A COMPARISON OF PARKING POLICIES: A CASE STUDY OF FORT LAUDERDALE, FLORIDA

By

JESSICA LEE MACKEY

A THESIS PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS IN URBAN AND REGIONAL PLANNING

UNIVERSITY OF FLORIDA

2011

This is to the people in America who need more sustainable, healthier and safer transportation options in their life.

ACKNOWLEDGMENTS

I thank my chair, Dr. Ruth Steiner, for convincing me to also study transportation engineering, and allowing me to work for her these past three years. The sweat, tears, and cheers have paid off. I am also thankful to my co-chair, Dr. Dawn Jourdan, for being a great support, for being patient and for having a good sense of humor. I appreciate all the work that the parking research team has done which has influenced my work. Thanks go out to Andres Blanco for helping me during my mid-thesis crisis.

The love and support of my family and friends make everyday life amazing. My mother who has given me everything I need. Mon Cheri who supports everything I do and love about this world, listens to me complain and who has truly shown to me unconditional love. My twin who is sometimes my better half and who has helped me with this thesis. My Dad who has planted the seeds of passion for nature in my life. Kyle for joining our family at a critical time in my life. My best friends who 'dig' the things I 'dig' on this planet and are always engaging: Sally, Josh, Zharel, Ivelisse, Maria and Marcos. Gareth Hanley who is nothing short of outstanding to work and to be with. I am grateful for Patricio's patience and willingness to help me out during the late nights with my defense and submissions.

TABLE OF CONTENTS

page

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

APA	American Planning Association
DDA	Downtown Development Authority
DRAC	Downtown Regional Activity Center
DRC	Development Review Committee
EPA	Environmental Protection Agency
FDOT	Florida Department of Transportation
FS	Florida Statute
gfa	gross floor area
GIS	geographic information systems
HB	House Bill
ITE	Institute of Transportation Engineers
MSA	metropolitan statistical area
RAC-CC	Regional Activity Center – City Center
RAC-UV	Regional Activity Center – Urban Village
RAC-TMU	Regional Activity Center – Transitional Mixed Use
RAC-WMU	Regional Activity Center – West Mixed Use
RAC-SMU	Regional Activity Center – South Mixed Use
RAC-EMU	Regional Activity Center – East Mixed Use
RAC-AS	Regional Activity Center – Arts and Science District
sf	square feet
TCRP	Transportation Research Cooperative
TOD	transit oriented development
TRB	Transportation Research Board Transit Cooperative Research Program
ULDR	Unified Land Development Regulations

ULI	Urban Land Institute
VMT	vehicle miles traveled
VTPI	Victoria Transport Policy Institute

Abstract of Thesis Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Master of Arts

A COMPARISON OF PARKING POLICIES: A CASE STUDY OF FORT LAUDERDALE, FLORIDA

By

Jessica Lee Mackey

August 2011

Chair: Ruth Steiner
Co-chair: Dawn Jourdan
Major: Urban and Regional Planning

Municipalities throughout the nation use a regulation called minimum parking requirements as way to avoid congestion and spillover effects associated with shortages in parking. However, minimum parking requirements can be linked to many externalities like negatively impacting land markets. The negative effect on land markets results from the restriction that this regulation places on development. Because of this, minimum parking requirements have the potential to impede community efforts in redevelopment.

This research is a case study policy evaluation of Fort Lauderdale's parking policies. This research compares the supply of parking that has resulted from minimum parking space requirements mandated in the suburban areas of the city to the parking exemptions and reductions that have been implemented the downtown. The parking exemptions in downtown allow developers and businesses to decide how much parking they supply on-site. The reductions only require developers and businesses to supply a percentage of what it minimally required.

The history of minimum parking requirements, factors of parking demand, alternative land use strategies available and Fort Lauderdale's parking policies are reviewed. The city's parking policies are supplemented with anecdotal data from interviews with city officials. Lastly, an analysis of the parking supply using site plan records of selected sites found in downtown and the suburban areas is completed to compare the difference of parking supply that the two policies have achieved. The criteria for site selection were based on the land use, intensity, and whether the sites were developed before or after the parking exemptions were implemented. Other site characteristics that were considered in the analysis include the type of parking facility provided (structured or surface), land value, if the parking supplied exceeded requirements and whether the site is in the downtown.

Overall all of the developments surveyed show that there is a demand for parking at each of the sites. Based on the number of sites that have reduced their parking supply in downtown, the downtown parking exemptions have allowed more flexibility for developments. This flexibility promotes the city's goals for downtown redevelopment. The downtown parking exemptions seem to benefit small businesses and residential uses, and sites that can lease parking spaces in the city parking garage. Major franchises like Burger King, McDonalds, CVS, Walgreens and Publix tend to provide more parking than the minimum requirements.

The city of Fort Lauderdale has the opportunity to improve their parking management practices through its land development regulations by including more parking policy alternatives and by allowing developers and businesses to negotiate the supply of parking they provide.

CHAPTER 1
INTRODUCTION

The purpose of this study is to understand the demand factors for parking and the supply of parking provided as a result of parking regulations. This study answers the question of how parking regulations affect the supply of parking provided by developers and businesses using Fort Lauderdale's parking policies as a case study. If parking regulations are too stringent, they can be seen as a barrier to development. The significance of parking policies to the planning profession is that these policies have the potential to impact community goals like redevelopment and congestion management.

Minimum parking requirements is a common parking policy that have been implemented in many cities throughout the United States. Because of how widespread the policy is, minimum parking requirements are considered to be the conventional parking policy (Shoup, 2005). The history, purpose and costs of minimum parking requirements municipalities are discussed next.

History and Purpose of Minimum Parking Requirements

Both local governments and businesses struggle to ensure there is convenient and adequate parking for everyone, whether they are customers, visitors, residents, employees or themselves. In order to satisfy the demand for parking, most cities across the U.S. have implemented a policy that developers provide a minimum amount of on-site parking spaces according to the intensity of a specific land use. This policy is known as minimum parking requirements. They were first implemented in the early twentieth century after the cars began parking on curbs where travelers once tethered their horses. In 1923 the City of Columbus, Ohio was the first U.S. city to require minimum parking spaces for apartment complexes (Shoup, 2005). As automobile

ownership increased, the demand for parking increased. More cities began to require landowners supply on-sites parking spaces through zoning and land development regulations.

Minimum parking requirements are usually expressed as ratios that are based on factors like “type, location, and intensity of specific land uses” (TRB TCRP, 2003, p. 18-8). For instance, a local government may require that two parking spaces be developed for every dwelling unit on a residential property or three parking space for every 1000 square feet of office space (TRB TCRP, 2003). Often times the ratios are calculated to satisfy the peak demand for parking (Shoup 2005).

Minimum parking requirements are justified by municipalities for several reasons. They are a solution to congestion caused by drivers “cruising” for parking (Shoup, 2005). When parking is available, traffic circulation to and within a downtown is improved by moving cars off the street and directly adjacent to their destination (Shoup & Pickrell, 1978, p. 545). This improved circulation could make driving conditions safer. They ensure that developments create a design that conforms to a minimum quality for an urban environment (FDOT, 1997).

Municipalities might require that new developments provide their own parking for economic development reasons (Shoup & Pickrell, 1978). A high supply of parking can positively impact local businesses by guaranteeing parking for their customers if it is assumed that most people travel by car to their destinations. Because of this increased marketability, some city planners have viewed the requirement of minimum parking spaces as a way to encourage downtown growth and to attract visitors (Shoup, 2005). Wilbur Smith and Associates (1965) suggest that smaller urban cores wanting to

"compete with retail outlets located elsewhere in the urban complex" should provide free downtown parking (Wilbur Smith and Associates, 1965, p.62). On-site parking requirements take the cost of providing parking from city to the developer. On the other hand, businesses may also want for their customers park next to their establishments as a way to please customers (Shoup, 2005).

Minimum parking requirements avoid parking spillover effects associated with shortages of parking. An ample supply of parking can avoid parking spillover effects experienced during peak parking occupancy and dense urban areas like downtowns. For instance, a residential site with inadequate parking may cause residents and visitors to park in adjacent properties that are designated for retail and commercial customers (Shoup, 2005). This reasoning reinforces the common belief that if municipalities provide or require ample parking in their downtown; people will be more attracted to live or visit the downtown (Shoup, 2005).

The supply of parking has become so abundant throughout most US cities that drivers expect to find parking next to their destinations (Shoup, 2005), so an oversupply of parking helps to meet that expectation. Unfortunately, while the benefits of abundant parking are used to justify minimum parking requirements, the costs of this policy are less understood. A large supply of parking resulting from minimum parking requirements can negatively affect land markets, the transportation system, land use and the environment.

Externalities

The demand and the supply of parking are intricately linked. In a free market, the demand for parking depends on several factors like density of employment, price of parking, location, time, level of transit and a traveler's incomes. The supply of parking in

a free market depends on factors like land availability, land rent, the cost of capital and operating inputs (Shoup & Pickrell, 1978, p.553). Minimum parking requirements work like a regulation that intervenes in a free market. This intervention affects markets in transportation and land use (Shoup & Pickrell, 1978). The impacts and costs that this policy can have are often not considered by the local governments when they are implemented (Shoup, 2005). The costs that not captured by the market price of parking are known as the externalities of minimum parking requirements (O'Sullivan, 2006). Minimum parking requirements have the effect of making every site a standalone island to itself (Shoup, 2005). The cumulative effects of having several stand alone sites are evidenced in through many kinds of externalities. The externalities affect many aspects of society including land markets, the transportation system, land use, and the environment.

Land Markets

Land markets are affected by minimum parking requirements due to the cost to comply with regulation. The types of costs range from the cost of construction to costs in land values. The first cost is the basic cost of supplying parking is the physical inputs for construction of parking, such as the square footage of land dedicated to parking. This includes construction materials, labor, insurance, transaction costs, operation, and maintenance that are quantifiable in monetary value. The costs of parking per space can vary from $250 to more than $2,250 annually when factoring those inputs (Litman, 2006a). The cost of to constructing parking spaces in order to comply with minimum parking requirements has generated controversy because these inputs raise the cost of developments, while reducing profits to developers and businesses. This controversy has been raised especially for affordable housing developments, where tenants who

may not own cars will not necessarily benefit from the parking provided (Shoup, 2005; Jia & Wachs, 1998).

The second cost is reduced market for land as a result of the reduced availability of land. Prospective developers and land buyers may not want to purchase land in areas where requirements are too stringent and where land is expensive. The expense of providing parking in places where land values are high can cause a deficit to developers and make a project cost-prohibitive. In turn, this can create a disincentive to inner-city redevelopment. Sometimes the only way to accommodate parking in a single parcel is through structured parking garages. The cost per parking space of structured parking garages compared to a suburban surface lot can be up to 5 times greater (www.vtpi.org/parking.xls). If the cost of providing structured parking is too great for a developer, they are unable to justify the cost of development, causing them to walk away from projects. In fact the "tax per square foot of additional building space increases more than proportionally with building size" (Shoup & Pickrell, p. 561). This creates a disincentive for high density development since the construction costs of multi-story buildings with structured parking are higher and costlier. This condition discourages infill and redevelopment from occurring in areas like downtowns (Shoup, 2005). The end result is a shift of new development away from downtowns and already developed areas.

This cost can be understood like a tax and has proven to reduce land values significantly. For example after Oakland, California introduced parking requirements for apartment buildings, the land values decreased 33 % (Shoup, 2005, p.645). Therefore a "low market value of land" does not necessarily mean that the cost of constructing

parking will be cheaper when “the requirement itself reduce[s] land prices” (Shoup, 2005, p.645).

Transportation System

As stated previously, one of the reasons parking requirements have been put in place is to reduce local congestion caused by “cruising for parking” (Shoup, 2005). In essence, minimum parking requirements provide a “local benefit,” but “at a high price to the whole city”; by making the overall transportation system inefficient by increasing the number of automobile trips (Shoup, 2005, p.11). Minimum parking requirements have increased the number of automobile trips indirectly by changing the price of parking and lowing densities in the urban environment.

Minimum parking requirements have undermined the way a transportation market would determine the price of parking by first causing a drastic drop in market price of parking (Shoup, 1999, p. 556-557). In basic economic terms, this is because as the supply of parking increases, the price will decrease (Shoup & Pickrell, 1978). In most cases the price drops to zero, suggesting an oversupply of parking and that the minimum requirements are set too high (Shoup, 2005). Another indication of an oversupply of parking may be the absence of commercial parking garages due to their inability offer competitive rates (Shoup, 2005). Free parking provides an incentive to drive because it is one less out of pocket expense for drivers. In the short-run, free parking increases automobile trips. The result is increased automobile travel and increased congestion (Shoup, 2005).

Minimum parking requirements compromise travel demand strategies reducing urban densities (TRB TCRB, 2003, p. 18-8). Because the regulation results in developers having to dedicate a significant percentage of land to parking, this increases

the need for travelers to depend on the automobile as a form of transportation because of increased walking distances. This increased need for an automobile can cause automobile ownership to increase in areas with low densities (Shoup, 2005).

