Community Car:
A New Transportation Option for Madison, Wisconsin

Carsharing Feasibility Study

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EXECUTIVE SUMMARY

A carsharing organization is a member based short-term car rental organization for people who want convenient access to a vehicle for occasional use. Members have access to a fleet of vehicles stationed in a network of neighborhood locations, and they pay for the hours and miles they drive. A carsharing organization targets customers who don't need a car (or a second car) on a daily basis. Carsharing serves as a link between transportation modes, and provides economic as well as environmental benefits. Madison is a good candidate for carsharing because of the city's geography, complementary transportation initiatives, and well-educated and engaged citizenry.

The freedom of driving without the hassles of ownership – City Carshare

The feasibility study is divided into two main parts: the market research study (Sections 2-4) and the business planning study (Sections 5-8).

As a first step in the market research study (Section 2), we used census data to identify the Madison neighborhoods most suitable for carsharing, where: 1) a high percentage of the population bicycles, walks, or takes the bus to work, 2) average number of vehicles per household is low, 3) household density is high, and 4) a high percentage of the population is over age 24. Through this process, we identified the target area for this study as nine census tracts in downtown, near East, and near West Madison.

Next, we conducted three focus groups with 21 interested residents of the study area (Section 3). Participants expressed enthusiasm about the economic, social and environmental benefits of carsharing and also raised thoughtful questions. Most participants stated that they would likely join carsharing. However, several people said they would first want to learn details of carsharing logistics and to compare the cost of carsharing with car ownership.

Section 4 describes methods and results of the market survey. We mailed a two-page questionnaire to 500 random residents of the focus area, and we also distributed it to individuals at environmental events. We received 155 surveys from the random sample (33% response rate) and 146 surveys from the targeted sample. We used the survey results to identify "likely joiners" and "potential joiners." The random sample contained 4% likely joiners and 15% potential joiners, and the targeted sample contained 17% likely joiners and 31% potential joiners. Extrapolating findings from the random sample to the population in the focus neighborhoods corresponds to a total market potential of 4,672 members.

Based on survey results, the average age of likely and potential joiners was 38.5; they were highly educated and most were childless. Twenty-eight percent were students and 4% were retired. Economics was the most common reason given by both random and targeted survey respondents for wanting to join a carsharing organization. Environmental reasons followed closely behind. The most common reasons for *not* joining carsharing included the belief that carsharing would be a hassle and the need to drive every day. Respondents' vehicle preferences included compact and hybrid-electric cars made by Honda and Toyota.

The business planning study follows the market research section of the feasibility study. In Section 5, we compared carsharing to other transportation modes and services – including bus, taxi, rental car, and bicycling – and demonstrated how these transportation modes work in synergy, rather than compete with carsharing.

Section 6 summarizes phone interviews with industry leaders from 11 North American carsharing organizations. The purpose of the phone interviews was to gather details regarding the operational logistics of administering a carsharing organization. Topics covered included: vehicle purchase, vehicle maintenance, parking arrangement, insurance, reservation system, vehicle access system, rate structure, billing system, vehicle damage and cleanliness, staffing, partnerships, and vehicle usage statistics. We used the experience and advice of the industry leaders to develop recommendations for carsharing in Madison.

Section 7 describes efforts to market carsharing in Madison, both leading up to and after the launch of the service. The media is very interested in the proposed carsharing organization, as is evident in the eight news articles and two television news spots covering the feasibility study. We plan to continue to leverage media attention to market carsharing before and after the organization is launched. In addition, we will market carsharing through our established partnerships with the city and related nonprofit organizations. We will develop brochures, advertisements and postcard mailings. We also plan to promote carsharing at the Farmer's Market and relevant events such as Bike to Work Week, Earth Day, and Car-Free Day.

Carsharing Portland

The final task of the business planning study was to develop a detailed operational budget and a five-year growth vision (Section 8). We devised two scenarios based on adding 150 and 100 new members per year, respectively. We calculated annual business income and estimated fixed and variable expenses for each scenario, and we then calculated annual net incomes and liabilities / assets. The first growth scenario (150 new members / year) would realize a profit by the fourth year, and the second, more conservative scenario (100 new members / year) would be profitable by the fifth year.

We conclude that carsharing is feasible and will succeed in Madison. The market is substantial, the city is supportive, the media is attentive, and the budget confirms that the organization will be financially sustainable.

1. INTRODUCTION

1.1 Motivations for Feasibility Study

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In the fall of 2000, Madison Environmental Group, Inc. first learned about carsharing and decided to work to establish a carsharing company in Madison. We learned about the successful carsharing program in Portland, Oregon, and immediately recognized it as a valuable pursuit that aligned with our company's environmental goals. At the time, we were working on a climate change outreach project, and were constantly reminded of the immense impacts the private automobile has on climate change, air quality and land use. We were attracted to carsharing as a practical and creative means of reducing private vehicle use and ownership.

Carsharing provides a network of high gas mileage vehicles that members drive only occasionally. It thereby addresses the **environmental goals** of reducing greenhouse gas emissions, air and water pollution, and urban sprawl. Carsharing also **creates a community** of members, and **enhances quality of life** by reducing traffic congestion, parking problems, and the hassles of car ownership. Carsharing **promotes active living** – bicycling and walking for transportation – and encourages the use of mass transit. Carsharing **provides access** to new, reliable cars for moderate-income individuals. Finally, carsharing can increase **affordable housing** opportunities through future location-based or car-free mortgage programs.

This feasibility study was funded by a grant from the Transportation Demand Management program of the Wisconsin Department of Transportation. Madison Environmental Group began the feasibility study in October 2001 and completed it in September 2002.

1.2 What is a Carsharing Organization?

A carsharing organization is a member based short-term car rental organization for people who don't own a car (or who don't want to purchase a second car), and who want access to a vehicle for occasional use.

Members share access to a fleet of vehicles stationed in a network of neighborhood locations close to where they live and work. They pay for the hours and miles driven, plus a membership fee. Members have a key or "smart card" that can access all cars in the fleet. Insurance, gasoline and maintenance are included in the rates, and members are responsible for filling the gas tank using a credit card kept in the car. Reservations can be made on the Internet 24 hours a day or by telephone during business hours. If a carsharing car is not returned on time, a cab is used as a back-up for the next member, at the expense of the member who was late

returning the car.

Carsharing has been referred to as transportation's "missing link" (http://worldcarshare.com, www.carsharing.net). By reducing people's dependence on their cars, it serves as a link between individual freedom of mobility and use of alternative and high occupancy modes of transit. Carsharing participants become more aware of per-trip costs and consequently plan their vehicle use more efficiently and drive less frequently. A Swiss study found that people who gave up their car after joining the carsharing program reduced their driving by up to 72% per year and consumed up to 57% less fuel (Muheim 1998). Other studies have found a 40%-60% reduction in vehicle use among households that join carsharing organizations (Steininger et al. 1996).

Reduced driving has the obvious environmental benefit of reducing CO_2 and greenhouse gas emissions into the atmosphere. Specifically, every gallon of gasoline burned while driving a car releases 20 pounds of CO_2 into the atmosphere (Merz 2002). In addition, carsharing eases parking problems in high-density areas and reduces the amount of space needed for parking infrastructure. Other benefits of carsharing include decreasing the stress of driving (Caltrans 2000), increasing affordability of occasional car use to low-income households (Litman 2000), increasing vehicle choice, and facilitating Transportation Demand Management (TDM) programs (Litman 2000).

In the United States, carsharing is economical for people who drive less than 7,500 miles per year (Sperling et al. 1999). The main market consists of people who perceive economic and convenience benefits to carsharing. Environmental motivations for joining are secondary (Muheim 1998, Sperling et al. 1999). Carsharing users are generally between the ages of 25-40, with advanced education and modest incomes (Sperling et al. 1999). Education is an important factor, because carsharing users must be receptive to a two-step sales pitch: they must "buy" the concept before they buy the service. Some specific market niches may include less affluent people who drive infrequently, wealthier people who want access to specialized vehicles or a second vehicle, and elderly people who don't want the responsibility of owning a car (Sperling et al. 1999). Carsharing is most suitable for high-density urban or suburban neighborhoods with good walking, cycling and public transit services, and local commercial centers (Litman 2000).

1.3 Tickets to Carsharing Success

Carsharing began in Europe in the late 1980s, and today there are more than 100,000 members in at least 12 European countries. The first North American programs began in 1994 in Quebec City and Montreal. U.S. cities followed the trend a few years later. Today, six U.S. cities have carsharing programs with over 300 members, about 10 cities have new or small-scale programs, and at least 10 more are in the planning stages.

The success of the U.S. carsharing organizations is evident from this new industry's rapid growth. CarSharing Portland in Portland, OR (now owned by Flexcar) was the first carsharing business in the U.S.; it started in 1998 and today has 32 cars and 900 members. Flexcar in Seattle, WA started in December 1999 and has grown to 81 cars and over 4050 members; Zipcar

was launched in June 2000 in Boston and currently has 111 cars and over 2800 members in four cities; City CarShare in San Francisco, CA was founded in March 2001 and today boasts over 1000 members sharing 35 cars (personal communications with carsharing organization leaders, June 2002).

