

Parking Strategies to Support Livable Communities



April 2012

PARKING STRATEGIES TO SUPPORT LIVABLE COMMUNITIES

This report is the result of a collaborative effort with municipal representatives from seven communities in the Chicago region, each of which is facing some type of parking management challenge. The long-range GO TO 2040 plan specifically recommends parking management strategies and pricing to encourage the development of livable communities, and this guide will help municipal governments determine the appropriate steps for addressing their challenges. Understanding the costs and benefits of various parking strategies can help municipalities make informed decisions to create a more livable region.

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Downtown Glen Ellyn Photo: Lindsay Banks, <http://flic.kr/p/bAsapH>

Introduction

Livable Communities

This report is provided to help communities address their parking concerns with the end goal of making our communities more livable. Though opinions differ on what exactly makes a community “livable,” attractive and appealing communities tend to share some common traits. They are healthy, safe, and walkable. They offer choices for timely transportation to schools, jobs, services, and basic needs. As outlined in the GO TO 2040 regional plan, livable communities are created through effective planning and decisions by local officials, developers, and individual residents. In addition to their quality-of-life benefits, livability and compact growth make good economic sense for our region and its residents. Developing our existing communities and improving their livability is more cost-effective and resource-efficient than rapidly developing in areas without adequate infrastructure. Decisions made about parking directly affect the livability of our communities.

Envisioning the Future

One of the central goals of GO TO 2040 is to make our region a better place to live, by directing investment toward policies that strengthen existing communities. While CMAP can help local governments address the issues of livability in their communities, development decisions will continue to be made locally. As such, each community should develop its own goals for future growth and envision how they would like their downtown to look, feel, and function. With that in place, it will be easier to determine the best approach to take toward parking.

Complete Streets

Addressing any parking problems should be part of a comprehensive multi-modal transportation system plan. Driving and parking make up just one facet of a community's transportation infrastructure. While cars will continue to be the primary mode of transportation for many of us, GO TO 2040 recommends that other modes — like walking, bicycling, and transit — make up a greater share of trips in the future. The design of our streets and how we manage parking can encourage multi-modal use and improve safety; one popular method of accomplishing this is called “Complete Streets.” While a complete street can differ somewhat from one community to the next, the common idea is that they are designed with all potential users in mind – old and young; people using wheelchairs, walkers, or canes; pedestrians, bicyclists, bus riders, and drivers.

Complete Streets make it easier to walk from one destination to the next, to cross the street, and to ride a bike; they can reduce accidents at dangerous intersections. Providing transportation options improves the health of a community and the health of residents. The Alliance for Bicycling and Walking found that states with the lowest levels of biking and walking have, on average, the highest rates of obesity, diabetes, and high blood pressure.¹ Complete Streets can help older residents stay active and involved in their communities. As indicated by the photos to the right, accommodating multiple modes of transportation can move more people within the same amount of road space.

Common elements of a complete street include sidewalks, bike lanes, dedicated bus lanes, comfortable and accessible transit stops, frequent and safe crossing opportunities, median islands, curb extensions, limited curb cuts, narrowed travel lanes, etc.² Sustainable prosperity depends on our region's success in reducing congestion by promoting transportation options other than driving. While not the only solution to the need for more parking, improving the walkability of an area and the quality of the environment expands the range of parking facilities that serve a destination, and encourages walking and bicycling to substitute for some automobile trips.



The same number of people, showing amount of road space occupied when traveling: in cars, while walking and bicycling, and on a bus. Investing in alternative transportation is the best way to make efficient use of our roads. Photos: Thomas Jefferson Planning District Commission. www.tjpd.org

¹ “Bicycling and Walking in the United States: 2010 Benchmarking Report,” Alliance for Biking and Walking. <http://www.completestreets.org/complete-streets-fundamentals/>

² National Complete Streets Coalition: <http://www.completestreets.org/complete-streets-fundamentals/complete-streets-faq/>



Photo: Dan Burden, www.completestreets.org

A healthy community provides safe options for all forms of travel -- whether it is on foot, bicycle, by bus, or by car. Proper parking management can reduce the need for more spaces by using the existing ones more efficiently and targeting different types of parkers (short term / long term), sharing parking between uses with different peak demands, and by shifting the cost of providing parking from the general public and municipal governments onto the users. While we have long-focused on improving the driving experience, there is a need for a balanced approach to accessibility.

The Role of Parking

As one of the largest single land uses in our municipal “footprints,” parking deserves more attention than is typically bestowed upon it. Besides encouraging auto use, having such a large supply of parking influences the character, form, function and flow of our communities. For example:

- Providing a supply of parking to meet peak demand for every use keeps buildings widely spaced apart, rendering walking and bicycling unpleasant and unsafe.
- Paving over what were once grassland and wetlands increases runoff and therefore the burden on our stormwater systems and leads to flooding and pollution problems.
- Requiring large amounts of parking in housing developments makes the housing more expensive, irrespective of resident demand, as the cost of parking is built into the cost of each unit.

Parking strategies should be aligned with the municipality’s vision for the future. This paper outlines five steps to reforming parking policy:

- 1) Evaluation,**
- 2) Education / outreach,**
- 3) Strategy development,**
- 4) Implementation,**
- 5) 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. It is important to have flexible policies 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.

The Evolution of Parking Management

The amount of parking supplied influences the demand for parking, and it is impossible to determine the optimal parking supply without consideration of the costs and benefits of providing the supply. In the United States, we have more cars than licensed drivers, and the gap has been widening since the 1980s. For every car in the US, there may be as many as 8 parking spaces,³ and 99 percent of trips end in free parking.⁴ Our communities and our habits have adapted to the idea of ubiquitous, free parking. As communities grow, their parking needs and demands also undergo transformations, requiring different types of parking management – especially if we hope to reduce congestion and encourage livable communities.

In the Chicago region, most suburban downtown communities provide free parking with an assortment of restrictions, mainly on time. Several communities have added capacity, using a variety of funding measures to construct parking garages. There are some policy changes that can help alleviate stresses of parking, but as demand for parking continues to grow, and municipalities examine the costs to construct additional supply, many more communities will need to make the unpopular decision to charge for parking in high-demand areas.

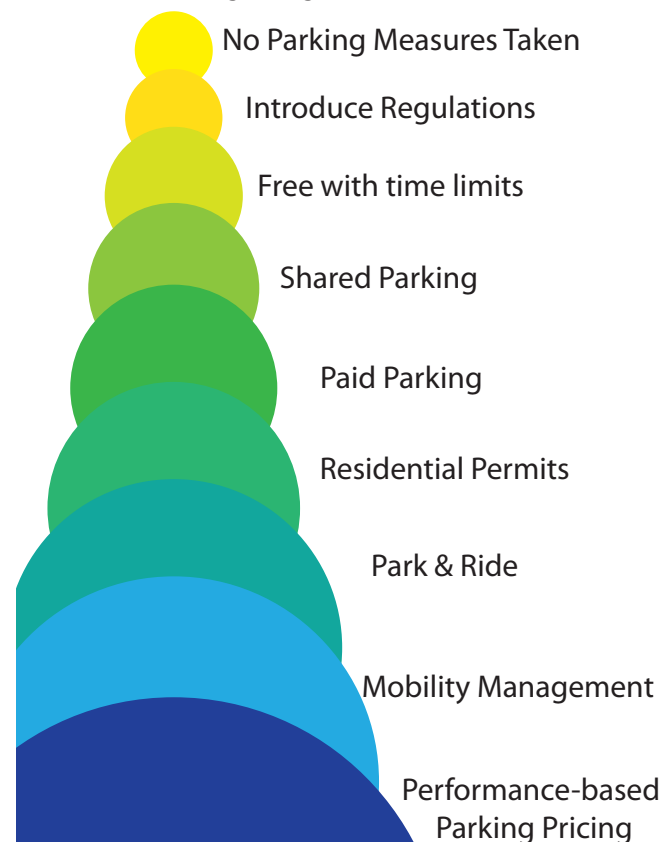
Parking pricing has been done successfully in places like Oak Park and Evanston, as well as smaller communities who are testing pricing mechanisms. Many commuter stations already have paid parking, but prices do not reflect actual costs, and the spaces remain in high demand. This imbalance of supply and demand has kept many lots full, and created parking spillover problems. If done right, parking pricing can be helpful to businesses and painless to shoppers and visitors. If there are no parking spaces available, a shopper may give up on his or her trip entirely. The goal of pricing is to free up just one or two spaces per block, and shift the long-term parkers from high-demand spaces.

A similar pattern of parking problems is found in villages and towns across the globe, and certain strategies consistently emerge to deal with them – this has been called the Evolution of Parking Management, as shown to the right. Most communities will start without parking management strategies until free and abundant parking becomes congested and negatively impacts the area's ability to attract shoppers or other pedestrians. When this happens, local governments put parking regulations and controls in place, such as prohibiting parking in some locations and marking spaces more clearly. If parking availability continues to decline, governments introduce time restrictions on the free parking, attracting long-term parkers to spaces farther from the town center, where space turnover is encouraged. As parking congestion increases, some parkers may resort to the “two-hour shuffle” in which long-term parkers occupy high-demand spaces but move their cars every few hours to avoid citations.

Eventually, if parking demand outpaces supply, and construction costs for new parking remain prohibitive, cities turn to pricing to shift demand and influence mode choice. Parking pricing, in turn, can lead to residential “spillover,” as neighborhoods close to high demand areas are targeted by long-term parkers looking to avoid paying for parking. Local governments solve this with residential parking schemes designed to give priority to residents who can purchase parking permits. Continued growth in car ownership and driving habits, combined with limited land in city centers has led to the use of Park & Ride lots, often with shuttles to move people between the lot and the town center. This can work for commuters and also for visitors and shoppers.

More recently, the concept of “Mobility Management” has found a place in cities trying to reduce congestion and promote a variety of travel modes. This tactic aims to enhance the accessibility of towns and cities for all people, regardless of their mode of transport. Providing connections between modes becomes very important when trying to create a “seamless journey,” where driving or taking a taxi is not necessary. Some large cities are also looking at “Performance – based Parking Pricing,” a strategy popularized by an urban planning professor from UCLA, Donald Shoup, and currently being tested in San Francisco. This tactic takes a market-based approach, varying the price of parking based on supply and demand.

The Evolution of Parking Management*



*Adapted from: “Parking Policies and the Effects on Economy and Mobility,” COST Action 342. Online: <http://bit.ly/rYHuDy>. Performance-based Parking Pricing added.

3 David Biello, “No Such Thing as Free Parking,” *Scientific American*, 9 January 2011. <http://bit.ly/vATtAw>

4 Donald Shoup, “The High Cost of Free Parking,” American Planning Association Press, Chicago, IL: 2005.

Step One

Evaluation

Determining If You Have a Parking Problem

Most communities have a central downtown where businesses and attractions are clustered. Juggling the needs of local businesses, restaurants, rail commuters, residents, and visitors is no small feat. In addition to the customers, there are also employees arriving by car. When everyone is trying to go to the same part of town, it can become a challenge to find a parking spot for each automobile; people often are forced to drive in circles searching for a convenient space. Parking congestion indicates that people want to visit your downtown. The process of determining the degree of the parking problem primarily involves interviewing stakeholders and counting available spaces. With training and volunteer help, the counting can be done at very little cost.

Assessing Your Parking Problem

Whether you are planning for future growth or addressing current parking congestion issues, it is important to have a strong understanding of local stakeholders' perception of the problem, as well as thorough on-the-ground knowledge of the existing supply and parking occupancy rates. Municipalities often retain consultants to conduct parking inventories, but with some basic training, staff or volunteers can also be effective. A parking inventory is essentially a count of spaces and how they are used.



Photo: Capital Painting, Inc., www.capitalpaintinginc.com

Conducting a Parking Survey

Goal

Determine how much parking exists (both public & private) and how it is used. This can help to identify underutilized parking, high demand areas, opportunities for shared parking, and future parking needs in your community.

Materials needed

Municipal staff or volunteers with basic survey training, well-defined methodologies, map of area to be surveyed, survey forms, clipboards, writing utensils.

About surveys

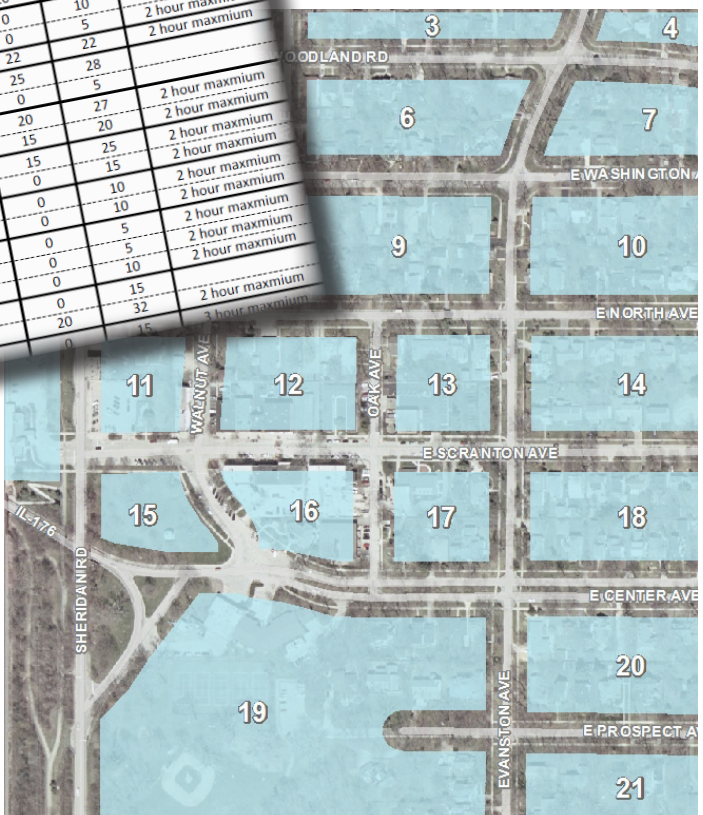
Surveys are typically conducted in response to a perceived lack of parking, but if a municipality has the resources, a parking survey can be very valuable to have at any point, and should be done on a seasonal basis. Surveys typically focus only on the number of cars at certain parking spaces throughout the day, but can also include resident input on satisfaction and ease of parking. Naperville does annual parking surveys to measure parking use and business satisfaction; a sample of their survey is available in the appendix. More in-depth surveys can include the amount of turnover in an area.

Turnover Survey

A more thorough evaluation of the parking supply can include information about the turnover rate. In this process, you need to include the license plates of all the cars parking in the areas you are surveying. The process is repeated every hour in order to identify cars doing the “two-hour shuffle” to avoid tickets, cars parking for longer than the allowed time (where applicable), and to get a better understanding of turnover. If budgets allow, this process can be simplified with the use of Automated License Plate Recognition (ALPR) systems. ALPR systems are typically used by enforcement agents, as they can scan thousands of license plates each hour, recording the GPS location and alert officers if a car exceeds the time limit or “shuffles” to avoid tickets. If funding allows, enforcement agents (police) and planners may also want to consider sharing an ALPR system, as an efficient means of monitoring turnover. If your budget is limited, a turnover survey can be done manually on streets identified as problematic.

Metra has utilization rates and total number of parking spaces for each commuter parking lot, available on the RTAMS website: <http://www.rtams.org/rtams/home.jsp>.