Shoup (2005) estimates that the increased vehicle congestion caused by parking requirements costs society $73 a month per space (p. 199). The increased congestion leads to greater transportation inefficiencies when planners and city officials offset the increased congestion by constructing more infrastructure for automobiles such as added lane miles, overpasses and turn lanes (Shoup & Pickrell, 1978). The problem is exacerbated when parking policies vary greatly among jurisdictions within a metropolitan region in ways unrelated to demand and the cost of supply; they may also cause inefficient shifts in geographic distribution of parking spaces and travel within a region (Shoup & Pickrell, 1978).

Simply put, if parking is available and free, travelers will be more likely to choose driving. Free and abundant parking has resulted in the increased use and ownership of the automobile and the increased need to add infrastructure for the automobile (Shoup, 2005). These relationships feed themselves into a cycle that is more automobile dependent, leading to the decreased efficiency of the transportation system (Shoup, & Pickrell, 1978).

Land Use

The use a zoning to allocate parking spaces is may be fundamentally incorrect. Whenever there is a deficiency of an land resource like green space, planners often use land-use zoning or building codes as a way to improve “resource allocation” in land markets by requiring developers to provide that resource (Shoup & Pickrell, 1978, p. 545). Minimum parking requirements are used as was improve the resource of parking.

However, minimum parking requirements make the “resource market” for land inefficient because “parking is not fundamentally a land market problem,” (Shoup, 1999: p.1; Shoup & Pickrell, 1978). Instead, parking is a derived demand that stems from the need to travel (Shoup, 2005). This has led to an inefficiency in how we use land.

Minimum parking requirements have dramatically changed how we use land since parking often accounts for the largest component of a single land use. In fact, parking is perhaps the “single biggest land use in any city,” (Shoup as cited in Betz, 2010). Most of the parking spaces in cities are vacant according to Shoup (Betz, 2010). Several studies have found that parking is typically oversupplied in most suburban office parks, even though most of these parking spaces are free to the user. Wilson (1992) found that based on four studies, a typical requirement is to have 3 to 4 spaces per 1,000 square feet, when peak occupancy rates average at only 1.4 cars parked per 1,000 square feet (as cited in TRB TCRP 2003, p. 18-8). Researchers at the University of California in Berkeley estimated that there are “at least 500 million empty spaces in the US at any given time,” raising the concern of whether or not minimum parking requirements are allowing for the most efficient use of land (Betz, 2010). The empty parking spaces present opportunity costs to landowners and society as a whole since there may be better uses for those spaces such as using them for parks and buildings.

Environmental Costs

Parking spaces and their associated uses have several environmental costs, one of which can be approximated. Shoup (2005) was able to estimate the emissions associated with a parking space. Using the South Coast Air Quality Management District’s threshold values, Shoup estimated that emissions cost $44 a month per space. Environmental costs such as the loss of eco-systems, polluted water run-off, heat island

effect, storm water management and the lost opportunities of aquifer recharge, which have not been quantified, are known to be associated with impervious surfaces like surface parking lots (Shoup, 2005, Litman, 2006a).

Social Costs

Those who do not own personal automobiles or who do not wish to use them pay the highest social costs for parking. When the cost of parking is bundled into the cost of development, the true cost becomes "externalized", because one cannot reduce "you cannot reduce what you pay for parking by consuming less of it" (Shoup, 1999, p. 557). For instance, if a merchant is required to build a certain number of parking spaces, the capital and operational cost of parking gets shifted to the price of goods or services to that customer, even if the customer did not benefit from the parking space. Also, travelers accessing their destinations by walking or transit have to walk longer distances in a less appealing, if not hostile, urban design due to the road infrastructure and parking lots designed for the automobile. No monetary cost can be quantified to represent the externality of the decreased accessibility, opportunity costs from not using land for bike lanes or sidewalks or the "aesthetic degradation" that minimum parking requirements create (Shoup, 2005; Litman, 2006a). Another social cost that cannot be quantified is the effect parking has on an individual's health. The search for parking due to a shortage or parking or not knowing where to find an available parking space can increase the level of stress to a motorist (Shoup, 2005).

Study Outline

The purpose of this study is to understand the resulting supply of parking provided by developers and businesses under two parking policies. This framework will relate to two parking regulations in the City of Fort Lauderdale, Florida: the conventional policy of

minimum parking requirements and the alternative policy of parking exemptions and reductions. Data is collected from a combination of case study documents, site plan records and information from interviews with city officials. Based on the results, a discussion of the effects resulting from Fort Lauderdale's parking policies and recommendations for the city are provided. The results of this study highlights the need for local governments like the City of Fort Lauderdale to reevaluate their minimum parking requirements in order to achieve the best use of land and to promote redevelopment.

CHAPTER 2
RESEARCH FRAMEWORK

Municipalities have based their minimum parking requirements using several methods but often without consideration of the externalities mentioned in the previous chapter. The demand for parking is linked to the supply of parking. Like demand, the supply of parking provided by developers and businesses is the result of a combination of factors. The need to implement alternative policies to minimum parking requirements may be evident when there is an oversupply of parking, automobile congestion, or when businesses and developers are unable or unwilling to accommodate the required supply. Alternative parking policies can allow local governments to control the supply of parking in their jurisdiction as a travel demand strategy or allow developers the flexibility needed to promote development and redevelopment. This research framework discusses the factors for parking demand, alternative parking policies, how demand influences the formation parking regulations and the factors that impact the supply provided by businesses and developers.

Factors of Parking Demand

The demand for parking is influenced by many factors like the land use of a destination, the intensity or scale of the land use, local transportation characteristics, spatial and geographic factors, temporal factors, local demographics, economic factors, the price of parking, surrounding land use mix, popularity and technology (Shoup, 2005; Litman, 2006a). Different land uses attract a different numbers of trips with different durations. This is the basis for understanding trip generation which is related to parking demand. For instance, a convenience store may attract many customers that arrive by car but only occupy a parking space for a short amount of time, therefore needing less

parking than a store that attracts just as many customers but have longer stays. The intensity or scale of a land use will also generate different demands for parking. For example, a multifamily residential land use will demand more parking than a single family residential land use, because there are more residents that own cars and more residents per square foot of development. Different types of land uses are being continuously segmented to better reflect the different characteristics they hold; a restaurant with a drive-through will have different needs for parking than one without a drive-through (ITE 2010).

Different land uses will also produce different peak periods of parking demand throughout the day and throughout the year. A shopping center will have a high demand for parking during normal business hours, and an even higher demand during the holiday season (ITE, 2010). Major events will also produce spikes in parking demand.

Local transportation characteristics will indirectly influence the demand for parking. For instance, areas with high levels of transit will reduce the demand for parking because transit can substitute the need to travel by car. Parking requirements can be reduced 10-15% for housing and employment centers within ¼ mile of a frequent bus station and 20% if they are near a rail station (Litman, 2006b).

Economic factors such as the price of gas have proven to reduce automobile trips, which reduces the demand for parking. The popularity of an establishment may be easy to predict but could dramatically change demand, as popular destinations tend to demand a high supply of parking (Litman, 2006a). Economic conditions also can

influence demographics, as individuals with lower incomes might not be able to afford an automobile, and therefore have little demand for parking.

Persons who are unable to drive because they are too young or too old to drive will also influence parking demand (Shoup 2005; Litman 2006a). The Victoria Transport Policy Institute recommends reducing parking requirements for areas with a high elderly population or young population by 20-40% (Litman, 2006b). Housing tenure is another aspect of demographic factors. If a housing development consists of rental occupied housing as opposed to owner occupied housing, then parking requirements can be reduced 20-40 % (Litman, 2006b)

The price of parking is linked to both the supply and demand for parking. A higher price of parking could indicate a scarcer supply of parking (TRB TCRP, 2003). With respect to parking, the higher the cost of parking, the lower the demand (Shoup, 2005). Priced parking can allow for a 10-30% reduction in demand if parking is priced to recover the full cost of parking (Litman, 2006b).

The spatial and geographic characteristics of a destination will influence the demand for parking simply because people like to park as close as possible to their destination in order to minimize the cost of walking (Shoup, 1999). A location that minimizes the walking distance to a traveler's final destination would have a higher demand and should cost more than a location that is spatially farther because of the decrease in distance required to walk. Parking requirements in areas with high levels of walkability can be reduced by 5 to 15% (Litman, 2006b). If parking is unable to be supplied next to a destination due to geographic constraints, then drivers may be less willing to choose driving as their mode of transportation.

Technology has also played a role changing parking demand. Businesses that provide online services, like banks, have reduced the need for their customers to do transaction on-site because customers can substitute their trip with an online transaction, therefore reducing the demand for parking (www.ite.org).

How Cities Determine Parking Requirements

Cities typically base their minimum parking requirements on just two factors: land use and the intensity or scale of the land use (TRB TCRP, 2003). The problem with this approach is that demand for parking is influenced by the many other factors mentioned previously. Shoup (2005) claims that parking requirements in most cities are done with "no theory, little training and poor data," (p.607). Shoup (2005) identifies a study by Richard Wilson (1996) that found that 45% of the 144 cities survey based parking requirements on the policies of nearby cities and 15% based the requirement on the Institute of Transportation Engineer's (ITE) Parking Generation Handbook. This handbook attempts to provide guidance on the number of parking spaces that should be supplied for a particular land use, based on parking studies in several standalone, suburban locations. The data from this handbook is criticized by Shoup for often being statistically insignificant because of small sample size (Shoup, 2005).

Another criticism with minimum parking requirements is that they are not context sensitive. If minimum parking requirements are based on the guidance of ITE's Parking Generation Handbook, then they may only be appropriate for low density, automobile oriented suburban areas where the data was collected (Shoup, 2005; ITE 2010). A dense downtown that is well served by transit will have different needs in parking than a suburban area that is automobile-oriented (Litman, 2006). Therefore, parking requirements for a downtown-like area should be different than areas with suburban

characteristics. On the other hand, developments that have characteristics of a downtown like New Urbanist developments have been found to require more parking than previously thought due to their popularity (Steiner, 1999).

Very few communities conduct parking studies to determine parking requirements because of the cost of such studies or the difficulty in implementing the change of policy. Many communities simply do not know where their requirements come from. The basis for calculating parking requirements is usually done without research for many land uses, and does not take into account the local transportation characteristics, geographic factors, demographic factors, economic factors such as the price of gas and the surrounding land use mix (Shoup, 2005). In order to address this problem, local governments can implement alternative land use policies that influence the supply and demand for parking.

Alternative Parking Policies

There are many strategies that manage parking demand and parking supply. Some are land use related and some are not. Land use strategies are implemented though zoning, comprehensive plans, design guidelines and land development regulations (Hendricks & Seggerman, 2005). Minimum parking requirements are a common, more traditional land use strategy to manage parking (Shoup, 2005). This strategy however counters efforts by communities who wish to promote sustainability, multimodality and reduced automobile congestion. The land market, environment and transportation impacts of minimum parking requirements have led to the development of alternative parking policies. These polices lessen the impacts of excessive parking by reducing the demand or supply of parking.

Reducing the supply of parking limits the ability of automobile travel to access their destination using the automobile, thereby discouraging the use of the automobile. In fact, Veroef (1995) finds that the physical restriction of parking supply is more effective in reducing the externalities of parking than by pricing parking. At the same time, addressing the demand for parking for parking is needed in order to begin to reduce the supply of parking.

The following section is a review of land use strategies that can change the supply and demand for parking urbanized areas like downtowns. These strategies serve as alternative policies to minimum parking requirements. Strategies like parking maximums, the ability for developers to negotiate parking supply, unbundled parking, shared parking, parking exemptions and parking reductions can reduce the supply of parking. Incentives for smart growth, taxed parking, and bicycle parking can reduce the demand or supply of parking. These land use policies are reviewed in detail next.

Parking Maximums

Parking maximums are a land use strategy to reduce parking supply (Everett-Lee, 2001). While they are implemented in a manner similar to parking minimums, they have the opposite effect. They limit the development of on-site parking in order to intensify land use and discourage the use of the automobile by putting a cap on the number of parking spaces that can be supplied on-site (TRB TCRP, 2003). This policy is appropriate for areas with an oversupply of parking (Everett-Lee, 2001). Parking maximums may receive opposition from residents, developers, third party developers, lending institutions and business owners, particularly big box retail (VTPI 2010c; Nelson, H. personal communication, July 8, 2011). These stakeholders might fear parking shortages, spillover effects or their ability to compete with nearby

establishments, so implementation of parking maximums should be done carefully (VTPI 2010c; TRB TCRP, 2003). On the other hand, this strategy can save developers the cost of providing parking spaces while achieving community objectives that are consistent with multimodality. Local government wishing to reduce their supply of parking through parking maximums should do so in conjunction with improvements to other modes of transportation (Steiner et al., 2011).

Tax Parking

Tax policies can be implemented as a land use strategy or a regulation to discourage excessive supply of parking by decreasing the demand (Everett-Lee, 2001). Two common tax policies are commercial parking taxes and per-space levies. The commercial parking tax is a regulation that is collected in the form of a percentage of a parking fee that the user pays. The commercial tax policy reduces the demand for parking by increasing the cost of parking to the users indirectly while encouraging the use of other modes of transportation (Litman, 2006; Everett-Lee, 2001). This tax applies primarily to privately owned facilities in downtowns (VTPI, 2010a). The per space levy tax is a land use strategy that works similar to a property tax. This tax is based on the number of parking spaces or the square footage of land dedicated parking (VTPI, 2010a). The per-space levies can reduce the incentive for businesses to supply their own parking or encourage property owners to charge for parking (Litman, 2006a). Both of these taxes serve as a disincentive to provide parking while generating revenue for a government agency.

