

# Carsharing

## Vehicle Rental Services That Substitute for Private Vehicle Ownership

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*This chapter describes Carsharing, which refers to vehicle rental services that substitute for private vehicle ownership. This requires that rental services be easily accessible, affordable and convenient to use, even for short time periods.*

### Description

*Carsharing* refers to automobile rental services intended to substitute for private vehicle ownership. It makes occasional use of a vehicle affordable, even for low-income households, while providing an incentive to minimize driving and rely on alternative travel options as much as possible. It requires these features:

- Accessible (i.e., located in or near residential neighborhoods).
- Affordable (reasonable rates, suitable for short trips).
- Convenient (vehicles are easy to check in and out at any time).
- Reliability (vehicles are usually available and have minimal mechanical failures).

Carsharing is common in Europe, and is being developing in some North American cities. Carshare organizations typically charge \$1-2 per vehicle-hour, plus 25-40¢ per mile. Some charge a refundable membership deposit of \$300-500. These charges cover all vehicle operating expenses, including fuel and insurance. There are often special rates for extended trips and infrequent users. Carsharing is considered a cost effective alternative to owning a vehicle driven less than about 6,000 miles (10,000 kms) per year. There are typically 8-15 members per vehicle. Some small businesses use Carsharing (Reutter and Bohler, 2000).

Carsharing is a middle option between having no vehicle and owning a private automobile. The table below compares personal transportation options. Carsharing offers medium convenience, and has low fixed costs and high variable costs. Private vehicle ownership offers the most convenience, has the highest fixed costs and lowest variable costs. Conventional vehicle rental businesses are not intended to substitute for private vehicle ownership. They are located at transportation terminals or commercial centers and priced by the day, and so are relatively expensive for individual short trips. They generally have high daily rates but low variable costs. Taxis are relatively convenient and have no fixed charges but the highest variable charges. Public transit has moderate to low convenience (depending on location), modest to low costs.

**Table 1 Vehicle Use Options Compared**

Criteria	Carsharing	Private Ownership	Conventional Rental	Taxi	Public Transit
Convenience	Medium	High	Varies	High-Medium	Medium-Low
Fixed Charges	\$100/yr	\$2,000-4,000/yr	None	None	\$600/yr max
Time Charges	\$1.50/hour	None	\$20-40/day	None	None
Mileage Charges	20-40¢	10-15¢	5-10¢	\$1.00	21¢

*This table compares convenience and price of five common travel modes.*

Below are typical variable costs for a single 15-mile trip by different modes:

Carsharing	\$10.00
Conventional Rental	\$32.00
Private Car	\$2.00
Taxi	\$15.00
Transit	\$3.15

Other vehicle sharing strategies are possible. One proposed system would allow vehicle owners to identify when and where their vehicles are available (for example, at home or at worksites) through a matching service. Registered customers could rent the vehicle during those times, with access automatically controlled by an electronic key or pass code, and payments made from user's to vehicle owner's account. Travel time and distance could be recorded manually or by special meters installed in participating vehicles.

*Station cars* are a type of Carsharing. Station cars are rented at transit stations for travel between terminals and local destinations. This supports transit use, particularly in suburban areas where destinations are too dispersed for convenient pedestrian access. Because they are intended for short trips, station cars can employ small, alternative fuel vehicles, such as battery powered electric cars. [Public Bike Systems](#) (PBS), which are automated bicycle rental systems designed to provide efficient mobility for short, utilitarian urban trips, similar to Carsharing.

Some studies indicate that access to vehicles significantly increases employment and average wages for disadvantaged people entering the workforce (such as *welfare-to-work* programs), and so recommend vehicle ownership subsidies (Blumenberg, 2003). However, Carsharing subsidies are probably better, if possible, since they do not require large up-front costs for purchase, registration and insurance, nor do they burden lower-income households with high fixed costs which may be unnecessary and unaffordable if, for example, a worker finds a job that can be reached more easily by alternative modes.

