted annually, suggesting a recentralization of housing growth. The reasons for this trend could include a renewed demand for urban living, immigration, and suburban land use policies that restrict the amount of new housing development. Regardless, the trend suggests that New York City is increasingly attracting households that might otherwise choose to live in the suburbs with a lifestyle that would be characterized by owning many more cars and driving many more miles.

Figure 4: Recentralization of Regional Growth: Housing Permits in the NYC CMSA, 1994-2008



Source: U.S. Census Bureau Annual New Construction Statistics 1994-2008

At the same time that regional growth has been re-centralizing within the city, the city's land use policies have directed growth away from the city's auto-dependent fringes towards the more transit-accessible areas closer to the city's core. This trend is illustrated in Figure 5, below, which shows the Department's projection of 2000-2010 population growth by neighborhood, prepared for the PlaNYC 2030 study in the spring of 2007[4]. The city's transit grid is overlaid on this map to indicate transit accessibility of each area.

Figure 5 indicates that the decade's population growth is concentrated in transit-accessible areas. Much of the growth in outlying areas of the city, such as eastern Queens, occurred earlier in the decade prior to zoning changes that redirected growth.

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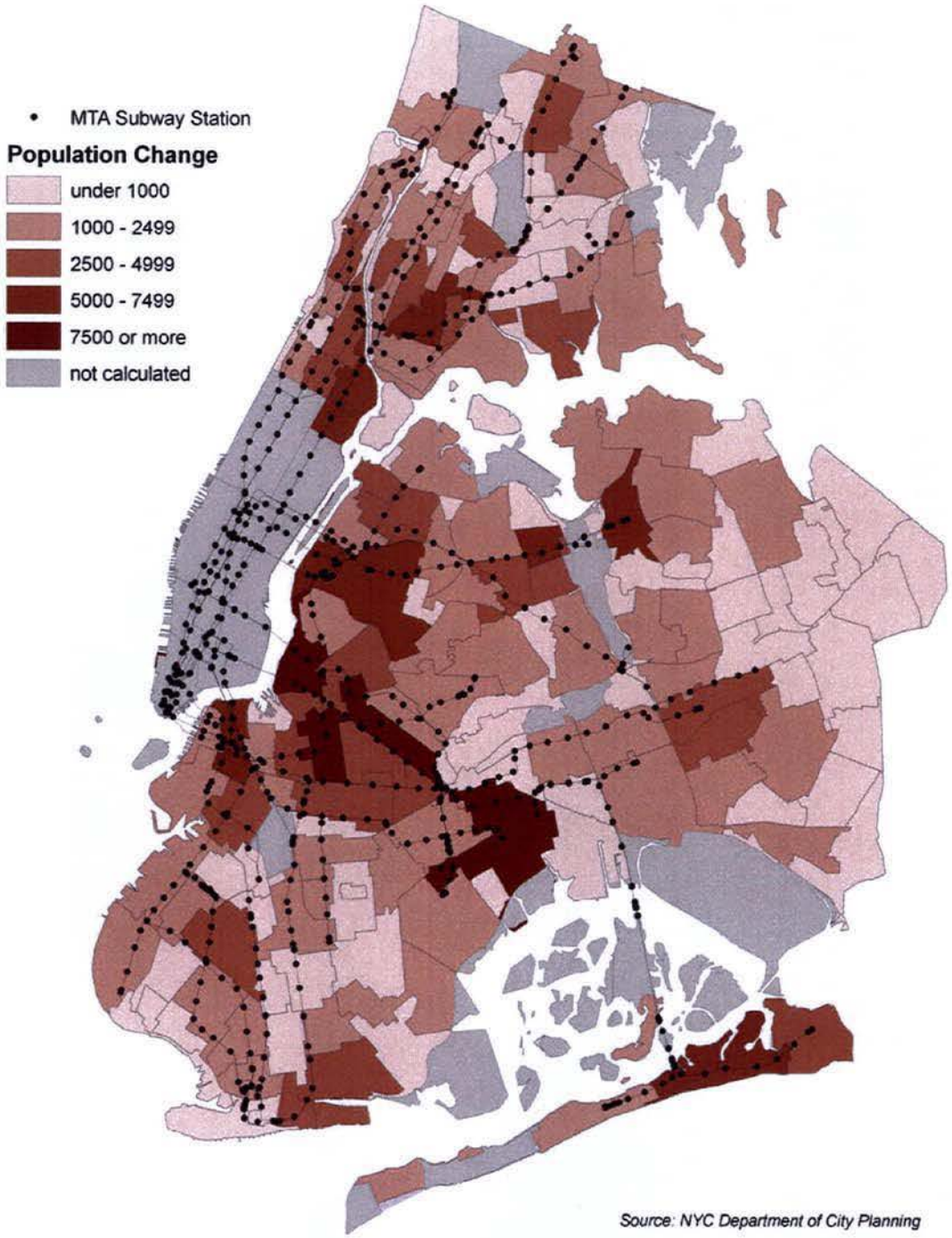
4 Source: NYC Department of City Planning, Population Division, Projected Population Change by Neighborhood, New York City, 2000-2010. http://nyc.gov/html/dcp/pdf/census/pop_change_neigh.pdf