Bicycle Parking

A minimum bicycles parking requirement can be implemented in the same way that minimum parking requirements for automobile are. Bicycle parking can reduce the

demand for parking and replace some of the supply. Bicycle parking is efficient compared automobile parking since 10 to 12 bicycles can fit into one parking space (Litman, 2006a, www.americangtrails.org). Certain land uses like universities, recreation and schools can have up to 20% of visitors arrive by bicycle (Litman, 2006b). The land development regulations should provide design guidelines in order to promote bicycling visibility and safety. The visibility of bicycle parking by itself can show the public that biking is a promoted by the city and can be a viable means of transportation. Bicycle parking can increase the capacity of an existing parking facility because it requires less space than automobile parking. Bicycle parking not only improves access to destinations for bicyclists, but it can benefit communities and business owners that want to be seen as having more sustainable values (VTPI, 2011).

Incentives for Smart Growth

Another land use strategy is to provide incentives for developments that communities want to promote. Local governments can implement incentives through comprehensive plans in order to support smart growth. Smart growth promotes mixed land uses, compact building design, walkable neighborhoods, preservation of open space, multimodality, and location efficient development. Location efficient development refers to development that is already within an existing urban service area like infill development, redevelopment and transit oriented development (TOD). Mixed land use refers to different land uses that are close to each other like residential, commercial, retail, and institutional. Mixed land use can also be achieved within one building such as buildings where residential apartments are built on top of retail. Mixed use development can reduce the need for parking supply because it creates more opportunities for walking, thus reducing trips made by automobiles (VTPI, 2010b).

Developments designed with these principles can reduce the demand for parking. Incentives can range from tax credits, an expedited review process, a traffic impact fee reduction, and permit waivers (VTPI, 2010b).

Comprehensive plans could have principles that encourage these types of developments through the use of incentives that are then supported in the land development regulations. It is also possible for local governments to provide disincentives of a similar nature to developments that are located outside of an existing service area of transit (Seggerman & Hendricks, 2005).

Smart growth also supports development decisions that are predictable, fair and cost effective. This requires collaboration and coordination between stakeholders in the development process (www.epa.gov/dced/about_sg.htm). Stakeholders like the state, regional, and adjacent municipalities can coordinate for smart growth through comprehensive plans (VTPI, 2010b). This requires changes in institutional structure and education (VTPI, 2010b). Limiting the supply of parking and efficient parking management can also be considered smart growth policies (VTPI, 2010b).

Negotiability and Flexibility

Two of the disadvantages with minimum (and maximum) parking requirements are that they do not allow for flexibility and are not context sensitive (US EPA, 2006). Parking policies should be flexible in that they allow for developers to negotiate the cost of providing parking according to the unique circumstance of that development (TRB TCRP, 2003, p. 8-10). A more flexible implementation of parking management can be implemented through the negotiation process of land development or through the land development regulations. Flexibility can reduce the supply of parking provided by developers in exchange for strategies like the construction transit stations, in-lieu

contributions to a centralized city parking facility, subsidies for transit, or monetary contributions to a transportation management fund (US EPA, 2006; Everett-Lee, 2001). The developer can also make agreements for shared parking, dedicated carpool stalls, carsharing, land banking and pricing strategies (US EPA, 2006). This can be done in the development review process when a developer can present a parking study to the city to evaluate their case. Communities can also promote more flexibility by introducing "transferable parking entitlements" which allows projects who require less parking to sell their rights (US EPA 2006, p. 16).

Unbundle Parking

Under minimum parking requirements, parking is treated a part of a land use in conventional land use policies when it really functions separately from most land uses. Communities can fundamentally change this policy by unbundling parking. Unbundled parking works by separating the cost of constructing parking from the building use and making it available by purchase or rent. By separating the cost of parking from a land use, local governments can promote a more optimal supply of parking by allowing users to pay for exactly was they need. This can reduce the supply of parking by 10-20 % (Litman 2006b, p. 14). For example, apartments can be rented for $1000 per month with two parking spaces at no extra cost. Instead of automatically including the parking with each apartment, the apartment can be rented for $850 per month, and renters could purchase or lease parking spaces for $75 each per month. This policy promotes efficiency and fairness to occupants who do not own automobiles; however on-street parking spillover may occur if residents try to avoid paying for parking spaces. Local officials should regulate nearby on-street parking to avoid this problem (VTPI, 2010c).

Shared Parking for Mixed Land Use

Shared parking can reduce the supply the parking by making a more efficient use of parking supply. Shared parking can be implemented through a combination of zoning regulations and development regulations. Shared parking works in areas with mixed land use and with different peak parking demand periods (ITE, 2010).

Parking Exemptions

Parking exemptions work more like a free market approach, where the local government allows for a developer or business decide how much parking they want to supply. This can reduce the supply of parking when compared to minimum parking requirements. Developments will usually need to meet certain criteria to qualify for exemptions such as if they are located in a historic district, a downtown or an area highly served by transit, or are near an existing parking facility.

Parking Reductions

Parking reductions can reduce the supply of parking (Everett-Lee, 2001). Parking reductions are a relaxed version of minimum parking requirements. They are implemented with minimum parking requirements but only require that developers and business supply a percentage of the minimum requirements. Developments usually must meet certain criteria like proximity to transit stations, are within a downtown boundary, or are unable to meet the requirements. For instance, if a development is located next to a rail station, a city can allow a 20% reduction in parking requirements (Litman, 2006b). Developments like transit oriented developments and mixed used developments are highly suited for parking reductions.

How the Private Sector Determines their Parking Supply

The literature exploring how businesses determine the optimal supply of parking that they provide is limited. While it is known that factors influencing parking demand include land use, local transportation characteristics, spatial, price of parking, temporal factors and demographic factors, the supply side of parking is influenced by other factors like location, the cost to supply parking, regulations and pressure from lending institutions (Shoup, 2005; Litman, 2006a).

Because pricing mechanisms are what balance the demand for parking, developers and businesses in a free market would supply a number of parking spaces that was equal or above the cost of providing it (Shoup & Pickrell, 1978, p. 551). Despite the fact that free markets are often the best way to allocate resources like parking, planners intervene in the free market through parking regulations because of the perceived economic benefit of attracting visitors and customers (Shoup, 2005; Shoup & Pickrell, 1978). Unknown to many planners is how parking regulations can influence location decisions by developers and businesses.

Developers and businesses must make decisions about where to locate before determining how much parking they supply. A firm will consider locations that minimize cost minimization, satisfy demand, and maximize profit. These categories can overlap each other; minimizing cost and optimally satisfying demand are ways to maximize profit (Current et. al., 1990, p. 299). A developer or business's primary goal is to maximize profits (Kaiser, 1968; J. Nicholas, class guest lecture, February 21, 2011). Regulations like parking requirements add to the cost of development, and can therefore influence where a business decides to locate. On the other hand, parking can be considered as way to satisfy demand from customers. A developer may ask

themselves how they can maximize parking as a service to attract customers and employees at the lowest cost possible (Shoup, 2005; Litman, 2006a; A. Blanco, personal email, June 3, 2011).

There are tradeoffs made by businesses and developments between location, accessibility and the size of the site. Different land uses will weigh in location factors differently and make tradeoffs depending on their needs. For instance, restaurants will factor market share, public utilities, the travel patterns of their customers, location of competitors, the accessibility of the restaurant site to including free parking lots and major transportation arteries. Traditional industrial uses will factor in the minimization of costs like transportation more heavily in their location decision making (Min, 1987, p.429).

Once the location decision has been made, “Developers must consider the way lot size and configuration affect value as well as how they affect costs when deciding on the optimal lot design,” (Colwell & Schue, 1989, p.90). Parking lots can be structured or surface lots; structured lots are significantly more expensive. The lot design must look into whether parking should be structured or surface. The Victoria Transport Policy Institute estimates that structured parking typically becomes cost-effective when land prices exceed about $1 million per acre (VTPI, 2010d).

Businesses are not primarily concerned about the externalities of their development, such as how providing an oversupply of parking may negatively impact a transportation system or where they choose to locate (A. Blanco, personal email, June 3, 2011). A “full-blown traffic impact assessment” ideally should be done with the development of every site, as this would bring up issues like externalities associated

with parking. These studies however are costly (Regidor & Teodoro, 2005). Complying with minimum requirements is one way for developers to show their efforts towards minimizing their transportation impacts (Regidor & Teodoro, 2005). If no flexibility is given to developers and businesses, minimally meeting parking regulations can ensure developers minimize their cost to develop land.

How much parking a developer or business supplies and what type of facility is also influenced by parking demand from the local government, lending institutions and the business itself. In addition to parking demand from customers, the developer is constrained by government regulations such as zoning ordinances and subdivision regulations, like green space requirements, setbacks, landscaping and parking space sizes (Colwell & Schue, 1989, p.90). In fact, minimum parking requirements are the usually the "governing factor" of the number of parking spaces a business or developer will provide (TRB TCRP, 2003, p. 18-5; Nelson, H. personal communication, July 8, 2011). Because most local governments do not wish to see expansive parking lots in their communities, they can be amenable for businesses to implement alternative parking strategies, but it is usually the tenants who are opposed to them (Nelson, H. personal communication, July 8, 2011).

The second biggest influence is from lending institutions. Lending institutions often require that the parking ratios of new building be at least equal to competing buildings of the same use (TRB TRCP, 2003, p.18-12). It is not uncommon for lending institutions to make sure that office buildings have four parking spaces per 1000 gross square feet (Nelson, H. personal communication, July 8, 2011). An 2009 article on TOD developments claims that lenders may pose the greatest barrier to reducing parking

supply by denying financing to developments that supply less parking than their counterparts (Jensen, 2009).

What typically occurs for major franchises like Publix, CVS and Walgreens is that banks will loan money to a third party developer. A third party developer is a developer that specializes in finding and developing a suitable site for a tenant like Publix. These developers will not choose to build on sites where they cannot provide ample parking for the tenant or sites that are cannot accommodate for minimum parking requirements (H. Nelson, personal communication, July 8, 2011).

Businesses will often stick to what has always worked for them and develop a business model that has a standard amount of parking. This is common for franchises and big box retail (H. Nelson, personal communication, July 8, 2011). For instance, an oversupply of parking, or a certain amount of exclusive parking spaces may be considered as a part of their business model in order so that customers feel comfortable accessing the site.

In additional to consulting a local government's parking regulations, developers and businesses may consult professional guidelines that suggest parking supply ratios for developers. Three major organizations in the United States have published guidelines that are used by developers, businesses and local governments alike. The Urban Land Institute (ULI) published the fifth edition of *Dimensions of Parking* in 2010. This text covers issues like parking studies, parking demand and zoning requirements. (www.uli.org). The Institute of Transportation Engineers (ITE) has published their fourth edition of *Parking Generation: An ITE Information Report*. This text has parking generation rates, equations and data plots based on several land use types

(www.ite.org). This text is the most commonly referenced text for to determine parking requirements (Shoup, 2005, www.ite.org). The American Planning Association has published two texts that suggest criteria for parking: *Effective Community Parking Standards* (2001) and *Parking Standards* (2002). The first text suggests how much parking is necessary for each type of business or use and the second text provides a set of parking standards (www.planning.org).

In summary there are five different ways that businesses determine the supply of parking they provide:

- Follow their standard business model
- Meet minimum requirements
- Negotiate with local governments if allowed (Seggerman & Hendricks, 2005)
- What financing/lending institutions demand
- Conduct a full parking study
- Consult professional guidelines from ITE, APA or ULI

In all, developers must factor the cost of supplying parking, profit maximization, parking demand, site constraints, government regulations, and demand from lending institutions (McWilliams & Siegel, 2001, p.119). Developers and business may use a combination of approaches in order to determine the amount of parking they would like to provide for their employees and customers in order to optimize the cost of providing parking and service it provides.

Summary

Parking demand is influenced by land use of a destination, the intensity or scale of the land use, local transportation characteristics, spatial and geographic factors,

temporal factors, local demographics, economic factors, the price of parking, the surrounding land use mix, technology and even the supply of parking itself. When local governments implement minimum parking requirements, they typically only consider land use and intensity or scale of that land use as the only factors. Minimum parking requirement that apply to suburban locations are not appropriate in dense locations likes downtown because they could require more parking supply than what is demanded. In order to address this problem, local governments can increase the flexibility of development by implementing alternative land use policies like parking reductions, parking exemptions, and shared parking. Both parking supply and parking demand oriented land use strategies should be used in order to achieve objectives in redevelopment and transportation efficiency. Parking management programs are most effective when a combination of alternative land use strategies are used (Everett-Lee, 2001).