### How it is Implemented

Carsharing organizations can be cooperatives or private businesses. Cooperatives sometimes receive grants to cover start-up and administrative expenses. Some Carsharing services are established at multi-family residential cooperatives as a service for users. Station cars are often implemented by public transit agencies. Governments can provide various types of support and incentives to help develop Carsharing services, including promotion, funding, favorable parking policies, incorporating Carsharing into public organizations and development projects, and favorable tax policies (Enoch and Taylor, 2006).

### Travel Impacts

Because Carsharing variable costs are 2-10 times higher than for a personal automobile, users tend to minimize their driving. Overall travel reductions depend on what portion of Carshare participants would otherwise own a personal automobile (they typically reduce their vehicle use by 50-80%) and which portion would otherwise not own an automobile (they typically increase their vehicle use by a small amount). Most studies suggest that Carsharing typical results in a net reduction in per capita driving among participants that averages 40-60%, but this varies depending on the demographics of participants and the quality of travel choices in their community (Steininger, Vogl and Zettl, 1996).

In a study of the San Francisco *City CarShare* program, Cervero and Tsai (2003) find that when people join, nearly 30% reduce their household vehicle ownership and two-thirds stated they avoided purchasing another car, indicating that each Carshare vehicle substitutes for seven private cars, and that the average member drives 47% fewer annual miles after joining. However, since Carsharing tends to attract

motorists who already drive relatively low mileage, total travel reductions may be relatively small.

Carsharing services are usually located in urban areas where there are suitable travel options so a significant portion of residents do not need own an automobile, and sufficient regular users within convenient walking distance (typically 0.3 miles) of the vehicles. In a typical region 10-20% of residents live in neighborhoods suitable for carsharing, and perhaps 3-5% of those residents would carshare rather than own a private vehicle ownership if the service were available. People who shift from owning a private vehicle to carsharing are typically lower-annual-mileage drivers who reduce their vehicle travel about 50% (i.e., they reduce their mileage from 6,000 to 3,000 annual miles). This suggests that carsharing services can reduce total vehicle travel by 0.1% to 0.2%, although much more in suitable urban neighborhoods.

**Table 2 Travel Impact Summary**

Objective	Rating	Comments
Reduces total traffic.	2	Reduces total per capita vehicle travel.
Reduces peak period traffic.	2	Reduces total per capita vehicle travel.
Shifts peak to off-peak periods.	0	
Shifts automobile travel to alternative modes.	2	Reduces total per capita vehicle travel.
Improves access, reduces the need for travel.	1	Supports higher-density, mixed land use.
Increased ridesharing.	2	Encourages alternatives to driving.
Increased public transit.	2	Encourages alternatives to driving.
Increased cycling.	2	Encourages alternatives to driving.
Increased walking.	2	Encourages alternatives to driving.
Increased Telework.	2	Encourages alternatives to driving.
Reduced freight traffic.	0	

Rating from 3 (very beneficial) to -3 (very harmful). A 0 indicates no impact or mixed impacts.

## Benefits And Costs

Benefits include (Litman, 2000; Bonsall, 2002; TRB, 2005):

- Increased consumer choice and financial savings.
- Increased affordability for lower-income drivers who occasionally need a vehicle.
- Reduced per capita annual mileage, resulting in reduced congestion, road and parking facility costs, crashes, pollution and energy use.
- Reduced residential parking requirements and support for higher density residential development.

Costs are primarily related to startup and administrative costs of Carsharing organizations.

**Table 3 Benefit Summary**

Objective	Rating	Comments
Congestion Reduction	2	Reduces total automobile use.
Road & Parking Savings	2	Reduces total automobile ownership and use.
Consumer Savings	2	Reduces total transportation expenditures.
Transport Choice	3	Makes driving more affordable.
Road Safety	2	Reduces total automobile use.
Environmental Protection	2	Reduces total automobile use.
Efficient Land Use	2	Supports reduced automobile ownership.
Community Livability	2	Reduces total automobile use.

