

# mobility and more

## Vehicle Modification Guide (Part 1)

As the adapted-vehicle industry has evolved over the years, people have tried to modify every type of vehicle possible. Most cars, station wagons, pickup trucks, sport-utility vehicles (SUVs), vans, and minivans can be transformed within limits, but not all adaptations are compatible with all vehicles. The following tips may help you choose the most appropriate vehicle and adaptations given your particular situation.

### Choosing a Vehicle

Individual circumstances, objectives, and priorities influence what can and should be done to accommodate each scenario. Make sure you can get in and out of the vehicle, and the wheelchair or scooter can be stowed. Sometimes things you can't anticipate will make getting in and out difficult. The best way to be sure is to test the vehicle before you purchase it. Keep in mind that installing hand controls or other devices will take away at least a little space.

Generally, someone who wants to remain seated in a wheelchair while in a vehicle will need a van or a minivan with a lowered floor and ramp. Most people sitting in a wheelchair are 50-some inches tall. The average minivan without modifications, for example, is 48 inches from floor to ceiling.

Some exceptions are modified PT Cruisers, Honda Elements, and Scions. Also, you can get a small person, perhaps a child, in a small wheelchair into a standard minivan.

Basic vehicle adaptations are grouped in three categories.

- Transport provides access to a vehicle for people with disabilities to ride

as passengers. This category includes modifications such as wheelchair lifts, ramps, lowered floor, raised top and doors, and adapted seating.

- Conversion for drivers with disabilities includes adaptations for people with disabilities to drive safely and independently. From a simple steering knob to a high-tech, computer-assisted hand control, almost any disability can be addressed.

- The third includes devices that assist in loading an unoccupied wheelchair or scooter into a vehicle. Depending on the vehicle size and the mobility aid, devices will lift an unoccupied scooter or wheelchair into or onto a platform behind a sedan, van, truck, or SUV. Be aware that not all wheelchairs and scooters are compatible with all vehicles.

### Cars, Station Wagons, Trucks, and SUVs

Most driving controls can be installed in cars, station wagons, trucks, and SUVs. A few seats can be adapted, especially on SUVs, but most cannot. Trucks and SUVs often are so high off the ground they are difficult to get in and out of.

Scooters and manual folding wheelchairs can be carried on devices in or on all vehicle types, as long as the vehicle has sufficient weight-carrying capacity. The size of power wheelchairs presents a problem if you want to carry them outside a smaller vehicle. These chairs typically have high backs and weigh about 300 lb. The carrying device on the back of the car weighs about 100 lb. With 400 lb on the back of the car, the car front tends to rise.

For years, full-size vans have been adapted for people with disabilities. Full- and mid-size vans are compatible with all driving adaptations and can transport a person seated in a wheelchair. To allow for sufficient entry height and headroom

within the vehicle, these vans often have raised roofs and doors or lowered floors. To allow wheelchair access, a lift and manual or electric tie-downs are installed. Full-size and mid-size vans can provide plenty of room for passengers and equipment. For tall or large people, a full-size van is sometimes the best option.

### Full-size Vans

Adaptive conversions can be done on Ford, Chevy, and Dodge full-size vans and to a limited extent the Chevy Astro/GMC Safari and VW Eurovan mid-size vans. Lifts can be installed in the vehicle's rear or side. Some can be placed under the vehicle when not in use, while others stow inside the van.

**Cost:** The cost of adapting a full-size van ranges from \$5,000 for a lift and tie-downs to more than \$30,000 for a van with a raised roof and doors or lowered floor and other significant modifications.

**Pros:** A full-size van has enough room to accommodate passengers, luggage, equipment...you name it. Many people believe these vans are more durable than any of the minis.

**Cons:** Size can be an issue—not everyone wants to drive a large van. In some instances, it can be a challenge to enter and exit for family members who do not have disabilities but do have some physical limitations. Additionally, lower fuel efficiency may make the cost higher over the long term. Garaging may be an issue, depending on your home. These concerns exist but are not as great with the Astro or Euro vans.

### Minivans

In a side-entry, lowered-floor minivan, the floor has been lowered about ten inches from the firewall (engine partition) to the rear seat. Entry is from the vehicle's passenger side. Wheelchair seating is available in the driver's seat, front passenger

seat, and center section. One button operates the door, the ramp deploys, and the vehicle lowers or “kneels” to the ground.

Typically, a power ramp is installed as well as manual or automatic wheelchair tie-downs. The goal of the lowered-floor minivan is to provide the convenience of adequate headroom and ease of access to the vehicle. Conversions are available on the Chrysler Town and

**Cost:** The basic conversion including lowered floor, powered door and ramp, and wheelchair tie-down is about \$17,000.

### Rear-entry Minivans

A rear-entry, lowered-floor minivan has had the floor lowered approximately 10 inches from the rear hatch to just behind the front seats. Seating for two wheel-

cated, lighter, and more compact than a wheelchair lift.

**Cons:** Wheelchair cannot be secured in front passenger or driver position; rear seat must be removed; because more modifications are required to adapt a minivan, it usually costs more than a full-size van with the same capabilities.

**Cost:** The basic conversion including lowered floor, powered door and ramp, and wheelchair tie-down is about \$16,000.

### Scooter and Wheelchair Lifts

Some people with disabilities can walk short distances. Others may be transporting someone, perhaps a child or spouse. In these situations, getting the person in and out of the vehicle is less of an issue than transporting the wheelchair, power chair, or scooter.

A lift will elevate the mobility device and allow a person to easily stow it in the trunk of a large sedan, or rear of a minivan, van, SUV, or pickup truck. These trunk lifts accommodate scooters and power chairs that weigh up to 400 lb.

**Cost:** About \$1,000–\$3,500, installed. These can be used in conjunction with adaptive seating to provide a more comprehensive solution.

**Pros:** Inexpensive, easy to use, and fits a wide range of vehicles and mobility devices; minimal modifications are required for vehicle.

**Cons:** Takes up room in the trunk or van when not in use; use limited to situations in which the person can walk short distances and transfer into a car seat or be lifted and placed in the vehicle seat.

Part 2 will provide an overview of adaptive seating, driving aids, wheelchair lifts, wheelchair/scooter tie-downs, and funding sources.

**Contact:** Performance Vans, Inc., 1549 Gateway Blvd., Woodbury, N.J. 08096 / (856) 848-3470. ■



People sitting in wheelchairs can get into minivans with modifications, such as a side-entry and lowered-floor.

Country, Dodge Grand Caravan, Ford Windstar, Ford Freestar, Chevy Venture, Pontiac Montana, and Toyota Sienna.

**Pros:** Wheelchair can be secured in the front passenger position, a desirable feature for many people; appropriate for transport or conversion for a driver with disabilities; multiple wheelchair positions are possible; will fit in most garages; similar in size and feel to regular sedan; ramp is less complicated, lighter, and more compact than a wheelchair lift.

**Cons:** Because more modifications are required to adapt a minivan, it usually costs more than a full-size van with the same capabilities.

chairs is available in this area but not in the driver or passenger seat areas. Features such as the vehicle lowering to the ground, the power ramp, and power tie-downs are similar to those in a side-entry, lowered-floor minivan. Conversions are available on the Chrysler Town and Country, Dodge Grand Caravan, Ford Windstar, Ford Freestar, Chevy Venture, and Pontiac Montana.

**Pros:** Appropriate for transport; two wheelchair positions are possible; will fit in most garages; rear entry door will not be blocked by other vehicles in parking lots; similar in size and feel to regular sedan; ramp is less compli-