The supply of parking provided by the developers and businesses is influenced by stakeholders, regulations, lending institutions, parking demand and land markets. The regulation of minimum parking requirements can become a barrier to development. The cost of providing parking to a developer or business owner may outweigh the economic benefits that parking can provide. Minimum parking requirement that may be suitable for suburban areas can cause urbanized areas like downtowns to have an oversupply of parking. A shift in parking management in several cities have begun by removing minimum parking requirements in strategic areas like downtowns in order to be more context sensitive. Parking maximums, taxed parking, bicycle parking, unbundled parking, incentives, shared parking, parking exemptions and parking

reductions are land use strategies that can be used to reduce the supply of parking. In a metropolitan region, this requires coordination with neighboring cities since they all share the same transportation system. The result would be a gradual decrease of parking spaces to people in a region.

As alternative parking policies prove to be effective, eventually minimum parking requirements could be removed completely in an entire region. This would reduce many of the inefficiencies and externalities of parking. The removal of parking requirements will not by themselves eliminate the need for parking spaces in a city, but will instead allow for cost opportunities that an “active commercial market will capture”, and reduce many externalities associated with parking (Shoup , 2005, p. 495). As price of parking shifts back to market values, the price of parking will begin to pay for itself. That that point, developers would begin to construct more parking spaces in a way that a free market could have done so naturally (Shoup, 2005, p. 495). Difficulties in transitioning to alternatives policies include the opposition from the public, business owners and even banks investors as they may be less likely to invest in buildings or businesses with less parking because of the perceived loss of access to the building (TRB TCRP, 2003, p. 18-10).

This framework is related to this study because the City of Fort Lauderdale has implemented two different parking policies. The city requires that developers provide a minimum amount of parking throughout most of the city. The exception is given to residential and nonresidential uses in the downtown. This exception provides residential developers the opportunity to decide the amount of parking that they supply. The effects of how this exemption has changed parking supply compared to the

suburban locations of the city are of interest to this research. The importance of this research is to see whether the parking exemptions and reductions are promoting the downtown redevelopment goals by relaxing the regulation of minimum parking requirements.

CHAPTER 3
METHODOLOGY

Overview

The research method and materials for this study are described in this chapter. This is a holistic case study of parking supply policies using case study sites, interviews, and policy parking policies to investigate and understand the amount of parking that is supplied by businesses under two different parking policies. This research used a single case study methodology of downtown Fort Lauderdale with an analysis of sixteen case study sites that were matched paired when possible. The paired case study sites had identical land uses and had businesses with matching franchises but with differing locations. The first location chosen was in downtown within the Downtown Regional Activity Center (DRAC) boundary and the second was in a suburban area outside of the downtown. Sites chosen in the downtown sites were built when parking exemptions and reductions were in effect. Sites chosen in the suburban locations were built when minimum parking requirements were effective.

Data Collection Methodologies

Policy Documents

In order to understand what parking policies are in place for the City of Fort Lauderdale and their purpose, three sources of case study documents were reviewed: the comprehensive plan, the land development regulations and the downtown master plan.

The comprehensive plan establishes a community's vision and guidance for growth. It addresses several issues like future land use, capital improvements and transportation. The electronic version of the City of Fort Lauderdale's 2008

Comprehensive Plan was obtained from the City of Fort Lauderdale's official website and reviewed first. The elements that were looked at specifically were the Future Land Use Element, the Transportation Element, and the Intergovernmental Coordination Element. Key words like infill, redevelopment and parking were used to search the plan. The comprehensive plan policies relating to the parking management relating to issues from the literature review were extracted. Information on the city departments and their role in the land development process was also supplemented through the city's website.

The land development regulations implement the comprehensive plan. Parking requirements and regulations were obtained from the city's Unified Land Development Regulations (ULDR) in www.municode.com. The land development regulations for parking requirements in UDLR Section 47-20 and the development permits and procedures in UDLR Section 47-24 were reviewed and then related to the extracted comprehensive plan policies and the case study sites.

Lastly, the Fort Lauderdale Downtown Master Plan was reviewed and the relevant guidelines found there were matched to the relevant comprehensive plan policies. The Downtown Master plan provides a vision and framework for "changes to regulatory structure and process, procedures for development review and approval, incentives for development, public investment programs, and other implementation techniques," (City of Fort Lauderdale 2007, p. ix). The plan lists public capital investments for redevelopment projects and neighborhood revitalization but is not legally binding (City of Fort Lauderdale 2007, p. ix).

Interviews

Interviews were conducted with city officials Diana Alarcon, Terry Burgess and Ella Parker in order to understand how the city's parking policies, development process and other parking issues. Diana Alarcon is the director for the City of Fort Lauderdale Parking Management and Fleet Services. Terry Burgess is the chief zoning examiner of the City of Fort Lauderdale, with. Ella Parker is a senior planner for the City of Fort Lauderdale in the Planning and Zoning Department.

Site Information

Preliminary information for initial site selection was obtained using the property appraiser geographic information system (GIS) data from the City of Fort Lauderdale's GIS data website (http://ci.ftlaud.fl.us/gis/download.htm). This data was used to obtain information on the address, location, year built, building square foot and land use on the selected sites. Site plans for the selected sites were obtained from the Fort Lauderdale Building Department to obtain the number of parking spaces supplied and the number of parking spaces required for each site.

Case Study Site Selections and Analysis

In order to understand how parking policies affect the supply of parking, a total of 16 sites were selected as case study sites and reviewed. Sites were selected on a several factors. The first group of sites was sites that are sites located in downtown and were built after 1996 when downtown parking exemptions were implemented and within the downtown. A variety of land uses were selected: franchise restaurants, franchise retail stores and a franchise grocery store. These downtown sites were then paired with matching franchises found outside the downtown and in the suburban areas of the city. For instance, Publix stores represent the grocery store uses. One Publix grocery store

was chosen inside the downtown and one was chosen in the suburban area of the city. The Publix grocery store inside of the downtown was chosen because it was built after the parking exemptions were put in place in order to compare it to the Publix grocery store in the suburbs that had to comply with minimum parking requirements.

CVS and Walgreens were the franchises chosen to represent retail uses. Each of these retail uses had a downtown site that was paired with matching franchise in the suburban area of the city. McDonalds and Burger King were the franchises chosen to represent restaurant uses. The downtown McDonalds and the downtown Burger King were also paired with a suburban McDonalds and suburban Burger King.

An analysis of additional sites that are in the downtown was also done. These sites were not paired with suburban sites. A variety of land uses were chosen: high rise condominiums, small business offices and hotels. These sites were built after 1996 when parking exemptions were put in place in order to see whether the sites supplied more or less parking that would have been required if minimum parking requirements had applied. The Hampton Inn and the Riverside Hotel in the downtown were not paired with a suburban hotel. The Mail Tree Corporation and ACA Inc. are small advertising companies of similar scale that not only represent smaller businesses, but also represent professional office uses. The River House and the New River Village are multifamily uses that represent multifamily uses.

In addition to land use, other characteristics of the sites that recorded were gross floor area, the number of dwelling units, the number of parking spaces provided, the number of parking spaces required, the number of parking space required if the development had to comply with minimum parking requirement, the land value, the area

of the parcel, and whether the parking facility is a structured or surface facility. The parking requirement ratios required by the UDLR were compared to the ITE Parking Generation Handbook ratios. These ratios were based data from the average peak parking occupancy of both urban and suburban sites. The information recorded for all of the sites is in a table in the following chapter. For site plans that did not show the number of parking spaces that were required, the requirement was calculated by land using the ULDR. Figure 3-1 shows the locations of the sixteen sites and their location in the City of Fort Lauderdale.

Methodology Summary

This research used a single case study methodology with an analysis of case study sites that are chose on matched paired. The City of Fort Lauderdale was used as the case study. This is a holistic case study of parking supply policies using case study sites, interviews, and policy parking policies to investigate and understand the amount of parking that is supplied by businesses under two different parking policies. Information on the parking policies and regulations were obtained from the city's comprehensive plan, unified land development regulations and the city's downtown master plan. A total of 16 sites were selected to represent a variety of land uses. Five franchises in the downtown were paired with five matching franchises found in the suburban locations of the city. Then six sites in the downtown were chosen to further the analysis on the parking supplied under the parking exemptions and reductions regulation.

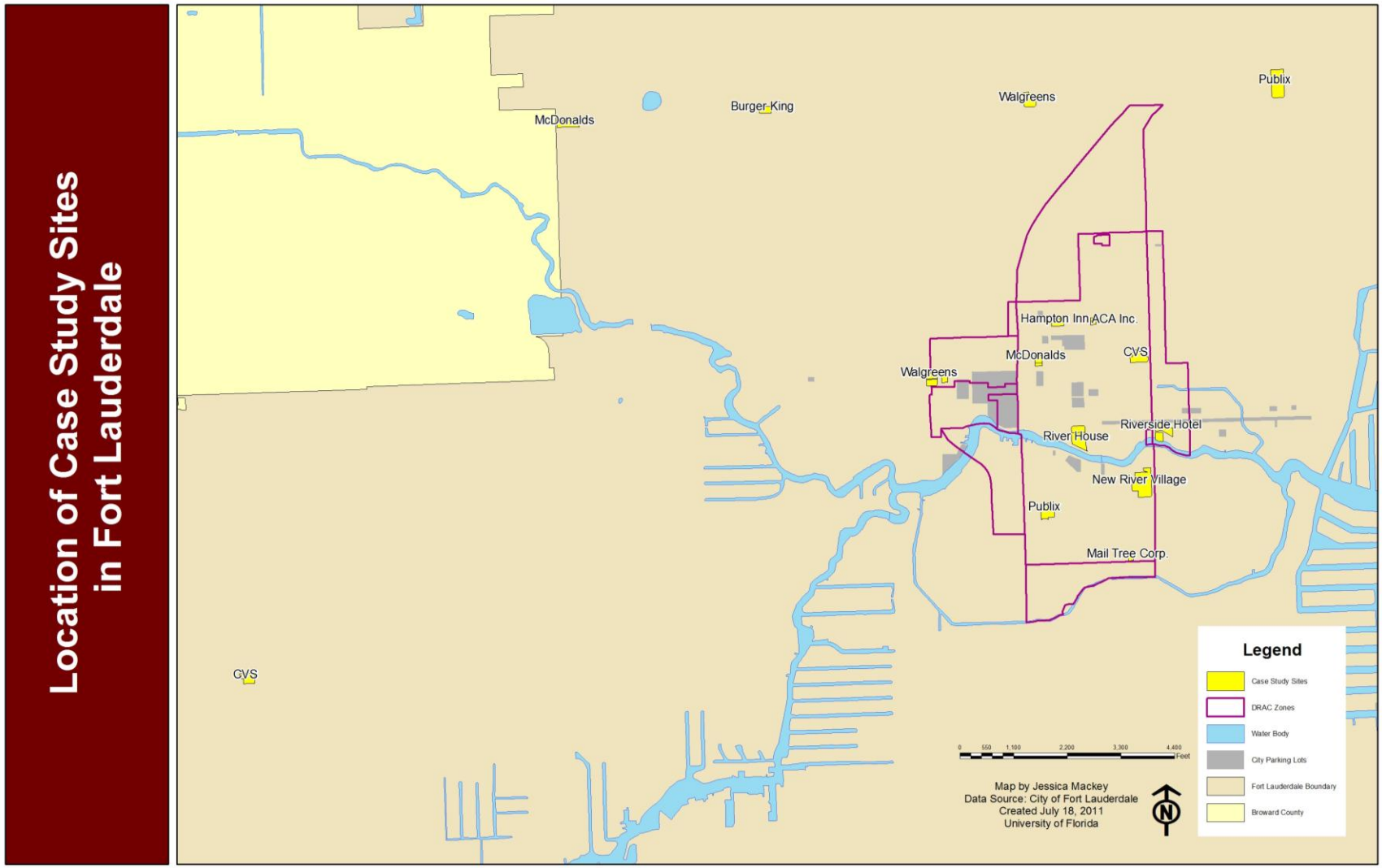

Figure 3-1. Location of case study sites in Fort Lauderdale

CHAPTER 4
RESULTS

Introduction

The goal of this analysis is to determine the current parking policies of the City of Fort Lauderdale, their purpose and any trends in the number of parking spaces that is supplied by businesses resulting from the policies. The analysis is primarily a comparison of paired sites built under two different parking policies. Site characteristics like land use, location and scale of the site were considered. Ultimately these results can be used by parking policies makers see how minimum parking requirements and parking exemptions could affect the parking supply in their community and the impact on redevelopment. This research reviews the planning policies that were in effect at the time this document was written. This chapter presents the context of Fort Lauderdale by first reviewing Fort Lauderdale's land development process. Then city's parking policies for minimum parking requirements, downtown redevelopment and downtown parking exemptions are summarized. Finally the results of the parking supply provided by developers and businesses are presented.

Fort Lauderdale Development Process

Until May 2011, the Local Government Comprehensive Planning and Land Development Regulation Act, Chapter 163.3161 required that local governments in Florida prepare comprehensive plans (HB 7207, 2011). Although the passage of this HB7207 may change the way that local governments in Florida plan, the comprehensive plan establishes the short and long-term direction of a community's goals. The plan must include elements that address future land use, transportation, capital improvements, intergovernmental coordination, infrastructure, and public schools.

