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Parking in the Urban Core

Matthew Simonis
ms4796@rit.edu

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Parking in the Urban Core

By

Matthew Simonis

A Capstone Project Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Service Leadership and
Innovation

Department of Service Systems
College of Applied Science and Technology

Rochester Institute of Technology
Rochester, New York
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Committee Approval:

Jennifer Matic

Date

Capstone Advisor

“...City engineers – worshiping the twin gods of smooth traffic and ample parking – have turned our downtowns in places that are easy to get to, but not worth arriving at.”

-Jeff Speck

Abstract

This paper explores parking policy as it relates to the creation of densely populated downtown city centers. The impacts of careful parking planning, correlated with other factors such as streetscape and building design, dictate how people move around their community. This topic is even more important as cities across America have seen a resurgence in their population and are for the first time in decades, laying out new plans and goals of what they are seeking to achieve as it relates to land use. The City of Rochester is one city that is working to create lively streets as stated in their 2014 Center City Master Plan. A qualitative case study analysis will be used to understand what other city's have done with regarding to parking planning. This analysis will demonstrate that innovative approaches to parking planning written into a city code can have a desirable impact. The Project for Public Spaces (2015) states that opportunities such as these have poised American communities to properly prioritize transportation options, just as the City of Rochester has done in their Plan. There is much to be learned and subsequently, planned carefully, as it relates to the built environment and the carefully woven urban fabric.

Keywords: Parking, land use

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Introduction

Cities across America are seeing on unprecedented levels their neighborhoods and urban cores becoming repopulated for the first time in decades. This is in contrast with the previous trend of people leaving cities for a better, safer life in suburban communities. The implications of this shift in American society are seemingly endless and the topic of much discussion, policy, and legislation in city hall's across much of America (Kolko 2014). Much of the discussion has a transportation focus, as cities are right sizing their neighborhoods and downtown center cores to adapt to new residents, new surroundings, and most excitedly, new and re-purposed development. Much of urban planning policies and the demand planners are presented with revolve around correcting past decisions, and in many cases, mistakes. A planning decision that may have made sense a decade or so ago, does not necessarily mean that it fits with neighborhood or community demands or needs today. Additionally, nor does the decision mean that it was based on sound research, support, and generally accepted planning policies which cultivate what a community is attempting to accomplish.

Transportation, or overall general mobility, dominates much of the urban planning discussion as people move back to cities and downtown areas. As Weiner (2008) states, by the 1990's, major new highway construction was over, and the country was moving into the post interstate era. Weiner (2008) states further that this had large implications on transportation planning; this was the case because as society became more dependent on the private automobile, the urban environment and lifestyle began to degrade. This was arguably the beginning of the renewed urban transportation planning movement as cities were beginning to recognize that vast amounts of parking for the private automobile was not the best use of land in an urban core.

Much of this discussion has to do not only with transportation, but mobility. Mobility can be loosely defined as how people get from place to place. This terminology addresses attitudes and beliefs which shape how people move from place to place need to be acknowledged in the policy making process. The more suburban approach to parking planning which dominated the second half of the 20th century is seen in sprawling parking lots that are so large that they are rarely, if ever, completely filled. The attitude shift began a brief time after World War II when people began leaving cities and moving to the land outside of cities and building suburban housing tracts. This shift has dominated much of America's way of thinking since that time, which has subsequently influenced planning policies in cities that now may be regarded as flawed or, at minimum, in need of correction. An example of this is the demolition of buildings in the urban core for parking lots. A shift in attitude will also be key in understanding that parking in cities may not happen directly in front of or outside of a destination; it may include walking several blocks to reach a destination.

Cities all across America have begun reviewing and making changes to the code which dictates what developers must adhere to with both new, as well as repurposed developments. Cities have taken different approaches to this review and subsequent changes, whereas others have not yet begun this process. As cities grapple with challenges never before dealt with, the city code which dictates parking may not in fact seem like a top priority. This stands in contrast however, with urban planners who advocate that smart and sustainable planning as it relates to parking and building development can serve as a vehicle by which people move around their community. This of course has implications which are economic, financial, social, safety and health related; among many others. Weiner (2008) states that as federal money for transportation planning began to become scarce, there was a movement to connect the topic to these economic

development factors as a means for advocating. Weiner (2008) states that in connecting transportation to the economy, it gives municipalities an edge for competing for both national and international business development. With this recognition it will be possible to better address the unprecedented challenges that city hall's across America are facing every day.

The City of Rochester in upstate New York is one such city that is facing these ever-changing challenges. The city sits on the southern shore of Lake Ontario at the mouth of the Genesee River. The city is home to 210,358 residents, which is part of the Greater Rochester Metropolitan region, which is home to 1,083,393 residents (United States Census Bureau Data). The Center City of Rochester, otherwise known as downtown, is a portion of the City which roughly includes the Central Business District, the Grove Place Neighborhood, the Cascade District, the East End, the St. Paul Quarter, St. Joseph's Park, as well as High Falls, the Upper East End, Wadsworth Square and Union Alexander (2014 Center City Master Plan). This region of the City is experiencing an unprecedented amount of development, with new projects seemingly being announced on a regular basis. These projects include residential units and retail and commercial space. These developments mark a turning point for the city, which address the need for a comprehensive planning policy regarding parking and the anticipated influx of both residents and visitors. The City's website states that "successfully capitalizing these opportunities requires innovative approaches that leverage our resources to benefit as many of our residents and businesses as possible" (2015).

