

Breaking New Ground Technical Report

Accessing Horses and Horse-Drawn Vehicles

Michelle C. Newman
Technical Writer
and Farrier

William E. Field
Professor
Purdue University

Sherri McCormick
Director
THE CHAPS Program

Introduction

“Dashing through the snow; In a one-horse open sleigh.” Haven’t we all, at one time or another, wished to be in a bright red sleigh gliding over a snow-covered field, or in a covered wagon heading toward the next camp site on our way west?

Animal-drawn vehicles have been the primary means of transporting goods and people for much of history. In many parts of the world, these vehicles are still widely used because of inadequate roads, terrain, or lack of fuel for motorized vehicles (*Fig. 1*).

For some, including the Old Order Amish and Mennonites, the use of horse drawn vehicles and equipment is a statement of faith and a reflection of their desire to live a simple life and remain connected with the past and the earth.

For more than 75 years, automobiles and motorized equipment have pushed the horse aside, but an increasing number of people are returning to horses and horse drawn vehicles, as forms of recreation.



Figure 1. People in developing countries use horses for power because tractors are too expensive.

In fact, in some locations, there are now more horses than there were at the turn of the century. With the increase in the number of horses and horse-related activities, there has been a corresponding increase in the interest to make horses and horse-drawn vehicles more accessible to individuals with disabilities. This is clearly reflected in the dramatic increase in the number of therapy programs involving horses. The North American Riding for the Handicapped Association (NARHA) now recognizes over 500 registered therapeutic riding and driving programs.

The purpose of this Plowshares will be to explore safe and cost-effective approaches to enable people with disabilities to utilize horses and horse-drawn vehicles, whether for pleasure or therapy, or for work-related purposes. The information has been drawn from a number of sources and the experiences gained through operation of Therapy, Health and Education through Children and Horses As Partners program (THE CHAPS) which provides children with disabilities the opportunity to participate in horseback riding and driving activities as a form of recreational therapy. THE CHAPS is associated with the Breaking New Ground Resource Center and the Agricultural and Biological Engineering Department at Purdue University, West Lafayette, IN.

Accessing Horses or Horse-Drawn Vehicles Used for Therapy or Pleasure

A substantial body of knowledge supports the utilization of animals, especially horses, in therapeutic programs for persons with both physical and mental impairments. Therapeutic riding programs incorporate these concepts in educational, recreational and hippotherapy programs (see “References”).

Accessible Horseback Riding

Saddles

There are many saddles that can be used for therapeutic riding. In most cases, a regular English or western saddle is used with little or no adaptation other than a safety hand-hold and safety stirrups. The horse provides the assistance so specialized equipment is generally unnecessary. However, saddles have been developed so individuals with limited strength or spinal cord injuries can ride independently. Don Travis, a saddle-maker from Illinois, designed a high backed saddle for riders who are unable to ride independently. The saddle has a high back and chest belts to hold the rider in the saddle. A special foam and gel seat helps cushion the saddle and ease the concussion on the rider. The rigging features several quick release mechanisms that will release the saddle from the horse in an emergency (see “References”).

It must be noted that any saddle or apparatus that secures a person to the horse is not considered safe in the event of an accident. These saddles are designed for adults that are aware of the risks involved.

Lifts

Lifts vary in style and operation. They range from slings to platforms, and may lift people only or people in their wheelchairs. Lifts should be planned and used with caution, and safety in mind.

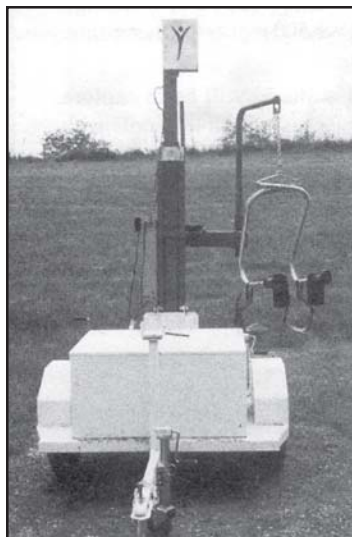


Figure 2. The innovative arm and leg cradles of the Round Grove lift (with Sure Hands patient lift), help lift students and make transfers to horseback uncomplicated.