Most carsharing organizations in the U.S. are businesses. Most grassroots nonprofit organizations have either remained small and local or have been bought by larger companies; the entrepreneurial-minded businesses, on the other hand, have grown and expanded (Shaheen & Meyn 2002). Several measures can be taken to help create a successful carsharing program:

- Provide a dense network and variety of vehicles.
- Serve a diverse mix of users.
- Create joint-marketing partnerships – car rentals, transport services, employers, etc.
- Design a flexible yet simple rate system.
- Provide for easy emergency access to taxis and long-term car rentals.

(Sperling et al. 1999)

Other factors that characterize the growth-minded organizations are innovative market niches, advanced technology, diverse rate structures, and perhaps most importantly, public-private partnerships (Shaheen & Meyn 2002).

1.4 The Madison Context

Madison is an excellent candidate for a successful carsharing program for several reasons: 1) The geographic nature of the city coupled with new downtown development create a need for transportation options; 2) City, County, and State governments are sponsoring several air quality and alternative transportation initiatives that will complement carsharing; and 3) The environmentally-aware, highly educated and moderate-income citizenry of Madison is receptive to this innovative idea.

Carsharing encourages the use of alternative transportation.

Madison's Natural and Built Landscape

The heart of the city is Madison's Isthmus, a corridor between two lakes that includes the University of Wisconsin, the State Capitol, and the downtown business district. The narrow isthmus has experienced increasing traffic congestion, safety problems, and pedestrian and bicycle challenges. Currently, large condominium units, new office buildings and a new civic center are being built on the isthmus – attracting an ever-increasing number of people and cars to the city. Due to the area's geography, building new roads on the isthmus is not feasible. Furthermore, the percent of carpoolers in Dane County declined from 13% in 1990 to 10% in 2000 (Balousek and Hall 2002). These trends, combined with population growth – estimated at 17% since 1990 – have led the city of Madison to the cusp of nonattainment status for air quality.[1] In order to improve air quality and Madison's renowned quality of life, new transportation options are necessary.

1 A nonattainment area is an area that does not meet the national primary or secondary ambient air quality standard established by the Environmental Protection Agency for designated pollutants.

Madison's Transportation Initiatives

City, County, and State agencies have recently implemented projects to improve air quality and provide transportation alternatives. The City of Madison recently completed a Climate Protection Plan that highlights transportation issues, passed a Green Fleet Resolution, and became an active member of the Clean Cities program. Dane County and the University of Wisconsin are enhancing their commuter choice programs to favorably impact transportation behavior, and the Wisconsin Department of Natural Resources has implemented an air quality educational program targeting teenagers and new members of the workforce. The City also sponsors a ride sharing program, and the Wisconsin Department of Transportation funds a Parking Cash-Out program whereby employees receive cash or a bus pass if they do not use their parking space.

Madison's bicycle and pedestrian infrastructure creates a friendly environment for non-automobile transportation. State Street, in the center of downtown Madison, is one of the most successful pedestrian malls in the nation (www.streetswithoutcars.com). The city was named second best mid-size city in the country for bicycling (*Bicycling* Magazine, November 2001). According to Arthur Ross (Bike/Pedestrian Coordinator for the City of Madison), the city contains over 100 miles of bike paths, bike lanes, and shared-use streets assigned as designated bike routes. Thirteen percent of Madison residents bike or walk to work regularly.

Crowded bike racks on the Capitol Square show that bike commuting is widespread in Madison.

Madison also has a long-term vision for improving its transportation options. The Transport 2020 plan, completed in summer 2002, lays the groundwork for a $200 million commuter rail system. This system would potentially double the city's current 32,000 daily transit riders (Balousek 2002). All of these existing and proposed initiatives will encourage carsharing's success in Madison by providing transit options, creating alternative for residents who choose not to own a car or a second car.

Local organizations promote car-free living.

Madison's Citizens

Madison's citizens have a strong commitment to environmental protection and sustainable living that will support the success of carsharing. The city has a national reputation as a stronghold of progressive thought and innovation. Within the Madison metropolitan area, there are 143 non-profit organizations and 71 businesses that work on sustainability issues (www.sustaindane.org). The city was also listed among the top 10 most environmentally friendly cities in the U.S. by the Environmental News Network (www.enn.com, September 2000). Moreover, Madison's residents are highly educated with moderate incomes – fitting the demographic of carsharing users (Sperling et al. 1999).

2. NEIGHBORHOOD ASSESSMENT

From the literature review, we learned which factors make certain neighborhoods most suitable for carsharing. These include high household density; local commercial centers; high proportion of population using transit, bicycling and walking; and vehicles driven less than 7,500 miles per year (Litman 2000, Peters & Scott 1997). In addition, for insurance purposes, it is best if a high proportion of the population is over age 24. The first step in the market research, therefore, was to use socio-demographic data to identify Madison neighborhoods that most closely fit these characteristics.

High-density neighborhoods near commercial centers are best suited for carsharing.

Through the Madison City Planning Department, we obtained census data for 58 census tracts within the city limits (we used 1990 data as 2000 data was unavailable). We based the neighborhood assessment on four variables:

- Percent of population using non-auto commute mode (high)
- Average number of vehicles per household (low)
- Household density per 0.2 acre (high)
- Percent of population age 16-24 (low)

Not surprisingly, percent non-auto commute mode was negatively correlated with the average number of vehicles per household.[2] In other words, 60% of the variability (changes) in number of vehicles per household can be predicted by changes in percent non-auto commute mode. Percent of population age 16-24 correlated positively with percent non-auto commute mode[3] and negatively (but less strongly) with the average number of vehicles per household.[4] Household density did not significantly correlate (i.e. did not show any clear relationship) with any of the other three variables.

Many potential carsharing participants live in the Marquette neighborhood.

To predict the likelihood of participating in carsharing, non-auto commute mode is the most relevant variable. Number of vehicles per household, highly correlated with non-auto commute mode, is also relevant. Therefore, we ranked the census tracts by percent of the population using non-auto commute mode, and used the top 12 census tracts on this list. All 12 census tracts ranked within the top 20 for average number of vehicles per household (inverse rank: 1=fewest vehicles, 58=most vehicles). We excluded three census tracts near the University of Wisconsin campus because more than 50% of their population was between the

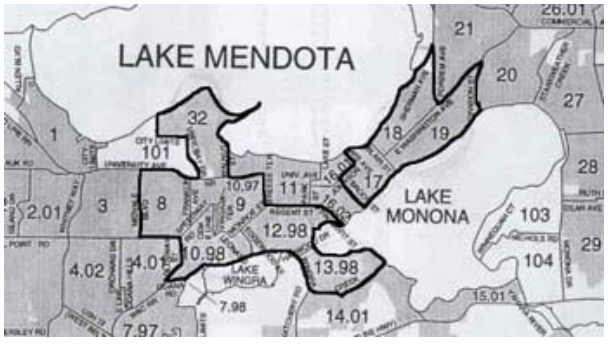
2 Pearson Correlation = -0.776; $p<0.001$; $r^2=0.602$.
3 Pearson Correlation = 0.727; $p<0.001$; $r^2=0.529$.
4 Pearson Correlation = -0.640; $p<0.001$; $r^2=0.410$.

ages of 16 and 24. This leaves us nine census tracts as the focus area for the market research study (Table 1).

All but two of the nine selected tracts ranked within the top 21 census tracts for household density. We decided to keep the two lower-density tracts in the study (tracts 32.00 and 10.00, ranked 38 and 39 respectively) because there are potential carsharing markets in these areas. Tract 32, although overall low density because much of it is forested, contains a high-density graduate student housing complex, Eagle Heights, that holds high potential for a carsharing market. Tract 10 is an area with high density shopping and schools where we know of several potential car share members; the tract is probably low density overall because of the space occupied by the Edgewood College campus.

Table 1. Census Tracts Selected for Carsharing Market Study

*The following nine tracts were **selected** for the carsharing market study.*							
Census Tract	**Non-auto Commute Mode**		**Average # vehicles per household**		**Households per 0.2 acre**		**Age 16-24**
	Percent	**Rank**	**Average**	**Rank**	**Density**	**Rank**	**Percent**
17.01	37%	2	.69	2	2.26	5	47%
19.00	28%	5	1.24	9	1.07	11	13%
12.00	27%	6	1.44	18	1.15	10	43%
9.00	27%	7	1.36	13	1.23	9	36%
18.00	25%	8	1.31	12	1.68	7	28%
32.00	24%	9	1.06	5	.47	38	6%
10.00	17%	10	1.47	20	.46	39	19%
8.00	14%	11	1.41	16	.76	19	10%
13.00	14%	12	1.20	7	.72	21	10%
*The following three tracts were **not selected** due to the high percentage age 16-24.*							
Census Tract	**Non-auto Commute Mode**		**Average # vehicles per household**		**Households per 0.2 acre**		**Age 16-24**
	Percent	**Rank**	**Average**	**Rank**	**Density**	**Rank**	**Percent**
16.02	39%	1	.82	3	2.21	6	**83%**
16.01	33%	3	.52	1	4.91	3	**87%**
11.00	32%	4	.82	4	.50	35	**92%**



We identified 9 census tracts in central Madison as the most suitable neighborhoods for carsharing.

The nine selected census tracts roughly correspond to 13 Madison neighborhoods: Tenney-Lapham (18), Marquette (19), Old Market Place (18, 17), Dudgeon-Monroe (9,10), Greenbush (12), Vilas (12), Sunset Village (8), Sunset Hills (8), Radio Park (8), Bay Creek (13), and Eagle Heights (32), as well as parts of Capitol (east of Broom St., south of Johnson St.; 17), South Campus (south of Regent St.; 12), Regent (South of University/Regent; 12, 9).