Capitalizing on these opportunities will take strategic planning on the part of all City Departments, as well as City vendors and community stakeholders. A major part of this planning is the City's 2014 Center City Master Plan. This Plan's previous update was in 2003, and so with all of the dynamic changes in the center city it was recognized that updating this plan

was a necessary and important venture. The Plan is a living document, as the process of updating and approving it continues (2014 Center City Master Plan). In addition, the Plan is being developed in tandem by the City's Bureau of Planning and Zoning in the Department of Neighborhood and Business Development and the Bureau of Architecture and Engineering in the Department of Environmental Services (2014 Center City Master Plan).

One of the stated goals of the Plan is "lively streets," which are streets with human activity happening on or along them (2014 Center City Master Plan). Lively streets, or bustling streets, are also streets where the first floors of buildings and structures have active uses (2014 Center City Master Plan). Examples of this are storefronts in commercial areas or front porches or stoops in more residential neighborhoods. How the boundary of where the private building meets the public space or sidewalk is treated is vital to creating lively streets; more specifically, whether there are doors or windows facing the public space affects this directly. This is in contrast to blank or brick walls, which do not create a sense of place for the pedestrian walking on the sidewalk.

There are a number of leverage points which the Plan seeks to explain in detail through which the above stated goals can be accomplished. Arguably, one of the most important leverage points listed in this document is mobility and transportation. This leverage point states clearly prior to further explanation that the prioritization of first pedestrians, then transit and bicycles, and then the private automobile is paramount to a densely populated downtown core (2014 Center City Master Plan). The City acknowledges that the historic urban core was designed long before the automobile (2014 Center City Master Plan). Further, this core was strategically developed with compact, densely populated blocks that were interconnected with a street and sidewalk network (2014 Center City Master Plan).

Encouraging individuals to walk will also be dependent on a number of factors. As previously mentioned, the active use of a first floor is one of the most important. The Master Plan states that there are 47.8 miles of sidewalk in downtown Rochester and an average block perimeter of 1,950 feet, making the downtown core a naturally walkable area (2014 Center City Master Plan). It is imperative that there are very little or no gaps in the sidewalk network, as well that existing city code which discourages surface parking lots, blank ground floor walls, and vacant store fronts is enforced (2014 Center City Master Plan). These factors contribute to street life and the sense of place that is created with such design standards.

For individuals who don't live downtown or in the immediate neighborhoods surrounding the downtown core, arriving downtown is a significant factor. According to the Master Plan, utilizing public transit and/or bicycling is encouraged. The plan states that it is imperative that the City and the Regional Transit Service, or RTS, work collaboratively moving forward. This is especially true with the recent opening of the new Transit Center located downtown. The Genesee River which runs directly through the center of downtown acts as an arterial for bicycling trails (2014 Center City Master Plan). Currently, there are several gaps in the trail, to include breaks or stairs, and so connecting these pieces will be crucial in building on the City's already existing and newly developed bicycle infrastructure.

The last element of the prioritization of mobility and transportation is the private automobile. Although national trends show a decline in per capita automobile use, especially among younger people, this form of transportation will still play a role in planning for the foreseeable future (2014 Center City Master Plan). As such, accommodating these vehicles in a manner which does not negatively affect a densely populated and well developed urban core will be imperative. There are a number of factors which can assist, which all heavily revolve around

the built environment. Some examples of this are street design, to include narrow streets and medians to control speed, as well as shared streets with other transportation options to encourage collaboration and alternative options.

Perhaps one of the most significant elements of transportation and mobility is parking, or the perception of parking. The Plan states that currently just over 20% of land use in downtown Rochester is devoted to parking (2014 Center City Master Plan). So many factors are dependent on this topic; everything from the decision of businesses to locate in the downtown core, to how a resident will travel on a trip to the bank or the pharmacy several blocks away. The emphasis on parking and all of the implications around this topic as emphasized in the 2014 Center City Master Plan tell the story of a city in transition, a city which is grappling with an issue, or at the very least, the perception of an issue, that is used to make important economic decisions that will affect the entire region far into the future.

Research Purpose

As downtown Rochester continues to transform, assessing existing parking policy will be vital. Further, an analysis of what currently exists will need to be applied to all of the new development that is currently under construction or in the planning phases.

Albeit satirical in nature, the City of Rochester was named as the 2014 Parking Madness Champion, winning the Golden Crater Award, by StreetsBlog USA. StreetsBlog USA (2014) is an urban planning and land use blog that covers an array of topics in these areas. An image of the City of Rochester's many surface parking lots was submitted by several local residents, and then voted on by any of the viewers of the blog. Schmitt (2014) stated surface parking lots have created a use of land where there is nothing to drive to once arriving. This award was given with

the intention of starting an important conversation about the many planning areas that cannot be separated when considering parking policy.