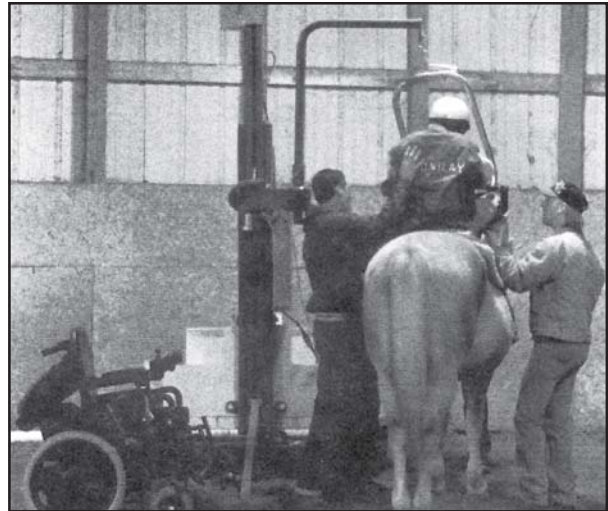


Figure 3. A CHAPS student mounts her horse.

Modified Sling Lift— Sling and chair lifts are designed for settings where it is difficult to transfer directly from a wheelchair to the horse, or when it becomes unsafe to lift the rider into the saddle. One such sling lift, designed by Round Grove Machine (West Lafayette, IN), combines components from a tractor lift with a Sure Hands patient lift (*Fig 2*). The lift has been field tested to provide mounting assistance for students of THE CHAPS therapeutic riding program.

The customized lift makes mounting safer for students who are unable to mount independently. It is used when the student’s weight, and the amount of physical energy it takes to transfer the student to the horse’s back, make mounting from a ramp or mounting block unsafe for the student and assistants. Another benefit of the lift includes reduced strain on the horse’s back. The saddle is not pulled askew during mounting, nor is a person with poor body control suddenly and uncontrollably bumping the horse’s back with his/her body.

The lift has two sets of “arms.” One set slides under the student’s armpits and stabilizes the torso. The other set cradles the student’s thighs. Once the sling is properly placed, the student is lifted directly from a seated position and is slowly positioned astride the horse’s saddle. When the person is positioned properly, he/she is lowered slowly to the horse’s back (*Fig. 3*) (see “Resources” section).

Independent Rider — The Independent Rider is a portable sling lift, similar to the previous lift. An in-depth description is found in the “Horses in the Workplace” section.

Ramps

To reach the level of the saddle, the most viable option may be the use of ramps. Many people find ramps easier to climb than steps. Ramps can be one of the easiest forms of access to use, but also one of the most difficult to provide properly in traditional horse-related settings.

Ramps should be 36” wide and have a slope ratio no greater than 1:12 (i.e., 1” in height for each 12” of length) if space allows. They should be designed so water does not accumulate on the surface, and covered with a slip resistant material. These are guidelines set by the Americans with Disabilities Act (ADA). This is discussed further in *Plowshares #11, Guidelines for Construction of Ramps Used in Rural Settings*. Although horse mounting equipment may not be covered under the ADA, the closer ramp designs follow the ADA specifications, the easier it will be for everyone involved.

Mobile Ramps — A mobile ramp is used by THE CHAPS for its riding program. It provides easy and safe wheelchair and walking access to the horse’s back. The ramp is larger, wider, and higher than a mounting block, and is constructed from a modified utility trailer. Its portability allows the ramp to be taken to demonstrations or be repositioned relatively easy. The total cost of a mobile ramp, including components and labor to modify, is often less than \$2,000 (*Fig. 4*).

Accessible Horse-Drawn Vehicle Driving

Some people find that being near horses is relaxing in itself and is a good way to enjoy nature and the out-of-doors. Those who like sports may enjoy the many styles of driving competition—from calm pleasure classes at quarter horse shows; to fast, high stepping and flashy road classes at gaited horse competitions; or combined driving competitions that

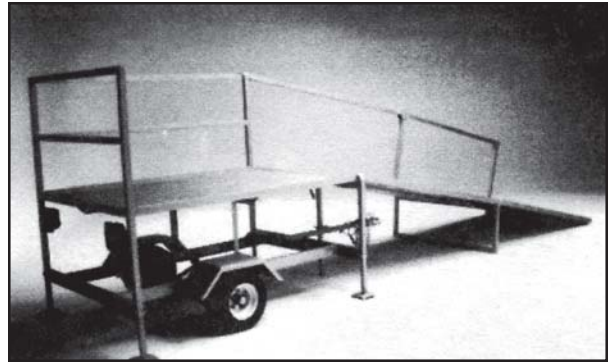


Figure 4. Ramps can be bought or constructed inexpensively, like this portable one manufactured by The Tucker Project (see “Resources” section).

include precise patterns in an arena (dressage) and bold, adventuresome cross country courses.

In addition to people who enjoy equestrian sports through driving, people who are unable to ride horses because of injury, disability, body size, or limited trunk or body control, may choose driving as a horseback riding alternative.

Vehicle Access Problems

Access to a horse-drawn vehicle is not just an issue for wheelchair users. People who need accessibility assistance may also include individuals with joint, flexibility, or strength problems; arthritis; trunk control problems; or amputations.