These goals “establish the direction of a jurisdiction’s land development regulations,” (Seggerman & Hendricks, 2005, p.33). Comprehensive plans can include goals for redevelopment, livability, subdivision design guidelines, and desired land development patterns.

While Fort Lauderdale is not required to plan, the comprehensive plan and land development regulations are still in effect. Land development regulations implement the comprehensive plan by specifying minimum criteria for development like parking. The Land Development Regulation Act (Chapter 163 F.S.) requires that local government have land development regulations consistent with their comprehensive plan. The act encourages local governments to create regulations and criteria for subdivisions, incentive zoning, planned unit development and impact fees (Seggerman and Hendricks, 2005, p. 6).

All projects must meet the development review criteria which are divided into two sections: ULDR Section 47-25.2 adequacy requirements and UDLR Section 47-25.3 neighborhood compatibility requirements. The applicability of these requirements is are in Section 47-24, Development Permits and Procedures.

The Planning and Zoning Department provides services regarding community development, urban revitalization, long-range planning, and historic preservation. The department reviews and processes applications for site development plans, conditional use permits, plat rezonings, and other development requests. They also present development proposals before various boards, including the Planning & Zoning Board, Board of Adjustment, and Historic Preservation Board. The Planning and Zoning Department implements the goals, objectives, and policies of the City’s comprehensive

plan, and also coordinates community service improvement programs (www.fortlauderdale.gov/planning_zoning/index.htm)

In Fort Lauderdale, the development review process is outlined in the Unified Land Development Regulations (City of Fort Lauderdale, 2011b). The development review process for a project is based on the scale of the project. The most basic project is considered a site plan I project, which only requires review by the planning and zoning department. Projects that only require a change of use in an existing building that will not have a greater impact, such as parking demand, as the previous use are issued a business tax by the department; these projects are not required to go through the development review process with the department. If the change of use has a greater impact, then the project must meet all normal regulations (Terry Burgess, personal communication, June 6, 2011). Other projects considered site plan 1 projects are approval of off-site parking, new residential with less than five units, and new nonresidential that is equal or less than 5,000 square feet.

Site plan level II projects are projects that exceed site plan I thresholds, but are less than or equal to 10,000 square feet. Site plan II projects must go through the development review committee in addition to the planning department. A project is considered a site plan level II if the site is new and is greater than 5,000 square feet (nonresidential) or is new and is greater than five residential units, redevelopment, uses that are near residential developments in the DRAC, (Terry Burgess, personal communication, June 6, 2011; City of Fort Lauderdale 2011b). The purpose of Development Review Committee (DRC) is for various City departments to complete a technical review and to provide comments of proposed development. In addition to site

plan reviews, the DRC is able to review vacations of streets and alleys, plat approvals, public purpose approvals, rezoning with flex allocation, conditional use approvals, DRIs and parking reduction requests (www.fortlauderdale.gov/planning_zoning/drc.htm).

If a development is greater than 10,000 square feet, the project is considered a site plan III project and must go through the Planning and Zoning Board (Terry Burgess, personal communication, June 6, 2011). Other site plan level III projects include projects that request a parking reduction, involve allocation of flexibility units to residential land use, any project within the DRAC and subdivision approvals (UDLR City of Fort Lauderdale 2011b).

UDLR Section 47-20 outlines the parking and loading requirements of all developments (City of Fort Lauderdale, 2011a). If a development wants to provide less parking than the minimum requirements, they must first meet certain criteria in order to apply for a reduction. The process begins with the DRC, and is then sent to the Planning and Zoning Board. It is ultimately the DRC's decision to allow a parking exception, and must be based on substantial data from the parking study to allow the proposed alternative (Ella Parker, personal communication, February 1, 2011).

All development plans must come before the Parking and Fleet Services Department to make sure they meet parking requirements in the code and to avoid the creation of parking and transportation issues. If a developer asks for a parking reduction, they need a compelling evidence to be granted the reduction before being granted the parking director's signature. About once a week developers will ask for a reduction in parking. (Diana Alarcon, personal communication, June 3, 2010)

In the land development review process, there is no room for developers to negotiate the supply of parking that is required by the land development regulations. The developer must qualify for the parking reduction and then submit a parking study that is done by a consultant. Before this is done, a methodology is agreed upon at a meeting. The study is then submitted to the Planning and Zoning Board. Parking studies do not typically get challenged by the cities officials because the developer's parking consultant works with the city's parking consultant (Terry Burgess, personal communication, June 6, 2011).

Fort Lauderdale's Policy Review

The major themes found in the policy review are that the city aims to develop policies that promote growth, sustainability, redevelopment and mixed use in downtown while protecting the characteristics of existing neighborhoods (www.fortlauderdale.gov; City of Fort Lauderdale, 2008). In order to protect residential neighborhoods, the city is promoting that large scale, high-rise and high-density developments be built in the downtown urban core (City of Fort Lauderdale, 2007; www.fortlauderdale.gov). The urban core is defined as the area within the boundary of the downtown regional activity center (DRAC) (Fort Lauderdale, 2007).

Minimum Parking Requirements

The Fort Lauderdale minimum parking requirements can be found in ULDR Section 47-20, Parking and Loading Requirements (City of Fort Lauderdale 2011a). Minimum parking requirements were implemented in 1956 under Ordinance C-1254 and are generally required everywhere in the city except for the downtown. It is unknown how the city formulated the requirements as the parking study to support it was done more "behind the scenes," (T. Burgess, personal communication, June 6, 2011). There

have been no major changes to the parking requirements since they were implemented. Changes to code requires substantial effort (T. Burgess, personal communication, June 6, 2011).

Diana Alarcon feels that the city ordinance for parking requirements could be updated. Land uses with drive-in or land uses that have changed due to advances in technology should have reduced parking requirements. For example, banks no longer require ample parking or long drive through lanes due the widespread use of faxes and on-line banking (Diana Alarcon, personal communication, April 20, 2010).

According to the comprehensive plan, the purpose of minimum parking requirements is to minimize the negative impacts associated with access to land uses and to provide for safe, convenient on-site vehicular traffic circulation (City of Fort Lauderdale, 2008). Future Land Use Policy 1.1.4 in the comprehensive plan explains that the purpose of the parking regulations in development review process is to ensure a development does not impede the traffic flow on the adjacent public right-of-way (City of Fort Lauderdale, 2008, p. 2-2). Generally parking is treated as a condition of development where the ratio of parking varies by land use and by the intensity or scale of that land use. The scale of the land use is typically defined by the gross floor area of the building or the number of dwelling units (City of Fort Lauderdale, 2011a).

Table 4-1 lists the minimum parking requirements ratios for the land uses selected for the site case studies and the corresponding ratios from the ITE Parking Generation Handbook. The city's ratios are generally higher than the average peak period parking occupancy rates observed in this equivalent land uses found in the ITE Parking Generation Handbook studies. The city requires one parking space for every 250

square feet of gross floor area (sf gfa) for grocery stores, retail sales and professional office. This ratio is similar for the ITE peak period parking occupancy rate for grocery stores but is almost 40% greater than the ITE peak period parking occupancy rate for retail sales and 20% greater for professional office. The ratio required for restaurants with a drive-through is almost the same as the average peak period parking occupancy rate found in the ITE Parking Generation Handbook. The city requirement for multifamily uses is two parking spaces per dwelling unit which is greater than the 1.38 vehicles per dwelling unit observed on average during the peak parking periods in the ITE parking studies. The hotel land use in the ITE Parking Generation Handbook bases the parking occupancy ratio on the number of occupied rooms instead of total number of rooms. The ITE peak period parking ratio is given as 0.89 vehicles per occupied room, which is almost 10% less than the ratio indicated in the ULDR.

In contrast to the minimum parking requirements, it is the city's policy (Future Land Use Policy 1.42.5) to discourage the over-supply of parking, particularly for large off-street parking lots. The exception is given if the facility is designed "in a manner to encourage pedestrian and transit usage," (City of Fort Lauderdale, 2008, p. 2-33). Shared parking and the use of alternative modes of transportation are other alternative parking policies that are encouraged in the comprehensive plan.

Downtown Redevelopment

The City of Fort Lauderdale has made it their policy to concentrate growth and redevelopment in the downtown in order to revitalize downtown. According to the Future Land Use Objective 1.16 and Objective 1.32 in the comprehensive plan, the city's redevelopment goal is to increase redevelopment in the downtown by 25 % (City of Fort Lauderdale, 2008). Specifically, the city would like to see both residential uses

and nonresidential uses like hotels and mixed use. In order to foster this type of growth, it is the city's policy to continue to provide incentives, which encourage development in the Downtown-RAC (City of Fort Lauderdale, 2008). The incentives that are in place to foster redevelopment in downtown are an expedited review process for plan conforming to downtown master plan, parking exemptions and reductions in the downtown regional activity center, reduced setback requirements, modified landscaping requirements, transportation concurrency exception and the consideration of internal trip capture (City of Fort Lauderdale, 2008).

The "Wave" is a proposed light rail system being led by the Downtown Development Authority as an economic development tool. The future trolley project could encourage more infill development and also reduce the demand for parking in downtown. The Wave scheduled to be built in 2013. The intent is to get people to use the Wave to circulate through downtown, rather than their own cars (www.ddaftl.org; Diana Alarcon, personal communication, June 3, 2010).

It is not known whether the restriction placed by minimum parking requirements has hindered development and redevelopment in the city. Developers have the option of decreasing the scale or intensity of their development by decreasing the size of their building in order to comply with minimum parking requirements due to space constraints on-site. There may be instances of businesses ended leases because buildings did not supply enough parking for the business (Terry Burgess, personal communication, June 6, 2011).

Parking Exemptions and Reductions

The downtown parking exemptions and reductions in the downtown were implemented in 1996 after a study was conducted that found there was sufficient

number of city owned parking spaces in the downtown (Diana Alarcon, personal communication, June 3, 2011). The parking exemptions and reductions were put in place to promote downtown redevelopment and to curb demand for parking (City of Fort Lauderdale, 2008; Diana Alarcon, personal communication, June 3, 2010). Currently, there is no problem with overutilization in the city's managed parking lots so there is no need to build new parking facilities (Diana Alarcon, personal communication, June 3, 2010).

The City of Fort Lauderdale has defined several different zones in the downtown that were designated after Broward County defined downtown as a regional activity center (RAC). The RAC in downtown is known as the Downtown Regional Activity Center (DRAC). The DRAC is made up of the city center (RAC-CC), the urban village (RAC-UV), the residential and professional office center (RAC-RPO), the arts and science center (RAC-AS) and three transitional mixed use centers in the west, south and east (RAC-WMU, RAC-SMU, RAC-EMU) (City of Fort Lauderdale, 2011a). Figure 4-1 illustrates the seven zones that make up the DRAC.

The parking exemptions and reductions vary through the downtown zones. Residential development within the RAC-CC and RAC-AS districts is exempt from providing off-street parking requirements. Residential land uses in zones RAC-UV, RAC-TMU, and RAC-RPO districts have a parking reduction that only requires 1.2 parking spaces per dwelling unit instead of 2 parking spaces per dwelling unit. Nonresidential uses are exempt from parking requirements in the City Center and the Arts and Science District except for development located within 100 feet of the Urban Village, Residential and Professional Office, and the Transitional Mixed Use Districts

and development that is greater than 2,500 square feet in gross floor area. These developments are allowed a 40% reduction in parking space requirements. All other nonresidential development in the DRAC must supply the same ratio of parking spaces that are mandated in the general city parking requirements.

Developers who are unable to due to site constraints, or would like to supply less parking than the parking minimum are required to apply for a parking reduction through the development review process outlined in ULDR Sec. 47-20.3. The criteria for applying for a parking reduction are as follows:

> Evidences that the site, use or structure has characteristics that the need for parking for the development is less than that required by the ULDR for similar uses; or
>
> There is a public parking facility within seven hundred (700) ft. of the parcel which the parking is intended to serve along a safe pedestrian path as defined by this Sec. 47-20.4, which spaces may be used to provide parking for applicant's property without conflict with the need for public parking based on a report by the Department which includes a report by the City's Parking Manager and City Engineer. This criterion shall not be available for a parking reduction in the Central Beach District; or
>
> The applicant has two or more uses that can share parking because of internal trip capture or different periods of peak demand;
>
> The business will provide company vans for carpooling or consistently use mass transit (City of Fort Lauderdale, 2011b; http://ci.ftlaud.fl.us/planning_zoning/planning_applications/)

Parking Provided by Developers and Businesses

With respect to how private businesses determine the amount of parking they supply, generally it depends on the size and nature of the business. Big box retail usually provides more parking than the required minimums because it is a part of their business model. If a developer tries to provide a supply that grossly exceeds the minimums, the city will question it and discourage it. If it is only a small amount over,

the city will approve it. It would be rare for a developer to provide a gross oversupply because of the cost to construct parking (T. Burgess, personal communication, June 6, 2011).

A major reason why developers would not supply less than the minimum required is because banks want to make that the building can be sold afterwards. Sufficient on-site parking helps to sell a property. Office buildings have to build parking because the banks require it. Offsite parking agreements are not favorable because they tie people to the development for years at a time. The creation of more parking spaces brings more opportunities for shared parking (T. Burgess, personal communication, June 6, 2011).

