Parking:

Its Effect on the Form and the Experience of the City

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Abstract

This paper argues for the rethinking of parking policy to maximize social interaction in the public realm. This proposal is framed by three questions. First, what are the recent findings from urban design and planning research and practice about the proper amount, ownership structure, and design of parking to enable walkable urbanism? Second, what specific characteristics enable parking to be integrated into dense urban districts without sacrificing the social significance of the public realm? Third, what policies and design strategies can be developed, based on the evidence above, to promote the creation of walkable urbanism?

Three urban districts in Atlanta are the focus of the detailed analysis of parking. These are Downtown, Midtown and Buckhead. These three districts were chosen because of their similar status as the three largest commercial and financial districts in the city, but unique orientation to the automobile. Their current parking requirements are compared based on quantity as well as other factors. Parcel data is used to show the parcels with parking as a principle land used to roughly estimate the amount of street activity generated by parking. Representational buildings are selected to analyze and can be divided into three typologies based on the building's orientation to the automobile, each having implications on the functionality of the city.

In order to create a walkable urban district, parking regulations must be redesigned to prioritize the pedestrian and promote the most efficient use of space. This can be accomplished by regulating the amount, ownership and design of parking. Five basic rules can be used to ensure that parking prioritizes the pedestrian experience. These rules include: parking requirements based on factors of walkability, required shared parking, common ownership of parking, maximized on-street parking, and direct connections from off-street parking to the public sidewalk.

Introduction

The requirement for off-street parking for each development has dramatically impacted the physical form of the American city over the past 50 years. Minimum parking requirements have destroyed the urban form of pre-industrial cities and caused post-industrial cities to develop at the scale of the automobile instead of the pedestrian. According to An International Sourcebook of Automobile Dependence in Cities, American cities are the most automobile dependent in the world. Out of the 46 world cities that were analyzed according to their automobile dependence, 12 out of the 13 U.S. cities rank as either extremely automobile dependent or highly automobile dependent. Only New York City ranks in the moderately automobile dependent category with Austrian, Canadian, European, and developing Asian cities (Kenworthy & Laube, 1999). No doubt, minimum parking requirements are partly to blame for the United States' dependence on automobiles. However, it is not only the quantity of parking that undermines the experience of city life; the ownership and design of parking also play a significant role in how the parking is integrated into the urban environment. Perhaps, more important than the mere amount of parking spaces, it is the way in which parking can promote or limit social interaction in the public realm that should be reexamined.

Historical Background

QUANTITY: The Rise of the Automobile

The way in which motorists experience the city has changed drastically throughout the 20th century. The location and design of parking, not merely its quantity, have altered life in the contemporary city. By 1900, 8,000 cars were registered in the United States and motorists just parked their automobiles curbside where horses used to be tethered. By 1920, the amount of autos registered in the United States shot up to 8,132,000 and the number of trucks to 1,108,000 (McDonald, 2007). Even with alternative methods of on-street parking such as angled and perpendicular as shown in Figure 1.1, there were simply not enough spaces on the street to accommodate all of the automobiles. In the early 20th century, stables, bicycle shops, skating rinks, and other large buildings were beginning to be converted into parking garages. The Cyclorama in Boston shown in Figure 1.2 was one of the first buildings to be converted into a parking garage, although the first parking garage in the United States was created in 1897 in New York City (McDonald, 2007). This was the beginning of an emerging building type that would change the urban landscape forever: the parking garage.

Figure 1.1 Marietta Street in Atlanta, GA 1934)
Source: Atlanta Time Machine, 2012

Figure 1.2 Cyclorama, Boston (1870)
Source: McDonald, 2007

OWNERSHIP: Early Parking Garages

Early parking garages were owned by a variety of different groups, including automobile clubs and municipalities. In 1899, the Automobile Club of America was founded in New York City partly to provide its members with a place to store their vehicles. During the first two decades of the 20th century, automobile clubs had started in many cities throughout the country. These clubs began to build parking garages within the city centers, but even still, parking was hard to come by. The first public parking garage was built in 1899 in Boston by the Back Bay Cycle and Motor Company, and in 1900 New York City's first public parking garage was built. By 1910, parking had become a business in the city. An excellent example of a parking garage that was both in a prominent location and architecturally relevant was the DuPont Garage in Washington, D.C. shown in Figure 1.4. The Georgian Terrace Hotel Garage was constructed in 1913 and the Williams Parking Garage was built in Atlanta only four years later (McDonald, 2007). These garages, as well as others built throughout the country, yielded an early example of shared parking.

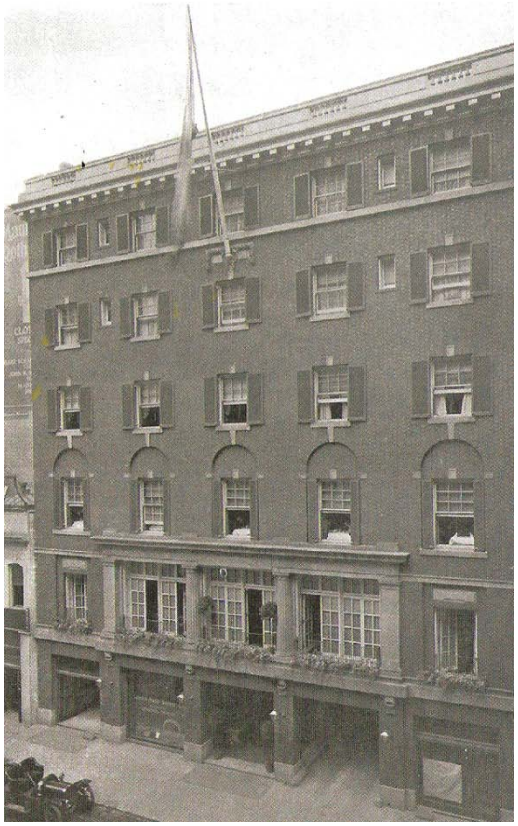

Figure 1.3 Chicago Automobile Club, 1907
Source: McDonald, 2007

Figure 1.4 Dupont Garage, 1906
Source: McDonald, 2007

DESIGN: Beginning of Off-Street Parking

The connection between parking garages and the buildings they serve has changed through the century. At first, these structures were considered a "service-based" building type with attendants to drive the car to its space allowing the customer to leave immediately to walk to their destination. As technology changed however, the parking garage has become simply a storage container for automobiles in which the motorist must park their vehicle themselves. In addition, dedicated parking began in the early 20th century.

As early as 1924, employers began to build dedicated parking as the C.L. Best Tractor Company in San Leandro, California did. On adjacent land, the company built a 150-space covered parking lot for its employees. Parking onsite cleared nearby streets of parked vehicles, and allowed the automobiles to enter and leave the facility easier. In a more urban context, the Fisher Building (Figure 1.5) in Detroit featured an 11-story parking garage directly connected to the office tower so employees could park and walk to their work station on the same level. The building included ground-floor retail, a theater, and a pedestrian tunnel that connected it to the General Motors Building across the street. The Cafritz Office Building, built in 1954, represented the next era of parking garages. In this building, the parking garage is located in the center of the building, allowing the perimeter of the building to be used for office space which requires sunlight. Again, office workers could walk directly from their parking space to their office on the same level. In 1965, 73.2% of all garages served office buildings, and 42.3% of those garages were located within the buildings they served (McDonald, 2007).

Parking for retail posed another challenge for designers that is still unresolved. One of the first garages built in Boston in 1905 included ground-floor retail to maintain the architectural integrality of the street facade. Beginning as early as 1901, retailers such as Wanamakers, a Philadelphia-based department store, were building parking garages connected to their stores. Other types of retailers followed suit, such as the Crystal Palace supermarket in San Francisco in 1923 and the Union Market in St. Louis in 1926. Banks realized that they could reduce the amount of parking spaces they needed to provide by creating drive-up banking, which began in 1940 (McDonald, 2007). Every conceivable arrangement of shopping and parking has been tried and continues to be refined.

Parking garages were originally combined with urban townhomes and on private estates beginning at the start of the 20th century. Public garages near residential areas also were used during this

time. Early townhouse design included a garage on the lowest level; however, larger-scale apartment building began including parking in the early 1920s. In 1923, Columbus, Ohio established off-street parking requirements for residential uses. Other cities followed suit after that, and in 1928, the Garden Court Garage was built. This was one of the first examples of the integration of multi-family housing and parking. It included a two-level parking garage with one level at grade and the other below grade. Basement garages became popular for smaller-scale apartment buildings such as the Massellton in Atlanta, constructed in 1925. In 1962, parking was used to elevate apartments high above the city at Marina City Towers in Chicago. In the two 65-story towers, the first 17 floors above the first two floors were dedicated to parking, providing amazing views from the apartments. Parking condominiums began in the 1980s which are similar to residential condominiums. These parking garages were typically separate from any one residential building and provided nearby residents with a place to park their vehicles. In San Francisco, the Lombard Street Parking Garage was built in 1988 to serve both the needs of residents as well as shoppers in the area. Hotels such as the Commodore-Biltmore (Figure 1.6) in Los Angeles allowed motorists to park inside the building directly adjacent to their hotel room. This allowed the hotel to compete with suburban hotels that provided ample parking that was convenient to the hotel rooms. This is the precedent for the current building type called a "Texas Donut."

