

May/June 2008

Carsharing: A Guide for Local Planners

By Adam Cohen, Susan Shaheen, and Ryan McKenzie

Transportation issues can create seemingly no-win conflicts for planners, whether it's dealing with traffic demand management, wrangling over parking requirements, addressing quality of life issues that accompany too much traffic, or, most recently, trying to reduce vehicle emissions to forestall climate change. But, planners, take note: A new "product-as-service" approach to vehicle use, called *carsharing*, is springing up in major metropolitan markets, smaller districts, and university campuses all across the country. Where the conditions are right to support carsharing, these programs can give planners another flexible tool to help address these issues in their communities.

WHAT IS CARSHARING?

The principle of carsharing is simple: Individuals gain the benefits of private vehicle use without the costs and responsibilities of ownership. Rather than owning one or more vehicles, a household or business has access to a fleet of shared-use autos on an as-needed basis. Individuals gain access to vehicles by joining an organization that maintains a fleet of cars and light trucks that are parked in designated, leased spaces in a network of locations. Vehicles are accessed on an as-needed basis, and members are typically charged each time they use a vehicle (Shaheen and Cohen 2007).

Participants are not required to carry any insurance of their own; membership includes full liability and collision coverage on the company policy. Gasoline is also included; vehicles are equipped with a gas card for use at any retailer.

Short-Term Use

Because carsharing is a flexible alternative, serving a variety of markets, many carsharing programs offer a variety of vehicles, including sedans, small SUVs, and pickup trucks. Most members utilize the carsharing vehicles for short trips of 30 minutes to four hours; however, some programs offer special rates for daily, overnight, and weekend rentals when longer trips are required. Vehicles can be reserved minutes or months in advance for specific blocks of time, online or by phone. Prices typically range from \$4 to \$11 per hour. Lower hourly rates are frequently accompanied with per mile charges ranging from 9 cents to 40 cents a mile, and higher rates are typically bundled with an allotment of "free miles."

To use a carsharing vehicle, members simply walk to the car at the reserved time, use a wireless security keycard to unlock the door, and drive as usual. As the reservation ends, they return the car to its exclusive-use parking space, lock it with their keycard, and walk away. An onboard computer collects and wirelessly transmits trip data. Charges are either automatically billed to the member's credit card or deducted from their bank account.

Carsharing is more cost-effective than owning or leasing for cars used less than 7,000 to 10,000 miles per year, depending on location (Litman 2000; Reynolds and McLaughlin 2001; Calgary Alternative Transportation Cooperative n.d.). And although carsharing is not well suited for daily commuter trips, this on-demand service can replace a household's second car — or even make a car-free home feasible — for those who don't *need* to drive everyday, including people who can ride transit, walk, or bike to work or school.

Program History

While formal carsharing organizations have operated for more than 20 years in Europe, the first U.S. service was introduced in 1998, in Portland, Oregon. A total of 18 nonprofit and for-profit operators have since launched programs in 30 states, serving more than 20 major metropolitan markets and dozens of college campuses. As of January 2008, more than 235,000 members were sharing approximately 5,250 vehicles in the United States (Shaheen and Cohen, unpublished data).

Although for-profit carsharing organizations such as ZipCar account for 22 percent of carsharing programs in the United States, they account for 77 percent of the industry's membership and almost 84 percent of the vehicles deployed. Nevertheless, nonprofit organizations in large cities such as San Francisco, Chicago, and Philadelphia still account for almost 23 percent of the industry's membership and 16 percent of the industry's total fleet size. In

recent years, both for-profit and nonprofit startups have established more modest networks in mid-sized and smaller markets including Madison, Cleveland, Minneapolis, and Austin.

Profile: I-GO Car Sharing, Chicago

I-GO Car Sharing was founded in March of 2002 by the Center for Neighborhood Technology (CNT), a "think-and-do tank" dedicated to building more livable, sustainable urban communities. Inspired by the success of car sharing in Europe, CNT introduced car sharing to Chicago to reduce greenhouse gas emissions and air pollution from the transportation sector, urban traffic congestion, and household transportation costs.

The City of Chicago, recognizing that car sharing services could fill a vital — and at that point empty — niche in the city's transportation network, provided I-GO's initial financing, allowing the organization to begin operations with four cars in two Chicago neighborhoods. Since that time, the organization has grown to serve more than 8,000 members with cars in 32 Chicago neighborhoods, as well as the adjacent suburbs of Oak Park and Evanston.



I-GO is true to its nonprofit environmentalist roots, and strives to incorporate its sense of environmental and social responsibility into all aspects of its operations. Every car in I-GO's fleet meets or exceeds the California Air Resources Board LEV II Low Emission Vehicle standards, and nearly one-third of the fleet is hybrid gasoline-electric vehicles.

