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Car Sharing and Local Sustainability: Exposing the Implications of Assumption-Based Sustainability Initiatives in Minneapolis

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ABSTRACT

As the sharing economy proliferates, so does the assumption that all sharing is inherently sustainable. Discourse analysis of car sharing in Minneapolis reveals that this assumption has driven the development of partnerships with two car share programs, one nonprofit and the other for-profit, in the city. Empirical analysis, however, exposes that the two programs, while consistently equated in city policy, have significantly different impacts on local sustainability, especially in terms of public transit usage and social equity. This study highlights powerful implications for the dangers of assumption-based public-private partnerships created within local sustainability initiatives.

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INTRODUCTION

For many people the word sharing has an inherent positive connotation. It is one of the values first instilled in children in cultures across the globe. It is not surprising, then, that the 'sharing economy' is exploding in popularity, particularly in North America, where markets are being created for everything from renting an extra room to strangers, to collective car ownership. In 2011 *Time* magazine included collaborative consumption (another name for the sharing economy) in the article, *10 Ideas That Will Change the World.* There is a long list of large companies that are making substantial investments in the future of 'sharing.' In January of 2013 Avis Budget Group purchased car sharing pioneer ZipCar for $500 million when the company generated just $4.7 million in profit the previous year (Forbes, 2013). It is clear that by many calculations this new market sector, which is far from the sharing we learn in grade school, has potential to create economic gains for large companies that invest in it.

It is frequently professed that sharing in these new contexts is inherently positive, especially in terms of environmental sustainability, which leads to the enthusiastic involvement of local governments in the promotion of 'sharing' programs. However, little scholarly research has been conducted to critically examine the rampant claims of environmental and economic sustainability of programs of the sharing economy, let alone possible social equity implications. As these programs and services proliferate it is crucial that we critically examine these claims of sustainability, evaluating their validity in order to avoid assumption-based policies creating unintended consequences for our fragile communities and planet.

The rationale for promoting car sharing, given by companies and welcoming city officials, is typically based on its ability to decrease the number of cars on the road, thus decreasing traffic and emissions within the city. Along with these rationales, arguments are made citing economic gains that would come with expanded transit options inviting new people to the city. Local public officials, under broader local sustainability initiatives, look specifically to increase public transit usage as residents are able to decrease personal car ownership through car share membership. This reasoning is heavily based on the powerful assumption that all car share programs are inherently sustainable, meaning they promote use of alternative modes of transportation and a decrease in personal vehicle ownership. However, these claims are unsubstantiated by empirical data. Through this study I will explain that, contrary to popular belief, car sharing can have negative implications for environmental sustainability and social equity, as well as ripple effects impacting the sustainability of the local economy.

There are two distinct camps when it comes to car sharing and the sharing economy more broadly - impassioned supporters and critical skeptics - the majority of people subscribing to the positive opinion. The best way to investigate the validity of each perspective is through a case study of a city that recently began to fully embrace car sharing. I examine two car share programs in Minneapolis, Hourcar[1] and Car2Go[2], non-profit and for profit, local and international, respectively. I investigate how each operates in relation to the Minneapolis city government and local sustainability initiatives. Through this I am able to critically analyze empirical data as well as debates surrounding car sharing and sustainability in the local context in order to make comparisons between

[1] Officially: 'HOURCAR', but will be referred to as Hourcar in this research for readability purposes.
[2] Officially: 'car2go, but will be referred to as Car2Go in this research for readability purposes.

the discourse and the data, drawing observations and conclusions applicable to the over one thousand cities across the globe that play host to car share programs (Knowledge World Carshare, 2009).

This study uses a mixed method approach to investigate two interrelated questions about car sharing in Minneapolis. I first use discourse analysis to explore the development of car sharing in Minneapolis in order to answer the question, How does the manner in which the City of Minneapolis develops and maintains relationships with car sharing programs reflect the priorities and perspectives of city officials, thus affect the development of a more sustainable city? Through analyzing local discourse I find that car sharing 's 'momentum' in Minneapolis was ignited by the local nonprofit's, Hourcar, concern for environmental sustainability based on the detrimental impact of personal vehicle reliance on the city. Government leaders took note of the positive impacts Hourcar was having and then, without question or empirical analysis, welcomed large-scale, for profit car sharing into the city in the form of Car2Go, seeing it as a simple 'scaling-up' (in the worlds of former Mayor Rybak) of the car sharing that Hourcar was already facilitating (Roper, 2013). I highlight how the development of the assumption that all car sharing is inherently sustainable drove the proliferation of car sharing in Minneapolis.

After conducting discourse analysis of the rise of car sharing in Minneapolis it becomes clear that there is a great need for empirical analysis of the usage and impact of car sharing in the city in relation to sustainability. I explain that the City of Minneapolis has promoted car sharing under the assumption that all car sharing is inherently sustainable and all car share programs are equal. I investigate how the two programs are

actually impacting local sustainability and compare this information to the assumptions that have been continuously made by city officials. In order to investigate the broad question of sustainability impact I piece together multiple data sources from Minneapolis and other North American cities in order to evaluate how Hourcar and Car2Go are impacting personal car ownership and public transportation usage. Both of these questions relate directly to not only the assumptions explained in the discourse analysis, but also to serious implications for environmental, social and economic sustainability.

The discourse analysis reveals that assumptions of inherent sustainability have driven the development of partnerships with the two car share programs in Minneapolis. Empirical analysis exposes that the two programs, while consistently equated by the city, have significantly different impacts on local sustainability, especially in terms of environmental impact and social equity. While the non-profit, 'round trip' Hourcar program helps members reduce personal car ownership and increase public transit usage, the for profit, 'one-way' Car2Go program does not impact car ownership and has been shown to take people off of public transit.

This study exposes powerful implications for the dangers of assumption-based public-private partnerships created within local sustainability initiatives. I explain these implications using the lens of sustainability to contextualize my results through theories of Political Economy, Urban Regime Theory and Public-Private Partnership.

Minneapolis is now beginning to face significant challenges because the impact of car sharing is not aligning to what was anticipated. It can be deduced that these issues are due in large part to a lack of data collected and shared between the programs and government officials, which led to a lack of empirical evaluation. Issues of the true

sustainability of car share programs and their true impact on public transit investment and usage can be mitigated by future city leaders if empirical analysis is conducted under the appreciation that not all car sharing programs are the same, nor have the same impact. This requires explicit data sharing agreements within public-private partnerships. The push to expand car sharing in Minneapolis was promoted by media and local government as a step toward greater environmental sustainability, while neglecting to recognize possible social equity implications of incorporating a large for profit car share company into the local transportation plan.

This study investigates the story that led to the current precarious state of car sharing in Minneapolis and will demonstrate the case study as an example of what is possible when unquestioned 'truths' of sustainability influence city governance and the proliferation of the 'sharing economy.'

CHAPTER 1: Contextualization of Sustainability and Car Sharing

Introduction

In order to understand the proliferation of car sharing in Minneapolis, and more broadly in the context of sustainability, a few key ideas must be explicitly understood. In this chapter I will begin with an explanation of how I conceptualize the idea of sustainability in terms of its three pillars: environmental, economic, and social sustainability. Next I will summarize the limited academic and popular discourse surrounding the sharing economy in order to give context to the development of positive popular sentiment about sharing programs. Following this I will explain the state of car sharing in the United States, as well as the selection of Minneapolis as an appropriate case study for this phenomenon. With this I will describe the two car sharing programs

investigated in this study. The chapter will conclude with brief summarizations of the three key aspects of my theoretical framework: Political Economy, Urban Regime Theory, and Public-Private Partnerships.

Section 1.1: Sustainability

Much of the academic and popular discourse surrounding car sharing is dominated by proclamations of its inherent sustainability. In order to dissect the discourse we must first understand how this research interprets the broadly defined term of sustainability. Today's popular notion of sustainability comes from the 1987 Brundtland Report which defines it as the ability "to meet the needs of the present generation without compromising the ability of future generations to meet theirs" (Brundtland Commission, 1987).

As it is largely unhelpful to attempt a working definition of sustainability as a whole, I will illustrate the term as it is used in this study by defining its three pillars: environmental, economic and social sustainability. This three factor model was first proposed by Robert Goodland (1995) who stated that sustainability is based on the interaction of the three 'pillars' listed previously. By defining these each individually I do not intend to imply a separation between each concept. Rather, as the study progresses it will become clear that each of these pillars is, in fact, supported by and necessary for the existence of the others.

Environmental Sustainability

For this study environmental sustainability would mean that fewer cars are on the road, thus more people are using alternate forms of transportation, ie. public transit, biking, and walking. This signifies a net reduction in greenhouse gasses. In many conversations with transit professionals included in this study this concept simply means

that fewer people are moving through Minneapolis in a single-occupant vehicle. This all boils down even further to environmental sustainability signifying an active decrease of CO_2 emissions into the atmosphere coming from Minneapolis.

Economic Sustainability

Economic sustainability, for the purposes of this research strongly aligns with the content of a piece by Gregory D. Graff (2011) in which he explains that the three key ideas most important to economists when conceptualizing sustainability are, what exactly is to be sustained, over what time period, and with how much certainty? For this research economic sustainability means that Car2Go and Hourcar are not negatively impacting economic investment in alternate forms of transportation (ie. non-single occupant vehicle transit) and are contributing to economic growth in the city. As will be explained, economic sustainability comes into great importance when considering how the access to and service area of car share programs can have implications for the success of local businesses, in terms of their accessibility for potential customers. The idea of access and service area ties together questions of both economic and social sustainability in the issue of employment access. Disinvestment in public transit infrastructure stemming from potential decreased ridership, or stagnated ridership growth, caused by car share programs would disproportionately negatively impact people without access to a vehicle. These captive transit riders are disproportionately members of economically and racially marginalized groups[3] (American Public Transit Association, 2007).

Social Sustainability

[3] Transit riders in the US are made of 59% people of color. The annual household income for 34% of transit riders is less than $24,999.This rises to 65.7% when we look at total people with household incomes less than $49,999 annually (American Public Transit Association, 2007).

The concept of social sustainability is the pillar of sustainability least often directly addressed, in general discourse as well as in the discourse surrounding car sharing in Minneapolis. This concept has been defined by Iowa State Professor of Economics, Dr. Arne Hallum (2014):

> [Social sustainability] considers how individuals, communities and societies live with each other [...] and expectations for: individual autonomy and realization of personal potential, participation in governance and rule making, citizenship and service to others, justice, the propagation of knowledge, and resource distributions that affect the ability of that society to flourish over time.

The concepts of participation in governance and of resource distribution are intrinsically linked to the other expectations and are the most important in the realm of transportation planning and funding allocation examined in this study. As will be explained, public policy surrounding car sharing in Minneapolis has prioritized car share members, who are disproportionately white and wealthy, while giving much less thought to captive transit riders, who are disproportionately poor and non-white (American Public Transit Association, 2007).

As will be described, social implications are often an afterthought in policy making, as accountability is most commonly found through economic and environmental impact indicators. I will illustrate that in the case study of Minneapolis this is due to a lack of car share data and the inaccessibility of this data by public institutions. This is happening within the increasingly complex context of modern public-private partnerships involving local government. The lack of consideration of social equity implications in local government has profound negative implications for the future of car sharing in Minneapolis and the broader context of local sustainability goals. This is due to the fact that car share programs are shown to frequently take people off public transit,

disproportionately impacting low-income, minoritized groups, yet are overwhelmingly considered inherently sustainable and positive for the city.

It is crucial to look at the social equity implications of any program focused on sustainability, especially those that are far-reaching and working alongside public entities such as local government. The question of equity tracking is stated explicitly in *Thrive MSP 2040,* an extensive document produced by the Metropolitan Council[4], which lays out the vision for the region over the next thirty years. The document states, "[Thrive MSP 2040] reflects our concerns and aspirations, anticipates future needs in the region, and addresses our responsibility to future generations" (Metropolitan Council, 2014). Thrive MSP is made up of three parts: 'Thrive MSP 2014 Plan', 'Choice, Place and Opportunity' and 'Public Engagement'. The second part speaks directly to the importance of promoting equity through local government.

This second part's full title is: 'Choice, Place and Opportunity: An Equity Assessment of the Twin Cities Region.' This section states,

> Equity connects all residents to opportunity and creates viable housing, transportation, and recreation options for people of all races, ethnicities, incomes, and abilities so that all communities share the opportunities and challenges of growth and change. For our region to reach its full economic potential, all of our residents must be able to access opportunity. Our region is stronger when all people live in communities that provide them access to opportunities for success, prosperity, and quality of life (Thrive MSP 2040).

The equity section of this document goes on to explain what promoting equity actually means. Two key aspects of this are most pertinent to the question of car sharing and transportation. The document states "Promoting equity means: Using our influence and investment to build a more equitable region […] Creating real choices in where we live,

[4] The Metropolitan Council is the regional government agency and planning organization of the Twin Cities seven-county metropolitan area.

how we travel, and where we recreate for all residents, across race, ethnicity, economic means, and availability (Thrive MSP 2040, p.38).

It is clear that the Metropolitan Council agrees that social equity is necessary for social sustainability, and therefor the sustainability of the Twin Cities. Equity is one of the five 'Thrive: Outcomes' the document lists, highlighting the increased focus of government leadership on creating cities that work for all people, especially minoritized racial and economic groups (Thrive MSP 2040, p. 42). The document specifically states that the Metropolitan Council will, "Prioritize transportation investments that connect lower-income areas to job opportunities" (Thrive MSP 2040, p.44). As I explain the rise of car sharing in Minneapolis in chapter two, I will explain the ways in which equity goals are largely excluded from car sharing policy discourse.

Section 1.2: Sharing Economy

The sharing economy, like sustainability, is a complex concept due to its frequent use, yet vast array of definitions. It is generally defined as collective, rather than personal, consumption of goods and services. Due to the context of contested definitions of what exactly is the sharing economy, in order to conceptualize this idea I utilize a two-part discourse analysis. I begin by summarizing the small amount of academic and empirical study surrounding the sharing economy, followed by a general summary of the popular discourse. This short section leads into a description of car sharing in the United States, prefacing the development of the Minneapolis car sharing context.

Academic Discourse

Although there has been very little academic work done on the sharing economy, a few studies do exist and are complemented by a scattering of city reports of varying

depth and detail from across the country, which analyze local car sharing contexts. This section highlights three key points gleaned from the limited literature available. First, it is found that people generally have positive attitudes toward sharing, which facilitates the growth of 'sharing industries.' Secondly, it is observed that, although sharing economy participants respond positively to the ethos of sharing, they are largely involved in order to benefit from the convenience of these alternative activities and ways of consumption. Thirdly, and, arguably most importantly, all of the studies highlighted in this section agree that much more empirical study is needed in order to evaluate the impact of the sharing economy on urban sustainability.

Hamari, Sjoklint and Ukkonen (2015) find that even people that do not participate in 'sharing' have largely positive feelings towards it. They conclude that people are motivated to participate by many factors such as sustainability, enjoyment of the activity, as well as economic gains. They find that sustainability is not directly associated with participation in sharing unless it is at the same time also associated with positive attitudes towards collaborative consumption. This explains how businesses are able to capitalize on 'sharing' with little mention of sustainability because for many the idea of positive contribution is implied. This contradicts most discourse in popular media, which states that people largely participate in sharing for purely altruistic reasons, including sustainability. It has been found that strategies used to study sustainable practices transfer well to the study of the sharing economy. It will become apparent that this is because both of these words, 'sharing' and 'sustainable' are perceived as positive by the local community. I will explain that these positive associations are not substantiated in the

context of car sharing, illustrating the need, as Heinrich explains, for more empirical analysis of the 'sharing economy.'

Heinrich (2013) pays special attention to the importance of the 'sharing economy' in the study of environmental and social sustainability. He argues that businesses and governments should be involved with this 'new economy', alongside nonprofits, in order to be involved in the benefits and regulation of the systems. This idea of the participation of nonprofits and for-profit businesses alongside government agencies in order to promote regulation comes into great importance in Minneapolis. This is especially applicable to the issues of impact which arise with the growth of for profit car sharing . With this, Heinrich expresses that in order to remedy 'huge gaps in rigorous study' on the subject of the sharing economy "[...] empirical analysis and assessment of practices concerning the economic, social and environmental effects of the sharing economy" is needed (Heinrich, 2013). This same conclusion is reached through the first section of this study, in which, through the discourse analysis, it becomes obvious that the growth and manner of proliferation of car sharing in Minneapolis has happened without nuanced empirical analysis of actual car share program impacts on sustainability.

Popular Discourse

What the sharing economy lacks in rigorous academic study, it makes up for in coverage in popular discourse. Debates surrounding this growing phenomenon have formed around the question of whether there has been a co-option of this community-focused 'sharing revolution' by corporate interests. Proponents of the 'sharing economy' say it has the potential to bring people together and conserve resources, but, they argue, for profit interests have spoiled these possibilities by starting large companies based on

its format. Skeptics and critics claim that there never was a 'sharing economy,' rather there is just a new name for slightly more convenient rental business.

There is a growing debate about the co-option of the sharing economy by corporate interests, with people professing that corporations are compromising this new economy's potential of creating positive change toward creating a more economically, socially and environmentally sustainable society (Parsons, 2014). Concern about this 'co-option' comes from a consensus that the proliferation of the sharing economy is an inherently positive thing. This inherent positive connotation is a contributor to the growth of car sharing in Minneapolis. As will be explained, popular discourse in local media outlets, as well as in official government documents, has led local officials and the public alike to believe that all car sharing is inherently sustainable.

An example of an organization dedicated to promoting sharing programs is 'Share the World's Resources.' This organization campaigns for fairer sharing of wealth, power and resources within and between nations. It makes a case for,

> [...] integrating the principle of sharing into world affairs as a pragmatic solution to a broad range of interconnected crises that governments are currently failing to address – including hunger, poverty, climate change, environmental degradation, and conflict over the world's natural resources.

This is a group of people who feel passionately that any program that involved sharing is the very picture of environmental and social sustainability. The organization, unlike others of its ilk, does not comment on economic sustainability impacts of sharing-focused programs.

The sharing economy is often also referred to as 'collaborative consumption' in the context of economic development. This alternative terminology highlights ideas about the reinvention of traditional market behaviors such as renting, bartering, swapping,

exchanging. As previously noted, in 2011 *Time* magazine included collaborative consumption in the article, '10 Ideas That Will Change the World' claiming that,

> [...] the real benefit of collaborative consumption [is] social. In an era when families are scattered and we may not know the people down the street, sharing things [...] allows us to make meaningful connections (Time, 2011).

The author of this article quotes Rachel Botsman, co-author of, *What's Mine is Yours: The Rise of Collaborative Consumption*, when she says that, "Peer-to-peer sharing 'involves the re-emergence of community' [...]" This works because people can trust each other" (Time, 2011). This idea of community cohesion as a byproduct of the sharing economy often arises in newspaper articles and op-ed pieces about sharing. Most of the news organizations that are writing about sharing are city-focused and geared toward the millennial generation. This is, as will be explained, a very limited 'community' as many groups of people are either negatively impacted by, or wholly excluded from, car sharing programs.

On the other side of the discourse there are a number of critics, including Matthew Yglesias of Slate Magazine who wrote a piece in 2013 entitled *There is No "Sharing Economy."* He argues that there is no sharing because most sharing-focused programs are simply renting and renting is not sharing. He states, "I'm finding myself more and more annoyed by the term "sharing economy," which is used as shorthand to categorize a fairly miscellaneous set of firms virtually none of which involve sharing in any meaningful way" (Slate, 2013). He sees car sharing as simply car rental. This idea that the 'sharing economy' has nothing to do with actual sharing later helps us to analyze why certain issues arise as car sharing proliferates in Minneapolis.

Exploring this popular discourse helps to give context to the academic discourse which explains that people generally have positive feelings toward sharing programs. We see that popular media and organizations reinforce positive feelings toward the sharing economy through playing off of commonly held positive feelings toward sharing as a general concept.

Section 1.3: Car Sharing in the United States

A subset of the broader sharing economy, car sharing in the United States has been growing rapidly in the past ten years. According to *Fast Company* (2009), in 2009 for the first time the number of US citizens who got rid of their cars was greater than the number who purchased new cars. According to research analyst David Zhao (2010), "[...] each shared vehicle replaced 15 personally owned vehicles in 2009, and car sharing members drove 31 percent less than when they owned a personal vehicle. These two factors translate into 482,170 fewer tons of CO2 emissions and less travel congestion in urban areas." According to the *Car sharing Association* the top three reasons for car share growth in the US are participant cost savings, convenience of location and use, and guaranteed parking (2014). This shows us that economic gains and convenience are the most powerful motivators for participation.