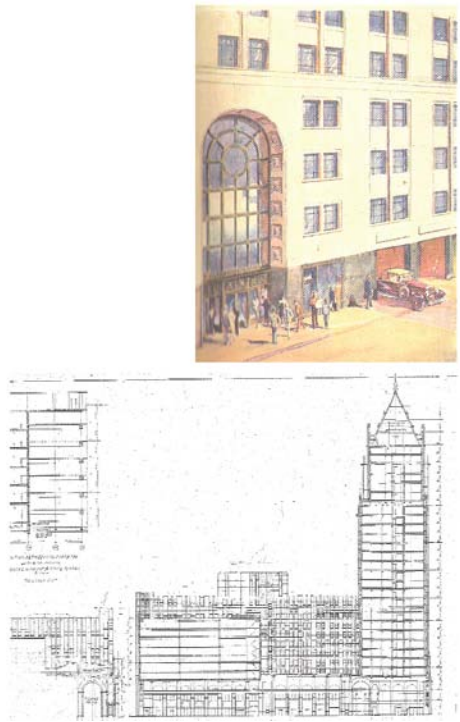

Figure 1.5 Fisher Building, 1928
Source: McDonald, 2007

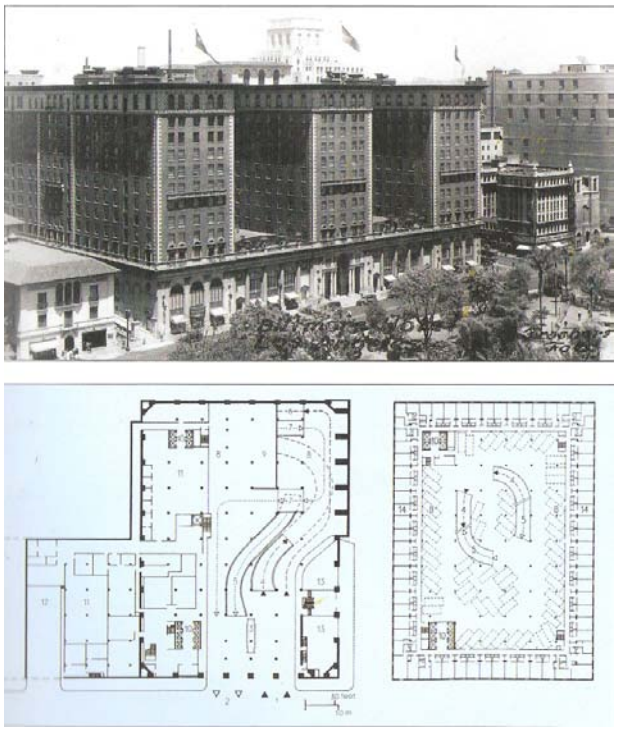

Figure 1.6 Commodore-Biltmore Hotel and Garage, 1926
Source: McDonald, 2007

Recent Practices

The three major components of parking policy that are discussed in current literature are the quantity of required parking spaces, the ownership of parking spaces, and the design of parking. Doug Farr describes the differences between conventional parking requirements and sustainable urbanism parking requirements. Typical parking requirements have been focused on the minimum amount of off-street parking, while current literature states that the requirement should state the maximum amount. Reductions in parking should be allowed for a mix of uses as well as car-sharing programs. Parking should become unbundled from housing costs and on-street spaces should be able to count toward parking requirements (Farr, 2008). In terms of ownership, Donald Shoup, the parking guru, states in *The High Cost of Free Parking* that parking should be provided publicly. On the design side, the New Urbanists have railed against suburban development with its large exposed parking lots and they claimed that the solution to parking is to hide it. This design strategy has found its way into zoning ordinances all over the county and is considered "best practice" by many urban designers. However, some have begun to notice that this design approach may not solve the problem and, worse yet, may pose new problems.

QUANTITY: Parking Requirements in 10 U.S. Cities

Planning for parking consists of six steps that have driven the production of suburban sprawl throughout the United States. First, transportation engineers determine the parking generation rates by surveying suburban sites at their peak parking demand. The data is summarized in Parking Generation, which indicates the parking generation rate for each land use. Next, city planners consult Parking Generation to set minimum requirements for each land use (Shoup, 2004). Since the maximum amount of parking that could ever be needed for that site is required as a minimum, for most of the year the spaces are empty. Developers must follow the zoning ordinance and provide all of the required parking. Because there is so much parking, the market price is zero. This causes people to drive simply because they know they can always park for free. According to a 1990 Nationwide Personal Transportation Survey, 99% of all automobile trips in the U.S. are free. Next, transportation engineers survey vehicle trips to and from suburban sites to develop Trip Generation, which gives data for the trip generation for each land use. Transportation planners use this information to design a road network that can accommodate this capacity. Finally, urban planners then limit density so new developments will not generate more trips than the roads can support. Lower density makes the problem worse by increasing the need for vehicle travel

(Shoup, 2004). This process has effectively caused sprawl and it is up to today's planners to improve the system to promote other forms of transportation.

There are two ways in which planners can begin to reduce the number of parking spaces required: changing how parking ratios are developed, and allowing for a reduction based on shared parking. Donald Shoup addresses why parking generation rates are flawed and how they could be reformed to fully take into account land use and transportation. He believes that it should be stated that parking generation rates are estimated from suburban sites with ample amounts of free parking and no public transportation. Therefore, planners must reduce parking requirements around transit stations; otherwise, it will be as though public transportation does not exist. He also thinks that it should be clearly stated whether the parking generation rate model is accurately predicting the peak amount of parking spaces occupied (Shoup, 2004). Several authors have described the benefits and provided formulas for shared parking that account for the mixing of land uses that would allow for reductions in the required amount of parking. Shared parking ratios are determined by overlaying the maximum parking time periods of various uses. This results in a reduction of the amount of parking when parking is shared amongst different uses. The Smart Code provides a Shared Parking Factor table that calculates the amount of parking when one use is combined with another.

Ten cities throughout the United States have been selected to study: Boston, Chicago, Denver, Houston, Los Angeles, New York, Phoenix, Portland, San Francisco, and Washington DC. These cities represent the most automobile-dependent cities as well as the least automobile-dependent cities in the United States. According to An International Sourcebook of Automobile Dependence in Cities, the following cities are considered to have extreme automobile dependence: Houston, Denver, Portland, and Los Angeles. These cities are all or almost all bus-based in their transit systems. The following cities are considered to be highly automobile dependent: Boston, San Francisco, and Chicago. These cities are the most rail-oriented U.S. urban regions besides New York City, which is considered to be moderately automobile dependent (Kenworthy & Laube, 1999).

Figure 2.1 shows the amount of jobs in the central business district per parking space. Higher amounts of jobs per parking space indicate a lower automobile dependence. New York City has historically had the highest number of jobs per parking space at around 15 jobs per space. Chicago is second in terms of how many jobs per parking spaces; however, the amount of jobs has decreased from

1960 to 1990, indicating the city is becoming more automobile dependent. San Francisco, on the other hand, has shown a slight increase in the amount of jobs per parking space. Although in 1960, Boston had more jobs per space than San Francisco, the city's jobs per parking space have decreased significantly in this 30-year period. The remainder of the cities fall between 5 jobs per parking space to as low as 1 job per parking space.

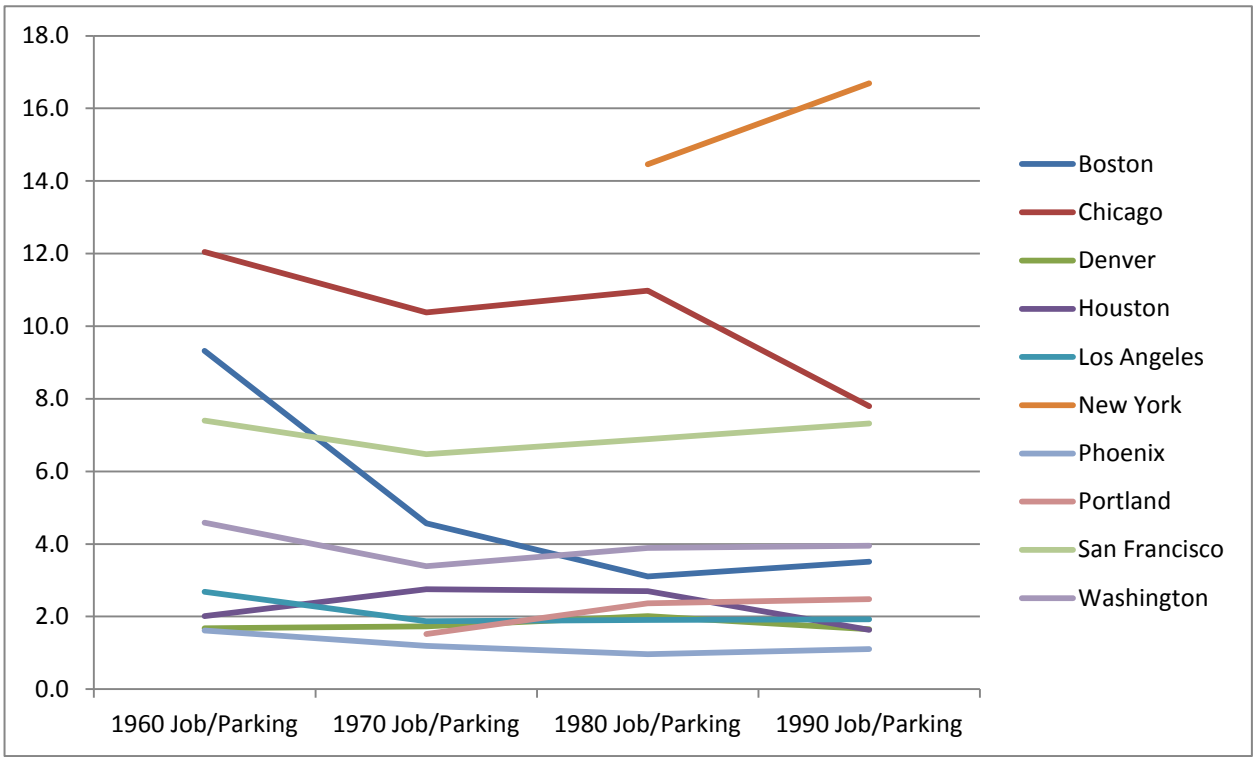

Figure 2.1 Graph showing number of jobs per parking space in 10 U.S. cities from 1960 to 1990
Source: Kenworthy & Laube, 1999

Figure 2.2 shows the parking coverage of each central business district. Whereas the previous graph takes into account job density, this graph looks at the amount of space it would take to lay out the parking horizontally throughout the city. It is shown as a percentage of the total land area of the central business district. Cities with the highest parking coverage indicate a high parking requirement as well as a very dense district. Los Angeles, therefore, has the highest parking coverage because it is a very dense city with high parking requirements. Phoenix, on the opposite end of the scale, has high parking requirements but because it is very low density, its parking coverage is comparable to New York City. New York City is a very dense city, but with the lowest parking requirements, its parking coverage is very low.