Analysis of Parking Supply in Fort Lauderdale

Sixteen sites were chosen to understand the impact of parking supply that result from the parking policies in downtown and the suburban locations in Fort Lauderdale. These sites include retail, grocery stores, restaurants, hotels, professional office and multifamily land uses. Major national chains and local businesses were selected. The national franchises in the downtown that were chosen were CVS, Walgreens, Publix, Burger King, and McDonalds. These sites were paired with matching establishment on another site outside of the downtown where minimum parking requirements were applicable. Table 4-1 compares the Fort Lauderdale's parking requirements to the Institute of Transportation Engineers Parking Generation Handbook rates. The results for the review of these sites were broken down by land use. Table 4-2 shows the summary of the site plan review that was done for the selected sites.

Retail Stores

In the suburban sites, both CVS and Walgreens provided more parking than the minimum parking requirements. In the downtown, Walgreens was exempt from all parking requirements but still chose to provide parking. The parking supplied in the downtown Walgreens, however, was less than the general minimum requirements mandated in the rest of the city. The downtown CVS qualified for a 40% parking reduction. This CVS provided more parking than the parking reduction required but provided less than what they would have had to provide under the general minimum parking requirements.

Grocery Stores

Both of the Publix sites provided more parking than the minimum parking requirements, even though the downtown site was exempt from parking requirements. According to Terry Burgess, the Publix franchise has their own parking supply numbers that they always use (T. Burgess, personal communication, June 6, 2011). The provision of parking spaces based on numbers in excess of minimum requirements is consistent with the site plan results. The Publix in downtown provided structured parking on top of the store. If minimum parking requirements were applicable in the downtown site, they would have only been required to supply 56 parking spaces, but they instead supplied 250 spaces.

Restaurants

The results of the comparison of the suburban and downtown Burger King and McDonalds were mixed. In the suburbs, McDonalds built more parking than the minimum parking requirements. In the downtown, McDonald built less than the minimum requirements. The suburban Burger King provided just enough parking

spaces to comply with minimum parking requirements while downtown Burger King built more than the general minimum parking requirements.

Hotels

The Hampton Inn was exempt from parking requirements. Under minimum parking requirements the Hampton Inn would have had to supply 156 parking spaces, instead they supplied 112 spaces. The Riverside Hotel has a mix of uses: restaurant, office, convention and hotel. Due to its proximity to the transitional mixed use zone, it qualified for a parking reduction of 40%. With the reduction for proximity to the transitional zone, they could have provided just 198 spaces. If minimum parking requirement were applicable, they would have had to supply 273 parking spaces. Instead the hotel supplied 502 parking spaces.

Professional Offices

Both of the professional office sites were exempt from parking requirements but both chose to supply parking. Both sites supplied fewer parking spaces than the general minimum parking requirements for both sites. The ACA site provided 11 spaces on site and leased four of their parking spaces in a nearby parking garage. According to Terry Burgess, smaller businesses usually just meet the minimum requirements in order to comply with regulations (personal communication, June 6, 2011).

Multifamily

The River House and the New River Village provide multifamily housing for sale as condos. Because of their locations in downtown, both of these sites were exempt from parking requirements. Both of these sites supplied less than the general city requirement of two parking spaces per dwelling unit on their site. The River House

development was supposed to be a two phased development. The developer sold the second phase to a company before the market recession but was never developed. The second phase has now become a parking lot for use of the River House residents. The New River Village also leases some of their parking supply in the courthouse parking garage (Terry Burgess, personal communication, June 6, 2011).

Table 4-1. Comparison of Fort Lauderdale's parking requirements to the Institute of Transportation Engineers rates. Source: Fort Lauderdale Unified Land Development Regulations and ITE Parking Generation Handbook

Land Use	ULDR Parking Requirements	ITE Average Parking Demand at Peak Period	ITE Equivalent
Grocery store	1/250 sf gfa	3.78 veh/1000 sf gfa	0.95/250 sf gfa
Retail sales	1/250 sf gfa	2.39 veh/1000 sf gfa	0.60/250 sf gfa
Multifamily	2/dwelling unit	1.38 veh/dwelling unit	
Hotel	1/room	0.89 veh/occupied room	
Professional office	1/250 sf gfa	2.84 veh/1000 sf gfa	0.71/250 sf gra
Restaurant with or without drive-thru, less than or equal to 4,000 SF	1/100 sf gfa, including outdoor dining area on the site	9.98 veh/1000 sf gfa	0.98/100 sf gfa

Table 4-2. Parking supply and site characteristics of selected locations in Fort Lauderdale, FL.

Business Name, Address	Land Use	Location (RAC or Suburb)	Year Built	Gross floor area (sq ft) or Number of Units	Parking Spaces Provided	Parking Spaces Required by ULDR 47-20	Land value per square foot	Notes: Facility type
CVS Pharmacy 3501 Davie BLVD, Fort Lauderdale, FL 33312	Stores One-Story Retail	Suburb	1999	11,200 sf	49 spaces	None 45 spaces if min parking applicable	$11.73/sf	surface
CVS Pharmacy 1 North Federal Highway, Fort Lauderdale FL 33301	Stores One-Story Retail	RAC-CC	1997	13,433 sf (CVS only) +11,006 sf other uses	86 spaces	40% reduction = 78 spaces required 130 if general min parking required	$44.00/sf	Parking lot shared by other uses
Walgreens 700 W Broward Boulevard, Fort Lauderdale, FL 33312	Stores One-Story Retail	RAC-AS	1999	13,805 sf	36 spaces	55 spaces if minimum parking applicable	$29.92/sf	surface
Walgreens 1 W Sunrise Boulevard, Fort Lauderdale, FL 33311	Stores One-Story Retail	suburb	2000	13,805 sf	64 spaces	55 spaces required	$18.49/ sf	surface
Publix 601 S. Andrews Avenue, Fort Lauderdale, FL 33301	Grocery	RAC-CC	2004	13,905 sf	250 Spaces	None 56 if minimum parking required	$39.52/ sf	3 Floors, structured
Publix 1415 E Sunrise BLVD Fort Lauderdale, FL 33304	Grocery	suburb	2005	44,841 sf	224 spaces	192 Required	$19.03/sf	surface
McDonalds 27 W BROWARD BLVD	Drive-in Restaurant	RAC-CC	1997	3144 sf	28 spaces	32 spaces if minimum parking applicable	$32.88/sf	surface
McDonalds 2300 W SUNRISE BLVD, Fort Lauderdale, FL 33311	Drive-in Restaurant	suburb	1985	3922 sf	65 spaces	40 required	$21.23/sf	surface

Table 4-2. Continued

Business Name, Address	Land Use	Location (RAC or Suburb)	Year Built	Gross floor area (sq ft) or Number of Units	Parking Spaces Provided	Parking Spaces Required by ULDR 47-20	Land value per square foot	Notes: Facility type
Burger King 666 W Broward BLVD, Fort Lauderdale, FL 33312	Drive-in Restaurant	RAC-WMU	1970	3112 sf	43 spaces	32 required	$31.27/sf	surface
Burger King 1445 W Sunrise BLVD, Fort Lauderdale, FL 33311	Drive-in Restaurant	suburb	1971	2725 sf	28 spaces	28 required	$23.52/sf	surface
Hampton Inn 250 N Andrews AVE, Fort Lauderdale 33301	HOTELS, MOTELS	RAC-CC check to see if 100 ft	2003	156 units	112 spaces	None. 156 if Minimum parking applicable	$56.37/sf	structured
Riverside Hotel 620 E. Las Olas Blvd, Fort Lauderdale, FL 33301	HOTELS, MOTELS Mixed Use	RAC-EMU	1965 Add. in 2000	108 rooms	502 spaces	198 required with 40% reduction. 330 required if minimum parking applicable	$75.00/sf	7 buildings
Mail Tree Corporation 407 SE 9 ST Fort Lauderdale, FL 33316	One-story Non-Professional Office	RAC-CC within 100 feet of RAC-RPO	1999	4121 sf	15 spaces	None. 16 required if minimum parking applicable	$30.54/sf	surface Advertising company
ACA 233 NE 3 AVE, 33301 255 NE 3 AVE, 33301	Multi-story Non-Professional Office	RAC-CC	2003	5571 sf	11 spaces on site, 4 in garage	None. 23 spaces required if minimum parking applicable	$44.40/sf	surface Advertising company
River House Condos 333 Las Olas Way Fort Lauderdale 33301	Multifamily	RAC-CC	2004	287 units	287 spaces	None. 2 per unit if minimum parking applicable	Not available	Structured No parcel data Valet
New River Village Condos 520 SE 5th Ave Fort Lauderdale, FL33301	Multifamily	RAC-CC	2002	280 units	366 spaces	None. 2 per units if minimum parking applicable	Not available	Structured No parcel data

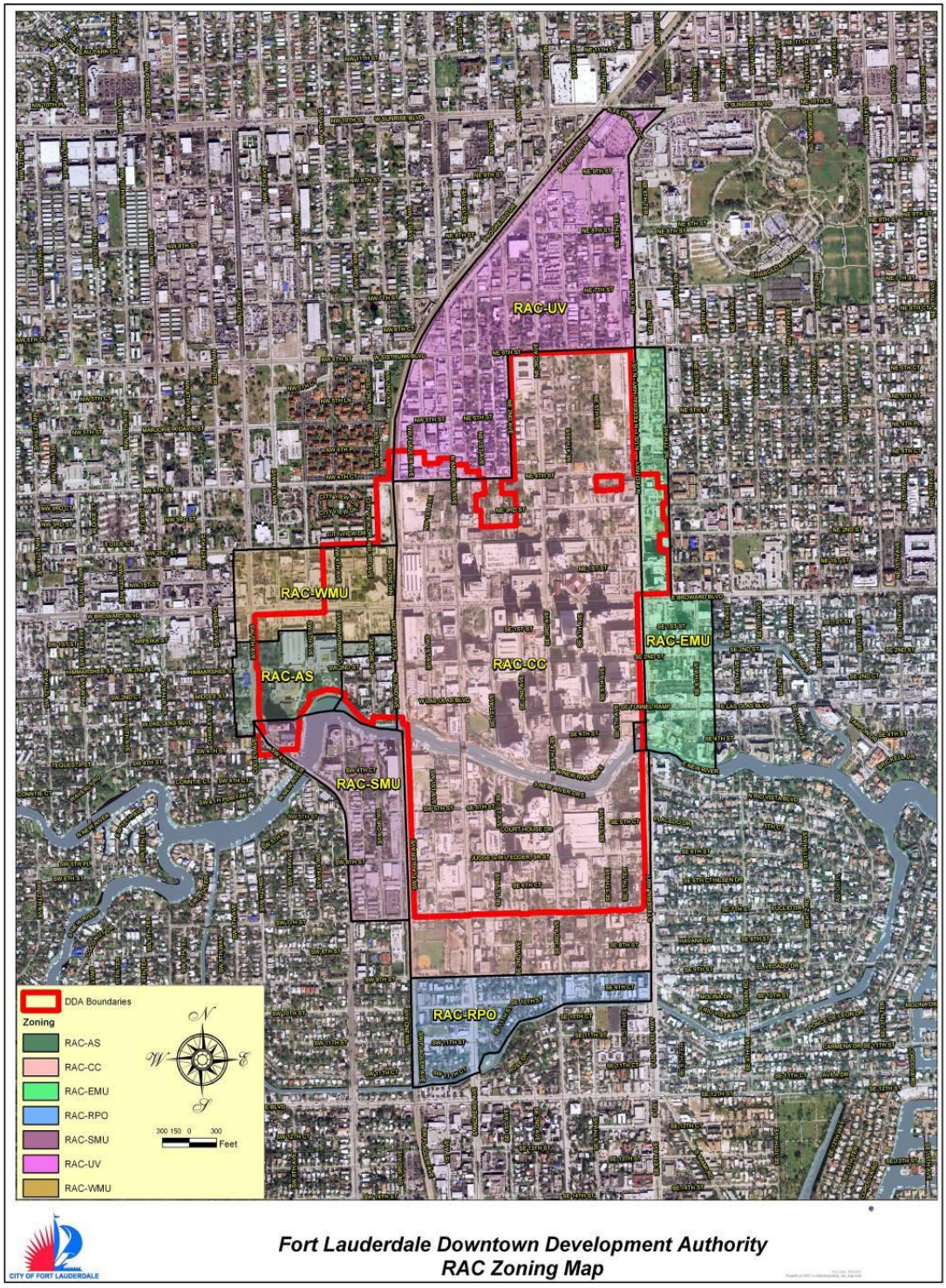

Figure 4-1. Fort Lauderdale Regional Activity Center Zones in Downtown; Source: www.ddaftl.org/view/pdf/boundryfull.jpg

CHAPTER 5
DISCUSSION

Based on the site plan review, a number of factors including the city's current policies have affected the number of parking spaces provided by developers. The results of the site plan review has implications for how parking policies can achieve community goals in redevelopment. This chapter discusses the results and the implications of Fort Lauderdale's parking policies based on the policy review, site plan review and interviews.

