

Carsharing in Rural Areas

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What is Carsharing?

Carsharing is a transportation model where individuals have access to a fleet of vehicles on a short-term basis. Instead of owning a car, people can rent vehicles for short periods, typically by the hour or minute, and only pay for the time they use the vehicle and the distance they travel. Carsharing is one of the shared mobility models.¹



Source: INVERS, inventor of automated vehicle sharing, enables mobility service providers to launch, operate and scale their offerings with integrated hardware and software solutions specifically designed for developers of shared mobility services.
<https://invers.com/en/press-releases/5-shared-mobility-trends-for-2021/>

While car sharing has been around since the 1940s, it has gained much popularity in the past decade with the availability of smartphones. Carsharing in the U.S. has evolved significantly since its introduction in the early 2000s.² Carsharing is facilitated through membership-based services or mobile applications that allow users to locate and reserve vehicles. Companies like Zipcar and Car2Go pioneered the industry, introducing the concept of on-demand, short-term vehicle access.

History of Carsharing

The earliest example of carsharing in North America began at Purdue University in 1983. University researchers developed Mobility Enterprise, which encouraged participants to use smaller, more fuel-efficient vehicles, and discouraged the purchase of additional personal vehicles. While researchers considered the program a success in promoting shared use, it ran for only 3 years because it was deployed as a research experiment. During the same time, in San Francisco the Short-Term Auto Rental Service (STAR) was established by a private firm as a demonstration project at a large apartment complex, where residents had access to a fleet of 51 shared vehicles. Members were charged a low rate per minute and mile of use for short trips, as well as a low daily rate for longer trips. STAR set the rates low in order to discourage auto ownership and encourage transit use. The program was initially designed to operate for three years but failed halfway through.

The two pilot projects of the mid-1980s, while short lived due to economic considerations, were able to attract numerous members. Following these early programs, a number of carsharing organizations (CSOs) were founded in the early 1990s, and have been able to maintain long term status due to stronger operational and business models. As of 2005, 32 North American cities are serviced by 28

carsharing organizations. These 28 CSOs have a combined total of over 70,000 members and 1,400 vehicles. The industry has witnessed substantial growth, with both established players and new entrants expanding their services to meet the growing demand for flexible and sustainable transportation options.³

Need for Carsharing in Rural Areas

Rural areas face unique challenges when it comes to transportation. Car access is practically a necessity to get around in rural areas of the U.S. Yet approximately 4% of rural residents or 4.3 million people do not have a car. Sparse population density limited public transportation options, and long distances between destinations make owning a personal vehicle almost a necessity. Unfortunately, not everyone in rural communities can afford the expenses associated with car ownership, including maintenance, insurance, and fuel costs. This gap in transportation accessibility creates barriers for individuals who don't own a car, particularly affecting the elderly, low-income families, and those without a driver's license. Rural car sharing emerges as a solution to bridge this gap and enhance mobility for all residents.⁴

The concept of carsharing has gained immense popularity in urban areas, providing a sustainable and cost-effective alternative to traditional car ownership. However, the benefits of car sharing aren't limited to metropolitan regions. Rural communities, often overlooked in the discussions around shared mobility, can also reap significant advantages from embracing rural car sharing services. In rural areas with limited public transportation options, round-trip car sharing models have gained popularity. Companies like Enterprise CarShare and local initiatives deploy vehicles strategically in small towns, allowing residents to access a vehicle for short-duration trips, errands, or family outings. Some rural communities have taken matters into their own hands by establishing community-driven car-sharing programs. These initiatives often involve partnerships with local businesses, churches, or community centers to host shared vehicles, making transportation more accessible for residents who may not own a car. Some successful carsharing initiatives include:

University-initiated programs: Rural areas with universities or educational institutions have witnessed the emergence of university-initiated car-sharing programs. These programs cater to students, faculty, and local residents, creating a shared mobility ecosystem that benefits both the academic community and the broader rural population.

Regional transportation partnerships: Regional partnerships between transportation agencies, local governments, and carsharing providers have been established in some rural areas. These collaborations aim to address gaps in transportation infrastructure and improve overall mobility for residents through shared vehicles strategically located in key areas.