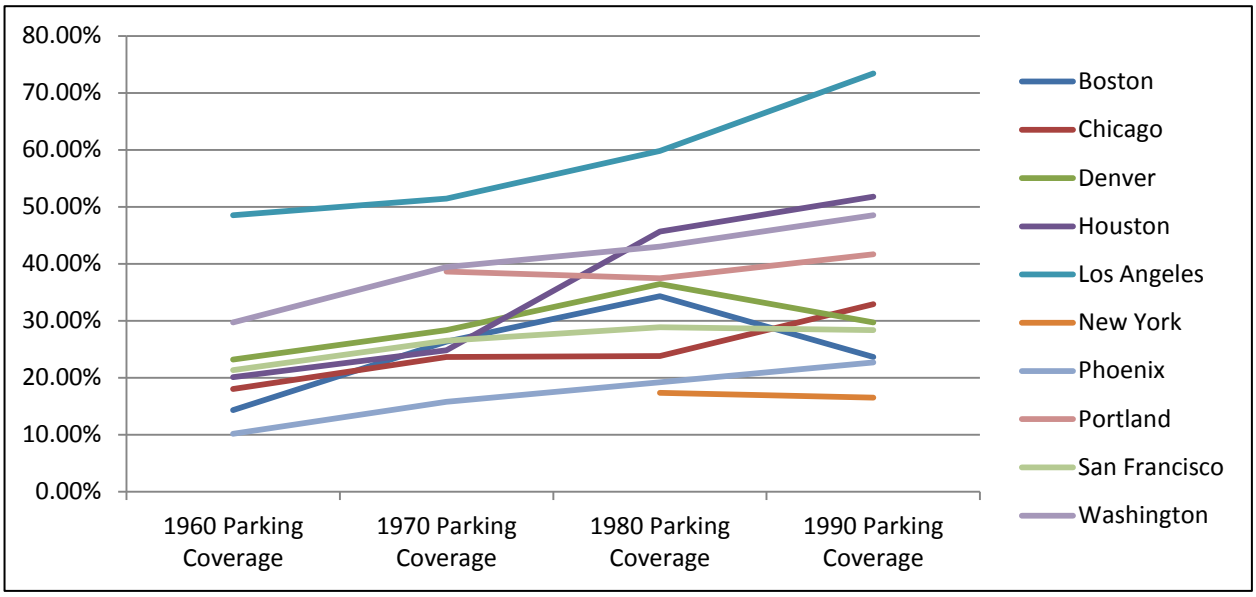

Figure 2.2 Graph showing parking coverage in 10 U.S. cities from 1960 to 1990
Source: Kenworthy & Laube, 1999

Current parking practices in the United States have radically changed since 1960. Many U.S. cities are eliminating parking minimums in their downtowns, and some cities are even implementing parking maximums to control the amount of parking that is built.

Boston is unique in the way the city regulates parking. Instead of relying on district-wide parking requirements, the city uses the maximum allowable floor area ratio to determine the parking ratio. Basically, the higher the floor area ratio allowed, the fewer number of parking spaces that are required per square foot of the structure. For each land use, a table is provided that indicates the amount of parking required for each maximum allowable floor area ratio for that site. The floor area ratio range is from .3 to 5. When the allowable floor area ratio exceeds 8 for a particular site, parking is not required. Depending on the use, if the allowable floor area ratio is between .8 and 5, parking is not required as long as no more than two spaces per dwelling unit or four spaces per 1,000 square feet are required by the parking ratio table for that land use (Boston Redevelopment Authority, 1984).

In Chicago, downtown parking requirements include both a minimum and a maximum number of spaces. Residential parking minimums range from .55 parking spaces per unit to 1 parking space per dwelling unit and maximums range from 1.1 to 2. Nonresidential uses have no minimums. Maximums are one parking space per 2,800 square feet of gross floor area for office uses and 1 to 2.5 spaces per 1,000 square feet for retail, depending on the exact location (City of Chicago, 2010).

Denver's recently adopted form-based code gives no minimum for parking spaces in the downtown district; however, there is not any mention of a maximum either (Denver Community Planning and Development, 2011). New York City and Phoenix also do not have minimum or maximum parking requirements in their downtown districts (City of New York, 2011), (City of Phoenix, 2011).

Houston's downtown parking requirements are by far the worst in the country. Parking requirements do not change according to district, so even the densest parts of the city still have suburban parking ratios. For retail, 4 spaces are required for every 1,000 square feet; for office, 2.5 spaces are required for every 1,000 square feet. Residential parking requirements are categorized according to how many bedrooms. Studio apartments require 1.25 spaces for each unit, one-bedrooms require 1.33 spaces, two bedrooms require 1.66 spaces and apartments with three or more bedrooms require 2 parking spaces for each unit (City of Houston, Texas, 2007).

In Los Angeles, the downtown district has parking minimums, but they are far less restrictive than Houston's zoning code. For commercial buildings, one parking space is required for every 1,000 square feet. Residential parking requirements are based on the number of habitable rooms. For less than three habitable rooms, the requirement is one space per unit; for three habitable rooms, the requirement is 1.5 spaces; for a unit with more than three habitable rooms, the requirement is two spaces for each unit (City of Los Angeles, 2006).

In Portland, for residential uses, there is a parking minimum; for commercial uses, there is a parking maximum. For a building including one to three dwelling units, there is no minimum, and for a building containing four or more units, the minimum is one parking space for every two units. The maximum number of parking spaces for retail is five per 1,000 square feet and 2.5 per 1,000 square feet for office uses (City of Portland, Oregon, 2011).

In San Francisco, nonresidential parking is limited by a percentage of the total gross floor area. This is unlike any other maximum parking regulation which typically assigns a maximum according to the number of spaces per 1,000 square feet for commercial and number of spaces per dwelling unit for residential. In the C-3 and C-M districts, parking cannot exceed 7% of the gross floor area. For residential uses in C-3, Van Ness and Market Downtown Residential Special Use District, the amount of parking provided cannot exceed one space for every four units (City of San Francisco, 2011).

Washington D.C. has no minimum parking requirement in the Pennsylvania Avenue District for nonresidential, but it does have a minimum for residential in every downtown district. In C-4, there is no requirement for office buildings on lots less than 10,000 square feet in area; however, for buildings on lots larger, in excess of every 2,000 square feet, one parking space is required for each additional 1,800 square feet of gross floor area. For retail uses, buildings in excess of 30,000 square feet must provide one parking space for each additional 3,000 square feet of gross floor area (District of Columbia, 2000).

The following three graphs show the parking requirements for each of the ten U.S. cities for residential uses, retail, and office. The amount of parking possible per 1,000 square feet or dwelling unit is shown by the two green colors. Red indicates that a parking minimum or maximum would prohibit that amount of parking for that use in the central business district. Residential uses are most likely to have a parking minimum among the ten cities. Office and retail uses are much less likely to have minimums. Boston, Denver, New York, and Phoenix have no minimum or maximum parking requirements for any use within the central business district. Chicago and San Francisco have parking maximums for all uses in the central business district. Houston and Los Angeles have parking minimums for all uses in downtown. Portland utilizes both minimums and maximums, depending on the use, and Washington D.C. has a parking minimum for residential uses but does not have a requirement for commercial uses.

Figure 2.3 Chart showing residential parking requirements in the CBD (green - permitted; red - prohibited)
Source: various

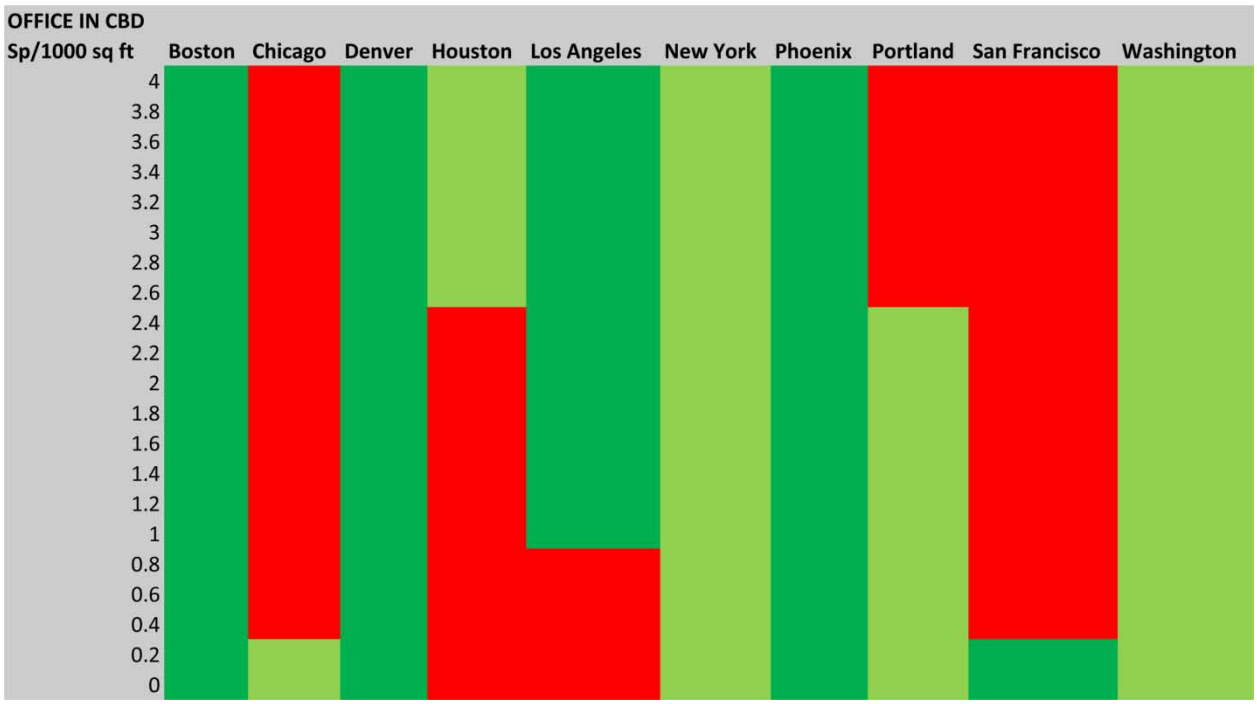

Figure 2.4 Chart showing office parking requirements in the CBD (green - permitted; red - prohibited)
Source: various