Currently there are three main types of car sharing: Peer to Peer, Business to Consumer, and Non-Profit or Co-op run. Business to Consumer car sharing is when a company owns a fleet of cars and facilitates the sharing amongst members (eg. Car2Go), while Non-Profit or Co-op means a local organization or community facilitates car sharing with the goal of changing driving habits, not primarily making a profit (eg. Hourcar) (Future of Car Sharing, 2009).

Minneapolis as a Model of Sustainability

Minneapolis is a city that is a self-proclaimed and nationally recognized leader in sustainability, which makes it a fitting case to explore car sharing in the context of sustainability. It is also the host to two car share programs, a for profit and a nonprofit, which makes it a fitting place to study as an example of these relationships which are common in many cities, especially in the US and Canada.

In 2011 the Minneapolis convention bureau launched a new branding campaign entitled *Minneapolis: City by Nature* touting its green assets and reputation (Johnston, 2013). On the website of the Minneapolis Sustainability Office it states that,

> Minneapolis prides itself on enacting environmentally progressive policies and building high-performing facilities. Minneapolis government also strives to provide examples of more sustainable practices for other municipalities that are striving towards the same goal (City of Minneapolis, 2011).

This is an example of the emerging values of the city government, but also of the political situation that allows it. This, alongside the status of Minneapolis as a DFL[5] stronghold, the context in which the car sharing for sustainability efforts is taking place in Minneapolis is a politically liberal one, which is often associated with a focus on environmental issues.

In 2011 Minneapolis ranked tenth on Siemen's 'Green Index' of cities in the US and Canada. In the ranking, which is divided into sub-categories, Minneapolis scored a whopping 93.9 out of 100 points for environmental governance, being dubbed a "leader in environmental governance" (Siemens, 2011). However, the city scored only slightly higher than average in the transport category, citing car-reliance as a key downfall. As I

[5] The Minnesota Democratic–Farmer–Labor Party (DFL) is a social liberal political party in the U.S. state of Minnesota. It is affiliated with the United States Democratic Party.

dissect the development of car sharing I highlight the continuation of unsustainable local practices due to a lack of nuanced environmental governance in the realm of alternative transportation. Before I delve into this I must explain a few key actors and institutions within the city government.

The structure of the Minneapolis City Government is very important to the understanding of the development of the local car sharing economy because the city has a 'mayor-council' (or 'weak mayor') format. This means that the mayor is elected separately from the council and the council has legislative powers, making it more powerful than its counterparts in other cities, which often have 'strong mayor' and 'city manager' systems. Metro Transit is also an important actor as an operating division of the Metropolitan Council. As car sharing has become more connected with the official transit planning of Metro Transit, the actions of this government entity are increasingly important.

Within the context of Minneapolis there are many important actors and institutions working with and influencing car sharing. Alongside the influential players in the governance realm are the actual car sharing organizations, Car2Go and Hourcar.

Car Share Organizations in Minneapolis: HOURCAR and car2go

Car sharing began in Minneapolis in June 2005 with the arrival of Hourcar[6]. The organization was started by the Neighborhood Energy Connection, a Saint Paul nonprofit that provides energy conservation information, services and programs to residents and

[6] Another car sharing entity, ZipCar, also came to the city in 2005, but is not included in this study. Although it was initially a pioneer in the car sharing industry when it was founded in 2000, Zipcar is not included because it is a passive actor in the development of the Minneapolis car sharing story. It is owned by Avis and only has 28 vehicles in the city. Zipcar's fleet consists of 'clean fuel' vehicles, so its presence does subtly reinforce the ideas of environmental sustainability of car sharing. Finally, this study is focused on Hourcar and Car2Go for the sake of comparison of a local nonprofit and multinational company.

communities across Minnesota (NEC, 2015). Hourcar is a nonprofit with six employees and only operates in Minneapolis and St. Paul. The Hourcar system works on a round-trip, or 'A to A', basis. All of the cars are parked at one of about fifty designated 'hubs' throughout the city, the majority of which are located on the property of local businesses and apartments. Members make reservations on a car and choose which hub and which car they would like to use. We can see in Figure 1 the distribution of hubs in Minneapolis. Table 1 shows comparison of car share programs.

Car2Go arrived in Minneapolis in 2013 and has since gained about 24,000 members in the Twin Cities[7], which represents over 6% of the city's population. It currently has 350 cars in Minneapolis alone (W. Cieminski, personal interview, November 12, 2015). Car2Go was founded in 2008 as a subsidiary of the German company Daimler AG. As of Spring 2015, Car2Go was the largest car share company in the world with over one million members in 30 cities. Because of its 'one-way' system, the membership rates must cover parking fees that the company pays to the cities it operates in. Depending on the city Car2Go vehicles can be parked in designated parking spots, metered spots and/or private lots. We can observe that most members live in downtown and areas slightly north of downtown, places of higher income and building density (Figure 2).

[7] Car2Go information is difficult to find which is why information about the company's founding for the purposes of this study is gathered from the *Wikipedia* page for the company.

Table 1: Car programs key qualities

	Hourcar	**Car2Go**
Geographic Location	Local: Minneapolis & Saint Paul	International: German Company (Focused in Germany, US, and Canada)
Year Established	2005	2008
Business Status	Non-Profit	For-Profit
Services Summary	• Pay by the hour. ($6-$8/hour) • Yearly or monthly membership fee. • Cars are taken and returned to designated 'Hubs' • 'Round trip' system (cars must be returned) • Varying fleet of vehicles.	• Pay by the minute ($.41/minute) • One-time start-up fee. • Find cars parked anywhere in the city using app. • 'One-way' system • Blue and white smart cars.

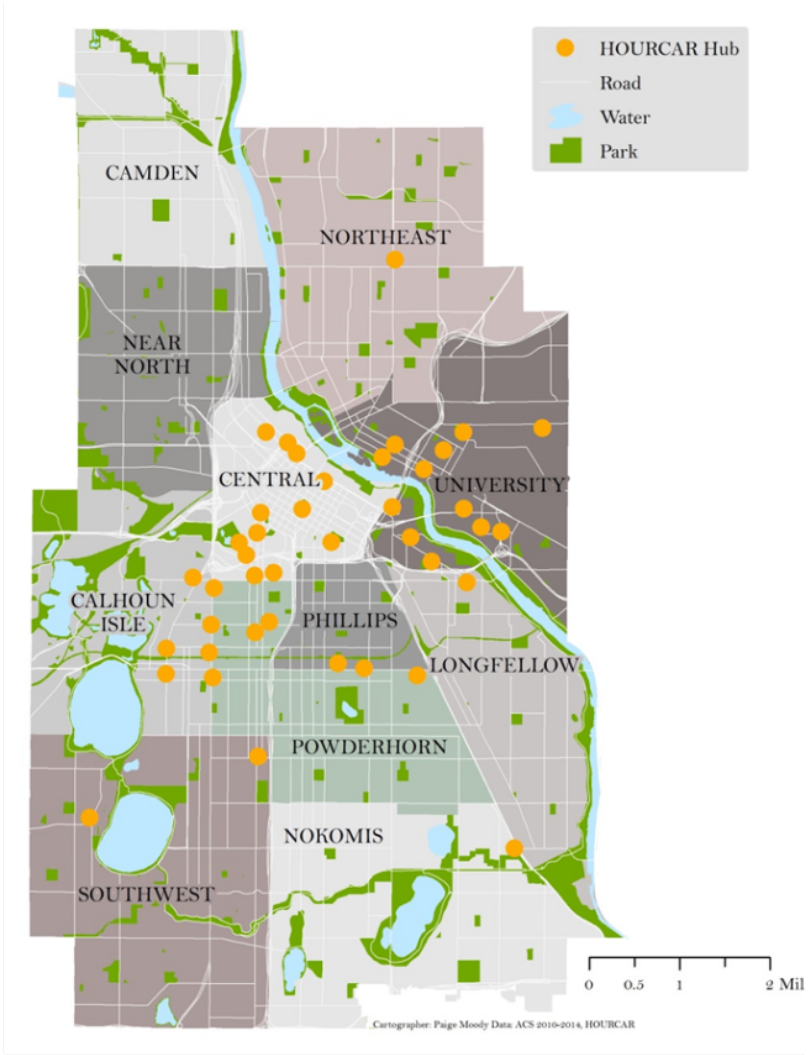


Figure 1: Hourcar Hubs and Minneapolis Communities

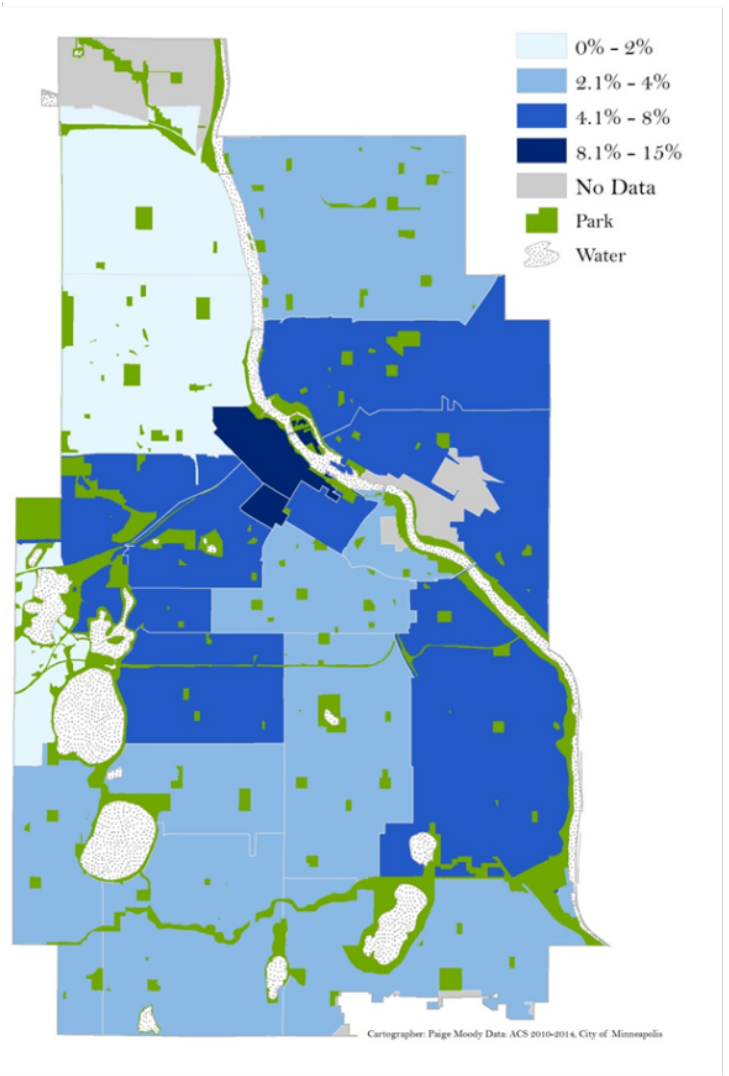


Figure 2: Car2Go members as percent of zip code population.

Section 1.4: Theoretical Framework

Three existing theories, in conjunction with theories surrounding sustainability, help to fit the findings of this research into greater context. I use Political Economy, Urban Regime Theory, and Public-Private Partnerships theory to better understand how the car share partnerships evolved in Minneapolis and what this means for other cities using non-governmental partners to help achieve local sustainability goals. In this section I will introduce each theory which will be applied following my discourse analysis and empirical evaluations.

Political Economy

Political Economy theory is crucial to this research as I am analyzing discourse within the specific context of the City of Minneapolis. Understanding the processes and policies using this theory allows the ability to understand local context within broader patterns. As defined by the *Encyclopedia Britannica,* political economy is a

> [...] branch of social science that studies the relationships between individuals and society and between markets and the state, using a diverse set of tools and methods drawn largely from economics, political science, and sociology [...] thus [it] can be understood as the study of how a country—the public's household—is managed or governed, taking into account both political and economic factors (Veseth, 2014).

This field of study, often conceptualized rather as a lens of analysis, is a heavily normative field of study, something that differentiates it from the 'objective and value-free' field of economics (Veseth, 2014).

The approach used in this study largely mimics the approach used by political economists who "[...] study the influence of political institutions [...] [and] the implementation of public policy by bureaucratic agencies [as well as] the influence of political and societal actors (e.g., interest groups, political parties, churches, elections,

and the media) and ideologies (e.g., democracy, fascism, or communism)" (Veseth, 2014). Through exploring the relationships that Hourcar and Car2Go have with the City of Minneapolis I am able to evaluate the existence and power of influences such as those described above. These ideas are highly related to Urban Regime Theory in how public-private partnerships are formed.

Urban Regime Theory

Car sharing on the surface appears separate from government agencies and urban development planning. However, in the majority of cases in order for a car share program to operate it is must work closely with local and state government. A theoretical approach that is applicable to car sharing and is necessary when talking about car sharing from any lens, but especially that of political economy and sustainability, is Urban Regime Theory. In the case of this particular study two organizations are being examined, a for profit and a non-profit, both of which work with the city to build relationships which, in theory, are mutually beneficial. Urban Regime Theory is based on the idea that,

> Governing capacity is created and maintained by bringing together coalition partners with appropriate resources, nongovernmental as well as governmental [...] If a governing coalition is to be viable, it must be able to mobilize resources commensurate with its main policy agenda (Stone, 1993, p.1)

I will argue that the coalitions that have been built around car sharing in Minneapolis, specifically those involving Car2Go and Hourcar, are constructed in the manner of the coalitions described by Urban Regime Theory. While others see public-private partnerships and coalitions as inherently negative, Stone argues that they are not only generally positive, but also necessary for cities to achieve goals, development and otherwise.

Urban Regime Theory analysts work in the in-between of pluralists and structuralists. That is, they acknowledge the pluralist assumption that "[...] the economy is just one of several discrete spheres" and also the structuralists who "[...] see the mode of production as pervading and dominating all other spheres of activity, including politics" (Stone, 1993). This theory also assumes a certain level of popular control of government institutions as well as the existence of the economy of a liberal order.

This theory is highly focused on the ways in which resources are mobilized in order to accomplish non-routine goals and highlights the importance of political relationships in this process. Clarence Stone (1993) states that public policies are shaped by three factors: the composition of a community's governing coalition, the nature of the relationships among members of the governing coalition, and the resources that the members bring to the governing coalition. These three factors show how important local politics are in shaping the direction and type of growth in an urban area. They also highlight the influence of non-governmental actors on public services.

The following is a statement by Stone (1993) and is important in that he explains that the reality of modern governance is heavily intertwined with the reality of the modern market-based society we live in today.

> The reality is one in which government and business activities are heavily intertwined, as are government and nonprofit activities. This is not to say that government is an inconsequential institution or that public officials are unable to rally, support and mobilize efforts on behalf of broad social purposes. Rather, it is to emphasize that, in a liberal order, many activities and resources important for the well-being of society are nongovernmental and that fact has political consequences (p.6).

He explains that many essential activities, which include alternative transportation options, involve nongovernmental partners, thus we must study how these activities are

being fulfilled. Furthermore, Stone states, "Mobilization, organization, and the generation of new capabilities within the nongovernmental sector is as important as, or more so, than making a legislative claim" (Stone, 1993, p.17). Here Urban Regime Theory calls into question the importance of government in the future of cities as the role of nongovernmental actors expand and their influence increases, something we will see in the case study of car sharing in Minneapolis.

Within the theory of interest there are different types of regimes. These include, but are not limited to, development regimes, middle class progressive regimes, and regimes devoted to lower class opportunity expansion. Each regime type is distinct in how it arises, the public support that is needed to make the change desired, and the amount of controversy that often surrounds them.

Development regimes are focused with the goal of promoting growth or countering decline. These regimes require legal authority, private investment monies, development expertise, transaction links within the business sector and public funds for various forms of subsidy (Stone, 1993, p.19). Development projects are often controversial and thus they often provoke opposition and contain risks for public officials who back them. For this reason these types of projects and the regimes that back them are often insulated from popular control and impose no motivational demands on the public. They are most successful when the public is passive. These regimes involve a small group of actors in comparison to other regime types. It is "[...] not inherently difficult for them to frame a shared vision and inducements do not have to spread widely (Stone, 1993, p.19).

Middle class progressive regimes are concerned with regulation, especially from the government actors involved. These regimes, like the others, involve government and business actors, however in this case the relationship between the two is not voluntary. Coercion plays a larger part than in development regimes, but the relationship is not purely coercive because business has the option of disinvesting (Stone, 1993, p.19). The regimes often involve an attentive electorate, but do not require the direct participation of masses of people. However, these regimes are dealing with programs and goals that are socially significant.

> As stated by Stone (1993) "The pursuit of progressive mandates is a more difficult task than development. The coordination of institutional elites is as much a part of the progressive task as the development task and it may be more difficult because action is less voluntary. The involvement of citizen groups and the need for active and informed public support heighten the difficulty of the task. The resources required include those needed for development plus organizational capacity to inform, mobilize and involve the citizenry" (p.20).

This explanation also explains why this type of regime is less common than the more easily carried out regimes such as development regimes.

The final regime type that is relevant to this analysis is regimes devoted to lower class opportunity expansion. As explained by Stone (1993) "[...] in the US, such regimes are largely hypothetical, but there are hints of such regimes in community-based organizations" (p.20). These regimes require coordination among institutional elites, but not on a purely voluntary basis. Similar to middle class progressive regimes, these regimes require regulation and work most sustainably when they have popular backing. A difference is that "[...] because a lower class constituency lacks some of the skills and organizational resources that a middle class constituency would start with, the effort to equip it for that watchdog constituency role is more substantial than the effort needed to

mobilize a middle class constituency and that is only part of the story" (Stone, 1993, p.21). This can be an explanation for why these regimes are even less common. There are also challenges of coordination [...] they may find that coordinating resource allocation among themselves is not enough; they may also feel compelled to make concerted efforts to garner assistance from the state government or other local sources" (Stone, 1993, p.21).

Finally, Stone (1993) summarizes issues from the frame of Urban Regime Theory when he states,

> In facing the challenge of regime building in American cities, two features of the national political economy must be reckoned with. One is large and varied nongovernmental sector that not only controls most investment activity but also contains most of society's associational life. The other is that government authority relies more on inducing actions than it does on simply issuing commands (p.24).

Through framing this study using the lens of sustainability alongside Urban Regime Theory it arises that these issues described by Stone are coming to fruition in Minneapolis around the issue of car sharing. This is seen in the growing power and influence of the larger company, Car2Go, when it starts to make impactful service change decisions that its governmental partner cannot influence.

Public-Private Partnerships

Public-Private Partnerships (PPPs) are a growing trend in the United States as our society moves from government to *governance*. Processes such as the coalition building as described by Urban Regime Theory are becoming increasingly common. Hodge and Greve (2007) define PPPs as "cooperative institutional arrangements between public and private sector actors" (p.1). In their article published in *Public Administration Review* Hodge and Greve discuss how governmental and private leaders are now using PPPs as a replacement strategy for projects that used to be purely government-managed. In the past

these types of relationships were largely controlled by bidding processes carried out by private entities (2007). What we are seeing in the relationships between the City of Minneapolis and Car2Go and Hourcar are local examples of the PPPs that are proliferating throughout the country as the role of government alone is shrinking and the influence of private entities is growing. By standard definition, theory surrounding PPPs does not differentiate between partnerships that involve for-profit entities and those that involve nonprofits. However, in this study it becomes clear that the manner in which partnerships arise and are carried out does differ between the business types.

A key issue in PPPs, whether they involve for-profit or nonprofit entities, is that of accountability. Forrer et. al. (2010) make a distinction between PPPs and contracting, however, as will be explained in the case of car sharing in Minneapolis, there is a very fine line between these two practices. The three conditions they use to characterize PPPs are that the relationship is long-term, the private sector cooperates in both the decision making and the production or delivery of the good or service, and that the relationship involves a negotiated allocation of risk between the public and private sectors (Forrer et.al. 2010). When it comes to accountability, issues arise concerning environmental impact as well as equity of access and impact.

The risk aspect of the partnerships is what leads the authors to explain the necessity of accountability. This is because PPPs "[...] change the dynamic of public accountability [because] [...] private partners enter into these arrangements for different reasons than governments" (Forrer et.al. 2010, p.477). The assumption behind these relationships is that "[...] governments do not have the in-house knowledge of the most cost-effective ways to deliver many types of public goods and services" (Forrer et.al.

2010, p.477). The presumption is that PPPs will link governmental and nongovernmental parties together toward a common goal. The authors conclude by stating that managing accountability in PPPs involves balancing a great number of public demands, including cost-effectiveness, risk sharing, innovation, reliability, timelessness, stakeholder participation, transparency, and security (Forrer et.al. 2010).