Route	Block	Block Face	Street	Between which streets?	On street Capacity	Off-street Capacity	Total Capacity	Notes / Restrictions
A	15	East	Center Ave	W Scranton & E Scranton	15	0	15	meter
	16	West	Center Ave	W Scranton & E Scranton	12	20	32	meter
	15	North	E Scranton Ave	Center & Sheridan	10	0	10	2 hour maximum
	11	South	Sheridan Rd	Center & Sheridan	5	0	5	2 hour maximum
	11	West	North Ave	E Scranton & North	0	22	22	2 hour maximum
	11	North	North Ave	Sheridan & Walnut	3	25	28	
	8	South	Walnut Ave	Sheridan & Walnut	5	0	5	2 hour maximum
	11	East	Walnut Ave	North & E Scranton	7	20	27	2 hour maximum
	16	West	E Scranton Ave	North & E Scranton	5	15	20	2 hour maximum
	12	South	E Scranton Ave	Walnut & Oak	10	15	25	2 hour maximum
	16	North	E Scranton Ave	Walnut & Oak	10	0	10	2 hour maximum
	12	East	Oak Ave	E Scranton & North	5	0	5	2 hour maximum
	12	West	Oak Ave	E Scranton & North	5	0	5	2 hour maximum
	13	South	North Ave	Walnut & Oak	10	0	10	2 hour maximum
	9	South	North Ave	Walnut & Oak	10	0	10	2 hour maximum
	8	South	North Ave	Walnut & Oak	15	20	35	2 hour maximum
	12	South	E Center Ave	W Scranton & Oak	12	0	12	2 hour maximum
	16	North	E Center Ave	W Scranton & Oak	15	0	15	2 hour maximum
	18	East	Oak Ave	E Center & East Scranton	15	0	15	2 hour maximum
	17	East	Oak Ave	E Center & East Scranton	15	0	15	2 hour maximum
	17	East	Oak Ave	E Center & East Scranton	15	0	15	2 hour maximum



A sample parking inventory, available for download: <http://1.usa.gov/zkIWQX>

Occupancy Survey

Any survey of parking supply should begin with conversations on the street and inside local businesses.

1. Listen to stakeholders to determine their perceived parking needs and problems (business owners, employees, downtown residents, realtors, shoppers, city officials, chamber of commerce or downtown business association). Potential forums for input include public meetings, focus groups, and personal interviews. Questions to ask include:

- Is there a parking problem? Are certain blocks worse than others? What is the biggest problem?
- What times of the day are the worst; is it only weekdays / weekends?
- How is the enforcement? Does it work well? Is it fair?
- Are there obvious offenders? Certain groups or businesses that contribute more significantly to the problem?
- What is your ideal vision of parking downtown?
- What are ideas for solutions? How should they be paid for?

2. Design your survey, informed by the stakeholder input received.

- Is the study focused only on the Central Business District (CBD)? Does it extend into the residential neighborhoods next to the CBD (“spillover”)?
- Alternatively, the study area can be determined by the largest distance someone would be willing to walk to local attractions (usually about half a mile)

3. Create a map of the study area and an Excel table to input data (see Appendix).

- Define the study area (depending on stakeholder input and time / budget allowances)
- Number the blocks, with cardinal references to different sides of the street (“block face”)
- Number the private and public parking lots, and identify the owners of the property or the entity leasing the spaces for use
- Create a table that corresponds to the mapped block numbers and lot numbers
- Count the number of existing spaces, on-street and off, for each numbered area; this can be done ahead of time if you will be covering a large area, by: Measuring the block lengths in GIS or Google Earth, and using the information in the chart to the right, or using aerial photographs to count parked cars or parking spaces
- If the study area is small, this can be done during the survey, by walking the blocks and counting as you go

4. Conduct the survey

- Count the number of occupied parking spaces for each block, noting any restrictions / handicapped spaces / meters / etc.
- Are the spaces private parking spaces, restricted to employees and customers (who)? Loading zones? Is there a fee? What are the rates? Include this information in the notes.
- Include bicycle racks, rings, and other bicycle facilities in the inventory
- Note the location of any illegally parked vehicles
- The survey should include at least 3 or 4 different time periods during the day, including all times with peak demand, possibly a Saturday or Sunday as well, depending on the results of your stakeholder interviews
- The survey should not take place on a major event day, but should be focused to capture typical, everyday usage
- Note the weather, and if there is snow blocking any spaces

Distance as Measured Along Curb (ft)	# of Parking Spaces	Using 20' spaces
<15	0	0
15-35	1	1
35-60	2	3
60-85	3	4
85-110	4	5
110-135	5	6
135-160	6	8
160-185	7	9
185-210	8	10
210-235	9	11
235-260	10	13
260-285	11	14
285-310	12	15

Average spaces will vary if motorcycle / scooter parking is considered; Smart Cars can fit two to a space. An on-street bike corral may be preferable to a parking space, for example, near intersections where low visibility is a safety concern. Left two columns from “Parking Management Made Easy: A Guide to Taming the Downtown Parking Beast.” Oregon Department of Transportation: http://1.usa.gov/ODOT_ParkingMgt

Compile the Survey Results

The results of the survey should be compiled in a report, with a stand-alone executive summary mostly consisting of maps and tables. The amount of descriptive writing at this point should be limited to the methodology because you are not interpreting the survey, just reporting the results. Ideally, the data would be stored in database tables and a Geographic Information System (GIS) to allow for future analysis. In the absence of GIS software, the results can be mapped using free services such as Google Maps or Google Earth; it will involve staff time to compile the information.

The report could include the following elements:

- A map of the study area
- A description of stakeholders and specific groups that provided input
- Common themes heard from stakeholders
- Methodology used to reach out to stakeholders and to collect data
- Maps showing rates of occupancy by block face (unless the study area is very small, this section will be a series of maps)
- Data tables (with turnover information, if available)



Public meeting in Berwyn. Photo: CMAP Library.

Step Two

Education & Outreach

The results of the survey should highlight “problematic” blocks (or high-demand areas) and areas with excess capacity. Considering the community’s long-range goals for livability, an assortment of strategies is available to target different users. The education and outreach stage of parking management will help determine the priorities of stakeholders, which will help to devise which approaches to use.

Getting Started

From the report of survey results, the municipality should develop a series of maps of the downtown area, showing the average parking demand at different times of day (if available). These maps will be helpful when working with stakeholders and residents to develop potential solutions. With stakeholder input and local expertise of the area, different zones for parking demand should be identified. Larger communities may have a “Downtown Arts Center,” a “Retail Corridor,” or “Commuter Parking” areas. Smaller communities may only need to identify the busiest streets and the busiest times of day.

Working With Consultants

Many municipalities turn to parking professionals to assist with parking surveys and to determine the best strategies to address their problems. A knowledgeable consultant can be helpful in selecting the best strategies for the unique challenges in your community, and the best ways to communicate those ideas with the public. The process can be more cost-effective if the municipality has done some work before hiring a consultant. For example, the basic parking occupancy survey can help a consultant determine where to focus their efforts. Most importantly, when approaching a consultant or releasing a Request for Proposals (RFP), the community should be prepared with their goals for parking already formulated. The goals for parking should be part of a broader strategic vision for parking, livability, and transportation. Consultants may be better equipped to conduct a turnover survey, help with outreach, choose appropriate strategies to achieve the community’s strategic planning goals, and help with implementation. After processing the results of the survey, the municipality should consider whether or not to seek professional guidance.

Effective Public Participation

Effectively engaging the community will help to prioritize values, understand the trade-offs that various groups are willing to make, and develop a solution to your municipality's parking problems. The public engagement should also consider future growth and long-term goals. Before deciding which strategies to pursue, it is important to engage the community in as many ways as possible. If you are using a consultant, they can help determine the best ways to reach stakeholders. If you are conducting outreach in-house, there are some important things to consider. Referencing the stakeholders that you surveyed in Step 1, you can identify various groups of stakeholders (business owners, employees, downtown residents, realtors, shoppers, city officials, etc.) that you will target, and you may want to limit your focus to certain areas, such as the most congested downtown streets.

If the most congested areas for parking are highly concentrated with businesses (as is often the case), you may want to begin by engaging the local Chamber of Commerce. Identify the values of the business owners, residents, as well as the municipality. By understanding the values of various stakeholders, you can identify where there is overlap; the overlap becomes the foundation for collaborative problem-solving. In 2007, CMAP adopted a Public Participation Plan (PPP) that discusses how engagement efforts should be incorporated into regional planning work. The guiding principles of CMAP's public engagement efforts, strongly influenced by the International Association for Public Participation (IAP2)'s core values, are helpful to consider when undertaking any public engagement effort:

- 1. The public should have input in decisions about actions that affect their lives.**
- 2. Public participation includes the promise that the public's contribution will be considered in the decision-making process.**
- 3. The public participation process communicates the interests and considers the needs and interests of all participants.**
- 4. Public participation process seeks out and facilitates the involvement of those potentially affected by local and regional plans.**
- 5. The public participation process provides participants with the information they need to participate in a meaningful way.**
- 6. The public participation process communicates to participants how their input influenced the decision.**

Municipalities are encouraged to host meetings, talk with stakeholders, and make their constituents aware of the issue. Creating a publicly-accessible, easy-to-understand report highlighting the results of the parking evaluation is a good way to begin the engagement process. The document should explain the parking problems to stakeholders with graphics as well as text. Graphics should include maps with occupancy rates by time of day and tables with turnover information (if available). Make these maps available at City Hall, local libraries and available for download online. Encourage businesses to provide them to their customers and employees as well. Use the data and charts to convey the costs of parking congestion, and what could happen in a "do-nothing" approach.



Real-time interactive keypad polling at a public meeting. Photo: CMAP Library.

In addition to explaining the current conditions, explain the costs of constructing parking infrastructure. Develop a dialogue around parking infrastructure to determine if it is feasible, desired, and who will pay for it. If considering parking pricing for very congested areas, keep in mind that parking is a very sensitive topic; work to create safe discussion environments. Use social media outlets like Facebook and Twitter to develop more interest in the conversation.

Create goals and objectives for the public outreach process; identify real problems, pushing for specifics about when and where parking is an issue. Allow at least two months for public engagement before developing solutions. A sample public outreach strategy could involve the following steps: (1) Present your report to relevant councils, committees, Chamber of Commerce, and make it publicly available at City Hall, libraries, and online, (2) hold several area- or topic-specific focus group meetings, (3) provide a telephone number or email address where constituents can give comments, (4) host two public meetings, and (5) write a report describing the results of your focus groups, meetings, and comments received on the topic. The public engagement process should continue throughout the development of strategies and implementation, to build relationships with the interested parties, to monitor satisfaction, and identify early hurdles.

The most important goal is to involve people in the decision-making process from the beginning, so that they better understand the benefits and costs of parking, and differing viewpoints can discuss potential solutions and strategies.



Hearing from constituents at a public meeting. Photo: CMAP Library.

In addition to traditional public meetings, consider the following public participation strategies for potentially contentious topics:

- **Keypad polling technology:** an electronic, real-time anonymous survey tool that allows the municipality to gauge what the public's main concerns are, and can collect their preferences about what goals are most important. This also allows for collection of basic demographic and lifestyle preference information, which can be useful when compiling the baseline data.
- **Mapping and other creative "report back" methods:** Mapping exercises are frequently used for public meetings so that residents can identify land use challenges and opportunities. The map will allow the public to see where problem areas are concentrated.
- **"Citizens' Juries":** This public participation method consists of a small panel of non-specialists, modeled on the structure of a criminal jury. They should consist of about 12 - 16 members, with a demographic sample that represents the community. They review "evidence" from opposed viewpoints and try to reach a consensus about recommendations for policy direction.
- **Small Group Discussions or "World Cafes":** This enables participants to delve into the topic areas in a concentrated period of time, giving people a chance to share their thoughts and goals in a more comfortable setting than in front of the whole group. This allows everyone to get a taste of the complexities surrounding parking planning. Talking with peers will allow people's ideas to grow and creates a sense of team ownership of some of the proposed goals.
- **The "Samoan Circle":** some participants are seated in a small circle and others remain in an outer circle. The inner circle should represent all the different viewpoints present and there should be a couple of open chairs. Those outside of this inner circle must remain silent; if they wish to join the discussion or react to a position, they must sit in the open inner circle chairs or stand behind one until it is available. This technique is used on controversial and divisive topics.



The Glen Town Center. Photo : CMAP Library.



Downtown Woodstock. Photo : CMAP Library.



On-street bike corral parking in Oak Park. Photo : Steven Vance, www.stevevance.net



Palatine's Gateway Center parking structure, adjacent to the Metra commuter station.
Photo : Jim Watkins, www.flickr.com/photos/jim_watkins/



Pedestrian-friendly walkway to Downers Grove Parking Garage.
Photo : Jim Watkins, www.flickr.com/photos/jim_watkins/

Step Three

Strategy Development

Parking is a local issue and there is no prescribed solution that will work for all of our 284 municipalities in the CMAP region. Each community will need to develop their own set of strategies targeted to their unique characteristics and needs. The results of the public outreach efforts should help guide a municipality to the most appropriate solutions for their community.



Envisioning vibrant public spaces. Photo: CMAP's GO TO 2040 Plan, www.goto2040.org

How To Handle Parking Demand Without Building More Parking

Without understanding the complexities of parking and its role in the transportation system, people often say, “Just build more parking!” Parking structures are expensive, often upwards of \$25,000 per space, and rarely pay for themselves. The design and management of parking supply affects the livability and walkability of any downtown. Building additional parking without managing the existing supply can induce driving and increase the demand for even more parking. Conversely, managing the existing supply can be a cost-effective way to reduce demand or increase attractiveness of underutilized spaces.

Once you have an understanding of your parking supply and high-demand areas, you can start to identify appropriate strategies to better manage the supply. A desirable occupancy rate is 85 percent, where one or two spaces are open on each block at all times. When parking occupancy rates approach 90 percent, drivers spend extra time searching for parking and add to congestion on the roadways. Most parking survey results will find higher occupancy rates in certain zones at certain times of day, and under-utilized parking in other areas.

The most effective way to shift demand from one area to another is through the using of pricing mechanisms, but additional policies and practices can also be effective, and strategies will vary depending on the community. Factors affecting the impact of parking management policies include density levels, transit access, median income, bicycling and pedestrian infrastructure, as well as access to businesses and services in the local downtown area. Communities with a variety of amenities and transit options will have more possibilities for innovative policy. In smaller, less dense communities with no transit, strategies will be somewhat limited. See chart on page 31 for more details.

Communities with limited or unsafe alternatives to driving should develop their pedestrian and bicycling infrastructure while implementing parking management strategies before attempting to implement parking pricing. If certain areas or blocks will be converted to metered parking, there should be options for drivers who do not want to pay. This may include free remote parking lots, safe bicycling networks, improved pedestrian streetscapes and paths, or public transit. Some municipalities subsidize a parking garage while charging for more convenient on-street parking, using the meter revenue to help pay for the garage.

Building Consensus For Action

While everyone may agree that there is a parking problem, they may not agree on the appropriate measures to solve it. It is important to inform stakeholders of the costs and benefits of various courses of action. Drawing from the early workshops and focus groups, try to pull themes upon which to act. For example, long-term employee parking may be a source of frustration for employees, business owners, as well as customers. Work with local employers to help find parking solutions for employees, to encourage alternative modes of transportation and carpooling, and to hear their ideas for solutions.

Reach out to stakeholders and the public; listen to their ideas and opinions before any changes are implemented. These activities should improve the outcome and the satisfaction of those who are impacted. Parking is a controversial subject and can elicit passionate responses from the public; while pricing strategies are far more effective at reducing demand, it may be more appropriate for smaller communities to begin managing parking before introducing pricing.

A clear set of goals for the community can help guide the discussion. Some sample goals include: better integrating land use and housing, encourage alternatives to solo-driving, support economic development, encourage infill development, optimize the use of prime real estate.