Rating from 3 (very beneficial) to -3 (very harmful). A 0 indicates no impact or mixed impacts.

## Equity Impacts

Carsharing is generally available to anybody who meets basic requirements, although only people who live in neighborhoods with such services are likely to use it. Carsharing services may require subsidies to become established. Carsharing tends to increase equity by improving the mobility options of people who are transportation disadvantaged, and by allowing lower-income drivers significant financial savings compared with vehicle ownership (Bonsall, 2002). It can help provide basic mobility under some circumstances.

**Table 4 Equity Summary**

Criteria	Rating	Comments
Treats everybody equally.	1	
Individuals bear the costs they impose.	-1	May require subsidies to become established.
Progressive with respect to income.	3	Benefits lower-income drivers.
Benefits transportation disadvantaged.	1	Benefits some transportation disadvantaged people.
Improves basic mobility.	1	Improves occasional access to an automobile.

Rating from 3 (very beneficial) to -3 (very harmful). A 0 indicates no impact or mixed impacts.

## Applications

Tends to be most effective and appropriate in higher-density, lower- and middle-income residential areas where there are good alternatives to driving (TRB, 2005). It can also be implemented in commercial centers and industrial parks (Reutter & Bohler, 2000). It may be particularly appropriate as part of [Location Efficient Development](#) and [Car-Free Housing](#). Station cars are located at major transit stations, particularly in suburban areas where a car is often needed to reach destinations.

**Table 5 Application Summary**

Geographic	Rating	Organization	Rating
Large urban region.	3	Federal government.	1
High-density, urban.	3	State/provincial government.	2
Medium-density, urban/suburban.	2	Regional government.	2
Town.	2	Municipal/local government.	3
Low-density, rural.	1	Business Associations/TMA.	3
Commercial center.	3	Individual business.	3
Residential neighborhood.	3	Developer.	2
Resort/recreation area.	3	Neighborhood association.	2
		Campus.	2

Ratings range from 0 (not appropriate) to 3 (very appropriate).

## Category

Improved Travel Choice

## Relationships With Other TDM Strategies

Carsharing supports and is supported by TDM strategies that increase consumers travel choices such as [Transit Improvements](#), [Ridesharing](#) and [Nonmotorized Transport](#), and by land use management strategies such as [Transit-Oriented Development](#), [Location Efficient Development](#), [Car-Free Housing](#), [Taxi Improvements](#) and [Campus Transport Management](#) that create less automobile-dependent communities. [Parking Management](#) can allow residents who do not own an automobile to avoid paying for parking they do not need, which increases the consumer savings that result from Carsharing. [Vehicle Costs](#)

describes the full costs of owning and operating an automobile, and the cost savings that can result from reduced driving. Huwer (2004) recommends integrating carsharing and public transit planning and marketing activities.

## Stakeholders

Local and regional government agencies and non-governmental organizations can help establish Carsharing organizations, and support complementary TDM strategies. Carshare programs can be incorporated into various types of developments. State and provincial governments can help overcome problems obtaining vehicle insurance. Businesses and cooperatives can provide Carsharing services.

## Barriers To Implementation

A major barrier is the need to establish and maintain a critical mass of users (typically 30 members or more) in individual neighborhoods. Carsharing cannot develop until enough potential users in each area are familiar with the concept, understand how it can benefit them, and are willing to commit themselves to a Carshare organization. This often requires education and marketing. Carshare organizations often require seed money to become established.

## Best Practices

DFT (2004) and TRB (2006) provide information on the development and management of carsharing organizations. Below are some best practices guidelines.

