

Parking Management in Suburban Downtowns

Lindsay Banks  
Chicago Metropolitan Agency for Planning

ABSTRACT:

The study of parking management is gaining significant traction as planners realize that satiating the endless demand for underpriced parking will either bust municipal budgets, “turn paradise into a parking lot,” or both. The complexities of parking and its effects on other factors have called into question the conventional “free and abundant” parking policies. Specifically, concerns about air quality, traffic congestion, and financial feasibility have influenced this shift.

Building off of CMAP’s *Parking Management Strategy Report* (completed by the same author), this paper explores the potential for parking management as a policy tool in suburban downtowns, with a focus on northeastern Illinois. First, it compares conventional parking policy to actively managing parking, to the hands-off, market-based approach to parking. The second part outlines key strategies taken and lessons learned in Oak Park, where parking management has been used with success in the downtown area. The final part of the paper outlines a generalized approach to re-thinking parking policy in suburban downtowns, and how the Chicago Metropolitan Agency for Planning (CMAP) plans to work with communities in the region to address the prolific “parking problem.”

*“It ought to be remembered that there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new.”*

-Niccolò Machiavelli

# Parking Management in Suburban Downtowns

---

## Contents

- Introduction.....1
- The Need for Parking Management Policy Reform.....2
- Managing Conventionally, Managing Progressively, or Ensuring Demand.....2
  - Conventional parking as necessary infrastructure.....3
  - Managed parking to serve as a policy tool.....4
  - Market-based approach to parking.....5
- The Experience of Downtown Oak Park.....6
- Steps and Strategies for Mobility Management .....8
  - Evaluate existing conditions.....10
  - Public education, outreach, & complementary programs.....10
  - Implementation.....11
  - Monitor results and make improvements.....13
- Moving Forward: The Regional Perspective.....13
- Acknowledgements.....15
- References.....16

## Figures

- Figure 1 Suburban Mall & Downtown Naperville with 2,500 ft. scale bar.....1
- Figure 2 Oak Park Parking Study Area .....7
- Figure 3 Regional Parking Map.....15

## Introduction

In many suburban downtowns in northeastern Illinois, where the density of mixed-use and residential is higher than the rest of the community, parking is increasingly cited as problematic. The services and retail businesses attract a driving clientele, but continuing to provide sufficient free parking to satisfy demand comes at the expense of the character and livability of the community. The footprint of an entire suburban downtown area may equal the footprint of a typical mall (see Figure 1), but downtown shoppers often expect the same parking provisions at both. The use of time restrictions for downtown parking is commonplace, but is not efficient and often leads to the “2-hour shuffle,” where people move their cars to avoid tickets. It is time to rethink our approach to managing parking in suburban downtowns. Many, if not most, parking problems arise from improper management of existing parking supply, rather than a shortage.

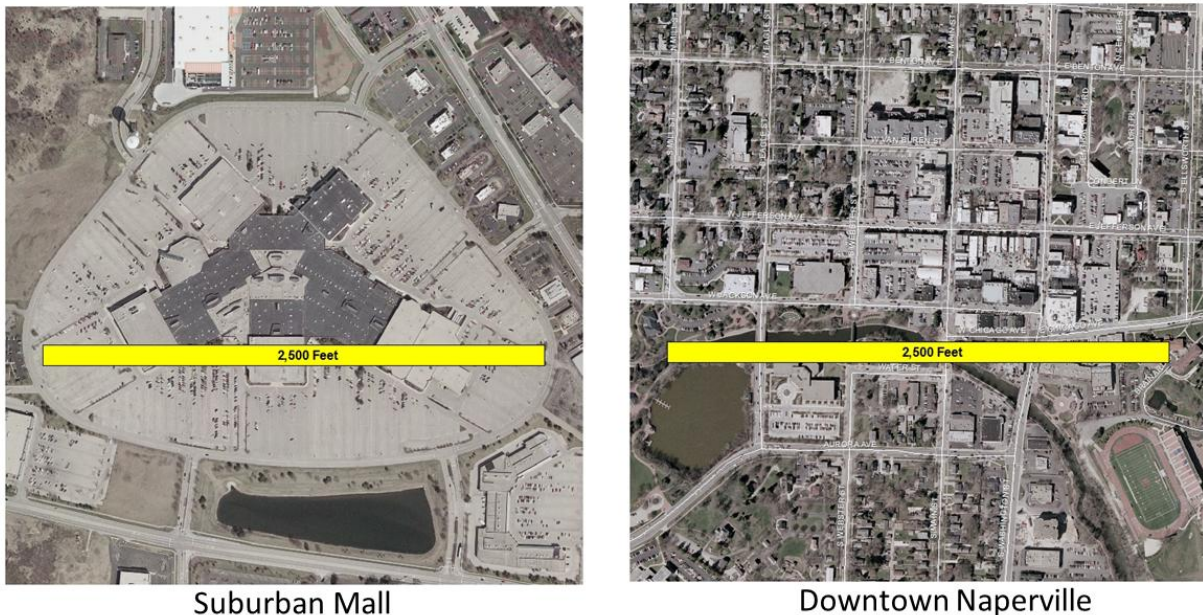


Figure 1 Suburban Mall & Downtown Naperville with 2,500 ft. scale bar

Parking spaces are as essential to driving as train stations are to rail transit systems. Every car trip begins and ends with a parking spot, and in the US, 99% of them are free (Shoup 2005). Drivers have been taught to expect a convenient, free parking spot upon arrival at just about every destination. In a society that is heavily reliant on cars, there is no doubt that we must have parking spaces – for businesses, for connections to transit, and as a basic component of the road system.

While most can agree to the need for providing parking spaces, determining how much and who should pay for them is much debated. Traditionally, municipalities have taken the responsibility of providing the parking infrastructure necessary to support the roads and drivers using them, at little or no direct cost to drivers. With increased awareness of the negative effects of excessive free and underpriced parking on walkability and community vitality, many municipalities are reconsidering the current subsidies for parking. They are looking for alternative solutions to their community’s “parking problems” because past policies are failing. Drivers often perceive a problem of undersupply, but more likely, it is a problem of mismanagement.

Parking is an issue that comes with a host of strong emotions, and reforming conventional policy is a task that must be undertaken cautiously and with significant public education, outreach, and involvement. Drivers looking for parking fail to notice the effect of their parking on others, much less the effect on the health and vitality of our downtown areas. Drivers who have always expected to find a free parking spot at every destination will undoubtedly resist pricing policies. Even if reforming existing parking policy will improve the quality of life for most people, there will be more anger than appreciation for efforts to do so. Public education and outreach campaigns can ameliorate the frustration that comes with change.