Photo : Dan Burden, www.completestreets.org

Non-Pricing Strategies

Parking management strategies can promote efficient use of existing parking. Parking management techniques are utilized in reforming municipal ordinances to reduce parking requirements for new development, which are typically designed to accommodate rare peak demand occurring perhaps once a year, (i.e. major sporting event, “Black Friday” holiday shopping) in an auto-only environment. Most parking management projects utilize a variety of strategies, employing each as needed to best address the unique context of the municipality. Flexible policies allow for parking strategies to adjust to the changing needs of a community.

REDUCE / ELIMINATE MINIMUM REQUIREMENTS

Traditional parking requirements specify a minimum number of spaces to be provided for each land use. Applying economic principles of supply and demand to parking would result in the elimination of minimum parking requirements, allowing the market to determine appropriate levels of supply. Given the high cost of providing parking, developers have an incentive to build what they consider to be the minimum amount needed to satisfy customers. Eliminating minimum parking requirements can also provide opportunities for small businesses who could not afford to build the amount of parking that was previously required. The City of Elmhurst eliminated parking requirements for their downtown twenty years ago and has pursued a variety of strategies to manage the parking supply and create a pedestrian-friendly core.

Existing parking minimums are often based on the idea that more parking is better. The assumption is that without enough parking, motorists will “cruise for parking” in nearby neighborhoods, causing unwanted congestion. Most local governments and developers want to avoid such outcomes. Unfortunately, the data used to set minimum parking requirements is limited and often irrelevant.

To set requirements, most cities use the Institute of Transportation Engineers’ (ITE) Parking Generation handbook to set requirements or look to see what their neighbors have done, often without conducting a parking survey. The majority of the data in the first three editions of Parking Generation is from the 1980s; the 1st and 2nd editions use data averaging the maximum observed demand in “isolated, suburban sites,”⁵ and the 3rd edition only begins to factor in variables that would affect parking such as time of day, access to transit, or walkability of a site. Therefore, a parking survey provides a much more reliable measure of area-specific parking needs.

The existence of transit and/or provision of biking and walking infrastructure can greatly reduce parking needs, and the ITE handbook does not yet consider such variation between communities, although they are reportedly working to address this problem.

“If your community is not ready to drop minimum parking requirements altogether, other options include establishing flexible parking requirements, allowing shared parking, setting parking maximums in addition to minimums, and allowing spaces to be held in landscaped reserves.”
– Boston Metropolitan Area Planning Council

The 3rd and 4th editions have a broader base of data to draw from, but should still be used with caution and mainly to supplement area-specific research. For example, the land use “billiard hall” lists a parking supply ratio of 6.9 spaces per 1,000 sq. ft. GFA and 3.0 vehicles per billiard table.⁶ This is based upon a single hour of observation on a weekday in a suburban town in New Jersey in 1990. This data would have little relevance to a billiard hall in a walkable, transit-friendly neighborhood.

The quantity of parking provided is almost always determined by municipal ordinance or zoning code. Most US developers surveyed by Kuzmyak et al. (2003) 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.⁷ For most municipalities in northeastern Illinois, reducing or eliminating parking minimums would help to bring parking levels closer to the actual demand. In some cases, the use of parking maximums may be needed to avoid over-saturation of parking supply.

In San Francisco and other large cities, the municipal code limits the amount of parking that a developer can provide, so as to prevent induced demand for driving in congested areas with extensive public transportation. Where parking maximums are considered,

5 Parking Generation, 3rd edition.

6 Parking Generation, 4th edition.

7 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. http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rpt_95c18.pdf



New parking garage at the University of Chicago. Photo : Steven Vance , www.stevenvance.net

INSTITUTIONAL PARKING

High schools and colleges with parking problems may charge for student parking while providing bicycle amenities and ensuring safe connections to the school for biking and walking. Elmhurst College has a program to reduce parking demand and encourage cycling; they give a free bicycle, helmet, and lock to any student or faculty member who pledges not to bring a motorized vehicle to campus for a year (with temporary winter permits offered). Many schools have created Safe Routes to Schools (SRTS) programs. In Blue Island, the SRTS program started with a local resident who wanted to walk her kids to school, and grew to include a “Walking School Bus” and a Friday Night Bike Club. The popularity of the programs helped the municipality secure funding for bicycle infrastructure and an education program.

Parking “spillover” problems from high school drivers are also common. A municipality can allow residents to rent out their driveways, offer residential permit programs, and /or create a residential parking benefit district. In a residential parking benefit district, non-residents pay to park in resident permit parking areas during school hours, and the money is used for street improvements at the discretion of residents. Opening their street to non-residents would be unpopular with residents who would see an increase in traffic and a reduction in on-street parking availability, but would be viewed more positively if the funds collected are used specifically for the neighborhood where the permits are used. The revenue generated can be used for increased services for the area in the form of street cleaning, graffiti removal, tree planting, traffic calming measures, sidewalk repair, etc.



Elmhurst College reduces parking demand by giving away bicycles to those who pledge not to bring a motor vehicle to campus. Photo : Elmhurst College, <http://public.elmhurst.edu/bicycleprogram>

⁸ Regional Transportation Authority (Chicago). 1998. Opportunity Costs of Municipal Parking Requirements, Prepared by Fish & Associates, K.T. Analytics, and Vleclides-Schroeder Associates, Final Report, April. <http://rtachicago.com/index.php?Itemid=325>

EMPLOYER INCENTIVES

Within the framework of livability, the goal of employer parking strategies is to reward people who carpool or take alternative modes of transportation and discourage or penalize single-occupant drivers, with the use of incentives and disincentives. Employers who promote alternative transportation reduce the overall demand for parking, yet many employers may not be aware of commuter benefit options available to them.

Since the largest peak-period demand for parking comes from home-to-work trips, and a majority of commuters drive to work alone, employer parking management strategies can be very successful at reducing overall vehicle miles traveled (VMT). To reduce the amount of employees that add to congestion on roadways during peak hours, some employers may allow employees to arrive at flexible hours, telecommute, or work alternative schedules. Similar to other strategies discussed in this paper, these employer programs are most successful when they are multi-faceted. Employers who are committed to reducing the number of employees arriving in single-occupant vehicles can provide transit benefits, park-and-ride passes, shuttle services, and/or preferential carpool spots, while increasing the costs of parking. For more on this subject, please refer to the CMAP Transportation Demand Management strategy paper.

In some communities, the municipality may be one of the largest local employers. A municipality can manage its own parking, and reward workers who use alternative modes. Municipal assistance to employers in their mode-shift goals can also include the provision of bicycle maps, explanation of commuter benefits, safety training, bike-to-work challenges, etc. Wilson and Shoup (1990) show that the greatest reduction in single-occupant drivers is seen when employers stop subsidizing “free” parking for employees while implementing other incentives. If employers offer incentives to use other modes and continue to subsidize parking, it is difficult or impossible to reduce the number of single-occupant drivers;⁹ if employers continue to provide free parking, there will always be a high demand for it. This has an influence on the development of municipal zoning laws and codes, which will in turn require excessive parking spaces. Making changes to local zoning requirements should be coordinated with an effort to reduce employer-subsidized parking. Studies have found that with the way parking is subsidized and the “effects of tax law,” parking subsidies tend to benefit higher income groups.¹⁰ Reducing subsidies for parking while increasing subsidies to alternative modes provides a more equitable balance.

There are various programs that offer financial incentives to commuters for reducing their automobile trips. Examples of programs include:

- **Parking cash-out** where commuters using subsidized parking can choose cash instead; in places with nearby parking options, employers may need to do some “policing” of employees to ensure that they do not take money offered in cash-out programs and continue to drive, finding on-street parking and/or other available commercial parking.¹¹
- **Transit benefits** provide commuters with a subsidized transit pass
- **Universal transit passes** give bulk discounts for transit passes
- **Discounted or preferential parking for rideshare vehicles.**¹²

With “parking cash-out,” there is an incentive not to drive – cash – but no punishment for those who continue to drive. California law requires many employers to offer this option and in before-and-after studies, parking cash out reduced driving to work by 11 percent.¹³ In an analysis of eight parking cash-out programs in California, the programs were shown to help reduce commuter parking demand, solo driving, and vehicle miles traveled by 11, 17 and 12 percent, respectively.¹⁴ Federal tax law allows for parking cash out (the cash is a taxable benefit, while the parking space remains tax exempt), so employers nationwide can take advantage of it.¹⁵ Parking cash out can also save employers money, particularly in the case of employers who lease their parking. With fewer employees driving, there is less need for parking spaces.

In addition to financial incentives to discourage solo-driving to work, there is also a need to provide facilities for biking and walking. Areas with safe and established bicycling infrastructure and convenient bicycle racks have an easier time promoting bicycling as an alternative transportation mode. There are additional steps that employers can take to further encourage cycling. In the northwest community of Rosemont, Christopher B. Burke Engineering pays bicyclists per mile ridden to work and provides shower facilities, among other incentives. The Village of Arlington Heights runs a Bicycle to Work program and encourages local businesses to consider adopting similar programs.

9 Wilson, Richard and Donald C. Shoup. 1990. “Parking Subsidies and Travel Choices: Assessing the Evidence.” *Transportation*, 17: 141-157. Kluwer Academic Publishers, Netherlands.

10 Ibid, 1990.

11 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. http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rpt_95c18.pdf

12 Litman, Todd. 2006. *Parking Management: Strategies, Evaluation and Planning*. Summary of Parking Management Best Practices. Chicago: APA Planners Press. http://www.vtpi.org/park_man.pdf

13 Shoup, Donald. “The High Cost of Free Parking.” American Planning Association Press, Chicago, IL: 2005.

14 Shoup, Donald. “Evaluating the Effects of Cashing Out Employer-Paid Parking: Eight Case Studies.” *Transport Policy*, Vol. 4, No. 4, October 1997, pp. 201-216.

15 USEPA - Office of Air and Radiation. 2005. *Parking Cash Out: Implementing Commuter Benefits as One of the Nation's Best Workplaces for Commuters*. Washington, DC: US Environmental Protection Agency.

SHARED PARKING

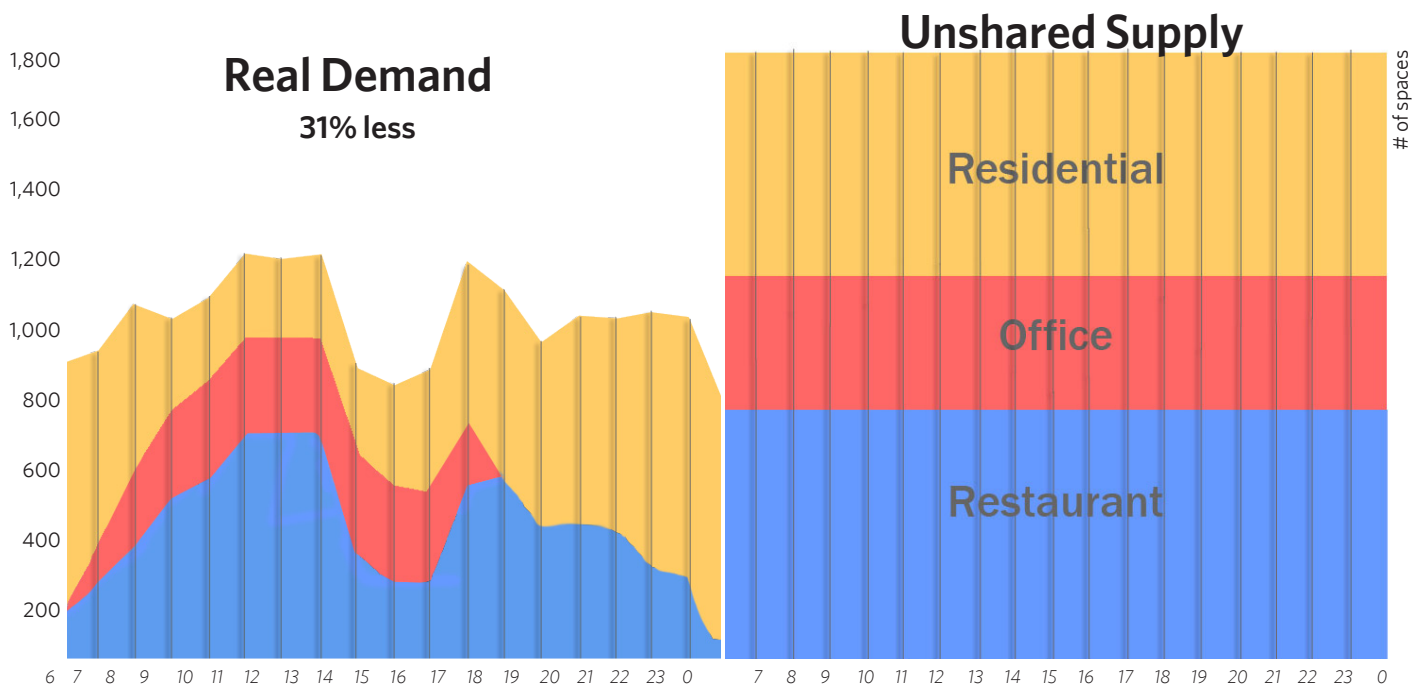
Shared parking is defined as “the use of a parking space to serve two or more individual land uses without conflict or encroachment.”¹⁶ This practice is often found where parking (usually in garages) is not necessarily tied to a particular building and its uses, but can be used by anyone visiting any of the nearby buildings. Most commonly, it is found in downtowns and larger activity centers, but it can also be a vital component in good mixed-use or transit-oriented developments, or anywhere that livability is a goal. The pedestrian environment of a site often benefits greatly from shared parking.

The key to shared parking is a mix of uses that require parking at different times of the day, or different days of the week. For example, an office building in the same development as a movie theater or other entertainment venue would be a good candidate for shared parking. The peak parking demand for office workers will be from 8 to 5, Monday through Friday. Movie goers, on the other hand, will be looking for parking in the evening and on the weekends, when the office workers are not there. Instead of building one parking lot for the office building and another one for the movie theater, the two uses can share a lot. Fewer parking spaces can free up land for other development or for more landscaping and pedestrian amenities. Metra has had great success in developing agreements with churches to share parking with commuters. Shared parking can also encourage people to park once and walk between destinations served by the same parking facility, instead of driving between uses that would otherwise each have their own surface lot.

Shared parking works in any number of situations, and a methodology has been developed for analyzing how many spaces need to be built to fit the needs of a particular mix of uses. Shared parking is often coupled with many of the other parking management strategies discussed in this paper, such as pricing, overflow parking, and reserved parking. The other strategies are often necessary to ensure successful implementation of shared parking. For example, Arlington Heights promotes and manages shared parking in public garages and encourages developers to provide shared parking in mixed-use developments.

Not all municipal parking requirements allow for shared parking.

Communities hoping to encourage livable downtown centers should develop more flexible parking standards. For communities and developers alike who are interested in shared parking, the Urban Land Institute’s Shared Parking methodology (2005) has been recognized by the Institute of Transportation Engineers and is a valuable resource for those considering this type of parking management. Additionally, Stein Engineering developed a Shared Parking Ordinance for Portland Metro in the late 1990s, which continues to be highly regarded and is available online (See Appendix).



This graph shows the demand for parking by time of day, which varies for different uses. By sharing parking between uses with different peak demand periods, the total parking necessary is significantly reduced. (Image courtesy of Nelson / Nygaard, 2011)

16 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. <http://www.tam.ca.gov/index.aspx?page=293>

ON-STREET RESIDENTIAL NEIGHBORHOOD PARKING

Similar to neighborhoods adjacent to schools, residential neighborhoods near downtown districts with high parking demand may also experience “spillover” problems. This demand can be managed with parking permits for residents. Overly restrictive regulations in residential areas can, however, lead to increased public and private parking development costs, which can prevent transit-oriented and traditional neighborhood development. Local authorities should evaluate neighborhoods on a block-by-block basis, balancing the residential parking demand with employee and/or customer access, while considering the development goals of the municipality. Perhaps the most well-known residential parking permit areas are adjacent to Wrigley Field in Chicago, but many other communities in the region also have permit programs – like Evanston, Wilmette, and Joliet.