The main research questions to be addressed in this study are:

RQ 1: What is the best policy with regard to providing a minimum and/or maximum number of parking spaces in an effort to build population density?

RQ 2: Are there additional factors to consider other than just the land use in dictating the number of parking spots?

RQ 3: What innovative solutions have cities working to build vibrant downtowns found to be effective in relation to parking policy?

Answering these questions will be vital in an effort to achieve the City of Rochester's stated goal of achieving lively streets. Parking policy and how it shapes how people move around the community will be an integral part of achieving this goal. Further, how policy is written and the components which contribute to it will shape the community's behavior as well as future land use for years to come.

The research questions presented will be explored through the use of the case study approach. This approach allows a specific area, in this case, parking policy, to be explored in depth. This approach allows for insights to be gained from looking at several cities and their respective parking policies, and will assist with answering the important questions stated above.

Literature Review

A key to understanding some of the above questions will be understanding existing literature as it pertains to these policies. Knowing what already exists and attempting to frame it in the context of the City of Rochester can assist with developing policy as the City moves forward. This is key as the built environment dictates so much of how humans behave, as well

as make decisions in their day to day lives. Thus, done properly, proper policy can influence how people choose to move around their community.

Levy, Render, and Benenson (2015) explain that the first residential parking policy originated in Columbus, Ohio in 1923. The requirement was one parking space per apartment. Levy et al. (2015) continue that the first non-residential parking requirement occurred in the City of Fresno in 1939. This was first applied to hospitals and hotels (Levy et al. 2015). It wasn't until the 1950's that a more widespread parking policy in places all across the United States was adopted. This was due to increased car usage and a fear of a shortage of curbside parking spaces. These initial approaches, which revolved heavily around attempting to create an unlimited number of parking spaces, were a typical approach in the years to come. Its simplicity began to have implications and unintended consequences, however, as it became more widespread. These consequences revolved around turning our cities into places where there was plenty of parking, but no businesses to arrive at once there. This is the balance of land use that planners and city officials continue to face today.

Levy et al. (2015) explain that in recent decades, the engineering view of "minimum parking codes" has been replaced with "maximum parking codes," as well as limited parking development and more demand pricing. This change in approach and more importantly, thinking, is an important concept for several reasons. The first of which is that policy in cities according to these authors began and continues to take the shape of only allowing a limited number of parking spots which creates a demand, as opposed to mandating a minimum, which may then allow the business owner to add additional spots as they see fit. Further, allowing owners to make this decision may not be in the best interest of urban planning policy and research. Another important point here is the demand pricing; this idea is relevant as it

transcends more traditional thinking about parking, which is, simply build a lot of parking, regardless of the area, thereby, creating parking that may not in fact be needed. Doing this could have many ramifications, chief among them being that doing so could take up developable land to be placed on a city's tax rolls.

Levy et al. (2015) explain that researchers and transportation planners have proven that not only is the idea of unlimited parking not sustainable due to space issues, it also ignores the inherent idea of the built environment dictating human action, or inaction. Specific to urban planning, studies have shown that widening roads will generate more traffic and put an emphasis on increased private automobile use (Levy et al. 2015). This then leads to increased automobile trips, lengths of the trip, and increased automobile ownership. These other factors, or unintended consequences as explained by some, exacerbate unmanageable trends.

These facts are the basis of understanding the present day shift to mobility, with a focus on public transit, bicycles, and pedestrians for urban transportation systems as a stated goal in the City of Rochester's Center City Master Plan. This is not to ignore the private automobile, as the Plan states that they will have an impact for the foreseeable future; it is however meant to expand the scope of transportation and the impact its policy has on cities. Cities have begun calling these plans Active Transportation plans, which puts more of an emphasis on all forms of transportation and mobility.

Levy et al. (2015) present a model for transportation and parking that planners to use as it relates to how much parking should be supplied to residents and visitors of cities across the country. Levy et al. (2015) explain that there is a formula to use that includes a target goal of 85% parking space occupation at any given time, with the ability to go as high as 92-93%. This target would be done by estimating the supply and demand of parking spaces, but what elements

should be included in the equation continue to be debated. Several factors that some researchers advocate for are location, price, and on-street versus off-street availability. Levy et al. (2015) continue that one element left out of the typical location is taking into consideration how long drivers will continue driving around until finding a parking space before simply leaving the area. This model may also be used by cities to reproduce in a way that is beneficial to their existing conditions and access to necessary resources.

Levy et al. (2015) explain that much of existing parking research is done in terms of economic factors; that is, assuming that all who are seeking to park are looking to minimize the cost. This inherent assumption does not take in account the area where individuals are looking to park. Arguably, if it is a popular sought after destination, people will be more willing to pay more to park their vehicles. This idea of adjusting parking accordingly is a concept which is gaining traction across much of America due to the technology through smart phones that most individuals now have at their finger tips.

Prall (2014) explains that cities across America are now using this technology that is available to price parking in real time, essentially making the number of spots available not the foremost factor in policy. Prall (2014) explains that the City of Norwalk, Connecticut now assists with the competing interests of managing its 4,000 parking spots with technology. Prall (2014) explains that this assists with parking turnover, as well as creating a more sustainable, vibrant downtown. This newly developed technology is happening through the use of a smart phone application. Prall (2014) continues that residents and visitors to the city simply download the application on their phone, and through the use of sensors in the road and parking areas, the application will guide users to areas where parking is available. Prices are then adjusted

accordingly; contributing factors include duration of time being parked at the location, as well as amenities and services in the adjacent area.