I-GO works closely with city planners, other government entities, and the private sector to maximize the public benefits of car sharing. I-GO provides car sharing services to the City of Chicago Department of Fleet Management to reduce costs to the city of operating its fleet

for city employees. The program recently completed its first year of operation, with the city maintaining exclusive use of two I-GO vehicles during regular business hours, and using other I-GO vehicles on an as-needed basis in the same way as other I-GO members.

The city's Department of Planning, too, has recognized the benefits that I-GO car sharing provides, and I-GO coordinates with city planners and private developers to incorporate car sharing into planned developments. In addition, developers throughout the city are incorporating I-GO as a component of achieving LEED certification for their buildings. With two buildings in Chicago already having achieved certification — including the Merchandise Mart, the largest commercial building in the United States, certified LEED-EB Silver last November — and several more underway, I-GO expects to play a growing role in contributing toward LEED certification for new and existing buildings in the future.

Car sharing providers rely primarily on surface lots and garages to secure parking for car sharing vehicles. As car sharing continues to grow towards the goal of a ubiquitous presence in urban areas, however, competition for parking will become increasingly intense. I-GO has pioneered the use of on-street parking spaces for car sharing cars in Chicago, piloting the concept with — four locations in — three neighborhoods.

The ability of car sharing to deliver substantial environmental, social, and economic benefits, although seen by many skeptics as an untested claim only a few years ago, now seems beyond doubt. I-GO has taken an approach which understands car sharing as a component of the regional transportation network, and emphasizes close collaboration with planners, government agencies, elected officials and the private sector in order to make good on this promise. In the case of I-GO, this collaboration has resulted in individual members reducing their transportation costs by as much as \$4,000 a year, and a reduction of 9,725 metric tons of greenhouse gas emissions over the life of the program.

For more information about I-GO, visit www.igocars.org or e-mail info@igocars.org.

Joseph Grant

Grant is the research and program associate at I-GO, Chicago's first car sharing program.

Image: Three current I-GO members and an I-GO car at the Logan Square Blue Line location. Photo by Matthew Gilson.

THE POSITIVE IMPACTS OF CARSHARING

Carsharing offers a range of individual and community benefits. It serves as a "missing link" in the spectrum of alternative travel choices, filling the occasional service gaps left by other more environmentally friendly transportation modes such as walking, cycling, and transit, and increasing the viability of a largely car-free lifestyle.

Individual Benefits

Most immediately, carsharing can offer tremendous economic savings. The average car costs more than \$500 per month to own and operate (American Automobile Association (AAA) 2007), which contributes to U.S. households spending nearly 20 percent of their income on transportation — second only to the cost of housing. Furthermore, according to AAA estimates, gas prices have risen nearly 20 percent from a year ago. The increased costs of auto ownership and uncertainty about future operating costs are encouragements to look for ways to reduce individual transportation expenditures.

Carsharing is one alternative. Rather than paying the ownership and fixed operating costs associated with a vehicle, including insurance, license, registration, taxes, depreciation, finance charges, and other expenses, carsharing members pay only for the time and distance they drive. The fixed operating costs are shared among a larger group of users. This all-inclusive bundle of services — vehicle use, insurance, and gasoline — is typically offered for less than \$11 an hour.

Carsharing also offers simplicity and freedom from worrying about car washing, oil changes, preventive maintenance, unpredictable repair needs, annual vehicle registration, and even the time and stress involved in car shopping.

Shared cars also generate social benefits, creating an affordable alternative to ownership for lower-income workers, students, and seniors. With on-demand access to safe and reliable vehicles that include full insurance coverage, those otherwise at risk of being marginalized can affordably maintain their mobility and participate fully in society.

Finally, the carsharing lifestyle often includes daily physical activity, such as walking to catch the bus, which supports a more active lifestyle for many of its users.

Community Benefits

Carsharing members report a higher degree of environmental awareness after joining a program (Lane 2005). Their collective changes in car ownership and personal travel behavior promote a range of community planning goals, including support for walkable communities and alternative transportation, reduced parking demand, a reduction in criteria air pollutants and greenhouse gas (GHG) emissions, and even local economic development.

According to recent North American studies and member surveys, each carsharing vehicle removes an average of 15 privately owned cars from the community, as participants sell a vehicle or forgo a planned purchase. The resulting decrease in local parking demand creates opportunities to permanently reallocate the land for additional green space, new mixed-use development, or other community needs. Furthermore, the vehicles these members sell or avoid purchasing tend to be the oldest, most polluting, and least reliable on the road. They are replaced by a relatively small number of high-efficiency, low-emission vehicles, including gasoline-electric hybrid cars, creating even greater improvements in local air quality, noise, and emissions.