In areas of high parking demand, exploring the possibilities for shared on-street parking should be a goal. Neighborhoods with residential permits often have many under-used spaces during the day – a problem that Shoup considers to be the result of an overreaction to parking spillover problems.¹⁷ Alternatively, he suggests creating a market for curb parking, using residential parking benefit districts, and allowing residents to continue to park free but charge a fee to non-residents high enough to maintain 15 percent vacancy. The revenue would be returned directly to the residents in the form of street improvements. While not a Parking Benefit District, the Village of Oak Park does maintain a “parking clearinghouse” and allows residents to list private spaces for rent through the municipal Parking Services list.

UNBUNDLE PARKING

Most residential parking is provided as an inseparable part of housing cost whether rented or purchased, ultimately making housing more expensive, especially for those who own fewer cars and do not use as much parking. Separating the cost of parking from the cost of the housing “is an essential first step towards getting people to understand the economic cost of parking.”¹⁸ When developers or landlords separate the cost of parking, it gives a discount to households with fewer cars, and an economic incentive for people to opt out of parking and make alternative travel decisions. It is a strategy that brings the cost of parking to light without penalizing drivers.

This strategy is not common in northeastern Illinois, but would work well in downtown areas with good pedestrian and bicycling infrastructure, as well as car-sharing vehicles. With these characteristics, a municipality could lower the minimum parking requirements for developments that sell or lease parking separately from rents.

PERIPHERAL PARKING LOTS

Parking lots placed outside of the central business district are called peripheral parking. When located within 1/2 mile of the activity center, many users will walk to their final destination. The primary goal of peripheral lots is to divert traffic from the central business district (CBD) or major destinations where traffic bottlenecks might occur, or where parking resources may be limited. Unlike other parking management strategies, the use of peripheral parking might change where people drive, but it is generally not an attempt to influence the mode choice or travel behavior of the driver, and is only relevant to larger communities, communities with a commuter population arriving at the station by car, or to accommodate long-term employee parking.

Critics argue that peripheral parking can convert transit commuters to drivers or reduce usage of park-and-ride facilities further from the destination. When given the choice, few developers will trade peripheral parking for less on-site parking and so the peripheral parking may not greatly reduce the amount of CBD parking. Some communities have used peripheral lots with limited success; the failure is usually attributed to “insufficient user cost savings to justify the loss in time or convenience relative to core area parking.”¹⁹ Peripheral lots can, however, foster carpooling if spaces in the CBD are reserved for carpools while others are shifted to the peripheral lots. Peripheral lots could also be provided free of charge in conjunction with the implementation of metered parking in the core downtown area.

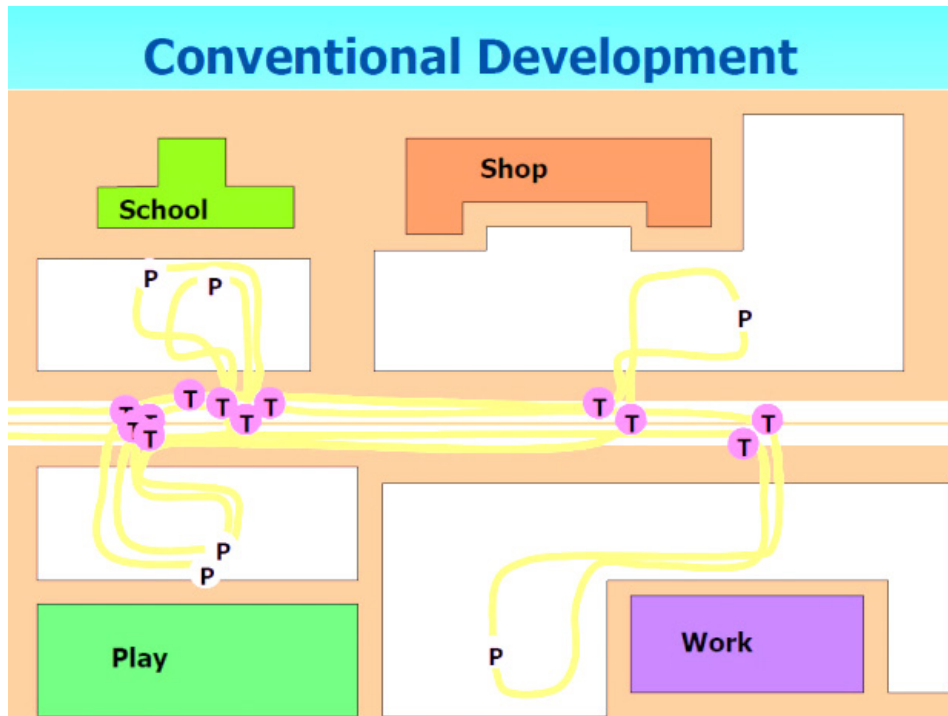
NARROWED STREETS WITH BACK-IN ANGLED PARKING

On-street parking is the most convenient and desirable parking, especially for customers, and creates a buffer between moving traffic and pedestrians. Of the different types of parking, back-in angled parking (also called head-out or reverse-angled parking) is most preferable. It is easier than parallel parking, creates more spaces along the curb, and it’s safer for all users. When returning to the car and driving away, the driver can access the trunk from the sidewalk, and has a better line of sight for oncoming traffic, which especially improves safety for bicyclists. Additionally, back-in angled parking calms traffic speeds, making the street safer for pedestrians. Since back-in angled parking is unfamiliar to many drivers, a public education campaign can help people figure out how to maneuver the new system. Some residential neighborhoods in Chicago have back-in angled parking, often near churches. Back-in angled parking is recommended for lower-traffic streets with less than 9,000 vehicles per day on one-way streets, and less than 5,000 vehicles per day on two way streets. Using the extra street space for back-in angled parking should be weighed against the benefits that could be gained with the addition of bicycle facilities, like a bike lane or cycle track.

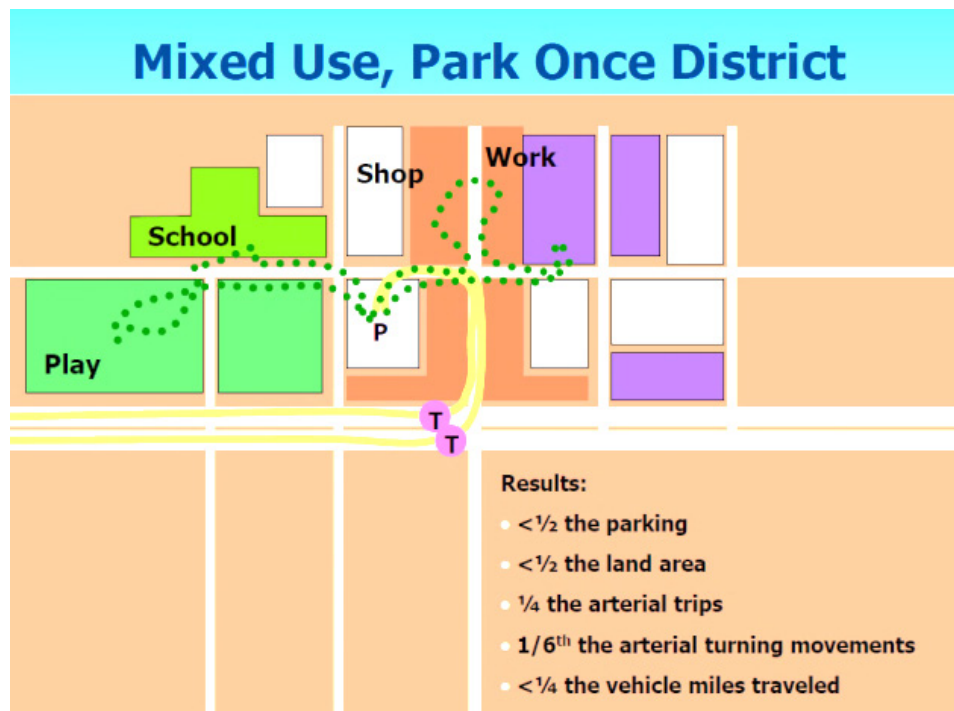
17 Shoup, Donald. “The High Cost of Free Parking.” American Planning Association Press, Chicago, IL: 2005.

18 Metropolitan Transportation Commission “Reforming Parking Policies to Support Smart Growth” Toolbox. See Appendix for more information.

19 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. http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rpt_95c18.pdf



These images compare conventional development with a park-once district, in which shared parking areas reduce the total land area, amount of parking, and the associated traffic (Image courtesy of Nelson / Nygaard, 2011). Similarly, the president of the Congress for the New Urbanism and Milwaukee's former mayor, John Norquist, has argued for modeling our transit stations after ski resorts "designed for hotel patrons and parkers to walk through a gauntlet of retail going to and returning from the ski slopes."



PARK-AND-RIDE

Park-and-ride facilities are parking lots near bus or rail stops that allow travelers to transfer from automobile to transit. Providing access to transit stations for drivers is more expensive than accommodating other modes, but is still an important part of our regional transportation system, currently used by 60 percent of Metra riders.²⁰ On one hand, they can increase the effectiveness of transit systems and help reduce the need for parking in the Chicago central business district, and on the other hand they provide storage for vehicles when transit-oriented development around the station could accomplish the same task while providing tax revenue for the municipality.

With the increasing popularity of transit-oriented development (TOD), the place of the park-and-ride in a transit system is changing. In 2011, the Regional Transportation Authority published a report called “Access & Parking Strategies for Transit-Oriented Development,” which includes guidelines to redevelop Metra commuter parking lots to accommodate alternative modes, create a TOD, and manage parking demand. Park-and-ride facilities are typically located with as much convenience as possible to the transit station in order to make using the facilities more attractive. The land close to a rail station is, however, the prime location for the higher density, mixed-use buildings that characterize TOD. TODs help to balance pedestrian and automobile needs. For example, instead of surface lots, parking could be in garage structures that incorporate other uses on the ground floor. Shared parking strategies (discussed earlier) can be an important tool to make parking work in a TOD. If a parking garage is built in a TOD, a portion of the spaces can be allocated to, or shared with, transit commuters. The structure would ideally contain a mix of uses, such as retail and office on lower levels. Also, not every train station will have transit-oriented development, and these locations may be more appropriate for park-and-ride lots.

In terms of the region’s parking supply, park-and-ride lots can be considered a substitute for long-term parking in the Chicago central business district (CBD). By allowing commuters to park their cars further out and take transit in, there is less need for parking in the CBD. Park-and-ride lots thus promote a more efficient use of land in the region, because less of the valuable land in the CBD needs to be devoted to parking, which is a relatively unproductive use. In the Village of Plainfield, the park-and-ride lot adjacent to the Village Hall provides commuters with easy access to two express Pace bus routes that go to downtown Chicago and are able to bypass traffic jams using the widened shoulder on I-55.

Park-and-ride lots reduce highway demand at peak commute periods and provide good opportunities for shared parking because their demand is consistent; they are most heavily used by commuters and can be shared with churches, dining venues, or other evening entertainment.

The parking charges at park-and-ride lots are not meant to manage the parking supply at these facilities. They typically cover some or all of the operations and maintenance costs, but in order to make park-and-rides effective, the cost to park and take transit must be less (often substantially so) than the cost to drive and park downtown. If a fee is charged, it is preferable to have a system that charges the user for each time he or she uses it so that there is an incentive to supplement travel with other modes, if possible. If a driver knows that riding a bicycle will save her a few dollars and the weather is nice, there is an incentive not to drive. Many communities in the CMAP region have easy bicycle access to Metra stations; and communities such as Schaumburg promote bicycling to the station by providing bike lockers for rent. More recent safety concerns around lockers have been addressed by permitting the lockers, rather than allowing full public access.

Managing commuter parking is a complex endeavor and this paper does not fully address the topic. Some municipalities have commuter lots in the heart of their downtown, and when lots are full, the commuter demand can spillover into neighboring areas and compete with customer parking spaces. A community interested in addressing current and future commuter parking needs should consult with Metra and / or Pace. Metra prepares 30-year ridership projections for existing stations based on current station ridership, CMAP household forecasts, parking capacity and utilization, and translates the data into future parking needs.

Metra also looks for opportunities to partner with municipalities or other entities to provide funding to support parking, pending availability of funds and demand. For example, in 2007, Metra worked with the City of Geneva to provide some funding for a parking deck near their station, and to help them to secure funding from the State of Illinois for the installation of a third level in 2012. Metra’s guidelines regarding replacement parking, lot ownership/maintenance, and location of commuter lots are identified in RTA’s Access & Parking Strategies for TOD (See Appendix).

20 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. <http://rtachicago.com/index.php?Itemid=325>

Pricing Strategies

Parking management without right-price parking will only take a municipality so far, because the provision of free parking is an incentive to drive and the number of drivers and cars continues to increase. As parking demand increases, the municipality will need to determine if it will increase parking supply at a high cost, address illegal parking with increased enforcement measures and penalties, or implement market-based parking pricing. Considering the cost-effectiveness of pricing, the goal for parking management intended to create livable communities should be a downtown parking strategy that limits and centralizes the amount of off-street parking, prices on-street parking appropriately, and incentivizes alternative modes. Financial instruments can be used to modify the price of parking to reflect its true market value, either by directly regulating prices or by imposing taxes and fees.

When given the choice, drivers prefer free parking. But the parking is not really free and is paid for by all consumers in the form of higher taxes and retail prices, as well as reduced wages and benefits. The idea behind market-based pricing is to have users pay much or all of the cost of parking, resulting in reduced demand and congestion. Providing safe, convenient alternatives to solo driving is important when imposing pricing mechanisms.

An important lesson from San Francisco's parking manager, Jay Primus, is to focus on availability and not on turnover.²¹ If the goal is to improve the economic vitality of an area with the help of market-based pricing, the municipality should determine the lowest possible price that leaves one or two spaces vacant per block. Parking availability reduces traffic congestion associated with the search for parking and improves access to the stores and businesses where customers want to go. The goals for parking pricing should never be tied to revenue collection, but to creating parking availability.

Municipal planners should try to understand, through public outreach, what frustrates different groups most about various pricing mechanisms. Some people never carry enough coins or cash and need machines that accept credit cards. Some people may not want to walk half a block to pay and half a block back to put a ticket in their car. Some people forget to track the time and often get tickets; others find pay machines overly complicated. There are various technologies coming online to address these concerns. For example, if meters were equipped with Quick Response (QR) codes read by smart phones, a user could access an app to pay, receive notices of time expiration, and "feed the meter" remotely. These technologies facilitate user acceptance of parking pricing by making it easier for them to pay for parking and less likely that they will receive a ticket.

If your community is investigating parking pricing for some or all of your downtown parking, it may be easier to start small, focus on the most congested block, and work outward from there as people become adjusted to the changes. It is important to be transparent about costs and revenues. Making the costs clear and understandable to residents will help explain the need for pricing. Often nervous about negative impacts, local businesses will be concerned that paid parking will scare away potential customers. Many businesses have come to see the positive impacts that pricing can have on turnover, and changed their opinions. A local business owner in Oak Park went from being one of the most outspoken opponents to parking price increases in 2008, to saying at a public meeting in 2011 that the parking price increase was "the best thing the municipality had ever done." Businesses can pay for a validation program, or even better, they can have a say in how the meter revenue is spent on the street in front of their store. They can decide if the revenues from parking will be used to improve the streetscape, to pay for a parking structure, or to develop "Complete Streets." Experimentations and pilot programs along one block at a time can help ease the adjustment, but rate changes should not be implemented or removed too quickly as there will be an initial adjustment period.