The two main obstacles to overcome in order to make horse-drawn vehicles more accessible are (1) the height of the carriage and (2) the amount of room inside the vehicle. Some of the following practices and ideas have been used by therapeutic riding and driving programs, by pleasure drivers, by competitive drivers with disabilities, and by communities (e.g., the Old Order Amish) that use horse-drawn vehicles as primary transportation.

Ramp Accessing

It is preferable to use a portable ramp that is incorporated as part of the vehicle, or stores in the carriage or buggy. If the ramp is not portable, access to and from the carriage is limited. However, the height of many vehicles may make them difficult to safely access with a portable ramp.

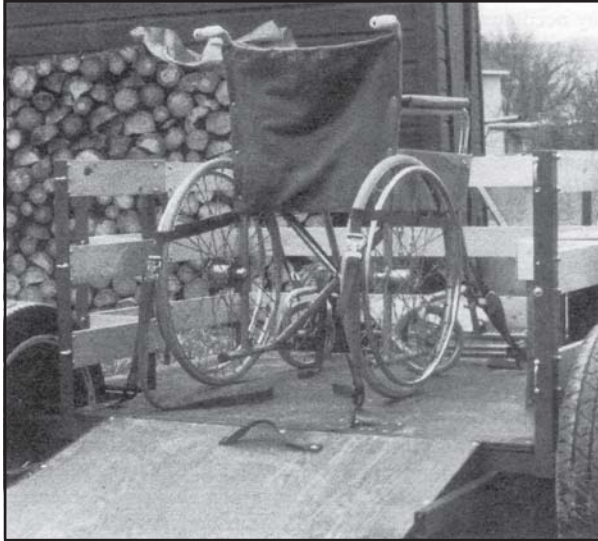


Figure 5. This portable ramp pivots up and stores under the cart bed.

Portable ramps should be sturdy and fasten securely to the carriage or buggy. They are usually hinged or solid. Some fold up to serve as the back of the vehicle. Others slide under the bed of the vehicle (Fig. 5) or detach and store vertically along the side of the vehicle wall.

Lift Accessing

The lifts described in the “Accessible Riding” section can be modified to make open carriage transfers. For people who have difficulty lifting the harness, a similar lift may ease harnessing the horse.

Lifts can be often be mounted to horse-drawn vehicles, although some may be too heavy to attach to the vehicles. In this case, a central lift location is necessary, similar to the solution provided by the permanent ramp.

Low-Entrance Vehicles

Types of horse-drawn vehicles are numerous. One of the most popular types to modify is the low style two-wheeled cart. To achieve a low cart height, some carts incorporate dropped axles that enable individuals to access the vehicle with a ramp more easily. One cart design uses hydraulics to lower the cart body for entry and exit through the use of a hand lever to raise and lower the cart as needed. This operation also allows the cart to be pulled by a

wider range of horses because the cart shafts can be adjusted to accommodate varying horse heights by adjusting the lever’s position.

Small wheels can reduce a vehicle’s height, but they also contribute to a rougher ride than large wheels. Rubber or pneumatic tires can smooth out the ride.

Two-wheeled carts, such as Meadowbrook (Fig. 6), have a low axle height and are easy to modify. The open seating area and low height make them easy to adapt. The problem with this type of cart is that it produces one of the roughest rides because the cart pitches up and down as the horse moves. Carts may need auxiliary hand rests to allow the driver to maintain steady rein contact.

Safety Considerations

Horses are large, unpredictable animals by nature. Even the best trained horse can injure someone accidentally. Care and common sense should be used when working around horses at all times.

Programs that are operated by the rules and regulations of NARHA are very safety conscious because of the nature of the riders involved. For any therapeutic program, keep the following safety practices in mind.

Interact with horses in a controlled environment. Ride or drive horses in an arena or fenced area. A contained area reduces the number of hazards and provides a safer environment than found in a field or during road travel.



Figure 6. Cindy Golf, of Kentucky, uses a custom Meadowbrook cart to accommodate her wheelchair for combined driving competitions.

Furnish help to enter and exit the vehicle safely. There should be a minimum of three people to safely assist a participant in or out of a carriage. One handler holds the reins or lead rope of the horse, and another person is in the carriage to hold the reins of the horse while the driver enters. The person holding the reins in the cart provides safety if the horse gets away from a grounded handler. This way there is someone controlling the horse until the driver is secured. At least one person is usually needed to help a person with a wheelchair enter a carriage via a ramp. If a steep ramp is used to access the carriage, additional help may be needed to prevent falls. People who do not use a wheelchair should have at least one “spotter” while entering and exiting. The spotter assists if needed, but makes sure the person entering the vehicle does not fall.