According to the article, there are a number of advantages to this pilot program. Prall (2014) explains that the first of these is the convenience and ease it offers to customers. This is especially true with visitors to the city, who may be unfamiliar with the city's landscape and where parking is available. The second advantage as Prall (2014) explains is environmental in nature. This is due to less time spent driving around looking for an available spot, which lowers emissions and the burning of fossil fuels from vehicles. Lastly, Prall (2014) explains the very impactful benefit to the city. This is the case as they now have parking information in real time available to them to assist with important factors such as parking policy, infrastructure needs, and the budgeting process, among others. This data can be used to begin retrofitting areas where sprawling, unused parking lots have taken over land use.

Ben-Joseph (2012) notes that in some cities, surface parking lots cover over a third of land area. This fact alone demonstrates that parking lots are one of the most notable landscape features of our built environment. Ben-Joseph (2012) explains that this is important as many local zoning ordinances which regulate parking only regulate minimum and maximum number of spaces, without a focus on design. This contributes further to our built environment and reflects highly on the character of the neighborhood or area where the surface parking lots exist.

It should also be mentioned that all of this land use in our cities is being used toward the automobile, for which 95 percent of the time is immobile (Ben-Joseph 2012). As Ben-Joseph (2012) points out, this begs many questions that need to be answered. Ben-Joseph (2012) lays out many of these questions when he asks such things as can these parking lots can be designed in a more aesthetically pleasing manner, can the lots provide more than simply car storage, and

can the lots be infused into our built environment in a way which creates an enjoyable experience for all.

Arnott & Inci (2006) have researched and presented a model which revolves around what much of existing research does, that is, pricing. Arnott & Inci (2006) argues that pricing directly effects cruising time, or the time people take to drive around looking for parking. Proper pricing and price adjusting, Arnott & Inci (2006) state, can also maintain high occupancy in existing parking lots. Other factors that the authors stress the importance of include on-street compared with off-street parking, as well as walk time from where a car is parked to the individual's destination. All of these are factors which can be used in pricing adjustments to maintain an equilibrium or stability ratio. This is where many factors would join together to work in conjunction in accomplishing all of the goals laid forth.

A review of the literature demonstrates that that the built environment with regard to parking in densely populated urban areas is an area where more research is needed. Much of the existing research in the area of parking has a case study focus and has much to do with pricing. As previously mentioned, much of urban planning and policy making is an effort to correct mistakes from the past and apply more accepted, current practices. Pricing parking accordingly can be seen as doing this as it deals more solely with policy than changing the built environment. Researchers have argued that adjusting pricing accordingly for both on street parking, as well as parking lots, will have a great affect on availability of spots for those that are searching for them. This has been done through an analysis of the specific area to see what the demand is, as well as in real time through an application on a smart phone.

The existing body of information lacks research on parking requirements with regard to a minimum and/or maximum number of parking spots. This gap in the literature may exist for a

number of reasons. First and foremost, it is relatively new area with regard to demand. Put more simply, it has only been in the last decade that people have been returning to urban areas which has subsequently created a high demand for land use. American society which widely accepts the private automobile for transportation is in the midst of a change in culture to where more alternative modes of transportation are becoming accepted. The implications of this are sociological in nature, and must be applied to the urban planning framework.

Further research that is needed should address the 85% occupancy rate for parking spaces in a given area. Research needs to be conducted on what factors should contribute to this percentage. This will assist with achieving such a number, which may or may not include pricing. The intricacies of achieving such a percentage should be considered through best practices, as well as active research and analysis. The important take-away is that parking must not be viewed in a vacuum; it is a topic which needs to be seen through an all encompassing lens for which the urban fabric depends.

Methods

Formulating the best parking policy for the City of Rochester is an important endeavor with far reaching implications. This is especially true with a rapidly changing downtown landscape, which further accentuates the need for such sound policy. The following questions will be key in detailing such policy:

RQ 1: What is the best policy with regard to providing a minimum and/or maximum number of parking spaces in an effort to build population density?

RQ 2: Are there additional factors to consider other than just the land use in dictating the number of parking spots?

RQ 3: What innovative solutions have cities working to build vibrant downtowns found to be effective in relation to parking policy?

Studying this topic in a qualitative manner is most appropriate. On the surface, it may seem that studying parking in a quantitative manner would make more sense. This would be argued by simply stating the number of people living in an area and subsequently needing to have that number of parking spots. This of course, defies logic in the sense that it assumes all individuals are car owners and need a parking space. It also doesn't address other areas such as nearby workers, visitors, and other land use components. This speaks to the lack of clarity in the topic and subsequently, the benefit of using a qualitative approach.