Former car owners change their daily travel behavior dramatically after joining, increasing their transit use, walking, and cycling, while reducing their total vehicle miles traveled (VMT) by an average of 44 percent (Lane 2005; ZipCar 2005; City CarShare n.d.; McLaughlin and Reynolds 2001; Litman 2000). Previously carless customers tend to use carsharing as a substitute for car rental, taxis, and other car-centered modes, rather than as an alternative to transit, walking, or cycling. Although their total VMT rises modestly, these gains are small in comparison to the overall mileage declines of other members.

These behavioral changes, combined with efficient daily use of the fleet, allow carsharing companies to successfully serve members at an average ratio of almost 45 people per vehicle (unpublished data Shaheen and Cohen).

Transportation is a major contributor of CO₂ and other greenhouse gas emissions, accounting for approximately 27 percent of total anthropogenic emissions in the United States and 14 percent globally (Shaheen and Lipman 2007). According to PhillyCarShare, the combination of driving hybrids, driving less, owning fewer cars, and making fewer cold starts can yield an impressive 95 percent reduction in auto emissions per participant (unpublished data, Lane). In Europe, carsharing is estimated to reduce the average user's carbon dioxide (CO₂) emissions by 40 to 50 percent (Ryden and Morin 2005). In 2007, Communauto announced a 13,000-ton reduction in CO₂ emissions as a result of its 11,000 carsharing users in the province of Quebec, Canada. Communauto calculates that each carsharing user reduces his or her distance traveled by car by 2,900 kilometers per year on average. Furthermore, they anticipate

with a potential market of 139,000 households in Quebec that annual CO2 emission reductions could be as high as 168,000 tons per year (Communauto 2007).

From an economic development perspective, shared vehicles are an attractive amenity for both residential and commercial customers. In some cases, developers and property managers will enter guaranteed minimum revenue contracts with a carsharing company in exchange for having specific types of vehicles on site — sometimes for their tenants' exclusive use during certain hours. In other cases, the size and density of the district (a city center, for example) supports multiple general-use vehicles within seconds of any address. By adding an additional transportation alternative, carsharing can provide urban properties with increased accessibility, making them more attractive sites for tenants who might otherwise look for a suburban location.

Profile: PhillyCarShare, Philadelphia

PhillyCarShare, a nonprofit organization, is Philadelphia's premier carsharing service.

PhillyCarShare was founded in 2002 by five Philadelphians set on reducing automobile dependence citywide. The premise was simple: automobiles, while necessary in our society, are abundantly overused because they are priced inappropriately. Once a car is owned, almost all of its costs become "sunk" and unrelated to miles driven. Thus, driving seems cheap on the margin. Consider that a 10-mile roundtrip in Philadelphia costs \$4 on public transportation but only 98 cents in gas.



PhillyCarShare sought to change travel behavior by flipping these economics, making cars virtually free to access, and making costs related to how much one drives. PhillyCarShare's founders envisioned low-emission vehicles on every block, available by the hour and round the clock, to replace personally owned cars. Members would gain the opportunity to save money by driving less, plus enjoy access to dozens of models at a moment's notice, steps from their front doors.

In practice, PhillyCarShare has led the U.S. carsharing industry. It has worked to introduce innovations such as free memberships, a fleet of more than 50 percent hybrid vehicles, service to 18-year-olds, cars on every block, free trips on rail transit to users of PhillyCarShare vehicles parked at over 40 stations, child seats, rates from just \$3.90 per hour, and a debit billing system that enables even the poorest households to join.

The results have been nothing short of astounding. From its humble all-volunteer beginnings with nine members and two cars, PhillyCarShare has grown into the largest regional carsharing organization in the world. PhillyCarShare's 35,000 local members report owning 13,000 fewer cars and driving 42 percent fewer miles, and those who formerly owned vehicles report choosing to walk more (40 percent), ride public transit more (34 percent), bike more (18 percent) and take taxis more (13 percent). Members have logged 4 million miles in hybrids that pollute 90 percent less than conventional models, and have boosted the local economy by \$90 million by forgoing car ownership and spending the money locally rather than pouring it into the global auto industry. Plus, 75 percent of members have reported choosing where they live based on the locations of PhillyCarShare pods, highlighting the impact that PhillyCarShare has on neighborhood livability and quality of life.

PhillyCarShare, as a local nonprofit organization, recognizes the interconnectedness of communities, culture, and the environment, and thus invests in Philadelphia in a myriad of ways. Its Community Improvement Program helps civic-minded PhillyCarShare members contribute in local communities — for block clean-ups, tree plantings, community events, computer training for the elderly, and winter coat and toy drives. PhillyCarShare's "Key to the City" affinity program promotes local business, and PhillyCarShare's events regularly highlight local artists and musicians. In May 2008, PhillyCarShare is introducing "Walk Ride Share Philadelphia," a monthlong citywide initiative that encourages participants to put their cars in "park" in return for free PhillyCarShare driving credits, free walking shoes, a free transit pass, and more — all to demonstrate the ease and convenience of living car-free in the city.