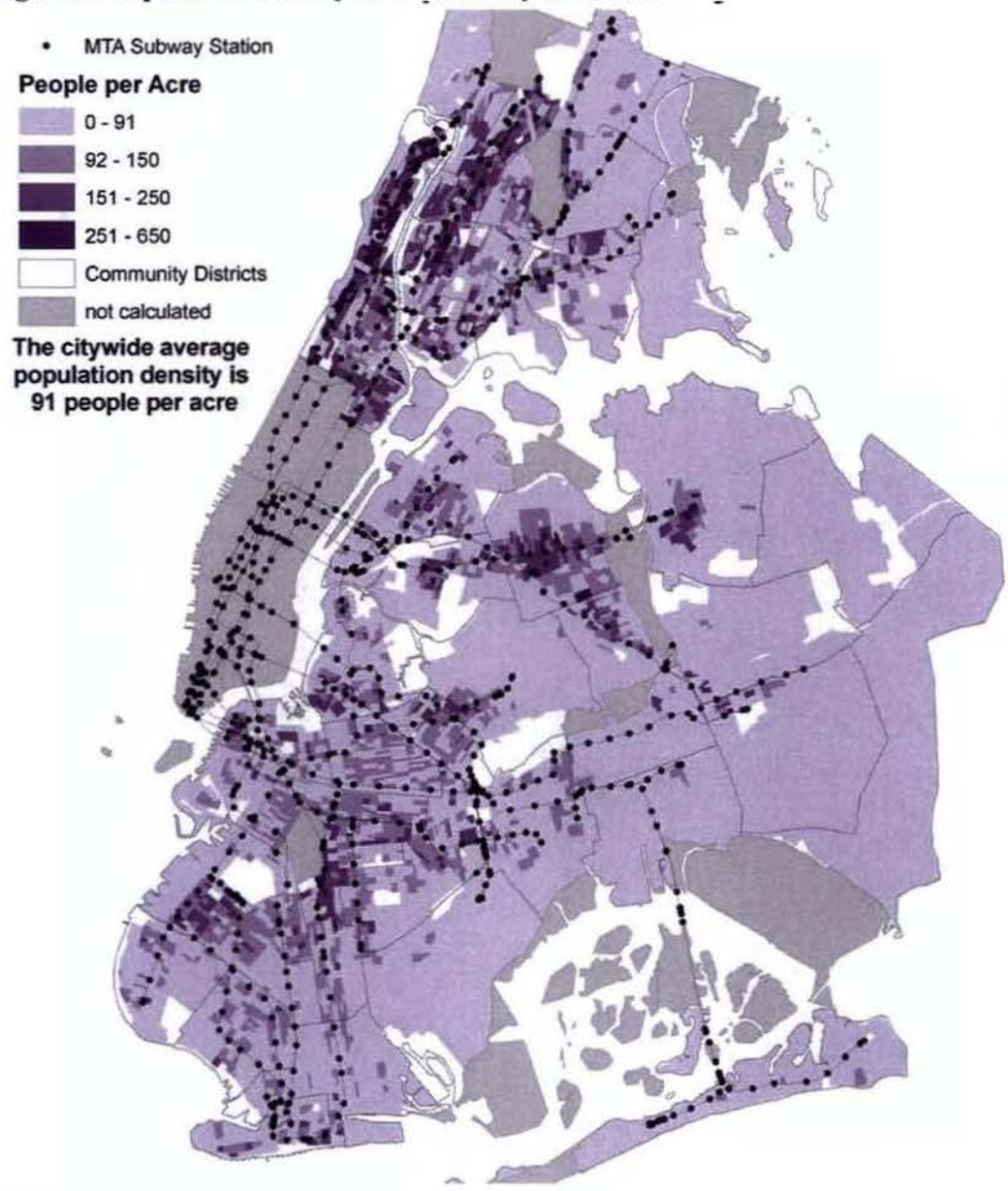
Figure 5: Subway Access and Projected Population Change by Neighborhood 2000-2010



Source: NYC Department of City Planning, Population Division, Projected Population Change by Neighborhood, New York City, 2000-2010. http://nyc.gov/html/dcp/pdf/census/pop_change_neigh.pdf

One consequence of the city's policy of redirecting growth to transit-accessible areas is that, to the extent that new residents have cars, they are searching for parking in areas that are already very dense and where on-street parking is already heavily used. The map in Figure 6 shows the 2000 Census population density in the city's transit corridors. Population density is greatest in those areas closes to transit.

Figure 6: Population Density and Proximity to Transit



Source: US Census 2000, NYC Department of City Planning

Prior to 1938, parking was prohibited within residential buildings, and R6 and higher districts are characterized by mid- to high-density multifamily housing in which little open space was available to locate free-standing garages. Figure 7 shows the distribution of housing developed before 1938, in R6 (mid-density) and higher-density zoning districts. As shown in the map, the pre-1938 multifamily housing is concentrated in the same areas where transit is accessible, population densities are high, and the city's planning policies have redirected growth. When new housing is built and new residents choose to own cars, they are competing for limited on-street parking with existing residents for whom off-street parking is not provided.

Figure 7: Housing Built Before 1938, R6 and Higher Zoning Districts

Source: NYC Department of City Planning PLUTO data

III. History of New York City Parking Requirements Affecting the Study Area

New York City first permitted parking for the private automobile within new residential buildings in 1938. Prior to that time, residential parking was permitted only in free-standing structures such as the rear garages found in many older small homes. Twelve years later, in 1950, residential parking requirements were enacted for the first time.

In comments made regarding the 1950 zoning amendment, covering *Parking Facilities for Dwellings*, City Planning Commission (CPC) Chairman Jerry Finkelstein noted the Commission's awareness of the "growing congestion in our City" and stated the policy of the CPC is and will continue to be to "get parked cars off the City's streets" (pg. 522-523, *City Planning Commission Report*, June 21, 1950).

Still, the policy was not without opposition. A *New York Times* article dated July 21, 1950 noted opposition from the spokesmen for the Brooklyn and Queens real estate boards who feared that residential parking requirements would "discourage the construction of apartment houses and one and two-family houses." These conflicting priorities have continued to echo through the years of debate on this subject.