**As parking demand increases,
the municipality will need to
determine if they will increase
parking supply at a high cost,
increase enforcement measures
and penalties, or implement
market-based pricing.**

The most important factors in attracting customers are quality of the environment, the range of goods and services offered, and the overall accessibility.²² Concerns about the economic impacts of parking pricing are important to confront. Some areas offer "first 30 minutes free" or similar parking discounts, but with limited success. It has been found that, instead of an increase in customers, this is more likely to result in increased traffic movement and increased municipal costs.²³ As far back as 1935, in Oklahoma City, businesses on non-metered streets advertised free parking for a short time and then abandoned that strategy when occupied spots prevented customers from finding parking.²⁴ In Boise, ID meters with a button that give a customer 20 free minutes were installed. This was done to increase public acceptance of the new meters. In that case, a driver that is just stopping to pick up a coffee or dry cleaning pushes the button, does the errand, and leaves without having to pay. The button can only be pressed once, but there is obvious potential for abuse.

21 FHWA Parking Webinar, 2-23-12.

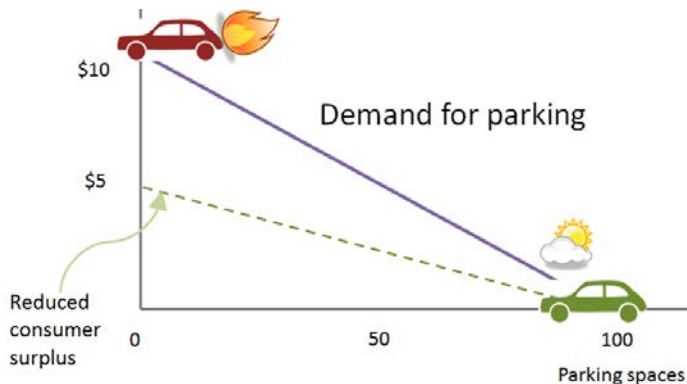
22 European Cooperation in Science and Technology (COST). 2006. Parking Policy Measures and Their Effects on Mobility and the Economy. Technical Committee on Transport August, 2006. <http://www.transportlearning.net/docs/COST%20Action%20342%20final%20report%20veilig.pdf>

23 Ibid, 2006.

24 Oklahoma Historical Society. 2007. Oklahoma Journeys, April 7, 2007. <http://www.okhistory.org/okjourneys/parkingmeter.html>

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 between supply and demand, with price playing a crucial role. When parking is free or underpriced and there is a high demand for it, it becomes hard to find, and once you have it, you are reluctant to give it up. Eighty-five percent occupancy ensures that one or two spaces per block will be available, so drivers no longer need to “cruise for parking.” If occupancy levels are lower, the prices are too high and should be lowered or free; if occupancy levels are higher, the prices are too low and should go up.

From an economic perspective, free parking is inefficient when parking is scarce. The demand for parking is a downward sloping curve, meaning that the driver with the most urgent need (red car) is prepared to pay more to park, while the driver with the least urgent need (green car) will only park for free.



The area under the demand curve (blue line above) represents consumer surplus when parking is free. Drivers who would be willing to pay for a prime parking spot are not able to do so where supply is limited, and this results in maximum utilization of the spaces. When parking spaces are scarce and there is high demand, the consumer surplus is reduced and its distribution is insensitive to the differing needs of drivers.²⁵ Those with less urgent needs (employees) will remain in spaces that drivers with urgent needs (customers) would be willing to pay for. The time spent searching for parking becomes a dead weight loss to the economy, and destinations in these areas have less business activity than they would if they had parking available on-street.

When it comes to the politics of parking, planners and local elected officials typically “weigh the interests of voters (who want free parking and no spillover) against the interests of developers (who must pay for the required spaces),” yet both of these considerations are short-term, and fail to consider how the provision of parking will affect traffic, walkability, air pollution, and costs of goods.²⁶ To best address our parking problems, we must trade in our engineer hats for economist hats. Increasing the supply of parking without applying a price is very expensive for everyone except the driver. Additionally, constructing more parking does not reduce the perception of parking shortages when on-street parking remains free. On-street parking is more desirable because it provides closer access to the shops and restaurants and is perceived as safer. If on-street parking is free, there is an incentive to drive in circles until locating a space – and once in a space, there is little incentive to move. When there are time restrictions, a driver who needs to be downtown longer than the time limit is forced to move the car, or “shuffle.” This adds to congestion and the perception of a parking shortage.

Options for advanced technology must be used to make the experience of paying for parking less painful, and can reduce the need for additional physical infrastructure. Pre-paid parking cards, in-car parking meters, mobile phone and GPS technology, barcode scanners / QR codes on meters are all options. Public input and funding will help determine the best choices for each community. See discussion of enforcement in Step 4 for more on this topic.



Photo : Dan Burden, www.completestreets.org

²⁵ For more information: <http://flashecon.org/lectures/parking/parking.asp>

²⁶ Shoup, Donald. “The High Cost of Free Parking.” American Planning Association Press, Chicago, IL: 2005.

VARIABLE RATES / DYNAMIC PRICING

Like other parking management strategies, municipalities can apply variable rates to parking to influence traveler mode choice, time and amount of travel, and shift drivers from a congested location. It is important to carefully select the locations for variable pricing to avoid negative impacts. A parking price that is set too high may shift drivers to other locations, rather than to alternative modes. The goal is typically to reduce parking congestion without reducing the number of people who travel to a location. Balancing the characteristics of the site with parking programs, incentives, and pricing is crucial to achieving that goal.

Variable pricing seeks to apply a free market-inspired pricing system to more efficiently allocate parking supply, with higher prices charged at times and locations of peak demand. Variable pricing promises both effective congestion mitigation and the ability to raise considerable sums for local governments. Cities like Los Angeles and San Diego are following San Francisco's lead and are tracking parking demand with in-ground sensors to determine parking price adjustments needed to maintain appropriate levels of vacancy.

Keeping on-street parking spaces available for short-term use should be a high priority, as they are the most convenient type of parking for potential customers. If on-street commercial parking is not managed or priced, commuters, employees and spillover parkers avoiding fees will use the parking spaces and the desired patrons will not have a place to park. A municipality should set the lowest price so that there will always be some vacancy, but not so high as to send business to other locations. Todd Litman, of the Victoria Transport Policy Institute, recommends that prime spaces suitable for short-term use be at least twice as expensive per unit of time as less-convenient spaces suitable for longer-term uses.²⁷ Prices and restrictions could vary by block, time-of-day, and day-of-week.

The Albany Parking Authority removed time limits in high-demand areas and implemented pricing that increases after two hours. Rather than paying \$1.25 per hour at meters with 2 hour limits, the hourly price increases by \$.25 per hour for the 3rd through 10th hour for a total daily price of \$21.50. Data shows that 15 to 20 percent of the customers stay more than 2 hours, average length of stay is slightly over 1 hour, and over 50 percent of the revenue comes from "long-stay" customers.²⁸ Turnover is created by economic forces based on individual choice in the marketplace, parking revenue is increased, and customers appreciate the added flexibility to stay longer. Payment by credit card is generally selected by customers when parked for more than two hours.

Managing parking in commercial areas typically involves "setting peak hour, daytime, or 24-hour parking restrictions; establishing parking time limits, and installing parking meters." The most important factor influencing the behavior of single-occupant drivers is parking cost to user, not supply; there is also a less intense relationship for maximum time limits.²⁹

PERFORMANCE-BASED PARKING PRICING & PROGRESSIVE PARKING PRICING

Pricing fees should be designed to create one or two available spaces per block. Shoup compares underpriced on-street parking to rent-controlled apartments: "they are hard to find, and once you find a space you'd be crazy to give it up."³⁰ Since these spaces are so hard to find (and desirable), people end up spending excessive time "cruising" for a spot.³¹ This leads to congestion and pollution, as well as increased travel times. It is estimated that almost 1/3 of traffic in downtown New York consists of people searching for a parking space. While traffic in our suburban downtowns is not as severe as New York City, "cruising for parking" still contributes to congestion.

With occupancy rates and existing supply information, varying zones of demand can be established. This would 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 occupancy rates. In 2010, San Francisco launched the federally -funded pilot program SFpark.org to test the idea of flexible pricing. The video for the project explains how rates are adjusted to achieve the 85 percent occupancy levels, and how that reduces traffic congestion.³²

In high activity areas with strong parking demand, prices can be set to encourage turnover with "progressive pricing." The price for a parking space would be 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). If parking is priced to encourage short-term parking, some travelers would reduce the amount of time spent at a location and many long-term parkers and commuters would go directly to a garage or remote lot. This would encourage turnover of spaces, but is less likely to affect congestion goals than "performance-based pricing," because it does not influence when people park.

Sometimes, the most effective pricing strategy is simply to coordinate the on-street and off-street parking prices, so that there is an incentive to go directly to a parking garage or lot, rather than cruise for an on-street space that may be underpriced. Evanston is able to do this effectively, since they own more than 80 percent of the parking supply in the downtown area. This also helps to provide spaces for short-term customer parking.

28 Michael Klein, Executive Director, Albany Parking Authority. Email message to author, April 2012.

29 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. http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_rpt_95c18.pdf

30 Donald Shoup, "Cruising for Parking," Access, No. 30, Spring 2007, pp.16-22.

31 Ibid, 2007.

32 See SFpark video: <http://vimeo.com/13867453>

Sometimes, the most effective pricing strategy is simply to coordinate the on-street and off-street parking prices, so that there is an incentive to go directly to a parking garage or lot, rather than cruise for an on-street space that may be underpriced.



Downtown Woodstock. Photo by: Eric Rogers, <http://flic.kr/p/6F7BXj>

PARKING BENEFIT DISTRICTS

An integrated parking management strategy can be used to increase the attractiveness of a retail center by reinvesting the parking revenue into street improvements. Many communities in the U.S. have established Parking Management Authorities (PMAs) to help set prices in Parking Benefit Districts and determine how parking revenue is spent. The PMAs are usually comprised of local leaders, business owners, and residents. A Parking Benefit District is a way for a city or town to return all or some parking revenue (generated through parking meters, fines, assessments, and/or taxes) to an area for improvements and/or beautification projects in the district. Returning parking money directly to the community often improves the general public's acceptance of the idea. "Key stakeholders such as businesses, developers, land owners, residents and government representatives need to work together to develop goals, objectives and a plan to create a parking district."³³ These stakeholders will also decide where and how funds should be spent.

An improved street environment can attract pedestrians and bicyclists who add to commercial "foot-traffic" without congesting the roadways. In the early 1970s, Boulder, CO took the risk of pricing parking with the idea that a more attractive environment would entice shoppers regardless of parking pricing.³⁴ 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.

The city of Pasadena, CA also used parking management to revitalize their downtown through a parking benefit district. With agreement from local merchants, they added parking meters and used the revenue to pay debt service on a major streetscape overhaul, called the "Old Pasadena Streetscape and Alleyways Project."³⁵ The meter revenue went toward street furniture, trees, decorative grating for trees, better lighting, 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." Their business increased compared to neighboring Westwood Village with underpriced meters and no walkability improvements. The graph below shows the sales tax revenue from various districts of Pasadena, with the yellow line indicating the year that meters were installed in Old Pasadena.³⁶



Parking meters by the Glen Ellyn Metra station. Photo: Lindsay Banks, <http://flic.kr/p/bnxtMG>



33 Metropolitan Transportation Commission (MTC). 2007. Developing Parking Policies to Support Smart Growth in Local Jurisdictions: Best Practices. Wilbur Smith Associates: <http://www.tam.ca.gov/Modules/ShowDocument.aspx?documentid=239>

34 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.

35 Douglas Kolozsvari and Donald Shoup, "Turning Small Change into Big Changes," Access, No. 23, Fall 2003, pp. 2-7. Online: www.shoup.bol.ucla.edu/SmallChange.pdf

36 Ibid, 2003.

Selecting the Right Set of Strategies

The most appropriate parking strategies for each municipality will depend on their unique characteristics and their vision for the future. Both the Parking Generation handbook and Metropolitan Transportation Commission's (MTC) parking toolbox use 5 "area types," ranging from extremely urban to rural, to determine appropriate strategies. While downtown Chicago falls into the most urban category, there are neighborhoods in Chicago that would not. Some planners refer to the "Smart Code Transect," which provides a visual cue for the range of development intensity in our nation's villages and towns.

In northeastern Illinois, the most important factors affecting parking include: the presence or absence of a Metra commuter station, the presence or absence of bus service and the level of service offered for each transit mode, population and employment density of the area, as well as bicycling and walking amenities. If the parking policies are intended to increase the walkability of an area or to support increased retail and commerce, they should be designed around the future vision of the community.

A strategy that might be appropriate for one street could fail miserably on the next. Applying strategies to "focus areas" is best. The table below, inspired by MTC's parking toolbox table, can be used to evaluate focus areas.

MOST EFFECTIVE SOMEWHAT EFFECTIVE HIGH-DENSITY, WALKABLE, TRANSIT-RICH LOW-DENSITY, NO "MAIN STREET," NO TRANSIT, PARKING RICH					
NON-PRICING STRATEGIES					
Reduced Parking Minimums					
Parking Maximums					
Employer Incentives					
Shared Parking					
Residential Permits					
Peripheral Parking Lots					
Improved Bicycling and Walking Infrastructure					
Real time parking information					
Unbundled Parking					
Narrow streets with back-in angled parking					
Park-and-ride					
PRICING STRATEGIES					
Variable Rates / Dynamic Pricing					
Performance-based Pricing					
Coordinated on-street and off-street Pricing					
Parking Benefit Districts					



Palatine's Gateway Center is a four-story mixed-use parking deck with street level retail and office space on the upper floors adjacent to the Palatine Metra Station.
Photo by Jim Watkins: http://www.flickr.com/photos/jim_watkins/

Step Four

Implementation

A municipality undertaking the process of developing parking strategies to support livable communities begins the process with an idea of community issues and problems, and a vision for solving them. The vision is refined with input received from stakeholders; existing conditions are documented and focus areas are identified. The strategies to address the challenges within focus areas are developed, and public engagement helps to shape how they are designed. When a set of tools and strategies has been selected, it is time to develop an implementation plan.



Parking signage at The Glen, in Glenview. Photo: CMAP Library.

WRITING THE PLAN

The parking implementation plan should be founded on the results of the initial parking survey and the community values and goals for livability and long-term sustainability developed through the engagement process. This plan will identify the public engagement efforts, occupancy survey results, strategies identified, and target zones for improvement. It will also outline a timeline for implementing the strategies and monitoring results, which can identify changes that will take effect immediately, within a year or more, and others that will only be implemented if necessary, based on success or failure of other strategies. It is important for communities to develop contingency plans so that they can provide the minimum spaces, monitor results, and have strategies to provide more if necessary. The plan should also include measurements of success that relate back to the original goals for livability, whether it is reduced congestion, increased walkability, etc.

If parking pricing or strategies that restrict or reduce parking availability are implemented, there may be an initial negative result in business activity as people adjust to the changes, and the municipality should not be quick to undo efforts without waiting through this period. This may take a couple of months, but business should return to normal. In the case of parking pricing, the resulting increase in turnover should even help businesses and improve customer satisfaction. To keep track of the user satisfaction, host regular public meetings that can be used to gauge impacts, understand initial frustrations, and work through any early problems. Maintain open lines of communication with residents.