Additionally, qualitative research is an appropriate method to use as it is difficult to quantify much of the urban fabric and the built environment. These factors, many of which that were previously mentioned, encourage and in many cases, reward, a certain behavior; in this case, not using a private automobile. This would be determined by examples such whether there is a large parking lot for a pedestrian to walk through upon arrival to the destination or whether there is bicycle parking available. This will of course not be the case with all people, making once again, the qualitative approach the best option.

Further, studying the topic of parking and related policy will be done through the use of the case study. Denscombe (2010) describe the case study approach as one which provides a focus on just one aspect of research in the social setting. Denscombe (2010) explains one of the major benefits of this important approach is the insight gained from having a very specific focus that might ordinarily be missed in a larger scale study. Denscombe (2010) states simply that "the aim is to illuminate the general by looking at the particular" (p. 53).

Denscombe (2010) further states that a focus on relationships and processes is key with regard to case studies as he states they tend to be interconnected and interrelated. This is important as it relates to parking and designing the intricate urban fabric, which includes public spaces, specifically designed buildings, purposeful infrastructure, and an array of businesses and services in a given area. These interrelated parts studied on a case by case basis will allow for the understanding of their interactions with other components as a benefit to the City of Rochester and its stated goals.

Collecting the necessary information for this particular case study includes gathering the necessary portions of the respective City Code for each particular city. This process was completed through visiting the city's website and doing a general search for their city code. Further, successfully locating the section which addresses parking and parking requirements will be the next step. Assessing and analyzing this information is the next step in the case study process.

Analysis

The cities chosen for analysis are Portland, Oregon and Richmond, Virginia, followed by an analysis of Rochester. These cities were chosen strategically for a number of different reasons. As Denscombe (2010) states, when conducting a comparison with regard to case study research, the inclusion of certain details are extremely important. Denscombe (2010) states that with regard to location, a selection of the following factors needs to be established: physical, historical, social, and institutional. The importance of establishing these qualifying features will work to better understand each comparison.

Portland is a city which has experienced much growth in the area of economic development and population. With regard to its population, it has in recent years experienced

unprecedented growth, attributable to its smart urban growth policies and focus on mobility according to most authorities in the planning and design field. According to the United States Census Bureau, its demographic make-up is 76.1 percent white, 9.4 percent Hispanic or Latino, 7.1 percent Asian, 6.3 percent Black, with a small percentage of ethnicities accounting for the remaining population. The City itself is located in the Pacific Northwest, and is nestled among several bodies of water.

The next city, Richmond, was chosen due to its population and demographics due to their similarity to Rochester, which according to the United States Census Bureau is 214,114, compared to the City of Rochester's population of 210,358. With regard to demographics, Richmond is 50.6 percent Black, 40.8 percent White, 6.3 percent Hispanic or Latino, with the remaining percentage being comprised of a number of other ethnicities. By comparison, Rochester is 43.7 percent White, 41.7 percent Black, 16.4 percent Hispanic or Latino, with the remaining percentage being comprised of a number of other ethnicities. In addition, much like Rochester, Richmond is a historic city with much of its building and housing stock over a century old. Cities that have these attributes face their own set of challenges as they attempt to integrate existing infrastructure into modern policy making ideas for both today and future generations of their respective cities.

City of Portland

When it comes to the part of the City Code which dictates parking policy, Portland Oregon is a city which is on the mind of many urban planners due to its extraordinary growth as evidenced by the population statistics at the end of this section. The City has amended the chapter relevant to parking in its City Code 33 times since March of 1991 (City of Portland City Code 2014). This is important as it demonstrates the City's commitment to determining land

use; that is, placing buildings and businesses on land parcels which generates revenue versus using the parcels as parking lots which do not. It also represents the city's commitment to the built environment, or aesthetics, as compared with simply putting blacktop down. The subsequent chapter is broken down into 13 sections, addressing requirements for an array of topics. Further, parking areas include those accessory to a use, part of a commercial parking use, or for a parking and ride facility as outlined in said chapter, as well as others (City of Portland City Code 2014). The Portland City Code (2014, p. 266-3) states that "The purpose of required parking spaces is to provide enough on-site parking to accommodate the majority of traffic generated by the range of use which might locate at the site overtime." This definition further explains that the required number of spaces addresses broad use for future planning, not specific uses (City of Portland City Code 2014). This definition is important as it also addresses long term planning, as opposed to a more responsive immediate need. It also speaks to efficient use of land to cultivate the urban environment the city is seeking to create. It is important to note that of the 4 categories of zones (for which there are a number of districts within), that three of the four have no minimum number of required parking spaces. All four have a maximum number they are allowed based on the specified use. This is important as it demonstrates the City's commitment to not having an abundance of parking, and as a result, a deeper commitment to land use which supports destinations for people to become acquainted with.

The code continues that sites which are in close proximity to public transit, have good street connectivity, and adequate pedestrian facilities may need little or no off-street parking (City of Portland City Code 2014). The code states that "sites located less than 1500 feet from a transit station or less than 500 feet from a transit street with 20-minute peak hour service, the minimum parking requirement standards" apply in the corresponding section (City of Portland

City Code 2014). This is an important distinction that the City of Portland makes that is not the case in any other city studied. This is an important piece of the code as works to address other factors other than simply land use, in this example, proximity to transit, when determining a number of parking spots for a development.