1961 Zoning Resolution

Residential parking requirements were increased with the citywide zoning revision of 1961. The *Zoning New York City* pre-revision analysis, prepared for the City Planning Commission by consultants Voorhees, Walker, Smith & Smith and dated August 12, 1958, noted: "the proposed zoning accepts the existence of the automobile" and requires that "off-street parking be provided in all residential districts...except for the most congested downtown areas where mandatory off-street parking would be uneconomic and impractical" (pg. vii). This rationale forms the basis for the 1961 zoning change proposal with regard to residential parking. The report continues: "In Residence Districts appreciably higher parking requirements are proposed than in the present resolution, in recognition of the clear-cut trends in both automobile ownership and the voluntary provision of off-street parking spaces by most post-World War II residential developers. . . The flexibility required to obtain adequate parking facilities where needed without penalizing the areas and uses with low parking needs is obtained by establishing parking levels which vary by district depending on location and by the traffic-generating characteristics of the various types of uses" (pg. x).

According to the report, "higher [residential] parking requirements are established in line with recent substantial increases in automobile ownership and utilization, particularly among those persons who will be living in the new private housing of all types to which these requirements will apply" (pg. 85). These regulations were set with three major purposes: "1) to prevent the saturation of streets in the developing low-density residential areas with cars parked on the street; 2) to encourage and require more off-street parking in medium- and high-density areas to help relieve the pressure on the streets for parking; 3) to insure that parking facilities in all residential

areas meet adequate design standards in order not to endanger the residential character of the neighborhood" (pg. 85).

1973 Infill Zoning

As construction costs increased and opportunities for new development on vacant land diminished through the 1960s, the city turned to existing small lots as a resource for building and renovation. Infill zoning allowed for enlargements of existing houses in low-density areas (R4 and R5). Three-family houses were made compliant with zoning on relatively small lots, subject to height limits. Parking requirements were reduced in R4 and R5 zones from 1.00 and 0.85, respectively, to 0.66 spaces per unit, since the number of permitted dwelling units in the building was increased from two to three. This was viewed as more consistent with ownership rates at the time (*Infill Zoning*, Department of City Planning, January 1972).

1987 Establishment of the Quality Housing Program

With the establishment of the Quality Housing program in 1987, the City Planning Commission reduced the parking requirements for "Quality Housing" developments in R6 and R7 districts (See Glossary for definition). Where parking had previously been at 0.7 and 0.6 spaces per dwelling unit for R6 and R7-1 districts, respectively, the number of spaces required was reduced to 0.5 spaces per dwelling unit.

Quality Housing was designed to address out-of-character residential development and a "long-term dearth of housing production" (*City Planning Commission Report*, June 17, 1987, Calendar No. 78). It sought to "encourage the production of multi family housing, particularly in medium density districts, while maintaining the existing scale of buildings and quality of life in affected neighborhoods" (pg. 5).

The Quality Housing proposal was reviewed by Community Board representatives, community members and elected officials. Several concerns were raised, particularly over the modification to parking requirements. In addition to reducing the requirements, and allowing for waivers, accessory off-street parking spaces pursuant to the Quality Housing program are required to be completely enclosed or screened from residential units, adjacent zoning lots, and streets.

Opposition to both the reduced requirements and the additional burden of enclosure and screening were raised. At the Community Board public hearings, a major concern was that in Brooklyn, Queens and Staten Island a 50 percent parking requirement was inadequate (pg. 19). The Queens Borough Board recommended that "the proposal be adopted... with parking requirements based on automobile ownership and proximity to mass transit" (pg. 20). Others argued that "the cost of covered parking, necessitated by a parking requirement and high coverage buildings, would substantially raise construction costs and reduce housing production" (pg. 21) and a similar concern suggested that "small sites require waivers and modifications of the parking requirement because of the difficulties of providing a ramp and the required parking on one level" (pg. 22).

The Commission acknowledged the tension between requiring adequate parking space and allowing for appropriate building construction and design cost. As a result, revisions were made to the Quality Housing program: "In R6 and R7 districts the proposed 50 percent parking requirement generally coincides with the amount of parking that can be provided economically on one level of enclosed parking. To facilitate the provision of additional parking where feasible, the program has been revised to permit uncovered, on-grade parking on that portion of the development site remaining after the planting and recreation space requirements are met. Any such parking would have to be screened from on-site apartments, adjacent properties, and the street. The current Zoning Resolution regulations recognize the difficulty of satisfying the parking requirements on small zoning lots and permits modifications or waivers on such lots. The Commission modified the proposal to make these provisions applicable to most Quality Housing developments" (pg. 36-38).

1995 - Long Island City Parking Requirements Removed

In October 1995, parking regulations in Long Island City, Queens were reduced to resemble those in Manhattan's core – effectively eliminating residential parking requirements for new construction. The basis for this modification was concern among the community and elected officials that, as Long Island City evolved from a primarily industrial to largely residential and commercial neighborhood, traffic congestion caused by Manhattan-bound commuters using either the Queensboro Bridge or Queens-Midtown Tunnel would worsen.

The 1990 Final Environmental Impact Statement (FEIS) for the Hunters Point Waterfront Project recommended imposing "restrictive parking regulations in Long Island City to discourage commuters and other auto users from driving to Long Island City an encourage them to use mass transit instead." As the Zoning Resolution of 1961 required more significant off-street parking for new residential development, such restrictive regulations would be necessary to limit congestion caused by automobile traffic generated by new residences and businesses.

The zoning text of 1995 limited the amount of accessory parking that could be provided for any type of development. Off-street parking spaces cannot exceed 50 percent of the dwelling units contained in the development or enlargement, or 200 spaces, whichever is less, within an area of about six blocks. Within the remaining portion of the subject area, the number of accessory off-street parking spaces cannot exceed 100 percent of the dwelling units contained in the development or enlargement (see map in Appendix C).

IV. Current Requirements

Citywide, parking requirements generally align with three density classifications (see Table 2 for a summary). The lowest density districts require one space per unit, with higher requirements in "growth management areas." Mid-density developments require between 0.5 and 0.85 spaces per unit, while the densest require between zero and 0.4 spaces per unit, depending on the size of the development site and applicability of waivers. There is no parking requirement for Manhattan Community Districts 1 through 8 or Long Island City.