Figure 2.5 Chart showing retail parking requirements in the CBD (green - permitted; red - prohibited)
Source: various

OWNERSHIP: In-Lieu Fees in Practice

Donald Shoup describes the cost implications of parking requirements and proposes publicly provided parking as a solution through the use of in-lieu fees. Parking requirements combine the cost of the

housing unit with the cost of the parking spaces, making cars more affordable and housing more expensive. Parking requirements in commercial districts where parking is free and abundant add to the price for everything else except the parking space itself. Parking requirements unequally affect the Central Business District where density is high because high-density parking is more expensive than low-density parking. The benefits of in-lieu fees can be put into these seven categories: flexibility, shared parking, parking once, historic preservation, consolidation, fewer variances, and better urban design. Concerns such as lack of on-site parking, high fees, no guarantees, and fewer parking spaces summarize why developers can be initially skeptical. There are two ways of setting in-lieu fees: the first is to set the fee per space on a case-by-case basis; the second way is to charge a constant fee per space for all projects in a specified district (Shoup, 2004).

In-lieu fees are used in many cities throughout the world, including cities in the U.S., Canada, Germany, South Africa, Iceland, and the United Kingdom. Beverly Hills, after years of dealing with case-by-case fees which had to be calculated for each project, has switched to the more common uniform fee system in which there is a constant fee per space. Some German cities such as Hamburg have a graduated system that allows the price per space to increase closer to the city center. Most cities allow the developer to choose whether to pay the fee or provide the parking. However, Carmel and Lake Forest require developers to pay the fee for all parking spaces. This is the most beneficial way for in-lieu fees to be administered because it encourages shared parking and improves the urban design. Many developers will choose to provide the parking even when the fee is less than building the parking onsite because on-site parking is considered a valuable asset (Shoup, 2004). For this reason, required in-lieu fees provide the greatest benefit to the district.

DESIGN: Current Strategies

Most New Urbanists generally accept the premise that in order to provide a better pedestrian experience, parking must often be hidden behind the building. New Urbanist form-based codes usually do not allow parking between the street and the building, thus forcing all off-street parking to be either behind, under, or embedded within a structure. In *Sprawl Repair Manual*, Galina Tachieva advocates building liner buildings or even temporary buildings in order to screen parking from the pedestrian's view (Tachieva, 2010). The New Urbanist authors of the *New Urbanism Best Practices Guide* illustrate their parking solutions for different densities and different uses. For all low- to moderate-density residential buildings, they propose

parking in the rear accessed by an alley. For high-density residential buildings, solutions include a fully embedded parking structure such as in a Texas-Donut design, or a screened free-standing parking garage; for the highest density, an underground garage. For medium- to high-density mixed-use buildings, either a mid-block parking court, embedded parking garage, or an underground garage could be used (Langdon & Steuteville, 2009).

However, several authors have begun to criticize hidden off-street parking. Allan Jacobs is the most vocal about his dislike of mid-block parking, which is evident from his comments to Raymond Gindroz referring to Crawford Square (Figures 2.6 & 2.7), Pittsburgh in *The Seaside Debates: A Critique of the New Urbanism.* Jacob states that he has seen too many problems arise from interior block parking lots. Gindroz defends the mid-block parking by saying that the city would not allow the developers to build all of it on the street or to create perpendicular parking on the street (Bressi, 2002). In *The Smart Growth Manual* by Andres Duany (one of the most prominent leaders of the New Urbanism) and Jeff Speck present several seemingly contradictory statements regarding the design of parking. On the one hand, hiding parking is seen as a skill required of neighborhood planners and it is stated that exposed parking can be detrimental to pedestrian activity. However, in the same chapter, the authors claim that parking structures cannot be attached to the building they serve because it will rob the street of pedestrians (Duany & Speck, 2010). They seem to advocate for hidden parking that puts pedestrians on the sidewalk; however, in practice this does not happen. Hidden interior block parking is, by its very nature, always attached or at least adjacent to the building it serves. Michael Manville and Donald Shoup in *Parking, People, and Cities*, address the issue of hidden off-street parking robbing the street of pedestrians by comparing the experience of attending a concert at the Walt Disney Hall in Los Angeles with the Louise Davies Hall in San Francisco. The Walt Disney Hall has a 2,188 parking space underground garage which allows concertgoers to drive to the hall, park inside and leave without ever going outside in downtown Los Angeles. In contrast, Louise Davies Hall has very little of its own parking. Concertgoers in San Francisco either park at the Performing Arts Garage, which serves multiple venues, or any of the other parking garages in the area. Therefore, the pedestrian activity on the street in the neighborhood surrounding Louise Davies Hall is much more active than in downtown Los Angeles near the Walt Disney Hall.

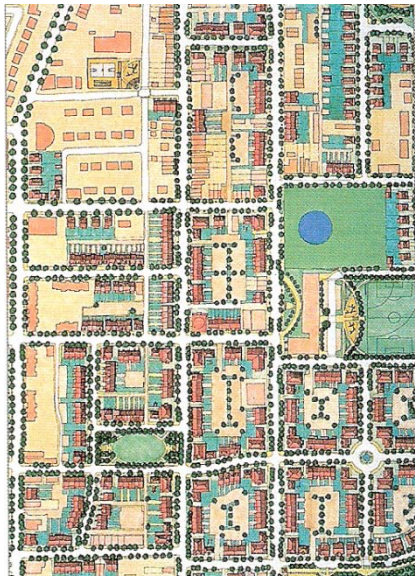

Figure 2.6 Bedford Dwellings Plan
Source: Bressi, 2002

Figure 2.7 Lower Hill after redevelopment
Source: Bressi, 2002

Parking can be designed in such a way that it contributes to the pedestrian activity and serves to connect the city instead of isolate fragments. While revealing parking garages does not necessarily mean the parking is shared and used by patrons of nearby buildings, it does begin to reverse the trend of simply ignoring it. Miami Beach is becoming known for its parking garages designed by world-renowned architects. Since about the 1960s, parking garages in Miami (and elsewhere, for that matter) were designed mainly by engineers who were primarily concerned only with their efficiency. "Pedestal" garages were the most cost-effective and were therefore built without much thought for aesthetics. However, in 1995, this began to change. It was in that year that the Ballet valet Parking Garage and Retail Center was constructed. This was a block of historic Art Deco retail buildings that was retrofitted with a 650-space parking garage with a facade of lush greenery. Several other notable garages have been built, including Frank Gehry's garage for the New World Center and TEN Arquitectos' Park@420. However, it is 1111 Lincoln Road (figure 2.9) that has really changed how we think of parking. The garage designed by Herzog & de Meuron includes ground-floor retail and is often converted to host events on its top level (Wolfe, 2012). Because the structure is not embedded within another structure, patrons of the retail shops must leave the garage before entering the retail stores on the ground level. The next high-design parking garage to be designed is Zaha Hadid's winning competition entry (figure 2.8) for Miami Beach's Collins Park (Wolfe, 2012). This will be an icon in its own right: a stand-alone garage as a piece of urban artwork. As a stand-alone

building, it can serve to generate street activity because of the pedestrians that will park their cars and walk out of the garage on the public streets.

Figure 2.8 Zaha Hadid's Collins Park Garage
Source: Zaha Hadid Architects, 2012

Figure 2.9 1111 Lincoln Road
Source: UIA Management, LLC, 2010

Atlanta Research

QUANTITY: Comparison of Parking Requirements

Parking conditions in Downtown, Midtown, and Buckhead vary quite drastically; however, their current parking requirements show only slight variation. In general, the highest concentration of public parking decks and lots can be found in Downtown due to the number of buildings without their own dedicated on-site parking facilities. This is a result of buildings built before the high parking demand which began in the late 1930s. Downtown's parking requirements (figure 3.1) are the lowest among the other urban districts without minimum parking requirements for any land use. Public parking can be found in Midtown, but for the most part it is associated with the primary land use for the parcel, especially in recent developments. In Midtown, there is no minimum requirement for residential or office uses, but there is for retail. Buckhead, by far, has the least amount of public parking without serving an on-site principle use. Even for parcels that only contain parking, they are often reserved for an adjacent use such as parcels surrounding Lenox Mall. Its parking requirements are similar, but definitely require the most parking as a minimum compared to the other districts. In terms of the requirements for the design of parking structures, all districts require an intervening building between parking and the public sidewalk (City of Atlanta, 2011).

	Downtown (SPI 1)	**Midtown (SPI 16)**	**Buckhead (SPI 9)**
Residential	Min: None	Min: None	Min: 1.7/unit or 2.1/unit
1 Bedroom	Max: 1.25/unit	Max: 1.3/unit	Max: 2.3/unit
2 Bedrooms	Max: 2.25/unit	Max: 2.3/unit	Max: 2.3/unit
3+ Bedrooms	Max: 2.25/unit	Max: 2.8/unit	Max: 2.8/unit
Office	Min: None Max: 2.5/1,000 sf	Min: None Max: 2.5/1,000 sf	Min: None Max: 2.5/1,000 sf
Retail/ Restaurant	Min: None Max: 2.5/1,000 sf	Min: 1/600 sf (None in transit area) Max: 2.5/600 sf	Min: 1.5/600 sf Max: 2/600 sf

Figure 3.1 Comparison of Atlanta Parking Requirements
Source: City of Atlanta, 2011

Off-site and shared parking is permitted in all districts; however, the distance allowable is different. In Downtown, parking must be located within a quarter mile to satisfy as parking dedicated to that principle use. Midtown also allows off-site parking, but does not specify the distance from the principle use. Buckhead requires all parking to be within 600 feet of the entrance to the principle use (City of Atlanta, 2011).