## **The Need for Parking Management Policy Reform**

CMAP's *Parking Management Strategy Report* (2009) provided an analysis of parking management strategies, existing conditions in the region, and the potential impacts of parking strategies. The paper was completed as the long-range regional comprehensive plan, GO TO 2040, was under development. The plan takes a comprehensive approach to increasing the livability of our communities and improving quality of life for residents, while anticipating an additional 2.3 million residents by 2040. Our region's biggest challenges – transportation, land development, housing, water, energy, jobs, and the economy – are highly interrelated. Parking management is an example of policy that affects many other aspects of our quality of life, and requires a comprehensive approach. GO TO 2040 specifically recommends applying free-market, supply-and-demand principles such as parking pricing, to reduce congestion and incentivize alternative travel modes.

This paper includes research findings from the *Parking Management Strategy Report* for context and takes a more in-depth look at how those principles could be applied to suburban downtowns in northeastern Illinois. First, it compares conventional parking policy to actively managing parking, to the hands-off, market-based approach to parking. The second part outlines key strategies taken and lessons learned in Oak Park, where parking management has been used with success in the downtown area. The final part of the paper outlines a generalized approach to re-thinking parking policy in suburban downtowns, and how CMAP plans to work with communities in the region to address the prolific and often misunderstood “parking problem.”

## **Managing Conventionally, Managing Progressively, or Ensuring Demand**

The way in which we view parking influences in the way in which we design policy, and determines roles and responsibilities. Parking is infrastructure, and is often the largest single land use in our urbanized areas, typically comprising 30 to 50% (Litman 2011). This section will briefly cover three different approaches to parking policy: conventional policies, progressive management policies (or “mobility management”), and market-based policies.

In the conventional approach to parking policy, parking is seen as infrastructure necessary to support roads and drivers, and should be provided by the government. With mobility management, it is also infrastructure, but it is one piece of the overall transportation puzzle. It is the government's responsibility to manage the supply in order to achieve mobility goals. With market-based parking, the true value of a parking space is established by developers and provided at their discretion, or at the urging of private beneficiaries, with the goal of ensuring demand.

## Conventional parking as necessary infrastructure

The purpose of conventional parking policy is to ensure that each building has sufficient parking to meet its own demand for free parking, even at peak periods. This is achieved through minimum parking requirements. By the 1930s, most urban areas had adopted zoning laws (Knaap et al. n.d.). In 1935, the invention of the parking meter changed the city streetscape and urban planners began requiring developers to provide off-street parking spaces in zoning ordinances soon after (Oklahoma Historical Society n.d. and Varghese 2011). The prevalence of minimum parking requirements in zoning codes grew with auto use. In 1946, only 17% of 76 cities surveyed had them; in 1951, that number had risen to 71% (Shoup 2005). Today, nearly all U.S. cities have minimum requirements for off-street parking.

In addition to preventing parking scarcity, planners use parking minimums to avoid parking “spillover,” the idea that demand for parking will spread to neighboring properties if there is not enough provided. Typically, developers are responsible for providing the parking for their property and local governments establish the minimum requirements. As a result of this approach, development density is low as land uses must be separated by expanses of parking that are hardly ever full, and it creates an unsafe and unpleasant environment for pedestrians and bicyclists.

Unfortunately, the data used to set minimum parking requirements is often limited and irrelevant. To conduct a study of actual parking needs in a community is often seen as cost-prohibitive. As a result, most cities either copy the parking codes of other cities or use the Institute of Transportation Engineers' (ITE) Parking Generation handbook. Even in ITE's handbook, reported parking rates are not necessarily based on significant amounts of data and the studies feeding into them may come from such varying situations as to have no relevance for the cities consulting the data (Shoup 2005). The existence of transit and/or provision of biking and walking infrastructure can greatly reduce parking needs, and yet the ITE handbook does not consider such variation between communities.

Minimum parking requirements are standard for most suburban communities in northeastern Illinois, often resulting in an over-supply of parking. A 1998 study done for the RTA illustrates the gap between actual demand and supply. A survey of 6 suburban office buildings found that the average parking supply was 3.62 spaces/1,000 square feet (of office building), while the actual usage was 2.45 spaces/1,000 square feet. Building occupancy had a large influence on usage, but even after adjusting the numbers for full occupancy the authors determined that supply could be reduced by 17% and still meet all the existing demand for free parking. The study recommended that municipalities with requirements over 3.5 spaces/1,000 square feet of building revisit their regulations (Regional Transportation Authority 1998). In a nationwide study by Kuzmyak, Weinberger, Pratt and Levinson, the authors concluded that a parking ratio of 2.0 would sufficiently cover the needs of most business parks, but that each location would have to be analyzed individually to determine special situations or circumstances (2003).

The same study, by Kuzmyak et al., also found that the quantity of parking provided was almost always determined by municipal ordinances or zoning code. In a survey conducted for the study, most developers reported that they would reduce the amount of parking if they could get a higher return on investment via more development, or if incentives or bonuses were offered. The authors of the RTA study concluded that municipalities would see short-term fiscal benefit only if reduced parking led developers to construct more buildings. In the longer-term, increased development with less parking

would help to raise land values, which would be to the municipality's benefit (Regional Transportation Authority 1998).

Minimum parking requirements increase the overall parking supply beyond what a balanced market would provide. Since a car spends 95% of its life parked (Shoup 2005), much of our landscape has been turned into parking lots. In many cases, residents of auto-oriented communities would like to have more transportation options, but the low-density associated with a generous parking supply makes this unfeasible. Also, residents who are opposed to new developments with increased density often cite fears of increased traffic and parking difficulties. Unfortunately, the reality is that low-density development patterns preclude transit options, while auto ownership falls by 32 to 40 percent with each doubling of residential density (Holtzclaw et. al). In low-density development with conventional parking requirements, the large expanses of asphalt reduce walkability and increase the need to drive and, of course, find parking.