Results of the Current Policies

Minimum parking requirements influence the supply of parking provided by businesses and developments by increasing the supply of parking that businesses and developers would have normally provided. However, major franchises may be unaffected by the minimum requirements as four out of five suburban case study sites choose to supply more than the minimum. The exception was the suburban Burger King that exactly met the requirement. Minimum parking requirements can pose a barrier to redevelopment by decreasing the flexibility to develop a site. Businesses and developers may try to comply with minimum parking requirements by decreasing the intensity of their use or the size of their building. This can decrease the density of urban areas.

Fort Lauderdale has implemented two alternative parking policies in their downtown regional activity center: parking reduction and exemptions. The parking reductions are more supply oriented while the parking exemptions are demand oriented because they allow for businesses to supply the number of parking spaces according to demand. These policies are progressive because they move away from potentially

mandating an oversupply of parking in downtown by reducing the chance of requiring businesses to supply more parking than they need. The elimination of parking space requirements allows the market to decide both the supply of parking they need. Due to the number of downtown sites that have chosen to supply less than the minimum parking requirements, it can be said that this policy has benefitted these establishments. Eight of the 11 downtown sites that were exempt from parking supplied less than the minimum parking requirements. The only downtown sites that supplied more than the minimum parking requirements were Publix, the Riverside Hotel and Burger King.

The results from the site plan review reveal that major franchises prefer to supply more parking than the minimum parking requirements, regardless of whether they are subject to the parking requirements or not. This is consistently true for the Burger King, McDonalds, Publix, CVS, and Walgreen businesses that were surveyed. According to Terry Burgess, this could be the result of the franchises employing their business model or pressure from lending institutions. The CVS in the downtown, however, was the exception, as that site shared space with other uses and supplied less parking.

The small professional offices and the multifamily developments that were built in downtown were both exempt from minimum parking requirements but still provided parking. The parking that they did supply, however, was less than the city's general parking requirements, suggesting that these land uses have benefited from the parking exemptions. These uses also benefitted from their proximity to nearby parking garages.

The hotel uses in downtown had mixed results. The Hampton Inn hotel supplied less than one parking space per room, thereby benefiting from the parking exemption.

The Riverside hotel was also exempt from parking requirements but supplied almost double the parking spaces that would have been required under minimum parking requirements.

Based on the supply of parking provided, overall all of the sites surveyed show that there is a demand for parking by clients, lending institutions, or the business itself. In areas with higher land values, land uses with a high demand for parking were more likely to construct parking structures, regardless of whether they were required to supply parking or not.

Parking exemptions and reductions can reduce the supply of parking provided by developments when compared to minimum parking requirements. The downtown parking exemptions seem to benefit small businesses and residential uses, particularly those that have the opportunity to lease spaces in the city parking garage. The number of sites that have taken advantage of the parking exemptions suggest that the flexibility given by the parking exemptions promote downtown redevelopment.

Unintended Consequences

The results of parking exemptions have been mixed with respect to the desired outcomes and resulting supply of parking provided by the land uses surveyed. Parking exemptions have worked partially as developers have reduced the supply of parking they would have normally provided under minimum parking requirements. The demand for parking is still higher because of factors such as the habit or the "need" to drive. Because of this, parking exemptions have led to some unintended consequences. In the DRAC, parking is not required by code to provide parking because of the construction of the nearby master garage (D. Alarcon, personal communication, June 3, 2010). However, residents do not want to park in the garage and walk across the bridge

to go home (D. Alarcon, personal communication, June 3, 2010). The city could modify the downtown parking requirements in the ULDR (D. Alarcon, personal communication, June 3, 2010). For instance, only one parking space is required for every residential unit, yet most units in downtown are occupied by two income households that own two automobiles. This has led to instances of overflow parking (D. Alarcon, personal communication, June 3, 2010).

Parking requirements in the downtown may been reduced to "an extreme" that some developers have not been able to sell residential units or lease the retail space (D. Alarcon, personal communication, June 3, 2010). The city is forcing development patterns for 10 to 15 years down the road and not for today. The lack of viable transportation options makes parking today necessary. There are residents that become unhappy and call the city because the city allowed them to do build the development with fewer parking spaces. The result is vacant units and people moving away from downtown (Diana Alarcon, personal communication, June 3, 2010). A parking reduction prior to complete exemption may have been a better approach (D. Alarcon, personal communication, June 3, 2010).

Alternative Policies

Fort Lauderdale uses a combination of incentives to foster downtown redevelopment. Incentives are a land use tools that promote the kinds of development a community would like to have such as smart growth developments and redevelopment. According to the Future Land Use Element Policy 1.16.2 in the comprehensive plan, an expedited review process and reduced parking requirements are in place for all projects consistent with approved maters plans like the downtown master plan (City of Fort Lauderdale, 2008). Because of current economic conditions, it

is difficult to gauge whether these incentives will be enough to promote the city's goals for redevelopment, but they are a step in the right direction. The introduction of more incentives or disincentives may be needed in order to fulfill the city's goals for downtown redevelopment.

The city also allows for shared parking and parking reductions if a site meets a given set of criteria and has substantial evidence in a parking study. This can reduce the supply of parking in the city. If the landowner is unable to accommodate the minimum parking supply on the primary site, they are allowed to purchase nearby off-site parking. This option does not decrease the supply of parking. While unbundled parking can reduce the demand for parking, no policies or program are in place to unbundle parking. Special credit is not given to developers for providing multimodal facilities like bicycle parking although this can be negotiated in the parking reduction process. Bicycle parking can reduce the demand for parking. While the comprehensive plan encourages inclusion of such facilities in the negotiations that occur during the development review process, actual requirements for bicycle facilities are absent from the ULDR.

Because parking is treated as a requirement of development under minimum parking requirements, the city does not allow for much flexibility for development. This can hamper development from happening in the suburban areas of the city or the areas just outside of the DRAC boundary. Eight out of 11 downtown sites have benefited from the flexibility that the downtown parking reductions have allowed. Nonresidential uses are still required to comply with parking space requirements in many parts of the downtown, which may continue to promote a high supply of parking in downtown.

These requirements should shift to alternative policies if the truly city wishes to have the downtown shift to other modes of transportation like the Wave streetcar.

The possibilities of Fort Lauderdale expanding its parking policies are evidenced by the number of developments inside of the downtown that have been willing to supply less than the minimums required elsewhere in the city. If the city determines there is an oversupply of parking in a general area even outside of the downtown, it should consider implementing parking maximums combined with a negotiation process previously mentioned. However, parking maximums face strong opposition from businesses, developers and their attorneys (Terry Burgess, personal communication, June 6, 2011).

In order for parking maximums to be effective, they should be implemented in conjunction with improvements to other modes of transportation like transit in order to promote the use of alternative modes of transportation and to increase urban densities. Parking maximums can be applied first to areas that are well served by transit such as the downtown and TODS. Parking maximums based on the percentage of the parcel footprint dedicated to parking are another strategy that could be considered.

The use of alternative parking policies should not be limited to areas like a downtown or within a jurisdiction like a city. Fort Lauderdale is one of over 160 cities in the Miami-Fort Lauderdale-Pompano Beach, FL Metropolitan Statistical Area (MSA), each with their own parking policies (www.census.gov; Bradley, 1996). A 1996 study by Bradley found significant differences in parking policies between cities and the county in the Dade County MSA. The parking requirements in the metropolitan regional are in need of reform (Bradley 1996).

Summary

Parking policies can influence the supply and the demand for parking. Parking policies can help to achieve community goals like redevelopment but may also have unintended outcomes such as parking spillover and vacant units if the resulting supply is not adequate. The consequences of parking policies need to be understood and anticipated before they are implemented. A combination of approaches and alternative policies that are flexible for development can help to lessen the negative impacts of parking policies that are enforced in a large area like a city.

CHAPTER 6
RECOMMENDATIONS

Based on the plan review and interview results, the city has not only started progress towards redevelopment, but it has begun started making strides in making downtown Fort Lauderdale have a more multimodal transportation system. The city should further its efforts toward sustainability and downtown redevelopment by reducing parking supply, increasing flexibility in the land development process, increasing their incentives and increasing regional coordination. These recommendations are discussed in detail next.

Reduce Parking Supply

Based on the interview results, it has been a considerable amount of time since the city has truly evaluated its minimum parking requirements. Based on the comparison of the UDRL parking ratios to the ITE Parking Generation Handbook ratios, the City of Fort Lauderdale may be requiring more parking spaces than needed by several land uses. The City of Fort Lauderdale should consider conducting a comprehensive parking study that looks into the parking utilization rates throughout the city and surveys both local and national businesses to determine whether the minimum parking requirements are producing the right supply of parking. This study suggests that some developers are utilizing the flexibility in the use of parking exemptions while others are not. The factors that motivate developers to use the exemptions are reductions in parking requirements will help the city to ensure that there is adequate parking provide, and not an excess of it.

Based on the results of the study the city should reevaluate their minimum parking space requirements to see whether the required supply actually meets demand. The

results of the study could justify the need to implement parking reductions and other alternatives that go beyond the downtown. As transit service improves in the downtown, the city should consider implementing parking maximums to support transit. Parking maximums would be especially appropriate if the proposed light rail system proves to be successful. Bicycle parking requirements could also reduce the supply of parking by substituting parking spaces for bicycle racks.

Increase Flexibility

Parking exemptions in the downtown have proved to increase the flexibility for developments and businesses. The City of Fort Lauderdale can further increase flexibility by expanding the areas eligible for parking reductions to beyond the DRAC. To ensure a proper supply of parking while promoting flexibility, the city should reclassify parking as a negotiated condition of development. Although a process is in place for sites who meet certain criteria to be eligible for parking reductions, the negotiation process for parking requirements in the downtown could be enhanced with policies that allow a specified percentage of parking spaces be substituted with multimodal infrastructure such as in-lieu parking fee, bicycle parking, transit service subsidies, transit facilities, monetary contribution toward centralized public parking, land banking and car sharing. Developments should meet reasonable criteria such as a specified proximity to transit stations or public parking garages in order to substitute for parking (Williams & Seggerman 2004).

Increase Incentives

Current relaxed parking requirements applied to the DRAC could gradually be implemented as an incentive beyond the downtown as space for land decreases and as transit service increases. Smart growth locations like TODs and mixed use

developments could be eligible for reductions in parking requirements. The city could increase the incentives to include through:

- a trip reduction ordinance,
- tax incentives like tax exemptions for developments that choose to locate in areas with high levels of transit service, and
- reduce impact fees

The “Wave” light rail system itself could prove to be an incentive for downtown redevelopment as it could decrease the demand for parking and require developers to provide less parking. Disincentives like taxed parking and unbundled parking could reduce the demand for parking. These policies should be considered by the city.

Regional Coordination

Parking demand is not only influenced by factors at a site specific because travel patterns can be regional. The cumulative effects of excessive parking supply that result from minimum parking requirements such as negative impacts on land markets, environmental degradation and transportation inefficiencies impact urbanized areas at a community and regional scale. Therefore, regional coordination for transportation and land use issues like parking are needed.

Education on the benefits and costs of parking demand and supply management to elected officials, the pubic, developers, lending institutions and transportation planners is one of the first steps needed to reach an understanding the need to implement a regional parking plan that would make the regional transportation system more efficient (Bradley 1996). Regional coordination for parking should involve municipalities, metropolitan planning organizations, transit agencies, and the state

department of transportation to make a transportation plan that critically looks at parking.

CHAPTER 7
CONCLUSION

Minimum parking requirements are a regulation implemented by local governments in order to reduce localized cruising for parking, satisfy peak parking demand and to attract visitors and customers. Minimum parking requirements have contributed to the large supply of parking found in many regions of the country. The large supply of parking resulting from minimum parking requirements can be linked to many externalities that affect land markets, transportation systems, the environment and social equity.

Minimum parking requirements typically only take into account two factors of parking demand: land use and the intensity or scale of that land use. And understanding of the other factors influencing parking demand is needed to order to determine whether THIS regulation is requiring a parking supply that is greater than what businesses and developers need. This regulation could negatively impact redevelopment efforts by serving as a barrier to developers and businesses due to the cost required to supply parking. It can also reduce the flexibility of development and cause developers to reduce the density or intensity of their land use in order to comply with requirements. Alternative parking policies can curb the demand and supply of parking, while increasing the flexibility of needed by developers and businesses.

Using Fort Lauderdale as a case study, the parking supply of 16 sites under varying parking policies was reviewed. Minimum parking requirements, parking exemptions and parking reductions impact the supply of parking provided by businesses and developers. Based on the review of 5 sites in the suburban locations of Fort Lauderdale, the parking minimums did not seem to impact the supply of parking for the

major franchises that were selected; the major franchises tend to supply more parking than the minimum parking requirements. Parking minimums may influence the supply of parking of major franchises if there is limited land, evidenced by the suburban Burger King that exactly met the requirement.

Parking reductions and exemptions in the downtown have reduced the supply of parking provided by several developments when compared to the supply of parking under minimum parking requirements. The small professional offices and multifamily uses that were reviewed in particular consistently supplied less parking than what would have been required under minimum parking requirement regulations. Based on the site plan review and interviews, parking exemptions and reductions allow greater flexibility needed for developers and businesses in downtown. This flexibility supports the redevelopment efforts in downtown Fort Lauderdale. The downtown parking exemptions in Fort Lauderdale appear to have fostered downtown revitalization due to the number of new developments that have supplied less parking than the city's general requirements.