In Downtown, independent primary "park-for-hire" surface parking lots are not permitted. Within the Parking Limitation District, independent primary parking decks are permitted with a Special Use Permit, and in all other areas of Downtown, independent parking decks are permitted. In Midtown, "park-for-hire" surface lots are prohibited and "park-for-hire" decks are permitted with a Special Permit if they are satisfying the parking requirements for a primary use. In Buckhead, as in the other districts, surface parking lots are a prohibited principle use. However, structured parking is permitted as a principle use as long as its provided shared or off-site parking. To exceed the maximum allowable parking for a given land use, a Special Administrative Permit is required (City of Atlanta, 2011).

OWNERSHIP: Parcel Analysis

Parking ownership can be divided into two categories: owner of principle use and nonaffiliated owner. This indicates whether the parking is supplied only for the principle use located on the same parcel or if the parking is located on an independent parcel. In general, parcels with parking as the principle land use do not serve other land uses directly, thus creating pedestrians on the public sidewalk. This can be shown by highlighting only parcels with the principle land use of "parking deck garage" or "parking lot" in Figures 3.2 to 3.4. However, this is not always the case. For example, the Varsity at 61 North Avenue NW is located on a parcel with a land use of "fast food restaurant." This parcel includes both dedicated parking as well as the building itself. Several adjacent parcels are listed as a land use of "parking deck garage" or "parking lot" but are owned by Varsity Realty Corporation as well. These are dedicated to Varsity customers, but are actually independent parcels owned by the principle use owner. CPI Phipps LTD Liability Co, owner of Phipps Plaza, owns adjacent parcels; some are listed as "parking lot" while others are listed as "department store." This analysis could be more accurately performed by deleting parcels listed as parking if their owner is the same as an adjacent non-parking parcel. This method also has problems when different owners are in some sort of parking agreement, such as is the case at Lenox Mall. In this example, Corporate Property Investors LTD owns the parcel containing Lenox Mall listed as "regional shopping mall."

Richs Real Estate, Inc. owns an adjacent parcel that contains a parking garage that serves Lenox Mall. Although the ownership is different, the parking on the adjacent parcel is still dedicated to one use.

Even without these discrepancies taken into account, it is clear to see that Downtown contains the most parcels with a primary land use of parking. Midtown contains almost as many, and Buckhead has the least amount of parcels with the primary land use of parking. This is because most of the parcels in Buckhead provide parking onsite, so abundant public parking facilities are not necessary. In addition, the highest concentration of parking garages on independent parcels is Downtown. Midtown has the second highest and then Buckhead. It can be assumed, therefore, that Downtown has the most pedestrians because of its buildings, which do not include on-site parking facilities. According to this assumption, Midtown would have the second most pedestrians due to the location of parking. Buckhead would have the least amount of pedestrians since most of its buildings include parking onsite.

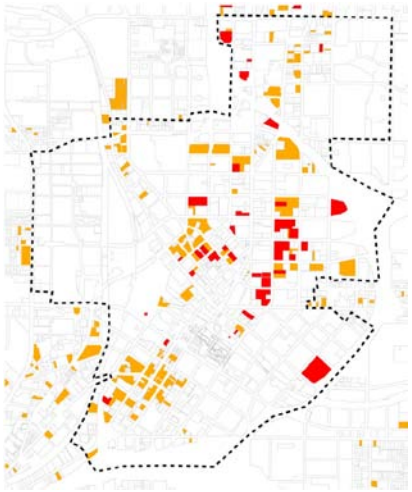

Figure 3.2 Downtown parking map
Source: Fulton Co GIS, 2009
Red=parking deck & Orange=parking lot

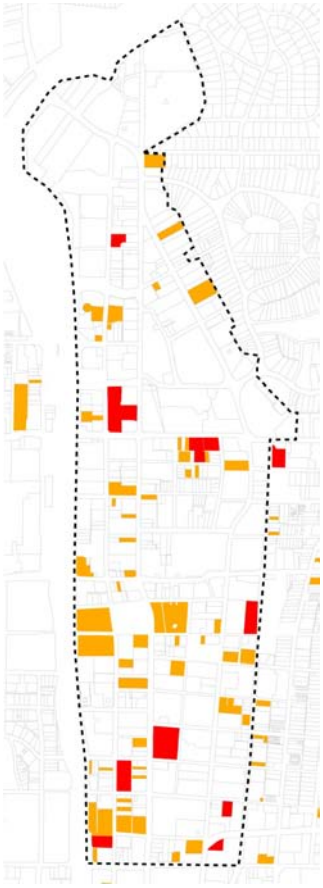

Figure 3.3 Midtown parking map
Source: Fulton Co GIS, 2009

Figure 3.4 Buckhead parking map
Source: Fulton Co GIS, 2009

DESIGN: Building Typologies

The way in which parking is integrated into an urban district has direct consequences on the pedestrian activity within the public realm. Certain design characteristics of both private buildings and streets can allow for the activation of the public realm as well as the integration of parking. Downtown, Midtown, and Buckhead are the three densest urban districts containing a mix of land uses in Atlanta, and therefore, are the focus of this research. The way in which parking has been integrated into the urban fabric in Atlanta has changed throughout the 20th century and can be clearly understood through case studies of different building types built at different time periods. Five building types have been identified to serve as a basis for the selection of case studies; they are residential, office, retail group, retail single, and assembly. The time periods can be divided into three distinct eras by how buildings accommodate parking. Figure 3.6 shows the characteristics of each case study, while figure 3.5 provides a summary of these characteristics by typology.

	Street Frontage	**Amount of Parking**	**Connection to Parking**
Traditional	Active	None provided	Public sidewalk
Modern	Inactive	Provided onsite/offsite	Private connection
Contemporary	Active	Provided on-site	Private connection

Figure 3.5 Matrix of Building Types
Source: Stephen Taul

Building Name	Type of Urbanism	Type of Building	Location	Year Built	Sq ft/Unit	Other
The Healey Building	Traditional	Residential	Downtown	1913	112	0
Flatiron Building	Traditional	Office	Downtown	1897	37,000	0
Broad Street Retail	Traditional	Retail Group	Downtown	1890	116,753	0
Engine 11 Firehouse Tavern	Traditional	Retail Single	Midtown	1907	10,455	0
Fox Theatre	Traditional	Assembly	Midtown	1929	65,000	0
Mayfair Renaissance	Modern	Residential	Midtown	2002	298	0
Bank of America Plaza	Modern	Office	Midtown	1992	1,287,997	0
The Mall at Peachtree Center	Modern	Retail Group	Downtown	1967	129,549	2,370,451
Varsity	Modern	Retail Single	Midtown	1940	21,136	0
Georgia World Congress Center	Modern	Assembly	Midtown	1976	3,900,000	0
Metropolis	Contemporary	Residential	Midtown	2002	498	0
1180 Peachtree	Contemporary	Office	Midtown	2006	670,000	33,215
1010 Midtown	Contemporary	Retail Group	Midtown	2009	38,000	0
CVS	Contemporary	Retail Single	Midtown	2002	29,600	0
World of Coca Cola	Contemporary	Assembly	Downtown	2006	92,000	0

Building Name	Amt	Share	Sp/1000	Ownership	Design of Parking	Parking to Entrances
The Healey Building	0	Yes	0	Public/Private	Surface lots, garages	Public sidewalk to main entrance
Flatiron Building	0	Yes	0	Public/Private	Surface lots, garages	Public sidewalk to main entrance
Broad Street Retail	0	Yes	0	Public/Private	Surface lots, garages	Public sidewalk to main entrance
Engine 11 Firehouse Tavern	0	Yes	0	Private	Surface lot	Public sidewalk to main entrance
Fox Theatre	0	Yes	0	Private	Surface lots, garages	Public sidewalk to main entrance
Mayfair Renaissance	403	No	1.35	Building Owner	Underground Garage	Elevator
Bank of America Plaza	1,219	No	0.95	Building Owner	Underground Garage	Elevator
The Mall at Peachtree Center	4,500	Yes	1.8	Building Owner	Parking Garage (3)	Ped Bridge (2) Sidewalk (1)
Varsity	363	No	17.17	Building Owner	Surface lots, garages	Parking lot to main entrance
Georgia World Congress	7,000	Yes	1.79	Private	Surface lots, garages	Shuttle, Pedestrian bridge
Metropolis	610	No	1.22	Building Owner	Embedded Garage	Elevator Access
1180 Peachtree	1,200	Yes	1.71	Building Owner	Embedded Garage	Elevator Access
1010 Midtown	129	No	3.3	Building Owner	Embedded Garage	Parking garage to entrance
CVS	29	No	0.98	Building Owner	Rear underground parking garage	Parking garage to entrance
World of Coca Cola	350	No	3.8	Building Owner	Aboveground parking garage	Parking to entrance through site

Figure 3.6 Matrix of Atlanta Buildings
Source: Stephen Taul

Traditional Parking Design

Prior to the introduction of minimum off-street parking requirements in the 1954 Atlanta zoning ordinance, buildings were allowed to be built without on-site parking. This building type can be named "traditional." Buildings characterized by traditional parking design exhibit an active street frontage with all primary entrances directly off of the public sidewalk. Parking is not supplied onsite and is instead supplied offsite in private or public parking garages or lots. A motorist must therefore park and walk along the public sidewalk to enter the building. With the introduction of the automobile in the early 1900s, all parking was located along the street or in shared garages, so parking did not influence the design of buildings. However, this did not last very long before parking was beginning to be supplied onsite and dedicated to a particular use.