PhillyCarShare, by dedicating itself to innovation and its civic mission, is reducing the region's carbon footprint, making Philadelphia less about cars and more about people.

For more information about PhillyCarShare, please view www.phillycarshare.org or e-mail info@phillycarshare.org.

Clayton Lane, AICP

Lane is the Deputy Executive Director of PhillyCarShare.

Image: A large PhillyCarShare pod at 17th and Pine Streets in Philadelphia. Photo courtesy PhillyCarShare.

IS CARSHARING A POSSIBILITY FOR YOUR COMMUNITY?

Given the many individual and community benefits of carsharing, planners may ask whether their communities can successfully host a program. Carsharing is most suited to walkable, high-density, mixed use urban areas with convenient transit nearby. It is generally an intensely local service; each car mainly serves customers within a quarter to half-mile radius or a five to 10 minute walk. Accordingly, there will be large areas of any metro area that simply cannot sustain even a low level of carsharing service without ongoing subsidy.

In nearly any region, however, there are pockets of more intense land use — the central business district, dense older neighborhoods, new planned unit developments, burgeoning university and medical campuses — that are the focus of economic development efforts. These areas often struggle with parking and traffic challenges that call for innovative solutions. Targeted carsharing programs can be successful in these niche markets. Examples of these programs can be found in such smaller communities as Rutledge, Missouri; Aspen, Colorado; and Bellingham, Washington.

Urban carsharing members have tended to be well educated and socially and environmentally aware. Early adopters of carsharing were typically in their 30s and 40s, with middle to upper middle incomes (Millard-Ball, 2005). Increasingly, however, there has been a significant growth in carsharing among younger drivers as operators have expanded services to university campuses.

In the last few years, many carsharing companies have reduced minimum age requirements from 21 to 18 years of age and have expanded aggressively on university campuses across the country. As of the fall of 2007, carsharing services were available at more than 50 colleges and universities across the United States (unpublished data Shaheen and Cohen). Membership growth in this demographic builds awareness and social support for the carsharing lifestyle. Industry observers anticipate increasing market acceptance and demand as students leave campus and enter the workforce.

PUBLIC SUPPORT FOR CARSHARING

While it isn't the job of planners to get carsharing started, and carsharing is not a great match for every community, program benefits suggest that planners and their communities gain when a local carsharing program is started. What are the challenges facing a potential carsharing program in an untested region?

For the operator, carsharing can be risky business. Though companies have succeeded in attracting a healthy customer base in many large metropolitan areas, these capital-intensive programs face many hurdles in mid-sized and smaller regions.

New locations should not expect to attract experienced companies without committing to large, long-term revenue guarantees. No carsharing program has yet developed brand franchise opportunities, so local start-ups may need months or years to develop the basic technical, legal, and marketing infrastructure and education required to begin service. However, a number of carsharing operators and consultants now provide technical support and expertise, which can dramatically reduce the amount of time it takes to start up a new program.

Whether the operator is for-profit or nonprofit, achieving a significant level of market penetration before running out of capital is a daunting task — especially in places with smaller urban populations, lower densities, and more abundant, lower cost parking.

Prospective members are often initially skeptical about the feasibility of selling their cars. Even motivated, progressive-minded individuals who "get it" will need time and multiple exposures to the idea of carsharing to overcome uncertainty about such a fundamental change in their lifestyle (Shaheen 1999). Enthusiastic potential joiners may also wait in the wings for years: "I'll join as soon as my '98 Jetta dies." And potential business customers may also adopt a wait-and-see attitude, signing on only after the concept has been embraced by a respected corporate or institutional leader.

Finally, the time and effort required to identify and secure leases for free or reduced-cost parking spaces can be an unexpected source of delays and frustration.

Given these challenges, what can planners and municipal governments do to support the development of carsharing in their communities?

Become a Visible Advocate and Partner for Carsharing

Endorsements and outreach from local governments, nonprofits, and community institutions will add to public awareness and legitimacy for a fledgling (or future) carsharing operation. Co-promotions, joint press releases, and media events featuring prominent local figures can help convince potential participants to join, accelerating the development of a viable local market. In 2004, Arlington County, Virginia, sponsored a multi-faceted carsharing pilot program that attracted more than 2,500 participants. More than 85 percent of surveyed members "felt more confident joining a carsharing company," knowing they were partnered with the county government (Arlington County Commuter Services 2005). Similarly, the decision by the City of Philadelphia to replace its municipal fleet with carsharing vehicles was an important milestone in the membership growth of PhillyCarShare (Lane 2008).