Furnish enough help to mount the horse. For riding horses there should be at least three assistants to help with mounting. One person to hold the horse, and a person on each side of the horse to help the person who is mounting the horse.

Use safe and “bombproof” horses for driving. These horses do not spook or start at unusual sounds or objects. Many people who participate in therapeutic driving programs may not be strong enough, or agile enough to respond effectively to an unpredictable horse.

Provide an assistant for safety when driving. A “whip” (safety assistant) should ride in the carriage to help in case of problems. Bumping and jarring can reduce limited hand and body control, making it difficult to control the horse independently.

If using a winch to operate a lift, make sure—

- the winch is rated for the application.
- no cables are frayed.
- all connections are tight.
- the winch will stay locked in position if the power fails. (If it does release, the person being transported could be injured.)
- the cable spools up correctly. (Loose cable on the spool could cause a lift to drop suddenly.)

The increase in popularity of therapeutic riding and driving programs has encouraged recreational groups to seek accessible horse-drawn vehicles. Therapeutic riding programs have begun to address the need for an increased number of safe and accessible buggies, carts, and carriages. More information on therapeutic riding and driving can be found by contacting NARHA.

Accessing Horses or Horse-Drawn Vehicles Used for Work-Related Purposes

Horses and horse-drawn vehicles and implements continue to be used by some farmers and ranchers as a means of accomplishing certain tasks that may be more difficult with motorized vehicles (*Fig. 7*). One example is rounding up cattle on open range land. For some, utilization of horses in agricultural operations reflects a way to preserve traditional practices. The growing number of events/field days that are devoted to draft horses and the large number of participants in draft horse classes at fairs demonstrates a strong interest in “real” horsepower. For the Old Order Amish and Old Order Mennonites, use of horses articulates the values of tradition, time, limits, nature, and sacrifice. Horses make a statement for these groups that declares: “we are separate and have not sold out to a high tech society.” More than 250,000 individuals live in these communities scattered across the United States and Canada. If the distribution of mobility impairments is comparable with the population as a whole, there would be approximately 25,000 to 35,000 indi-

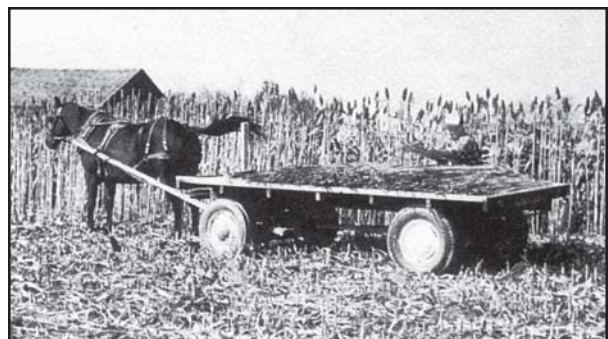


Figure 7. A farmer harvesting his crops with a horse-drawn wagon. (Photo courtesy of Elkhart County Convention and Visitors Bureau.)

viduals who may have difficulty accessing typical horse drawn vehicles such as buggies, spring wagons, or sleighs.

Accessing Riding Horses

Modifications to Saddles

There is little documentation of efforts to modify saddles for non-therapeutic, work-related activities. There are, however, case histories that suggest that a few individuals with severe mobility impairments such as spinal cord injuries have successfully returned to riding and working with horses.

One example is found in the book *“I’m Not Dead Yet,”* by Randy Bird and Ron Westmoreland. Bird, a Texas rodeo cowboy, discussed his return to competition following a spinal cord injury sustained in an automobile accident. He designed and developed a modified saddle that allows him to ride again. Using it, he competes in roping on the professional rodeo circuit. The saddle incorporates a wide torso band to hold the rider in the high-backed saddle.

Care must be used when deciding to use this type of saddle. If the horse falls or the saddle slides, the rider is at more risk than with a conventional saddle, due to the inability of the rider to fall clear should the horse go down or act up. Modifications of this type come with intrinsic risks that cannot be completely removed. Horse selection and intensive training of the rider is essential if secondary injuries are to be avoided.

Mounting Saddle Horses

Access to the saddle has been accomplished in a variety of ways—from overhead hoists to ramps to platforms. The modified sling lift described in the “Therapeutic” section would have application in a work environment as well. Another example of a mounting system was designed by students at Utah State University.

The Independent Rider is a sling-type lift mounted on a horse trailer (Fig. 8). The lift is designed so people with limited strength and mobility can saddle and mount the horse independently.



Figure 8. High-backed saddles hold riders in place, but observe caution when using this style of saddle. The Independent Rider, a portable lift system on the horse trailer, allows this man to mount his horses on trail rides.