The Healey Building (figures 3.7 & 3.8) located at 57 Forsyth Street in downtown Atlanta contains residential units on the upper floors with retail on the ground floor. It was built in 1913, and does not include parking onsite. Residents are advised to use a parking garage operated by Lanier Parking Solutions at 55 Marietta Street, 1/3 of a mile away (Healey Condominium Association, 2010). The Flatiron Building (figures 3.9 & 3.10) is still used primary as an office building with ground-floor retail as it was at the time of its construction in 1897. Without its own parking, visitors and patrons of this building must use public transportation or park in the nearby public garages. Six buildings constructed in 1890 along Broad Street serve as a "traditional" retail group. These buildings (figures 3.11 & 3.12) contain retail on the ground floor with either office or residential above. The retail spaces have continued to operate without on-site parking since their construction. Engine 11 Firehouse (figures 3.13 & 3.14) is a restaurant located in the old Fire Station 11 in midtown Atlanta. It was constructed in 1907 with no parking; however, currently there is a pay parking lot located adjacent to the restaurant which serves its patrons. The design of the building requires that everyone, even those parking in the adjacent lot, walk along the public sidewalk to reach the front entrance.

Figure 3.7 The Healey Building
Source: The Healey Building, 2010

Figure 3.8 The Healey Building
Source: Stephen Taul, 2012

Figure 3.9 Flatiron Building
Source: C.B. Richard Ellis, Inc.

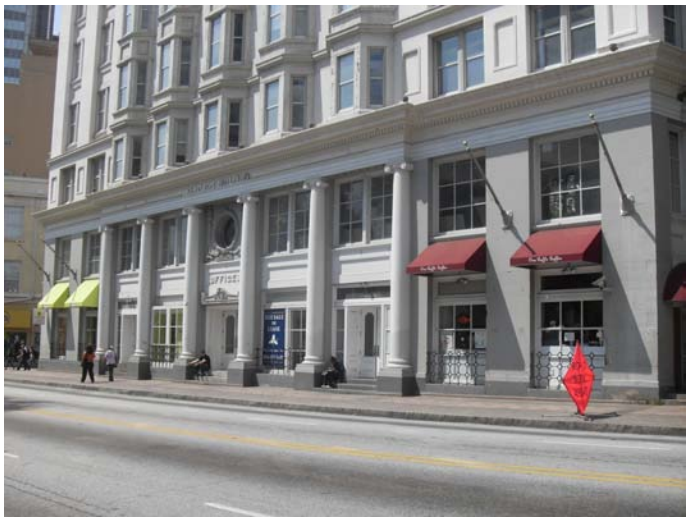

Figure 3.10 Flatiron Building
Source: Stephen Taul, 2012

Figure 3.11Broad Street Retail
Source: Stephen Taul, 2012

Figure 3.12 Broad Street Retail
Source: Stephen Taul, 2012

Figure 3.13 Engine 11 Firehouse
Source: Stephen Taul, 2012

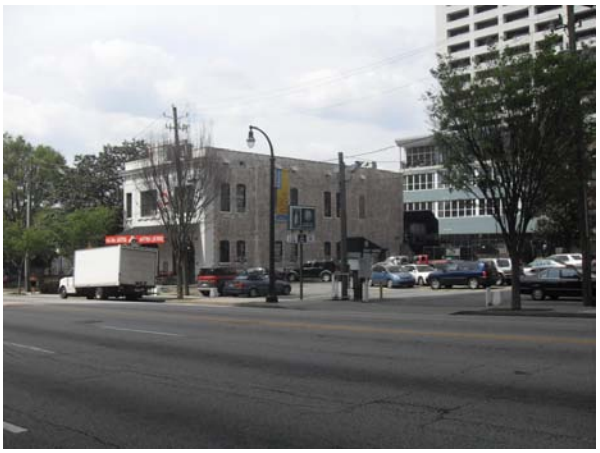

Figure 3.14 Engine 11 Firehouse
Source: Stephen Taul, 2012

The Fox Theatre was designed in 1929 as the Yaarab Temple Shrine Mosque. However, because of financial constraints, movie mogul William Fox negotiated with the Shriners to make the palace one of his movie houses. It was a successful movie theatre until the 1970s when suburban flight and a changing movie industry took patrons elsewhere. In 1975, it was taken over by Atlanta Landmarks, Inc. and in 1976 it became a national historic landmark. Since then it has been a revenue-producing multi-purpose theatre (The Fox Theatre, 2011). The Fox Theatre does not own any of its own on-site parking. The parking demand for a 4,678-seat theatre has produced several for-profit parking lots surrounding the theatre. Five parking lots within a two-block radius are recommended by the theatre website, but several more lots in the area also serve the theatre.

Figure 3.15 Fox Theatre from roof of Ponce de Leon Apartment Building
Source: Atlanta Time Machine, 2012

Figure 3.16 Fox Theatre
Source: Stephen Taul, 2012

Figure 3.17 Fox Theatre
Source: Stephen Taul, 2012

Modern Parking Design

Once parking began to impact the design and siting of buildings, a building no longer responded only to the sidewalk, but also to its parking. Buildings characterized by modern parking design exhibit an inactive street frontage with secondary entrances off the public sidewalk. Primary entrances are directly connected to parking and most circulation is inside the building. Parking is not necessarily hidden from view of the pedestrian, and can often detract from their experience. A motorist can enter the building without ever having to walk along the public sidewalk. "Modern" parking design can emerge from suburban as well as urban buildings. In general, suburban buildings that exhibit this type of parking design are segregated from the street by surface parking. Urban buildings in this category provide a primary entrance directly from the parking located onsite. Sidewalk entrances are normally secondary in nature and most circulation is internal to the building.

The Mayfair Renaissance residential condominium building in Midtown Atlanta provides an example of how a building responds more to the automobile than to the pedestrian. Built in 2002, the Mayfair development includes two residential towers and one smaller office building organized around a drop-off driveway. In addition, the defining feature central to the scheme is the entrance to the underground parking garage. All front entrances are directly off of the driveway without a presence on the public sidewalk. Pedestrian corridors connect to the sidewalk, but the dominate feature is by far the driveway. While the 4-level parking garage is located underground and thus hidden from view, its effect on the site plan is clear. The building contains 298 residential units and 403 dedicated parking spaces

yielding a ratio of 1.35 spaces per unit, far below what is usually considered the parking demand for residential structures. While this relatively low parking ratio helps to facilitate street activity, the parking garage's direct vertical connection to the building's lobby serves to remove pedestrians from the street.

Figure 3.18 Mayfair Renaissance: pedestrian view
Source: Stephen Taul, 2012

Figure 3.19 Mayfair Renaissance: pedestrian view
Source: Stephen Taul, 2012


Figure 3.20 Mayfair Renaissance: motorist view
Source: Stephen Taul, 2012

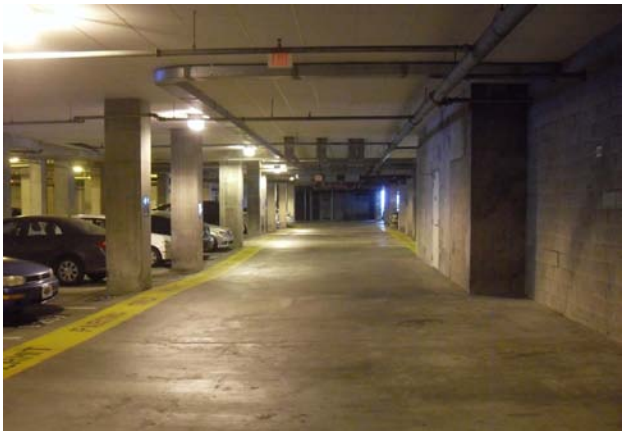
Figure 3.21 Mayfair Renaissance: motorist view
Source: Stephen Taul, 2012

The Bank of America Plaza is a prime example of the Modern approach to building placement in an urban environment. The 55-story building stands isolated in the middle of the site surrounded by landscaping and connected to the sidewalk only by pedestrian plazas on either side of the building. Above the entrance to the parking garage, an upper level pedestrian plaza serves to disconnect the building from its surroundings. The entrance to the parking garage disrupts the pedestrian experience and further isolates the building. The Mall at Peachtree Center functions as a interiorly focused development removing pedestrians from its downtown context. It is served by three nearby parking garages, two of which are directly connected to the mall via pedestrian bridges over the street.

Figure 3.22 Bank of America Plaza: aerial view
Source: Central Atlanta Progress, 2011

Figure 3.23 Bank of America Plaza: pedestrian view
Source: Stephen Taul, 2012

Figure 3.24 Bank of America Plaza: motorist view
Source: Stephen Taul, 2012

Figure 3.25 Bank of America Plaza: motorist view
Source: Stephen Taul, 2012

Figure 3.26 Mall at Peachtree Center: pedestrian view
Source: Stephen Taul, 2012

Figure 3.27 Mall at Peachtree Center: pedestrian view
Source: Stephen Taul, 2012

Figure 3.28 Mall at Peachtree Center: motorist view
Source: Stephen Taul, 2012

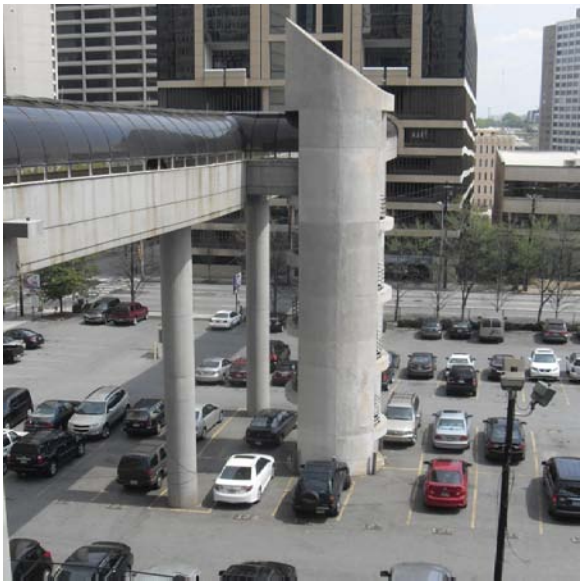

Figure 3.29 Mall at Peachtree Center: motorist view
Source: Stephen Taul, 2012

The Varsity is a suburban example of the Modern approach to parking design. Originally built in 1928, the building was renovated in 1940 with its current look established. By 1950, the Varsity employed 150 car hops and was given the title, "The World's Largest Drive-In." In 1962, the parking garage was built increasing the amount of parking spaces to 500 (The Varsity, 2012). The building demonstrates the shift in culture to a completely automobile-dominated society. The Varsity is an Atlanta icon symbolizing not only a local success story, but also a city built around and for the car. While its surroundings are continuing to urbanize and become more and more pedestrian friendly, this building stands as a visible reminder of the city's recent past.