The implementation plan should also include ideas for branding and marketing, identification of enforcement policies and goals, and strategies for addressing future parking needs. Short-term actions should have visible results and long-term actions should account for funding and management of future parking.

PARKING SIGNAGE, BRANDING AND MARKETING

Parking operations are often criticized and rarely praised; this can partly be blamed on inadequate user information and a lack of understanding by the general public as to how parking systems work.³⁷ The former issue can be mitigated by providing maps, signs, brochures, websites, real-time information, etc. For the latter, some communities have had success with the publication of an Annual Parking Report. A report documenting parking inventory, utilization (or “demand”), anticipated changes in demand or supply, enforcement issues, and a financial overview of the costs of parking, can be very informative and help to alleviate or prevent problems.

Oftentimes, it is not a lack of parking that is causing problems, but the *perception* of a parking shortage. There may be a decent supply of under-utilized parking that could be put to better use. Improving

the signage around the parking supply can help direct traffic from more congested areas to the available parking. Consistent branding and marketing can make it quick and easy to locate parking. A coordinated, visible branding on municipal handouts, websites, and maps to match the street signs is a must.



Enhancing crosswalks to promote pedestrian safety in Oak Park.

Improved user information at the parking location is also helpful for ease of use and user satisfaction. New York City’s Mayor Bloomberg has expressed a desire for “smart meters” that will work with wireless PDAs or smart phones to help drivers locate vacant spots, pay the meter, and to receive messages when the meter is about to expire.³⁸ Effective signage can improve parking management by making it easier for drivers to navigate both off-street and on-street parking facilities. Effective signage for off-street facilities can include:

- Directional signs at entrances from public streets
- Signs at exit to get back to the street network
- Internal signs to direct parkers to parking for various uses
- Internal signs to direct parkers to available spaces
- Way-finding within the facility so parkers can get back to their car

Instructional signs can also illustrate how to use innovative, safer on-street parking, such as back-in angled parking. Other signage can regulate which users can occupy on-street parking (i.e. residential permits). Automated parking guidance systems (APGS) and automated parking availability displays (APAD) can inform users of the number of available spaces in a facility, by level.

The marketing aspect is very important when making changes to the existing parking management system, and especially when creating parking benefit districts. If parking revenues are improving the neighborhood, signage can help show people, and encourage buy-in and support for the policies. In Pasadena, CA, the meters have stickers exclaiming, “Your meter money makes a difference!” and it lists the improvement projects paid for by meter revenue.

37 Burns, Dennis L. and Melinda Anderson. 2004. “Developing an Annual Parking Report,” in Haahs, Timothy H., ed. *Parking Management - The Next Level*, Parking 101 Vol. 2. Fredericksburg, VA: International Parking Institute.

38 Bloomberg, Michael. 2009. “My big parking promises: Mayor Bloomberg serves up a plan for N.Y.C drivers” in NYDailyNews.com, 9/13/2009. <http://bit.ly/5IOACj>

ENFORCEMENT

Parking enforcement should be efficient, considerate, and fair; the goal is to encourage compliance with existing regulations in order to maximize the efficiency of public space usage. Consistency of enforcement helps to maintain a high level of compliance. With recent changes to their parking management, the City of Tempe, AZ, decided to change the name of their “Parking Enforcement” department to “Parking Compliance.” This was representative of the shift to better customer service and education intended to increase compliance with parking regulations.

If resources for enforcement are limited, only issue tickets two or three days a week, but shift the days so that drivers do not know when enforcement will happen. Design enforcement routes so that a complete circuit coincides with the local time limits, where applicable. Evening enforcement is a lower priority because traffic volumes are typically lighter, but in areas with many restaurants and two-hour time limits, the hours of enforcement should extend until 7 pm to prevent wait staff arriving at 4 pm from parking on-street all night.

Investments in new technology can improve the efficiency of collections, reduce challenges, and lead to fewer violations. Automated license plate scanning machines, photos of violations, hand-held ticket writers, are all available for enforcement officers. The handheld devices should also contain police information regarding stolen vehicles, warrants, “shuffling,” unpaid tickets, etc.

Many communities are using “courtesy tickets” for first-time violators. These tickets do not have an associated fine; they alert the driver of his or her violation, direct them to longer-term parking or free parking, and thank them for visiting downtown. Progressive fines for repeat offenders are also recommended. Another emerging marketing strategy is the use of parking “ambassadors.” Typically identified by bright t-shirts, parking ambassadors are on-hand to make parking easy; they can direct drivers to off-street parking or assist with pay machines. A combination of ambassadors and enforcement can be very effective.

CONSIDERATIONS FOR PARKING STRUCTURES

If parking strategies to reduce demand are insufficient and a municipality is considering construction of additional parking, cost recovery should be an important decision-factor. The choice between surface and structured parking is generally driven by land costs. Where land costs are higher – usually in denser, more urban environments – it becomes more economical to build up than to build out. Excluding land costs, parking construction costs in 2012 were estimated to be:³⁹

- \$4,000 - \$8,000 /space for a surface lot,
- \$12,000 - \$24,000/space for a stand-alone parking structure,
- \$40,000 - \$70,000 /space for an automated parking garage, and
- \$40,000 - \$100,000 /space for an underground parking garage.

Similarly, in 2006, Bier et. al. estimated the following numbers: \$3,000 per space for a surface lot, \$20,000 per space for an above-ground parking structure, and \$35,000 per space for an underground parking garage.⁴⁰

Automated parking garages can fit more spaces on the same area of land, with ramps and driving lanes eliminated, and some estimate their costs to be as low as \$25,000 per space.⁴¹ Automated garages are not common in the United States, but are gaining popularity in areas with high land costs. Evanston’s Northwestern University found costs similar to Bier et al’s in 2006, with slightly higher numbers for surface lots.⁴²

The annual cost to own and operate a parking space (assuming a total capacity of 500 spaces) follows a similar hierarchy, and in 2004 ranged from less than \$400 for a surface lot space to over \$3,500 for an underground structure space. Structured parking is recommended for areas with higher land values and high demand for parking. The construction costs of structured parking per space diminish with scale, but consideration must be given to the ability to recover costs through parking fees, as well as the impact to the character and livability of the community. Factors affecting parking construction costs are detailed on the International Parking Design firm’s website.⁴³

39 Wiens, William, “The Cost of Tomorrow’s Parking...Have you considered this?” Hybrid Parking Blog, 5 February 2012. <http://hybridparkinggarages.com/Hybrid-Parking-Blog/bid/122553/>

40 Bier, Leonard, Gerard Giosa, Robert S. Goldsmith, Richard Johnson, and Darius Solloway. 2006. Parking Matters: Designing, Operating and Financing Structured Parking in Smart Growth Communities. Airmont, NJ: the Urban Land Institute-Northern New Jersey. <http://bit.ly/748MxH>

41 Josh Levin, “The Valet You Don’t Have to Tip,” *Slate*, 1 April 2004: <http://www.slate.com/>

[articles/arts/gizmos/2004/04/the_valet_you_dont_have_to_tip.html](http://www.slate.com/articles/arts/gizmos/2004/04/the_valet_you_dont_have_to_tip.html)

42 Northwestern University Newsletter. 2006. <http://www.northwestern.edu/newscenter/stories/2006/01/parking.html>

43 International Parking Design: http://www.ipd-global.com/whats_it_cost/

44 Shoup, Donald. “The High Cost of Free Parking.” American Planning Association Press, Chicago, IL: 2005.

Few parking operators (public or private) recover the full costs of owning and operating the garage because they set parking prices lower than the full cost of a space or otherwise subsidize the spaces. One result of these high costs coupled with inadequate revenue from parking charges is that parking structures are “seldom built as freestanding commercial ventures.”⁴⁴ By incorporating other uses into the parking garage, the rents for those uses will help to pay for the structure. In a study of eight municipal parking agencies in the Middle Atlantic and New England states, the annual operating revenue per space ranged from 26 to 36 percent of the annual cost per new space.⁴⁵ As stated before, it is important to consider the expected lifetime of a parking garage when making investment decisions, to estimate renovation costs and build the costs of long-term maintenance and renovations into user fees so that a multi-million dollar improvement does not come as a shock after 30 years.

There are benefits to parking structures over surface parking lots, despite their higher costs. Contrary to the perception that building structured parking will increase congestion, “it has been shown that there is less congestion because people immediately go to the deck to park, rather than cruise through town looking for spaces.”⁴⁶ Clear signage and way-finding are necessary to help drivers quickly locate structures and park. Additionally, when on-street parking is appropriately priced, the off-street garages become more competitive; revenue from on-street parking can be used to subsidize the garage. In more urban environments, it may be desirable to have retail space on the ground floor. The retail can wrap around the base of the garage and improve the local streetscape. In active areas – such as downtown, near transit, or in a shopping district – such retail space may be able to draw fairly high rents. Those rents can then be used to subsidize the building or maintenance costs of the entire facility. Minimizing interruptions in the pedestrian network (curb cuts) should also be a goal.



A Union Pacific train passes Geneva's municipal parking garage. Photo by Jim Watkins:
http://www.flickr.com/photos/jim_watkins/

PAYING FOR PARKING STRUCTURES

If a new parking structure is desired, it is important first to determine the trade-offs that your community is willing to make in order to pay for it, whether through meter revenues from a parking benefit district, taxes, or a combination of taxes and user fees. As stated previously, it is also important to consider the lifecycle of a parking garage and anticipate major renovations and build a fund to cover necessary repairs.

Constructing parking can be an expensive endeavor. Structured parking in particular involves significant up-front expenditures. Moreover, parking fees, where charged, may cover operating costs and a portion of the capital costs but structured parking rarely pays for itself in full. Public agencies who construct parking often need to find sources of financing and revenue beyond their general fund. Private entities looking to construct parking may partner with public agencies to take advantage of financing mechanisms and lower interest rates available only to public entities.⁴⁷

BONDING AND DEBT

Taking on some form of debt is a common way for public (and private) entities to fund the construction of a parking facility. Bonds often offer the lowest interest rates of any public financing method. Bonds issued by public or non-profit organizations to construct public facilities are usually tax-exempt, which helps lower their interest rate. Two major considerations for bonds are the identity of the issuer and how they will be paid back. Among public entities, municipalities and other units of local government with taxing authority (i.e. schools, park districts, and other authorities) have the power to issue bonds.

The best rates are for general obligation bonds, which are issued by municipalities and paid back through their general fund. Parking facilities are one of many reasons to issue bonds; and other purposes may take priority when issuing bonds. Revenue bonds are typically backed by the anticipated revenue from the project, but could also be backed by the proceeds from a special-purpose district such as a Tax Increment Financing (TIF), Special Services Area (SSA), a Business District (BD), or a specific revenue source such as a sales tax. To use these bonds, however, one needs to show that there is a stable source of revenue to pay back the bond; this may be demand for priced parking, sales taxes, or property taxes, etc. Depending on the project and the local parking system, there may be other sources of parking revenues to cover the debt service. Other sources might include parking meters or parking fine revenue from on-street spaces or other lots; rent from ground-floor retail around the facility (if built); and air right or ground leases.⁴⁸ Using bonding and debt can be complicated, and for joint development, municipalities or transit agencies also have to own the land for this to work.

47 Baron, Philip J. and John W. Dorsett. 2004. “Parking Facility Economics and Approaches to Financing,” in Haahs, Timothy H., ed. *Parking Management – The Next Level*, Parking 101 Vol. 2. Fredericksburg, VA: International Parking Institute.

48 Bier, Leonard, Gerard Giosa, Robert S. Goldsmith, Richard Johnson, and Darius Sollhub. 2006. *Parking Matters: Designing, Operating and Financing Structured Parking in Smart Growth Communities*. Airmont, NJ: the Urban Land Institute-Northern New Jersey. <http://bit.ly/748MxH>

45 Herbert Levinson, as cited in Shoup, 2005.

46 How to Handle Parking. 2007. *Transit-Friendly Development Newsletter* 3 (1). <http://policy.rutgers.edu/vtc/tod/newsletter/vol3-num1/TODParking.html>



Wheaton Parking Garage. Photo: Lindsay Banks, <http://flic.kr/p/bArwZv>

FINANCIAL TOOLS ACRONYM SOUP: TIFs, SAs, SSAs, BIDs and BDs

TAX INCREMENT FINANCING (TIF)

Local communities can also turn to the surrounding properties that stand to benefit from increased parking supply for financing assistance. Tax Increment Financing (TIF) captures the increased property value generated by development in an area to create a pool of money that can be used for area improvements. When a TIF district is established in Illinois, the area must have a demonstrated condition of blight, and property values must be projected to increase enough to fund improvements. The current property taxes are defined as the “base” amount. In the succeeding years, a maximum of 23 years in Illinois, any additional property tax (over and above the base amount) generated within the district is set aside in a special fund. That money can then be used to fund further improvements within the district, including public parking facilities. However, there are often concerns about money that is diverted away from underlying taxing districts when TIFs are used.

TIF money can be used as it is generated or the municipality can issue bonds backed by the future revenues from the increment collected in the district. More often, a municipality will issue a general obligation bond and hope to be paid back by the TIF. TIFs have been used in the Chicago region to fund parking garages; for example, the 5-level municipal parking garage in Downers Grove was funded through a TIF district. Depending on where a parking facility is being built, this may be a desirable financing mechanism. TIFs are more useful when they are part of a coordinated redevelopment strategy that includes parking, and in new development in a larger area.

SPECIAL ASSESSMENTS (SA)

In contrast to TIFs, where the property tax rate is not increased, Special Assessments (SAs) levy fees on properties near an improvement on top of the property taxes to capture the expected increases in property value from an investment in public infrastructure. This is commonly used when a public improvement benefits a particular area to a greater degree than the community as a whole. The assessment amount is typically calculated by starting with the total cost of the improvement and allocated to each property based on the degree of special benefit it is expected to receive from the improvement. A public body cannot use SAs to fund general improvements; it must be established that the money is for a local improvement. Essentially, the concept is that if improvements made by a government agency make a particular piece of property more valuable, the property owners that benefit should contribute to the cost of the improvement.

Special assessments are commonly used to assist developers of vacant land by financing the installation of public improvements such as storm sewers, streets, sidewalks, and gutters; but it can also be used to fund parking structures, police or fire protection, street lighting, and other purposes. The special assessment district for a parking structure would be limited to the area around the structure that is accessible by walking. The taxes, however, may not necessarily be applied to residential properties or properties that are not expected to benefit from the parking structure. The developer realizes a cost savings because of the lower tax exempt interest rate on special assessment bonds compared to the interest rate charged by commercial banks. As the properties are sold, the developer can use the money from sales to pay the assessment relative to parcels sold. The assessment is a lien against the real estate that, if not paid, is handled through the county as if real estate taxes have not been paid. Unlike SSAs, the SA is not an ad valorem property tax, meaning that it is not based on the value of the property.

SPECIAL SERVICE AREAS (SSAS) / BUSINESS IMPROVEMENT DISTRICTS (BIDS)

Business Improvement Districts (BIDs), called Special Service Areas (SSAs) in Illinois, levy an additional real estate tax (or other taxes) on properties within a defined area, creating differential taxing areas. The additional money is used to fund services and/or infrastructure improvements in that area – which can include construction of a parking facility or payment on the debt of the construction, if the area businesses choose. Assessments are often on a uniform per unit basis (square footage, receipts, assessed value), but in Illinois it is more commonly done using Equalized Assessed Value (EAV). The taxes are not limited to property taxes. With regard to parking funded by a BID, there is “typically no exemption or tax credit...provided to property owners who provide all or a portion of their required parking.”⁴⁹ Naperville pushed for changes to the state legislation to allow for a tax on food and beverages that could be used for the purposes of constructing new parking facilities.⁵⁰ Naperville’s parking garages are funded through a Special Service Area that levies a tax on local businesses, and new businesses are required to pay the taxes of the prior year in addition to the current tax. In this model (and in SAs), the businesses are able to offer their patrons free parking, but they are forced to charge more for goods for everyone, regardless of whether they use the parking, which encourages driving.