As explained by Kennedy and Malatesta (2010), there can be many unintended consequences of sectorial blurring (p. 101). In their article *A very tangled web: Public and private redux,* the authors explain the underappreciated financial, ethical and constitutional implications of the erosion of clear sectoral distinctions. They state that "Nonprofits and private organizations alike have become almost entirely dependent on government funding, which calls into question their very identities as nonprofit associations or private enterprises" (Kennedy & Malatesta, 2010, p.107). A main point is the modern move from government to *governance* and how that affects constitutional and ethical issues in terms of liberty, equality and fairness. The authors address the concern of who, public or private interests, are truly benefiting from the outcome of these partnerships, a concern directly addressed in my analysis of car sharing in Minneapolis.

Kennedy and Malatesta (2010) also talk specifically about partnerships between nonprofits and government actors. They explain the issues raised for nonprofit organizations when they enter into partnerships with government agencies. The main question that arises is that of accountability. It is argued that government accountability to citizens is "[...] undermined when responsibility for admission, treatment and outcomes seem to be in the hands of private organizations" (Kennedy & Malatesta, 2010, p.109). This idea of accountability is raised in much of the literature surrounding PPPs,

whether they involve for profits or nonprofits, and becomes visible when looking at the case study highlighted in this research.

Although nonprofit and for-profit partnerships with public entities are often grouped and studied collectively, there are distinct differences that need to be evaluated. These distinctions come from the study of motivations to participate in the partnerships as well as the idea of entrepreneurial orientation (EO), a concept borrowed from the study of economics. EO is "[...] a construct used to capture the degree to which the firm's posture may be characterized as entrepreneurial versus conservative" (Morris, Webb & Franklin, 2011, p.947). A firm is entrepreneurial if it emphasizes the development of new and different products, services and processes. This article describes the three reasons given for why nonprofits behave entrepreneurially. These include the need for enhanced revenue generation or greater internal efficiencies to financially sustain operations, a sense that the demands in terms of the social need outstrip the ability of the organizations to meet this demand, and changes in the environment that create social value creation opportunities that did not previously exist (Morris, Webb & Franklin, 2011, p.950). These all fall under the desire of nonprofits to increase their impact.

Stakeholders are important in an organization's degree of EO. There is continuous debate within organizations about how it should achieve its mission, how and to what extent its footprint should be scaled in providing broader social benefits, and how the nonprofit should remain financially viable while serving and growing its market (Morris, Webb & Franklin, 2011, p.951). The concerns surrounding EO are present for Hourcar and will be clear when describing the organization's role in the proliferation of car sharing in Minneapolis.

Discourse surrounding PPPs is important when evaluating how they operate in a city. Hodge and Greve (2007) describe PPPs as a 'language game, explaining that the language of PPPs is designed to 'cloud' other strategies and purposes (Hodge & Greve, 2007, p. 547). They state that,

> [...] contracting out and privatization are expressions that generate opposition quickly and that expressions such as 'alternative delivery systems' and now 'public-private partnerships' invite more people and organizations to join the debate and enable private organizations to a market share of public service provision (Hodge & Greve, 2007, p. 547).

The authors also discuss how analyzing how governments use language allows us to note how they deliberately change discourse in the pursuit of increasing policy votes.

Following my discourse analysis and empirical analysis I explain how the partnerships between Car2Go, Hourcar and the City of Minneapolis, allow the expansion of conversations surrounding accountability in sustainability-focused urban regimes put into practice using PPPs. This analysis uses the framework of Political Economy in order to highlight place-specific and broader trends to evaluate how discourse influences policy and vice versa. Before arriving at this section of dissection I will present two chapters, starting with my discourse analysis of car sharing in Minneapolis, followed by the empirical analysis examining the validity of various sustainability assumptions discussed in the previous section.

Conclusion

Following the discourse analysis of the rise of car sharing in Minneapolis, as well as the exploratory empirical analysis of assumptions, I will use these theories to better understand the story and implications for other cities. The increasing importance of the specific political context of the case study, with Minneapolis as a model of sustainability

governance for other cities, as well as the partnerships that are formed around car sharing becomes increasingly evident as the narrative progresses.

CHAPTER 2: The Story of Car Sharing in Minneapolis

Introduction

As has been explained, what has driven the proliferation of the sharing economy, and car sharing in particular has been the positive discourse surrounding it. In Minneapolis today there is a sense that all car share programs are inherently sustainable; that they all have the same, positive impact. This chapter uses discourse analysis to investigate the growth of car sharing in Minneapolis in order to understand how assumptions about sustainability were formed, as well as how they are affecting official policy creation in local government. I also explore how the steps taken by the local government in partnership with car share entities has impacted public sentiment about car sharing.

Section 2.1: Methodology

I will begin with a description of the application of discourse analysis, and the important actors in the car sharing story of Minneapolis. I will then move into a four-part telling and analysis of how car sharing has risen to its current, overly appreciated position.

Sustainability as a Story: An Alternate Route to Foucauldian Discourse Analysis

Discourse Analysis

This study emphasizes the use of discourse analysis, which relates to the main theme of Steven A. Moore's (2007) book 'Alternative Routes to the Sustainable City' in which he claims that, "Sustainability is [...] a public conversation that generates politically useful expectations about the future." According to Moore (2007), "The idea

that we should live sustainably begins with the observation that we do not" (p.5). This is how Moore begins his description of why sustainability should be thought of as a storyline and not an end-goal. This is an idea central to the conceptualization and methodology of this study. Moore summarizes Dryzek (1997) in stating, "Sustainability [...] is the social construction of a storyline that provides a historical alternative to the prospect of environmental collapse" (Moore, 2007). For the purposes of this study I would rephrase this statement to use a broader concept of 'collapse' in order to incorporate more vividly the three pillars of sustainability previously described.

Storylines imply the necessity of acknowledging the existence of different actors and stakeholders and how these groups or individuals affect or are excluded from processes or outcomes. Within a storyline exists many different, simultaneous discourses. For this reason, I analyze texts related to my research using Foucauldian discourse analysis, which allows me to reveal the ways in which city employees and car sharing leaders talk about and conceptualize car sharing in Minneapolis.

The methods of this first portion of my study focus on discourse analysis in the theoretical context of sustainability, urban regimes, political economy and public-private partnerships. Because of the small amount of rigorous study surrounding car sharing this method allows for an alternate manner of developing a nuanced understanding of the broad and local processes on the proliferation of car sharing. To complement this analysis I also conducted informal s with representatives from the Minneapolis Parking Systems department who oversee the Car sharing Pilot program, the local Car2Go and Hourcar Managers, Theresa Cain from Metro Transit's Commuter Programs department, and

Dave van Hattum from Transit for Livable Communities, a local transit advocacy nonprofit. A summary of these interviews is included in the appendix (Table 2).

Discourse analysis is utilized as at the key method of this analysis because it allows for the critical exploration of how different actors influence the development of Minneapolis' car sharing story. The most important part of this is the analysis of the power relations involved in each process, the assumptions about "truth" each opinion is based and action is based on, and how these affect the story being told, and therefore how local car sharing develops.

The priority in Foucauldian discourse analysis is placed "[...] upon the *effects* of a particular cultural text on what an individual may do or think by unraveling its production, social context, and intended audience" (Hay, 2000). This method is applicable and necessary because the sharing economy, and specifically car sharing, is a relatively new concept and the amount of academic literature on the subject is very small. I find that these topics are highly controversial and debated, but a great majority of the texts are biased toward a positive view of sharing programs. These blogs, reports, magazine and newspaper articles are explored in order to reveal who is writing them and from what perspective, and who is the intended audience. As Hay (2000) states, the strength of discourse analysis "[...] lies in its ability to move beyond the text, the subtext, and representation to uncover issues of power relationships that inform what people think or do."

I listen to the power relations involved and the assumptions about "truth" each opinion expressed in interviews is based on. I look first at the facts of what is happening, gleaned from official documents and reports. I next look to the popular media outlets that

reported on the event or report. Through this I gain better understanding about how what happened is being interpreted and how this could impact public perception. This process starts over again with the subsequent proceeding, in which I can look both backward and forward to see how discourse may have influenced the outcome, as well as how the outcome influences further public opinion. This process allows for a nuanced understanding about how popular beliefs about car sharing with local government and in the greater community have been created and reproduced.

In order to understand how the local political economy affects car sharing and its surrounding discourse in Minneapolis it is important to first understand how people are talking about it on a broader scale. In order to understand the how discourse is affecting local car sharing, and thus, the city, I must understand how people are talking about sharing on a national and a local scale, in academic and popular contexts. I begin with an explanation of the academic work that has been done on the emerging sharing economy, followed by a summary of the popular counterpart on the subject. Next I explore national discourse surrounding car sharing specifically, before zooming in to my case study of Minneapolis.

The story of car sharing in Minneapolis is one of haste and controversy, leading to unanticipated complications and contradictions. It began with a local nonprofit starting a car sharing program in order to help Twin Cities residents reduce reliance on personal vehicles and increase public transit usage, walking and biking. The organization's focus on combating the environmental impact of rampant car-dependence through car sharing brought them to develop strong ties with local government and environmental advocacy groups. It was these partnerships that led to the formation of a wide-reaching agreement

that car sharing is, by its very nature, environmentally sustainable. Based on this "truth" about all car sharing the city decided to 'scale up' car sharing in Minneapolis, by initiating a pilot program. They chose a large, for-profit company to be the focus of this program over the local non-profit that had grown car sharing and opinions of the practice in the city. Confusion, controversy and contradictions ensued.

Section 2.2: A nonprofit finds a sustainability ally in local government

In order to understand the Minneapolis Car Share Pilot program that started in 2013, we need to first look to where car sharing first appeared on the city's radar. This happened on January 19, 2006 when Gayle Prest, who now runs Minneapolis' Sustainability Office but then was the Manager of Environmental Services, submitted a Recommendation to Authorize for a standard agreement with Hourcar to use existing funds within Regulatory Services for car sharing. This was submitted to the City Council from the Department of Regulatory Services. At the time Hourcar, which was founded the previous year, had a fleet of 13 Toyota Prius Hybrids in the Twin Cities. The following is an excerpt from this request:

> The Environmental Management and Safety Division within Regulatory Services have identified interested staff in using and evaluating Hourcar services for 2006. [...] An evaluation will be completed at the end of the year as to cost, compatibility and future recommendations (Minneapolis City Council, 2006).

In this case Prest was requesting the use of Hourcar by city employees, marking the first time car sharing was mentioned in official city documents. This also shows that at the time Hourcar was seen as an organization that provided a desirable, environmentally sustainable service. The request document states, "Hourcar offers an air quality friendly, environmentally sound fleet option in the Minneapolis-St Paul area" (Minneapolis City Council, 2006).

This request was approved on January 19th and was reported on January 30th in the *Southwest Journal*: *Southwest Minneapolis' Community Newspaper.* This article does not have any particular slant, rather it simply states the facts of the contract between Hourcar and the city of Minneapolis. It states that the chair of the Council's Health, Energy and Environment Committee, told them that the city's eventual goal is to decrease the size of its fleet and that city officials could see substantial savings from the car sharing program (Southwest Journal, 19 January 2006). We can see that in this partnership the city was reaching toward both environmental and economic goals.

Hourcar was a young organization at this point in time, but the most environmentally-focused section of the city government saw it as a reputable service that was having a positive impact on the footprint of the city. This was also a foot in the door for Hourcar to build a stronger relationship with the city, as well as spread the idea of car sharing to a wider audience. This small action brought car sharing into public conversations and, because it was brought up by way of the Environmental Services agency, by the woman who would soon become the Sustainability Manager for the city, the idea of car sharing was initially introduced as intrinsically tied to the idea of sustainability.

After the initial agreement to bring Hourcar into use by city officials, the city became increasingly interested in the potential of car sharing to be an important part of the overall transportation system of the city. This is seen in Minneapolis' 2009 Citywide Transportation Action Plan, which directly addresses car sharing, and Hourcar specifically, in its vision for the future of sustainability and transportation in the city.

> Minneapolis is now a fully developed central city with a mature urban environment and a traditional urban form. Widening roadways or building new

> roadways to meet future transportation needs, in most cases, is not an acceptable option due to the negative impacts on the urban character of the city, the exceedingly high costs for construction and relocation, and the reduced viability of walking, bicycling and transit. This argues for managing and maintaining the existing system to optimize traffic flow and encourage greater use of alternative modes (walking, bicycling and transit) as well as increased carpooling, car sharing and Hourcar use (Citywide Transportation Action Plan, 2009, p.15).

The fact that cars haring, specifically Hourcar, is included in the Citywide Transportation Action Plan is highly significant. 'Objective 5' of this plan is 'Encourage people to walk, bike, take transit rather than drive.' 'Support Car sharing Programs' is the first subheading of this objective and includes three key phrases that become the catalysts for car share proliferation in the city: "Car share [...] promotes transit use", "[Car share encourages] city residents to reduce their auto ownership", and, most importantly, this document states "The city will work with car share companies" (Citywide Transportation Action Plan, 2009).

It is clear that the city and its sustainability leadership saw car sharing as a significant part of the future of Minneapolis as an alternative form of transit. Here the city is setting goals that specifically envision car sharing as part of the city fabric. The inclusion of this is based on the "truth" mentioned earlier that car sharing is seen as environmentally sustainable, based on the organization and work of a small non-profit.

Between the release of this document and 2013 Hourcar became increasingly involved in environmental sustainability efforts, public and private, in Minneapolis. Partners in these efforts included the Transportation and Public Works Committee, the Energy and Environment Committee, the Legislative-Citizen Commission on Minnesota Resources, Xcel Energy, the Minnesota Pollution Control Agency, the US Department of Energy, the American Lung Association of MN, and the Minnesota Environment and

Natural Resources Trust Fund, to name a few. Many of these projects focused on the promotion of car sharing, electric-vehicles, air quality and public transit usage.

These projects and partnerships were publicized to varying degrees publicly, but were well-known within the city government of Minneapolis. Each time Hourcar was involved in one of these efforts the idea of car sharing as a sustainable and environmentally friendly act, inherently good for the local and broader community, was reinforced. This reinforcement happened through positive reporting in local new sources. The positive work of Hourcar toward improving the environment and decreasing car-dependence in the Twin Cities ironically became a detriment for the city.

In early 2013 it had been over six years since car sharing began in Minneapolis and when city officials and planners started to see Hourcar, and therefore the practice of car sharing in any form, as inherently environmentally sustainable. In the same time period Minneapolis was becoming a model of urban sustainability, as previously described, creating the Sustainability Office and initiating numerous programs to improve the city in this light. With all the positivity buzzing around the words sustainability and car sharing, the city decided it was time to 'scale-up' car sharing through the 'Car Share Pilot Program.'

Section 2.3: Controversy rises over the arrival of a new car share program

We now must jump ahead to January 29, 2013 when the proposal for the Car Sharing Pilot program was received and filed by the City of Minneapolis. This program was designed to see how city officials could more actively incorporate car sharing into the fabric of Minneapolis. This meant offering on-street parking spaces to a car sharing organization. Whichever entity chosen would be offered a set number of public parking spaces to place cars in and would be charged for each space. The only governmental

money that would go into the program would be administrative costs. This may seem trivial, but was highly significant. The proposal of the program represents the values of the city and the agreed upon "truth" of the intrinsic sustainability of the practice of car sharing and the positive impact it would have on the city on a larger scale. However, what is more intriguing is how the selection of a car sharing entity played-out.

The program was put out to a form of bid, looking for proposals for partnership. Four car sharing organizations submitted proposals: Hourcar, Car2Go, Zipcar and Hertz on Demand. On April 30, 2013 the Public Works Department submitted a recommendation to the City Council to "Authorize staff to negotiate terms for a two-year agreement with Car2go N.A., LLC for a city-wide car sharing pilot program" (Minneapolis City Council, April 2013). The council chose Car2Go, the international company, to move forward with. It is stated that, "As the next step, staff would like to negotiate the terms for the two-year Pilot. Once the terms have been finalized, staff will return for Council action for authorization to enter into a contract for the Pilot" (Minneapolis City Council, 2013).

In this report the Community Impact City Goals listed for the potential program were "Eco-Focused; A City that Works; Jobs and Economic Vitality" (Minneapolis City Council, April 2013). This reinforces the idea that no matter the car sharing program they chose the impact of the program would involve positive progress towards a more environmentally sustainable city. It also shows that car sharing was seen as something that would contribute to economic sustainability. It can be inferred that this could be tied to what was previously discussed about the sharing economy being attractive to young, millennial professionals, a group that is shown to bring economic gains to urban areas.

On May 10, 2013 Public Works staff received authorization from the City Council to negotiate terms for a two-year contract with Car2Go. The City Council approved the request, and directed staff to explore expansion of the program to include multiple vendors for use of on-street reserved parking, limiting the vendors to those firms that had recently submitted proposals for the program. The Council also directed staff to return to the Transit and Public Works Committee in June 2013 with recommendations.

News of the Pilot program and its selection of Car2Go was published in the 'Newsroom' section of the city website site. The article was entitled, *Minneapolis moves toward big expansion of car sharing in the city* and was published the same day that the authorization was passed down. The article explains that the company selected to implement the pilot program was Car2Go, and the pilot may possibly be expanded to include other car sharing companies. It also states that city staff will make recommendations on additional companies in the coming June (City of Minneapolis, Newsroom, 2010).

This article explains the necessity of this program by stating that "Car sharing reduces the need for people in the city to own their own cars" (City of Minneapolis, Newsroom, 2010). It also explains that there was no city funding in the expansion of car sharing options, however, "[...] the City will allow car sharing companies to use on-street parking spaces for the first time, making it more convenient for users to get a car when they need it" (City of Minneapolis, Newsroom, 2010). The usage of public parking spaces, even if the car share programs paid for them, represents an allocation of non-monetary public resources, which should not be interpreted as zero public resources going to the program. Finally, it is explained that the next step would be the negotiation

of an agreement with Car2Go and the consideration of possible arrangements with other companies.

Again, this release about the program states facts and ideas about car sharing based on the city's experience working with Hourcar, a small, local nonprofit. It is not mentioned that Car2Go is a multinational company that operates car sharing in a completely different manner than Hourcar. As has been explained, Hourcar uses a 'round trip' system and Car2Go uses a 'point-to-point' system, amongst other differences (Table 1). This is the beginning of public discourse equating two distinct programs.

On May 16th, 2010, six days after the approval of the Car Share Pilot Program and the City Council's selection of Car2Go, a local news source, *City Pages*, published an article titled *MPLS City Council Snubs Hourcar in Favor of German Car sharing Company.* The article starts out by explaining that when the pilot program was approved, Minneapolis Mayor R.T. Rybak wrote on the social media site Facebook that, "[The] committee's recommendation to partner with Car2Go for an on-street expansion of the city's car sharing program as 'a great development for all our neighborhoods'" (City Pages, 16 May, 2010). Clearly, the leaders of the city see the development and organization choice as a very positive development for the city of Minneapolis.

The article quickly shifts to explain that the choice of Car2Go over the local nonprofit, Hourcar, was not as happily accepted by some as it was by the Mayor. It is explained that the key aspect of the arrangement would be the use of on street parking on city property by car sharing vehicles. It turned out that two years prior to the proposal of the pilot program, before Car2Go even arrived in Minneapolis, Hourcar had approached the city about the possibility of locating their hubs in curbside parking spots. According

to the article, “Hourcar supporters point out that the reason the city was discussing an on-street right-of-way contract allowing car sharing companies to stash their vehicles in curbside parking spots in the first place was because Hourcar asked them to two years ago” (City Pages, 16 May, 2010).

In the wake of this controversy Hourcar representatives urged members to call council members and ask them to allow multiple car sharing options at curbside hubs. In a web post from Hourcar, organization leaders stated,

> We want fairness, not exclusivity. Please use your voice as a valued Hourcar member to tell the City to allow multiple car sharing options at curbside hubs [...] There’s no downside. Hourcar will pay market rate to the City for the parking locations we have requested. Hourcar’s on-street hubs would be a win for you, a win for the environment, and a win for the City (Hourcar, News, 2013).

The decision on May 10th was something Hourcar had been worried about when they found out on April 30 that the Public Works Department had submitted a recommendation to the City Council to authorize staff to negotiate terms for a two-year agreement with Car2go.