Table 2:

Summary of New York City Residential Parking Requirements		
Zoning District	*Parking Requirement*	*Waiver Allowed*
Low Density (R1-R4*)	1.00	no
Mid Density (R4 "infill", R5-R7)	0.50 - 0.85	yes**
High Density (R8 - R10)	0.40 - 0.50	yes

* except R4 "infill"

** except R4 "infill" and R5 "infill", R5 and R5A

Waivers & Subdivisions:

Although parking is nominally required, it is possible to waive the requirements for many types of residential construction. The waivers were created to address challenges to accommodating parking on small sites, thereby avoiding a situation where developers might be forced to reduce the number of units, seek a variance, or abandon a project if parking were required. However, developers are generally not prohibited from creating a small lot condition by subdividing the lot, thereby waiving out the parking. As a result, many developments provide little or no off-street parking for residents, despite the requirement.

Figure 8: Recent R7X Development Using Waivers

For instance, in high- and mid-density districts, developers building on small lots are permitted to waive required parking if the required parking for a building, which is based on a percentage of units, is less than or equal to the designated waiver. For example, on land zoned R6, a widely mapped, mid-density apartment building district, a developer is required to provide one space for every two dwelling units – a 50 percent requirement. This parking requirement may be waived, however, if the development yields five or fewer required parking spaces. Therefore, up to10 dwelling units could be built on the site, generating only five required parking spaces and the developer is not required to construct those parking spaces.

There are no rules that currently prohibit developers from creating the small sites that trigger waivers. As a result of this ability to waive out, many developers have realized an incentive to subdivide larger lots into smaller ones in an effort to avoid providing required parking. By subdividing a large lot and then building the same number of originally-intended units across a series of smaller lots, the waiver threshold is more easily met. For example, as shown in Figure 8 in a photo

of two newly constructed apartment buildings in an R7X district in Astoria, Queens, a 98-unit building could have been constructed on a 20,000 sq. ft. lot, generating a requirement of 49 parking spaces (with no possibility of waiving the 0.5 spaces per unit parking requirement). However, the developer chose instead to subdivide the 20,000 sq. ft. lot into two 10,000 sq. ft. lots with two buildings, each with 48 dwelling units. For lots of 10,000 sq. ft. or less, the parking requirement in R7X is reduced to 0.30 spaces per unit, generating a requirement of 14 spaces in each building. Since this is less than the 15-space waiver in R7X districts the developer can achieve the same number of intended units (98) while waiving out of any required parking.

In the case of an R6 development in Olinville in the Bronx (shown in Figure 9), a developer subdivided a site into three separate zoning lots with three, 8-unit buildings, each of which waived out of the 0.50 spaces per unit parking requirement under the five space waiver in R6 zoning districts. As one building, the parking required would be 12 spaces, and no waiver applies.

In total, 3267 buildings out of the 7993 buildings analyzed qualified for a parking waiver. A detailed table of Zoning Resolution parking requirements and waivers is located in Appendix A.

Figure 9: Recent R6 Development Using Waiver

V. Study Findings

This study has arrived at five findings that will contribute to the city's base of knowledge in its efforts to develop appropriate regulations establishing required parking for new residential developments.

Finding One: Ownership patterns vary by age of housing, location, and building type

The study explored a number of key factors to determine the relationship between rates of auto ownership and the built environment, such as zoning, parking requirements, housing density, age of housing, and location. In analyzing the data, three factors displayed consistent patterns, including age of housing, location, and building type. An explanation of the research and findings follows.

a. Age of housing:

A comparison of the city's overall housing stock to the new housing stock analyzed in this study (permits issued between 1995 and 2005) showed a significantly higher number of cars per household in the new housing. As demonstrated in Figures 10 and 11 below, housing built from 1995 to 2005 generated a higher number of vehicle registrations per dwelling unit than older housing. The maps show the per unit vehicle registrations by community board for all housing, with shades of grey increasing in darkness for increasing rates of per unit auto ownership. When all housing is analyzed, in 26 of the city's 48 community districts included in the study, the average number of cars per household is less than 0.5 spaces per unit. Indeed, for all housing, only three of these community districts in the far eastern portions of Queens have ownership rates that exceed an average of one car for every household.

By contrast, when isolated to show just car ownership among households living in newly constructed buildings, the pattern changes noticeably. The number of community districts with an average of 0.5 or fewer cars per unit drops to nine from 26 for all buildings, while the number of districts exceeding an average of one car per unit increased to 11 from three for all housing. This could be driven by a number of factors: first, newer housing is likely to cost more than older housing and thus occupants are more likely to have high incomes. Data show that more affluent households are more likely to own an automobile (see Figure 18 on page 42). Second, much of the city's older housing stock was developed within close proximity to mass transit at a time when most households did not own cars and developments provided little or no parking. Households whose lifestyle preferences do not include car ownership may be more likely to choose to live in this type of housing.