Include Carsharing in Applications for Grants, Loans, and Other Incentives

Planners and allied professionals can create or encourage private-sector incentives to support carsharing through their evaluation criteria for distributing public dollars, providing loan guarantees, or offering administrative approvals. Examples of how carsharing is being encouraged in specific programs include the following:

- Developers pursuing LEED green building certification for new construction can earn a point by providing designated parking for carshare services (USGBC 2005).
- The Ohio Department of Development awards grants of up to \$5 million in its *Ohio Job Ready Sites* program, which is designed to "bolster the state's inventory of available facility locations served by utility and transportation infrastructure" (Ohio Department of Transportation 2008a). The 2008 proposal scoring system includes points for applicants that have "committed to make a car sharing program available" at their technical center/ research laboratory site (Ohio Department of Transportation 2008b).

Provide On-Street Parking

In most cities, nearly 100 percent of curbside parking is designated for people who choose to own a car. By providing designated on-street parking for shared-use vehicles, cities can dedicate a small part of that public space to the urban residents who choose to share a vehicle.

Low or no-cost parking helps to reduce carsharing operator costs, resulting in lower rates for residential users, fewer vehicles on the road, increased parking availability, and lower emissions.

For potential participants, on-street parking provides safe, convenient, and highly visible locations that increase user confidence and awareness of the service, typically leading to increased rates of local membership.

Examples of municipal parking policies for carsharing include the following:

- Seattle has parking stalls that are designated to carsharing vehicles as a class, similar to taxi zones.
- Portland, Oregon, created "option zones" to designate on-street carsharing parking, denoted by orange public art poles that attach to parking meters.
- The Austin, Texas, city council passed Resolution 20060928-069, providing free parking spaces and exempting carsharing cars from city parking meter charges (City of Austin 2006).
- Parking spaces in Philadelphia have been granted on the premise that shared-vehicle use helps maximize overall parking availability.

Issue a Request for Proposals (RFPs)

In 1999, the King County metro government, which includes Seattle, issued the first carsharing request for proposals (RFP) in the United States, pledging a range of financial and in-kind assistance. An international group of experts responded, coming together to form the first large-scale carsharing program in the country.

Several years later, Washington, D.C.'s transit agency also issued an RFP. It promised substantially less ongoing support, but eventually it led to the deployment of hundreds of cars from two established carsharing companies.

Finally, planners for the Pittsburgh Downtown Partnership (PDP), a nonprofit local development corporation, saw carsharing as an amenity that could support their emerging residential market, as well as a response to commercial objections about parking cost and availability. The PDP gained the backing of its stakeholders, approached their regional metropolitan planning organization with the vision, and succeeded in securing a federal transportation grant. It issued an RFP, selected a carsharing provider, and now has more than two dozen cars providing service in targeted areas of downtown, a nearby medical and university campus district, and surrounding neighborhoods.



Profile: CityWheels Carsharing, Cleveland

Not all carsharing programs are run by national for-profit corporations or large nonprofit organizations. My commitment to sustainability and my passion for walkable urban neighborhoods led my wife and me to create CityWheels, a small carsharing program in our hometown of Cleveland.

By the early 2000s, I had worked for more than 10 years in the nonprofit environmental community, advocating for urban policies and investments that support walking, bicycling, and public transit. I recognized carsharing's potential to support a "car-optional" lifestyle for many people — especially in areas with convenient rush hour transit service, but limited night and weekend coverage — and felt that a carsharing service in Cleveland could further support the transit-friendly policies I had been working on.



For several years, we attempted to attract an existing operator to Cleveland. The city's car-oriented land use patterns and limited use of alternative travel modes, however, discouraged interest. It became apparent that if the community wanted carsharing, it would need to form an organization of its own.

We approached the region's key charitable foundations with the idea, but found them wary of funding a business venture. With little hope of raising charitable startup funds, we made the decision to personally incorporate CityWheels as a small for-profit business. We have since funded the company primarily with family savings and personal debt, in contrast to the millions of dollars in government grants or private equity investment that fuel the growth of larger carsharing organizations.

Our opportunity to launch Ohio's first carshare program came in early 2006. Environmentally minded students from Oberlin College, a small liberal arts school 40 miles outside of Cleveland, approached us about providing a carsharing service on campus. They gained support from the college's chief financial officer and president, which led to a critical multi-year contract. Oberlin College now has two carshare vehicles, a Prius hybrid and Scion xB wagon, on its campus.

Later that year, we approached University Circle Inc. (UCI), the nonprofit organization providing services, advocacy, and development support for University Circle, a densely packed square mile of world-class health care, education, and arts institutions at the eastern edge of Cleveland. Thanks to startup backing and continuing in-kind assistance from UCI, we have placed two more cars in this growing district.

To date, CityWheels has served more than 250 customers with this limited fleet. We anticipate expanding to at least 12 cars in 2008, and are working to create partnerships with the regional transit authority, the county's planning commission, and additional area colleges.