Figure 3.30 Varsity: aerial view
Source: The Varsity, 2012

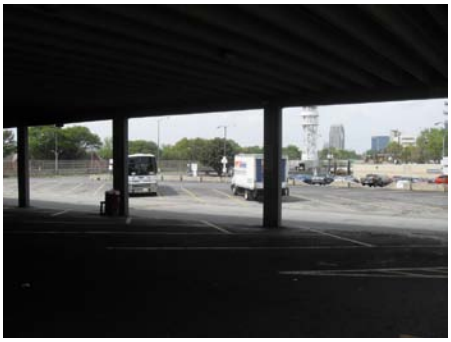

Figure 3.31 Varsity: motorist view
Source: Stephen Taul, 2012

Figure 3.32 Varsity: pedestrian view
Source: Stephen Taul, 2012

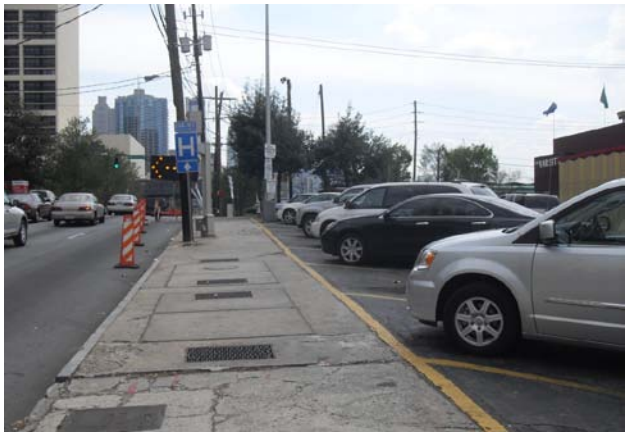

Figure 3.33 Varsity: pedestrian view
Source: Stephen Taul, 2012

The Georgia World Congress Center (GWCC) is a 3,900,000-square-foot conference center with 7,000 parking spaces under its ownership (Georgia World Congress Center). Parking consists of both surface lots and parking garages with a shuttle service to transport attendees to the center. Built in 1976, the massive building complex dominates roughly the same surface area as the historic center of downtown Atlanta. This complex serves to segregate neighborhoods to the west from downtown and create a massive void in the street activity of downtown.

Figure 3.34 GWCC: pedestrian view
Source: Stephen Taul, 2012

Figure 3.35 GWCC: pedestrian view
Source: Stephen Taul, 2012

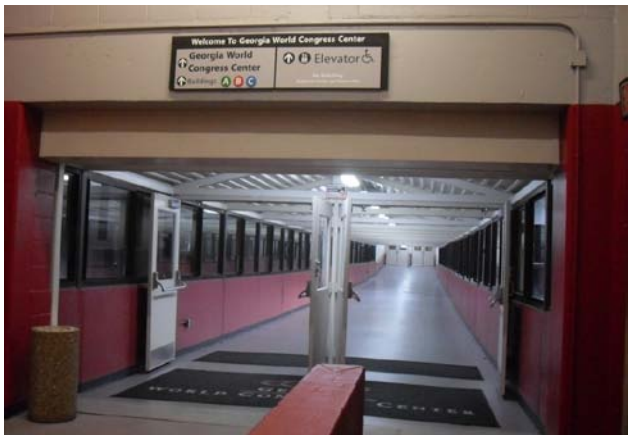

Figure 3.36 GWCC: motorist view
Source: Stephen Taul, 2012

Figure 3.37 GWCC: motorist view
Source: Stephen Taul, 2012

Contemporary Parking Design

The third type of parking design is "contemporary." These buildings attempt to both provide a pedestrian-friendly facade as well as off-street parking. Buildings characterized by contemporary parking design, exhibit active street frontage with some primary entrances directly off of the public sidewalk. Parking is supplied onsite, often embedded within the building. When parking is not completely enclosed by the building, its facade is generally masked to make it appear more aesthetically pleasing or disguised as a inhabitable building. A motorist can park and often times enter the building without walking on the public sidewalk. This type of parking is required by zoning in Downtown, Midtown, and Buckhead, and therefore is becoming the norm. This approach to parking has come primarily from the Congress for the New Urbanism, which was founded in 1993. This group of architects sought to codify the principles of creating high-quality urban environments that was in direct contrast to the conventional, sprawl-oriented development practices of the time (Congress for the New Urbanism, 2011). Through form-based codes

and the creation of LEED for Neighborhood Development, principles such as hiding parking have been written into law.

Residential buildings in this category can be divided into two groups: low to mid-rise buildings with interior block parking, and high-rise buildings with embedded parking. Post Biltmore apartment building is an example of a mid-rise building. It contains double-loaded corridors with interior units facing a courtyard and a single-loaded corridor when attached to the parking deck in the interior of the block. It is possible for residents and visitors alike to enter the building from the parking garage without ever having to walk along the sidewalk. It contains several pedestrian entrances from the sidewalk and maintains a street wall with glazing for the leasing office and common rooms on the ground floor. Therefore, it attempts to address the street as a traditional building, but hides a separate circulation system for motorists. It is the best example of the building type known as "Texas Donut." High-rise residential buildings, such as Spire, contain ground-floor retail with several levels of parking above the ground floor and residential levels above the parking garage. In the same way the mid-rise residential example attempts to maintain an active street presence, it also hides a separate circulation system for motorists. But unlike mid-rise buildings, high-rise residential buildings often reveal their parking garages above the ground floor. The parking deck greatly impacts the design of the building. It is obvious to pedestrians that the building form is completely determined by the amount of parking supplied, as shown in Figure 3.42.

Figure 3.38 Post Biltmore: pedestrian view
Source: Post Properties, 2011

Figure 3.39 Post Biltmore: pedestrian view
Source: Stephen Taul, 2012

Figure 3.40 Post Biltmore: motorist view
Source: Stephen Taul, 2012

Figure 3.41 Post Biltmore: motorist view
Source: Stephen Taul, 2012

Figure 3.42 Metropolis: pedestrian view
Source: Stephen Taul, 2012

Figure 3.43 Metropolis: pedestrian view
Source: Stephen Taul, 2012

Figure 3.44 Metropolis: motorist view
Source: Stephen Taul, 2012

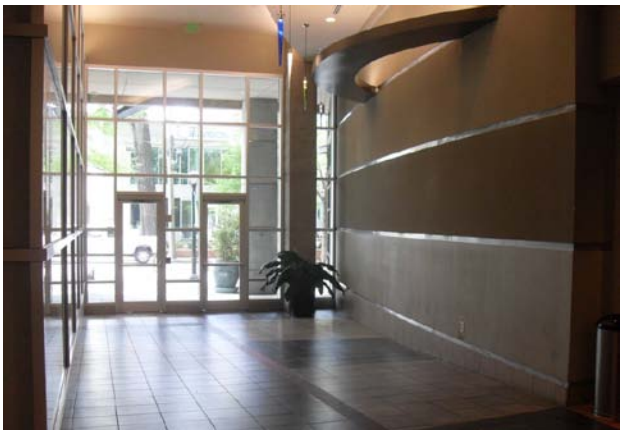

Figure 3.45 Metropolis: motorist view
Source: Stephen Taul, 2012

Office buildings such as 1180 Peachtree Street function similarly to residential buildings. In this case, the building completely disguises its parking garage, cladding it with the same facade treatment as the rest of the building; however, the form is still dependent on the amount of parking, as clearly seen in Figure 3.46 where the lower portion of the building is entirely parking. It also contains retail on the ground floor, but a disconnected circulation system from the parking garage directly to office levels above.

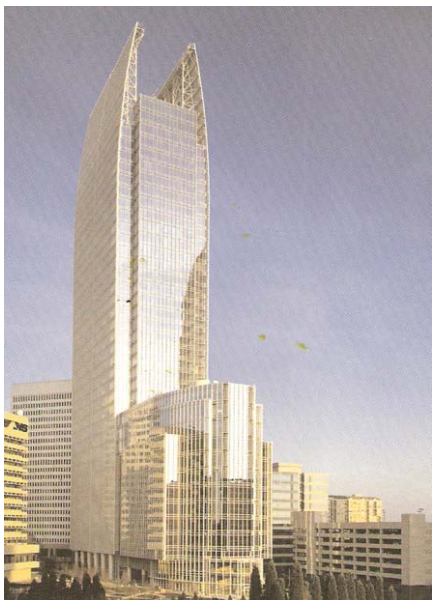

Figure 3.46 1180 Peachtree Street: aerial view
Source: McDonald, 2007

Figure 3.47 1180 Peachtree Street: pedestrian view
Source: Stephen Taul, 2012

Figure 3.48 1180 Peachtree Street: motorist view
Source: Stephen Taul, 2012

Figure 3.49 1180 Peachtree Street: motorist view
Source: Stephen Taul, 2012

Stand-alone retail buildings that both attempt to activate the sidewalk and accommodate parking fall into three general categories, which are parking behind, parking under, and parking on top. The Starbucks at Peachtree Street and Seventh was originally a Krystal Hamburger restaurant with parking on the side and in the rear of the building. It is currently conforming to midtown zoning requiring an intervening building between parking and the street. The Office Depot located at 859 Spring Street includes a rooftop parking deck due to the topography of the site, making this parking arrangement feasible. An elevator connects the parking deck level to a common lobby prior to actually entering the store. The CVS at 842 Peachtree Street contains a parking garage underneath the main store level due to

the topography of 6th Street. This building also allows motorists to enter the store directly from the parking garage.