On May 3rd the Star Tribune was the first to highlight the issues that would be widely voiced after the May 10th decision. According to this article, Hourcar Program Manager Christopher Bineham said that the company was disappointed because it, “[...] went to the city years ago to try get on-street car sharing, and the city put the rights to do so up for bid instead. ‘From us, it’s a sense that this decision, if it is carried through, would be really unfair and shortsighted’” (Star Tribune, 3 May 2013). Gary Schiff, the same council member and mayoral candidate from the City Pages article was also quoted in this article. The Star Tribune quoted Schiff saying it “[...] would have been far easier to work with Hourcar to facilitate its hope for on-street spots than opening up a more

extensive bidding process. He said he's frustrated with the city's slow response to Hourcar's requests" (Star Tribune, 3 May 2013).

When questioned by the *City Pages* journalist Mayor Rybak stood by the committee's decision. His spokesman stated, "The mayor believes that we need to go big... we've done this incrementally for a number of years and it's not meeting demand" (City Pages, 16 May, 2010). It is unclear from this statement what the mayor means when he says 'demand.' Is he talking about car sharing demand? Transit demand? Demand for decreasing car-dependency? This is unclear and important to note. We know that the rhetoric around the expansion of car sharing is about environmental sustainability, but this starts to call into question the true motivation for choosing Car2Go over Hourcar. It starts to appear that the drive is more focused on economic reasoning and branding of the city as a sustainable place that has Car2Go, a widely recognized company and service.

The temporary conclusion to this debate was that, after the committee's vote, staff members on the Transportation and Public Works Committee sent an email to City Council members asking them to send the contract back to the committee level for further review (City Pages, 16 May, 2010). The contract was sent back to committee and then on June 18, 2013 a revised proposal was submitted to the Council. This new proposal asked the Council to, "Authorize staff to expand the car sharing pilot to include Hourcar and Zipcar and to negotiate terms for two-year agreements" (Minneapolis City Council, June, 2013). Due to the loud voices of criticism from the public, Hourcar members, and vocal public officials like Schiff the program was altered. Six on-street spots were given to Hourcar and Minneapolis Public Works requested authorization to negotiate terms for a two-year Pilot that would include Hourcar and Zipcar. Once the terms had been finalized,

Public Works returned to Council for authorization to enter into a contract (Minneapolis City Council, June, 2013). Zipcar is not included in this analysis because the company's agreement did not last into the second year of the partnerships, unlike Hourcar and Car2Go.

The new authorized plan was reported on by Minnesota Public Radio (MPR). City Council Member Robert Lilligren told MPR that Hourcar and Zipcar customers accused Minneapolis of giving Car2Go, a company yet to operate in the city, an unfair advantage. Lilligren told the news source, "We listened to the community, and what they were looking for, and we're responding by leveling the playing field a bit for Hourcar and ZipCar, which have been operating within the city for quite some time" (MPR, 2013). The fact that this issue was reported on at the state level demonstrates the extent of the discourse that was generated around it.

It should be noted that much of this is rhetoric seeing as all 350 of Car2Go's vehicles in Minneapolis would be using on-street spots, while Hourcar was offered just six spots. It is clear that this was not a true concession; rather it was to appease those voices in dissent with the original decision.

Section 2.4: HOURCAR partners with the public university

While the Pilot Program discussion was happening in the City Council, Hourcar was working to win a contract with the University of Minnesota, a public institution. On July 22nd the University selected Hourcar to be the sole provider of car sharing on the campus. The agreement came with Hourcar crafting a special rate plan for students of the University. Hourcar would replace Zipcar, which had previously been the sole provider of car sharing to the University. Steve Sanders, alternative transportation manager at the

University's Parking and Transportation Services department, said the following when the partnership was announced,

> We are delighted to be working with the local, nonprofit car sharing vendor. Hourcar is a Twin Cities success story. They have tons of locations, they provide great member service and they'll offer our community a seamless way to choose greener, healthier and more affordable ways to get to campus and beyond (Hourcar, 2013).

It is clear from the statement that Hourcar's status as local organization and a non-profit were important characteristics considered in the selection process. It is also clear that sustainability, specifically environmental sustainability was a large consideration in the formation of this partnership.

This is an important development in the process of car sharing proliferation in Minneapolis, as the University is a public institution which selected the local nonprofit as its sole provider. While the City Government was giving preference to Car2Go, Hourcar was partnering with another public institution. It should be noted here that Car2Go was not considered for this partnership because students at the University can use Car2Go freely and easily as Car2Go has a free-floating system, while Hourcar requires designated spots.

As was previously agreed upon, on June 17, 2014 the Department of Public Works presented an update to the City Council. They reported that Car2Go had 350 permitted vehicles operating in the city and that the key terms of the two-year agreement include utilization of a minimum of 350 vehicles in which Car2go may, upon City's approval, add up to 150 additional vehicles between six and twelve months after initial launch date based on member demand. They also reported that six months into operation they had six permitted vehicles at their designated reserved curbside parking spaces in the

city (Minneapolis City Council, November, 2014). The day after these reports another program summary was posted on the City Government's Newsroom page on the government website.

On July 10, 2014 there was mention of Car2Go at a Community Environmental Advisory Commission meeting. During this meeting it was mentioned during the 'announcements' portion that Car2Go was to expand to Saint Paul, meaning the cars would be able to be parked outside of Minneapolis boundaries. It is significant that a committee focused on the environment discussed Car2Go in its meeting. As has been discussed, there is not empirical evidence that Car2Go contributes to environmental sustainability. There is evidence, as has been explained, of Hourcar's contribution to environmental sustainability goals of the city. Here we see that the two programs are being equated and lumped into a single car sharing category where, thanks to Hourcar's work from 2005 through 2013, sustainability is implied. In this action there is a 'truth' about Car2Go's environmental impact on the city that is being stated, but is not empirically substantiated. With this, between February and March of 2015 multiple proposals for development used accommodations for Car2Go or Hourcar in their proposals to the city in order to highlight a 'positive environmental impact' connected to the development project.

Section 2.5: Car Share Pilot Program is renewed

The Car Share Pilot Program was initially set to expire on September 11, 2015. On August 25, 2015 the Parking Systems Department submitted a Request for Action (RCA). This RCA proposed time extensions to the two agreements, with Car2Go and Hourcar, until February 29, 2016. According to the interview conducted with the Manager and Assistant Managers of Parking Systems in Minneapolis, the reason for this

extension was to collect more data on the programs. The proposal for the extension states, "During the proposed extension, staff will summarize data and other results, analyze lessons learned during the pilot program, and engage participants in discussion toward development of the best path for a long-term ongoing car share program" (Minneapolis City Council, August, 2015). These contract extensions were approved.

When the contract extensions were announced City Council Member Cam Gordon included a statement in his periodic e-newsletter about the decision. Throughout the process of developing, executing and extending this pilot program Gordon reported on the progress to his constituents. In the e-newsletter released after the contract extension he stated,

> The City Council has approved short extensions to February 2016, of our Car Sharing contracts with Car2Go and Hourcar to allow them to continue operating while discussions continue about possible changes to future contracts. One of the key discussion points is providing services citywide. When I voted to support this in committee, I stressed that making the service available in all parts of the city should be our goal, even as the demand for services is higher in some parts of the city than others (City of Minneapolis Ward 2, September, 2015).

Cam Gordon has been a continuous skeptic of the contracts and continuously raises questions about equity. He also voiced these concerns in the November 10th brief of the status of the pilot program by William Cieminski, Manager of Parking Systems, at the Minneapolis Transportation & Public Works Committee Meeting. During his presentation, Cieminski stated statistics of the car sharing programs involved in the pilot as well as feedback from the companies and users. A key concern for both Car2Go and Hourcar included high taxes and the demand of the city for them to provide more data. Both do not want their data being seen publicly, or by their competitors (Transportation & Public Works, November 10, 2015).

Alongside concerns about an ‘uneven playing field,’ Hourcar’s key concern is non-Hourcar vehicles parking in their designated spots. The issue here is that current policies require four hours before a vehicle can be towed, so when a car is parked illegally it cannot be immediately removed (W. Cieminski, personal interview, November 12, 2015). While Hourcar remains concerned about this issue of logistical inconvenience, Car2Go is contemplating reducing their service convenience a different way, which will explain in detail in chapter three.

Conclusion

We see from this discourse analysis that car sharing ’s 'momentum' in Minneapolis was ignited by a local nonprofit, Hourcar, an organization concerned with environmental sustainability and the detrimental impact of personal vehicle reliance on the environment and the city more broadly. Government leaders saw the positive impacts of Hourcar and then, without question or empirical analysis, welcomed large-scale car sharing into the city in the form of Car2Go, seeing it as a simple 'scaling-up' (in the worlds of former Mayor Rybak) of the car sharing Hourcar was already facilitating.

This story not only highlights the assumptions that led to the equation of two objectively different programs, but also exposes the necessity for a much greater level of empirical analysis of their impacts on local sustainability. In many ways this is the most troubling result of this discourse analysis; we see that official city policy has been based on assumption-based “truths.” The subsequent chapter will address the question of what are the actual impacts of Car2Go and Hourcar on local sustainability by looking at various car share reports and surveys from Minneapolis, Vancouver and Seattle.

CHAPTER 3: Empirical Analysis

Introduction

As observed in chapter two, there is a great need for empirical analysis evaluating the sustainability of car sharing in Minneapolis, which can also be said for the phenomenon on a more global scale. This need is highlighted by the rapid proliferation of car sharing and the fact that the public support and the support of local government of car sharing programs is based largely on assumptions of sustainability, not substantiated by evidence. Furthermore, the small amount of evidence that currently does exist calls into question the sustainability merits car share policy in Minneapolis is based on. This section details the results of exploratory data analysis from a patchwork of available data about Car2Go and Hourcar in Minneapolis in relation to car share reports from two other cities, Seattle and Vancouver.

The results of this analysis conclude that although the two main car share programs in Minneapolis, Hourcar and Car2Go, are used in very similar locations and are accessible to similar populations due to proximity and cost barriers, they are having vastly different effects on the sustainability of the city, especially in relation to impact on public transportation usage and personal vehicle ownership. The key findings from the correlation analysis and Hourcar survey results align greatly with the findings of reports from Vancouver and Seattle. The Vancouver report allows for comparison of personal vehicle ownership, while the Seattle report allows for comparison of public transit usage.

To begin this section I will present a description of the methods used in this empirical analysis. Next I will detail Hourcar and Car2Go usage based on the study results. Following this, I will address the question of environmental sustainability in relation to personal vehicle dependency of car share users. Next I will present findings

pertaining to use of alternative forms of transportation, focusing on public transportation. I will paint a picture of the current state of Minneapolis in terms of income and racial inequity and access to public transportation in the context of the rise of car sharing. This will lead to the next section in which I will present general conclusions based on my theoretical framework as well as policy recommendations for local and city policies.

Section 3.1: Methodology

The questions that need attention surround how these programs are impacting local sustainability. In order to investigate the broad question of sustainability impact I piece together multiple data sources from Minneapolis and other North American cities in order to evaluate how Hourcar and Car2Go are impacting personal vehicle ownership and public transportation usage. These two issues are selected as the focus of this analysis as they are cited most often in the discourse as arguments for the sustainability of car sharing. In the limited data available questions of personal vehicle ownership and public transportation usage occur most frequently. When these issues are discussed it is more frequently under the umbrella of environmental sustainability through decreasing greenhouse gas emission. I will explain that personal vehicle ownership and public transportation usage, in particular are also directly related to questions of social sustainability.

This section will first describe the data sources used which pertain directly to the Minneapolis Case study. This includes a survey conducted in partnership with Hourcar, the Hourcar Member Database, Car2Go usage data extracted from a short report from the Minneapolis Department of Public Works, and 2014 American Community Survey five-year estimates for Minneapolis. Next I will summarize the analysis conducted piecing together these data sources to evaluate private car ownership and public transit usage. I

will conclude this section with a brief description of reports from Vancouver and Seattle that are used to assist in the interpretation of local results.

Data Sources and Variables

Hourcar Survey

In partnership with Hourcar, I created a member survey, which was disseminated by email from December 8th through 20th 2016. The survey was sent to every Hourcar member, including those with individual, household, and business accounts. Members were incentivized to participate by eight opportunities to win a $75 driving credit. Respondents were asked many questions, which can be seen in the full survey included in the appendix (Figure 13). The most pertinent questions for this study asked about motivation for joining the program, vehicle ownership, usage of alternative modes of transportation, and demographic information. Hourcar has about 2,600 members and the survey received 718 responses, which signifies a 28% sample of all members. Results of this study are compared to the results of formal city reports conducted by the Minneapolis Public Works Department.

Hourcar Member Database

Hourcar shared with me, under strict privacy protection agreements, the unidentified addresses of all their members in 2015. I sorted out only those who live in Minneapolis from this list and geocoded the addresses. The output was then joined to a 2010 block group shapefile of Minneapolis. I used total population estimates from the American Community Survey 2010-2014 five-year estimates to create the Hourcar Members dataset. The dataset contains the percentage of the population of each block group that belongs to Hourcar.

As is discussed in the discourse analysis section of this report, the City of Minneapolis carried out a Car Share Pilot Program from September 2013 until January 2015. The first draft of the summary report for the program was made public January 4, 2015. This is a very limited report, but small sections of this are used in my analysis. The report contains information about the resources committed to the program, Hourcar and Car2Go membership numbers, and statistics about the change in alternative transportation usage as reported by members of each program through a survey. The survey data was collected by the Minneapolis Traffic and Parking Division, a division of Minneapolis Public Works. The report includes a combination of two surveys, one conducted in 2014 and the other in 2015. Zipcar was not included in the second survey, so the results largely pertain to Hourcar and Car2Go. The survey results are from a 9% sample of Car2Go users and 2.5% sample of Hourcar users. These small sample sizes give rise to caution when interpreting the report findings.

This Minneapolis report is very important to this study because it includes a map of Car2Go trip starts by block group, data otherwise unavailable. The variable 'trip starts' represents the number of times someone got into a Car2Go vehicle in a block group between 2014 and 2015. The base data used to create the map is not publically available. In order to use the map data in my exploratory analysis I created a shapefile of block groups. To do this I first found the midpoint of each of the five intervals used in the Minneapolis Report Trip Starts map. Next I assigned each block group the midpoint value of its interval. This gave me a map of Trip Starts by block group. The intervals are relatively wide, so the results using the midpoints should be interpreted with caution. To make the data more spatially representative, when analyzing the Car2Go Trip Starts data

in this study it is normalized by block group population estimates from the 2014 American Community Survey. This means that the Car2Go Trip Starts variable represents trip starts per person. This variable is generally interpreted as the frequency of people getting into Car2Go vehicles rather than on another form of transportation.

Alongside population numbers used for normalizing membership levels, data from the American Community Survey (ACS) 2014 five-year estimates for Minneapolis block groups were used to find the percentage of zero vehicle households, percent non-white, percent of households in poverty and population density. The zero-vehicle households variable represents the percent of a block group's households that do not have access to a personal vehicle, thus are dependent on alternative forms of transportation. In many cases this means public transportation. Percent non-white is an important variable, as much of the literature surrounding public transportation explains that minoritized racial groups are more likely to be dependent on alternative forms of transportation, such as public transportation. The ACS has forty-eight different poverty lines, depending on household demographics. The study uses the percentage of households in each block group that fall below the poverty line for their situation to represent poverty. It should be noted that due to the sampling procedure used by the ACS, there are large margins of error for each block group statistic, so interpretation should be carefully considered.[8]

The Healthy Communities Assessment Tool (HCAT) ranks each city division on more than 40 social, economic, and physical factors important to community health. This index was created by United States Department of Housing and Urban Development as part of the Healthy Communities Transformation Initiative. The data includes a set of

[8] For some small samples, the MOE is larger than the estimate. This can be seen in wealthy block groups where just one family is noted to live below their poverty line, but the MOE is 7.

indicators from the Healthy Communities Index (HCI) developed in 2013. The Transportation Accessibility Indicator is a measure of the proportion of the neighborhood within a half-mile of a well-served transit station, and is sourced from the EPA Smart Location Database (SLD). Higher numbers indicate high transit access and/or close proximity to service and are better than lower numbers (HCTI, 2014). In this study I use this continuous variable in my formal analysis, but it is represented as relative levels of access in map representations.

Data Analysis

Due to the quality and breadth of data available I undertook a largely exploratory data analysis in order to investigate the claims and assumptions about car sharing the discourse and policy have been based upon. I conducted pearson's correlation analysis on the available block group level data described above. Due to the less than ideal quality of membership data available for the car share programs, the necessary assumptions for further statistical analysis were not met. The following variables were included in the correlation analysis: Car2Go Trip Starts Per Person, Percent Hourcar Members, HCAT Transportation Accessibility Indicator Score, Percent Zero Vehicle Households, Percent Non-White, Percent Households Below Poverty, and Population Density. In the case of Transportation Accessibility and Population Density extreme outliers were removed in the final correlation coefficient calculation. This analysis provides a simple way of evaluating the relationships between variables in order to make comparisons to the results of studies from Minneapolis, results of the Hourcar survey and studies from other North American cities.

Non-local Reports

Vancouver, BC

This study occurs in a very similar context to car sharing in Vancouver, British Columbia and, therefore my results are comparable to a car share technical report published there in November of 2014. The major car share providers in Vancouver are Car2Go, Modo and Zipcar. As in the Minneapolis context, Zipcar was not highly represented in the Vancouver care share survey, nor is very visible in the city in general, so the Zipcar membership base was largely excluded from the Vancouver data analysis. Modo is very similar to Hourcar in that operates as a local care share non-profit. It is a car share co-op that operates only in Vancouver and surrounding localities. Like Hourcar it has been connected to city government in contracts for providing memberships to city officials (Bula, 2014). Modo is a 'round trip' car sharing service; vehicles must be booked in advance and returned to the same pick-up location. All of the results from the Vancouver report that are referenced in this report were statistically significant from a survey of 3,405 car share members (or households). This included 1,317 Car2Go-only members and 1,009 Modo-only members.[9] The rest of the respondents reported being members of more than one car share program. The results referenced in my analysis will be just those gathered from the single-membership respondents of the Vancouver survey.

Seattle, WA

In March of 2014 the Seattle Department of Transportation released a Car Share Pilot Program report covering Car2Go's impact in its first year of service. The report is based on usage data and a survey completed by 25% of Car2Go members in the city. The report is based on a survey, which asked respondents about their public transit usage and

[9] There were just 9 Zipcar-only respondents to the survey.

personal vehicle ownership before and after joining car share. The results pertaining to public transit usage are comparable to the results from the Hourcar survey due to the fact that the manner of asking the question aligns almost directly between the Seattle Car2Go report and the Hourcar survey.

Section 3.2 Comparative Analyses

In this section I will compare Hourcar and Car2Go in three different manners. I will begin by looking at where each car share programs members live and where their car share trips take place, in relation to demographic and transit access variables. I will then move on to evaluating differing impacts on personal vehicle ownership and public transportation usage. I will conclude that the two programs, while serving similar areas of the city, are having vastly different impacts on the mobility choices of their members, thus are having very different impacts on local sustainability.

Usage Areas

As has been described, Hourcar and Car2Go have been continuously equated in popular discourse and by public officials. In order to address this I look first at where the programs are being used. Car2Go Trip Starts is a variable that represents the number of trips per person per block group in 2015 (number of trip starts / total population). This gives an apt proxy for the frequency of people getting into a Car2Go vehicle instead of on public transit.

The Hourcar Membership variable also represents where trips are starting under the assumption that people live within reasonable walking distance of where they will start their trip. Using membership data rather than hub locations adds nuance to the correlation analysis because it allows for the comparison of predicted volume of use in

different areas of the city. We can see from the map of Hourcar Members that block groups with higher percentages of Hourcar members contain, or are located close to, a Hourcar Hub (Figure 3). This is logical as 63% of all Hourcar survey respondents stated that they live within half a mile of the Hub they use most often, and 79% live within a mile. Survey respondents include those who do not live within the City of Minneapolis, so it can be inferred that if just the residents of Minneapolis were to be surveyed this percentage would be even greater due to the density of the city relative to peripheral areas.

There is a statistically significant, moderate correlation of .41 between Car2Go Trip Starts and Hourcar Membership. This can be seen in the visual comparison of Figure 2 and 3. This can be loosely interpreted as the programs attracting membership/usage in similar areas, representing similar membership demographics. It can also be predicted that the correlation would be stronger if the University of Minnesota block groups were excluded, as there is a high concentration of Hourcar members on the campus due to the exclusive contract between the school and the nonprofit previously described.