The road has been bumpy at times, and the business still needs many more cars to reach a break-even point. In retrospect, incorporating as a nonprofit would have been less stressful, even if slower to launch. Yet all signs point to a very bright future.

Our members tell us that carsharing has made an enormous difference in their lives. We're proud of the change we've inspired so far and are passionate about sharing CityWheels with a much larger audience.

For more information about CityWheels, visit www.CarsByTheHour.com or e-mail info@myCityWheels.com.

Ryan McKenzie

Image: CityWheels carshare vehicles stand ready for use in the University Circle district of Cleveland. Photo by Ryan McKenzie.

Become Carsharing Customers

As a part of fleet reduction efforts, governments and institutions can contract for carsharing services. Contracts typically guarantee a minimum level of monthly vehicle use, providing the carsharing operator with visibility and a predictable source of revenue.

Government or institutional carsharing provides a variety of benefits, including:

- Predictable Budgeting: An all-inclusive service contract helps to temper the uncertainty of rising fuel costs,

- maintenance, and self-insured claims on constrained budgets.
- **Fleet Reduction and Replacement:** Some percentage of any large fleet gets driven only periodically, yet the acquisition, maintenance, and operation of such vehicles represents an enormous ongoing cost. Carsharing vehicles can effectively serve peak demand travel needs, allowing for significant decreases in fleet size without affecting employee mobility. Furthermore, carsharing vehicles are usually newer, cleaner, and more efficient than the fleet cars they replace, which can reduce total greenhouse gas emissions.
- **Improved Efficiency:** Vehicles in some organizations are assigned for use exclusively within specific departments, causing unmet demand in some offices while other cars sit idle. Carsharing allows multiple departments to easily reserve any car in the shared fleet, improving vehicle access and employee productivity.
- **Greater Accountability:** Carsharing provides a mechanism to ensure that fleet vehicles are driven for official use only. Fleet usage dropped significantly when the City of Philadelphia began to bill vehicle usage back to its departments, indicating that departments were being held accountable for their use of government vehicles.
- **Public Benefit:** While an internal fleet sits idle on evenings and weekends, carsharing vehicles are available to serve the surrounding community, creating a quality-of-life improvement with no added public cost.

The cities of Philadelphia and Berkeley, California, provide two early examples of municipal governments using carsharing programs. In 2004, the City of Philadelphia eliminated more than 300 municipal vehicles with a net savings of approximately \$9 million over a five-year period, including reduced costs for acquisition, parking, vehicle maintenance, and fuel (Friedman 2006). In that same year, the City of Berkeley replaced 15 underused fleet cars with five carsharing vehicles, yielding approximately \$400,000 in savings over three years, from \$250,000 in replacement cars, gasoline, and maintenance and \$150,000 on insurance and fleet management (City of Berkeley Mayor's Office 2004).

Encourage Carsharing in Development Projects

Municipalities can allow developers to reduce overall parking requirements in exchange for carsharing support, adding to other benefits of reduced parking such as more efficient use of space and reduced impervious surface and stormwater runoff issues. Variations include allowing carsharing spaces in lieu of general use parking and allowing greater floor-area ratios.

Parking reduction policies are most effectively codified in zoning or building codes, making them easy for developers to use. While they can be managed on a case-by-case basis through the variance process, the bargaining adds difficulty and reduces the likelihood of action.

- Seattle's Municipal Code allows for a reduction of one parking space for each parking space leased by a carsharing program for small-scale developments (City of Seattle 2008). For larger-scale developments, Seattle's municipal code allows for a reduction of three required parking spaces or 15 percent of the total number of required spaces, whichever is fewer.
- Parking by-laws in Vancouver, British Columbia, give officials the option of substituting carsharing vehicles and parking spaces at a 1:3 ratio, up to one carsharing vehicle for each 60 dwelling units (City of Vancouver 2005).
- More than two years before an operator stepped forward to provide service, the city council of Austin, Texas, included carsharing in their parking reduction policy, allowing for minimum off-street parking reductions of 20 spaces for every carsharing vehicle provided. For multi-family residential uses in the University Neighborhood Overlay District Section, off-street parking requirements are reduced to 40 percent of regular standards with participation in a carsharing program (City of Austin 2008). No projects have taken advantage of the policy to date, but the carsharing operator notes that the code change has generated awareness of and interest in carsharing among local developers.

Address Tax Policy Issues

Because of its hourly rate structure, annual membership fees, and the location of vehicles, carsharing almost exclusively serves local residents and businesses—taxpayers who are changing their daily behavior in ways that produce a variety of local benefits.

Yet confusion about the fundamental differences between carsharing and standard car rental have, at times, led to misapplication of state and local rental car taxes. They can raise carsharing prices by up to 20 percent, stifling demand and undermining the viability of these programs.