BUSINESS DISTRICTS (BDS)

A Business District is an area, deemed to be “blighted,” where a municipality can impose an additional tax to spur development or redevelopment. A BD must be contiguous, and all properties involved must be directly and substantially benefited by the public expenditures. A BD can fund tourism initiatives and infrastructure with an increase in sales and / or hotel tax for all businesses in the area by 1/4 percent increments, up to 1 percent, without referendum by citizens, for a maximum term of 23 years. A BD does not have the restrictions and requirements of TIFs, can be created by non-home rule municipalities, and has no impact on taxing districts. They may be more appropriate in areas with a significant amount of retail, and they can harm certain businesses. At least two public hearings must be held before a municipality can approve a BD.

PARKING ENTERPRISE FUND

One approach used primarily by municipalities and universities to help pay for parking is to create a parking enterprise fund. This fund is self-sustaining and is separate from the general fund, but its administration is still within the local government (or university). The fund does not have the capacity to issue bonds on its own, but can raise revenue in a number of ways. These revenue streams are also available to public enterprises and include:

- Monthly leases or permit sales
- Parking meter revenues
- Parking violation revenues
- Short term (non-contract, non-monthly) parking fee revenues

The key to the fund’s success is that while no one facility may cover all of its costs, multiple facilities together can. This is because the lifespan of a parking structure can range from 40-50 years or more, but development costs are typically capitalized over a 20-30 year period. This means that most parking structures have useful lives after their debt is retired, thus freeing up parking revenue to help pay for newer facilities.⁵¹ An enterprise fund may require outside subsidy in the early years.

49 Baron, Philip J. and John W. Dorsett. 2004. “Parking Facility Economics and Approaches to Financing,” in Haahs, Timothy H., ed. *Parking Management – The Next Level*, Parking 101 Vol. 2. Fredericksburg, VA: International Parking Institute.

50 “Continuous Improvement Model” 2008 ITE Midwestern Conference. Need to improve this

citation.

51 Baron and Dorsett, 2004.

52 Shoup, Donald. “The High Cost of Free Parking.” American Planning Association Press,

PAYMENT IN LIEU OF PARKING OR FEE-IN-LIEU

As discussed above, most municipalities require that a minimum amount of parking be provided as part of all new developments. As an alternative, some municipalities allow developers to pay a fee in lieu of constructing some or all of that parking. The fees collected are used to construct a public parking facility that serves that particular development, as well as surrounding uses.

Most cities set a uniform fee per space, with the number of spaces per development still dictated by the parking code. The fee itself is often less than the full cost per space for the public sector to provide the parking. Unless updated regularly, the fee may be considerably lower than the actual cost if the system has been around for a while. Vancouver, British Columbia takes an interesting approach by setting the fee per space equal to the cost to construct that space in a public garage minus the expected revenue the city will get from that space.⁵³

In most cases, the developer can choose whether or not (and for how many spaces) to pay the in-lieu fee. Some cities may offer payment in lieu of parking only in certain districts, such as in Lake Forest or Riverside where the option is available in downtown commercial / business districts. Other municipalities in northeastern Illinois that offer payment in lieu of parking are Libertyville and Highland Park, both of which charge \$15,000 per space in the downtown areas. Oak Park charges \$28,000 per space, an estimate similar to the cost of providing a garage space. Lake Forest has estimated the cost of providing a space at \$18,000, but charges only \$9,000 per space.

Beyond the financial aspects of payment in lieu of parking, there are a number of benefits to such programs. Donald Shoup identifies a number of advantages to payment in lieu of parking, including:⁵⁴

- Greater flexibility for developers, which can support historic preservation given the challenge parking may pose for adaptive reuse;
- More shared parking, thus potentially reducing the total number of spaces needed in the area;
- Fewer surface lots, because lots have been consolidated into one surface lot or possibly a structure;
- Fewer curb cuts, which increases pedestrian safety; and
- Fewer zoning variances that need to be issued, which expedites the development process and levels the playing field for all developers.

Additionally, fewer surface parking lots lead to better access management and improved traffic operations. Some developers may be wary of fee-in-lieu programs if they think that the money will not be used to provide parking. Programs demonstrated to reduce demand, paired with fee-in-lieu policy, can alleviate this fear.

PUBLIC-PRIVATE PARTNERSHIPS

The financing mechanisms described above mostly involve the public sector taking on debt to provide public parking facilities. In some cases, investments made jointly by the public and private sector can be used to help pay for parking. These public-private partnerships (PPP) can reduce the public sector's direct debt burden while also providing needed infrastructure. One strategy to minimize risks in PPPs to use a design-build contract, with a single party responsible for both designing and building the project. Long-term leases, another form of PPP, are the current extent of PPPs in Illinois. See CMAP's PPP strategy paper for more details on public-private partnerships.

Another form of PPP that has been applied to parking in a couple cases nationwide is the use of Design-Build-Operate-Manage (DBOM) to construct new facilities. An example from Connecticut can help to illustrate this innovative method. In 2000, the state issued bonds to cover the costs of constructing a new parking facility at Bradley Airport in Hartford, Conn. Due to the structure of the agreement, the bonds are actually guaranteed by a private entity. The state's arrangement used the same entity to design and build the facility and then after construction, to operate and manage through a lease from the state. The lease payments cover the state's debt service and the facility revenues cover the lease payments. Excess revenues are split between the state and the private operator. Should the lease payments and revenue sharing prove insufficient to cover the debt service, the private operator is responsible for making up the difference.⁵⁴

A similar strategy used to pay for parking facilities is called build-operate-transfer (BOT). A private entity may cover the costs associated with building public infrastructure, operate it and receive all revenues for a pre-determined time, and then transfer ownership to a public agency. Early parking meters were often installed in this fashion with manufacturers of meters installing them and recovering costs until they were paid for.⁵⁵

Chicago, IL: 2005.

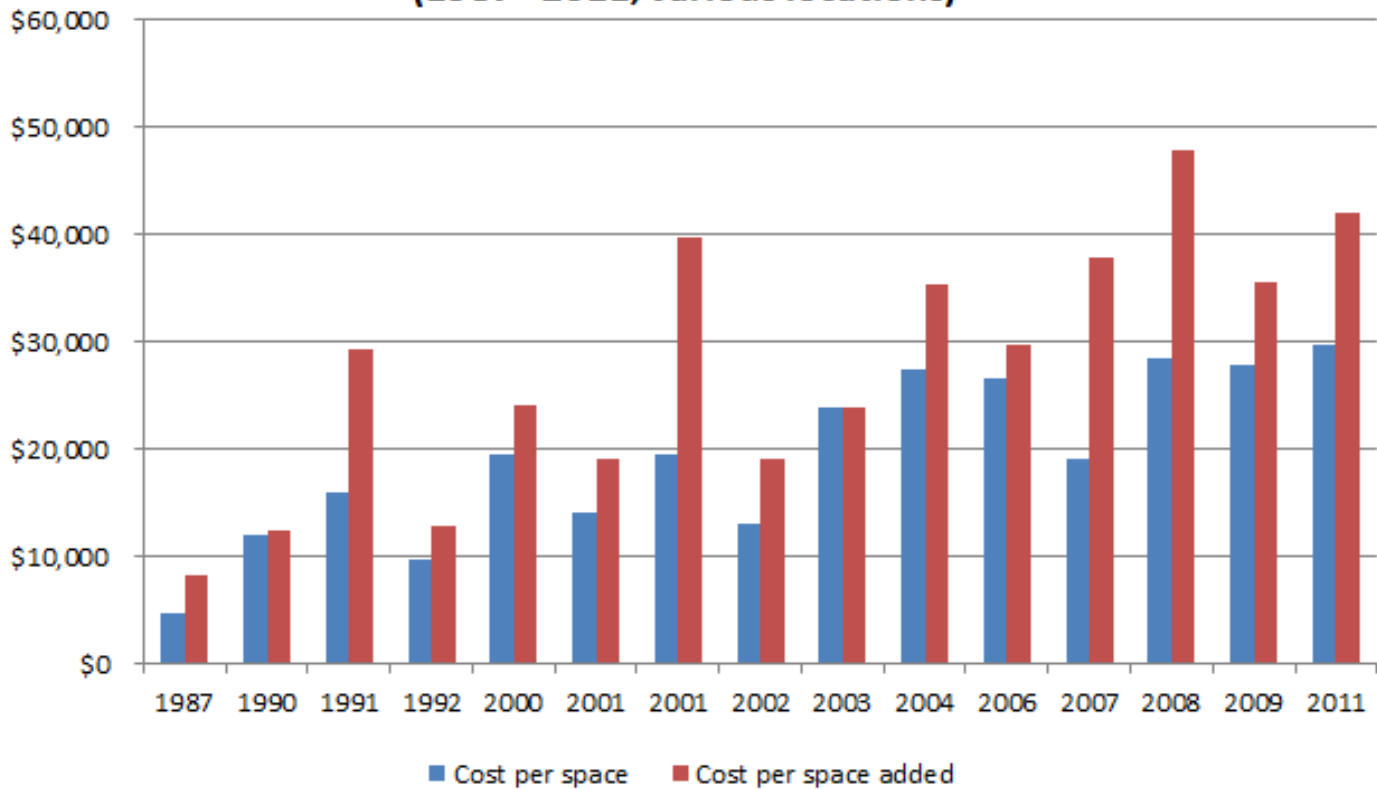
⁵³ Ibid, 2005.

⁵⁴ Bier, Leonard, Gerard Giosa, Robert S. Goldsmith, Richard Johnson, and Darius Sollohub. 2006. *Parking Matters: Designing, Operating and Financing Structured Parking in Smart Growth*

Communities. Airmont, NJ: the Urban Land Institute-Northern New Jersey. <http://bit.ly/748MxH>

⁵⁵ Shoup, Donald. "The High Cost of Free Parking." American Planning Association Press, Chicago, IL: 2005.

Parking Garage Costs in the Chicago region (1987 - 2011, various locations)



Geneva's municipal parking garage was engineered to accept a third level as additional funding became available and extra spaces were warranted.

Photo by Jim Watkins: http://www.flickr.com/photos/jim_watkins/

Recently Constructed Garages in the Region

The graph above and the data table on the following page both contain data collected on parking garages in the Chicago region. The cost per space is the total cost divided by the number of spaces, while the cost per space added subtracts the number of spaces that could be accommodated in the footprint of the site in a surface lot. If there were no garage, the land could be used for surface parking, and a structure allows for an additional number of spaces on the site.

Parking garages

FACILITY LOCATION	YEAR BUILT	SPACES	TOTAL COST OF GARAGE	COST PER SPACE	COST PER SPACE ADDED
Naperville Central Parking Facility	1987	553	\$2,600,000	\$4,702	\$8,176
Evanston Church St. garage	1990	600	\$7,200,000	\$12,000	\$12,457
Elmhurst Schiller Parking Deck	1991	221	\$3,516,245	\$15,911	\$29,302
Elmhurst Adelaide Parking Deck	1992	213	\$1,908,709	\$9,727	\$12,710
Evanston Maple St. garage	2000	1,400	\$27,200,000	\$19,429	\$24,028
Naperville Van Buren Deck	2001	530	\$7,400,000	\$13,962	\$19,023
Elmhurst Adelaide Expansion	2001	98	\$2,071,752	\$19,477	\$39,765
Palatine Gateway Center Parking Deck	2002	1,300	\$17,000,000	\$13,077	\$18,974
Elmhurst Schiller Expansion	2003	90	\$2,149,094	\$23,879	\$23,879
Downers Grove	2004	787	\$21,500,000	\$27,319	\$35,304
Evanston Sherman Plaza garage	2006	1,614	\$42,700,000	\$26,456	\$29,715
Geneva	2007	362	\$3,500,000	\$19,006	\$37,802
Naperville Van Buren Addition	2008	317	\$9,007,950	\$28,416	\$47,915
Berwyn	2009	396	\$11,000,000	\$27,778	\$35,484
Elmhurst 1st St. Parking Deck	2011	253	\$7,631,971	\$29,644	\$41,899

Source: Chicago Metropolitan Agency for Planning collected information



Downers Grove 5-level municipal parking deck, funded through a TIF district with help from Metra. Photo: Jim Watkins http://www.flickr.com/photos/jim_watkins/



A pleasant streetscape can encourage walking and bicycling. Photo : Dan Burden, www.completestreets.org

Step Five

Monitoring and Evaluation

In order to determine the success or failure of new parking policies, a municipality should refer back to the initial livability goals established for the community and the indicators of success established in the implementation plan. Well-documented public outreach and continued engagement through the implementation stages will make for a smoother experience.



Back-in angled parking in Chicago's Bucktown neighborhood. Photo: CMAP Library, by Tom Murtha.



Pedestrian-friendly walkway to Downers Grove Parking Garage. Photo : Jim Watkins, www.flickr.com/photos/jim_watkins/

Fine-tuning

Through public surveys, the municipality can continue to monitor customer satisfaction, ease of use, and behavior adjustments. A parking occupancy survey should be conducted after three months to gauge effectiveness of policies, which can be compared with results from public surveys. In the end, there may still be unsatisfied customers but thorough documentation of the publicly-established goals for the community, the strategies selected to achieve those goals, as well as the indicators for success can all be used to help explain why the policy changes were necessary and what they have accomplished. Maintaining an open communication platform is important; take time to respond to emails and answer phone calls about the policy changes.

Some examples of evaluation measures include: average time spent searching for a parking space (determined through public surveys), 85 percent parking occupancy levels, number of people bicycling or walking to work, adoption of commuter benefits to promote alternatives to solo driving, and customer satisfaction. If these indicators are showing little to no improvements, the parking management strategies need to be re-evaluated, with new strategies selected to reach target goals.

Conclusion

Driving will continue to be the primary mode of transportation for many people in the region, but it must be evaluated as one part of a comprehensive multi-modal transportation system that includes walking, biking, and transit. With driving as the main form of transportation in the region, parking is a very important part of our municipal landscapes, but it is significantly undervalued because users do not pay market costs for parking.

When parking is underpriced, it becomes costly to provide because users are not willing to pay the associated costs. A municipality can accept the burden of cost in the interest of supporting the local economy, but by adopting smart parking management strategies, the municipality can make the most out of existing resources before incurring unnecessary debt. By understanding existing supply and demand, effectively communicating the costs associated with parking to the public, the municipality can implement appropriate parking policies. When the demand for parking necessitates the construction of parking structures, the municipality can use the base knowledge of parking demand to provide the appropriate amount of parking, prepare for future demand, and utilize available financing tools. The way that we plan for and provide parking will have a huge impact on the future livability of our communities.

Appendix

DISABLED PARKING

To better accommodate the needs of people who use wheelchairs, the Americans with Disabilities Act created design guidelines for handicapped spaces, which are often located close to building entrances and access ramps. In the state of Illinois, any facility with parking for employees or visitors must provide accessible parking for people with disabilities. An accessible space must be 16-feet wide with an eight- or five-foot wide striped access aisle, which must be clear of obstructions including snow, ice, shopping carts, etc. The specifications for size and markings, location, and signage are available in an informational flyer distributed by the Illinois Attorney General.