3. FOCUS GROUPS

3.1 Methods

In November and December 2001, we conducted three focus groups with 21 potential carsharing members. The focus groups' purpose was to gain qualitative reactions and insights from potential joiners, and to develop survey questions to present to a larger, random sample of Madison residents.

We solicited focus group participants through three local email list-serves that focus on issues pertaining to alternative transportation and sustainability: Bike Federation of Wisconsin (sent to Madison residents only), Dane Alliance for Rail Transit, and the "Sustain Dane" listserve (a discussion forum on local sustainability issues with 230 members). In the email, we screened potential focus group participants for the following four criteria:

1. Age 25 or older
2. Licensed driver
3. Use non-auto forms of transportation (biking, walking, public transit) at least 3 times per week
4. Live in the downtown, near west, near east, or near south neighborhoods of Madison

As a result of screening for condition #4, almost all (18 out of 21) of the focus group participants lived within the study area that was identified in the neighborhood assessment.

Focus group sessions began with a short survey to provide information and stimulate discussion.

Focus groups each contained seven participants and lasted 90 minutes. The moderator first introduced herself and asked the participants to each introduce themselves. Participants filled out a short transportation survey, then talked briefly about their transportation behavior. After this warm-up discussion, the moderator led an exercise in which participants brainstormed lists of the benefits and negative aspects of car use and ownership. After this exercise, the moderator showed a short video to introduce the concept of carsharing ("Today Show" clip promoting Zipcar in Boston), after which participants were asked to write down their initial reactions to the concept.

Participants then shared their reactions with the group in a 10-minute discussion. The moderator then asked specific questions about the logistics of the carsharing organization, including types of vehicles, distance to the cars, locations where the cars might be parked, and the cost of carsharing. After a discussion of these logistics, participants were asked whether they would join a carsharing program, and the main factors influencing their decision. Finally, participants wrote down and then shared one piece of advice for the future manager of the carsharing organization.

3.2 Results

Results of the transportation survey are presented in Table 2. Participants' ages ranged from 25 to 55 with the majority in their 30s and 40s, and only one out of 21 had children under age 16 in their household. Twenty-four percent (5 people) did not own a car, while 62% had one car in their household and 14% had two cars. Most people (76%) reported that they either "never" or "seldom" drove to work or school. Typical number of trips per week varied among the focus group members. Almost all (19 out of 21, or 91%) of the participants were already familiar with the concept of carsharing before being invited to the meeting; the most common ways of learning about carsharing were newspapers or magazines (37%) and the Internet (32%).

Table 2. Focus Group Transportation Survey

Age	**N**	**%**
25-29	2	10%
30-34	5	24%
35-39	4	19%
40-44	4	19%
45-49	4	19%
50-54	2	10%
Number of Children (<16 years old) in Household	**N**	**%**
Zero	20	95%
One	0	0%
Two	1	5%
Number of Cars/Trucks in Household	**N**	**%**
Zero	5	24%
One	13	62%
Two	3	14%
How Often Do You Drive to Work or School?	**N**	**%**
Never	8	38%
Seldom	8	38%
Half the Time	2	10%
Most of the Time	3	14%
Typical Number of Car Trips Per Week	**N**	**%**
One or Fewer	6	29%
2-3 Trips	2	10%
4-5 Trips	7	33%
6-10 Trips	4	19%
More than 10 Trips	1	5%
Familiar With Carsharing	**N**	**%**
No	2	10%
Yes	19	90%
How Did You First Hear of Carsharing?	**N**	**%**
Friend or Relative	2	10%
TV	1	5%
Newspaper or Magazine	7	33%
Internet	6	29%
Email List-Serve	2	10%
Other (Work, Class, Conference)	3	14%

Transportation Behavior Patterns

Many in this group bicycle, walk, or take the bus to work. A few described how not having a car leads them to plan their lives around the downtown area. Another participant said, "I'm making extremely conscious choices about where I live, where my job is, where I buy a house" in order to avoid having to depend on a car. Some carpool or drive the car to work on occasion; some use a car for errands on weekday evenings. However, while car use varied during the week, most participants reported using a car more often on the weekends for shopping, entertainment, and out-of-town trips. And in the winter, many reported biking less and taking the bus and/or driving more often.

Focus group participants listed the pros and cons of car use and car ownership.

While the bus worked well for some participants, several brought up problems and difficulties they have with the Metro bus system, including cost, slowness, infrequent service on weekends, inconvenient stop locations, and disappointment with the University for not offering discounts to faculty and staff. One participant remarked that for people who come downtown for the farmer's market or other weekend visit, the cost of parking is only one dollar whereas the cost of a two-way bus ticket is $3.00. He wondered, "What is the City trying to encourage?"

Table 3 presents the combined lists from all three groups of the benefits and negative aspects of car use and car ownership. The intent of this exercise was to encourage people to think about the differences between using a car and owning a car.

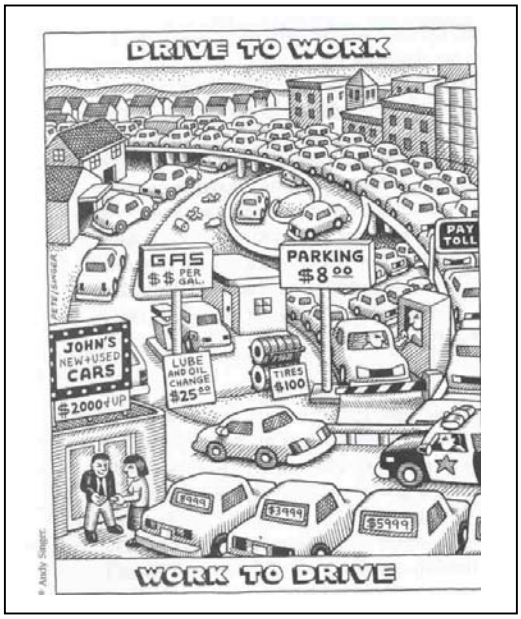


Table 3. Benefits and Negative Aspects of Using and Owning a Car

Benefits		**Negative Aspects**	
Car Use	Car Ownership	Car Use	Car Ownership
Flexibility / convenience	Always available	Frustrating / stressful	Expensive
Fast	Convenience	Parking	Requires space
Warm and dry	Personalize use	Traffic	Time and hassle
Hauling stuff	Self expression	Construction	Repairs
Ease of long distance travel	Preference / style	Other drivers	A lot of work in winter
Travel w/companions / kids	Control upkeep	Expensive	Responsibility
Can be economical	Asset	Pollutes	Guilt
Can work in car	Spontaneity	Consumption of resources	"Being part of the problem"
Time to think	Status		Depreciation
Music / radio	Independence / freedom	Lack of exercise	Parking
Smoke free	Fitting in with society	Isolation / alienation	Disposal
Spontaneity / emergencies	Storage	Requires space	Pollutes
Can help people	Provides possibilities	Environmental impact:	Consumption of resources
Good for people with physical limitations	Economic development	Air pollution	Contributes to sprawl and environmental impacts
	Emergency usage	Water pollution	
Safety at night / security	Increases housing choices	Flooding	Crutch / dependence
Storage		Noise	Anti-social
Freedom / exploration	Family / kids needs	Visual clutter	Limits housing choices
Fun		Foreign policy / oil / war	
Not sweaty		Land use / sprawl	
Easier to dress up		Taxes	
Pay per use		Accidents / not safe	
		Inconvenience	
		Discomfort of long distance travel	

Focus group participants discussed aspects of car use such as safety and lack of exercise.

Reactions to the Carsharing Concept

Since most of the participants had previously heard of carsharing, they discussed how they had originally reacted to it as well as how they reacted to the video and description we presented in the focus group session.

Table 4. Focus Group Reactions to Carsharing Concept

Positive Reactions	**Questions / Concerns**
Sensible	Would a car really be available when I wanted it?
Great idea	What if someone does not bring the car back?
Looks like fun	Is it really cheaper than owning (an inexpensive used car)?
Functional system	Want the details of how the program works
Environmentally and socially responsible	New concept – there will be a learning curve
Not surprising that Europeans thought of it first – time Americans caught on	What is the break-even cost?
"Costs are right in front of your face"	Hourly rate – is that a lot? Might make me feel pressured to be efficient
Would allow me to quit commuting to work if I could use it during the day	Not sure what my own car costs are; would want to calculate that first
Want it now	Skeptical that it will really succeed at removing cars from the road (may allow people to drive who otherwise would not)
Fills the gap of not owning a car and renting one	
Madison could sustain program	
Fun green Volkswagens!	Administrative hassles: require significant contractual relationship between org. and members
Will help alleviate parking problem	Starting the company is a huge capital investment
"A great tool to make downtowns more liveable… a good anti-sprawl method."	Risky for early adopters
Would like alternative fuel vehicles in fleet	I think I would probably drive more than I should if I joined
Would get me in better shape because I wouldn't want to pay per hour; would rather bike	How is this going to transform society?
Would support my philosophical and environmental goals	How does it stack up environmentally in terms of energy use?
	Is it a tool for the privileged / upper-middle class?
"Bridges the gap… will encourage people to use buses and rail more, that will get things moving in the right direction… Start of something that will gain momentum and change things beyond carsharing in the long run."	It would limit my freedom and make me more dependent
	Will be more viable when a greater number of people are economically priced out of owning cars because of fuel costs, etc.
	Will it add a component for longer inter-city trips?
	How is it going to be run? It is a lot of work to run a coop or any organization.
Shared ownership reduces the number of cars that are built – positive environmental effect.	What about insurance?
Encourages the internalization of costs… teaches people to think about the total costs of ownership	

Types of Vehicles

Focus group participants emphasized the importance of having a variety of vehicles in the carsharing fleet. They suggested a fleet of mostly small fuel efficient cars, with at least one pickup truck or cargo van, and at least one hybrid-electric vehicle. Hatchbacks were identified as useful cars that are small and efficient; station wagons were also considered useful. Minivans were less important to this group, but they commented that they would be attractive for families. One participant commented "I would have trouble subsidizing an SUV." Other suggestions included "Smart Cars" and motorcycles. The group also suggested offering different rates for different cars.