Figure 10: Cars in All Existing Housing

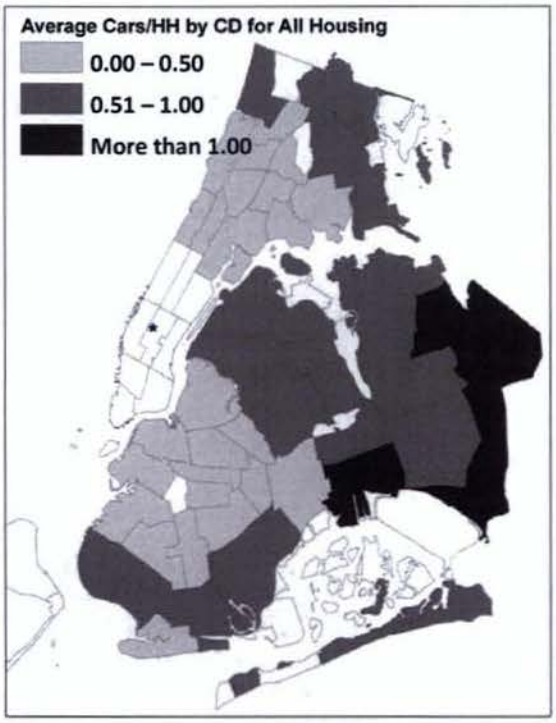
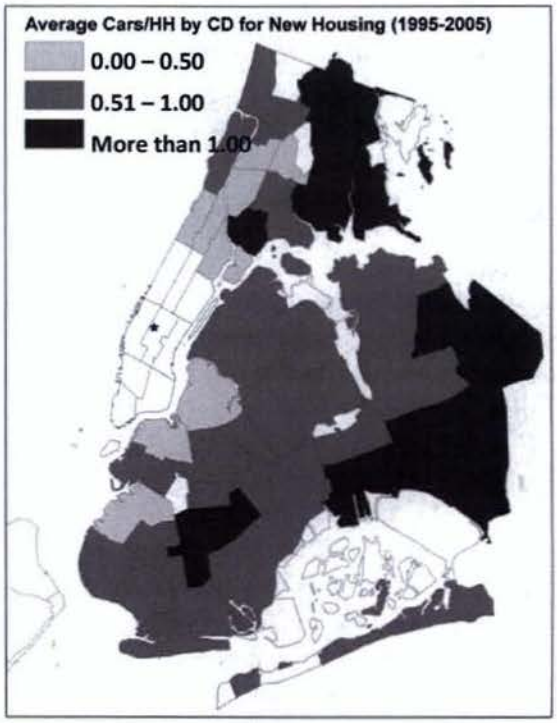


Figure 11: Cars in New Housing



Source: Standard Series Vehicle Registrations in Force, 2005 compiled by DCP; NYC Department of Buildings, New Residential Building Permits, compiled by DCP, US Census, American Community Survey 2005

Table 3: Comparing Average Cars per Housing Unit for New Housing and All Housing in the Bronx, Queens, and Brooklyn*, 2005

	Average Cars per Housing Unit	Total Residential Units
New Housing in Bronx, Brooklyn, Queens	0.81	31,731
All Housing in Bronx, Brooklyn, Queens**	0.59	2,132,899

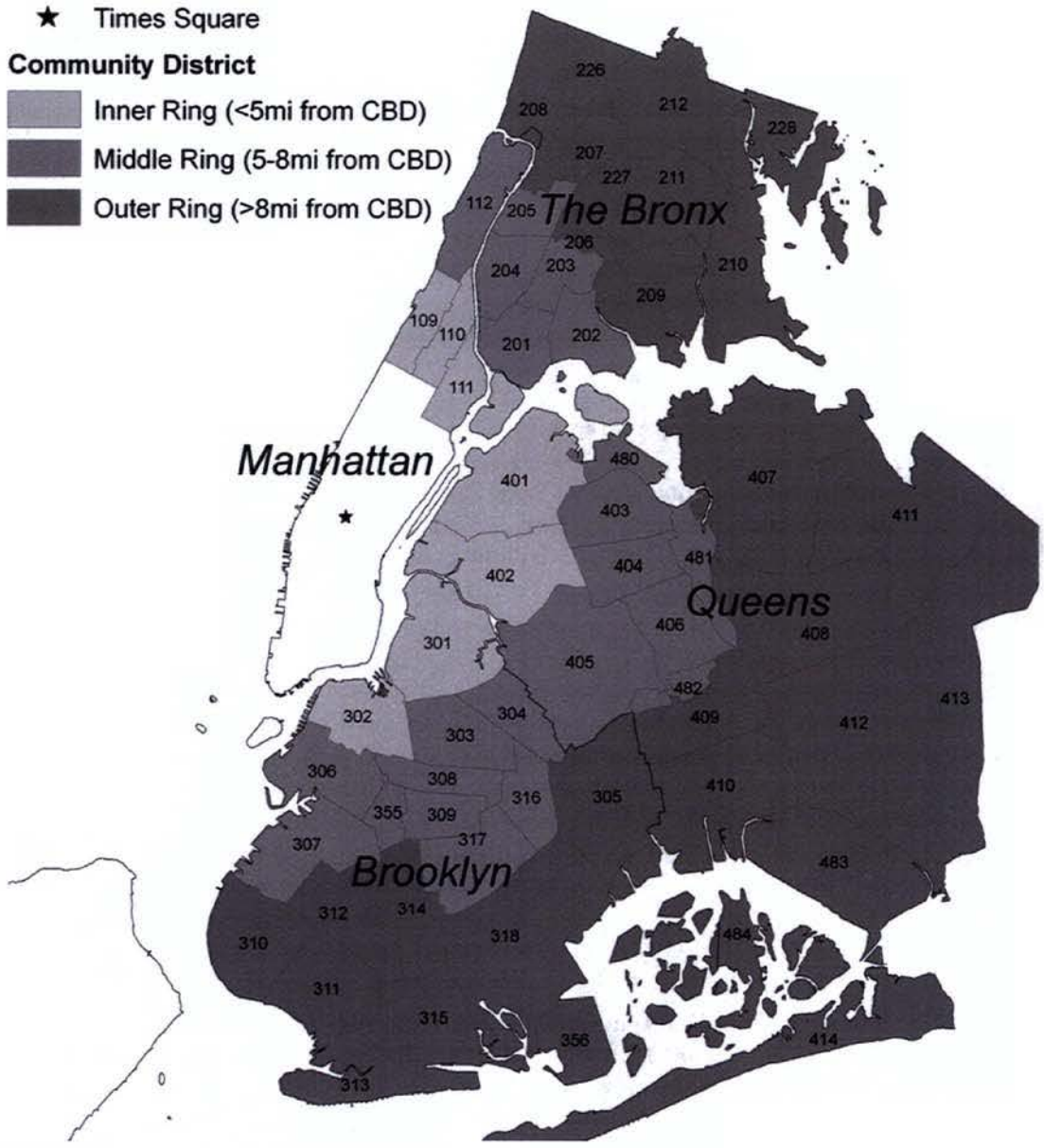
*Northern Manhattan excluded due to extremely low numbers of cars registered to new housing units
**Average Cars per Housing Unit for All Housing based only on DMV car registration data and is not adjusted to account for Census data reporting access to cars.
Source: Standard Series Vehicle Registrations in Force, 2005 compiled by DCP; NYC Department of Buildings, New Residential Building Permits, compiled by DCP, US Census, American Community Survey 2005

b. Location:

To determine the relationship between location and car ownership in New York City, the DMV data were analyzed based on specified distances from Manhattan's Central Business District. The CDs were first grouped into one of three categories determined by a specified distance from Manhattan's Central Business District, with Times Square as the epicenter. The categories, shown below in Figure 12, include CDs with more than half of their area within five miles of

Times Square (Inner Ring), within five to eight miles of Times Square (Middle Ring) and greater than eight miles from Times Square (Outer Ring).

Figure: 12 Geographic Categories by Community District as Determined by Distance from Manhattan CBD (Times Square)



Source: NYC Department of City Planning

The DMV data were then analyzed based on these three geographical categories – inner, middle, and outer ring. As shown below in Table 4, the average number of cars per unit increases as one moves away from the Central Business District, indicating a direct relationship between distance

from Manhattan CBD and car ownership. In the inner ring, cars were registered to an average of approximately 41 percent of new housing units built between 1995 and 2005, compared to an average of 74 percent of housing units in the middle ring and nearly one car per new housing unit in the outer ring.

Table 4:
Average Cars per Housing Unit by Location, New Housing

Location	Average Cars per Housing Unit	Total New Residential Units	Total New Residential Buildings
Inner Ring	0.41	6,700	868
Middle Ring	0.74	7,803	2,207
Outer Ring	0.92	17,228	4,918
Grand Total	0.77	31,731	7,993

Source: NYS Department of Motor Vehicles, Standard Series Vehicle Registrations in Force, 2005 compiled by DCP; NYC Department of Buildings, New Residential Building Permits, compiled by DCP

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Source: NYS Department of Motor Vehicles, Standard Series Vehicle Registrations in Force, 2005 compiled by DCP; NYC Department of Buildings, New Residential Building Permits, compiled by DCP

For all housing units in the Bronx, Brooklyn and Queens, there are 0.59 registered cars per housing unit. For new housing in these boroughs, the average increases to 0.81.

c. Building Type:

In addition to location, density of housing is also a determinant of auto ownership. Typically, as density increases, rates of auto ownership tend to decrease. This study identified building type as a primary factor in predicting auto ownership. Table 5 isolates building type (as defined by the number of residential units in the building) categories of one- and two- family, three- and four-family, and multi family buildings (more than five units). These housing types generally align with three distinct markets for housing which are typical in New York City – single-family homes and townhouses; lower-density walk-up apartment houses and infill development; and mid- to high-density apartment buildings. The data demonstrate the difference in vehicle registrations per household when isolated by the three different building types.

Table 5:
Average Cars per Housing Units by Housing Type, New Housing

Building Type	Average Cars per Unit	Total New Units	Total New Buildings
One- and Two-Family	1.33	9,498	5,463
Three- and Four-Family	0.79	6,024	1,886
Multifamily (5 or more)	0.44	16,209	644
Grand Total	**0.77**	**31,731**	**7,993**

Standard Series Vehicle Registrations in Force, 2005 compiled by DCP; NYC Department of Buildings, New Residential Building Permits, compiled by DCP

By isolating building type categories, one can see the impact of housing density on auto ownership. Though this breakdown disregards other factors that influence car ownership, such as income, family type and housing tenure (whether a household is occupied by renters or owners), it offers insight into the number of cars generated by a new development. One- and two-family buildings show the greatest auto generation with an average of 1.33 cars per household, while the typical multi family (five or more units) building generates a third as many cars with an average of 0.44 cars per household. The relationship between car ownership and density of housing (units per building), therefore, is inversely related, with the number of cars per household increasing as housing density decreases.

d. Location & Building Type

Having identified the strong impacts of both location and building type on auto ownership, ownership data were further parsed in order to demonstrate the combined impacts of these two factors. Table 6, below, displays typical auto generation for buildings based on building type and location – in this case, proximity to the Manhattan central business district. Within each area, the average registrations per household are displayed according to one of nine categories determined by a combination of building type and location categories. This table shows that within each category the number of registrations per household increases as building size decreases, and that, holding building type constant, the registrations per household increase as one moves further from the Manhattan CBD. Therefore, auto ownership per household unit can be observed to increase with distance to the CBD and decrease as the number of units in a building increases. This analysis suggests that a more accurate depiction of auto ownership trends looks at both housing type and location together rather than in isolation. It also reveals a wide variation in auto ownership rates within the three typologies depending on the location of the building, underscoring the importance of considering both factors when trying to understand patterns of auto ownership in New York City. For instance, a family living in a two-family building in downtown Brooklyn, an inner ring location, would be more likely to own a car than a family living in an apartment building in the same neighborhood, but less likely to own a car than a family living in a two-family building in Bay Ridge, an outer ring Brooklyn neighborhood.

Table 6:
Average Cars per Household by Housing Type and Location, New Housing

Category	Average Cars per Household	Total New Units	Total New Buildings
Inner Ring, 1&2 Family	1.03	509	260
Inner Ring, 3&4 Family	0.86	1,398	452
Inner Ring, Multifamily	0.27	4,795	156
Middle Ring, 1&2 Family	1.11	2,717	1,457
Middle Ring, 3&4 Family	0.74	1,842	582
Middle Ring , Multifamily	0.44	3,244	168
Outer Ring, 1&2 Family	1.45	6,272	3,746
Outer Ring, 3&4 Family	0.89	2,788	852
Outer Ring, Multifamily	0.53	8,170	320
Grand Total	0.77	31,731	7,993

Standard Series Vehicle Registrations in Force, 2005 compiled by DCP; NYC Department of Buildings, New Residential Building Permits, compiled by DCP

Finding Two: Current requirements frequently do not reflect ownership patterns, suggesting that parking requirements may fall short of demand in some parts of the city and exceed demand in others

This section provides an analysis of the DMV car registration data in the context of parking requirements. An analysis using GIS mapping software revealed that in many cases, requirements do not reflect actual ownership patterns, and that in many parts of the city required parking falls short of demand, while in others it may be higher.