Additionally, cars displaying handicapped plates or placards may park free at meters in Illinois. In areas with metered parking, this becomes a hurdle because there are many placard-abusers who avoid paying for parking by using someone else's placards. If able-bodied people are parking in the handicapped-designated spaces, this can prevent people who really need a convenient space from finding one. Chicago has recently introduced tougher penalties for violators to curb this abuse.

BICYCLE PLANNING AND PARKING

Planning for bicycles as a mode of transportation is vital to the development of livable communities. This paper does not address the complexities of bicycle planning, but there are many local resources available. Notably, the Active Transportation Alliance and their suburban ambassadors work with community members, sub-regional organizations, towns, and park districts to create biking and walking plans, expand trails and infrastructure and implement encouragement and safety programs.⁵⁶

Parking plans should consider bicycle parking and bicycle facilities as a means to reduce the number of parking spaces necessary. Many lots will use irregular or small spaces for bicycle and motorcycle parking. When converting from parking meters to pay-box systems, planners should consider the potential bicycle parking that is lost with the removal of meters. Some cities have removed the top of the meter and replaced it with an ornamental decoration, enabling bicyclists to continue using the meter as a bike rack, and reducing costs associated with meter removal and construction of bike racks. In Chicago, where pay boxes have been installed, some meters have a sticker informing people to pay for parking at the box, and that the "meter remains as a courtesy to cyclists." For more on bicycle facilities and planning, see the CMAP Bicycling strategy paper.

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.

CAR-SHARING

Car-sharing is a way for a group of people to share vehicle ownership, thereby reducing costs of ownership. By joining a car-sharing organization, members have access to a fleet of vehicles, parked in a variety of locations. The cars can be reserved for short periods of time, with members paying for their individual usage. Car-sharing is most successful in walkable communities and higher density communities.

Car-sharing is shown to reduce vehicle trips, as members use cars only when necessary and use alternative transportation for most other trips. On average, 20 percent of car-sharing members give up a car (primary or secondary) and over 40 percent forego the purchase of a new vehicle.⁵⁷ It also reduces the need for households to have extra vehicles, and provides access to cars for people who cannot afford the costs of vehicle ownership. There are two car-sharing organizations operating in Chicago and nearby municipalities, I-Go Cars and Zipcar. Region-wide coverage is limited, but growing.

Municipal governments can partner with a car-sharing organization to bring vehicles to their community, or to convert their municipal fleet of vehicles into car-sharing vehicles that could be used by the public at night and on the weekends. Each car-sharing vehicle takes 14-15 personally owned vehicles off the road.⁵⁸ Fewer vehicles means fewer parking spaces needed, allowing for more compact development and walkable neighborhoods. Locally, both Highland Park and Oak Park are in talks with the Chicago-based non-profit I-Go Cars to possibly convert some or all of their municipal fleets to shared vehicles. For more on car-sharing, see CMAP's Car-sharing strategy paper.



Rental bicycle locker. Photo : John Luton, <http://capitalbikeandwalk.org/>

56 For more information, visit <http://www.activetrans.org/in-your-community>

57 Millard-Ball, Adam, et al. 2005. TCRP Report 108 - Car-Sharing: Where and How it Succeeds. Transit Cooperative Research Program, Transportation Research Board. Washington, DC.

58 Zipcar, Inc. 2005. Zipcar member behavior survey. Cambridge, MA.

Model Ordinances And Sample Code Amendments

CMAP's Local Ordinances and Toolkits Program

<http://www.cmap.illinois.gov/local-ordinances-toolkits>

CMAP's Local Ordinances and Toolkits Program is a response to municipal demand for resources to develop policies that support the goals of GO TO 2040. Each year, CMAP staff will work with municipal officials and experts to deliver a series of guides that describe the process of implementing a specific municipal policy, from study to approval. In conjunction with the Local Technical Assistance (LTA) program, the agency also expects to provide staff support to several municipalities implementing these policies in the coming years. The Parking Strategies to Support Livable Communities paper is available for download and more materials will be added as the project evolves.

Shared parking

Stein Engineering. January, 1997. Shared Parking Handbook, Portland Metro: Appendix A, Model Shared Parking Ordinance Provisions.

<http://1.usa.gov/SharedParking>

South Carolina Department of Health & Environmental Control Sample Shared Parking Agreement:

<http://1.usa.gov/ModelAgreement>

NW Connecticut Model Zoning Regulations for Parking: http://1.usa.gov/NW_CT (pages 21-22)

Car sharing

FAQ from I-Go: <http://1.usa.gov/IGoMuni>

Nelson-Nygaard Car-sharing Best Practices report:

<http://nelsonnygaard.com/Documents/Reports/CITY-CARSHARE-best-practices.pdf>

Reduced parking minimums & maximums

Massachusetts Smart Parking Model Bylaws: <http://1.usa.gov/SmartParking>

Valet parking

The Old Pasadena “Universal Valet” program – park your car at one spot and pick it up at another – has never been a complicated project or process, and has been almost completely devised by the private operator. The valet space is permitted by the city to an operator, with the buy-in of whatever business they are located in front of. The storefront must approve the meters in front of their business being dedicated to a valet stand. Often the business is also underwriting part of the permit expense to have the valet there. The operator secures their own parking inventory to utilize for storing the valeted cars. In this case, they utilize several private parking garages and surface lots. The operation is completely in the hands of the permittee, who in this case happens to operate all of the locations because they long ago secured the available space to park the vehicles. The Business Improvement District mediates in cases of conflict resolution, and markets the services as an amenity for shoppers, diners, and visitors.

More information: <http://www.oldpasadena.org/valet.asp>

Parking reserves - Land set aside for excess parking, if needed

Ordinance text from Corte Madera, Marin County:

“...the planning commission may permit a property owner to designate a portion of his required off-street parking area as a “parking reserve” and to place improvements such as landscaping, tennis courts, and the like in the area which are compatible with the future use of the reserve as a parking lot. If the planning commission finds that the reserve is needed for off-street parking for users of the site, the owner shall improve the reserve as a parking lot within one hundred twenty days from the date the finding is made by the planning commission.”

More information from the Transportation Authority of Marin: <http://www.tam.ca.gov/index.aspx?page=298>

Unbundled parking

Reduce parking requirements for developers who sell or lease the parking separately from the residential units in TODs

San Francisco Unbundled Parking for Below Market Rate Housing: <http://sf-moh.org/index.aspx?page=909>

Performance-based Parking Pricing

SFpark.org: <http://sfpark.org/resources-overview/>

“As a federally funded demonstration, SFpark publicly shares extensive information about the project. This information may be of interest to customers, the press, academics and city administrators considering how to manage parking. Project documents, maps, images and data are available for download here. “

Parking Benefit District

Redwood City Parking Benefit Ordinance: http://1.usa.gov/PBD_Ordinance

Austin, TX, description and link to ordinance: <http://www.austintexas.gov/departments/parking-benefit-district-pbd>

MAPC Commercial and Residential examples:

<http://www.mapc.org/resources/parking-toolkit/strategies-topic/parking-benefit-districts>

Back-in/Head-out Angle Parking

Nelson/Nygaard Report: <http://1.usa.gov/BackInAngledParking>

Parking Design Guidelines

Ventura County Parking & Loading Design Guideline: <http://bit.ly/VenturaParking>

NW Connecticut Model Zoning Regulations for Parking: http://1.usa.gov/NW_CT

The City/County Association of Governments of San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook provides information on creating low-impact development (LID) roadways and parking lots within San Mateo County:

<http://www.mitod.org/pdf/ParkingRequirementsGuideSCANPH.pdf>

Kimley-Horn Sustainable Parking Deck Design: http://1.usa.gov/KHA_Design

Fees-In-Lieu of Parking

Libertyville Ordinance with Fee-In-Lieu: <http://1.usa.gov/FeesInLieu>

NW Connecticut Model Zoning Regulations for Parking: http://1.usa.gov/NW_CT (page 20)

Accommodation of Alternate Modes

Complete Streets information <http://www.completestreets.org/>

Policy Brochure <http://www.completestreets.org/webdocs/cs-brochure-policy.pdf>

NW Connecticut Model Zoning Regulations for Parking: http://1.usa.gov/NW_CT (pages 23-26)

TOD overlay / Overlay Zone

Village of Plainfield Downtown Parking Zone: <http://1.usa.gov/PlainfieldDPZ>

From Sustainable Cities Institute: <http://bit.ly/TODoverlay>

Model Mixed-Use Zoning District Ordinance (APA): <http://1.usa.gov/ModelMixedUse>

Additional Resources

Definitions related to parking

NW Connecticut Model Zoning Regulations for Parking: http://1.usa.gov/NW_CT (pages 8-10)

Smart Parking Model Bylaws (pages 2-3): <http://1.usa.gov/SmartParking>

Parking Surveys

ITE Parking Demand Survey Form (used to help improve data for Parking Generation Handbook):

http://www.ite.org/parkinggeneration/parking_basicform.xls

Naperville Parking Satisfaction Survey: <http://1.usa.gov/NapervilleSurvey>

Oak Park's July 2009 Parking Counts (.xls): <http://1.usa.gov/OakParkSurvey>

Sample Parking Survey Template (.xls): <http://1.usa.gov/SampleSurvey>

CMAP Strategy Papers

Transportation Demand Management: <http://www.cmap.illinois.gov/strategy-papers/transportation-demand-management>

Public -Private Partnerships: <http://www.cmap.illinois.gov/strategy-papers/public-private-partnerships>

Bicycling: <http://www.cmap.illinois.gov/strategy-papers/bicycling>

Car Sharing: <http://www.cmap.illinois.gov/strategy-papers/car-sharing>

Boston Metropolitan Area Planning Council (MAPC)'s Parking Toolkit

<http://www.mapc.org/resources/parking-toolkit/>

“This toolkit is designed to help local officials, developers, citizen board members, and advocates understand the sources of parking issues in their communities and identify potential solutions. The strategies outlined in the toolkit address a variety of situations and concerns in ways that save money, protect the environment, support local businesses, and encourage alternatives to driving. The toolkit includes information on how to do a parking study, regulatory tools to tailor parking supply, strategies to reduce parking demand, parking management tools to make more efficient use of existing parking, information on financing parking, and many local examples.”

Metropolitan Transportation Commission “Reforming Parking Policies to Support Smart Growth”

http://www.mtc.ca.gov/planning/smart_growth/parking/parking_seminar/Toolbox-Handbook.pdf

“This report is intended to serve as a guide or a handbook for communities interested in planning and implementing parking policies and programs that are supportive of Smart Growth and Transit Oriented Development (TOD). The focus is on downtowns, neighborhoods, and transit station areas in which a major investment has been made to provide regional and local transit accessibility. In order to maximize the value of that investment and to discourage the solo use of the automobile for travel, this report will assist communities in identifying the TOD supportive parking policies and improvements that are best suited to their individual characteristics.”

Donald Shoup, *The High Cost of Free Parking*, Chicago: Planners Press, 2005 and 2011.

Also known as the parking professional's bible, this book should be on the shelves of every urban planner, to help them see parking as an economist would.

Oregon Department of Transportation's "Parking Management Made Easy: A Guide to Taming the Downtown Parking Beast"

<http://www.oregon.gov/LCD/docs/publications/parkingguide.pdf?ga=t>

This guide explains how to analyze downtown parking to see if you have a parking problem; how to analyze what, where, and when the problem(s) occur; how you can add to your parking supply through better management of the total space that you currently have (not always the individual number of spaces).

RTA's "Access & Parking Strategies for Transit-Oriented Development"

<http://bit.ly/sQqYXf>

The guide is intended as a resource for municipal officials looking for innovative strategies to support multi-modal access to their transit station and TOD area. While providing parking options in these areas is important, this guide focuses first on assessing multi-modal access strategies as a whole and placing a priority on pedestrian, bicycle and transit access. Ideally, a mixture of these strategies should be applied to achieve an optimal balance of access modes and available parking. Each station and TOD area is unique and not all strategies will be applicable to all communities.

The Parking Handbook for Small Communities:

http://www.downtowndevelopment.com/parking_handbook.php

This document was written in 1994, but is unique in the focus on small communities, providing parking solutions for cities with populations under 50,000. It is a step-by-step review of how to plan, develop, and manage parking in a small downtown.

Victoria Transport Policy Institute's Online TDM Encyclopedia:

<http://www.vtpi.org/tdm/index.php>

This website has a vast amount of literature on Transportation Demand Management strategies that "result in more efficient use of transportation resources." In addition to the TDM Encyclopedia, there are many important documents on transportation and livability.

Active Transportation Alliance

<http://www.activetrans.org/>

The Active Transportation Alliance is a local non-profit advocacy organization that encourages and promotes safety, physical activity, health, recreation, social interaction, equity, environmental stewardship and resource conservation. They have assisted many municipalities in the Chicago region with the development of bicycle and pedestrian plans.

EPA's Parking Spaces / Community Places: Finding the Balance through Smart Growth Solutions

www.epa.gov/smartgrowth/pdf/EPAParkingSpaces06.pdf

The approaches described in this report can help communities explore new, flexible parking policies that can encourage growth and balance parking needs with their other goals. The EPA developed this guide for local government officials, planners, and developers in order to:

- demonstrate the significance of parking decisions in development patterns;
- illustrate the environmental, financial, and social impact of parking policies;
- describe strategies for balancing parking with other community goals; and
- provide case studies of places that are successfully using these strategies

NW Connecticut Parking Study – Phase 2: Model Zoning Regulations for Parking:

<http://bit.ly/w8RupA>

The focus of this study is on reducing the impervious surface area to improve stormwater drainage systems, but it includes a thorough background on zoning and design. It covers flexible parking guidelines, and has model ordinance language that may be useful to municipalities looking to update their code. There is model language for fee-in-lieu parking, shared parking, accommodation of alternate modes, and design standards for stormwater management.

TOD-Targeted Parking Regulations

<http://www.mitod.org/todtargetedparkingregulations.php>

The Center for Transit-Oriented Development and the Center for Community Innovation, and the Non-Profit Housing Association of Northern California partnered to create a report of Mixed-Income Transit-Oriented Communities. From this report, they developed an Action Guide, which includes these TOD-specific parking strategies, with case studies and links to resources.

International Parking Institute’s Knowledge Center

<http://www.parking.org/knowledge-center.aspx>

The International Parking Institute has a number of different resources for parking professionals, including the growing “Knowledge Center” with publications, FAQs, case studies, and more.

National Complete Streets Coalition

<http://www.completestreets.org/>

This webpage offers clear descriptions of the basics of complete streets, sample policy documents, advocacy materials, and fact sheets.

Documents on financing mechanisms

- SB Friedman’s “What is an SSA?” document (PDF): **<http://bit.ly/wskjOo>**
- SB Friedman’s “What is a TIF?” document (PDF): **<http://bit.ly/AwaU5V>**
- Lake County Partners -TIF: **<http://bit.ly/LakeCountyTIF>**
- Lake County Partners - Business Districts: **<http://bit.ly/BusinessDistricts>**
- CMAP’s “Use of Special Assessments, Special Service Areas” (PDF): **<http://1.usa.gov/AE9Dry>**
- St. Louis Regional Chamber “State of Illinois Business District Program Detail” (PDF): **<http://bit.ly/xhpTnG>**
- CMAP’s Transportation Value Capture Analysis (PDF): **<http://bit.ly/ugHYsA>**



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The Chicago Metropolitan Agency for Planning (CMAP) is the region's official comprehensive planning organization. Its GO TO 2040 planning campaign is helping the region's seven counties and 284 communities to implement strategies that address transportation, housing, economic development, open space, the environment, and other quality of life issues. See www.cmap.illinois.gov for more information.



Photo by Jim Watkins.



Photo by Steven Vance.
FY12-0095