Distance to Vehicles
Participants reported being willing to walk from 3-4 blocks to ¾ mile to access the carsharing vehicle. The average preferred distance was around ¼ mile. A few participants were willing to bike 1-2 miles to the car, but the group stated that in the winter the maximum distance would be a few blocks. Participants voiced the need for a place to lock up bikes near the vehicle.

Parking Locations
Focus group participants brainstormed a list of potential parking spaces for carsharing vehicles. This list includes City lots, churches, businesses, strip malls, parks, neighborhood centers, and University lots. Some participants raised the issue of safety, and suggested placing cars in centrally-located, well-lit locations. They also mentioned the importance of locating the cars near bus stops and future rail stations.

Cost
The focus groups were presented the following estimates of carsharing costs:

Example of Carsharing Costs

Deposit	$300
Application Fee	$25
Monthly Fee	$15
Per Hour	$3.75
Per Mile	$0.50

Example of Carsharing Costs for One Month

Trip	Time	Distance	Cost*
Meeting	2 hrs.	12 miles	$13.50
Shopping	2 hrs.	20 miles	$17.50
Dinner and Movie	5 hrs.	8 miles	$22.75
Visit Friends	4 hrs.	14 miles	$22.00
Errands	3 hrs.	25 miles	$23.75
Monthly Total	18 hrs.	105 miles	$99.50
	Monthly Member Fee		*$15.00*
		Total Cost	**$114.50**

One participant admitted that he pays $200+ just for his car payment, and calculated that even if he used carsharing twice as much as this example, he'd still be saving money. Another wondered if her $2000 high-gas-mileage older car would be more expensive than carsharing, and guessed that it would probably be close, but cheaper if she drove more than in the example. On the negative side, the group noted that if you don't use the service you're still paying a monthly cost, yet on the positive side it would be nice to be able to use a fairly new car all the time. Also, some implied that the cost is worth it for the convenience and guaranteed parking.

One participant stated she would want to compare this to the cost of car rental, and another suggested a full-day rate structure would allow more flexibility than the hourly rate structure. Another skeptical individual said that this strikes him as a "deal breaker" – i.e. the people who would be most attracted to this kind of operation are the least able to come up with this kind of cash. But someone else countered that, not having children nor a car, and having enough money to afford it, this is a wonderful option. He added that maybe it would work better in a big city like Boston where there are more people who fit the demographic. Maybe Madison doesn't have that, he said, but added that he hopes it does.

9 out of 21 focus group participants said they would join carsharing.

Likelihood of joining

Out of all 21 focus group participants, nine said that they definitely would join the carsharing program. The remaining 12 people said maybe, but would first like to learn more details and calculate their current transportation costs for comparison. Nobody said they would not join. A few participants remarked on the importance of timing: they would have joined a year or so ago, but have since purchased a car and therefore find the service less attractive.

Advice to the Business Manager

The focus group participants offered a wealth of useful advice for starting a carsharing organization:

- Plan for maximum flexibility with reservations.
- Have the most environmentally friendly cars available.
- Make it easy to reserve a car. Make it reliable to get to a car, even at peak times.
- Be creative in the partnerships you build – Metro, Enterprise, bike shops for free repairs.
- Provide a "cushion" or "security blanket" / incentives for members (it's a big transition).
- Make the system simple and transparent.
- Involve city government officials and leaders.
- Don't sell it as a "crunchy thing." Don't use words like "offbeat" (used by Today Show).
- Pitch it as cost savings rather than as an environmental issue.
- Pitch to the mainstream, families (focus on substitute for second car).
- Pitch to condo developers for use by their residents.
- Have bike racks on some vehicles (maybe also racks for skis and canoes).
- Give carsharing use credits to members who intentionally retire a vehicle in order to join.
- Provide employer incentives for encouraging their employees to use carsharing (like commuter choice program).
- Provide a cost calculator on website so people can learn how much they spend per month on car ownership.
- Get those pretty little VW bugs!
- Present a solid professional successful profile at the outset, in order to get critical mass. It can't have the appearance of a volunteer, fringe organization. It must be successful out of the box or it will get a bad reputation and be hard to recover.
- Design the service to meet a lot of different people's needs.
- Consider carefully the possibility of having hybrid vehicles, fuel cells and other alternative fuels.
- Stress the environment; work on people's guilt (this would work in Madison).
- Market to graduate students.
- Make it feasible for lower income people (no credit card requirement, low or refundable fixed costs).
- If nothing else, compile info on how to do your own car coop and make this available to people in high-density neighborhoods.
- Hire someone from an organization in another city.

- Apply for a lot of grants, and additional help (parking spots, transportation demand management programs) from municipalities.
- Work with transportation demand management at municipal level, and parking demand management at private business level.
- Work with employment clusters – Fitchburg employment park, for example.
- When selling the idea, help interested parties calculate their own car ownership and use costs. Couple that with information on environmental and philosophical implications. Have testimonials from people (from other cities) whose lifestyles mirror the interested people.

Quotes from Focus Groups

The following quotes exemplify the insights of the focus group participants into the social and environmental benefits carsharing can create. These thoughtful and committed individuals represent the core group of early joiners who will make carsharing a success.

Participants offered insightful comments about carsharing's social and environmental benefits.

Carsharing is "a great tool to make downtowns more liveable…a good anti-sprawl method. You've got to get enough people living here in order to get a movie theatre, a grocery store, and a department store right around here. And that will bring people in and avoid the cars. And that will then enable rail or whatever else. So for me anything that enhances downtown as a place to live is a good idea."

Carsharing "encourages the internalization of costs… teaches people to think about total costs of ownership in a really important part of their lives; maybe they will start to think about those things in other areas too."

"I would join because I fear that if I owned a car, it would take over my life and I would stop walking places and taking the bus. This would be a way of having access to a car when I needed it, but not having it be a permanent presence looming in my life."

"In terms of how we get from where we are today to where we will have to be 100 years from now, carsharing bridges the gap. It will encourage people to use buses and rail more, and that will get things moving in the right direction. So I see it as the start of something that will gain momentum and change things beyond carsharing in the long run."

4. MARKET RESEARCH SURVEY

4.1 Methods

Using the insights gained from the focus groups, we designed a questionnaire to assess the feasibility of a carsharing program in Madison. In the spring of 2002, we surveyed two groups:

1) Random sample of Madison residents in the focus neighborhoods
2) Targeted sample of likely joiners – people who had expressed an interest in carsharing, alternative transportation, and/or environmental issues

We mailed a questionnaire to 500 random residents.

Random Sample

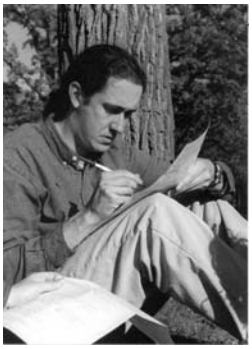
We mailed a two-page questionnaire to 500 random residents of the nine central Madison census tracts that were selected through the neighborhood assessment. The questionnaire included questions about general demographics, car ownership and payments, commute methods, attitudes toward owning a car, appeal of the carsharing concept, likelihood of joining and reasons, preferred types and makes of vehicles, previous familiarity with the carsharing concept, and preference for receiving updates about Madison's future carsharing program.

The original survey mailing was sent to 500 random residents on April 12, 2002, and a reminder mailing with a second copy of the survey was sent to non-respondents on May 10, 2002. The final response rate for the random survey mailing was 32.5% (N=155) (Table 5).

Targeted Sample

We employed two strategies for surveying the target population. First, we distributed surveys to individuals attending relevant events and meetings:

- Informational meeting about carsharing at Willy Street Grocery Coop
- Presentation about carsharing at Sierra Club meeting
- Brown bag presentation about carsharing at Department of Natural Resources
- Earth Day presentation about carsharing at Flad & Associates architectural firm
- Alternative transportation fair at Farmer's Market
- Car-Free Day picnic hosted by Madison Environmental Group
- Bike to Work Week celebration hosted by the Bicycle Federation of Wisconsin



Surveys were also distributed at local environmental events.

Second, we created an on-line survey and emailed a request for response to the following two email lists:

- Madison Environmental Group's list of 123 potential carsharing participants (people who have attended our informational meetings, participated in the focus groups, or contacted us after reading about our carsharing project through articles in local newspapers and magazines).

- The "Sustain Dane" listserve – a forum for sharing ideas, resources, questions, and announcements related to local sustainability. The group has about 230 members from a range of backgrounds – including government, university, utilities, business, and citizen activists.

Targeted survey participants were screened to include only residents of the focus study area. We received 72 surveys from people at events and meetings, and 74 surveys via the web, giving us a total targeted sample of 146 (Table 5).