Hybrid models with public transit: Rural regions have experimented with hybrid models that integrate carsharing with existing public transit services. This combination offers residents a seamless and comprehensive transportation solution, combining the flexibility of shared vehicles with the coverage of traditional transit routes.

Tourism-focused carsharing: Rural areas with tourist attractions have implemented carsharing programs tailored to the needs of visitors. These initiatives provide tourists with access to shared vehicles, promoting sustainable tourism practices and reducing the environmental impact of private car rentals.

Collaboration with nonprofits: Carsharing initiatives in rural America often collaborate with nonprofit organizations to extend their reach. Nonprofits may subsidize or support car-sharing services to ensure that vulnerable populations, such as seniors or low-income individuals, have access to reliable transportation.

Adoption of electric vehicles: Some rural car-sharing programs prioritize sustainability by incorporating electric vehicles into their fleets. This aligns with broader national goals of reducing carbon emissions and promoting environmentally friendly transportation options.

Two different organizational models of carsharing are identified: fleet-based services and peer-to-peer networks. Fleet-based carsharing can be round-trip or one-way. The one-way service requires that the users keep the vehicle within a defined zone. Peer-to-peer was defined as, “match ordinary individuals interested in renting their cars with willing renters.” The company overseeing the peer-to-peer renting of the vehicle serves as “matchmaker,” independent insurance agent, and 24-hour roadside support.⁵

Approaches to Start Carsharing in Rural Areas

When transportation facilities are inadequate or non-existent, and if there is a use case for a carsharing service to potentially meet a specific rural community’s mobility needs, carsharing services should be considered on a small scale, even with just a few cars. Some approaches to promote carshare program when it is appropriate for rural communities could include, when funding is available:⁶

- 1) Subsidized carshare program: Subsidize a carshare program by waiving certain user costs (such as a sign-up fee or membership fee) and subsidize hourly rates to make the carshare program affordable and attractive for rural residents.
- 2) Operational carshare program regardless of demand: Guarantee a monthly minimum payment for carshare service providers regardless of usage so they can generate sufficient revenue to keep the services operational.
- 3) Engage community partners: Partner with local agencies and/or businesses to a) rent/accept parking spots in parking lots/facilities to park carshare vehicles in strategic locations in the community to attract users, b) set-up kiosks for users without access to smartphones or computers to create user accounts and make reservations, c) generate payroll debit cards or other relevant strategies for users without bank accounts to help pay for and use the carshare service, and d) perform regular maintenance activities.

Carsharing services in the U.S. employ diverse business models, including round-trip, one-way, and peer-to-peer models. This variety allows users to choose services that align with their specific needs, from short city trips to longer journeys. The regulatory environment for car sharing varies across states and cities. Some regions have embraced carsharing as a valuable component of transportation, while others are still adapting to the evolving mobility landscape. The regulatory framework influences the growth and operations of carsharing services.

Diverse carsharing business models include:

Corporate Carsharing Programs: Many businesses in the U.S. have embraced carsharing as part of their corporate mobility strategies. Corporate car sharing programs provide employees with convenient access to vehicles for work-related travel, promoting efficiency and sustainability.

Integration with Public Transit: Carsharing complements public transit systems, offering a seamless solution for the "last mile" challenge. Integration with transit services encourages a multimodal approach to transportation, providing users with flexibility and convenience.

Advancements in Technology: Technology plays a pivotal role in the success of carsharing in the U.S. Advanced mobile applications enable users to locate, reserve, and unlock vehicles with ease. Real-time tracking, electronic key access, and payment integration contribute to a streamlined user experience.

Environmental Sustainability: Carsharing contributes to environmental sustainability by reducing the overall number of vehicles on the road. Many carsharing fleets in the U.S. include fuel-efficient and electric vehicles, aligning with the nation's push towards cleaner and greener transportation options.