The restriction that minimum parking requirements can may be negatively impacting smaller businesses and redevelopment efforts by forcing a decrease in the intensity of uses and increasing the cost of development. The City of Fort Lauderdale should consider expanding their current parking exemptions and reduction to other locations and implement more parking policy alternatives like bicycle parking requirements, taxed parking and unbundled parking. Parking should also be considered as a negotiable condition of development so that parking can be substituted for multimodal infrastructure. Additionally, incentives like a trip reduction ordinance, tax

exemptions for developments that choose to locate in areas with high levels of transit service, and reduced impact fees to increase downtown revitalization should be further explored. Future research should studies how parking regulations can affect both the supply and demand of parking are needed in order to better integrate transportation and land use planning.

The limitation of research was the small sample size. This study could have also looked into the sites built before 1996 in the downtown in order to see how minimum parking requirements affected downtown development before parking exemptions were put in place. The importance of this study is to show how parking policies could be used to incentivize the types of developments that communities want.

APPENDIX DEFINITIONS

Comprehensive Plan – A local government document that guides future growth and development.

Density - The number of people per square mile in an urban area.

Developer - Any person, or his agent, who undertakes development regulated by the ULDR.

Development - The use of any structure, land or water, the change, expansion or addition to any use, land or water, the carrying out of any building activity, or the making of any change in the appearance of any structure, land or water, or the subdividing of land into two (2) or more parcels; provided, however, that building activity that is carried out exclusively within a previously constructed structure which does not affect the intensity of use or affects only the exterior color of the structure shall not be considered development.

Geographic Information System – A system designed to capture, store, manipulate, analyze, manage and present all types of geographically referenced data.

Gross floor area – The total floor area inside of a building envelope, including the external walls.

Land Development Regulations – A set of requirements that implement the comprehensive plan.

Local Government Comprehensive Plan - An adopted plan of a municipality or county which describes its future development and growth, including appropriate land development regulations.

Metropolitan Area - The geographic area in which the metropolitan transportation planning process required by state and federal law is carried out. The area covers the existing urbanized area and the area expected to become urbanized within 20 years.

Metropolitan Statistical Area – A county based area containing a large population nucleus with a population of 50,000 of more.

Mixed Use – The use of a building, set of buildings or neighborhood for more than one purpose such as a combination of residential and retail.

Metropolitan Planning Organization – A federally-mandated and federally-funded transportation policy-making organization in the United States that is made up of representatives from local governments and other local government agencies.

Mode - A method or means of travel from place to place (highways, transit, railroads, bicycle, walking, water, air, etc.) or means of transportation.

Right-of-way – In transportation, a strip of public land granted for a transportation facility.

Transit - The transporting of people by a system, operated locally or regionally, consisting of one or more types of vehicles and/or services available for public passenger travel and mobility.

Transit Agency – A local government agency that plans and provides public transit service in a jurisdiction.

Transit Oriented Development – A compact, mixed use, walkable development that is centered around a transit station.

Travel - The movement of persons or goods from one place to another by one mode or a combination of modes.

Travel demand strategy – A transportation planning strategy that tries to reduce congestion caused by high volumes of single occupancy vehicles by promoting the use of alternative modes of transportation.

Trip - The one-way movement of one person between his or her origin and destination, including the walk to and from the means of transportation.

Urbanized Area- A geographic region containing 50,000 or more residents as designated by the United States Bureau of the Census, within boundaries fixed by state and local officials and approved by the UnitedStates Department of Transportation for transportation planning and federal funding activities.

Vehicle Miles Traveled – A measure of roadway use that is based on the distance and the frequency of trips.

LIST OF REFERENCES

Blanco, A., agblanco@ufl.edu (2011, June 3) [personal email]. How Businesses Determine Their Parking Supply. (2011, June 12).

Betz, Eric (December 4, 2010). *No Such Thing as Free Parking: First Nationwide Count of Parking Spaces Reveals Environmental Cost*. ABC News/Technology. Retrieved December 13, 2010 from http://abcnews.go.com/Technology/thing-free-parking/story?id=12306930&page=1

Bradley, J. (1996). Toward a common parking policy: A cross-jurisdictional matrix comparison of municipal off-street parking regulations in metropolitan Dade County, FL. *Journal of the Transportation Research Board*, 1564. pp.40-45. doi: 10.3141/1564-05.

City of Fort Lauderdale. (2007). *Consolidated Downtown Master Plan for the City of Fort Lauderdale.* Retrieved from http://ci.ftlaud.fl.us/planning_zoning/pdf/downtown_mp/120508downtown_mp.pdf

City of Fort Lauderdale. (2008). *City of Fort Lauderdale 2008 Comprehensive Plan*. Retrieved from http://ci.ftlaud.fl.us/planning_zoning/comp_plan.htm

City of Fort Lauderdale, Florida. (2011a). Fort Lauderdale Unified Land Development Regulations. § 47-20.

City of Fort Lauderdale, Florida. (2011b). Fort Lauderdale Unified Land Development Regulations. § 47-24.

Colwell, P. & Scheu, T. (1989), Optimal lot size and configuration. *Journal of Urban Economics,* 26, 90-109

Everett-Lee, R. (2001). *Transportation Tech Sheet: Parking Management*. San Francisco: Congress for the New Urbanism. Retrieved from http://www.cnu.org/sites/www.cnu.org/files/CNU_Parking_Management.pdf.

Current, J., Min, H. & Schilling, D. 1990. Multiobjective analysis of facility location decisions. *European Journal of Operational Research*, 49, 295-307.

Florida Department of Transportation (FDOT). (1997). *Site Impact Handbook*. Tallahassee. Retrieved from http://www.dot.state.fl.us/planning/systems/sm/siteimp/PDFs/sitepart1.pdf

Institute of Transportation Engineers (ITE). (2010). *Parking generation: An ITE informational report* (4th Ed.). Washington DC: ITE.

Jensen, D. (2009, October 12). Are banks a roadblock to walkable development?. *The Salt Lake Tribune*. Retrieved from http://www.sltrib.com/news/ci_13529914

Jia, W. & Wachs, M. (1998*). Parking requirements and housing affordability: A Case Study of San Francisco (UCTC Report No. 380).* Berkeley, CA: University of California Transportation Center. Retrieved from http://www.uctc.net/papers/380.pdf

Kaiser, Edward J. (1968). Locational Decision Factors in a Producer Model of Residential Development. *Land Economics*., 44 (3), 351-362. Retrieved from http://www.jstor.org/stable/3159783?seq=2

Litman, T. (2006a). *Parking management best practices*. Chicago: American Planning Association.

Litman, T. (2006b). *Parking management: strategies, evaluation and planning*. Victoria, BC: Victoria Transport Policy Institute. Retrieved from http://reconnectingamerica.org/resource-center/browse-research/2006/parking-management-strategies-evaluation-and-planning/.

McWilliams A. & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. Academy of Management Review, 26 (1). pp. 117-127. Retrieved from URL: http://www.jstor.org/stable/259398.

Min, H. (1987). A multiobjective retail service location model for fastfood restaurants. *Omega*, 15 (5). pp. 429-441. Retrieved from http://www.sciencedirect.com/science/article/pii/0305048387900442.

Marsden, G. (2006). The evidence base for parking policies—a review. *Transport Policy,* 13, 447-457. doi:10.1016/j.tranpo.2006.05.009

Nicholas, J. (2011, spring semester). Planning Administration and Ethics, URP 6061. Class Guest Lecture. University of Florida.

O'Sullivan, A. (2006). *Urban Economics* (6th ed.). New York: McGraw-Hill/Irwin.

Regidor, J. & Teodoro, R. (2005) Traffic impact assessment for sustainable traffic management and transportation planning in urban areas. *Eastern Asia Society for Transportation Studies*, 5, pp. 2342 – 2351.

Seggerman, K. & Hendricks, S. (2005). Incorporating TDM into the Land Development Process. Center of Urban Transportation Research. Retrieved from http://www.dot.state.fl.us/research-center/Completed_Proj/Summary_PTO/FDOT_BD549_12_rpt.pdf.

Shoup D.(1999). The trouble with minimum parking requirements. *Transportation Research Part A*, 33, pp. 549-574. Retrieved from http://www.vtpi.org/shoup.pdf

Shoup, D. & Pickrell, D. (1978). Problems with parking requirements in zoning ordinances". *Traffic Quarterly*. Accessed from http://shoup.bol.ucla.edu/ProblemsWithParkingRequirementsInZoningOrdinances.pdf.

Shoup, D. (2005). *The high cost of free parking*. Washington DC: American Planning Association.

Steiner, R. L. (1998). Trip generation and parking requirements in traditional shopping districts. *Transportation Research Record*, 1617; Paper No. 98-1370. pp. 28-37. Accessed from http://dx.doi.org/10.3141/1617-04.

Steiner, R., Jourdan, D., Blanco, A., Mackey, J., Lisska, W., Anderson, N., Hanley, G., Sucar, V. & Rachmat, S. (2010). Technical Memorandum # 2: Travel Demand Management (TDM) and Transportation System Management (TSM) Strategies for Parking. Unpublished Draft. University of Florida, Department of Urban and Regional Planning. Gainesville, FL.

Steiner, R., Jourdan, D., Blanco, A., Mackey, J., Lisska, W., Anderson, N., Hanley, G., Sucar, V. & Rachmat, S. (2011). Technical Memorandum # 5: The Impact of Parking Supply/Demand Management on Sustainable Land Use. Unpublished Draft. University of Florida. Department of Urban and Regional Planning. Gainesville, FL.

Transportation Research Board's Transit Cooperative Research Program (TRB TCRP). (2003). Traveler response to transportation system changes: Chapter 18 - Parking Management and Supply, 95. Retrieved from http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_95c18.pdf.

Victoria Transport Policy Institute (VTPI). (2010a). Parking taxes: Evaluating options and impacts. *TDM Encyclopedia*. Retrieved from http://www.vtpi.org/parking_tax.pdf.

Victoria Transport Policy Institute (VTPI). (2010b). Smart Growth Reforms. *TDM Encyclopedia*. Retrieved from http://www.vtpi.org/tdm/tdm95.htm#_Toc120587088.

Victoria Transport Policy Institute (VTPI). (2010c). Parking Management.*TDM Encyclopedia*: Retrieved from http://www.vtpi.org/tdm/tdm28.htm.

Victoria Transport Policy Institute (VTPI). (2010d). Parking evaluation: Evaluating parking problems, solutions, costs and benefits.*TDM Encyclopedia*: Retrieved from http://www.vtpi.org/tdm/tdm73.htm

Victoria Transport Policy Institute (VTPI). (2011). Walking and Cycling Encouragement. *TDM Encyclopedia*. Retrieved from http://www.vtpi.org/tdm/tdm28.htm.

United States Environmental Protection Agency (US EPA). (2010). Sustainable Design and Green Building Toolkit for Local Governments. EPA Report 904B10001. Retrieved from http://www.epa.gov/region4/recycle/green-building-toolkit.pdf.

United States Environmental Protection Agency (US EPA). (2006). Parking Spaces Community Places: Finding the Balance through Smart Growth Solutions. EPA Report 231-K-06-001.

Wilbur Smith and Associates (1965). *Parking in the city center*. New Haven, Connecticut: Wilbur Smith and Associates.

Verhoef, E., Nijkamp, P. & Rietveld P. (1995). The economics of regulatory parking policies: The (IM)possibilities of parking policies in traffic regulation. *Transportation Research Part A: Policy and Practice*, 29 (2), pp. 141-156.

Willson, R. (1995). Suburban parking requirements: a tacit policy for automobile use and sprawl. *Journal of the American Planning Association*. 61(1), 29-42.

BIOGRAPHICAL SKETCH

Jessica Lee Mackey was born in Miramar, Florida. She and her twin sister grew up in South Florida but have spent many summers Mexico City with their grandparents. Jessica obtained a bachelor of science in civil engineering at the University of Florida (UF) in 2008, after which she obtained a concurrent degree in urban and regional planning and transportation engineering with the Department of Civil and Coastal Engineering. Jessica's interest in planning includes parking management, sustainable design and multimodal planning.

Her favorite activity throughout college was her four years of participation in the UF concrete canoe team. During her graduate studies, she participated in the Vehicle Miles Traveled project and was a research assistant in the Impact of Parking Supply and Demand Management on Central Business District (CBD) Traffic Congestion, Transit Performance Measures and Sustainable Land Use project with the UF Department of Urban and Regional Planning (URP). She also studied Spanish at the Universidad de Granada and participated in the UF URP summer program in Curitiba, Brazil. Jessica has held internship positions with Kimley-Horn and Associates, Miller-Legg and Stanley Consultants.

Outside of school, Jessica enjoys biking, hiking, traveling, free diving, dog parks, dancing salsa, and promoting sustainability. After her studies, she hopes to become fluent in French and to obtain a position in transportation planning in the province of Québec or the South Florida area.