Table 5. Market Survey Sample Size

Random Sample (mail survey)				
Original Mailing Size	Number of Undeliverables	Adjusted Mailing Size	Number Returned	Response Rate
500	23	477	155	32.5%
Targeted Sample (survey at meetings and online)			146	
TOTAL SAMPLE SIZE			**301**	

4.2 Results

A. Carsharing Market Potential

Overall, a majority of people surveyed found the concept of carsharing appealing: 62% of the random sample and 92% of the targeted respondents thought carsharing was somewhat or very appealing. The survey inquired about likelihood of joining within two time frames: 1) Within the next two years, and 2) At any time in one's life. Among the random sample, 33% reported being at least somewhat likely to join in the next two years, and 59% were at least somewhat likely to join at some point in their life. These numbers were even more impressive among the targeted sample: 59% were at least somewhat likely to join in the next two years, and 97% were at least somewhat likely to join at some point in their life (Table 6).

This couple sold a car in anticipation of carsharing.

Recognizing that people do not always act as they say they will, we considered other variables in addition to the self-reported measures.

Based on the survey data, we define a **"likely joiner"** as someone who:

- Finds the idea of **carsharing very appealing**
- Reports being **very likely to join** within the next two years
- Owns fewer than two cars
- Would consider living without a car
- Makes seven or fewer trips in a car per week
- Commutes by car never, occasionally, or sometimes

We define a **"potential joiner"** as someone who:

- Finds the idea of **carsharing somewhat or very appealing**
- Reports being **somewhat likely to join** within the next two years or **at least somewhat likely to join** at any time in their life
- Owns fewer than two cars
- Would consider living without a car
- Makes seven or fewer trips in a car per week
- Commutes by car never, occasionally, or sometimes

Table 6. Variables Predicting Likelihood of Joining Carsharing Organization

Appeal of Carsharing Concept	**Random Sample**	**Targeted Sample**
Very appealing	21%	61%
Somewhat appealing	41%	31%
Not very / Not at all appealing	38%	8%
Likelihood of Joining Within the Next Two Years		
Very likely	9%	23%
Somewhat likely	24%	46%
Not very / Not at all likely	67%	31%
Likelihood of Joining at Any Time in Life		
Very likely	21%	55%
Somewhat likely	38%	42%
Not very / Not at all likely	41%	3%
Number of Cars Owned (or jointly owned)		
Zero	14%	19%
One	60%	59%
Two or more	26%	22%
Attitude Toward Car Ownership		
Wants to always own a car	41%	10%
Lives without a car or would consider living without a car	59%	90%
Number of Car Trips Per Week		
7 or fewer	50%	69%
More than 7	50%	31%
Frequency of Commuting by Car		
Never / Occasionally / Sometimes	54%	70%
Most of the time / Always	46%	30%

If a person fit all of the criteria in the above definitions, we categorized them as a likely or potential joiner. We calculated that 4% of the random sample and 17% of the targeted sample consist of **likely joiners**, and an additional 15% of the random sample and 31% of the targeted sample consist of **potential joiners** (Table 7).

Table 7. Number of Likely and Potential Joiners in Survey Sample

	Random Sample		**Targeted Sample**	
	Number	Percent	Number	Percent
Likely Joiners	6	4%	24	17%
Potential Joiners	21	15%	44	31%
Total	27	19%	68	48%

According to 2000 U.S. Census data, the nine census tracts that represent the focus of this study have a total population of 26,158 people age 25 and older. Assuming our survey finding of 94% licensed drivers holds true for the population, then this area contains about 24,589 licensed drivers over age 24. Extrapolating the percentages from the random sample, we could expect **984 (4%) likely joiners** within the population. We could expect an additional **3,688 (15%) potential joiners**, for a total **market potential of 4,672 members** in the target area.

We already have a substantial list of probable carsharing members. From the survey results, we have identified a group of 95 likely or potential joiners. An additional 96 people who were not classified as potential or likely joiners reported that they would like to receive updates about the carsharing program. This represents 191 interested people as an initial target group (not including people already on our contact list who did not fill out a survey.) Furthermore, the survey confirmed that there is a high level of interest among targeted groups such as environmental organizations (the targeted sample consisted of 48% likely or potential joiners).

B. Reasons For and Against Joining

Among both random and targeted survey respondents, economics was the most prevalent reason for wanting to join a carsharing organization (Table 8). Other reasons that were popular among both groups – but particularly among the targeted sample – were to improve the environment and to reduce U.S. dependence of foreign oil. The targeted respondents were also more likely to be motivated by creating a sense of community, wanting to live car free, and making their lives easier.

Economics was the most common reason for wanting to join a carsharing organization.

Respondents were also asked why they would *not* join carsharing within the next two years. The reasons given were more mixed than the reasons for joining, and the two sample groups did not differ significantly on most of the reasons. They did differ significantly on two reasons: believing carsharing would be a hassle, and not wanting to give up their cars (random respondents were more likely to report both these reasons).

Table 8. Reasons for Joining and Not Joining a Carsharing Organization – Comparison of Random and Targeted Samples

Reasons for Joining a Carsharing Organization	**Random Sample**	**Targeted Sample**	**Significant difference?***
I think it makes economic sense.	76%	79%	No
I want to drive less to improve the environment and reduce greenhouse gas emissions.	68%	81%	Yes
I want to drive less to decrease the U.S. dependence on foreign sources of oil.	47%	64%	Yes
I think it would create a sense of community.	37%	57%	Yes
I want to live car-free.	24%	50%	Yes
I think it would make life easier.	26%	41%	Yes
I would like access to new, reliable car.	23%	28%	No
I like trying new things.	19%	27%	No
(Other) I would join for occasional use / hauling.	2%	3%	No
Reasons for Not Joining a Carsharing Organization Within the Next Two Years			
I think carsharing would be a hassle.	43%	20%	Yes
I drive every day.	35%	27%	No
I don't want to give up my car.	39%	12%	Yes
Others in my household need to own a car.	17%	24%	No
I plan to move away from Madison.	20%	11%	No
I recently purchased a car.	12%	18%	No
(Other) Flexibility / spontaneity	6%	5%	No
(Other) I need my car for work.	3%	8%	No
I have a disability and need a car.	3%	3%	No
(Other) I need my car for my kids.	4%	3%	No
(Other) Cost	3%	5%	No
(Other) I need my car for long trips.	2%	8%	No

* $p<0.05$

C. Demographics of Likely and Potential Joiners

The average age of likely and potential joiners was 38.5.

The likely and potential joiners (mean age 38.5) are younger on average than the other respondents (mean age 42).[5] Most of them have no children (86%, compared to 77% in the rest of the sample).[6] They are highly educated (but not significantly more so than the rest of the sample): 43% have a Bachelor's degree, 26% have a Master's degree, and 17% have an Advanced degree such as M.D. or Ph.D. (total 86% with at least a Bachelor's). Twenty-eight percent of the likely and potential joiners are students (versus 19% of the non-joiners).[7] Four percent of the likely or potential joiners are retired. Men and women are about equally likely to consider joining carsharing. The likely and potential joiners were significantly more likely to already be familiar with the concept of carsharing (79% of likely or potential joiners, versus

5 t=2.078, p=0.039
6 chi-square=3.398, p=0.065
7 chi-square=3.018, p=0.082

52% of others).[8]

D. Preferred Manufacturers and Models of Vehicles

From our background research, we identified a list of car manufacturers that we would consider for the carsharing organization due to a combination of fuel efficiency, affordability, and reliability. We also identified a list of model types that we would potentially lease or purchase. We presented these lists on the survey, and asked respondents to indicate what cars they would prefer to have access to if they were to join a carsharing organization. Respondents were asked to rank their top three choices out of each list (they were also free to fill in an "other" choice):

Manufacturers:
- Ford
- Honda
- Mazda
- Saturn
- Toyota
- Volkswagen

Model types:
- Compact car
- Midsize car
- Station wagon
- Minivan
- Pickup truck
- Hybrid-electric

We gave each manufacturer and model a score of 3 points each time it was ranked first, 2 points each time it was ranked second, 1 point each time it was ranked third, and 0 points if it was not ranked. We then calculated sums and averages to judge the most popular makes and types of vehicles (Table 10).

Table 10. Preferred Manufacturers and Models of Vehicles for Carsharing (Ranked)

Preferred Vehicle Manufacturer	**Sum Score (0-783)**	**Average Score (0-3)**
Honda	346	1.33
Toyota	279	1.07
Volkswagen	149	0.57
Saturn	105	0.40
Ford	59	0.23
Subaru ("other" choice)	29	0.11
Mazda	28	0.11
Preferred Vehicle Model	**Sum Score (0-762)**	**Average Score (0-3)**
Hybrid-electric	396	1.56
Compact car	302	1.19
Midsize car	214	0.84
Pickup truck	169	0.67
Station wagon	156	0.61
Minivan	140	0.55

Hondas and Toyotas were by far the preferred brands, with Volkswagen ranking third and Saturn fourth. People also indicated a desire for access to hybrid-electric vehicles and compact cars. The larger vehicles – midsize cars, pickup trucks, station wagons, and minivans – were ranked lower, suggesting that people want at most occasional access to them.

8 χ^2=20.299, p<0.001

Integrating these findings with our background research into vehicle reliability, affordability, and environmental rating, we will consider leasing the Honda Civic Hybrid, Honda Civic, Toyota Prius hybrid, and Toyota Echo. We will also plan on leasing one pick-up truck, since many respondents indicated a desire for occasional access to a pick-up truck for hauling.