Car ownership vs Carsharing

The choice between car ownership and car sharing is a complex decision influenced by lifestyle, financial considerations, environmental consciousness, and urban dynamics. Both models offer unique advantages and challenges, and as technology and societal attitudes continue to evolve, the balance between these two approaches to mobility is likely to shift, reshaping the way we move from one place to another in the years to come. The table below shows the breakdown of carsharing vs car ownership in relation to convenience, fixed charges, time charges and mileage charges.

	Carsharing	Private Ownership
Convenience	Medium	High
Fixed Charges	\$100/yr	\$2,000-4,000/yr
Time Charges	\$1.50/hour	None
Mileage Charges	20-40¢	10-15¢

Car ownership vs Carsharing				
Category	Car ownership		Carsharing	
	PROS	CONS	PROS	CONS
Cost considerations	Ownership provides a sense of autonomy and convenience, allowing individuals to	High upfront costs, ongoing expenses for maintenance, insurance, fuel, and depreciation can make car ownership a	Car sharing offers a more cost-effective alternative, especially for those who don't require a vehicle daily. Users pay only for the	While cost-effective for occasional users, frequent users may find that cumulative car-sharing costs approach or exceed

Car ownership vs Carsharing				
Category	Car ownership		Carsharing	
	PROS	CONS	PROS	CONS
	have a vehicle readily available at all times.	significant financial commitment.	time they use the vehicle, eliminating ownership-related costs.	traditional ownership costs.
Flexibility and Convenience	Offers unparalleled flexibility, allowing owners to customize their vehicles, travel at any time, and undertake spontaneous trips.	Requires responsibility for maintenance, parking, and associated tasks, and may not be cost-effective for individuals with sporadic transportation needs.	Provides on-demand access without the hassles of ownership, making it a convenient option for those who do not need a vehicle regularly.	May have limitations on spontaneity, and availability could be an issue during peak hours or in certain locations.
Community and Social Aspects	Represents a personal asset and status symbol, offering a sense of ownership and identity.	Can lead to individual isolation as more people opt for private transportation, reducing opportunities for community interaction.	Encourages a sharing economy, fostering a sense of community and reducing the need for extensive personal ownership.	The social aspects may vary depending on the cultural acceptance of shared mobility.
Environmental Impact	Individuals can choose environmentally friendly vehicles, but the overall impact depends on the choices of millions of individual owners.	The proliferation of privately owned vehicles contributes to traffic congestion, increased carbon emissions, and resource-intensive manufacturing processes.	Car sharing reduces the overall number of vehicles on the road, promoting resource efficiency and decreasing emissions. Many car-sharing services integrate eco-friendly vehicle options.	The environmental benefits hinge on the adoption rate and the sustainability practices of the car-sharing providers.
Traffic Management	Offers individual convenience but contributes to the need for extensive parking infrastructure and exacerbates traffic congestion.	The space required for parking and the increasing number of private vehicles strain urban infrastructure.	Shared vehicles contribute to optimized parking space usage and help alleviate traffic congestion by reducing the number of private cars on the road.	Depending on the popularity of car sharing, high demand during peak hours could lead to challenges in availability.

Benefits of Rural Carsharing

Carsharing is premised on the concept of vehicle access versus vehicle ownership, by offering individuals the benefits of private cars without the cost and responsibilities of ownership. Carsharing is also based on the idea that the number of vehicles that is needed to meet the demand of a group of individuals is less when they share vehicles than when each individual owns a private vehicle. Benefits are:

- Rural carsharing allows community members to access vehicles on a need-basis without the financial burden of ownership. Users pay only for the time they use the vehicle, making it a cost-effective solution for occasional or short-distance trips.
- Enhances connectivity by providing a shared resource that can be easily accessed by multiple residents. Fosters a sense of community as neighbors collaborate to optimize the use of shared vehicles.
- Reduces the overall number of vehicles on the road, contributing to lower carbon emissions and environmental conservation. Encourages the use of fuel-efficient and eco-friendly vehicles within the shared fleet.
- Benefits individuals without access to personal transportation, such as the elderly, youth, and those with limited financial means. Promotes inclusivity by ensuring that everyone in the community has access to essential services and opportunities.
- Offers flexibility in scheduling, allowing users to book vehicles when needed, eliminating the need for constant vehicle ownership.