The winch-driven lift works in conjunction with a portable horse containment system (stocks). The stocks are 1½” square tubing. The horse is led in the “U” shaped stocks that are attached to the side of the trailer. The stocks keep the horse from moving excessively while being saddled and mounted. The person operates the lift with a remote control—first to lift the saddle then to mount the horse. The lift is mounted to a trailer via a 2” tubular steel derrick that is attached to an auxiliary frame built over the trailer. The lift and stocks are hinged to fold against the trailer for storage and while traveling, and are designed so a person using a wheelchair can open and store the equipment.

For people who have difficulty lifting harness, a similar lift may ease harnessing the horse. Open carriages could also be accessed with a similar lift.

It is not typical for members of Old Order Amish or Old Order Mennonite communities to saddle-ride horses. Consequently, their demand for saddle modifications will be nearly non-existent.

Accessing Horse-Drawn Vehicles

The Amish and Mennonites, who are exposed to horse drawn vehicles on a daily basis, have developed a variety of techniques for assuring that transportation is accessible to everyone in the community. Many of the approaches are comparable to

Figure 9. This ramp detaches and stores vertically along the exterior wall of the buggy.



those used in therapeutic settings. These include the use of ramps, modified buggies, and lifts.

Ramps

At sites where there are frequent needs to gain access to a vehicle, permanent ramps have been used. Permanent ramps have greater stability than portable ramps and can be designed to incorporate the appropriate slope. Many homemade ramps, however, are made with too steep a slope and require additional assistance. One community was noted as having a permanent ramp at their meeting house so that buggies could be brought along side and accessed at the same level. This approach is appropriate for both wheelchair users and those who find climbing difficult.

Ramps can be built into the design of the buggy allowing for access at any location. One concept observed is where the back wall of the buggy folds down and becomes the access (*Fig. 9*). Another approach carries the ramp under the floor of the buggy to be slid out and secured when needed. Access is then possible through the rear of the buggy.

Platform Lifts

Jerry Garner (Wabash, IN) designs and builds accessible carriages, some of which have been used in Amish communities where use of battery power is acceptable. He incorporates a battery-powered, winch-driven, platform lift with his accessible car-

riages. This lift design can be operated and accessed wherever the carriage goes, eliminating the need for ramps and mounting blocks.

The back of the Garner carriage swings down, parallel to the ground and lowers, to serve as the lift (*Fig. 10*). After the person gets on the platform, the back edge of the platform lifts up and locks preventing the wheelchair, if used, from rolling off during the lift. This is similar to several types of van lifts for automobiles. When the lift reaches the floor level of the carriage, the driver walks or rolls forward, then fastens the safety devices (seat belts or wheelchair restraints), and is off for a drive.

With this lift, a person in a wheelchair, or someone who cannot easily climb into a carriage, can maneuver in and out of the carriage independently. It is encouraged that in addition to the person holding the horse's head, a driver should be in the carriage holding the horse's reins while a person using the lift enters the vehicle.

One of Jerry's safety features is that once a person is on the lift, he or she is basically in the carriage. If the carriage shifts, the person is not in danger of falling, as could happen with a ramp. Garner states that all of the portable ramps he has seen are steep and difficult for one assistant to load a person using a wheelchair. Garner considers a lift safer than a ramp. "With a portable ramp, if the horse moves off while you are trying to push someone up, there could be a bad fall. With this lift, once someone is on the platform, he/she is with the carriage."



Figure 10. A built-in lift eases entry into Jerry Garner's modified carriage.

One of Jerry's carriages is now in use with THE CHAPS program as part of an expanded therapeutic driving activity.

Lift Mechanics — Hydraulic lifts are not often used with horse drawn vehicles because the weight associated with the electric motor, hydraulic pump, and battery, makes the cart excessively heavy. Hydraulic-operated lifts also require a self-contained hydraulic fluid reservoir on the carriage.

As an alternative to hydraulics, pneumatic cylinders are inefficient for use on a lift because they tend to lose power when operated slowly, as would be needed in this type of lift application.

Linear ball screw actuators may be a relatively good alternative to winches if the weight is not prohibitive. Linear actuators vary in style, but they can be geared to different speeds. They can be geared for high torque at slow speeds to fit a platform lift application. Additional lift ideas are described in Plowshares #8, *New Concepts in Lift Attachments for Tractors and Combines*.

Buggy Modifications

In his book, *Through Deep Waters*, David Wagler describes the modifications to an Amish buggy for his son, Titus. Titus ordered a buggy that was 6' taller than a regular buggy to accommodate the extra height he needed to comfortably use his wheelchair as seating. The rear of the buggy was designed to hinge and operate as a ramp so someone could push him into the buggy and help him out. To make the entry height lower and the ramp easier to use, the buggy height was lowered by incorporating smaller-than-standard wheels.