- Structure Carshare organizations to meet the needs of the community. Larger cities can support much larger Carsharing organizations than smaller communities.
- Implement Carsharing in conjunction with other TDM programs that improve transportation choices. It is particularly appropriate as part of transit encouragement efforts (Huwer, 2004).
- Find ways to minimize administrative and overhead costs.
- Provide a variety of pricing options to serve different types of users (infrequent, frequent, extended trips).
- Structure rates to include both time and mileage fees, so the organization will not lose money with either a high-mileage trip during a short rental period, or low-mileage trip during a long rental period.
- Develop partnerships with organizations that are interested in reducing vehicle ownership, promoting public transit use, or providing occasional vehicle access to a particular group.
- Use innovative marketing.

### Wit and Humor

Bob and Bill often rented a boat to fish on a lake. One day they caught thirty fish. Bob said to Bill, "Mark this spot so we can find it again tomorrow."

The next day when they were driving to rent the boat, Bob asked, "Did you mark that spot?"

Bill replied, "Yes, I put a big 'X' on the bottom of the boat."

Bob exploded in exasperation, "You fool! What if we don't get the same boat today?"

## Case Studies and Examples

The Transportation Research Board report, "Car-Sharing: Where and How It Succeeds" (TRB, 2005) includes many examples of Carsharing programs.

### *Paris Offers Drivers Electric Cars To Beat Pollution - For A Small Charge*

Charles Bremner, *The Times*, [http://driving.timesonline.co.uk/tol/life\\_and\\_style/driving/news/article3118755.ece](http://driving.timesonline.co.uk/tol/life_and_style/driving/news/article3118755.ece).

The Mayor of Paris is about to launch another novel scheme for fighting congestion and pollution: self-service cars. Bertrand Delanöe aims to start with 2,000 electric-powered vehicles that subscribers can drive off without booking at dozens of sites 24 hours a day and then leave anywhere in the city.

The so-called *Automobiles-en-Libre-Service* would greatly expand on similar small-scale services that exist in Europe and America. It is intended to complement the Vélib, the highly successful bicycle scheme that Mr Delanöe opened last July with 5,000 rental stations around the city.

The non-polluting cars, which will cost a few euros per hour to use, depending on mileage, will enable Parisians to carry passengers and loads on short trips without the bother and expense of hiring or running their own vehicles, says the mayor.

Just as the bicycle scheme was greeted with scepticism, doubts are being sounded over the viability of the *Voiturelib* – free car – as it is being dubbed. Denis Baupin, the Green Party deputy to Mr Delanöe, is worried that Parisians could drop their new-found cycling habit. "Vélib users shouldn't be encouraged to take a car instead of a bike," he said. Some experts are also questioning whether the cars, which would be many times more expensive to operate than bicycles, could be subsidised through advertising space, like the Vélib.

Mr Delanöe's team calculates that one car will replace between five and ten private vehicles. Only 43 per cent of Paris households have vehicles and 95 per cent of them are parked at any moment. Mr Delanöe's Vélib has turned Paris into an almost bike-friendly city, with the 20,000 machines having already been used for 11 million trips so far. Parisians and commuters relied on them during transport strikes in November.

### *San Francisco Bay Area Station Car Demonstration ([www.stationcarinfo.com](http://www.stationcarinfo.com))*

The San Francisco Bay Area Station Car Demonstration was a field test sponsored by Bay Area Rapid Transit (BART) and Pacific Gas & Electric from 1995 to 1998, using 40 prototype electric vehicles. The project had total funding of \$1,486,000. It was implemented to determine the viability of EVs for making short, everyday trips in a variety of settings: between home and BART station; between BART station and work site; and pool cars used at worksites.

The station car was a two-seat battery-powered electric vehicle (EV) made by the Norwegian firm, Personal Independent Vehicle Company. Charging ports were installed at selected BART stations. During the demonstration, the station cars were driven 154,802 vehicle miles of travel (vmt) and produced 179,470 passenger miles of travel (pmt). For the participants, internal combustion engine automobile use decreased 94%. Use of BART by participants increased by 125,222 (56%) during the demonstration, providing approximately \$18,464 in increased fare revenue.