Survey respondents wanted access to hybrid-electric vehicles like the Toyota Prius (left) or the Honda Insight (right).

5. COMPETITIVE ASSESMENT

Carsharing works in synergy with existing transportation alternatives.

Carsharing in Madison will have no direct competition. Car rental companies, taxicab companies and the Metro Bus system all work in tandem, rather than compete with carsharing. These all provide options for people who do not own a car (or families who do not own a second car), yet each one fills a particular niche. Carsharing is meant for trips to the store or to visit friends lasting up to about six hours, and as such it is more economical, convenient and accessible than traditional car rental (there is no paperwork after the initial application, and you can rent the car by the hour). However, if a person needs a car for an overnight trip, then a car rental service is more affordable and practical. Moreover, carsharing is not practical or economical for daily commuting needs, so a member may choose to ride his or her bicycle or take the Metro Bus to work every day. Taxicabs are cost effective for short, one-way trips such as a ride to the airport or a ride home from a nightclub. Carsharing will work in synergy with these existing transportation alternatives, creating a more comprehensive multimodal transportation system for Madison residents who choose not to own a car. Table 11 presents examples of trips using various modes of transportation.

Table 11. Examples of Trips Using Alternative Transportation Modes

Transportation Mode	Example of Trip	Length of Trip	Approximate Cost
Bicycle	Visit a friend	2 hours	$0.00
Metro bus	Commute to work	50 minutes round-trip	$3.00
Taxicab	Ride to airport	15 minutes (5 miles)	$12.00
Carsharing car	Grocery store and errands	2 hours (20 miles)	$15.00
Rental car	Overnight trip to Chicago	24 hours	$45.00 + gas

6. OPERATIONS

6.1 Data Collection

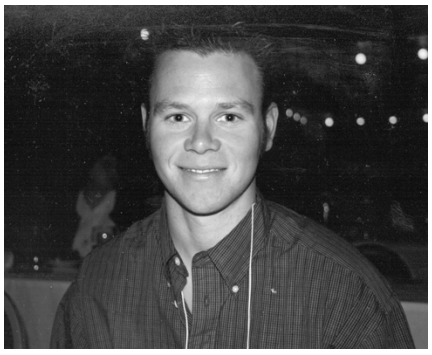
We interviewed industry leaders from 11 North American carsharing organizations to learn about the logistics of administering and operating a carsharing organization. The interviews included 13 topics:

A. Vehicle Lease / Purchase
B. Vehicle Maintenance
C. Parking Arrangement
D. Insurance
E. Reservation System
F. Vehicle Access System
G. Rate Structure
H. Billing System
I. Vehicle Damage and Cleanliness
J. Staffing
K. Partnerships
L. Vehicle Usage Statistics

Kevin McLaughlin
Autoshare, Toronto

Dave Brook
Flexcar, Portland

Ref Lindmark
Flexcar, Seattle



Gavin Seedorf
Roaring Fork Valley Vehicles, Aspen

Mark Chase
Zipcar, Boston

Table 12. Carsharing Organizations Interviewed to Assess Operational Logistics

Name	Location	Country	Metropolitan Population	Organizational Model	Launch Date	# Cars*	# Members*	Average # Members / Car	# Staff*
Flexcar	Portland, OR	U.S.	2,265,223	Business	1998	32	900	28.1	3 FT, 2 PT
Flexcar	Seattle, WA	U.S.	3,554,760	Business-Public partnership	Dec. 1999	62	3800	61.3	5 FT +
Zipcar	Boston, MA	U.S.	5,819,100	Business	June 2000	74	1900	25.7	11 FT
Boulder Carshare	Boulder, CO	U.S.	94,673	Nonprofit	Jan. 2000	3	20	6.7	1 FT
Roaring Fork Valley Vehicles	Aspen, CO	U.S.	5,914	Publicly funded (City of Aspen)	March 2001	1	15	15.0	1 PT
I-Go	Chicago, IL	U.S.	9,157,540	Nonprofit	March 2002	2	30	15.0	N/A
AutoShare	Toronto, ON	Canada	4,594,900	Business	Oct. 1998	40	700	17.5	2 FT
People's Car Co-op	Kitchener-Waterloo, ON	Canada	409,500	Cooperative	June 1999	4	55	13.8	1 FT
Co-operative Auto Network	Vancouver, BC	Canada	1,995,900	Cooperative	Jan. 1997	51	1000	19.6	6 FT
Vrtucar	Ottawa, ON	Canada	1,056,700	Business	May 2000	8	130	16.3	1 FT
Calgary Alternative Transportation Co-op	Calgary, AL	Canada	907,100	Cooperative	Oct. 2000	1	10	10.0	1 PT

* As of June 2002

6.2 Interview Findings and Recommendations

Within each following section, we present a summary of interview findings, followed by our recommendations for Madison.

A. Vehicle Lease / Purchase

Interview Findings
The five large organizations (>500 members) lease their cars; four of the six smaller organizations own their cars and the other two lease. Car makes and models include Hondas, Toyota Echo, Toyota Prius, VW Beetle, VW Jetta, Ford Escort, Saturn, and Ford Ranger. All organizations that lease cars have three-year leases, except for one organization that leases for two-year periods. Mileage expectations for the cars range from 12,000-18,000 miles per year.

The benefits of leasing include cash flow, short-term commitment, tax deductibility, and providing newer cars. A potential problem with leasing is that dealers may be uncomfortable with multiple users driving the cars. The benefits of owning include flexibility and financial savings in the long-term. However, owning requires budgeting time and money for maintaining older cars, and requires a greater initial investment.

Zimbrick Honda
Madison

The interviewees provided us with the following advice for leasing:

- Pay attention to purchase price and residual; if the lease is low there's probably a high residual.
- Lease cars that retain their value.
- Look for leases with no down payment.
- Look for a good roadside assistance program.
- Keep cars for warranty period of three years.
- Whatever car you start off with, people will come to expect.

The interviewees provided some advice for purchasing cars as well:

- Look for good deals from body shops that reconstruct cars after accidents.
- Finance with a credit union for better rates.

Recommendations for Madison
We will lease cars from local Honda and Toyota dealerships, for three-year lease terms.

B. Vehicle Maintenance

Interview Findings
Most organizations have one or two staff people who take the cars to the garage for maintenance. They recommend working with a reputable local garage and a body shop that can meet all car maintenance needs. They also recommend establishing a maintenance schedule and record of repairs for each car, and designating a floater car to use when cars are being repaired. Some

leasing companies include maintenance. Another option is a customer-focused roadside assistance program to take care of flats, dead batteries, locked keys, towing, etc.

The cars are usually washed inside and outside twice a month. It may be possible to find a car wash that gives fleet discounts. Several organizations offer a driving credit to members who take the car to be washed. Tire rotations and oil changes are performed according to manufacturer's recommendations – every 3000-5000 miles for oil changes, about half as often for tire rotations. Other needed maintenance involves fixing dents and dings. The organizations reported monthly maintenance costs ranging from US$30-$80 per car.

Recommendations for Madison
We will find a mechanic who will be responsible for maintaining the carsharing fleet. One staff person will be in charge of designing a maintenance schedule and taking the cars to the mechanic and car wash. We will consider implementing a system whereby members receive credit for taking the car to be washed. We will also consider a AAA policy or similar policy for roadside assistance.

C. Parking Arrangement

Interview Findings
The municipality donates or discounts parking spaces for carsharing in five of the 11 cities. Carsharing organizations rent spaces from the city in three other cities. Parking spaces are also donated by or leased from developers, condos and apartments, businesses, commercial parking vendors, universities and colleges, hospitals, business members and individual members. Some organizations offer members driving credit based on the value of the space they donate.

The interviewees provided the following advice for parking:
- Parking is a big issue early on; later it becomes easier.
- Budget for parking; don't assume you can get free spaces.
- A reserved spot is best; second best is an unreserved spot in a lot rather than on-street.
- Try to stay one or two spots ahead of your need.
- Sometimes the business owner is not the property owner, so there are two levels of negotiation.

Carsharing organizations in cold climates keep a snow shovel and brush in each car. Some organizations make the member responsible for shoveling the car out, while others provide help shoveling.

Recommendations for Madison
We will pursue every option for parking spaces in Madison – City lots, private downtown lots, businesses, parks, churches, University lots, Metro transit stations, and downtown condominium developments. We hope that some parking spaces will be donated or offered at a lower rate than the downtown ramps' current price of $95/month. We estimate an average of $65 per parking space per month for our budget calculations.

D. Insurance

Interview Findings
Insurance is a difficult issue for carsharing organizations. Because this is a new industry, insurance companies are uncomfortable with the perceived risks of insuring multiple users. One interviewee declared that finding a company that will insure you is the "toughest thing." Another remarked: "We've been screwed around by insurance companies ever since we started." Organizations reported annual costs of insurance ranging from US$1165 to US$4300 per car. In the U.S., a national broker is creating a group policy for carsharing organizations, which would decrease insurance rates by up to 40%.

Six of the organizations have a minimum member age of 21, four have a minimum age of 25, and one has no minimum age requirement. Most organizations have no upper age limit; the three that do have maximum ages of 62, 70 and 87, respectively.