Required Parking Compared with Vehicle Ownership

In order to assess the relationship between parking requirements and the off-street parking demand of residents of new housing, the DMV data were mapped and compared with the zoning requirements for each district, taking into consideration sites eligible for small lot reductions and waivers. The study assumed buildings waived out of providing parking when permitted to do so through zoning (see Appendix A for parking requirements) and identified areas throughout the city that demonstrated the highest imbalance between parking requirements and parking demand in newer housing.

Figures 13 through 16, below, display both the location and the potential parking requirement deficit or surplus per unit of individual new buildings based on the difference between registered autos and required parking – showing the extent to which individual residential buildings align

with existing parking requirements. Figure 13 shows the parking deficit or surplus for all new housing, regardless of housing type, while Figures 14 through 16 display the data separately by building type – demonstrating that the relationship between requirements and parking demand varies not only by location, but also by density of housing.

Data points on the left-side maps represent a new building where the parking requirements are less than the number of registered cars per unit. Data points on the right-side maps have parking requirements equal to or above the registered autos of a building's occupants, and indicate locations where parking requirements meet demand.

It is important to recognize that Figures 13 through 16 compare registered autos to the amount of parking required, given waivers where eligible, rather than to actual parking spaces provided. Builders may elect to include a greater number of parking spaces than is required by the Zoning Resolution. The figures do not necessarily reflect the actual off-street parking available.

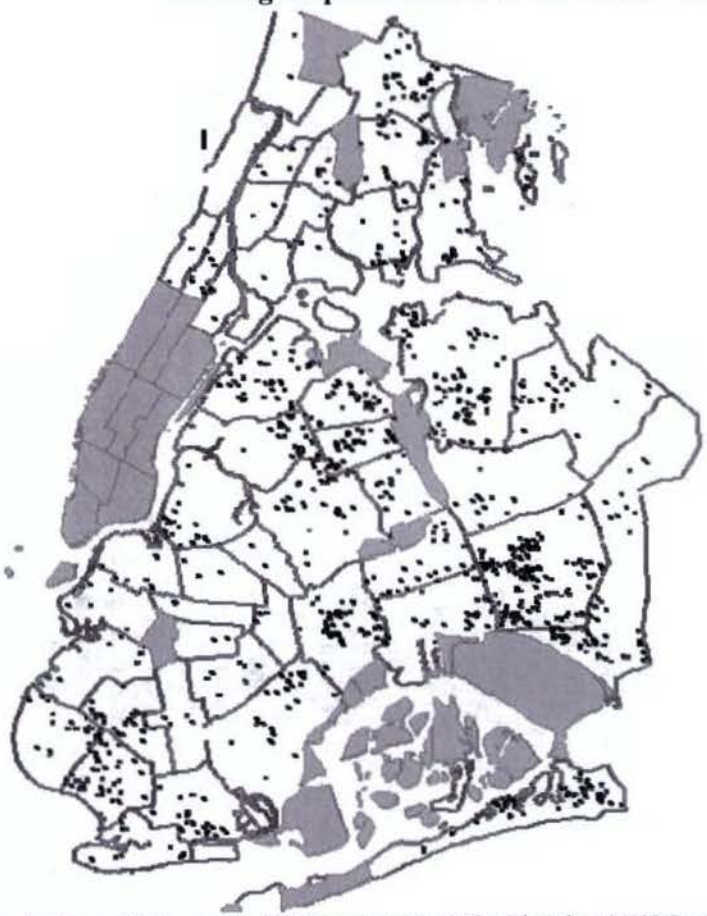
The ownership patterns show that when both the underlying requirements and eligibility for waivers are considered, many developments are required to provide less parking than the current levels of ownership. The data suggest that in many neighborhoods, residents of new housing increase the demand for on-street parking. This exacerbates existing heavy utilization of such parking possibly resulting in congestion and vehicular emissions as cars cruise the neighborhood in search of parking, and prompts requests by community groups and elected officials for increased parking requirements.

Figure 13 below depicts parking demand and requirements for all new housing.