Challenges and Solutions

While rural car sharing presents numerous benefits, challenges such as limited infrastructure, awareness, and acceptance may arise. Rural residents may find the cost for carsharing services expensive (considering sign-up fee, monthly subscription fee, and rental fee), and carshare service providers may not generate significant revenue from rural operations. Insurance also proved to be a problem for entities attempting to enter the carsharing business. This may suggest that when considering small and rural communities, the scale of such communities may make implementation of new mobility options in the rural context problematic, as the cost of insurance may prohibit some otherwise good opportunities from flourishing.

Many cite low ridership potential in rural areas as reasons for not operating in small urban and more rural environments. Communication between riders and ride providers, enabled through technology, has made transportation network companies successful. Yet, this in-and-of-itself is a big hurdle in rural America, where cell phone reception that would enable this communication to occur is inconsistent at best.

Challenges such as parking availability, competition with ridesharing services, and regulatory hurdles persist. However, these challenges also present opportunities for innovation, collaboration, and the development of more sustainable transportation solutions. As these services continue to evolve, the collaboration between local communities, service providers, and policymakers will play a pivotal role in

shaping the future of rural transportation. Solutions involve community engagement, targeted education campaigns, and collaboration with local authorities to address infrastructure gaps.

Innovations in Technology

The integration of technology in carsharing platforms has further enhanced their sustainability. Advanced mobile applications facilitate seamless booking, real-time tracking, payment options and efficient fleet management. Additionally, smart technologies contribute to data-driven insights, optimizing routes and reducing unnecessary vehicle movements, ultimately minimizing environmental impact.

As technology continues to advance, rural areas are witnessing a transformation in mobility that goes beyond traditional transportation models. The integration of shared mobility, technology, and innovative partnerships is unlocking new opportunities, fostering community resilience, and ensuring that rural residents have access to efficient and sustainable transportation solutions tailored to their unique needs. The future of rural mobility is bright, promising enhanced connectivity, economic empowerment, and a more sustainable way of living.

Case Studies

The first two case studies are fleet-based examples, and the last two case studies are peer-to-peer examples.

Case study #1: Dancing Rabbit Vehicle Cooperative (DRVC), Rutledge, Missouri

Dancing Rabbit Ecovillage located in Rutledge, Missouri is a collection of passionate people experimenting with ways toward an ambitious mission and vision of ecologically sustainable living.⁷

DRVC, is the means of transportation for all Dancing Rabbit members and long-term residents. Dancing Rabbit members can have the flexibility and convenience of an automobile without having to own a private car. The DRVC, along with the few other carsharing groups operating in North America, is a model for how our culture can greatly reduce consumption of resources devoted to automobiles without sacrificing the benefits they provide.

Currently, DRVC has over 60 members and 4 vehicles. DRVC membership is open to all, although the group is formed primarily for the use of residents of Dancing Rabbit ecovillage. Vehicles are signed out on a per-use basis and DRVC members are charged according to the mileage they use. The DRVC long-distance vehicle rental option includes Kansas City, Saint Louis, Jefferson City, Des Moines and Springfield within its radius.⁸

DRVC also collectively uses a vehicle for emergency purposes which are defined as: someone at Dancing Rabbit and/or a DRVC member having an issue that needs urgent medical attention or emergency medical care, either physical or mental in nature; called in for emergency fire as one of the residents is the emergency contact; and midwives called to a birth.



Source: Dancing Rabbit Vehicle Cooperative

<https://www.dancingrabbit.org/ecovillage-life/eco-living/alternative-energy/sustainable-transportation/>

Case Study #2: City of Aspen Car To Go, Aspen, Colorado

City of Aspen Car To Go started in 2001. Car To Go provides its members with all the perks of car ownership with no hassles. Members share a fleet of hybrid and electric vehicles, dramatically reducing their costs. Car To Go members pay a monthly membership fee as well as an hourly fee and a per mile rate plus tax that varies based on the selected vehicle. Gas, maintenance, roadside assistance, and insurance are all included in the rate. Members access the program through an online reservation system and lock box keys.⁹

The goals include providing alternative ways to get around, reducing the necessity for car ownership, and contributing to reducing single occupancy vehicles in Aspen. Currently, Car To Go has 260 members with 9 Vehicles: 8 hybrid and 1 electric. Membership includes 1/3rd seasonal second homeowners, 1/3rd corporate accounts, and 1/3rd locals. Car To Go members receive discounts on car rentals from the corporate partners.