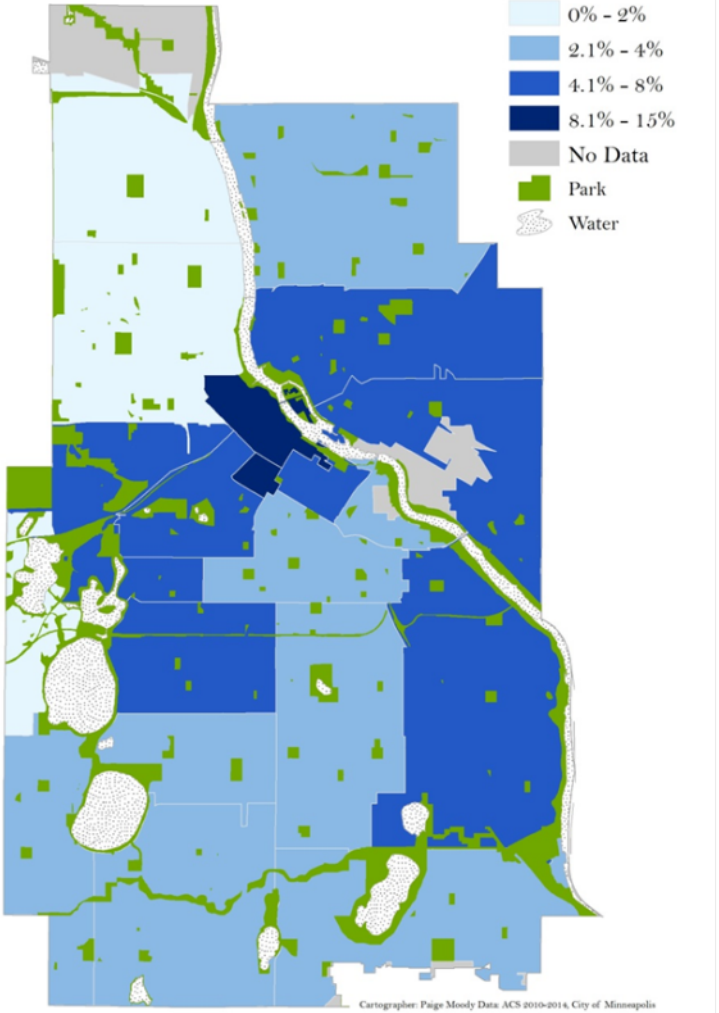


Figure 2: Car2Go members as percent of zip code population.

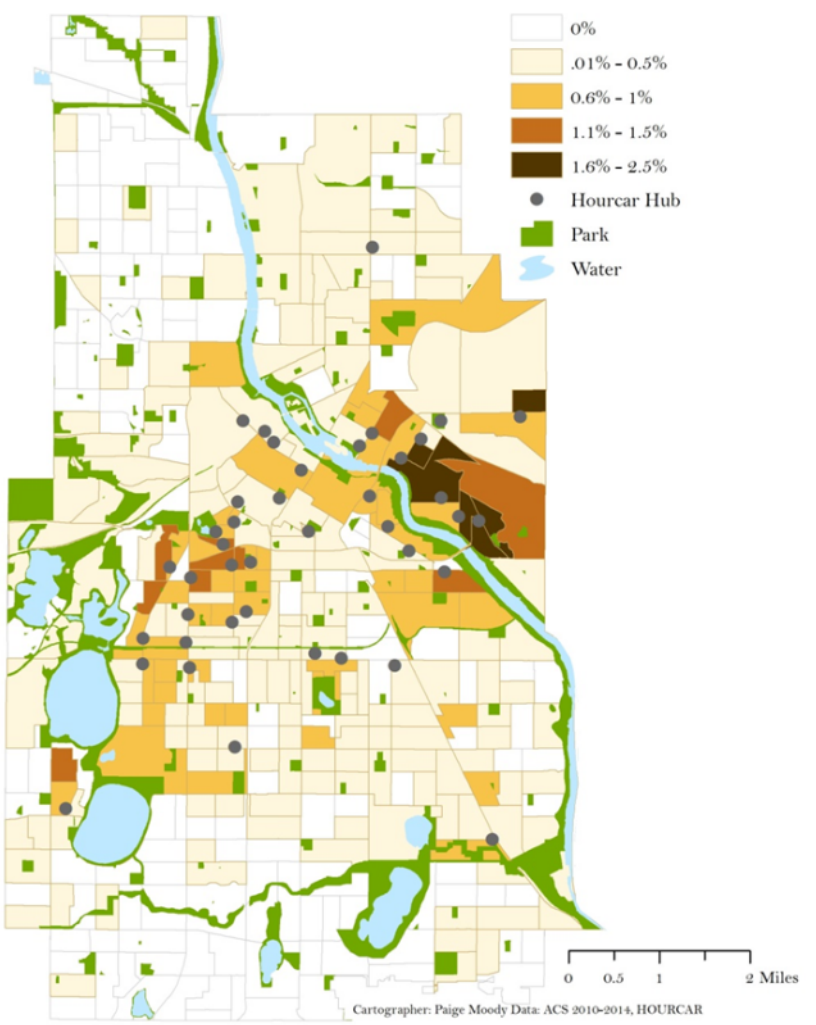


Figure 3: Hourcar members as percent of block group population.

In analyzing the Car2Go Trip Starts map in comparison to the population density map we can see that a large proportion of trip starts happen in the Downtown area (darkest blue area in map center), which is comprised largely of businesses and office buildings, with a small proportion of personal residences (Figures 4 and 5). In observing the map of Car2Go Membership by Zip Code (Figure 2) we see that there is a large concentration of members in this Downtown area, which is of lower residential density than other areas of the city. The visual correlation between the Car2Go Trip Starts map and the Car2Go Membership map allows for the general assumption moving forward that Car2Go Trip Starts represent an appropriate proxy variable for membership.

We can see from the Hourcar membership map that members generally live in less densely populated areas such as the residential areas around the southwestern lakes and in the neighborhoods surrounding the University of Minnesota. There is a concentration of Hourcar members in the Uptown area near Lake Calhoun and Lake of the Isles. From these observations we can infer that Car2Go members may be more likely to live in denser areas of the city while Hourcar members may tend to live in more residential areas.

Considering the differing models of car share of Car2Go and Hourcar can help us to understand the difference in where members of each program live. Firstly, we can assume that these membership maps would like more similar if the University of Minnesota block groups were to be excluded, as these areas hold a high concentration of Hourcar members due to the partnership between the program and the University. Secondly, as will be explained later in this section, many Car2Go members rely at least

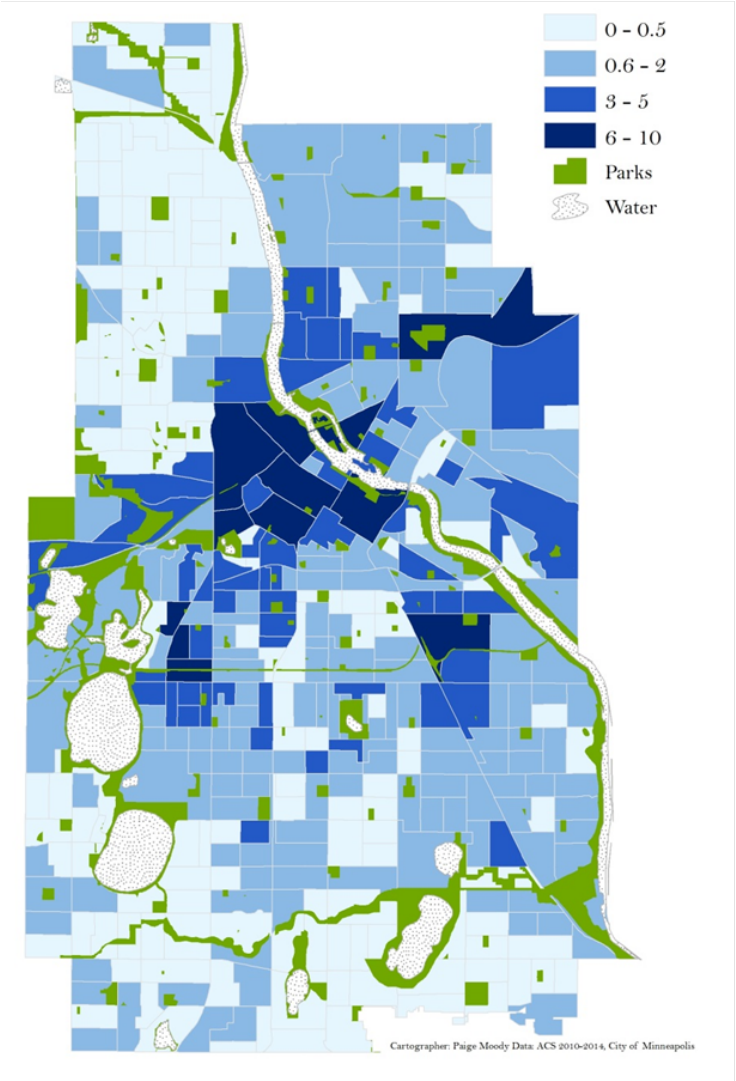


Figure 4: Car2Go Starts per person by block group.

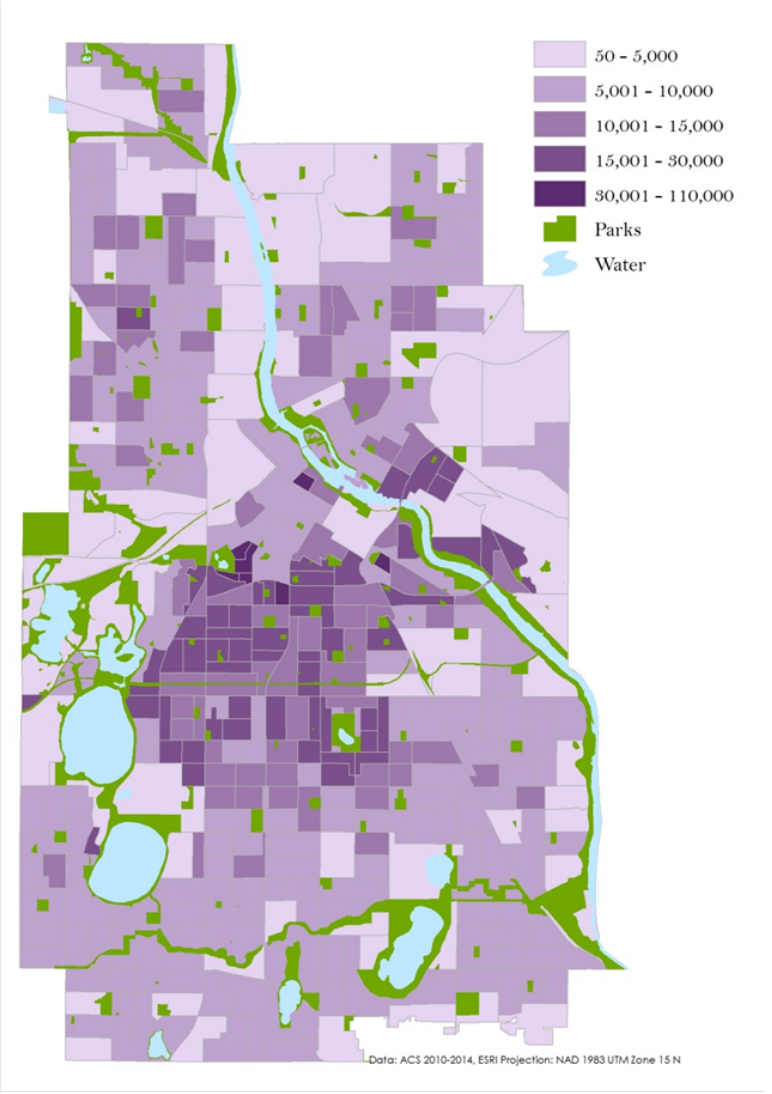


Figure 5: Population density by block group.

partially on public transit which would lead us to believe that they would be more likely to live in a transit-dense area such as Downtown Minneapolis.

Personal Vehicle Ownership

One of the main arguments made by the local government and car share organizations alike is that car share reduces dependency on, and ownership of, personal vehicles. This is a popular argument for the positive environmental impact of car sharing that has gone largely unquestioned. It implies that car share membership is inherently positive because it encourages people to drive less or avoid the purchase of a personal vehicle all together; in sum, the belief is that car share organizations contribute to the decrease of carbon emissions from personal vehicles in Minneapolis. As stated by the local Car2Go Manager, "[...] as Car2Go continues to grow, [...] members are increasingly able to re-evaluate and potentially reduce their amount of personal car use or even make the decision to sell a car or reconsider the purchase of a private car" (J. Johnson, personal interview, November 9, 2015, email correspondence). In a similar vein, Hourcar has an entire page on its website devoted to the ways in which their car share program can save people money while allowing them to reduce personal vehicle ownership (HOURCAR, 2013).

The findings of this study show that Hourcar and Car2Go are having very different effects on the personal vehicle ownership rates of their members. This is important to consider because when an individual, or a household, owns a personal vehicle they are more likely to use it over alternative forms of transportation. The relative convenience of getting into a personal vehicle just steps from your front door makes walking, biking or public transportation much less appealing. As discussed previously,

positive feelings toward sharing programs most commonly stemmed from appreciation of relative convenience.

The 2015 Hourcar survey asked respondents how joining Hourcar has impacted their personal vehicle ownership. The survey found that 22% of all members decreased their personal car ownership as a result of becoming a member. Looking at just those who owned a vehicle prior to joining, I find that 50% of respondents decreased their car ownership as a result of joining Hourcar. It is important to note that 53% of members did not own a car prior to joining. Many of these respondents commented in the optional response section of the survey that joining Hourcar allowed them to continue their car-free lifestyle, when otherwise they would have considered purchasing a personal vehicle. These results show that almost one quarter of Hourcar members have made large, positive decisions (ie. got rid of a personal vehicle) toward environmental sustainability through membership in the car share program. We also see that over half of members did not own a personal vehicle at the start of membership. With just 6% of respondents reporting increased personal vehicle ownership we can infer that using Hourcar helped a large number of people resist personal vehicle purchase.

The results explained above correspond to the results found in the 2016 Minneapolis Car Share Pilot Program report. This report found that 84% of Hourcar survey respondents do not own a personal vehicle. The Hourcar survey estimates this to be somewhere between 53% and 75%.[10] This difference, as noted in the methods section of this study, can be attributed to the fact that the Minneapolis report sampled a very small proportion of Hourcar members, 2.5% compared to the 28% sample in the Hourcar

[10] This calculation is based on assumption that the 22% that reduced car ownership now do not own a personal vehicle.

survey. Although we cannot test the comparison, due to the unavailability of raw data from the city report, both estimates are significantly higher than the personal vehicle ownership rate estimates found for Car2Go in Minneapolis.

The Minneapolis report found that just 30% of Car2Go members respondents do not own a personal vehicle. Unlike the survey conducted by Hourcar, this survey did not ask about change in car ownership since joining the program. To get an idea about Car2Go's impact on car ownership we can look to the comprehensive report conducted in Vancouver in 2014. As explained previously, the two car sharing programs in the Vancouver metro area operate with a very similar dynamic to that of Hourcar and Car2Go in Minneapolis. The Hourcar equivalent in Vancouver is a local car share co-op called Modo. The Vancouver report found that of 45% of Modo members who owned cars prior to joining decreased their personal vehicle ownership as a result of joining, while 54% did not change their car ownership. This is similar to the 50% car ownership decrease estimated by the Hourcar survey. Conversely, the study found that just 9% of Car2Go members who owned personal vehicles prior to joining decreased their car ownership and 90% experienced no change in their car ownership (Metro Vancouver, 2014). The car share report from Seattle found that 74% of Car2Go members own at least one personal vehicle and 61% of members reported that they did not reconsider owning a personal vehicle since using Car2Go (Metro Vancouver, 2014).

According to the American Community Survey, in 2014 83% of households in the City of Minneapolis owned at least one vehicle. With this information, we can infer that it is possible that both Car2Go and Hourcar have the potential to facilitate a reduction in personal car ownership for members, but their level of impact is occurring on vastly

different scales. It appears that Hourcar is allowing more people to reduce car ownership in comparison to Car2Go. It must be considered that it is possible that Hourcar is attracting more people looking to decrease car ownership due to its focus on environmental sustainability or reliability through a 'hub' system. We see that it is likely that Car2Go and Hourcar members have similar levels of car ownership when entering the programs. However, while an overwhelming majority of Car2Go members (90%) retain their vehicles, 50% of Hourcar members sell at least one vehicle.

The idea of personal vehicle ownership also has strong implications for social sustainability through the idea of equity. In exploring areas of the city with high concentrations of transit-dependent households in comparison to car share member locations, I investigate whether the car share programs are being used in areas where people do not otherwise have car access. This would mean that people using the programs were gaining a formerly unavailable mode of mobility.

The correlation between Percent Zero Vehicle Households and Car2Go Trip Starts, as well as that between Percent Zero Vehicle Households and Percent Hourcar Members was significant, but weak (Figures 3, 4, and 8). It was .23 for the Hourcar comparison and .16 for that with Car2Go. The low correlations could be due to the large number of block groups that have zero Hourcar members. These weak correlations are largely inconclusive, but signal toward Hourcar having greater impact on transit-dependent block groups.

There is, however, a strong positive correlation of .79 between Percent Zero Vehicle Households and Percent Households in Poverty. This would lead us to infer that a significant proportion of Zero Vehicle (read: transit dependent) households in

Minneapolis are those that cannot afford personal vehicle ownership, not those who do not have cars due to car share membership. This calls into question issues of transportation access equity, which will be addressed later in this chapter.

Public Transportation Usage

As has been discussed, investment in and availability of public transportation is of urgent concern to captive riders, low-income people without personal car access. Questions of public transit usage are also highly connected to questions of environmental impact. This is based on the assumption that people traveling more frequently by alternative, lower impact forms of mobility such as biking, walking and public transportation, thus contributing to the lowering of carbon emissions in the city.

It is crucial to examine how car share programs impact public transit usage of members because many cities, including Minneapolis, explicitly include in their sustainability goals increasing public transit usage, supported by and allowing for greater investment in public transit infrastructure. Numerous studies show that public transit investment drives urban growth, reduces carbon emissions and can promote equity by allowing greater accessibility of jobs (American Public Transportation Association, 2016).

I will begin by describing the results pertaining to the change in usage of these alternative modes of transportation, specifically public transit, by Car2Go and Hourcar members in Minneapolis. Next I will compare these results to those of the Seattle and Vancouver car share reports.

The Hourcar survey finds that 27% of members report using public transit more since joining the program, 55% use it the same and 14% report use public transit less. This answers the concern of some skeptics that car sharing would put more people in cars. However, as was previously described, we can estimate that 53% of Hourcar members

did not own cars prior to joining, meaning that previously they made all of their trips using alternative modes of transportation. It is reasonable to expect a certain decrease in ridership by some members simply due to their starting usage of transit being upwards of 100% of trips.

To evaluate public transit usage by Car2Go users compared to that of Hourcar members we need to look at the Minneapolis, Seattle, and Vancouver car share program reports. The Minneapolis report asked each respondent to divide their transportation mode usage into percentages, adding up to 100%. Hourcar members reported, on average, that public transportation constituted 40% of their trips before joining and 44% after, making a 4% increase. Car2Go members reported, on average, that public transportation constituted 25% of their trips before and after joining. We can estimate that, based on these results, current Hourcar members used public transportation almost 15% more than Car2Go members before ever joining car share. This survey estimates that, not only do Hourcar members use transit more, they also saw an increase in usage, while Car2Go members reported no change on average.

The Seattle report finds that just 5% of Car2Go members report using public transportation more after starting the program, while 47% report using public transportation less. This is strong evidence that Car2Go in Seattle is taking people off of public transportation.

In a bit of a differing format, the Vancouver report sought to analyze the impact of car share on public transportation by asking members how their transportation habits would change if car sharing were to be discontinued permanently in the city. Unfortunately, the results were not sorted by Modo and Car2Go members, but were

sorted by vehicle owning and zero vehicle households. The top three responses for households with personal vehicles, which make up 43% of survey respondents, were ‘drive household-owned/leased vehicle(s) more often’ at 23%, ‘use transit more often’ at 18% and ‘use taxis more often’ at 14%. For zero-vehicle households the top three responses were ‘use transit more often’ at 17%, ‘buy or lease vehicle(s)’ at 14, and ‘rent vehicles more often’ at 13.5% (Metro Vancouver, 2014).

The differing responses for those with and without vehicle access illuminates the precarious state of car sharing and a possible conflict between goals of reducing personal vehicle ownership and increasing public transit usage. We see that if car share users were to lose access to car share those with access to a vehicle would largely resort to using that, while those without vehicle access would resort back to using public transit more. It is clear from these results that the influence on public transportation usage of car share members depends heavily on their personal car ownership and the model of car share they use.