Although the best springs available were used for the buggy suspension, Titus' spinal cord injury made it difficult for him to deal with the rough ride. His congregation agreed to allow him to use rubber or pneumatic tires, instead of the customary steel wheels, if the springs did not allow him a smooth enough ride. After several adjustments to the springs, however, he decided that the alternative tires were not needed. Buggy comfort was not necessarily

determined by the tires, but by the driver and the care used in driving. The adapted buggy has allowed Titus to drive regularly to church, town, and go visiting. It was a relief for him not to always depend on others to take him places.

Another Amish community member uses a buggy modified similar to a van with a dropped floor. The person rides in his wheelchair and gains access through the back using a portable ramp (Fig. 11). The floor has been lowered to reduce the need for a steep ramp. To maintain normal size wheels and a smooth ride, the axles have been dropped (Fig. 12).

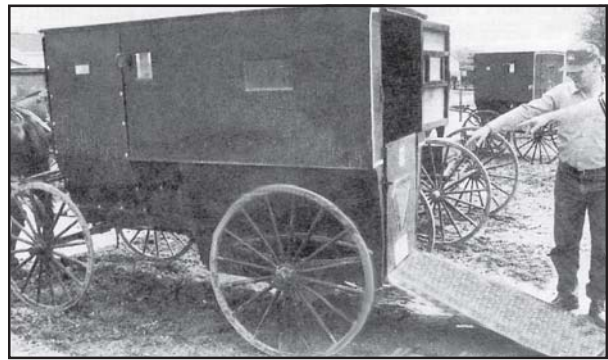


Figure 11. A dropped floor and ramp make this Amish buggy accessible.

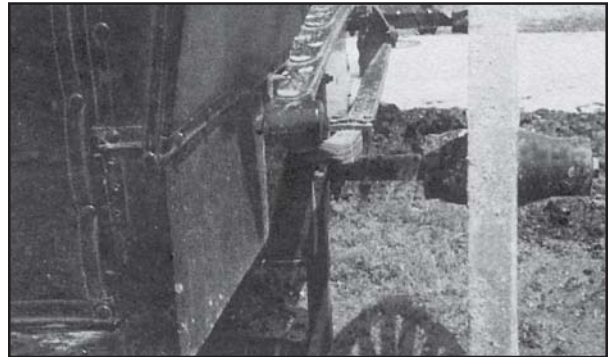


Figure 12. Dropped axles lowers entry height while maintaining the good ride large wheels provide.

Vehicle Seating

Once a person is able to access the horse drawn vehicle, proper and safe seating often presents additional challenges. This need will often have to be fulfilled on an individual basis. Some individuals may require that a wheelchair be secured, a special seat installed, or a seat belt be added.

Non-Wheelchair Seating

Some people may choose to travel in an existing buggy seat. Seat belts can be added to existing seating to provide a more secure seat. The belts may include lap belts, shoulder harnesses, chest belts, or a combination of restraining belts to provide the necessary stability.

Others may require an adapted seat for travel. Custom seats provide additional support for people who do not use wheelchairs as seating. These may include high back seats; swivel seats, like bass boat chairs, for easier entry; or custom molded/designed seats. Commercial or custom made seat cushions can be installed for a more comfortable ride.

Wheelchair as Seating

The limited interior space in horse-drawn vehicles presents a particular problem for people who want to use their wheelchairs as seating. Possible solutions include (1) removing the existing seat or (2) redesigning the existing seating to make it easily removable for use by both the able bodied and drivers with disabilities (*Fig. 13*).

A clear and unobstructed path approximately 32" wide is needed from the access point to the place where the chair is to be fastened to the vehicle. A minimum of 26½" x 40" is needed for a small, adult wheelchair as space to "park" in the vehicle. Sport chairs are usually wider at the base than standard wheelchairs, so each chair should be measured and additional space allotted as needed. Ideally the in-

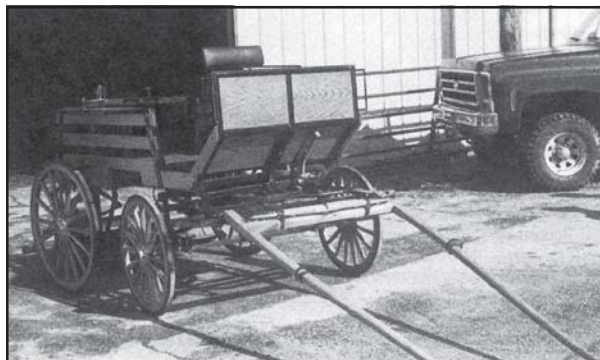


Figure 13. This carriage is designed to accommodate both a driver who uses a wheelchair and a driver who does not.

terior of a wheelchair accessible vehicle should have adequate room for the person to turn the wheelchair around.