Also included in the code are sections which include topics such as carpooling and bike sharing facilities. This is an important distinction also not found in the other cities studied. It is also significant as it relates to the idea of mobility, and speaks further to innovative solutions to address parking in the urban center through the encouragement of alternative transportation options. This is the case as car pooling and bike share programs would eliminate additional need for parking spots but still create population density. It is innovative in the sense that, as Burrus (2011) would say, the city went opposite when trying to solve a parking problem. This means that when an organization is attempting to solve an issue or concern, an innovative approach would be to do the opposite to assist with solving the problem. In the case of Portland, in an effort to accommodate parking automobiles in dense areas of the city, they instead address ride-sharing alternatives rather than where one individual can park his or her vehicle.

Populations below are estimates effective July 1 of the respective year:

	2010	2011	2012	2013
Portland city, Oregon	585,256	593,939	603,026	609,456

City of Richmond

The City of Richmond has a comprehensive off-street parking code which attempts to regulate the number of parking spaces required based on land uses throughout the city. The corresponding code that follows begins by describing a broad number of uses that land may be

used for throughout the city. Specifically, 36 uses are listed, some of which have several sub-categories for further clarification (City of Richmond City Code 2010). The code further states that the minimum number of off-street parking spaces required pertains to any district unless otherwise stated in the document (City of Richmond City Code 2010). There are a number of caveats which state that there is no minimum number of parking spots for certain districts, and the subsequent districts are listed.

One area stated explicitly in Richmond's code which seeks to work toward innovative solutions is the parking requirement that is further defined beyond land use by using the time of day the business' hours of operation are. This means that the number of required spots may be not simply be dependent on the land use, but the time of day the operation is open. For example, a business in a more commercial area of downtown may have more people visiting during the day whereas a business in a more residential area may have more patrons in the evenings and on the week-ends. This example will affect parking demand, as well as availability. Another area of the code which allows more leeway in the requirements are the certain districts where on-street parking directly in front of the use can be used to toward the total off-street requirement. These two examples are ways for the cities to become more creative with requirements and subsequently, work to find alternatives to parking in densely populated areas.

The structure of the code is such that the chart for specific land uses is the first section of the code, followed by explanations and any necessary distinctions. This is in contrast to both the City of Portland, as well as the City of Rochester in how theirs is structured. This is important to note as it reflects how an individual views the code; it determines the focus for the reader and thereby communicates exactly what the city's focus is. More simply, it demonstrates whether

the city is seeking to achieve an easy reference or possibly having dialogue with developers about alternative, innovative approaches.

Populations below are estimates effective July 1 of the respective year:

	2010	2011	2012	2013
Richmond city, Virginia	204,351	206,389	210,857	214,114

City of Rochester

The City of Rochester Parking Code as it relates to off street parking states that it is applicable to all structures that have a change in use effective the date of the specific chapter (City of Rochester Code). Already existing uses prior to the effective date are not applicable to the chapter. Further, the code states that any increase in intensity of any use of any building or structure, will require an increase in parking facilities for such use (City of Rochester Code). The code continues by defining a number of uses to include sports arenas, churches, and other places of congregation where benches or pews exist, as well as when the number of parking spaces developed is dependent on faculty, staff, or employees, the maximum number present at any time will govern (City of Rochester Code).

The next portion of the chapter includes the definition of what is referenced a number of times in the remainder of the chapter, that is, a parking demand analysis (City of Rochester Code). This analysis must be submitted to the Director of Planning and Zoning, and must include a number of components including the number of parking spaces needed to accommodate the proposed use and an analysis of the existing parking conditions (City of Rochester Code). A parking demand analysis is also required where three or more uses operate single parcel. This analysis is required in all areas zoned as Planned Development Districts,

which is an area where significant development will be occurring. This is especially true in the downtown core where the City continues to transform. This part of the code makes parking requirements in the city’s downtown subjective as it is not dictated by code, but by a decision by a position appointed by the current Mayor.

The parking demand analysis then is important for several reasons. The first is that it leaves the number of required number of parking spaces as a more opaque reality, one that is almost solely dependent on the City’s Director of Planning and Zoning rather than policy. Another reason speaks to the City’s apparent understanding of the vast changes that are happening in the downtown core. This is due to the code being written to not mandate a minimum or maximum, but rather, to leave it open to take it on a case by case basis. Again, this is a policy that’s legacy can only be determined years into the future.

With regard to the City’s Center City Master Plan, it appears that the City Code which refers to parking has not yet been brought up to date. This is the case as the City has explicitly stated the prioritization of transit, bicycles, and pedestrians over the private automobile. This important piece of the Plan needs to be reflected in the code that dictates what developers do. It is arguably more important to be in the code as the code is where the City can enforce the priorities set out in the Master Plan.

Populations below are estimates effective July 1 of the respective year:

	2010	2011	2012	2013
Rochester city, New York	210,401	210,578	210,515	210,358

Conclusion

The story told by the three different City Codes presented is one which presents both similar characteristics as well as, in many ways, very different ones. All three codes with regard to parking are explained through land use and zoning districts, all of which dictate parking requirements. These requirements, whether they be a minimum or maximum number of parking spaces, exist as a means to contribute to the urban environment that each city is working to create. In other words, they are trying to find a balance between how much land they are devoting to parking and how much land they would like to be devoted to businesses and spaces where people would like to spend their time and money. The importance of the policies which exist to support the initiatives and priorities of each city must not be understated. The policies simply existing is not enough; however, they must be codified and enforced as well. This idea is explored further later in this document.