### **Managed parking to serve as a policy tool**

Basic progressive parking management typically come into play once the level of parked cars begins to have a noticeable impact on the attraction and quality of an area, and can progress to serve as a policy tool for managing mobility and access. Some communities begin researching parking management when they think that they need more parking spaces, but land area is limited. A report completed by the European Cooperation in Science and Technology (COST) found that cities across the globe encounter a similar evolution of parking management strategies (2006). The typical pattern, ending with “mobility management,” is:

1. Initial regulations, prohibited parking areas, and improved signage;
2. Time restrictions to encourage turnover;
3. Paid parking to decrease occupancy rates;
4. Residential parking schemes and permitting to address spillover;
5. Park & ride facilities at the edge of town; and finally,
6. Mobility management

Mobility management uses progressive parking management to serve broader policy goals. For the purpose of this paper, “parking management” will assume broader transportation policy goals and imply progressive parking management. The goals of parking management will vary from one place to the next, but can include: traffic reduction, parking turnover, maintaining 85% occupancy levels, favoring particular user groups, discouraging other user groups, increasing mode split by encouraging bicycling and walking, and improving the pedestrian environment.

With parking management, the infrastructure needs for parking are determined by characteristics of the neighborhood or area, rather than by parcel use. Areas of varying demand are established, and parking “spillover” can be managed with pricing, permits, and other tools. Complementary policies to encourage bicycling and enhance walkability help to reduce parking usage. Barter notes the limits of managed parking when parking minimums are not eliminated (2010).

Parking management has been used to revitalize city and town centers, significantly reduce vehicle miles traveled (VMT), reduce air pollution, and generally improve the quality of life (Kodrinsky and Hermann, 2011). Parking management strategies, particularly pricing, will have the effect of forcing

users to "economize" when it comes to parking. Many drivers will shift to different modes, different times of day, or combine trips. These actions will help to reduce traffic congestion, roadway costs, pollution, and more. At the low end, Shoup estimates congestion costs to be about \$73 per month per parking space (2005), which would equal almost \$3 billion in annual costs for the Chicago region.

Appropriately priced parking will reduce demand for parking; a combination of appropriately priced parking and incentives for alternative modes can produce the most significant changes in behavior. Todd Littman has found that offering cash-out programs (such as \$50 / month for not using a parking spot) typically reduces automobile commuting by 20% (2006). In another study, Litman found that shifting from free parking to cost-recovery parking (prices that reflect the full cost of providing parking facilities) typically reduces automobile commuting by 10-30% (2008). Wilson and Shoup found that, when employees are charged to park, 20% fewer drive solo (1990). Clearly, people are motivated by financial incentives.

At suburban locations with limited transit, it is still possible to reduce the number of single-occupant drivers by incentivizing carpooling and promoting bicycling and walking, although the impacts will be less. Factors that affect the success of parking cash-out programs include: proportion of employees that are candidates for cash-out, availability of alternatives to solo-driving, and the presence of an uncontrolled parking supply (Vaca and Kuzmyak, 2005). Downtown San Francisco has developed a "Transit First" policy to encourage transit ridership that has no requirements for parking provision, but instead has implemented maximum parking ratios. In ten years, there has been no major increase in peak traffic despite "considerable office growth" (Kuzmyak, et al, 2003). Other studies have found parking management tactics reduced parking demand by 15% in areas with low transit to 38% in areas with some transit (Transportation Authority of Marin).

A combination of parking management strategies, tailored to specific neighborhoods could price on-street spaces so that they maintain 85% occupancy. Drivers who are willing to pay the cost of on-street parking will no longer find themselves "cruising" for a spot. This will significantly reduce traffic in CBDs. Programs that encourage alternative modes, while charging for parking, will also have the effect of reducing single-occupant drivers.

Parking management is common in many urban areas in the United States. At the time of this writing, Oak Park is the only community that CMAP is aware of in northeastern Illinois that has pursued mobility management. Varying degrees of parking management can be found in Chicago and many suburban communities including Evanston, Arlington Heights, Naperville, and Aurora.

### **Market-based approach to parking**

A market-based approach to parking institutes pricing that is responsive to supply and demand, and allows private decisions to shape supply, removing government from the picture. This could be achieved by banning on-street parking, eliminating parking minimums or maximums, and allowing developers to provide the quantity of parking that they believe would render their development profitable. This tactic is, however, unrealistic and would probably result in chaos and mass illegal parking, but there is one example of policy that takes an approach that is more laissez-faire than most.

In 2010, San Francisco implemented a demand-responsive system called *SFpark*. *SFpark* is a federally funded pilot project using smart technology to determine appropriate pricing levels. Currently in effect

and being monitored, the program works with sensors that track parking availability and occupancy in real-time. The data is uploaded to the *SFpark* website, where the vacancy rates are used to adjust the price of the meters on a monthly basis. The price fluctuations are limited to (+/-) \$0.50 increments each month.

Since San Francisco is the first city to implement a market-based approach, it is hard to say with certainty what the effects will be, but the hope is that people will spend less time looking for spaces. They will either pay more to park in priority areas, whose higher price will encourage others drivers to find parking further out; neither driver should have to waste much time circling for an open space. Since the prices do not change more than once a month, there is hope that drivers would quickly learn which areas are higher priced. The pricing levels are shown in real-time on a map on their website, which has some worried about distracted drivers hunting for parking using a mobile device. Theoretically, once the appropriate pricing levels are established, there will always be one or two spaces available, rendering the app unnecessary.

The program extends beyond on-street spaces, and also includes municipal parking garages. The San Francisco Municipal Transportation Agency (SFMTA) and the U.S. Department of Transportation (DOT) will evaluate the program's effectiveness at improving parking availability, reducing greenhouse gas emissions, and improving commercial vitality (SFpark.org 2011). SFMTA and DOT hope that SFpark will serve as a model for other communities, to be implemented more widely.

## **The Experience of Downtown Oak Park**

In the paper "Parking Management: A Contribution towards Livable Cities," author Tom Rye provides a checklist for parking management implementation. The steps outlined by Rye are (2010):

1. Define general problems to be addressed (parking congestion, traffic congestion, excessive parking facility costs, poor pedestrian environment, etc.) and the geographic area to be considered.
2. Perform a parking study that includes:
  - a. A parking supply inventory (public/private, on/off-street, short/long-term, free/paid, etc.);
  - b. A parking utilization study (what portion of each type of parking is used, *i.e.* peak periods);
  - c. Projections of how parking supply and demand are likely to change in the future;
  - d. Use this information to identify when and where parking supply is inadequate or excessive
3. Identify potential parking management measures.
4. Work with all related stakeholders to prioritize options.
5. Develop an integrated parking plan that identifies changes in policies and practices, tasks, responsibilities, budgets, schedules, etc.

This is essentially the path that Oak Park, IL followed under the guidance of Walker Parking Consultants (Walker), starting in 2007. The Village enlisted Walker with the goals of easing congestion in the downtown area and to regulate turnover. There were complaints of parking congestion and shortages and the Village wanted to determine how much parking was needed, or if there were alternative ways of managing the parking to solve their problems.