It is also important when analyzing the impact of car sharing on public transportation to analyze what types of trips car share is being used for. This allows for the analysis of whether car share trips are replacing trips that could reasonably be taken on public transportation. The Hourcar survey found that the top three uses for Hourcar were reported to be: 78% of respondents cite running errands, 66% cite attending time sensitive engagements such as medical appointments, and 57% cite using Hourcar for recreational activities. As the Minneapolis car share report did not ask about trip purpose for Car2Go users we can compare the Hourcar responses by looking at the Vancouver report.

The Vancouver survey asked respondents to report their main use for Modo or Car2Go, depending on their membership. The choices were: 'shopping/errands', 'visiting friends or family', 'recreation', 'restaurant/bar' and 'to and from work.' The responses for Modo, in decreasing order, were 'shopping or errands' with 34%, 'visiting friends or family' with 24%, 'recreation' with 23%, 'restaurant/bar' with 10% and 'to and from work' with 9%. The responses from Car2Go were ranked in the same order, but are more evenly distributed amongst the top four responses, each having about 20-24% of respondents citing using the program for each trip purpose. Interestingly 14% of Car2Go members ranked 'to and from work' as the top use for the service.

We can see in the Vancouver report that the Hourcar equivalent, Modo, had about two thirds of the amount of members who cited using car share for commuting as has Car2Go, a trip purpose that is widely considered reasonably done using public transit. The Hourcar survey did not give respondents the choice of 'to and from work' due to the fact that the round trip nature of the program does not lend themselves to using the cars for commuting because members pay for the car until they return it to its designated hub.

The idea of trip purpose is important in illustrating, once again, the differences in the operation of Hourcar and Car2Go as 'round-trip' and 'one way' programs, respectively. We see that the 'round trip' programs, Hourcar and Modo, largely facilitate use for running errands, trips that would be difficult on transit if someone were to be getting groceries, for example. The 'restaurant/bar' usage was 10% for Modo and 20% for Car2Go, which could signify that Car2Go members are using the program to go out and are using an alternate mode to return home, whether it be transit or taxi. Analyzing trip purposes and the differences in usage between programs sheds light on the statistics

presented earlier showing that Car2Go has had a tendency to take people off public transit, something we can see in Vancouver Car2Go user survey respondents citing commuting and nights out as uses for the program. We can also see, however, that both programs may be helping members to run efficient errands using the programs, trips that would be difficult to complete on public transit. The models of car share are clearly, therefore, very important to consider when assessing whether they are apt to replace or complement public transportation usage.

We also must take into consideration access to transportation in considering whether trips could be taken on public transportation. Using the HCAT Transportation Access Indicator Score I examine the correlation between Transit Access by block group to Car2Go Trip Starts, as well as Hourcar Membership. Hourcar Membership is used to represent Hourcar trip starts, as previously explained.

I find that in Minneapolis the correlation between Transit Access and Hourcar trip starts is low at .3 (Figures 3 and 9). As previously discussed, Hourcar members tend to live outside of the Downtown area of the city, where transit density is greatest. The correlation between Car2Go Trip Starts and Transit Access is stronger at .5. This makes sense as we observed previously that Car2Go members tend to live more in the Downtown area of the city. We also previously saw that there is a very low correlation, .17 between population density and Transit Access in Minneapolis, which could help to describe the low correlations between car share trip starts and transit access. There are also many block groups in Minneapolis home to zero Hourcar members, which may also be pulling down the correlation.

I do not argue in this research that car share programs should be accessible to people of all incomes as that would be unrealistic based on their statuses as private entities. I argue that what is more important is that car share programs have positive impacts on local sustainability if they are to be working in partnership with local government. This is simultaneously an argument for environmental, economic and social sustainability. Transit accessibility, as has been described, is especially crucial for low income people who rely on public transit for the majority of their mobility.

To illustrate this concept in the local context I delve into comparing concentrations of transit dependent households, households living in poverty, and concentrations or racially marginalized people. The correlations between these variables illustrate issues of inequity in Minneapolis. Data is sourced from the American Community Survey 2014 five-year estimates.

I find that there is a moderate to strong correlation of .63 in Minneapolis between percent of households living below their designated poverty line and percent non-white. As will be described, this is the continuing legacy of racialized city policies which could be furthered by actions such as Car2Go's service area reduction, harkening back to the implementation of redlining.

More directly related to questions of car sharing and sustainability, I look at the relationship between transit dependency and poverty, finding a correlation of .79 (Figure 6 & 7). This signifies that areas of concentrated poverty, ie. block groups with a high percentage of households living in poverty are also likely block groups with a high percentage of households that rely wholly on transit due to inaccessibility of a personal vehicle. Furthermore, the correlation between percent minoritized (non-white) and transit

access is .56, which is a moderately strong correlation as well, further reinforcing the notion that taking people and investment from public transit means further disinvesting from the quality of life of already marginalized groups and neighborhoods in the city (Figures 8 and 9).

This brings home the notion that public transit usage, and thus investment, is crucial to issues of equity and social sustainability in Minneapolis. If Car2Go continues to take large amounts, such as 47% of its members in Seattle, away from transit, not only will the transit system suffer, but so will already marginalized people. As highlighted before, Car2Go members make up over 6% of the population of Minneapolis, taking people off transit through car share would have a tangible impact.

As seen in Figures 6, 7, 8 and 9, there is a high concentration of poverty, minoritized people, transit dependency, and low transit access in North Minneapolis (the colloquial term for the Near North and Camden communities), a historically underserved area of the city. This area was specifically targeted by redlining maps created starting in the 1930's and lasting into the 1960's. Redlining is defined by the Merriam-Webster Dictionary as, "[...] to withhold home-loan funds or insurance from neighborhoods considered poor economic risks, to discriminate against in housing or insurance." Redlining in Minneapolis, as in many US cities, began with the National Housing Act of 1934 which established the Federal Housing Administration. In 1935 the Home Owner's Loan Corporation, alongside the Federal Home Loan Bank Board, began creating 'residential security maps' which delineated areas of high and low risk for real estate investment. This signified where home loans should and should not be allocated. The places assigned the lowest grade had high populations of Black residents, while those

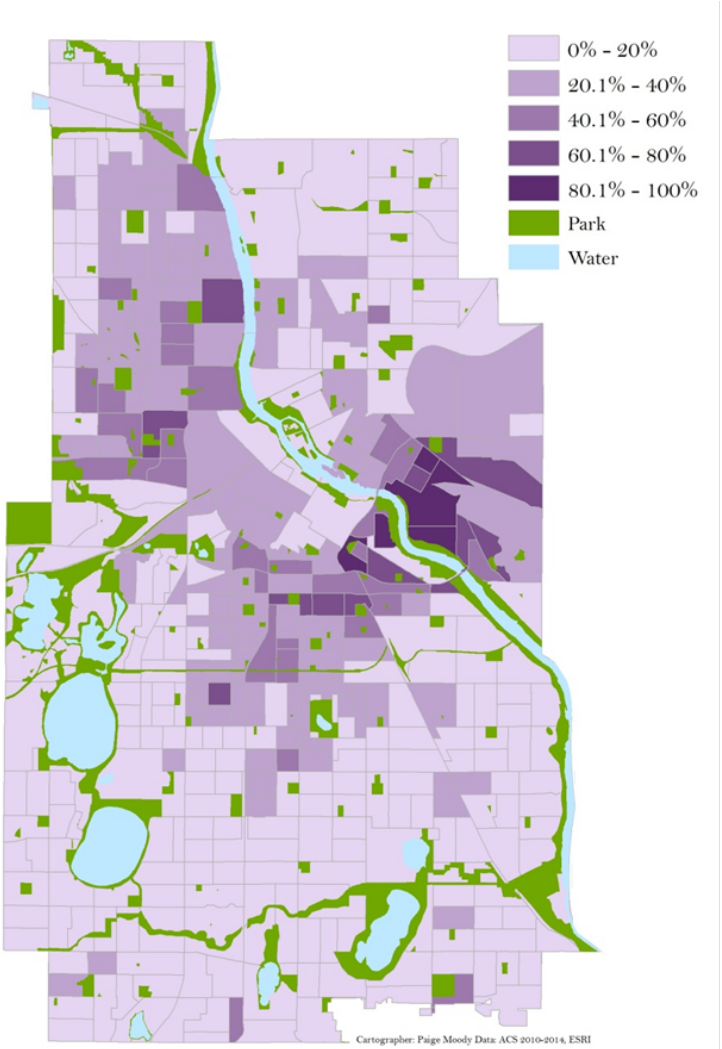


Figure 6: Percent of households living in poverty by bock group.

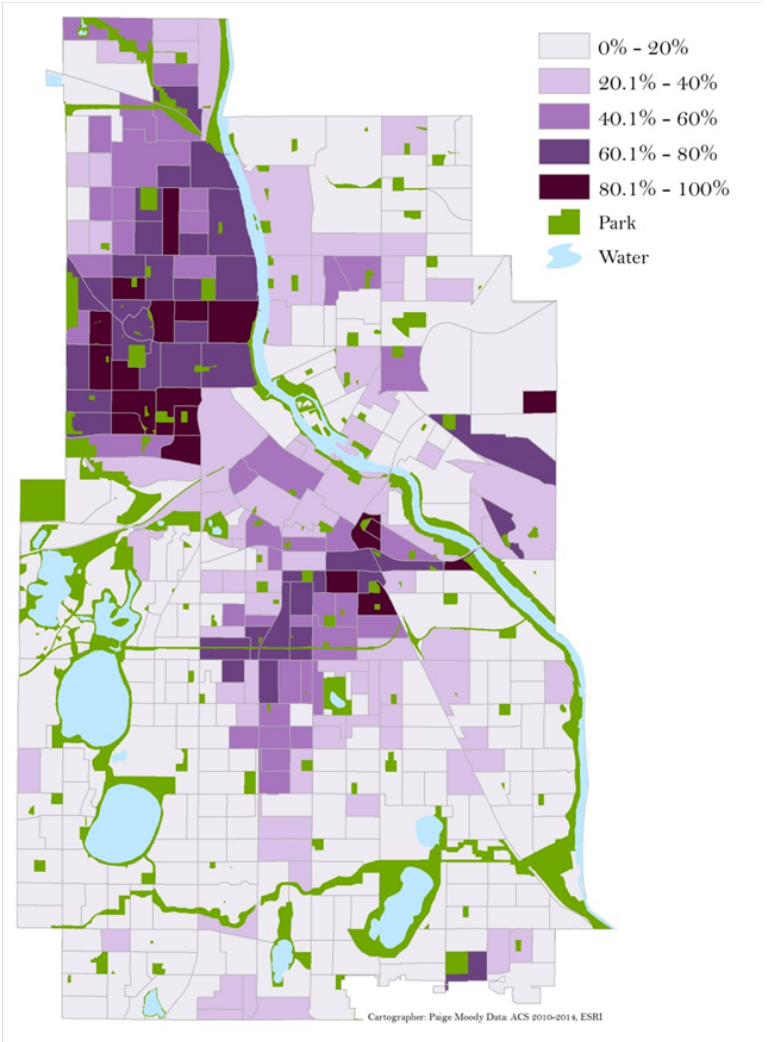


Figure 7: Percent nonwhite by block group.

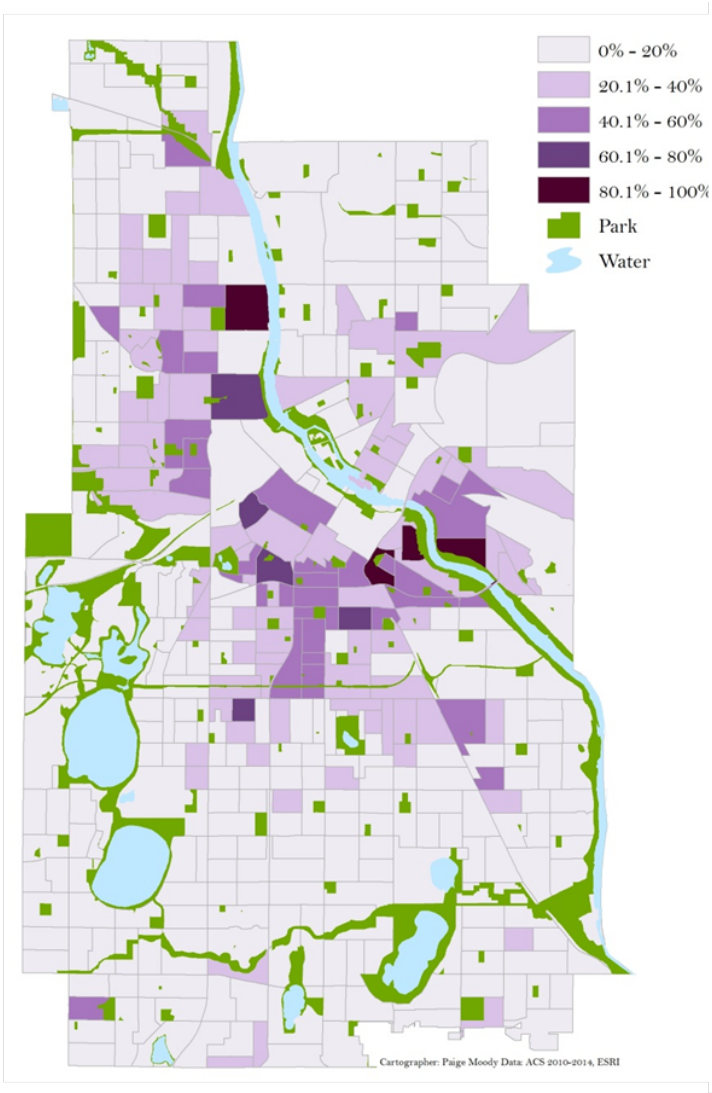


Figure 8: Percent zero-vehicle households by block group.

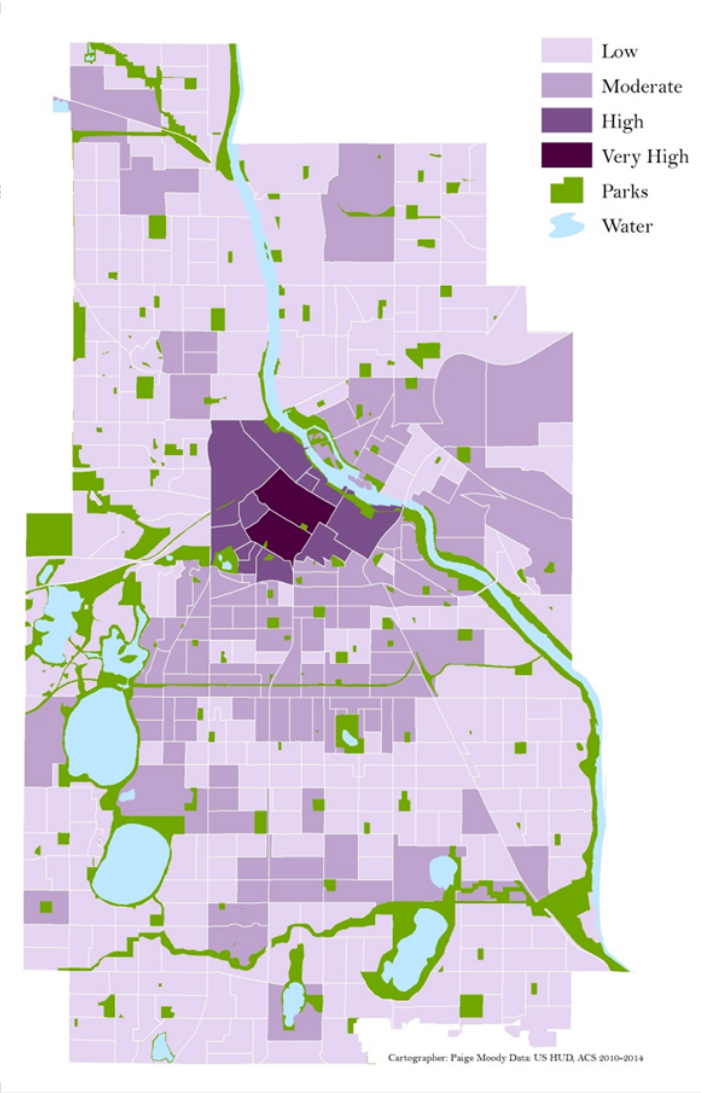
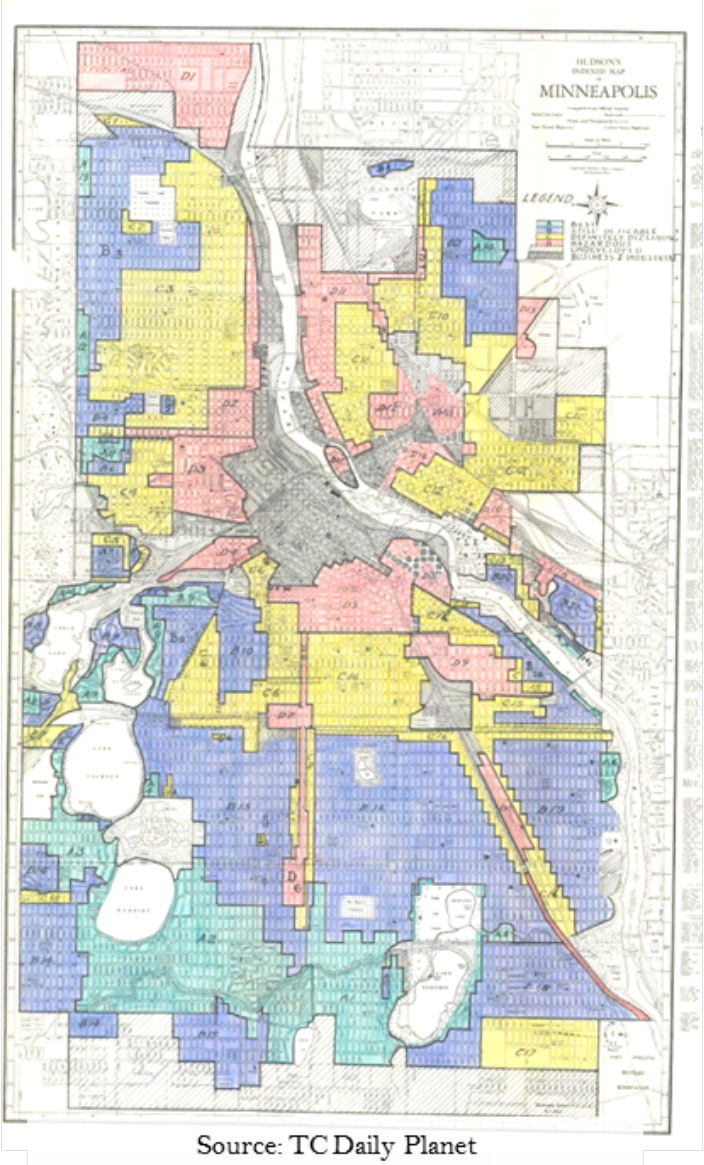


Figure 9: HCAT Transit Access Indicator score by block group.



Source: TC Daily Planet

'Best'

'Still Desirable'

'Definitely Declining'

'Hazardous'

Figure 10: Historic HOLC Redlining map from the 1930's.

deemed low-risk were typically affluent, White areas at the edges of the city. The redlining map of Minneapolis can be seen in Figure 10.

A recent development in the story of car sharing in Minneapolis is a proposed service area reduction by Car2Go. In November of 2015 Car2Go began to talk publically about interest in reducing its service area in the city.[11] As explained by Cieminski, the Public Works Parking Services representative, to members of the City Council, " Car2Go would like to "[...] narrow service area to be more efficient and cost-effective in their operation" (Transportation & Public Works, November 10, 2015). With this, Cieminski explains, Car2Go wants financial incentives for providing service outside of the higher usage areas (Transportation & Public Works, November 10, 2015). In my interview with Cieminski and the parking department I was informed that Car2Go would like to decrease their service area by 33%, which would mean stopping service to the northern and southern areas of the city (W. Cieminski, personal interview, November 12, 2015)

The proposed service reduction area map was made public in March of 2016 and was reported on by the Star Tribune (Figure 11). It can be clearly seen that the largest reduction in service area is in North Minneapolis. As previously discussed, there is lower membership of Car2Go in North Minneapolis, but we have also seen that there are large issues of equity and mobility access in this marginalized area of the city. What we now see is that a private entity is furthering this marginalization by completely removing the option of Car2Go usage by people living in the area. Redlining has been a serious event of Minneapolis' history and has dictated the modern racial and economic segregation of

[11] Cars car be driven anywhere, but a 'trip' can only end when the car is parked within the designated service area.

Minneapolis, as well as access to services in the city. We see this in Figure 12, in which we can see concentrations of poverty and minoritized groups in pockets throughout the city which almost directly correspond to historically redlined areas, particularly in the area of North Minneapolis (containing the neighborhoods of Near North and Camden).