Based on this evaluation of the Demonstration, which shows the potential of the station car concept, the authors recommend that BART proceed with more complex and technically challenging demonstrations and field tests. These tests should include electronics for vehicle access by multiple users and electronics for tracking the vehicles and communicating with the drivers. Reservation and billing systems should be tested. Other participants from the mobility industry (i.e., car makers, rental car agencies, and electronics firms) should be invited to participate in and contribute to these tests. In addition, market research is needed to determine how and where station car use can be maximized. A study by Nelson/Nygaard (2003) found that station cars increase BART ridership and fare revenue, and that it provides overall benefits to consumers and society.



### *Carsharing Market Study (Andrew and Douma, 2006)*

A market study, based on analysis of North American carsharing, identified that the following neighborhood factors that contribute to successful carsharing programs:

- High density of individuals aged 21-39.
- High proportion of residents commuting by transit or walking.
- High proportion of renters, non-family households and single-person households.
- A shortage of parking.

### *Arlington Carsharing ([www.CommuterPage.com/Carshare](http://www.CommuterPage.com/Carshare))*

Analysis of carshare activity in Arlington, Virginia (a suburb of Washington DC) found the following:

- Carsharing membership in Arlington is growing rapidly and totals nearly 3,500 individuals in 2006.
- Five percent of Arlington residents living in the Metrorail (transit-oriented development) corridors are Flexcar or Zipcar members.
- Carsharing has allowed members to reduce their vehicle ownership rates and overall vehicle-miles traveled while increasing transit use and walking. Members also have generally been able to postpone buying a vehicle.
- Overall, the Arlington Carshare Program complements walk/bike/transit-friendly lifestyle available in multi-modal urban villages.

### *Seattle Flexcar ([www.flexcar.com](http://www.flexcar.com))*

The Seattle area Flexcar organization has the following rate structure. This is predicted to provide net savings to households that drive less than about 8,000 miles per year.

**Table 6 Flexcar Rate Structure (2000)**

Plan	Initiation Fee	Monthly Fee	Car		Specialty Vehicle	
			Hourly Rate	Mileage Rate	Hourly Rate	Mileage Rate
Test Drive	\$0	\$0	\$3.50	\$0.90	\$4.00	\$0.90
Bronze Club	\$250	\$20	\$2.00	\$0.50	\$2.50	\$0.50
Bronze Assoc.*	\$0	\$5	\$2.00	\$0.50	\$2.50	\$0.50

### *Car Modal – New Service For Organised Passenger Transport In Private Cars ([www.tellus-cities.net](http://www.tellus-cities.net))*

This project will develop and demonstrate new vehicle use and ownership options, including carsharing, dynamic ridematching and collective taxi services using cell-phone and computer technology. This will enable travellers to match vehicles and travelers to specific destinations, with payment using direct cash transfer via cell-phone. This pilot project involves:

- Designing the overall system.
- Developing hardware and software for data and billing.
- Building a customer organisation.
- Marketing
- Integration with public transport and traffic management centres.

### *MOSES ([www.moses-europe.org](http://www.moses-europe.org))*

The MOSES (Mobility Services for Urban Sustainability) research program came to the following conclusions regarding the potential for Carsharing to improve urban transport.

The (European) city has a great potential for sustainable development. The proximity of functions, good networks of technical social and cultural infrastructure, and the concentration of know-how allow an urban lifestyle of lower consumption of resources and good access to all kinds of activities.

The quality of urban life is endangered. Economic activities became less harmful with the change from heavy industry to a service economy. Meanwhile, pollution and high noise levels are mainly due to the increasing level of transport.

Traffic is not only responsible for noise and pollution and congestion - with parking causing an increasing demand for space. With increasing level of car-ownership street space will become even more limited. Children, other pedestrians and cyclists have often not the necessary space to move around. As the flow of traffic and parked vehicles consume so much space, the quality of public space suffers: its functions as a social space – for encounters – and as a cultural environment – carrying historical and local meaning – are being eroded.