The Village defined the boundaries of the study area as the central business district – an area of about 1/8<sup>th</sup> of a square mile, bounded by Harlem on the west, Ontario St. on the north, Oak Park Ave on the east, and North Boulevard on the south (see **Error! Not a valid bookmark self-reference.**). Oak Park was a step ahead of many other suburban downtowns because their downtown spaces were already metered when they began the process of updating their parking management system. A community that is introducing pricing will face more resistance to change than Oak Park encountered.

The Walker Parking inventory concluded that high-demand areas had parking spaces ranging in price from \$3.00 for 12 hours to \$0.50 / hour, while spaces outside of the high-demand area were priced from \$0.25 / hour to \$12.00 for 12 hours, indicating a backwards pricing scheme. They found that many downtown employees were feeding the meters at a cheaper rate in high-demand areas, than they would pay further out. This situation, which is all-too-common in areas with high parking occupancy rates, prevents paying store customers from finding a convenient spot close to their destination.

Employees arrive downtown before peak parking period and take the best, cheapest spaces available and leave their car all day. When potential customers come downtown to shop or eat, they add to traffic congestion as they circle around, looking for a spot. The ideal situation would be to have the more convenient spaces available at a higher cost, discouraging long-term use and freeing them up for other users.

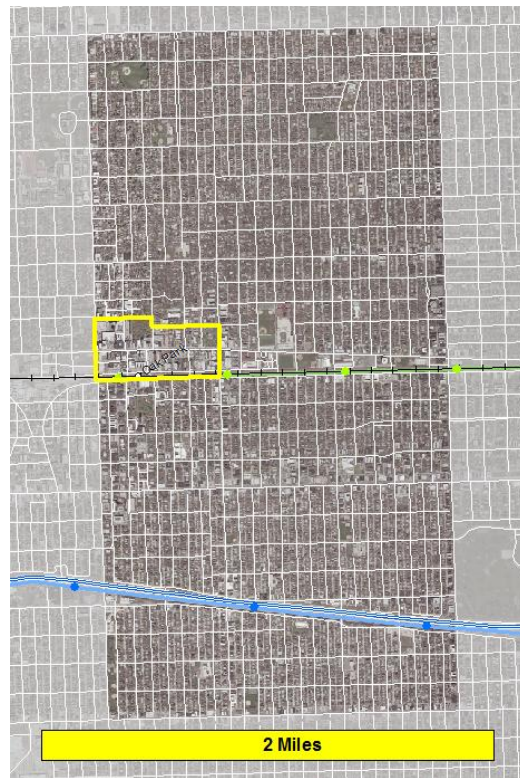


Figure 2 Oak Park Parking Study Area

The results of the “Parking Study & Rate Analysis” report by Walker were presented to the Village and their board with explanations of the results and a series of recommended action steps. As much as people complained about parking charges, the Village knew they had to find a balance between how much drivers pay for parking and how much Oak Park taxpayers must pay to subsidize the cost to manage, maintain, and create public parking that is not covered by the revenues generated from parking services.

The recommendations called for higher rate increases in high-demand areas and lower rates in low-demand areas. In the high-demand areas, meter rates went from \$0.50 to \$1.50 per hour, medium-demand areas went to \$1.00 per hour, and meters in low-demand areas went to \$0.75 per hour. After a brief trial run, user feedback (not actual performance measures) deemed the high-demand areas too expensive. They were rolled back to \$1.00 per hour. At the same time, quarterly parking permits for garage parking were offered at a discounted rate and multi-space pay boxes were installed. The multi-space pay boxes allowed drivers to pay with credit cards, as well as cash.

The entire process to make these changes was no simple undertaking. It was politically unpopular, but necessary in order to improve the downtown parking experience. While many business owners were supportive and understood the need for change, there were some who were very vocal in their opposition. They put fliers on meters encouraging residents to complain to the Village about the new

policy. The village responded to every complaint or gripe, with explanations of the changes and identification of zones where they could find less expensive parking.

For the most part, outreach and engagement of stakeholders in Oak Park was successful to creating buy-in. Before the rates were raised, in April of 2008, the Business and Civic Council of Oak Park issued a statement of support for the policy changes, acknowledging that shoppers and customers are drawn to vibrant downtowns, not areas with free parking. They stressed that the parking should “neither be a source of surplus revenues for the village nor a drain on its finances” (2008). Since the program has been in place, turnover has increased and it is now easier to find a place to park downtown.

The 45-page parking study identifies user groups, provides an analysis of current conditions, offers various proposals, and revenue projections. The Village also crafted a public outreach campaign to manage questions, concerns, and comments. In order to help residents understand how the new parking system worked, they created a series of educational materials, including a YouTube “how-to” video and maps showing where meter rates vary, from the high-demand areas to the lower demand areas. But parking manager Cara Pavlicek acknowledges that there is still work to be done to educate citizens and business owners on how parking supply and demand affects the community.

In accordance with the wishes of the Business and Civic Council of Oak Park, the Village hopes to create Parking Benefit Districts where revenue generated from meters is put directly back into the district where it was generated. This could be used for sidewalk and street repair, street tree or decorative planter installation and maintenance, street cleaning, decorative benches, street lighting, graffiti removal, historic preservation, or putting overhead utility wires underground. They are also looking at ways to reduce the need for parking with car-sharing programs such as ZipCar and the non-profit I-Go Cars, which brought the first shared vehicle to Oak Park in 2006. A shared vehicle can replace up to 15 privately owned vehicles, with the potential to dramatically reduce village parking needs (TRB, 2004 and Zipcar, 2005 as cited in CMAP’s Car-sharing Strategy Paper, 2008).

Pavlicek notes that they were not surprised to learn that most people want quick, easy, and cheap parking. The process of balancing those three will always involve sacrifices, and many people are willing to pay for convenience. She stressed that it is important to realize that not everything will turn out perfect the first time, but it’s always possible to make adjustments to get it right. The most important aspects of her experience were having improved user information, electronic payment options, and a pricing strategy based on demand.

## **Steps and Strategies for Mobility Management**

Providing and managing a community’s supply of parking is critical to creating livable communities. A livable community is healthy and safe, and provides transportation options that include bicycling, walking, and driving. As our region and its unique 284 municipalities continue to grow, it will be increasingly difficult to maintain the current mode split and provide ubiquitous free parking without significantly harming the natural environment, eliminating public spaces, creating more congestion, and going broke as we do it. Alternatively, we can increase mobility and access while creating more livable communities—with parking management as a central tenet of our overall transportation strategies.