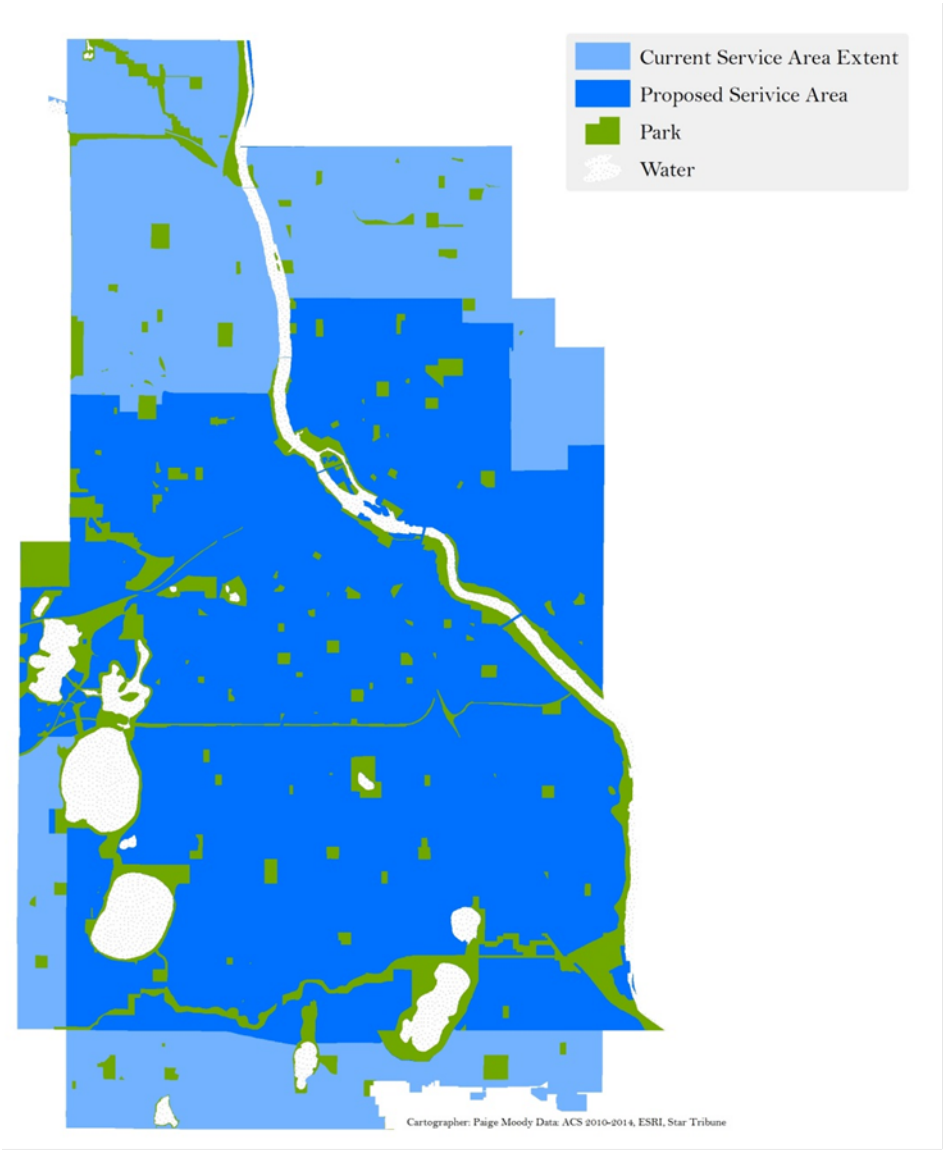
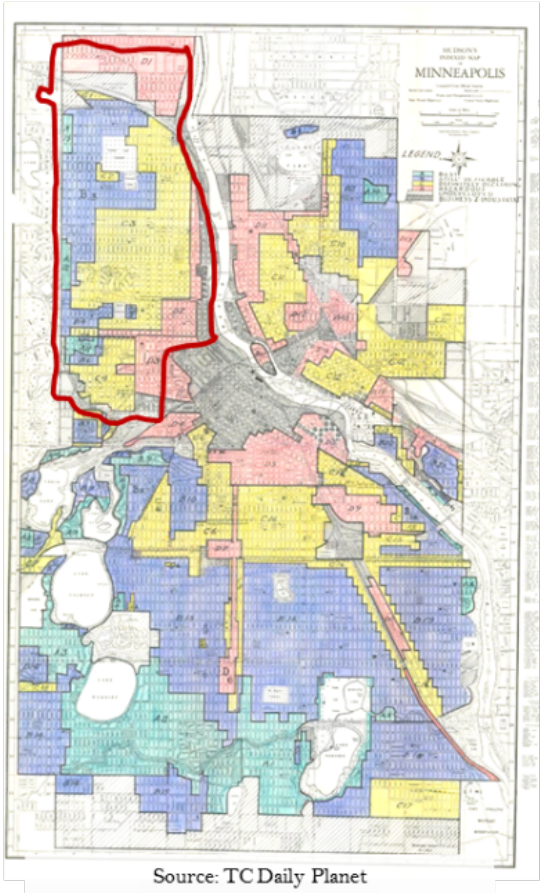


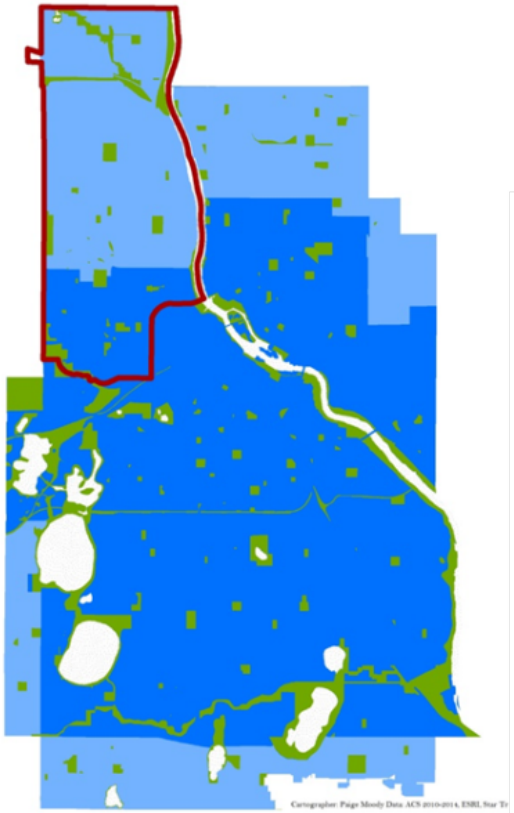
Figure 11: Car2Go's proposed service area reduction.



Source: TC Daily Planet

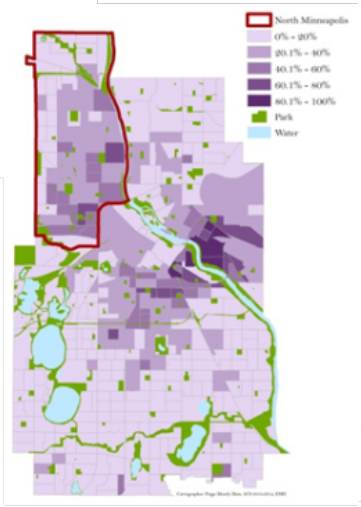
HOLC Redlining Map

- 'Best'
- 'Still Desirable'
- 'Definitely Declining'
- 'Hazardous'



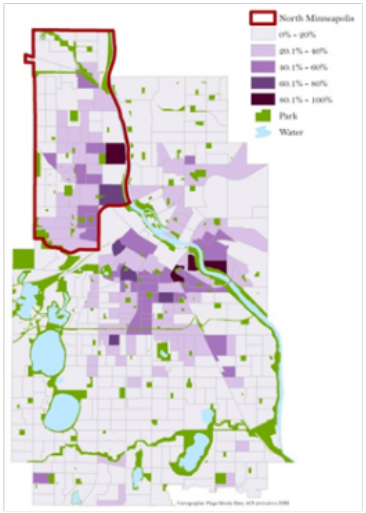
Car2Go Proposed Service Area Reduction

- North Mineapolis
- Current Service Area Extent
- Proposed Serivice Area
- Park
- Water



% Households in Poverty

Transit Access



% Zero-Vehicle Households

Figure 12: Comparison of current demographics, historic redlining, and Car2Go proposed service area reduction area.

Following Cieminski's presentation of the service reduction to the City Council, Council Member Gordon voiced his concern asking, "[...] are you looking at incentives if the companies do provide city-wide service, or how you can incentivize them to provide services to areas of the city where they might not otherwise be if they were just relying on the market?" (Transportation & Public Works, November 10, 2015). Cieminski responded by describing a model used in Denver that Minneapolis could copy. This is a model in which "each car share operator needs to include locations for at least two vehicles in each of what they call a 'opportunity areas', which [are] essentially low-income areas" (Transportation & Public Works, November 10, 2015).

Council Member Lisa Bender responded to this by stating,

> I am very supportive of us looking at approaches to require or incentivize service in low-income communities in particular [...] We have a bit of a dynamic where we'll have to balance in single family, lower-density residential parts of the city where I think it is probably more challenging to provide that point-to-point service - but again balancing that with making sure that we are not redlining our city and [are not] allowing companies to redline in our city (Transportation & Public Works, November 10, 2015).

Bender highlights here her opinion about the importance of ensuring that car share programs are socially sustainable and equitable. Bender is concerned that allowing Car2Go to reduce its service area would be the City Council giving permission to a private corporation to enact segregation practices by the city government.

The proposed solution offered by the Public Works representatives is almost laughable as it proposes just two of three hundred and fifty Car2Go vehicles in the city to be placed in the almost ten square mile area of North Minneapolis. This would be failed from the onset as the whole idea of the Car2Go model is vehicles being widely accessible, ie. within a reasonable walking distance from almost anywhere in the city.

It is clear that Car2Go, as a profit-driven company, is not, and does not have to be, concerned about the social equity, (read: social sustainability) implications of reducing the program's service area, but some City Council members are. This was not an issue that was foreseen when Car2Go was chosen for the main focus of the Car Share Pilot Program. This is also not an issue unique to Minneapolis; other cities such as Seattle and Denver have faced similar situations with Car2Go wanting to reduce service area. This issue raises questions about the all-encompassing sustainability claims about the sustainability of car sharing. It also raises questions about accountability in public-private partnerships, specifically those touted that claim to contribute toward sustainability.

Conclusion

In this chapter I have pieced together and examined the limited data available pertaining to car sharing in Minneapolis, alongside that of other North American cities, in order to investigate the assumptions of car sharing's inherent sustainability upon which official policies have been formed. I have shown that Car2Go and Hourcar are having markedly different impacts on private vehicle ownership and transit usage of members, impacting environmental, social and economic sustainability issues. I have shown that Hourcar is helping many members reduce personal car ownership and has a low percentage of members that have access to vehicles outside of Hourcar, while Car2Go is not impacting the high car ownership rate of members. Hourcar is disproportionately helping members to become more transit dependent, while Car2Go has been shown to reduce public transit usage of members. I have explained the importance of public transit investment, especially for the low income and marginalized people in Minneapolis, as well as the impact Car2Go's service reduction would have on the historically

marginalized area of North Minneapolis. It is clear that not all car share programs are created equal through the lens of sustainability.

In the next chapter I will explain how applying theories of sustainability, political economy, urban regimes and public-private partnerships helps to conceptualize the issues that have arisen surrounding unsubstantiated beliefs informing car share policy as well as what can be learned through investigating the story of car sharing in Minneapolis.

CHAPTER 4: Conceptualizing Minneapolis' Car Share Narrative and Analysis through Theory

Introduction

In this chapter I will explain how the issues that have arisen through the development of car sharing in Minneapolis can be understood with greater nuance and broader context through the lenses of political economy, urban regime theory, and public-private partnerships, with specific focus on sustainability.

Section 4.1: Political Economy

Through discourse analysis of the story of car sharing in Minneapolis the importance of the local political economy becomes abundantly clear. We see that in order for car sharing to take place successfully in a city the program needs to work closely with the local government. Through these partnerships programs gain benefits of government investment and facilitation, as well as the symbolism of public sector endorsement. In the context of Minneapolis, following national and global trends, the local political economy is increasingly focused on ways to promote urban sustainability, which, in turn, increased the eagerness of public officials to include car sharing as part of the official transportation plans.

As is the reoccurring theme of this study, the assumption-based policy surrounding car sharing was formulated based on two key things: popular discourse surrounding the issue and the affinity of the public entities for the ethos of the proposed solution, as dictated by its potential contribution to the developing identity of the city. In the case of Minneapolis this process involved the popular discourse labeling car sharing as inherently sustainable, within the context of a local political economy concerned with sustainability. This all occurred in a time when Minneapolis is continuously working toward distinguishing itself as a model city for urban sustainability.

The local political economy is precarious in Minneapolis as it is concerned with car sharing. The more public investment of time and resources that goes toward promoting Car2Go under the assumption that the positive impacts, the more public sentiment gravitates toward favorable opinions of the program. This, in turn, increases the positive feelings of city officials toward the program. This self-reinforcing pattern has continued for over two years, now placing city officials in a tough position. Officials are beginning to realize the haste in which the car share program was created through the development of issues such as that of the Car2Go service area reduction proposal.

As explained by Veseth (2014), political economy focuses on political institutions, bureaucratic agencies, societal actors, and ideologies. Through my discourse analysis we see that the city of Minneapolis interacted with societal actors such as car share members and public commentators in order to fulfill goals of sustainability through promoting car sharing in the city. The impacts of these interactions illustrate the necessity of examining the nuances of programs such as the Car Share Pilot Program, for when they go unchecked, the discourse can reinforce and reproduce aspects of the local political

economy based on unfounded assumptions. The danger in this is that not only will the undercurrent of unseen and unforeseen damage continue to flow, but future policy will continue to be based on the unquestioned truths about the original program. This process of narrative reproduction can be further explained through the lens of Urban Regime Theory.

Section 4.2: Urban Regime Theory

As has been described, car sharing on the surface appears to be separate from government agencies and urban development planning due to its provision by private entities. However, with deeper analysis it becomes clear that this is all but the case; In order for car share organizations to operate in a city they must work closely with the local and state governments. This is seen in the Car Share Pilot program in Minneapolis.

Urban Regime Theory is based on the idea that the ability of a government entity to successfully govern is predicated on its ability to create and maintain its capacity by bringing together coalitions of partners with appropriate resources (Stone, 1993). This mobilization of resources in the case of creating the Car Share Pilot Program was done with the goals of supporting the local government's sustainability work, specifically in the realm of alternative transportation. Stone (1993) argues that these coalitions are necessary for cities to achieve goals, especially those pertaining to development. With this, Urban Regime Theory is focused on the ways in which resources are mobilized in order to accomplish non-routine goals and highlights the importance of political relationships in this process. This ties together this theory with political economy as it highlights the influence of non-governmental actors on public services.

In the opinion of prominent public leaders, in order for car sharing to proliferate in Minneapolis it was necessary for government actors to partner with a large car sharing

program such as Car2Go due to the goals of having car sharing have a tangible impact on the future of local sustainability. Through this we see how the local government forfeited a certain amount of power and influence in contracting out, in a sense, large aspects of local transportation to Car2Go.

In investigating the service area reduction proposed by Car2Go and the subsequent debate within City Council the risk involved in urban regimes becomes clearer. The power of the city is diminished by partnering with a large company as it goes into negotiations that must balance its desires with those of a profit-driven entity. This, clearly, has strong implications for equity and sustainability as the potential service area reduction will work to further issues of inequity in the city, therefor social sustainability.

It becomes clear through this study that a large driver of the issues arisen has been a lack of empirical data collection and analysis. If there were to be more research done about Car2Go's impact on other cities before going into partnership with the company, more nuanced arrangements could have been made with social equity and data collection at the forefront. This would have allowed the city to have collected detailed data about the program's impact, which would have allowed officials to set parameters about where the program would operate as well as facilitate the evaluation of program impact through pre-planned data sharing.

Within Urban Regime Theory there are three different types of regimes: development, middle-class and lower class opportunity expansion. After extensive evaluation of the coalitions formed between the car share programs and local government it becomes clear that the care share regime in Minneapolis falls into the grey area between development and middle-class regimes. I do not fully denote it as a middle-class

regime because there are strong notions of development, through promotion of urban sustainability in practice and city marketing identity within the Car Share Pilot Program and the program has been carried with a largely passive public.

This idea of passiveness however is called into question when we consider the uproar from Hourcar members when Car2Go was initially chosen as the only program to participate in the program. It seems that as more time passes the regime begins to fall further into the category of middle-class. Middle class progressive regimes are concerned with regulation, especially from the government actors involved. These regimes, like the others, involve government and business actors, however in this case the relationship between the two is not largely voluntary. Coercion plays a larger part than in development regimes, but the relationship is not purely coercive because business has the option of disinvesting.

The coercion in the case of Minneapolis is just starting to come to light as Car2Go negotiates their proposed service area reduction. In inviting and facilitating Car2Go's operation in the city for over two years, the city has placed itself in a difficult position. As mentioned previously, there are a lot of people, upwards of 24,000, in Minneapolis who are members of the service and who would be vocally displeased if Car2Go were to leave the city. This is a possibility if they are not allowed to reduce their service area in the desired way. The city now must negotiate a way to keep the program while maintaining some sense of social equity concern in the process, as the reduction clearly targets the most underserved area of the city.

Section 4.3: Public-Private Partnerships

Coalition building processes, as described by Urban Regime Theory, are increasingly common in US cities. The creation of public-private partnerships (PPPs) is a

growing trend as they are becoming a replacement strategy for projects that used to be purely government-managed. This is precisely the case in Minneapolis when it comes to car sharing replacing aspects of the public transit system, which previously was completely organized by local government. In this section I will talk about three key concerns of PPPs highlighted in the Minneapolis case study. First I will discuss the ways in which PPPs are formed outside of typical bidding processes. Secondly I will talk about issues of motivation for participation for both nonprofit and for profit partners. Thirdly I will present what I see as the most urgent issue that needs attention, accountability. Finally I will conclude with commentary about the impact of popular discourse on the formation and continuation of PPPs.

A key characteristic of PPPs is the lack of a bidding process. PPPs involve atypical decision-making in which the private entity has more say in what the partnership will look like than they would in a bidding situation. We see in the story of car sharing in Minneapolis that the first car sharing PPP was formed between Hourcar and the city in the implementation of electric vehicle charging stations. This partnership was not put out to bid due to the fact that Hourcar was the obvious partner, being a community program using electric vehicles. The second prominent PPP arose through the Car Share Pilot Program. This program was not put out for bid in the way that a contract would be solicited, rather the city asked for proposals from any car share program interested in on-street parking spaces. The city sought out the car share program that would be best able to help it achieve its sustainability goals, largely disregarding cost, as the city technically did not invest public money in the project.[12] The exclusion of a bidding process decreases transparency about why certain partners are chosen over others, which we saw in the

[12] This may be contested by the consideration of administrative costs.

uproar after Car2Go was initially selected as the sole partner in the Car Share Pilot Program.

In theory PPPs can be beneficial for public good because more than just cost can be considered in the negotiation process, which likely would not happen in a traditional bidding process. This negotiation, however, would be largely influenced by the motivation of the private partner for entering in the partnership.

An important contribution of this work to the existing literature on PPPs is that of highlighting the importance of differentiating between for profit and nonprofit partnerships with local government PPPs. Accountability to the goals of the city becomes very difficult as private partners do not necessarily enter partnerships with the same mission or goals as the public partner. We see that PPPs can drastically change the dynamics of city sustainability initiatives through unintended consequences of sectoral blurring. This is because private partners frequently enter into PPPs for different reasons than governments.

The question of motivation for partnering can vary drastically for nonprofit and for profit partners. In partnering with a nonprofit organization, what may be sacrificed in scope of resource contribution may be made up for in greater alignment of goals and accountability due to the simple fact that nonprofit organizations are almost exclusively mission-driven. For Hourcar we see that their push to be included in the Car Share Pilot Program, from which they were initially excluded, was to broaden their positive impact on local sustainability. This was to help the organization strive closer to their mission of promoting alternate transportation usage and environmental sustainability through increasing program access by using on-street parking spaces as new hubs. The concept of

entrepreneurial orientation (EO) allows us to see that Hourcar has an interest in the development of new services and processes toward increasing public benefit, but needs the help of city government, in the form of public parking spaces, to reach its goals.