Transfer Boards

There are many styles of transfer boards available. They range from wooden to plastic, and smooth to roller-style boards. A transfer board can be used to transfer from a wheelchair to a cart seat. This is a great assistance if the carriage can be accessed with a ramp. Sitting in a chair or wheelchair, an individual can get beside the carriage and transfer directly to the carriage seat.

Wheelchair-Securing Devices

If the person is using a wheelchair for seating, prevention of wheelchair tipping must be addressed. Wheelchair securing devices must take into account the forward, backward, and lateral motion produced by the carriage or cart.

Nylon Straps

Straps can be used to attach the wheelchair to the cart with cargo hooks and adjustable clamps. They are wound around the chair frame and hooked to securing points in the floor. Although light and inexpensive adaptations to any wheelchair, straps can be difficult to fasten and tighten; and they may be awkward to fasten in the small area of the cart.

Wheel Hoop

The wheel hoop is a soft, pliable rubber or nylon mesh half-circle wheel cover with adjustable straps. The hoop slips over the top of each rear wheel on the wheelchair. Straps extend forward and backward to secure the wheelchair to the floor with a slider latch and aluminum clasps or buckles adjust the tension. The rubber hoop is easy for the driver to fasten and is adaptable for many wheelchairs.

Other Assistive Devices and Considerations

Most of the modifications discussed so far have been designed for persons using wheelchairs or who

have severe mobility impairments. Other types of assistive devices or practices can also be incorporated into horse-drawn vehicles that will increase their accessibility to others with disabilities such as upper and lower limb amputations and arthritis.

Hand-Holds/Handles

Hand-holds and handles can be added to many vehicles to assist people when climbing into or out of a horse drawn vehicle. The height of many vehicles makes it difficult for people to get in and out safely. Additional hand-holds increase safety and stability, and reduce the amount of effort used in accessing the vehicle. Hand-holds can even make vehicle access more pleasant, convenient, and safe for people without disabilities.

Auxiliary Steps

Additional steps at the doors of the buggy or carriage can ease access for some people. Steps make it easier for people with range-of-motion difficulties, arthritis, prosthesis, and muscle weakness to enter high vehicles. Shallower steps provide more comfortable access and reduce the necessary strength output (see Plowshares #24, *Farming with a Lower Extremity Amputation or Impairment* for additional information).

Steps should fold out of the way while the carriage is in use so as not to interfere with the wheels or get caught on uneven ground or ground cover.

Vehicle Clearance

The horse-drawn vehicle needs to provide enough height so that the driver can see over the head of the horse. It also should not be so low that objects on the ground or plant growth interferes with or hits the vehicle. Low carriages or carts often must be pulled by ponies because of the shaft height.

Two-Wheeled vs. Four-Wheeled Vehicles

The two-wheeled cart is usually the least expensive type of horse-drawn vehicle, is often easily and inexpensively modified, and has a very small turning radius, which is great for indoor arena use. How-

ever, a two-wheeled cart usually has poor suspension when compared to four-wheeled carriages or buggies, and may be even rougher if it does not have flex shafts. The four-wheeled carriage is more stable, can seat more passengers than a two-wheeled cart, and is often suitable for non-wheelchair use with minimal modifications (*Fig. 14*).

Vehicle Suspension System

The suspension system is often critical for people with disabilities. A rough ride can be painful, uncomfortable, or can make it difficult or impossible for a person to drive a vehicle, even if he or she has the skills. Both leaf-spring and hydraulic suspension systems have been incorporated into horse-drawn vehicles.

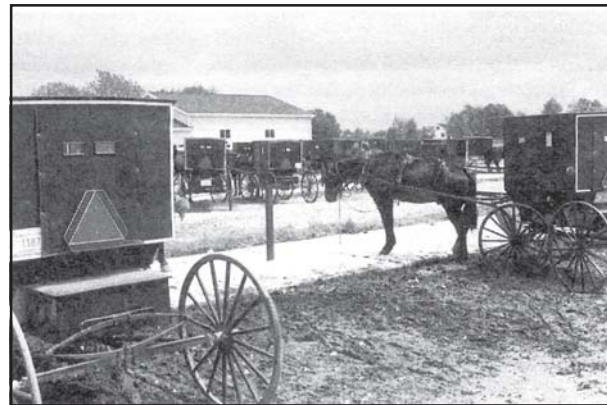


Figure 14. Typical four-wheeled Amish buggies. (Photo courtesy of Elkhart County Convention and Visitors Bureau.)