There are very few land uses that generate less revenue than surface parking lots; in fact, they are more likely to reduce the economic success of a downtown than to improve it (Robertson 2005). From a regional perspective, limiting the parking supply would likely be a boon to the economy. Local

municipalities, however, see the situation differently, because of the importance of retail tax revenue. If one municipality offers free parking at a shopping destination and the next one does not, customers will probably pick the former. But as municipalities compete, it becomes a zero-sum game at the regional level because increasing the parking supply everywhere does not increase the total regional sales volume but it does have regional negative externalities urban heat island effect, stormwater infiltration and pollution, and traffic congestion. In the early 1970s, Boulder took the risk of pricing parking with the idea that a more attractive environment would entice shoppers regardless of parking pricing (Weinberger, Kaehny, and Rufo 2010). Through the creation of a Parking Benefit District, parking meter revenues were used to build centralized parking structures, improve the pedestrian environment, and create the sense of place that attracts people. Rather than compete with suburban shopping malls' free parking, they worked to enhance the aspects of a small downtown that make it attractive and lively.

A downtown parking strategy that limits and centralizes the amount of off-street parking, prices on-street parking where appropriate, and incentivizes alternative modes should be the goal for parking management in suburban downtowns to help create livable communities. A smattering of surface parking lots breaks up the street wall, increases the urban heat island effect, increases impervious surface area, creates conflict points for pedestrians at every entrance from the street, and reduces the amount of on-street parking possible. Eliminating minimum parking requirements will open the opportunities for small businesses who could not afford to build the amount of parking that was previously required. Small businesses can be encouraged to promote alternative transportation, which the municipality can assist with – through provision of bicycle maps, explanation of commuter benefits, safety training, etc. In Schaumburg, zoning ordinances have been used to encourage bicycle use. All retail centers are required to have a minimum of 10 bicycle spaces prominently displayed and located by every main entrance (EPA 2006).

Some developers worry about the "marketability" of a building if their parking supply is restricted (Kuzmyak et al. 2003). Developers can pay fees in-lieu of the parking that they would typically provide, which would be used to provide spaces at a municipal parking garage that supplies parking for the whole downtown. Residential buildings can share the parking garage spaces; their need for parking will be highest when visitor parking demand is lowest, reducing the amount of total parking needed.

An integrated parking management strategy can be used to increase the attractiveness of a retail center by reinvesting the parking revenue into street improvements. The city of Pasadena used parking management to revitalize their downtown. With agreement from local merchants, they added parking meters and used the revenue to pay debt on a major streetscape overhaul, called the "Old Pasadena Streetscape and Alleyways Project" (Kolosvari and Shoup 2003). The meter revenue went toward street furniture, trees, decorative grating for trees, better lighting, and also improved policing, more street and sidewalk cleaning, and marketing (maps, brochures, etc.). Local merchants actually saw an increase in business as the location became a more attractive place for customers to shop and spend time in "Old Pasadena."

Parking management strategies are best applied as part of an overall parking approach whose steps can be boiled down to evaluation, education, implementation, monitoring, and improvement. A community should first evaluate the existing conditions for supply and usage rates, conduct a public education and outreach campaign, implement the appropriate changes, monitor results, and adapt as needed. Having a flexible policy is important so that adjustments can easily be made. Additionally,

communities should consider how their zoning policy is affecting parking and make revisions to increase economic vitality and livability. They can also provide incentives for alternative transportation and work with local employers to encourage car-pooling, bicycling, and walking.

### **Evaluate existing conditions**

After the geographic target area and problems to be addressed have been determined, a parking inventory is the first step to reform. An inventory of the existing parking supply should include on-street and off-street, public and free, loading zones, occupancy levels by time of day, time limits, and any existing pricing schemes. Donald Shoup argues for occupancy levels of about 85% (2005). For on-street parking, this rate ensures that there will always be one or two spaces available per block, and drivers will not spend their time “cruising” for a spot.

It is important to work with business owners and residents to determine where downtown employees are currently parking and what the busiest times of day are for different uses - businesses, restaurants, schools, churches, etc. Some uses will have parking demand during rush hour, others will be busy around midday, and others will attract patrons at night or on the weekends. Identifying these differences by locality will point to opportunities for “shared parking.” A local church may have a parking lot near a movie theater; one parking lot shared between the two uses reduces the need for parking spaces at both.

With occupancy rates and existing supply information, varying zones of demand can be established. This should be a flexible designation that could change with business openings and closings, as well as any new construction. Typically, a downtown’s “main street” will have the highest demand for parking. These zones of demand will be used by the community to institute parking pricing to reach the desired 85% occupancy rates.

### **Public education, outreach, & complementary programs**

In addition to, and in coordination with the major parking measures undertaken, there are important accompanying measures. These include: public outreach, analysis of existing zoning codes, improved bicycle and pedestrian access and mode share, analysis of potential for shared parking opportunities and use of car-sharing companies like I-Go or Zipcar. Public acceptance is a requirement for successful policy reform. Stakeholder involvement, clarification of facts, and transparency in revenue stream are key.

It is most important that users perceive a benefit from the parking reform. If pricing is implemented and revenue goes directly to fill budget gaps, the public perception may go from bad to worse. One way to gain acceptance that Donald Shoup argues for, is to return the revenues directly to the street where money is being collected. The money can be used for improving the streetscape or transit as demonstrated in cities such as Pasadena, Boulder, and Austin. Another idea is to take the revenue from on-street parking and put it toward provision of parking in a centralized municipal garage.

Keeping desired outcomes in mind, the municipality should understand which user groups will be targeted: commuters, visitors, residents, downtown employees, business customers, etc. From public outreach, planners can find out what frustrates them most about other parking policies. Some people never carry enough coins or cash and need machines that accept credit cards. Some people don’t want to walk half a block to pay, and half a block back to put a ticket in their car. Some people are not

observant of the time and often get tickets. Some people don't want to move their car for a long period of time. The potential for new technology to address many of these concerns will increase every day. For example, if meters were equipped with QR codes read by smart phones, a user could access an app to pay, receive notices of time expiration, with options to "feed the meter" remotely. If it is easier for the end user, there is better chance for acceptance.

## Implementation

The impact of parking management policies will vary with density levels, transit access, median income, and access to businesses and services in the local downtown area. Suburban communities with Metra commuter stations and Pace bus service have more possibilities for innovative policy. In smaller, less dense communities with no transit, strategies will be somewhat limited.