Thoughtful solutions are required to manage the competition for public space between transport functions on one side and social and ecological functions on the other. Here lies the challenge to improve urban life quality for children, for families, for elderly, for disabled – for the entire community. The problems of public space are not yet fully recognised and no strategies have been developed at the necessary levels.

## II. The opportunity

The modern service of Car-Sharing shows how to use the car in a better way. Car-Sharing gives access to a car – when required - in an easy way without the need to own one. The MOSES project has shown that Car-Sharing users can replace private cars and change their mobility patterns towards more use of environmentally friendly modes of transport. Important is the “pay as you drive” principle: since costs are directly related to how much you drive (variable costs).

Overall, the new philosophy of using instead of owning a car is a key element for a new mobility culture.

In Bremen, about 700 private cars have already been replaced by the service of Car-Sharing.

We see a big potential for European cities, where at least 500.000 private vehicles could be replaced by customer orientated Car-Sharing services. Without restrictions for individual mobility we can then regain public space for social and ecological functions.

We can reduce the costs for providing parking facilities. Especially underground parking is quite expensive – it can easily cost about 10 - 15.000 € and more per parking space. With the provision of Car-Sharing, urban housing developments can become less costly as less parking space will need to be made available. The result is a better urban environment.

## III. The MOSES insights

The MOSES project has identified a low awareness level as one of the key obstacles for the further exploitation of the Car-Sharing potential. Even in Germany, together with Switzerland a country with more than 15 years experience with Car-Sharing, only about 19% of the population can explain the basic elements of modern Car-Sharing. Much more information and marketing action is required to make decision-makers, developers and as well potential users more aware. It is recommended that Car-Sharing and its options should be included in local transport strategies, parking management policies, urban development plans and building codes.

Car-Sharing is best understood as supplement to Public Transport. Car-Sharing customers use Public Transport more frequently. You'll find potential Car-Sharing customers especially in the group of regular Public Transport users. Joint ticket offers are an important element to increase the attractiveness of Public Transport and of Car-Sharing. Season tickets for PT may include the customership for Car-Sharing for a special attractive tariff. The examples of Zurich, Bremen, Aachen, Hanover and other cities show that the customer-relation will be improved, the car-sharer is using Public Transport more often (for example also more often in off-peak hours) – as PT becomes much more a basic mode of transport. Car-Sharers are more likely to use annual season tickets.

For new housing developments, the service of Car-Sharing opens up the possibility to reduce the conventional provision of car-parking. This innovative option allows the reduction of construction costs – especially in the case



of underground parking – or to set aside more public space for social and ecological purposes. Until now, only few developers are aware about the options for better planning solutions with less costs but higher quality as it is less dependant on the provision of parking. Planning regulations (as in London) can directly integrate Car-Sharing into urban developments.

There is no need to reinvent the wheel. Setting off quality indicators for services is essential. Operators in cities that have not yet Car-Sharing services can build on the existing experience elsewhere. The key technologies are developed for providing an effective service, but they can be further developed and integrated. There are European operators, which offer service elements for new providers. Within MOSES the transfer of technology and know-how from Bremen to Belgium has successfully taken place.

Substantial support is required to get Car-Sharing out of its actual niche role and let it become mainstream. That means a further development of the service (e.g. through extension of the network of stations and interregional use, etc.), more co-operation with Public Transport and better integration into urban development.

#### IV. The decision levels

At the local level, Car-Sharing is a key element for sustainable transport plans. With Car-Sharing, there is a chance to reduce the number of cars without restricting individual mobility. The joint offer with Public Transport and the integration into urban development are key responsibilities at the local level.

The national level may develop a support programme (as in Italy) and set quality standards (as in Italy, Germany, Sweden and the Netherlands). Eco-labelling for Car-Sharing can help to set high standards. In a number of countries amendments to traffic regulations are necessary to allow on-street Car-Sharing stations.