Safety Considerations

Unlike those using horses in a therapeutic setting, people who choose to use animal powered equipment and transportation are exposed to less controlled situations. Horses in work environments are generally used in open fields, on rough terrain, on public roadways and in noisy places with other people and vehicles.

Recognize that road and highway travel presents special hazards to horse-drawn vehicles.

Increases in tourism and traffic in Amish communities have led to more accidents between horse-drawn vehicles and automobiles. Modified buggies

should be equipped with proper lighting and Slow Moving Vehicle (SMV) emblems and be in compliance with other motor vehicle laws (*Fig. 15*). Ohio State University Cooperative Extension Service has produced safety materials designed specifically for the Amish community (see “Resources” section).

Incorporate safeguards to protect family members, especially the children. Family participation is an important value in Amish and Mennonite communities. It is very common to see young children working along side their parents in the field and with horses. They are raised around horses and have developed a keen sense of some of the risks. There are, however, injuries and deaths involving children every year in these communities. Modifications made to accommodate children, whether as active or passive participants in a particular horse-related activity, should incorporate as many safe guards as possible. Probably the most important feature is to consider the horse itself. Selecting only “bomb proof” horses trained to ignore distractions and respond more predictably is essential for those with disabilities. Adequate supervision and assistance will also reduce the potential for injury.

Conclusions and References/Resources

Horses and horse-drawn vehicles continue to provide valuable opportunities for work, therapeutic, and recreational activities. Experience has shown that both horses and horse-drawn vehicles can, in

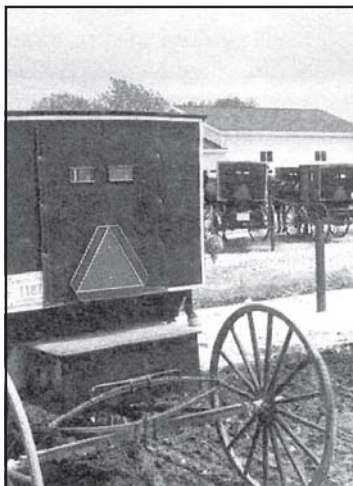


Figure 15. SMV signs make buggies more visible and help prevent accidents.



Figure 16. “Handicapped” parking signs are useful in any community.

most cases, be made relatively accessible to persons with disabilities, including those with severe mobility impairments. Barriers such as mounting, vehicle access, safe and secure seating, and control have been successfully overcome with appropriate assistive technology and a little ingenuity. As the old Roy Rogers tune goes; “Happy trails to you...” whether you are traveling by car or horse.

Resources

Bird, R. and R. Westmoreland, *I’m Not Dead Yet*. WRS, Waco, TX (1992).

NARHA *Driving Handbook*, North American Riding for the Handicapped Association (1992).

Plowshares #8, *New Concepts in Lift Attachments for Tractors and Combines*.

Plowshares #11, *Guidelines for Construction of Ramps Used in Rural Settings*.

Plowshares #18, *Reins of Life—Riding for the Disabled*.

Plowshares # 24, *Farming with a Lower Extremity Amputation or Impairment*.

Rogers, Allison. “Ouch.” *Equus* 219. p. 56.

Through Deep Waters—A Father’s Story of His Son’s Tragic Accident, Titus Wagler, Publisher (1985), pp.173,177.

References/Ordering Information

Britton, V. *Riding for the Disabled* (1991.)
Therapeutic Riding Programs Instruction & Rehabilitation. B.T. Batsford Ltd., London.
The North American Riding for the Handicapped Association. 1-800-369-7433.
The Menno-hof, Mennonite-Amish Visitor's Center, Shipshewana, IN. 574-768-4117.

Saddles

Therapeutic Horse Saddle
Travis Saddlery
927 N. Second Street
Chillicothe, IL 61523
(309) 274-5074

The Challenger Saddle
von Dahl Saddle Company
Route #2, Box 244, Highway 24
Rupert, ID 83350
(208) 436-4128

Lifts

Round Grove Machine
345 Burnett Road
West Lafayette, IN 47906
(765) 423-4192 or 800-543-3740

Portable Ramp

The Tucker Project, Incorporated
411 Lakewood Circle, Suite B-710
Colorado Springs, CO 87910
(719) 596-3700

Carriages

Jerry Garner
5233 South 50 East
Wabash, IN 46992
(219) 563-1158

SMV Emblem Kit

Meets all state and federal specifications for SMV emblems
Indiana Rural Safety and Health Council
ABE Building, 225 S. University
West Lafayette, IN 47907-2093
(765) 494-5013

Driving Safety

"Driving Safely in Amish Country"
(brochure) and *"Buggy Driving Safety"* (teacher's guide)

Tom Bean
Ag. Engr. Bldg., Ohio State University
Columbus, OH 43210
(614) 292-9455

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