Some of the following strategies for managing parking are possible:

Parking Management Tool	Description / Example
Context-sensitive solutions	Reduce minimums for senior and affordable housing
Improve bicycling infrastructure and the pedestrian environment	Provide secure bike racks, improve crosswalk visibility, create bike lanes, etc.
Work with employers to incentivize carpooling, bicycling, walking	Employers can offer workers benefits such as: the cash equivalent of a parking space, access to a shared company vehicle, cash per mile ridden for bicyclists, etc.
Shared parking	Share parking facilities among multiple uses with disparate peak demand periods
Land banking / land reserves	Require developers to provide parks and open space that could be converted to parking, if needed
Paid Parking, no time limits	Install meters or paid parking systems without time limits, as price should be influential enough to adjust behaviors
Progressive Parking Pricing	To encourage turnover, the price is progressively higher per hour in high activity areas (for example, \$1 for the first hour, \$2 for the next hour, \$5 for each hour following) (Weinberger 2011)
Unbundled parking	Reduce parking requirements for developers who unbundle parking spaces from rents / mortgages; or require developers to unbundle parking
Create a Parking Benefit District or Parking Management Authority	All paid parking revenue is deposited into a fund for the area where the meters are located, to be used for whatever the tenants and land-owners desire
In-lieu fees	Charge developers fees in-lieu of providing required parking with funds dedicated to providing parking at a centralized garage / municipal lot, and/or improving the streetscape
Eliminate parking minimums	With no parking minimums, developers will likely provide a more limited supply, and small businesses will have more incentive to open new locations.

Parking maximums	Establish parking maximums in areas with limited land, high congestion, and transit access
High fees for curb-cuts for driveways	Developers would pay a substantial fee for driveway curb cuts, which reduce street parking opportunities, increase danger to pedestrians, break up street continuity, and impede traffic flow
Work with a car-sharing program to get vehicles in town, particularly at train stations	I-Go Cars and Zipcar have both been exploring expansion to Chicago's suburbs; the first I-Go car was brought to Oak Park in 2006.
Develop a bike-sharing program	Promoting the use of bicycles for short trips can reduce parking needs around the downtown area
Transit incentives	Provide a free or discounted transit pass to residents to allow them unlimited transit rides, or help employers provide it to their staff

Using input from the public engagement process and business leaders, planners can decide upon the appropriate measures to implement and start incrementally. Policies that will be most effective are those which motivate people with money. If drivers receive money to reduce driving, and have to pay for parking when they previously did not, there will be a more noticeable difference in mode shift.

With payment options, you want the system to be easy for end users, and you want to reward people for driving less. When you pay a monthly parking fee, there is no incentive to drive less. In comparison, a pre-paid card that deducts a payment each time you enter a parking lot will save people money if they don't drive. A monthly transit pass, similarly, will encourage drivers to spontaneously choose transit. If the weather is nice and the car commuter decides to ride her bike, she will have a lower parking bill. A normal bill of \$93, with a week of biking could be \$72.

Enforcement of parking policy is imperative. Upon introduction to a new program, municipalities can employ "parking ambassadors" to help people adjust to the changes, instructing them on meter operation or directing them to less expensive spaces or lots. Considerations should also be made as to the ticketing policy. For the first month of operation, the ticket can be a warning with an explanation of the violation and rates of fines, explanation of parking management goals, location of cheaper parking, how the revenue will be used, and thank them for coming downtown. For the second infraction, include the same educational information, and offer a discount if the ticket is paid within set time period, and explain that the fine for the next violation will increase. For the third violation, again include the educational information, offer discount for rapid payment, but apply an increased fine. Donald Shoup has found that a small number of repeat violators account for a significant percentage of tickets in various cities surveyed (2010). Fines should not be excessive, but should vary according to the seriousness of offense, and increase with repeat offenders. Parking at a bus stop and impeding transit flow is more serious than overstaying time on a meter.

Some areas have "first 30 minutes free" or similar discounts, but it has been found that this is most likely to result in increased traffic movement, increased municipal costs, and not more customers (COST 2006). In every instance cited in the COST report where policies of reducing parking charges with the aim of creating retail activity were tried, they were unsuccessful. Free parking on Saturdays and Sundays, first half-hour free, etc. They all resulted in increased traffic congestion and no noticeable

increase in retail activity, and were abandoned (2006). Even back in 1935, in Oklahoma City, businesses on non-metered streets advertised their free parking for a short time and then abandoned that strategy when occupied spots prevented customers from coming in (Oklahoma Historical Society In London, with some of the world's highest parking tariffs, pricing has had no noticeable impact on retail; the most important factors in attracting business are quality of the environment, the range of goods and services offered, and the overall accessibility (COST 342). At the same time, policies that restrict parking too severely can adversely affect the economic vitality of a business district, just as lenient policies can. It is a matter of finding the right balance.

Explore options for advanced technology that can be used to make the experience of paying for parking less painful. Pre-paid parking cards, in-car parking meters, mobile phone & GPS technology, barcode scanners / QR codes on meters all have pros and cons. Public input and funding will help determine the best choices for the downtown area.

### **Monitor results and make improvements**

It is not unusual to see an initial decline in business activity upon implementing parking reform. This may happen as people adjust to the parking policy and try to avoid paying for parking. If the rates established are on-target, and are not excessive, business should return to normal after the initial turbulence (COST 2006). If the area had extreme congestion before, business is likely to increase with the implementation of parking management. While evidence "clearly indicates that proper parking policy measures support the economy rather than hamper it," the most important results will be seen at street-level and should be carefully monitored. If areas originally established as "high demand" have high vacancy levels, either the demand was wrong or the price was too high and an adjustment is needed. In the case of Oak Park, the "initial turbulence" and public opposition created pressure to lower the rates, even though the policy had not been in place long enough to evaluate its success, and there was no analysis of the effects on businesses, before the change was made.

Monitor the results of the desired outcomes of the parking reform that were established at the beginning. This could include congestion levels, air quality, pedestrian incidents, counts of bicyclists, as well as levels of parking vacancy along the main street. Conduct interviews. Ask local business owners how it has affected them and what their customers are saying. Keeping in mind that no one likes to pay for parking, look for aspects of the system that could be changed to improve user satisfaction.