EVs have limited range, so program boundaries are restricted, and members are required to plug vehicle in upon return.¹⁰



Source: City of Aspen Car to go locations map
<https://aspen.gov/262/Vehicles>

Case Study # 3: GoGallatin, Bozeman, Montana

GoGallatin started as a pedestrian/bicycle platform in 2017/2018 timeframe to serve Bozeman area. In 2020, the program got rebranded to serve the entire valley, to cover the popular Big Sky ski resort area. Eventually the program started to connect larger employers and ski resorts. GoGallatin also supports vanpooling and ridesharing to ski areas. The rides are scheduled at <https://gogallatin.org/#/> and a login is required.¹¹

There are two options this resource can help with finding rides. The first option is the local businesses set up private carshare for their employees where the rides can be matched, and the second option is a public access where anyone can match rides with anyone.¹²

The screenshot displays the GoGallatin app interface. On the left, there is a form for creating a trip. It includes fields for origin (A: 2327 University Way, Bozeman, Montana, 597) and destination (B: Big Sky Area). The 'Schedule' section has a checked option for 'This is my Commute' and a 'Set as a One Time Trip' option. Below this, there are fields for 'I start work at' and 'and end at', and a 'ON THESE DAYS OF THE WEEK' selector with buttons for SUN, MON, TUE, WED, THU, FRI, and SAT. A 'Flexible Hours?' checkbox is also present. The 'Commute Interest' section includes a checked 'Carpool' option, a 'Bikepool' checkbox, and a 'Walkpool' checkbox. There are also checkboxes for 'Transitpool' and 'Bikepool'. Below these are text boxes for 'Optional details specific to this trip'. The 'Additional Options' section has a 'Share this trip with' dropdown set to 'Everyone' and an 'I prefer to commute with' dropdown. A note states: 'This commute/trip will show as a potential match for all GoGallatin users. Your public profile will be visible.' At the bottom of the form are 'CANCEL' and 'SAVE' buttons. On the right, a map view shows two trip cards. The first card is for 'rosie' from 'SPIRE CLIMBING CENTER' with a schedule of 09:00 AM & 05:00 PM and a 'CONNECT' button. The second card is for 'Nicole' from 'ENTERPRISE BLVD, BOZEMAN, MONTANA, 59718' with a schedule of 09:00 AM & 04:00 PM and a 'CONNECT' button. A note at the bottom of the map view says 'You and Nicole are both members of: Big Sky Resort'.