Regardless of whether a carsharing program is for-profit or nonprofit, governments should look to the character of the service provided and support tax policies that are congruent with public goals such as affordable mobility, parking demand management, and emission reductions.

Several communities have resolved this potential confusion by clarifying their tax codes:

- Chicago's City Council has declared all carsharing vehicles leased on an hourly basis to be exempt from the city's 6 percent car rental tax.
- Multnomah County (Portland metropolitan area) was the first U.S. jurisdiction to formally adopt a legal definition of carsharing, thereby exempting it from existing vehicle rental taxes.
- The Washington State Legislature is considering tax breaks for carsharing users and exemptions for rentals with a valid Washington identification and address.

CONCLUSION

Although relatively few resources have been invested in carsharing to date, these innovative programs have already demonstrated remarkable individual and public benefits in a variety of community and campus settings. Low-density patterns of land development may limit their geographic spread, yet estimates suggest a potential market for carsharing that exceeds 10 percent of the North American population (Shaheen, Cohen, and Roberts 2006). With the support and encouragement of planners, carsharing services can continue to grow and thrive in walkable communities across the country — improving quality of life for millions of people and accelerating our transition to a more sustainable transportation future.

Carsharing Resources on the Web

In addition to the studies and information presented in the reference list, there are many online carsharing resources available. This list provides just a few examples and is by no means comprehensive.

The World CarShare Consortium is a cooperative, independent, international communication program supporting carsharing projects and programs worldwide: www.ecoplan.org/carshare/cs_index.htm

Innovative Mobility Research explores innovative mobility technologies and services that could improve transportation options, while reducing their negative societal and environmental impacts: www.innovativemobility.org

CarSharing.net is a nonprofit educational and promotional site supporting the carsharing industry in North America: www.carsharing.net

Carplus, in the United Kingdom, has produced a variety of resources from basic information sheets to detailed good practice guides: www.carplus.org.uk/Resources/carplus-resources.htm

The Transportation and Land Use Coalition's Instant Advocate provides an overview of carsharing, case studies, and resources:
www.transcoalition.org/ia/carshare/03.html

The Carsharing.US blog provides information, issues, and ideas for U.S. and North American carsharing services and providers:
<http://carsharingus.blogspot.com/>

Bringing Car-Sharing to Your Community, by Berkeley's City CarShare, is an extensive practical guide to starting a carsharing organization in your community:
www.citycarshare.org/download/CCS_BCCTYC_Long.pdf

The Beginner's Guide to the Car Sharing Business is a brief guide for anyone who wants to bring carsharing to their city:
www.autoshare.com/beginners/guide.html

The Co-operative Auto Network (CAN) provides resources and guidance in starting a carsharing organization:
www.cooperativeauto.net/about-can/can-consulting/

About the Authors

Adam Cohen is a research associate with Innovative Mobility Research at the Transportation Sustainability Research Center (TSRC) at the University of California, Berkeley. He is a member of APA and has a master's degree in city and regional planning from the Georgia Institute of Technology. Susan Shaheen holds a joint research appointment at the Transportation Sustainability Research Center (TSRC) at the University of California, Berkeley, where she is a research director, and at the Institute of Transportation Studies–Davis. She has been working on carsharing in North America and internationally since 1996 and has authored numerous journal articles and reports on this topic. In 1999, Shaheen launched the first smart carsharing program in the U.S., CarLink in Dublin–Pleasanton, California. Ryan McKenzie is the founder and president of CityWheels Car-sharing. He has a master's degree in Urban Studies

from the Levin College of Urban Affairs at Cleveland State University and more than 10 years of experience in urban public policy, infrastructure design, and advocacy for walking, bicycling, and transit improvements. A committed urban environmentalist, he lives in a solar-powered home near downtown Cleveland.