### **Moving Forward: The Regional Perspective**

Each community is different and will require a unique approach to parking reform. Unfortunately, the tendency for planning professionals in municipalities is to look to their neighbors for suggestions on parking policy (Shoup 2005), so while exceptions exist, innovative policy is limited in northeastern Illinois. Communities that are willing to pursue new directions have very few examples to look to for reference. While the Chicago Metropolitan Agency for Planning cannot prescribe a blanket solution for suburban communities in northeastern Illinois, we can outline some general approaches to parking policy reform, and provide a set of "tools" to support policy reform. We plan to work with communities to develop and apply model parking ordinances, create public education and outreach materials, monitor results of policy changes, and refine them.

There is a dearth of information available for citizens to understand infrastructure, the purpose of municipal revenues, the purpose and idea of parking management, and the fact that parking

management is not a tax on drivers, but reflects the expenses involved with providing parking infrastructure. Using the information in the *Steps and Strategies for Mobility Management* section of this paper, CMAP will develop a toolkit for municipalities interested in reforming parking policy over the next fiscal year. The toolkit will include educational materials for use at public meetings and workshops, relevant datasets, outreach strategies, sample ordinances and zoning amendments, and implementation strategies.

CMAP has also committed to working with partner agencies, like the Regional Transportation Authority (RTA) to address parking management at a regional scale. There are nearly 95,000 parking spaces at facilities owned by Metra, Pace, and the CTA – an area larger than 536 football fields. The vast majority of these – almost 87,700 spaces – are at Metra stations in older communities with potential for transit-oriented development. One station has a waiting list for parking spaces of about ten years, indicating an imbalance of supply and demand, and most likely an underpriced commodity. The RTA has to balance the costs of operating and maintaining parking with the provision of an amenity that attracts riders to the system, and the lost opportunity cost of the land.

In addition to transit parking and on-street spaces, northeastern Illinois has over 3.2 million commercial and industrial off-street parking spaces (see Figure 3). Off-street parking requires about 300-400 square feet per space (Litman 2006), meaning that we have somewhere around 1 billion square feet of parking, not counting on-street and transit parking. O'Hare is the region's largest parking supplier with 28,800 spaces, and Joliet's Chicagoland Speedway has 20,800. Commercial office spaces in Chicago account for 117,704, while downtown office spaces (including 4 neighborhoods around the Loop) number 75,335. The Loop (or Central Business District, bounded on the west and north by the Chicago River, on the east by Lake Michigan, and on the south by Roosevelt Road) has 59,188 spaces, of which 33,652 are office parking spaces.

These parking spaces are an important part of the transportation infrastructure for our communities, but they are expensive to build and maintain, and when provided at no cost, make driving the more attractive mode choice. We are all paying for them in one way or another, regardless of how much we drive. To accommodate future growth and develop livable communities, with safe options for a variety of travel modes, we must take a proactive approach to managing parking so as to avoid the negative externalities and get the best and highest use out of our available land.

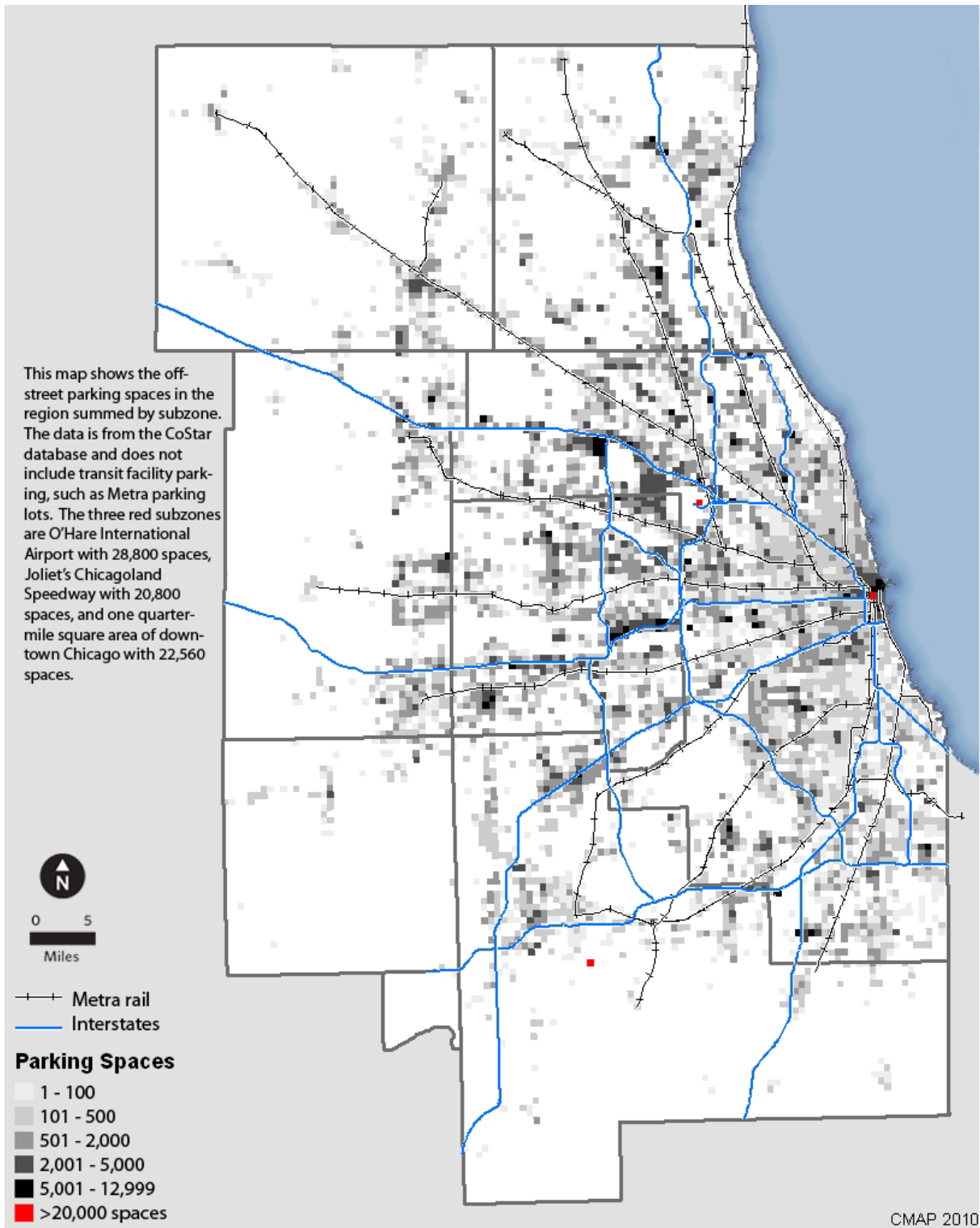


Figure 3 Regional Parking Map

## Acknowledgements

I would like to extend my gratitude to Stephanie Dock, Dr. Rachel Weinberger, and Drew Bayley for their assistance with researching (Stephanie), reviewing (Rachel), and supporting me (Drew).