Source: Route map with additional options
<https://gogallatin.org/#/>

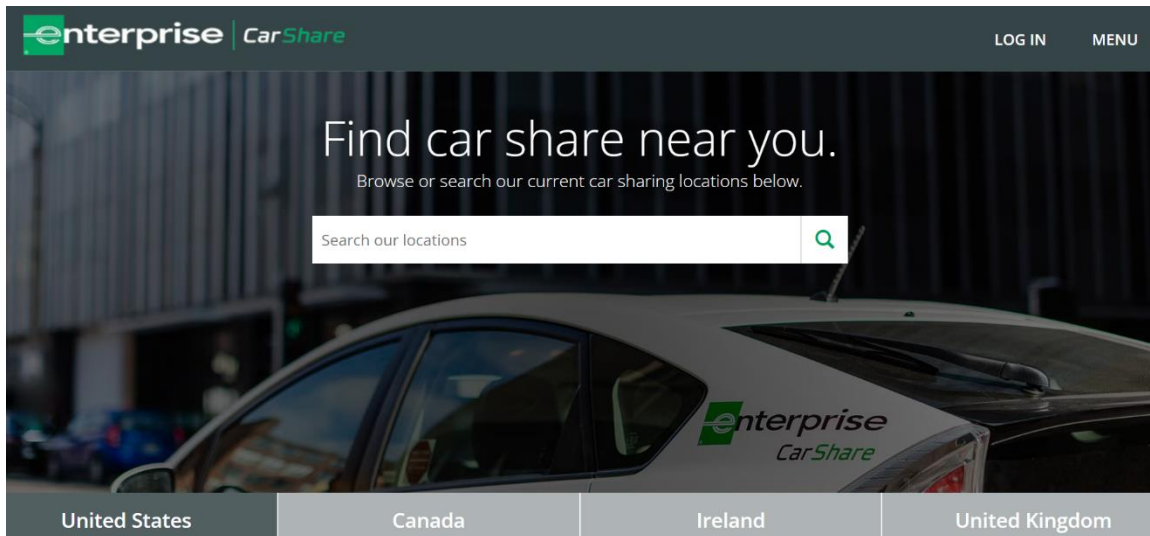
Guaranteed ride home programs for Montana State University employees and the City of Bozeman are very successful. Monthly incentives are offered for commuters who travel between the City of Bozeman and Big Sky. There are several promotional challenges that are offered to support sustainable transportation.



Big Sky one less car: Year-round, carpool with a coworker or friend, ride the bus, or take a vanpool 4 days per month, log the trip, and get a \$30 gift card from a local Gallatin Valley business each month. Ride Together, Shred Forever: Big Sky Resort & GoGallatin's season long sustainable transportation challenge offers prizes for rides that reduce traffic and help the environment. Briger bowl: All season long, carpool or ride the bus, log the trips and get a chance to win a \$500 Big Sky gift card.

Case Study # 4: Enterprise Carshare

Enterprise CarShare is an automated way to rent a vehicle by the hour, the day, or overnight. A variety of makes and models are parked in a community and are accessible 24/7. Carsharing allows authorized customers automated access to on-site vehicles anytime they need them. Automated vehicle technology allows customers to scan into the vehicle they need and go.¹³



Source: Enterprise CarShare

<https://www.enterprise-carshare.com/us/en/home.html>

Enterprise CarShare has been successful at various college towns in the country. The college carsharing program gives college student 24/7 access to cars for the times they need to go off campus. They can schedule a car anytime to get groceries, visit friends, or head to work or a job interview. It complements other transportation solutions to meet mobility needs. Car damage/liability protection and pre-paid fuel cards are offered as well.

Some small cities and rural communities might have some benefits from considering a similar private carshare program that are similar to university and college campuses. Small communities, like college campuses, may have a small number of central locations where carshare could be accessed by many people. Also, campuses often tend to function as a smaller community within the municipality or region where they are located; similarly, residents of small communities often have to complete some trips within the small community and others in the larger region or a neighboring community in order to access job sites, goods, and services. Where there are households that have more driving-age residents than reliable cars, carshare might be part of the suite of solutions to meet everyone's mobility needs.¹⁴

Conclusion

Rural carsharing is more than a transportation solution; it can be a catalyst for positive community change. Carsharing maximizes the utilization of existing resources by allowing multiple users to access a shared vehicle. This optimizes the use of each vehicle, reducing the need for manufacturing new cars and minimizing the environmental impact associated with vehicle production and disposal. It aligns with the principles of a circular economy, promoting resource efficiency and reducing waste.

Carsharing provides an economically viable alternative to traditional car ownership. Users can access vehicles on a pay-as-you-go basis, eliminating the financial burden associated with purchasing, maintaining, and insuring a private vehicle. This affordability factor makes sustainable transportation options accessible to a broader demographic, contributing to social equity.

Carsharing has become a transformative force in U.S. transportation, offering a flexible, cost-effective, and sustainable alternative to traditional car ownership. As the industry continues to evolve, addressing challenges and capitalizing on opportunities, carsharing is poised to play a pivotal role in shaping the future of mobility in the United States.

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