As has been observed, issues of accountability in the realm of social sustainability become increasingly difficult when the partner is a private entity. The city government created the Car Share Pilot Program in accordance with the 2009 Citywide Transportation Action Plan which initiated the plan to work with car share programs toward sustainability goals. Forming the Pilot Program was done strategically in order to have the most far-reaching impact, based on the assumption that whichever program they chose, it would have entirely positive and sustainable impacts. We now know that this assumption was largely flawed, but we also know that due to the fact that the partnership was formed based on it, thorough stipulations were not included in the agreements made. This effectively ties the hands of city officials who have expressed their desire to promote equity through limiting Car2Go's ability to exclude historically marginalized areas from program access. This brings in the large issue of accountability in PPPs.

The key issue of accountability is due, in large part, to a lack of available data. Within PPPs issues of accountability rise when public officials do not have access to empirical data, leading to situations in which they cannot critically evaluate the impacts of a partnership. This study shows that data about the impacts of car sharing programs is limited and the data that does exist lacks depth. A main reason for this lack of data comes from concerns of car sharing programs about competition; in particular Car2Go is wary about making their data available to public entities due to the fear of data getting being accessible to competitors.

At the end of the Minneapolis Car Share Program Report there is a list of recommendations. One in particular is troubling as it recommends the reduction in the data required from the car share programs. Currently each program submits a limited quarterly report about their membership and usage levels, data that is not helpful in the slightest when looking to evaluate impact in relation to the sustainability goals of the city. In the report the recommendation for reducing shared data requirements is as follows:

> Staff recommends reducing the requirement to annual provision of data [...] City staff is working with vendors to identify the data and report formats that would be most beneficial to the program and would be comfortably shared by the CSO's (Transportation & Public Works, November 10, 2015).

We can see that, due to the formation of the PPPs with private organizations, evaluating the programs is going to become increasingly difficult as the already limited data is reduced.

At the end of the recommendations comes one that is all the more concerning. The recommendation from the Public Works Department states:

> Reduce the need for City staff to continuously monitor compliance, thereby reducing associated administrative costs (Transportation & Public Works, November 10, 2015).

It has become clear that a lack of data and thus a critical analysis led the city to its current precarious state with a car share programs having unanticipated negative impacts. These recommendations expose that city leaders are suggesting paring down the already sparse manners of holding car share programs accountable to their professed benefits to the city.

It is also crucial to evaluate how discourse surrounding PPPs influences them. As has been discussed through exploring Urban Regime Theory, there are differing levels of public involvement in the processes of partnership formation and evolution. We see in this study that there is a self-reproducing cycle of discourse and action in relation to PPPs.

In the case of car sharing the positive discourse influenced the creation of partnerships between the city and car share programs, which represented a public endorsement of the programs, Car2Go in particular, which then increased positive feelings in the popular discourse, and so on.

CONCLUSIONS

As car sharing, and the sharing economy more broadly, proliferates through cities across the globe, it carries with it the necessity of creating public-private partnerships. These partnerships are often created within urban sustainability initiatives, focused heavily on promoting environmental sustainability. The Minneapolis case study reveals that the assumption of the inherent sustainability of sharing programs has driven the development of car sharing in the city. Car sharing has evolved based on assumptions formed through positive, sustainability-focused partnerships between the city and the non-profit, 'round trip', Hourcar program. In looking to 'scale-up' car sharing in the city, city leaders welcomed the large, for profit, 'one-way' Car2Go program.

My empirical analysis exposes that the two programs, while consistently equated, have significantly different impacts on local sustainability, particularly in terms of public transit usage and private vehicle ownership. While Hourcar largely helps members to reduce personal car ownership and increase public transit usage, Car2Go does not impact car ownership and has been shown to take people off of public transit. As has been explained, these differences have profound implications for local environmental sustainability goals as well as social equity issues in Minneapolis. Low income and people of color are more likely to be transit dependent, meaning that any program that promotes disinvestment in public transit disproportionately negatively impacts these groups. Furthermore, in the development of the proposed Car2Go service area reduction

we see that, once again, marginalized areas like North Minneapolis are being excluded from access to services available to others parts of the city.

This study exposes powerful implications of assumption-based public-private partnerships created within local sustainability initiatives. In Minneapolis we see that a lack of empirical data, and thus a lack of empirical analysis of program impact, has allowed two very different programs to be continually equated, leading to negative implications for environmental sustainability and social equity in the city. This makes it clear that pre-emptive data sharing agreements are crucial within PPPs. Otherwise unsubstantiated beliefs can become unquestioned "truths" on which official policies are created.

This sustainability story of Minneapolis is one that serves as an example to other cities considering the creation or expansion of car sharing in partnership with large for profit entities providing 'one-way' car share programs. In a broader sense, this case study tells us about the issues that can arise within the sharing economy and sustainability initiatives when all programs are labeled inherently sustainable, based on popular discourse. These issues and concerns would be better understood and mitigated through more extensive empirical research done on the true impact of programs, such as car sharing, on cities. Creating nuanced studies would help future city decisions be based on fact rather than assumptions.

This Minneapolis case study highlights the issues that can arise when impactful decisions are made based on unsubstantiated "truths", such as the idea that all car sharing is good for the environment and the city. We have seen that this can lead to serious

issues that reverberate through the city and can have lasting detrimental impacts, particularly for already marginalized people in the community.

Suggestions for other cities can be summarized in four points. First, there needs to be significant research done on other cities which have carried out similar sustainability initiatives, if available, before a program is initiated. Second, when a pilot program is designed and negotiated a specific and detailed data collection agreement should be created. In the case of car sharing this data could take the form of a before and after survey, which asks new car share members about mobility usage as well as demographic characteristics in order to gain information about car share impact. Thirdly, when the trial period is over the data should be thoroughly examined in order to evaluate the success of the program in relation to the initial goals, as well as to determine whether it should be continued and under what conditions. Car share and other sustainability initiatives have the potential to have positive impacts on urban sustainability if substantial data is collected, shared and evaluated. With more nuanced evaluation, which takes into consideration all three sustainability pillars, new and creative programs such as those of sharing economy can change our communities for the better.

REFERENCES

2013 Seattle free-floating car share pilot program report (2014). Seattle: Seattle Department of Transportation.

About the Neighborhood energy connection (NEC) http://thenec.org/about

Agyeman, J., McLaren, D., & Schaefer-Borrego, A. (2013). Sharing cities. *Sharing Cities,* pp. 1-31.

Allen, F. (2015, March 17). Increased black home ownership would slice wealth gap. *TC Daily Planet,*

American Public Transportation Association. (2016). *Where public transit goes community grows.*http://www.publictransportation.org/news/facts/Pages/default.aspx

Arola, B. (2013, 3 May, 2013). Twin cities HOURCAR hopes for fair share in Minneapolis. *Star Tribune,*

Barnett, E. C. (2014, April 9, 2014). Car2Go: A (slightly qualified) success *Seattle Met,*

Belk, R. (2013). You are what you can access. *Journal of Business Research,*

Bineham. (2013). *HOURCAR to provide car sharing to the university of Minnesota*. St. Paul: HOURCAR. (June 22, 2013)

Botsman, R. (2013, November 21, 2013). The sharing economy lacks a shared definition *Fast CoExist,*

Botsman, R., & Rogers, R. (2010, October 2010). Beyond zip car: Collaborative consumption *Harvard Business Review,*

Bula, F. (2014, August 20, 2014). B.C. cities steer towards Vancouver's car share model. *The Globe and Mail,*

Cain Miller, C. (2014, August 29, 2014). Is owning overrated? the rental economy rises *New York Times*

Cao, P. (2014). *Car sharing pilot update* (Request for City Council Committee Action from the Department of Public Works. Minneapolis: City of Minneapolis.

Car sharing pilot program: Transportation & Public Works, Standing Committee of the City Council of Minneapolis,

Carsharing association. http://carsharing.org/library/UCD-ITS-RR-06-22.pdf

CEAC meeting minutes (July 10, 2014). (Meeting Minutes. Minneapolis: City of Minneapolis.

City of Minneapolis: A government leading by example. (2011). http://www.ci.minneapolis.mn.us/sustainability/approach/index.htm

Citywide action plan: Ten-year transportation action plan (2009). (Action Plan. Minneapolis: City of Minneapolis. (Transportation)

Collaborative Fund, and HYPERKAT. "Future of Car Sharing." 2009. Web. <http://futureofcarsharing.com/>.

Contract with HOURCAR for hybrid car sharing (2006). (Request for City Council Committee Action from the Department of Regulatory Services. Minneapolis: City of Minneapolis. (Authorize standard agreement with HOURCAR for car sharing agreement using existing funds within Regulatory Services (0100 835 8396 5090 01))

Definition of environmental sustainability.(2015, *Financial Times,*

Definition of redline Merriam-Webster.

Duhaime-Ross, A. (2014, April 1, 2014). How Zipcar's founders built and lost a car sharing empire *Verge,*

Economist Intelligence Unit. (2011). *Green city index* (Index. Munich: Siemens.

Environmental analysis for Car2Go (Vancouver) (2011). (Contracted for City Government)

Envtl, J. (2012). The legal landscape of the sharing economy. *Yale Law Review,*

Farrar-Hughes, B. (2015). *Determination of the need for an environmental impact statement (EIS) and the adequacy of the EAW for the proposed L&H station project – 2225 east lake street city of Minneapolis, Hennepin County, Minnesota.* (Request for City Council Committee Action from the Department of Community Planning and Economic Development. Minneapolis: City of Minneapolis.)

Forrer, J., Kee, J. E., Newcomer, K., & Boyer, E. (2010). Public–Private partnerships and the public accountability question *Public Administration Review,* , 475.

Gilbert, C. (2013, 28 June, 2013). HOURCAR, Zipcar added to Minneapolis car sharing program. *Minnesota Public Radio (MPR),*

Global sustainability: Social sustainability. Iowa: Iowa State University.

Gordon, C. (2015, September, 2015). Second ward September 2015 E-newsletter. Message posted to http://www.ci.Minneapolis.mn.us/www/groups/public/@council/documents/agenda/wcms1p-148776.pdf

Gottlieb, J. (2015, June 8, 2015). A Zipcar the poor people can afford. *Governing,*

Graff, G. How do economists define sustainability? *National Center for Food and Agriculture Policy,*

Groover, H. (2015, January 14, 2015). 2,000 Seattleites have given up a personal car in favor of Car2Go. *The Stranger,*

Guerra, E., Cervero, R., & Tischler, D. (2011). The half mile circle: Does it best represent transit station catchments? *Institute of Transportation Studies UC Berkeley,*

Hamari, J., Sjoklint, M., & Ukkonen, A. (2015). The sharing economy: Why people participate in collaborative consumption. *Journal of the Association for Information Science and Technology,* , 1.

Hay, I. (2005). Doing discourse analysis. *Qualitative research methods in human geography* (Second ed., pp. 163) Oxford.

Healthy communities transformation initiative (HCTI) indicators (2014). US Department of Housing and Urban Development.

Heinrich, H. (2013). Sharing economy: A potential new pathway to sustainability *Ecological Perspectives for Science & Society, 22*(4)

Hill, C. (2013, May 10, 2013). Minneapolis moves toward big expansion of car sharing in the city. *City of Minneapolis, Newsroom,*

Hodge, G. A., & Greve, C. (2007). Public–Private partnerships: An international performance review *Public Administration Review,* 545.

HOURCAR. (2013).*Why sharing beats owning.* http://www.HOURCAR.org/HOURCAR_vs_ownership

HOURCAR needs your help. (2013). Message posted to http://www.HOURCAR.org/news/2013/05/HOURCAR-needs-your-help

Increased ridership reported in city's car sharing program.(2014, June 18, 2014). *City of Minneapolis, Newsroom,*

Johnston, S. A., Nicholas, S. S., & Parzen, J. (2013). *The guide to greening cities*. Washington: Island.

Kennedy, S. S., & Malatesta, D. (2010). A very tangled web: Public and private redux *Administration and Society, 42*(1)

Knowledge World Carshare. (2009). *One thousand world carshare cities 2009.* http://ecoplan.org/carshare/general/cities.htm#latest

Kurtzieben, D. (2012, Match 27, 2012). Despite competition, car sharing rivals sharing road to prosperity. *US News,*

Legislative citizen commission on Minnesota resources (LCCMR) grant application, building Minnesota's electric future (2010). (Request for City Council Committee Action from the Department of Public Works & Department of Regulatory Services. Minneapolis: City of Minneapolis. (Authorize Proper City Departments to accept funding, if awarded, from the LCCMR to develop electric vehicle charging stations and purchase electric vehicles.)

Leong, N. (2014, February 2, 2014). The sharing economy has a race problem. *Salon,*

Martin, A. (2013, January 2, 2013). Car sharing catches on as Zipcar sells to Avis *New York Times,*

Mckenzie, S. (2007, June 28, 2007). Council committee passes contract with car sharing program. *Southwest Journal,*

The Metro Vancouver Car Share Study (2014). (Technical Report. Vancouver, BC: Metro Vancouver.

Metropolitan Council. (2014). *Thrive MSP 2040.* (Long-Range Plan). Saint Paul

Minneapolis climate action plan: A roadmap to reducing citywide greenhouse gas emissions (2013). (Action Plan. Minneapolis: Minneapolis Sustainability Office.

Moore, J. (2015, October 27, 2015). More car sharing options may be offered at Minneapolis-St. Paul international airport. *Star Tribune,*

Moore, S. A. (Ed.). (2007). *Alternative routes to the sustainable city: Autin, Curitiba, and Frankfurt* Lexington.

Morgan Gore, E. (2014, May 14, 2014). Nonprofits imagine a better sharing economy. Message posted to http://www.ssireview.org/blog/entry/nonprofits_should_lead_the_sharing_economy

Morris, M. H., Webb, J. W., & Franklin, R. J. (2011). Understanding the manifestation of entrepreneurial orientation in the nonprofit context *Entrepreneurship: Theory & Practice,* , 947.

City of Minneapolis (Producer), (2015, November 10, 2015). *November 10, 2015 transportation & public works.* [Video/DVD] Minneapolis:

Ojeda-Zapata, J. (2014, June 18, 2014). St. Paul approves Car2go car sharing service. *Twin Cities,*

Parsons, A. (2014, January 21, 2014). The sharing economy: A short introduction to its political evolution. Message posted to http://www.sharing.org/information-centre/articles/sharing-economy-short-introduction-its-political-evolution

PR Newswire. (2013, August 27, 2013). car2go introduces a new way of carsharing in Minneapolis. *PR Newswire,*

A profile of public transportation passenger demographics and travel characteristics in on-board surveys (2007). . Washington DC: American Public Transportation Association.

Public Works Department. (2015). *Car sharing pilot program – contract time extension* (RCA No. 15 August, 2015). Minneapolis: City of Minneapolis.

Rider's almanac: Metro transit's shared connections. (2013). http://www.metrotransit.org/metro-transits-shared-connections

Robinson, R. (2012). Virtual redlining and the myth of opportunity in the sharing economy *Color of Change, Open Society Foundations,*

Roper, E. (2013, May 10, 2013). City approves bringing car sharing to the streets. *Star Tribune*

Roper, E. (2016, March 2, 2016). MAP: Car2Go proposes smaller Minneapolis service area. *Star Tribun,*

Ross, D. (2014, March 26, 2014). Millennials Don't Care About Owning Cars, and Car Makers Can't Figure Out Why. *Fast CoExist*

Rupar, A. (2013, 6 May, 2013). Mpls city council committee snubs HOURCAR in favor of German car sharing company. *City Pages,*

Saeed, A. *Car sharing pilot* (Request for City Council Committee Action from the Department of Public Works. Minneapolis: City of Minneapolis.

Saeed, A. (2013). *Car sharing pilot contract* (Request for City Council Committee Action from the Department of Public Works. Minneapolis: City of Minneapolis. (Authorize staff to enter into a two-year agreement with Car2Go N.A., LLC for a city-wide car sharing pilot program, pending passage of any ordinance amendments required to carry out the terms of the contract.)

Saeed, A. (2013). *Car sharing pilot* (Request for City Council Committee Action from the Department of Public Works. Minneapolis: City of Minneapolis. (Authorize staff to expand the car sharing pilot to include HOURCAR and Zipcar and to negotiate terms for two-year agreements.)

Schaner, Z. (2013, February 12, 2013). Zip car vs. Car2Go Message posted to https://docs.google.com/document/d/10-fmQfIAbYHqVmyva1ImNXY3iQY8ln0xgbzTbUopruU/edit

Schwartz, A. (2009, U.S. car ownership declines for the first time ever. *Fast Company,*

Sharp, E. B. (1997). A comparative anatomy of urban social conflict. *Political Research Quarterly, 50*(261)

Shoup, D. C. (1997). The high cost of free parking. *Journal of Planning Education and Research, 17*

Siemiatycki, M. (2009).

Delivering transportation infrastructure through public-private partnerships: Planning concerns Journal *of the American Planning Association, 76*(1), 43.

St Paul: HOURCAR car sharing. http://www.stpaul.gov/index.aspx?NID=459

Stock, K. (2015, June 30, 2015). How much does car sharing really save you? *Bloomberg Business,*

Stone, C. N. (1993). Urban regimes and the capacity to govern: A political economy approach. *Journal of Urban Affairs, 15*(1), 1--28.

Stone, C. N. (1993). Urban regimes and the capacity to govern: A political economy approach. *Journal of Urban Affairs, 15*(1)

Thompson, D., & Weissmann, J. (2012, September 2012). The cheapest generation. *The Atlantic.*

Transportation & public works committee agenda: Transportation & Public Works, Standing Committee of the City Council of Minneapolis, May 18 (2010).

Veseth, M. A. (2014). Political economy. *Encyclopedia Britannica* ()

Vezner, T. (2015, September 27). Metro transit's vision: Fewer solo driver, more car sharing. *TwinCities.Com,*

Walsh, B. (2011, 17 March, 2011). Today's smart choice: Don't own. Share. *Time,*

Wasserab, J. (2011, 1 December, 2011). Germany's changing attitudes towards the car. *Deutsche Welle,*

Who uses public transportation in your city? (2010, *Governing the States and Localities,*

Woodland, A. (2014, April 23, 2014). Seattle reports out after one year with Car2Go on the city streets. *Car Sharing,*

Yglesias, M. (2013, 26 December, 2013). There is no "sharing economy". *Sate*

APPENDIX

Table 2: Interviews summary		
Organization	**Interviewee (position)**	**Citation**
Transit for Livable Communities	Dave van Hattum (Advocacy Director)	Van Hattum, D. (2015, November 5). Personal interivew.
Minneapolis Public Works: Parking Systems	William Cieminsky (Manager) *we were also joined by three assistant managers.	Cieminski, W. (2015, November 12). Personal interview.
car2go	Joshua Johnson (Minneapolis Location Manager)	Johnson, J (2015, November 9).Email correspondence.
Metro Transit Commuter Programs	Theresa Cain (Manager)	Cain, T. (2015, November 9). Personal Interview.

Figure 13: Hourcar Survey (only questions referenced)

* How important were each of these factors in deciding to join HOURCAR?

	Not Important	Somewhat Important	Very Important	Extremely Important	N/A
Becoming more environmentally sustainable	◯	◯	◯	◯	◯
Saving Money	◯	◯	◯	◯	◯
Convenience, ease of using carsharing	◯	◯	◯	◯	◯
My school/employer had an account	◯	◯	◯	◯	◯
Gaining access to a vehicle	◯	◯	◯	◯	◯
Other (please describe below)	◯	◯	◯	◯	◯

* Do you use the following types of transportation more or less than you did before joining HOURCAR?

	Less	About the Same	More	I have never done this
Walking	◯	◯	◯	◯
Bicycling	◯	◯	◯	◯
Transit	◯	◯	◯	◯
Personal Automobile	◯	◯	◯	◯
Traditional Rental Car	◯	◯	◯	◯
Carpool/Ride-share (for commuting)	◯	◯	◯	◯
Taxi/Uber/Lyft	◯	◯	◯	◯

* Has the number of cars you or your household own changed since joining HOURCAR?

- ◯ No, I (we) still own a car
- ◯ No, I (we) still don't own a car
- ◯ Yes, I (we) got rid of 1 car
- ◯ Yes, I (we) got rid of 2+ cars
- ◯ Yes, I (we) purchased a car

* Which Hub do you use most often? (here's a map if you can't remember the location name)

* How far do you travel to get to the hub you use most frequently?

In the last year, approximately how many times did you use HOURCAR for:

	Trips in last year
Time-sensitive appointments(doctor's appointments, meetings, etc.)	
Errands and practical tasks (Groceries, bank, hauling cargo, etc.)	
Recreation and entertainment (visiting friends, shopping, a night out on the town, etc)	
Transporting passengers (to the airport, school, etc.)	
Volunteer work	
Other uses (please describe below)	