It is of note that in both the cities of Portland and Richmond, their codes have language that gives rise to innovative solutions rather than a simple dictation of parking requirements. The city of Rochester's code does not possess such language, which is a tremendous downfall for a city that has such a comprehensive Master Plan for its downtown. The City of Portland, with its requirements based on transit, should serve as a beacon for other cities in terms of how to craft language for how to proceed with mobility.

Of further importance seems to be the intent of the code. Intent, which is briefly hinted at above with regard to environment, is truly the essence of the city parking code. Intent provides the larger picture of what the city is attempting to create; and in the case of the City of Rochester, it is lively streets, with an active transportation plan that prioritizes transit and pedestrians over

the private automobile (2014 Center City Master Plan). Once again, the only way for intent to be enforced and carried out is to explicitly codify the exact elements each city is working toward.

The topic of parking as it relates to policy is one which needs to be addressed not simply because of inevitable growth, but also due to the automobile dependent society which has deliberately developed. As the Project for Public Spaces (2015) states, the reality is that is also needs to be addressed as a result of strategic and deliberate decisions made to build our streets and more importantly, our communities, around the private automobile. This has led to not only an increase in vehicles on the road, but the demand for individuals to be able to park their car somewhere. As a society, and as individual communities, we have the option to instead design our streets so that they are comfortable for all people to utilize, regardless of how they choose to travel. This sort of initiative would actively support the City of Rochester's prioritization of travel. The Project for Public Spaces (2015) states that our downtowns and Main Street can be turned into places where people gather, places where life happens and that are worth arriving at, and not just thruways to get to and from where we are and where we are going. Creating places and streets for people to gather speak directly to the City of Rochester's Center City Master Plan of seeking to achieve lively streets with active first floor uses.

The Project for Public Spaces (2015) states that there are ten qualities which contribute to great streets, which are qualities that need be considered when designing parking, both on and off street. Several of these qualities include diverse user groups, blending of uses and modes, and neighborhood preservation (2015). These qualities must be considered and implemented when making and enforcing parking policy as a means to contribute to what the City of Rochester is trying to accomplish, that is, creating lively streets. The City of Rochester should consider these aspects in the planning phases of the renewed interest in downtown. This would

include ensuring desirable destinations on the first floor of buildings for people to arrive at, infrastructure which supports arriving there by something other than a private automobile, and replicating the character and architecture of the surrounding, more historic buildings as it relates to new development.

Once again, parking policy is not a siloed phenomenon. It is a topic which coexists with many other determining factors. Some of the factors include building and parcel design, neighborhood character, economic development in a given area, overall streetscape design to include street trees and lighting, as well as a number of other design components. These aspects of an area or neighborhood contribute to whether people will choose to spend their time there, and subsequently, need a place to park their vehicles. The interlocking of these crucial aspects need to be applied when considering how much parking will be necessary, or how to achieve the 85 percent occupancy balance.

As stated previously in a review of the literature, there is a need for more research in the area of what constitutes sound parking policy with regard to number of spaces needing to be built. This has much to do with what Levy et al. (2015) point out, namely that it is inaccurate to assume that all who are looking for parking are making the decision solely based on price. It is inaccurate as it diminishes the built environment; that is to say that when planners and developers work together to create somewhere that individuals would like to be, they will find a way to arrive at the privilege of being there. It also undermines innovative solutions demonstrated with success by other cities. Thus, price is simply one component.

Recommendations

Recommendations include studying in a more in-depth manner the City of Portland's Code and its effects. This may need to be done by way of a comparison where like districts are

compared to evaluate similarities and differences. More specifically, how amending their code to reflect an emphasis on distance from a public transportation stop has affected the behavior of the residents and tourists in their city. This has much relevance to the City of Rochester as the Master Plan prioritizes public transportation over the private automobile. Understanding individual behavior with regard to this code can assist the City of Rochester with amending their own code as the city's core continually transforms.

As this is an ever-changing, ever-developing topic, it will be important to monitor cities across the country for new policies and legislation as it pertains to parking and land use in dense, urban areas. One such very recently developed policy recently submitted for approval to City Council is in the City of Seattle. The policy, aimed at assisting with promoting car-free living, would have developers and builders provide alternative options to tenants other than a parking spot (Jaffe 2015). Jaffe (2015) explains that a suite of options may include a transit pass, a membership to a car or bike share program, or any number of similar options. Jaffe (2015) continues that through a series of comprehensive legislation packages and initiatives to improving mobility, this new policy will assist further in actively creating the population density sought by cities. Jaffe (2015) also states that due to these initiatives, currently, only about 31 percent of Seattle residents drive to work alone. It is believed that this new initiative, if passed, will continue to bring a decline to the 31 percent. This new initiative should also be monitored and tracked by City of Rochester Planning staff.