The interviewees provided the following advice for seeking insurance:

- The more companies you speak to on personal level and sell them on idea of carsharing, the more competition there will be in the market and the better it will be for all of us.
- Explore all options including personal contacts in insurance industry, and fleet insurance through the City or State.
- Look into taxicab, bus, vanpool, and ambulance insurance.
- Try to find a local broker.
- Get a policy with a $1000 deductible.
- You might get broader coverage if you are willing to accept restrictions (e.g. under 21 agree not to use cars on Friday and Saturday nights).
- It may be possible to get a group rate by joining the policy of an established carsharing organization.

Recommendations for Madison
We are considering ways we might cooperate with other carsharing companies to purchase insurance as part of a group policy. The experiences of other organizations have taught us that many insurance companies are still uncomfortable with the idea of carsharing; they assume high risk and therefore charge high, unstable rates. Due to this uncertainty, we use the high-end estimate of $4000 per car per year in our budget calculations.

E. Reservation System

Interview Findings
There are three options for carsharing reservation systems: 1) Automated phone system developed by Wilder Engineering, 2) Live answering service, and 3) Web system with web-activated phone system (can reserve on-line or call to live person who enters reservations on-line).

An automated phone system can be either purchased or leased monthly (cost based on number of cars and number of phone lines). The organizations that use this system seem very happy with it. It requires very little maintenance – only about one hour per month to add and remove members.

However, another interviewee criticized the Wilder system as too tedious (1.5 minutes) compared to a web-based system (30 seconds). He also emphasized that the latter is a very human, customer service driven system. A few of the larger organizations have in-house web systems that they will license to us if we choose.

Recommendations for Madison
We plan to start with a web-based reservation system with a back-up telephone service. We will compare the cost of designing our own system with that of purchasing a license to use a system owned by an established carsharing organization. We will convey to our members that they can make reservations on the web 24 hours a day, or they can reserve by telephone during regular business hours (a staff member will answer the phone and enter the reservation into the web system). The staff members will alternate on-call duty, so someone always has a cell phone with them during non-business hours to handle emergencies.

F. Vehicle Access System

Interview Findings
Carsharing organizations generally use one of three systems for vehicle access: 1) "Supra" lockboxes mounted outside car, 2) "Supra" lockboxes inside car, 3) High technology system such as "Smart Card" or cell-phone based system. Most interviewees agreed that the lockbox systems (either one) is sufficient when the organization is small, and a high technology system only becomes necessary once the program has several hundred members. Two of the large organizations that are currently using options a lockbox system are moving toward a "Smart Card" system in the near future.

A lockbox mounted outside the car is less expensive than having the box inside the car, since there is no need to change the door locks to fit the same key. The cost of an external lockbox is $100 to $150 per car ($35 sign + $50 pole +35 box + labor), while an internal lockbox costs about $300 per car. However, the external system requires that the carsharing organization have reserved parking spaces.

Recommendations for Madison
Lockboxes mounted on poles outside the cars is the most economical and effective system for our purposes in Madison, assuming we can obtain reserved parking spaces. We will purchase the Supra boxes either directly from the manufacturer or second-hand from another carsharing organization. We will look into the cost and operation of a high-tech system as a consideration for the future.

G. Rate Structure

Web Research Findings[9]
Most North American carsharing organizations have a rate structure with three price points: 1) monthly (or yearly) administration fee, 2) hourly usage fee, and 3) mileage usage fee. The administration fees range from $75/year ($6.25/month) to $30/month, averaging $15/month. Hourly usage fees range from $1-$10/hour, averaging $3.25. The mileage rates range from

9 We reviewed the rate information on the websites of 11 North American carsharing organizations.

$0.15-$0.40/mile, averaging $0.36.

A few organizations have daily flat rates, or maximum rates (like rental car companies), which range from $35 to $75 on weekdays and from $40 to $85 on weekends.

All organizations charge a one-time application fee of $25-$30, and seven of them require that members pay a refundable security deposit of about $300.

Some organizations offer two or three rate plans with different monthly, hourly, and/or mileage fees depending on frequency of use. One company offers a range of pricing packages – similar to cell phone providers – where members pay a flat fee for a certain number of miles and hours each month.

Recommendations for Madison
We calculate our income projections based on the rates in the box to the right. We will require a security deposit from members in order to encourage member responsibility. These security deposits form an "escrow" account, which will be invested in an interest-bearing account to provide additional business income.

Recommended Carsharing Rates

Deposit	$300
Application Fee	$25
Monthly Fee	$15
Per Hour	$3.75
Per Mile	$0.50

H. Billing System

Interview Findings
All organizations that use a lockbox system also use a trip log that is kept in the glove compartment to record vehicle usage. The trip log is printed on duplicate paper – one copy for the company and one for the member – and includes spaces for the member to fill in start/end date, start/end time, start/end mileage, notes about car, checklist, member number and signature. The staff collects the trip tickets from each car at the end of the month. Billing involves exporting data from the reservation system, adding data from trip tickets, and feeding this into an off-line data system. The member is typically sent an invoice a few days before the charge is billed to their credit cards; a few organizations also allow payment by automatic debit or check.

The "Smart Card" and cell-phone based systems automatically send the user's information to a database when they swipe their card.

Recommendations for Madison
The trip logbooks have worked well for others and should work well for us. We will contact organizations for templates of their forms. A high-tech billing system is not necessary for us at this time.

I. Vehicle Damage and Cleanliness

Interview Findings
Generally it is the member's responsibility to inspect the vehicle and report any damage in the trip log. If unreported damage is found, the member who last used the car is informed. The

member usually pays for minor damage, or pays a deductible for major damage. Two of the large organizations have a $1000 deductible; the member pays the first $500 and the organization pays the second $500. Most other organizations have a $500 deductible for which the member is fully responsible. Some programs require members to pay a security deposit (usually $300) that can be used to cover damage expenses in case the member does not pay.

Vehicle cleanliness is enforced similarly: it is the member's responsibility to return the car as clean as they found it, and to report any mess from the previous user. Some programs charge a fee for cleaning the car. Several interviewees agreed, however, that cleanliness is not much of a problem. A few organizations have rules prohibiting smoking and/or pets.

Recommendations for Madison
We intend to include a section in the member contract regarding vehicle damage and cleanliness. In order to communicate high standards from the start, we will review the contract in detail at every new member orientation session. We will implement a fine for cars that are not returned clean. In the case of vehicle damage, the member will have a choice to either pay for the damage or to pay an insurance deductible (multiple claims may lead to revoked membership).

J. Staffing

Interview Findings
Most interviewees agreed that at first (i.e. starting with five or six cars), one full-time (or even one half-time) person with a cell phone and reservation book can meet all operational and marketing needs. Interviewees estimated that one staff person per 10-15 cars is sufficient. One organization's growth vision calls for 30 cars in five years, ultimately requiring three staff members. However, staff requirements depend on the organization's growth vision; if you plan to expand into more neighborhoods or cities, you will need additional staff for marketing and outreach. On the other hand, marketing can be as simple and cheap as hiring University students in the summer to distribute flyers. At the beginning, all staff responsibilities overlap, and it is a good idea to rotate the job of being on call (someone must be available 24-7).

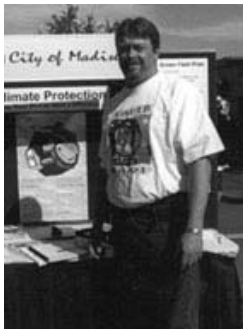
Recommendations for Madison
Launching with five or six cars, we will start with one full-time general manager. We will add a part-time member relations person at about 10 cars. At 15 cars that employee will become full-time. We will add a third, part-time, position at around 20 cars, which will become full-time by 30 cars.


Peter Munoz
City of Madison

K. Partnerships

Interview Findings
Carsharing organizations frequently partner with city or county governments for parking spaces, funding, and/or personnel. Several programs also partner with transit agencies for discounted tickets, parking at transit stations, and marketing. Several carsharing programs partner with car rental companies to give members

discounts for longer trips. Environmental organizations are another attractive partner, for mailing lists, funding and promotions. Only one interviewee reported partnering directly with taxi companies. Other partners include local businesses and property developers, universities and community colleges, air quality organizations, state and federal transportation agencies, housing authorities, towing companies, roof rack companies, food co-ops, and other carsharing organizations for cross-use.



Dave Benzschawel
City of Madison

Recommendations for Madison
We have established a partnership with the City of Madison to build support for the program and to help attain the goals of the City's Climate Change Action Plan. We are partnering with the Wisconsin Department of Natural Resources Air Quality Education Program for outreach funding. We have also established partnerships with environmental and sustainable transportation organizations – Bicycle Federation of Wisconsin, 1000 Friends of Wisconsin, Sustain Dane, Dane Alliance for Rail Transit – for membership lists and as potential funding partners. We are pursuing a partnership with Metro Transit for parking spaces and discounted bus passes. We will also promote carsharing through the neighborhood-based "EcoTeams" program.