## References

- Chicago Metropolitan Agency for Planning (CMAP). 2009. *Parking Management Strategies*. Online: <http://www.cmap.illinois.gov/strategy-papers/parking>
- Barter, P.A. 2010. *Off-Street Parking Policy without Parking Requirements: a Need for Market Fostering and Regulation?* *Transport Reviews*, 30 (5), 571-588. Online: <http://dx.doi.org/10.1080/01441640903216958>
- Business and Civic Council of Oak Park. 2008. *BCC Parking Position*. Online: [http://www.bccoakpark.org/bcc\\_article02.html](http://www.bccoakpark.org/bcc_article02.html)
- European Cooperation in Science and Technology (COST). 2006. *Parking Policy Measures and Their Effects on Mobility and the Economy*. Technical Committee on Transport August, 2006. Online: <http://www.transportlearning.net/docs/COST%20Action%20342%20final%20report%20veilig.pdf>
- Holtzclaw, John, Robert Clear, Hank Dittmar, David Goldstein, and Peter Haas. 2002. *Location Efficiency: Neighborhood and Socio-Economic Characteristics Determine Auto Ownership and Use - Studies in Chicago, Los Angeles and San Francisco*. *Transportation Planning and Technology*. 25 (1): 1-27. Cited in EPA's *Parking Spaces / Community Places: Finding the Balance through Smart Growth Solutions*. 2006. Online: <http://www.epa.gov/dced/pdf/EPAParkingSpaces06.pdf>
- Knaap, Talen, Olshansky, and Forrest. No date. *Zoning Subdivision Regulations, and Urban Development in Illinois*. Department of Urban and Regional Planning, University of Illinois at Urbana-Champaign. Online: <http://www.dnr.state.il.us/orep/pfc/balancedgrowth/pdfs/zoning.pdf>
- Kodransky, Michael and Gabrielle Hermann. 2011. *European Parking U-Turn: From Accommodation to Regulation*. Institute for Transportation and Development Policy. Online: [http://www.itdp.org/index.php/library/publications/filter/managing\\_traffic\\_demand/](http://www.itdp.org/index.php/library/publications/filter/managing_traffic_demand/)
- Kolozsvari, Douglas and Donald Shoup. 2003. *Turning Small Change into Big Changes*. *Access Magazine*, No. 23, Fall 2003, pp. 2-7. Online: <http://shoup.bol.ucla.edu/SmallChange.pdf>
- Kuzmyak, Richard J., Rachel Weinberger, Richard H. Pratt and Herbert Levinson. 2003. *Parking Management and Supply: TCRP Report 95, Chapter 18*. Washington, DC: Transportation Research Board. Online: [http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp\\_rpt\\_95c18.pdf](http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rpt_95c18.pdf)
- Litman, Todd. 2006. *Parking Management: Strategies, Evaluation and Planning. Summary of Parking Management Best Practices*. Chicago: APA Planners Press. Online: [http://www.vtppi.org/park\\_man.pdf](http://www.vtppi.org/park_man.pdf)
- Litman, Todd. 2008. *Parking Pricing: Direct Charges for Using Parking Facilities*. TDM Encyclopedia, Victoria Transport Policy Institute. <http://www.vtppi.org/tdm/tdm26.htm>. Accessed: 09/09/09.
- Litman, Todd. 2011. *Parking Requirement Impacts on Housing Affordability*. Victoria Transport Policy Institute. Online: <http://www.vtppi.org/park-hou.pdf>

- Oklahoma Historical Society. 2007. *Oklahoma Journeys, April 7, 2007*. Online: <http://www.okhistory.org/okjourneys/parkingmeter.html>
- Pavlicek, Cara. 2011. Interviewed by author. April 2011.
- Regional Transportation Authority (Chicago). 1998. *Opportunity Costs of Municipal Parking Requirements*. Prepared by Fish & Associates, K.T. Analytics, and Vlecidis-Schroeder Associates, Final Report, April, 1998.
- Robertson, Kent. 2005. *Smart Downtown Parking: Core Principles to Support Downtown Development*. Let's Talk Business newsletter, Issue 105. Online: <http://www.uwex.edu/ces/cced/downtowns/lbt/lets/may05lbt.pdf>
- Rye, Tom. 2010. *Parking Management: A Contribution towards Livable Cities*. Module 2c in Sustainable Transport: A Sourcebook for Policy-makers in Developing Cities. GTZ Transport Policy Services. Online: <http://sutp.org/documents/2c-PARKM-EN.pdf>
- SFpark.org. <http://sfpark.org/>. Accessed: 4/23/11.
- Shoup, Donald. 2005. *The High Cost of Free Parking*. Chicago: APA Planners Press.
- Shoup, Donald. 2010. *Parking-Fine Fairness*. Los Angeles Times. Opinion L.A. October 27, 2010. Online: <http://articles.latimes.com/2010/oct/27/opinion/la-oe-shoup-parking-20101027>
- Smith, Mary. 2005. *Shared Parking*. Second Edition. Washington, D.C.: ULI-the Urban Land Institute and the International Council of Shopping Centers.
- Transportation Authority of Marin, *TPLUS TOD/PeD Toolkit*. Accessed 09/09/09. Online: <http://www.tam.ca.gov/index.aspx?page=293>
- U.S. Environmental Protection Agency (EPA). 2006. *Parking Space / Community Places: Finding the Balance through Smart Growth Solutions*. Online: <http://www.epa.gov/dced/pdf/EPAParkingSpaces06.pdf>
- Vaca, E., & Kuzmyak, J.R. 2005. *Parking Pricing and Fees - Traveler Response to Transportation System Changes*. Transit Cooperative Research Program (TCRP) Report 95: Chapter 13, published by Transportation Research Board, Washington.
- Varghese, Jenson. 2011. *Economic Development through Parking Reform*. Presented at New Zealand Planning Institute Annual Conference, March, 2011. Online: <http://bit.ly/mndw7e>
- Weinberger, Rachel, John Kaehny, and Matthew Rufo. 2010. *U.S. Parking Policies: An Overview of Management Strategies*. Institute for Transportation and Development Policy, New York.
- Wilson, Richard and Donald C. Shoup. 1990. *Parking Subsidies and Travel Choices: Assessing the Evidence*. Transportation, 17: 141-157. Kluwer Academic Publishers, Netherlands.