Figure 13: All New Housing

Cars Exceed the Parking Requirement

Parking Requirements Meet or Exceed Demand



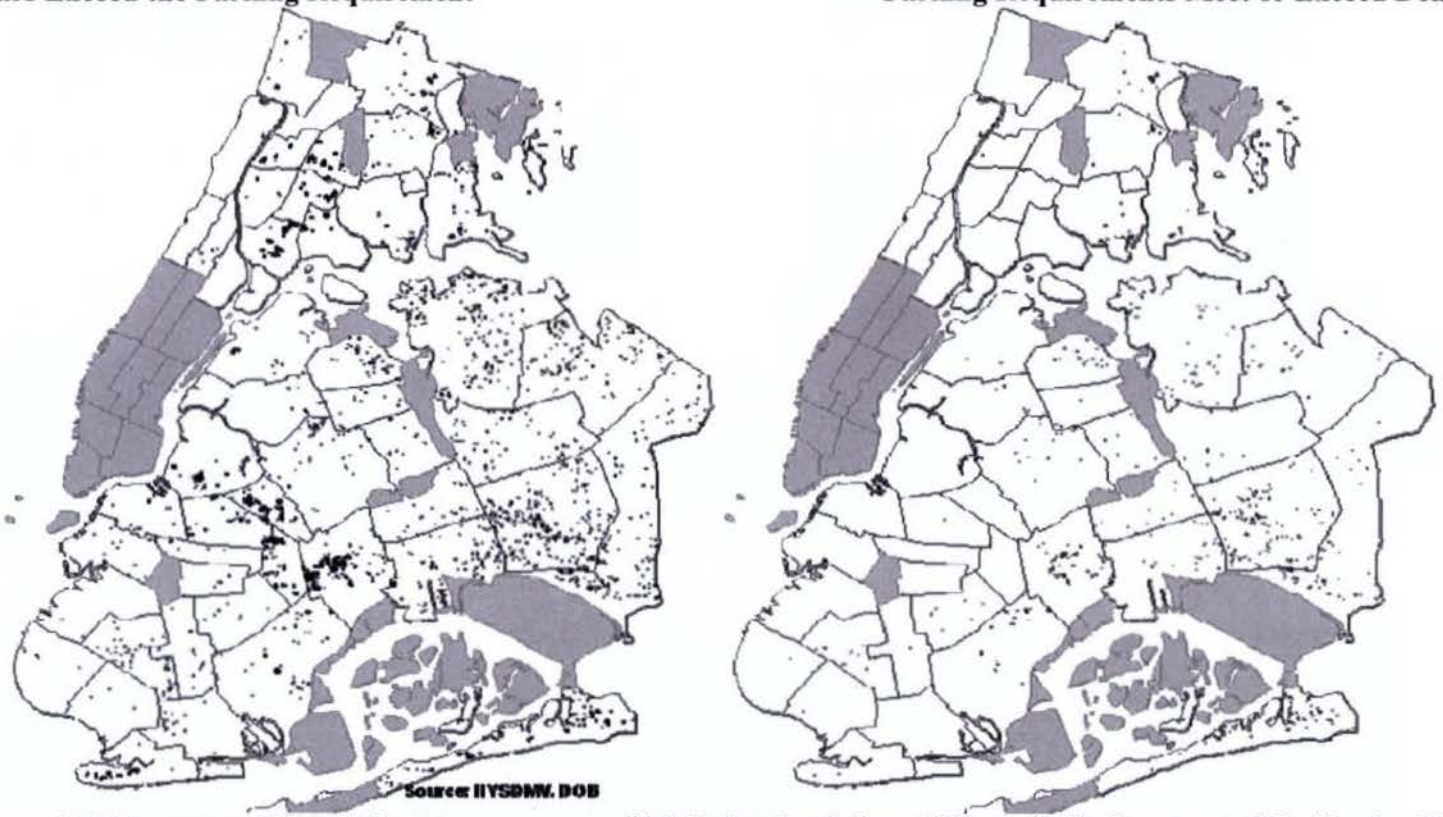
Source: NYS Department of Motor Vehicles, Standard Series Vehicle Registrations in Force, 2005 compiled by Department of City Planning; NYC Department of Buildings, New Residential Building Permits, compiled by Department of City Planning

Figure 14 displays the gap between required parking and car ownership one and two-family homes, revealing frequent shortfalls in parking in most parts of the city, and in greater frequency in the areas most distant from transit and the Manhattan CBD. The black dots increase in frequency as distance from the Manhattan CBD increases, reflecting the locations where such housing is most likely to be built.

Figure 14: One- and Two-Unit Buildings

Cars Exceed the Parking Requirement

Parking Requirements Meet or Exceed Demand



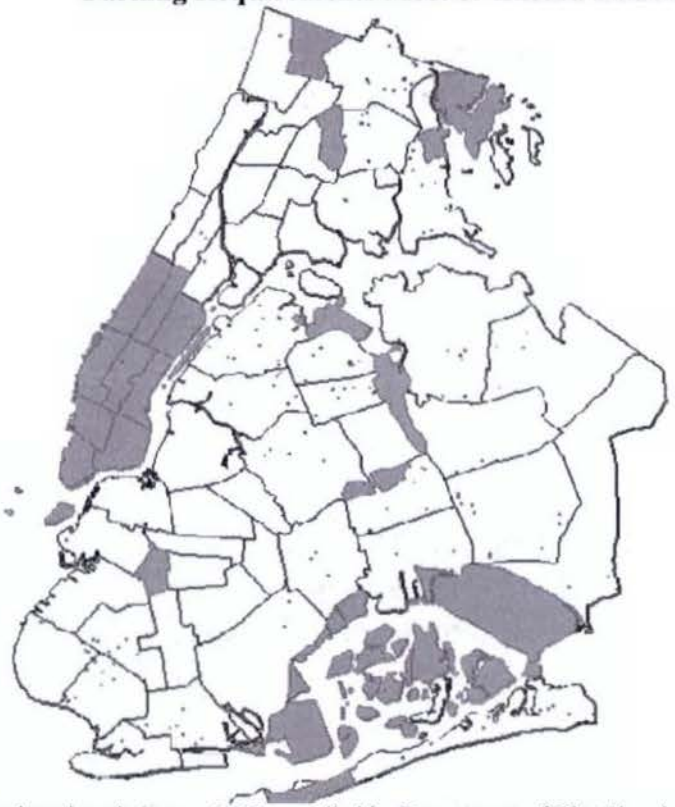
Source: NYS Department of Motor Vehic ehicle Registrations in Force, 2005 compiled by Department of City Planning; NYC Department of Buildings, New Residential Building Permits, compiled by Department of City Planning

The surplus and deficit maps for three- and four-family and multifamily homes, however, reveal a different picture. Figures 15 and 16 show that, in contrast to one-and two-family homes, which exhibited parking shortfalls throughout all parts of the city, for three- and four-family homes the potential shortfalls in parking demand are clustered in certain areas, again reflecting the locations with zoned densities most likely to produce this type of housing.

Figure 15: Three- and Four-Unit Buildings

Cars Exceed the Parking Requirement

Parking Requirements Meet or Exceed Demand



Source: NYS Department of Motor Vehicles, [illegible] Registrations in Force, 2005 compiled by Department of City Planning; NYC Department of Buildings, New Residential Building Permits, compiled by Department of City Planning