L. Vehicle Usage Statistics

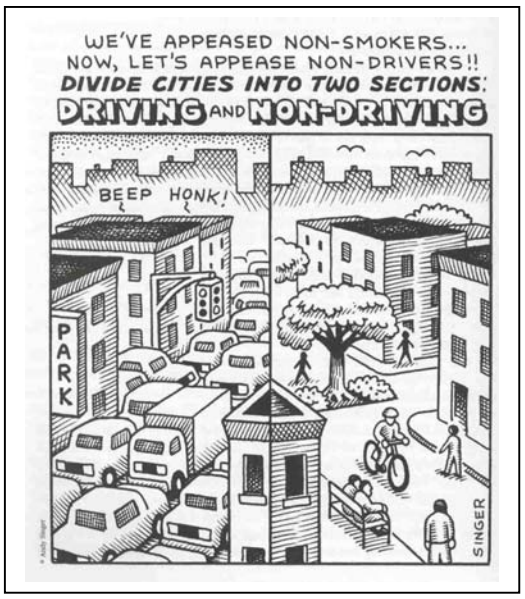
Interview Findings
Generally, carsharing organizations have about 14-20 members per car (ranging from 7 members per car to 50 members per car). When organizations grow to several hundred members, the ratio usually increases to more than 20 members per car.

Most carsharing organizations reported that weekends were their peak usage time, but the smaller organizations seemed to have less clear usage trends than the larger programs. During the weekend, peak times varied throughout the day. Vehicle use on weekdays depended on the location of the cars: some interviewees noted that downtown cars are used most on weekdays while neighborhood cars are used most on weekends. Most organizations agreed that summer is the busiest time of year, and advised adding new cars (and members) in the spring and summer.

Interviewees reported daily car use averages ranging from 3.5 to 8 hours. Average trip distances ranged from 12 to 25 miles. Average miles per car per year ranged from 9600 miles to 16,500 miles.

Recommendations for Madison

We will follow the advice of experienced carsharing leaders, and aim to have the vehicles used at least six hours per day. We plan to market to potential business members, whose employees can use the cars during the day and thereby secure more steady usage throughout the week. We will also aim to ensure that members have access to a car 95% of the time they attempt to reserve it. We will carefully monitor the relative usage of cars in each location, as well as the neighborhoods with greatest numbers of members, and place new cars in strategic locations. We will also emphasize from the beginning that members should try their second and third choice cars if the one closest to them is not available, and encourage them to reserve the car at least 24 hours in advance. We will consider charging a higher hourly rate during peak times and offering discounts during the late night hours.



7. MARKETING


DANE COUNTY'S PROGRESSIVE NEWSPAPER

The Capital Times

The Weekend of Dec. 29-30, 2001 HOME FINAL WEEKENDER

MADISON, WISCONSIN 50 CENTS

Share the fleet

Need a car just occasionally? Don't want to own one? Here's a plan

By Pat Schneider

There have been 10 press pieces about the carsharing feasibility study.

Marketing Completed During Feasibility Study
Since Madison Environmental Group began the carsharing feasibility study in October 2001, there have been seven articles in local print media, one article in a national magazine, and two spots on local television news about the project. We achieved this coverage without soliciting the press, which testifies to the media's attraction to this unique idea.

We have hosted gatherings and events to promote carsharing and to share information about the progress of the feasibility study. These included three gatherings for interested community members between April 2001 and January 2002, and a Car-free Day celebration on the Capitol Lawn on April 25, 2002. The Car-free Day event was covered on the evening news and was attended by the Dane County Executive, a representative from the Mayor's office, and several local environmental leaders.

We have also established partnerships with the City of Madison, Wisconsin Department of Natural Resources, the Bicycle Federation of Wisconsin, and 1000 Friends of Wisconsin, to build awareness of our efforts to bring carsharing to Madison.

Target Audience
In order to obtain a membership base that is geographically concentrated near the locations of the carsharing vehicles, we will focus our marketing efforts within the target neighborhoods (identified in Section 2 – Neighborhood Assessment). Our primary target audience will include residents of these areas who drive infrequently, as well as downtown employers who can offer the service to their employees in order to help meet their transportation demand management (TDM) goals. Market survey results demonstrated that likely and potential joiners tend to be somewhat younger (average age 38), childless (86%), and students (28%) compared to the rest of the random sample. Therefore, our primary target audience will also include graduate students (age 25 and over) and people without children. Our secondary market will include families who may use carsharing as a substitute for a second car.


We host events such as this Car-Free Day picnic to promote carsharing.

Proposed Marketing Strategies
We consider press coverage to be the most potent and credible strategy for marketing to our target population. We will distribute regular press releases to the print and televised news media, and continue to promote newsworthy events and stories. In the spring of 2003, we will involve voluntary Madison residents in a two-week "Car-free Challenge" and promote the participants'

experiences to the media. This event will coincide with the potential launch of the carsharing company and National Car-free Day.

We will use the partnerships we have developed to market carsharing through existing networks of people interested in environmental / sustainability issues. These include the membership lists of the Bicycle Federation of Wisconsin, 1000 Friends of Wisconsin, Dane Alliance for Rail Transit, Sustain Dane, EcoTeams, the Willy Street Grocery Co-op (10,000 members) and the University of Wisconsin Institute for Environmental Studies. Neighborhood associations and "EcoTeams" will provide additional effective networks for reaching potential members.

We will create attention-grabbing and descriptive brochures and postcards. We will send one postcard mailing per year to all households within the target area (as defined in Section 2 – Neighborhood Assessment). We also plan to purchase about 15 advertisements per year, in local newspapers and magazines, on the radio, and on the side of Metro buses. The marketing products of established carsharing organizations provide useful examples.

In addition to printed marketing products and advertisements, we recognize the importance of personal contact and conversation to promote a new concept like carsharing. We will consider staffing an information booth at the Saturday Farmer's Market, as well as at special events such as Earth Day, Bike to Work Week, and the City-sponsored Energy Efficiency Fair.

8. ORGANIZATIONAL GROWTH SCENARIOS AND BUDGET

The carsharing market survey results indicate that there may be as many as 984 likely joiners plus 3,688 potential joiners in the focus neighborhoods of Madison. We devised two scenarios, which we used to calculate the carsharing budget for the first five years of operations:

- Scenario 1: Grow to 38 cars and 750 members in five years (150 members / year)
- Scenario 2: Grow to 25 cars and 500 members in five years (100 members / year)

We estimated the number of new members needed each month for each scenario (generally more members would be expected in the spring and summer months than the winter and fall), and we indicated approximately when additional cars would be added to the fleet (based on a starting ratio of about 10 members/car, which steadily grows to 20 members/car by about 250 members).

Income
We calculated total business income to include income in three categories: vehicle use income (per hour and per mile), monthly membership fee, and one-time application fee. The security deposits – $300 per member – are not considered income, since they must be returned to people who terminate their memberships. The security deposits will be invested in an interest bearing "escrow" account.

We based income calculations on vehicle usage rates of $3.75 per hour and $0.50 per mile, a monthly membership fee of $15.00, a one-time application fee of $25.00, and a security deposit of $300.00.

In order to calculate vehicle use income, we needed an estimate of daily car use, which of course depends on the number of members. Based on statistics provided by eight carsharing organizations, we calculated average hourly and mileage use per member per day.

Expenses
We considered two categories of business expenses: fixed expenses (which remain constant year to year as the business grows) and variable expenses (vehicle-related expenses, which grow as the fleet of cars grows). Fixed expenses include: labor, marketing, office expenses, professional development, professional services, and travel / meals. Variable expenses include: vehicle insurance, vehicle leasing, parking, accessibility (lockbox) system, maintenance, and gas.

Results
Based on our detailed budget calculations, scenario 1 (150 new members per year) realized a profit in the fourth year of operation. Scenario 2 (100 new members per year) was profitable by the fifth year of operation.

9. CONCLUSIONS

This study provides quantitative and qualitative indicators that a carsharing company is feasible and will be a success in Madison.

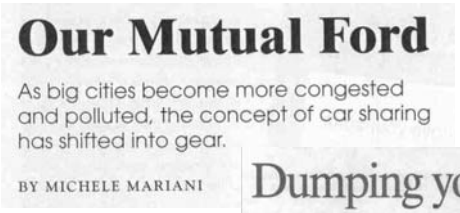
Results of the market survey offer a concrete estimate of the number of potential carsharing members within the target neighborhoods of Madison: 984 likely joiners plus 3,688 potential joiners, for a total market potential of 4,672 prospective members.

We are confident that Madison – with more than 200 environmental nonprofits and businesses, and a population that enthusiastically embraces progressive ideas – is going to provide an ample market for carsharing. The focus groups introduced us to several community-minded and environmentally aware citizens of Madison, who shared their enthusiasm and insights with us. These individuals represent the core group of likely members, who will educate their friends and colleagues about carsharing.

We have gained a wealth of qualitative information and insight into how to operate a carsharing program from in-depth interviews with leaders of North American carsharing organizations. Our established relationships with several of these industry leaders, as well as our local partnerships with the City of Madison and environmental organizations, will support the carsharing program as it launches and expands.

We predict that the carsharing organization will be profitable by the fourth year of operation if 150 new members join each year. Given that there may be as many as 4,672 potential members in the target area, this growth vision is entirely realistic. If we are more conservative and predict adding 100 new members each year, then we can still expect the program to be financially self-sustaining by the fifth year of operation.

Finally, media attention is a strong indicator that carsharing will succeed in Madison. The feasibility study alone generated 10 press pieces, so we expect substantial media response when the actual carsharing program is launched. The press coverage will provide free and effective advertising to build awareness of this new transportation option for the Madison community.



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Wood, Wilson (Vrtucar, Ottawa, ON)
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Car-toons (p.12 and p.35) by Andy Singer.
Photograph of feasibility study authors (p.4 and p.41) taken by Eric Goodman.
All other photographs in this report were taken by Sonya Newenhouse and Rebecca Grossberg.