Another aspect of parking policy has to do with the appeals process for each city. The appeals process has to do with a developer or architect applying to waive the code requirements for their project, while presenting a justification as to why this should be done. In the City of Rochester, any developer may appeal to the Zoning Board of Appeals any requirement they wish

to seek a waiver on. The individuals on this board are appointed by the Mayor, and must be confirmed by the City Council. This is an area that needs to be explored as the developed policies which exist to support a goal or mission are only effective if they are actively enforced. If the number of waivers increases based on a vote by the board, it essentially works against the urban environment the code was written to support and achieve. This analysis may also be done by way of a comparison with other cities.

This further research should be done to determine the number of times waivers are granted for projects broken down by city to get a better understanding of whether or not the code is being enforced, as opposed to a waiver being granted. Doing this research would assist with finding out more about waivers being granted for large open, sprawling parking spots. This may assist with understanding these cities' population rates, in addition to other planning initiatives. This will also assist with attempting to understand car usage by city; that is to acknowledge the environment created when a waiver is granted for additional spots encourages driving to the destination. On the contrary, the environment built when a waiver is denied and the development must be built to code rewards individuals for arriving there by alternative means. For example, is the building built to the sidewalk with the parking lot behind the building so pedestrians do not need to navigate through a parking lot to gain access to the destination? This suggestion for further research would be of benefit to the City of Rochester in that they could use it when they meet and work with developers. It may also assist them with encouraging developers to comply with code and not seek a variance.

Other areas for further research include investments made in other transportation areas such as bicycle infrastructure. Municipalities providing investments for making it easier to bicycle places, such as bike lanes and bike racks, also has implications for mobility and parking

policy. This has an impact on parking demand and availability, among other significant areas of policy making.

As demonstrated, parking policy is an integral part of any city's planning policy. It is something that needs to be considered as it relates to a list of other factors; to include parcel design, actual location of the lot, building architecture, neighborhood character, streetscape infrastructure, and other factors which contribute to street life. These aspects are all important in working toward the City of Rochester's goal of lively streets. Although more research is needed by the City of Rochester in an effort to understand the importance of innovative solutions to parking, as demonstrated by the case studies, the goal is within reach. Achieving this goal will take much work on the part of city officials in an effort to work with the community and city planners to succeed in creating a dynamic, diverse urban core for all of the Rochester community to enjoy.

References

Arnott, R., & Inci, E. (2006). *An integrated model of downtown parking and traffic congestion*.
Journal of Urban Economics, 60(3), 418-442.

Ben-Joseph, E. (2012). *Rethinking a lot: The design and culture of parking*. Cambridge, MA:
Massachusetts Institute of Technology.

Burrus, D. (2011). *Flash foresight: How to see the invisible and do the impossible*. Harper
Collins: New York, NY.

City of Portland Parking Code (2014). *Parking and loading*. Retrieved from
<http://www.portlandoregon.gov/bps/article/53320>

City of Richmond Parking Code (2015). *Off-street parking and loading requirements*.
Retrieved from
https://www.municode.com/library/va/richmond/codes/code_of_ordinances?nodeId=CHI14ZO_ARTVIIIOREPALORE_DIV1GE

City of Rochester 2014 Center City Master Plan (2014). *The plan*. Retrieved from
<http://www.cityofrochester.gov/CenterCity/>

City of Rochester Parking Code (2015). *Off-street parking*. Retrieved from
<http://ecode360.com/8682809>

Denscombe, M. (2010). *The good research guide: For small-scale social research projects*.
Maidenhead: Open University Press.

- Jaffe, Eric (2015). *Seattle to buildings: Give tenants transit passes, not parking spots*. Retrieved from <http://www.citylab.com/cityfixer/2015/05/seattle-to-buildings-give-tenants-transit-passes-not-parking-spots/392756/>
- Kolko, Jed (2014). Population growth in dense U.S. cities: Short-term correction or long-term trend? Retrieved from <http://www.citylab.com/housing/2014/04/population-growth-dense-us-cities-short-term-correction-or-long-term-trend/8875/>
- Levy, N., Render, M., & Benenson, I. (2015). *Spatially explicit modeling of parking search as a tool for urban parking facilities and policy assessment*. *Transport Policy*, 39, 9-20.
- Prall, D. (2014). *Promoting parking policy*. Pittsfield: Penton Media, Inc., Penton Business Media, Inc. and their subsidiaries.
- Project for Public Spaces (2015). *Streets as places: How transportation can create a sense of community*. Retrieved from: <http://www.pps.org/reference/streets-as-places-how-transportation-can-create-a-sense-of-community/#.VTgQvpekwbh.twitter>
- Schmitt, Angie (2014). *Rochester wins 2014 parking madness title and claims the golden crater*. <http://usa.streetsblog.org/2014/04/09/rochester-wins-2014-parking-madness-title-and-claims-the-golden-crater/>
- United States Census Bureau (2013). *Population estimates: City and town totals*. Retrieved from <http://www.census.gov/popest/data/cities/totals/2013/index.html>
- Weiner, E., & SpringerLink (Online service). (2008). *Urban transportation planning in the united states: History, policy, and practice*. New York, NY: Springer New York.