REFERENCES

- American Automobile Association. 2007. *Your Driving Costs*. <http://gss.case.edu/RTAdocs/YourDrivingCosts2007.pdf> Accessed April 23, 2008.
- Arlington County Commuter Services, Division of Transportation, Department of Environmental Sciences. 2005. *Arlington Pilot Carshare Program: First-Year Report*. www.commuterpage.com/pdfdocs/ArlingtonCarshareProgram.pdf. Accessed April 24, 2008
- Austin (Texas), City of. 2006. *Resolution No. 20060928-069*. Adopted September 28. www.cityofaustin.org/edims/document.cfm?id=98431.
- Austin (Texas), City of. 2008. *City Code*. Chapter 25-2, Subchapter E. Section 2.4 Parking Reductions. Section 25-6-601. Parking Requirements for University Neighborhood Overlay District. www.amlegal.com/austin_tx/. Accessed May 3, 2008.
- Berkeley (California), City of, Mayor's Office. 2004. "Berkeley and City Carshare to Make History — First Shared Municipal Fleet in the U.S." Press release, July 15. www.ci.berkeley.ca.us/mayor/PR/pressrelease2004-0715.htm. Accessed April 23, 2008.
- Communauto. 2007. "CO2 Emissions Reduced by 168,000 Tons Per Year Thanks to Car-Sharing." Press Release. Montreal, Canada. www.communauto.com/premiereetude.html.
- Calgary Alternative Transportation Cooperative. *Carsharing*. Alberta, Canada. www.calgarycarshare.ca/ Accessed April 26, 2008.
- City CarShare. 2006. "First-Ever Study of Carsharing." City CarShare, San Francisco, Calif.
- Friedman, J. 2006. "An Exercise in Cost Saving: Carsharing." Pages 43-46 in *Government Finance Review*, December. www.phillycarshare.org/tiny_mce/filemanager/files/2006/2006.12_government_finance_review_an_exercise_in_cost_saving_car_sharing.pdf. Accessed March 12 2008.
- Lane, C. 2005. "PhillyCarShare: First-Year Social and Mobility Impacts of Carsharing in Philadelphia, Pennsylvania." Pages 158-166 in *Transportation Research Record: Journal of the Transportation Research Board, No. 1927*, Transportation Research Board of the National Academies, Washington, D.C.
- Lane, Clayton. 2008. Interview by Marty Moss-Coane. *Radio Times*, WHYY-Philadelphia. January 25.
- Litman, T. Evaluating Carsharing Benefits. In *Transportation Research Record: Journal of the Transportation Research Board, No. 1702*, TRB, National Research Council, Washington, D.C., 2000, pp. 31–35.
- Millard-Ball, A. 2005. "Carsharing: Where and How It Succeeds." In *TCRP Report 108: Transportation Research Board of the National Academies*. Washington, D.C.
- Ohio Department of Development. 2008a. "Ohio Job Ready Sites Program." www.odod.state.oh.us/edd/obd/jrs/ Accessed April 24, 2008.
- Ohio Department of Development. 2008b. *Ohio Job Ready Sites Program Application Scoring Sheet*. [www.odod.state.oh.us/cms/uploadedfiles/Root/Quick_Navigation/JRS%20Application%20Scoring%20Sheet%20\(ODOD\).pdf](http://www.odod.state.oh.us/cms/uploadedfiles/Root/Quick_Navigation/JRS%20Application%20Scoring%20Sheet%20(ODOD).pdf). Accessed April 24, 2008.
- Portland (Oregon), City of, Office of Transportation. 2005. *Evaluation of City of Portland's Carsharing Pilot Program (June 2004–July 2005)*.
- Reynolds, E., and K. McLaughlin. *Autoshare: The Smart Alternative to Owning a Car*. Autoshare, Toronto, Ontario, Canada, 2001.
- Seattle (Washington), City of. *Seattle Municipal Code*. Section 23.54.020. <http://clerk.ci.seattle.wa.us/~scripts/nph-brs.exe?d=CODE&s1=23.54.020.snum.&Sect5=CODE1&Sect6=HITOFF&l=20&p=1&u=/~public/code1.htm&r=1&f=G>
- Shaheen. Susan. and Adam Cohen. 2007. "Worldwide Carsharing Growth: An International Comparison."

Transportation Research Record, 1992: 81-89.

Shaheen, Susan, and Timothy Lipman. 2007. "Reducing Greenhouse Gas Emissions and Fuel Consumption: Sustainable Approaches for Surface Transportation." *Journal of International Association of Traffic and Safety Sciences (IATSS) Research*, 31(1): 6-20.

Shaheen, S.A., A.P. Cohen, and J.D. Roberts. 2006. "Carsharing in North America: Market Growth, Current Developments, and Future Potential." In *Transportation Research Record: Journal of the Transportation Research Board, No. 1986*, Transportation Research Board of the National Academies, Washington, D.C. pp. 116–124.

Shaheen, Susan. 1999. *Dynamics in Behavioral Adaptation to a Transportation Innovation: A Case Study of CarLink — A Smart Carsharing System*. UCD-ITS-RR-99-16. Davis, California. October, 232 pp.

United States Green Building Council. 2005. *LEED Green Building Rating System for New Construction and Major Renovations (LEED-NC): Version 2.2*. SS Credit 4.4. Alternative Transportation — Parking Capacity. www.usgbc.org/ShowFile.aspx?DocumentID=1095.

Vancouver (British Columbia), City of. 2005. *Vancouver Parking By-Laws*. No. 6059, Sections 2-4. www.Vancouver.ca/commsvcs/BYLAWS/parking/parking.htm. Accessed July 29, 2005.

Zipcar. 2005. "Zipcar Customer Survey Shows Car-Sharing Leads to Car Shedding." Zipcar, Boston. www.zipcar.com/press/releases/press-21. Accessed May 3, 2008.

©Copyright 2008 American Planning Association All Rights Reserved