At the European level, there is a strong need for enhanced awareness work. It is essential to transfer the experience of Car-Sharing at an appropriate detailed level – especially to the new member states. This is an issue of European policy. As Car-Sharing is a key point for sustainable development, European research and demonstration programmes, as well as structural funds related to energy efficient transport and sustainable urban development should include an element about Car-Sharing. There is also the need to develop cross-border access for Car-Sharing customers.

#### *Study of Car-Sharing Benefits In Québec, ([www.communauto.ca](http://www.communauto.ca))*

Carsharing in Quebec, Canada have 11,000 users and reduce annual CO<sub>2</sub> emissions by 13,000 tons, and this could increase to 168,000 annual tons according to a study by the engineering firm Tecslut as part of an evaluation of urban mobility initiatives called *Projet auto + bus*, commissioned by an environmental agency (Conseil regional de l'environnement de Montréal) and the Communauto carsharing organization.

Tecslut assessed the carsharing market potential of 139,000 households. Considering that among those who subscribe to carsharing, some increase their use of a vehicle while others reduce it, overall users reduce their car travel by an average of 2,900 annual kilometers. Carsharing vehicles tend to produce less pollution than the fleet average. These factors together result in approximately 1.2 tons of CO<sub>2</sub> emissions reduced annually per carshare user.

"If car-sharing's market potential, as estimated by Tecslut, was attained, this service alone would lead to a reduction of CO<sub>2</sub> emissions equivalent to 5.6 times the reduction targeted for alternative modes of transportation by the 2006-2012 Action Plan – Quebec and climate change, all without any costs for the taxpayer. Furthermore, 77% of car-sharing members in Quebec claim to have gotten rid of a vehicle or decided against purchasing one as a result of joining this service. Thus, car-sharing can have quite a structuring effect on the evolution of mobility. It would therefore be logical to support its development", says Mr Benoît Robert, CEO of Communauto.

Car-sharing users in Quebec are, on average, 40 years old, have a very high level of education and relatively high incomes. Although they do not have a personal car (90% of the users' households), they do not feel limited in their mobility, since they use vehicles available in a "self-serve" fashion when necessary. Car-sharing users thus remain faithful to public transport, cycling and walking to meet their mobility needs.

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Sally **Cairns**, et al (2004), *Smarter Choices - Changing the Way We Travel*, UK Department for Transport ([www.dft.gov.uk](http://www.dft.gov.uk)). This comprehensive study provides detailed evaluation of the potential travel impacts and costs of various mobility management strategies, including case studies of carsharing programs.

*Car Free Mobility* ([www.carfree.biz](http://www.carfree.biz)) uses advanced technology to provide convenient [Ridesharing](#), [Paratransit](#) and Carsharing services as an alternative to private car ownership.

*Carsharing Canada* ([www.carsharing.ca](http://www.carsharing.ca)).

*Carsharing Net* ([www.carsharing.net](http://www.carsharing.net)) provides information on carsharing.

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*Invers Traffic Telematics Systems* ([www.invers.com/en](http://www.invers.com/en)) provides automated carshare booking and billing systems.

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*World Carshare Consortium* ([www.worldcarshare.com](http://www.worldcarshare.com)) is a free, cooperative international information sharing and communications program in support of carsharing projects and programs, world wide, set up under *The Commons* ([www.ecoplan.org](http://www.ecoplan.org)). It offers a convenient place to gather and to share information and independent views on carsharing projects and approaches. It includes the following sections:

1. [www.cities.worldcarshare.com](http://www.cities.worldcarshare.com) - An inventory of cities in which you can carsharing services are available.
2. [www.suppliers.worldcarshare.com](http://www.suppliers.worldcarshare.com) - A comprehensive listing of major sources of supply and service support for carshare start-ups.
3. [www.operators.worldcarshare.com](http://www.operators.worldcarshare.com) - An in process inventory identifying more than three hundred of the leading carshare operations worldwide.
4. [www.knoogle.worldcarshare.com](http://www.knoogle.worldcarshare.com) - A combined search engine which provides focused information on all key aspects of carsharing worldwide.

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