Figure 3.50 Office Depot: pedestrian view
Source: Stephen Taul, 2012

Figure 3.51 Office Depot: motorist view
Source: Stephen Taul, 2012

Figure 3.52 CVS: pedestrian view
Source: Stephen Taul, 2012

Figure 3.53 CVS: motorist view
Source: Stephen Taul, 2012

Mixed-use buildings, such as 1010 Midtown and Metropolis in Midtown, contain several retail units. Although each building attempts to activate the sidewalk by providing entrances to the retail spaces from the sidewalk, they differ in how they address internal circulation. 1010 Midtown provides a rear entrance directly from the parking garage into many of the retail units since the parking level is located on the same level as the retail space. Metropolis is configured so that the retail parking is located a level above the retail which prohibits a direct connection. Patrons are directed to a common lobby, then to the public sidewalk, prior to entering the retail units. This configuration results in a much more active sidewalk in front of and around the building that encourages patrons to park once and enjoy the surroundings as a pedestrian.

Figure 3.54 1010 Midtown: pedestrian view
Source: Stephen Taul, 2012

Figure 3.55 1010 Midtown: motorist view
Source: Stephen Taul, 2012

Figure 3.56 1010 Midtown: pedestrian view
Source: Stephen Taul, 2012

Figure 3.57 1010 Midtown: motorist view
Source: Stephen Taul, 2012

Figure 3.58 1010 Midtown
Source: 1010 Midtown, 2010

Figure 3.59 Metropolis
Source: Atlanta Intown, 2010

Figure 3.60 Parking to Retail Diagram (1010 Midtown Ground Floor) Source: Stephen Taul, 2012

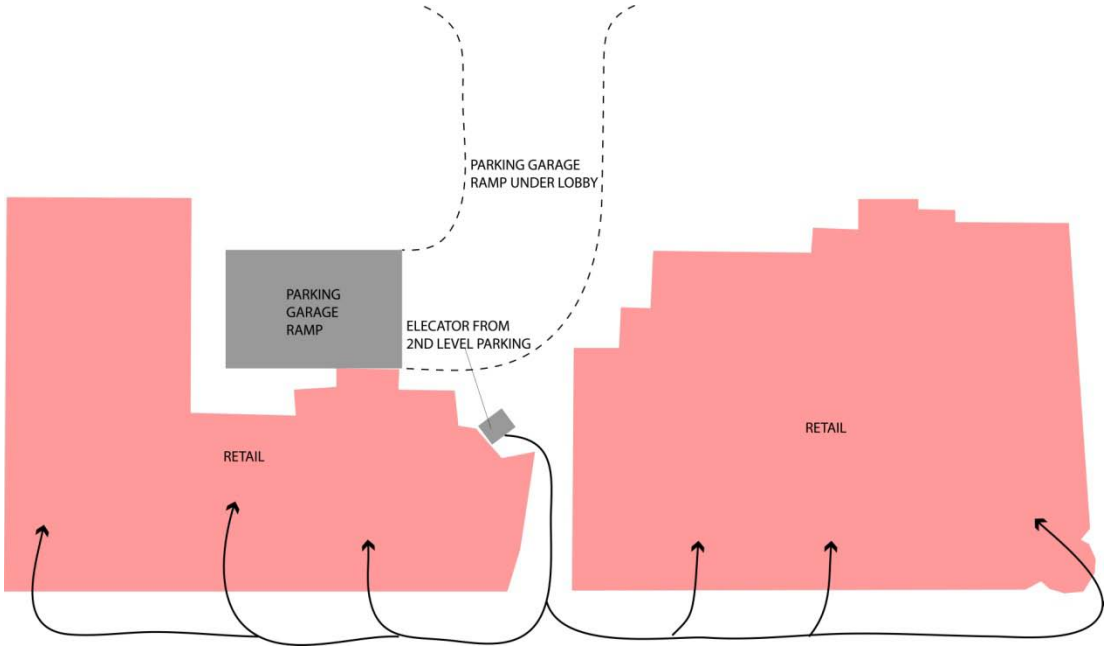

Figure 3.61 Parking to Retail Diagram (Metropolis Ground Floor) Source: Stephen Taul, 2012

The World of Coca-Cola serves as the contemporary example of an assembly building type. The building's entry is located on the interior of the block oriented to the parking garage; however, its facade holds the street edge on two sides of the block in accordance with zoning requiring fenestration along the sidewalk. Although its site plan is oriented to the entry from the parking garage, its attempt at an active street frontage suggests a contemporary approach to parking.

Figure 3.62 World of Coca-Cola: pedestrian view
Source: Stephen Taul, 2012

Figure 3.63 World of Coca-Cola: pedestrian view
Source: Stephen Taul, 2012

Figure 3.64 World of Coca-Cola: motorist view
Source: Stephen Taul, 2012

Figure 3.65 World of Coca-Cola: motorist view
Source: Stephen Taul, 2012

Atlanta Conclusions/Recommendations

The way in which parking is integrated into the urban environment has direct implications on the pedestrian activity and overall walkability of the district. The following commentary pertains specifically to the Midtown district of Atlanta; however, its applicability extends to similar districts throughout many U.S. cities. Within in the SPI-16 Midtown Special Public Interest District in Atlanta, Georgia, parking requirements are one of the most influential determinants of new development. Parking is integrated into every new development within the district - either embedded inside the building, located behind, or buried underneath the building as zoning requires. This requirement has produced buildings that appear pedestrian friendly, yet while accommodating the automobile, are actually hazardous for pedestrians.

The requirement to hide parking has been used to provide an urban aesthetic without the street life that an authentic urban environment would produce. In Midtown, this requirement can be blamed for many characteristics least desirable in a walkable urban district. Due to the average block size of 400 feet x 400 feet, many new developments encompass the entire block in order to accommodate parking within the middle of the block. Even though new buildings may be designed in such a way as to minimize the appearance of a singular building, the resulting facades still lack the diversity and fine-grained aesthetic of blocks with multiple parcels. When parking is located on the ground level, retail space is compromised, resulting in fewer retail entrances on a block's perimeter. Since both parking and loading are required to be hidden from view, multiple curb-cuts interrupt the pedestrian experience. When multiple parcels exist on the same block, curb cuts exist for each parcel, severely harming the functionality of the public sidewalk. Often entrances to the primary use are placed within the parking garage allowing for a direct connection without requiring use of the public sidewalk. Nearby retail, therefore, suffers because of the lack of pedestrians. In addition, new streets are often not feasible because of the requirement for large blocks, and new on-street parking is rare.

The following recommendations are directed at the Midtown Special Public Interest District 16 in order to reform parking policy in Midtown to achieve a public realm activated by pedestrians and to further enhance the retail environment to help create the Midtown Mile. These recommendations are considered appropriate for Atlanta. Remove all minimum parking requirements for all land uses in the transit zones and maintain current maximums. Maintain all other parking requirements. Require developers to pay an in-lieu fee for 100% of required parking. Let the developer decide whether to pay the in-lieu fee

for the rest of the desired parking or build that parking onsite under strict conditions. Sites under 40,000 square feet must pay the in-lieu fee for all desired parking over the minimum requirement to eliminate excessive curb-cuts. All parking garages and lots should provide a direct connection to the public sidewalk. No parking garage or lot should provide a direct private connection to any other land use except residential located on that site.

General Conclusions

In order to create a walkable urban district, parking regulations must be redesigned to prioritize the pedestrian and promote the most efficient use of space. This can be accomplished by regulating the amount, ownership, and design of parking. Five basic rules can be used to ensure that parking prioritizes the pedestrian experience. These rules include parking requirements based on various factors, required shared parking, common ownership of parking, maximized on-street parking, and direct connections from off-street parking to the public sidewalk.

Parking requirement ratios should be based on a combination of several factors including transit availability, street connectivity, mix of existing uses, and commercial and residential density. Instead of only basing parking requirements on arbitrary square footage, requirements should be instead based on factors of walkability. Examples of this consideration include parking requirements that are reduced when the building density increases, such as in Boston, or parking requirements that are reduced close to transit stations, as in Atlanta. GIS-based applications could be used to measure the connectivity of the street network to determine if reducing parking requirements is appropriate. A mix of uses would also indicate that parking requirements could be reduced.

All parking must be shared among different uses to ensure the most efficient use of space. This rule would lower total parking spaces because the spaces would be occupied more efficiently. Even without a reduction in parking requirements, shared parking could be used. While many mixed-use developments employ shared parking facilities for commercial uses, rarely are residential uses permitted to use shared parking. Residential uses, however, allow the most efficient use of parking when joined with commercial uses, especially office. Without including residential uses, shared parking does not provide the greatest benefit.

All parking must be owned by a parking management entity to facilitate shared parking and must be funded by in-lieu fees paid by developers. This would allow for a continuous street edge, the possibility of smaller parcels, and overall improved urban design. Off-street parking for each use on every parcel will prevent an urban environment from ever becoming more than the sum of its parts. Driveways will break up the urban fabric and single developments will occupy entire blocks. Most buildings must be designed without parking to ensure an urban environment that maximizes social interaction.

On-street parking should be maximized to allow for availability of high-turnover spaces. Not only is on-street parking critical for retail, it increases safety for pedestrians and maintains an active public sidewalk. On-street parking ensures that the sidewalk will be occupied with pedestrians, especially when the on-street spaces are used primarily for short-term parking. In addition, on-street parking is by its very nature public since it is on a public street, and therefore is also shared among various uses.

Off-street parking should contain ground-floor uses and should only connect to the public sidewalk. These parking garages should be designed as high-quality urban buildings that contribute to the overall design of the area. By requiring all motorists to walk along the sidewalk, an authentic public realm is ensured. On the other hand, by allowing motorists to gain access to the building from within the parking garage, the sidewalk has the potential to become deserted.

By following these rules, parking can be accommodated appropriately while preserving and creating a traditional urban form, and can improve the experience of the city for both pedestrians and motorists.

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